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Revija za management, informatiko in kadre

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Vsebina ni omejena na navedene tematske sklope. Še posebej želimo objavljati prispevke, ki obravnavajo nove in aktualne teme in dosežke razvoja na predmetnem področju revije, ter njihovo uvajanje in uporabo v organizacijski praksi.

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In Memoriam: Associate Professor Ivan Kejžar, Ph. D.

We said goodbye to an honorable colleague, a friend, a pedagogue and a scientist on Monday, June 4th 2018, at the central cemetery in Kranj.

He was born in 1935 in France where his parents then lived and worked. Soon after they moved to the village of Sorica, the home of his parents and the impressionist painter Ivan Grohar. Later, Ivan Kejžar set up his home and started his family in Kranj, but he was always joyous to return to the beautiful milieu of Sorica as long as his health allowed him.

He graduated from the Faculty of Industrial Pedagogy in Rijeka, received a Master's Degree from the Faculty of Sociology, Political Sciences and Journalism in Ljubljana, and a PhD in social-humanistic sciences in the field of industrial pedagogy at the Pedagogical Faculty in Rijeka in 1988. There he was in 1989 elected to the title of assistant professor. In 1995, he was nominated as associate professor for human resources at the Faculty of Organizational Sciences, University of Maribor.

He left an important and indelible mark in the field of education, human resources and organization. He was an outstanding advocate of a direct link between theory and practice, as evidenced by his professional, research and educational projects. As part of the Republic Research Community, he was responsible for the research project Transformation and modernization of the Educational System in connection with the restructuring of the economy. The goal of the project was to correlate the education system with the needs of the economy, which is still an extremely topical issue these days. He felt the gap between theory and practice as a young expert employed at the then Kovinar factory in Kranj. It was his lifelong endeavour to bridge this gap.

He worked as a researcher at the Pedagogical Institute of the University of Ljubljana and at the Slovenian Center for Adult Education. He was recognized for his exceptional professionalism of linking theory with practice by the Society for Evaluation of Work, and was awarded a title of an expert for work motivation and systematization.

With his expertise and knowledge, he collaborated with many international institutions such as Verona and Boston Universities and the Paris Personnel Directors' Association.

He showed his professionalism and connection with the economy as Head of the Center for Functional Education and Counseling within the then College of Labour Organization (CLO), the current Faculty of Organizational Sciences (FOS) in Kranj, University of Maribor. In 1977, he co-organized the first conference on organization and human resources in Opatija, where the then Higher School for Work Organization had one of its educational units in Yugoslavia. From this conference, the International Conference on the Development of Organizational Sciences was developed, which FOS regularly hosts in Portorož. This year it was the 37th in a row.

Professor Kejžar was recognized as a top expert in work systematization and education, and one of the contributors and co-authors of the professional book Blue Book of Salaries in Slovenia, published in 1995 by the Slovenian Society for the Evaluation of Labour. Together with professor Ivan Bertoncl, they developed and established the nomenclature and profiles of professions along with the methods of programming education.

He received many domestic and international awards for his exceptional professional work: the Ivan Bertoncelj Prize, the Community Prize for Educational Centres of Slovenia for outstanding successes in education, and the silver plaque of the University of Maribor.

Professor Ivan Kežar is remembered, especially by younger colleagues, for introducing them into development, research and consulting work related to economy. As Head of the Centre for Education and Consulting, he used his many liaisons in companies, such as Iskra, Gorenje, Sava, Elan, Droga-Kolinska and others, to introduce his co-workers into solving concrete problems for direct clients. This way a wide network of colleagues at the faculty gathered experience in practice and transferred the knowledge into the educational process.

He can be set as an example to us, also as an upright man. He was known for his dedication to the things he believed in and was convinced that they were useful to the narrower or wider environment, even if this standpoint could have harmed him. He knew how to think and work for others without looking after his own interests.

Janez Zeni, MSc and Vladislav Rajkovič, Professor Emeritus

The Online Communication of Corporate Social Responsibility in Subsidiaries of Multinational Companies in Hungary

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Background and Purpose: Many studies have explored the differences in the management of corporate social responsibility (CSR) of multinational companies across the globe. The main question of the study was, are there differences between CSR practices between home country and host country operations?

Design/Methodology/Approach: This study investigates the differences in online CSR communication between global corporate websites and the webpages of local subsidiaries in Hungary. The sample contains 70 multinational companies (MNCs) and their Hungarian subsidiaries. All the subsidiaries of the sample are listed amongst the largest 200 companies (based on turnover) in Hungary. Both the local (Hungarian) and the global internet sites of these MNCs were visited, and pre-defined categories were sought on the corporate websites. The presence/lack of these CSR themes and topics on the websites were recorded.

Results: The findings show that online CSR disclosure of the subsidiaries is usually more limited than the global communication. Moreover, distance from the headquarters seems to matter, the farther the headquarters of the MNC is located, the narrower CSR presence on the websites of the local subsidiary can be observed.

Conclusion: The paper's main contribution is to deepen our knowledge about the CSR strategies of the multinational companies across their operations. It was confirmed that their CSR practices significantly differ between the host and home countries.

Keywords: CSR; local subsidiaries; multinational companies; online communication

1 Introduction

Many studies have explored the differences in the management of corporate social responsibility (CSR) across global locations of multinational companies (MNCs) in the last decades but, in the context of emerging economies, the topic has attracted the interest of international management scholars only recently (Reimann et al., 2012). Yet, multinational companies are considered one of the main drivers of CSR convergence at the global level, since they are often challenged to implement CSR practices in countries where public services, human rights or environmental protection, anti-corruption policies, etc. are in a less developed phase than in their home countries (Crane et al., 2013). However, other studies report about differences between CSR practices between home country and host country operations, suggesting that MNCs act differently at home than in the host countries, especially in the developing world. Tan and Wang (2011) argue that MNCs often take advantage of poor regulations and weak institutional pressures in the host countries instead of applying the same ethical standards and CSR practices that they are engaged in in their home country. Zhao et al. (2014) collected hundreds of publicized CSR crises from emerging markets (i.e. from China, India, and Russia) where MNCs were accused of conducting social and environmental misdeeds between 2000 and 2011. However, the relatively high number of cases of corporate irresponsibility can just partly be attributed to the unethical and/or illegal behavior of the subsidiaries of the MNCs, regulatory changes

and stakeholder growth (institutional sophistication) in emerging economies also draw public attention to corporate misdeeds. MNCs not ingrained with CSR will likely compromise their own moral principles in order to gain business benefits, and they will simply comply with the local ethical expectations of the host countries. Strategies of MNCs seem to be dependent therefore on how deeply the MNC is ingrained with CSR principles and on the ethical expectation of the host country (Tan & Wang, 2011). It is also apparent that the reputation of MNCs are vulnerable to subsidiaries' misdeeds (Crilly, 2011). Controversies around a specific operation at a certain geographic location may harm the reputation of the entire corporation worldwide through negative publicity.

In this study I compare the behavior of parent companies and their subsidiaries in the field of online CSR communication, thus I explore how MNCs communicate about their CSR values and practices throughout the World Wide Web. I then try to capture differences between the content of the global corporate website and the one disclosed on the local web pages of the subsidiaries. I will investigate to what extent the exhibited CSR topics on these web pages differ across locations and whether there are differences in the intensity of online CSR communication. Since CSR disclosure has been a drastically growing phenomenon in the last two decades (Malik, 2015), and internet penetration reached 80-90% over the last few years across Europe and North America – nearly half of the world's population have internet access (Pandita, 2017), the vehicle of CSR communication had become dominantly the web.

I am certainly aware that communication is far from equal in comparison to real beliefs and actions, moreover in many cases CSR disclosure of companies often tries to hide corporate malpractices or is created solely for greenwashing purposes (Russo-Spena et al., 2016). Yet I believe differences in online CSR communication indicates how these companies approach CSR at different global locations and what they think is important to disclose to various audiences. In my view, online CSR communication can be considered as a good proxy for the CSR engagement both at a global and local level.

1.1 Corporate Social Responsibility in multinational companies

One must admit that myriads of definitions of CSR have been created in the last decades, or as Crane et al. (2013: 9) put it: "In the contested world of CSR, it is virtually impossible to provide a definitive answer to the question of what CSR 'really' is." Yet, in this paper Carroll's widely accepted definition will be used: 'the social responsibility of business encompasses the economic, legal, ethical, and discretionary expectations that society has of organizations at a given point in time.' (Carroll, 1979: 500).

Although it is widely discussed in literature whether

CSR is a converging or diverging concept throughout the world, most authors are convinced that different regions of the world show distinctive characteristics in their approach to CSR (see for example Yang & Rivers, 2009; Jamali & Neville, 2011; Crane et al., 2013).

Hah and Freeman (2014) propose that MNCs tend to adopt different CSR strategies to build external or internal legitimacy in their host countries, especially in emerging economies due to isomorphic pressures. To gain external legitimacy they would rather adopt local CSR strategies, i.e. CSR practices that meet local host societies' needs, while gaining internal legitimacy they implement a global CSR strategy that is in accordance with the CSR policies of the home country. This view is echoed by Yang and Rivers (2009) when they state that the degree the subsidiaries rely on their parent companies for resources and internal legitimacy will heavily influence to what extent they adopt local CSR practices. Though, some research findings suggest that different types of MNEs place dissimilar importance on global CSR. Multidomestic and transnational MNEs would rather emphasize country-specific CSR, while global MNEs usually implement global CSR programs – at least at MNEs located in developing countries (Husted & Allen, 2006).

Jamali (2010) also emphasizes the importance of the two distinct publics of MNCs and their subsidiaries in the Lebanese context, but according to his findings home country stakeholders' expectations seem to be dominant in the articulation of CSR strategies in the host countries. Yet, Jamali (2010) argues, at the same time, standardized CSR activities are often diluted when they are implemented in the host countries. Crilly (2011) also argues that the corporate parent is a crucial stakeholder, but he admits that even different subsidiaries of the same MNC can have different stakeholder orientations and therefore different CSR approaches. Hence, diversity is a key characteristic in MNCs' CSR management that may respond both to external and internal pressures.

According to Reimann et al (2012) local middle management plays a significant role in setting the social standards and increasing community efforts by the local subsidiary in the MNC. This means that not just the parent company has a strong internal influence on CSR principles and actions of the subsidiaries, but some internal factors also influence local CSR at local level in the host country.

Campbell et al. (2012) confirm that foreign subsidiaries of multinational companies are more likely to engage in CSR when they are closer to their home countries. According to the authors this suggests that distance has countervailing effects on the willingness and ability to engage in CSR actions in the host countries, but CSR reputation of foreign subsidiaries reduces the negative effect of distance on CSR. This is a relatively counter-intuitive result, since prior studies showed that subsidiaries with greater distance from corporate headquarters are supposed to be strategically more motivated to engage in host-country CSR to

gain social legitimacy and to reduce liability of foreign-ness (Campbell et al., 2012).

1.2 The role of the internet in CSR communication

Studies on online CSR communication were first published more than two decades ago when the internet started to become a part of everyday life. Among the first studies Esrock and Leichty (1998) discussed to what extent of this communication format can contribute to the self-image of the companies. Later, more comprehensive studies elaborated even further on the issue (see for example Capriotti & Moreno, 2007; Wanderley et al., 2008; Moreno & Capriotti, 2009) which usually applied some type of content analysis method. In most cases researchers looked for pre-defined categories and themes on the websites.

Comparative studies explored cross-country differences in online CSR communication, for example Maignan and Ralston (2002) examined the web sites of 400 European and US-based companies, and they found that the latter group applied mostly value-driven CSR communication, while their European counterparts had performance-driven motivations. Other studies also suggest the that country of origin is an important determiner of CSR communication, even within (continental) Europe (Branco et al., 2014). Wanderley et al. (2008) found that, besides country of origin, the industry sector also influences how corporations communicate on the web. These results confirm that cultural and sectoral differences exist not just in CSR approaches, as it was discussed earlier in this paper, but in their (online) communication too.

Based on literature review, two hypotheses were formulated concerning online CSR communication of MNCs at the global and local level.

- *H1. MNCs communicate on global websites about CSR themes and topics more comprehensively and more intensively than on the local websites of the Hungarian subsidiaries.* Jamali (2010) and Crilly (2011) suggest that subsidiaries and headquarters of MNCs have different approaches to CSR; therefore, their CSR communication efforts ought to differ. It is hypothesized that expectations of local stakeholders have a greater effect on the engagement of subsidiaries than the pressure of the global headquarter in Hungary.
- *H2. Distance from global headquarters of the MNC negatively influences the comprehensiveness and the intensity of online CSR communication of the local subsidiary.* Based on the findings of Campbell (2012) it can be hypothesized that the engagement in online CSR communication is stronger if the subsidiary is located closer to the global headquarter, which means more CSR themes and topics are discussed on the website of the subsidiary.

2 Methods

In this study, the online CSR communication of MNCs with significant and stable Hungarian operations were analyzed. The weekly magazine Figyelo ('Observer' in English) publishes the list of the largest 200 companies in Hungary every year based on the turnover of the participating firms. The multinational corporations were first selected from this list. The sample was further consolidated, and only companies that had been a member of this list in the last 8 years were kept in the sample. Due to complex ownership issues, the identification of parent companies in some cases was difficult (for example Colas Hungary is part of the Colas Group that is part of an even larger French group called Bouygues), in these cases the direct parent company was chosen for further analysis. After this selection, 72 Hungarian subsidiaries and their parent companies remained in the sample.

Both the local (Hungarian) and the global internet sites of these MNCs were visited in the following way. First, I typed www.thenameofthecompany.hu into an internet browser, and when no website was found, The Google search engine was used to find the company's website. In most cases I was able to detect a corporate website of the Hungarian subsidiary, yet in some cases the Hungarian affiliates did not have local web pages with Hungarian content (in 14 cases).

Similarly, the global internet sites of the companies selected were visited by typing www.thenameofthecompany.com. While it turned out that several MNC subsidiaries do not have corporate website in Hungarian, all MNCs (except Samsung that only has websites for the local affiliates) have a global web presence. Besides Samsung, Rossman, a Germany-based retail company, was also excluded from further analysis, since they have a global website only in the German language. At the end of the search, 70 companies remained in the sample where the global website and the Hungarian internet page were identified. Out of the 70 MNCs only 56 had Hungarian websites, which was a somewhat unexpected result.

The largest Hungarian subsidiary in the sample (Audi) had a revenue of 7.58 billion EUR, while the smallest firm (Le Bélier) had a revenue of 130 million EUR in 2017 (M=723.45 million, SD=1071.02 million). Table 1 presents the industries represented in the sample. It is apparent that some industries such as wholesale & retail and the automotive sector are overrepresented.

The websites were visited between January and April of 2018. In the case of the websites of the subsidiaries only content in Hungarian was scrutinized, while in the case of the global sites, only English content was analyzed. Uploaded documents such as CSR reports, company policies, position papers, other regulations, etc. were not analyzed in any cases, albeit their availability on the website was registered. Press releases, Facebook, Youtube, Twitter and

Table 1: Industries represented in the sample. Source: own elaboration

Industry	number of companies	%
Wholesale & Retail	19	27.1
Automotive	12	17.1
Electronics, Machinery & Tools	8	11.4
Food, Beverages & Tobacco	7	10.0
Coal, Petrol & Chemical	6	8.6
Vehicle & Gas Commerce	6	8.6
Metal processing	4	5.7
Telecommunication	4	5.7
Energy	2	2.9
Construction	2	2.9
Total	70	100.0%

other social media outlets were not examined in this study.

Similar to the studies of Szántó (2010) and Pataki et al (2015), pre-defined categories were sought on the corporate websites. The list of categories was kept intact for the sake of longitudinal analysis. (Longitudinal analysis is not part of this study, it is published elsewhere.) The list of CSR themes and actions that is used in this study is an extended version of a 10-element-typology applied by Moreno and Capriotti (2009) during their content analysis. Honesty of the disclosed data and information was never checked, only their availability on the website was registered. One must note that this methodology does not consider the depth of communication, it counts only the presence of CSR themes and topics. Hence, companies may only briefly mention a certain CSR topic, while others talk about it in detail, the methodology does not differentiate between them.

3 Results

The most important finding of this research is that Hungarian subsidiaries communicate about CSR issues much less intensively than their parent companies on their global website, and the differences are massive (see Figure 1). The global websites communicate about twice as many CSR themes and topics on average as their local subsidiaries (17.34 vs. 8.65 CSR topics respectively). Only 10% of the companies in the sample exhibited different characteristics: in these few cases the online communication in the host country was more comprehensive and intense than the one in the parent company (these were only multinational companies with European headquarters). Concerning the most visible CSR issues, almost every MNC discussed its

CSR philosophy and/or values on its global website (94%), and this is the most popular CSR theme on the Hungarian sites too (75% of the subsidiaries, who have a Hungarian website in the sample, communicated about this).

The greatest differences can be captured in the case of sustainability/CSR reporting, responsible sourcing, responsible governance, and anti-discrimination/inclusivity. On the global websites it seems to be almost mandatory to place a sustainability or CSR report (80%), while the subsidiaries' websites had fewer uploaded reports (30%). It gives the impression that Hungarian subsidiaries do not publish these types of reports to local audiences to that large of an extent either because they do not feel the necessity, or they do not have the resources to assemble the reports (or they just simply do not upload them to the net, but it is not likely). Responsible sourcing seems to be also a current topic on global websites of the MNCs (80%), but the Hungarian counterparts discuss this CSR issue to a much more limited extent (32%). This result can be explained with the fact that Hungarian subsidiaries are usually at a lower point of the global value chain, hence responsible sourcing to them is not as crucial as to the parent companies. Responsible governance is also a hot topic that is widely discussed on global websites (50%), but it is extremely rare in Hungary (7%). Yet, this result is probably expected since governance structures related to CSR or sustainability are more relevant to larger firms. Although anti-discrimination and inclusivity at the workplace is an emerging topic at Hungarian companies in general, it is still much less widely discussed at the subsidiaries than at the parent companies (for a more detailed discussion see the analysis of Szántó (2018)).

Interestingly enough, there are some CSR issues the Hungarian subsidiaries talk about more often than the

global websites. Supporting sport activities is one example: most global websites do not consider a sport event/ team support as a CSR activity (10%), while some local subsidiaries still believe that sport sponsorship counts as CSR (20%). Nonetheless, the approach of the Hungarian companies has been continuously changing over the years. About a decade ago most companies interpreted CSR in a very narrow way in Hungary, focusing only on corporate philanthropy and the financial support of local cultural and sport events (Szántó, 2018), today this focus shifted to-

wards other themes and topics.

On most global websites (94%) companies created a subsection for CSR themes and topics. Like in academic literature, there is no agreement across MNCs on what exactly constitutes CSR, therefore there is no widely accepted CSR definition used on the corporate websites. The understanding of CSR is fairly different across companies, some MNCs even include topics like customer orientation or quality control, while others interpret CSR narrowly. Responsibility towards employees was often discussed
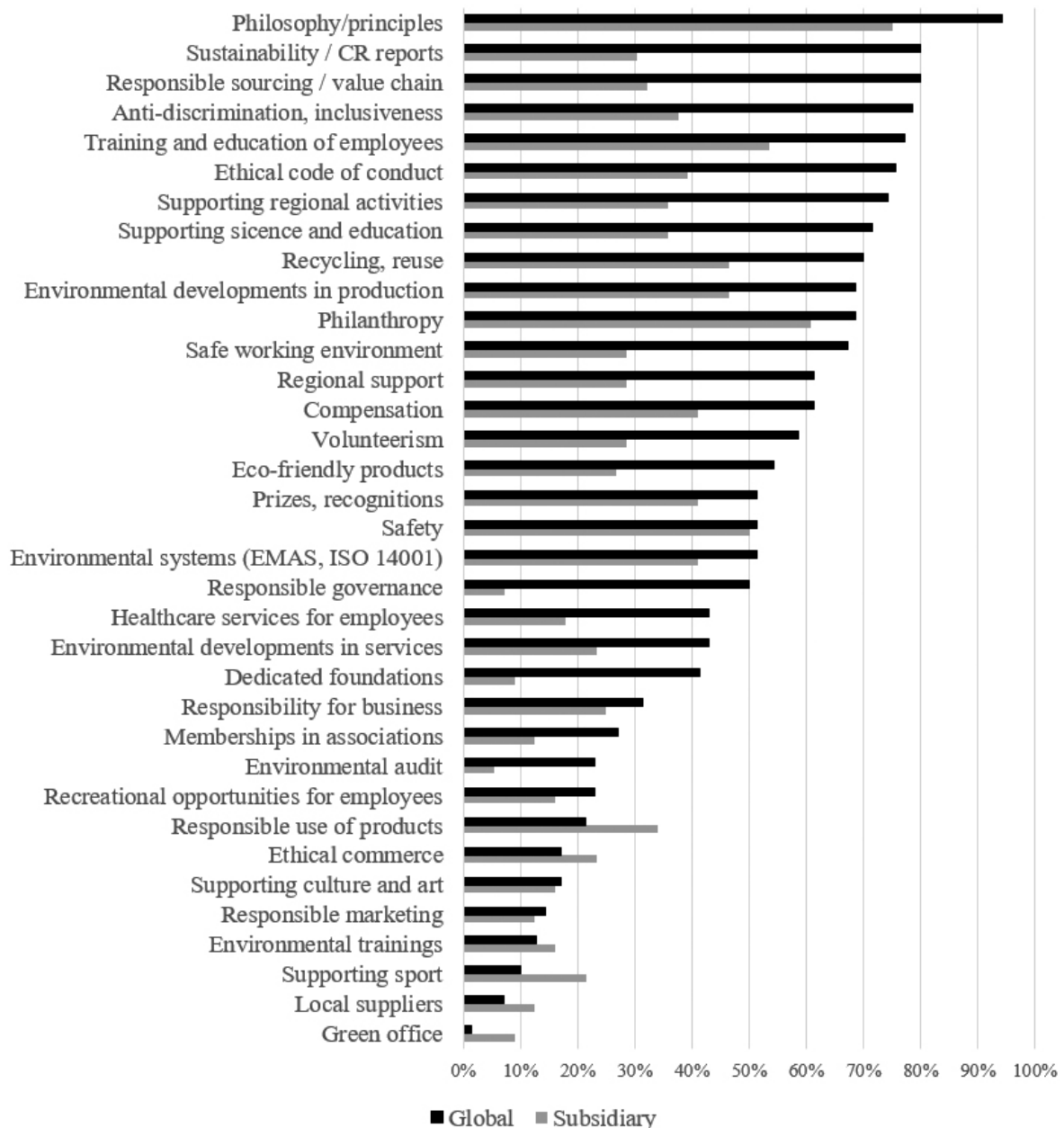

Figure 1: Availability of CSR themes and topics on websites. Source: own elaboration

separately from other issues on subpages labelled 'career', hence employee-oriented actions such as in-house trainings, fair rewarding, health care services, and recreational activities are not considered an integral part of corporate CSR (at least in the communication).

Furthermore, it is quite apparent that global websites sometimes use different terms to present CSR actions and principles than the subsidiaries. The label 'sustainability' seems to be dominant at the global level (53% of the global websites used this or very similar terms to describe CSR principles and activities), while on Hungarian websites the picture is more diverse: (corporate) social responsibility is the most widely used term. Some global websites use the terms 'sustainability' and 'social responsibility' interchangeably to increase confusion. It is surprising that subsidiaries do not necessarily use the same term for describing CSR principles and activities as the global parent company, and it may suggest that some subsidiaries have only a loose connection with, or do not follow very closely the parent company's global CSR/sustainability policies. I found a perfect match in only 15 cases when the use of the term on the Hungarian website was consistent with the global use, while in the other 18 cases these umbrella terms differed across the websites.

It turned out that subsidiaries of MNCs in our sample behave differently according to the geographical location of their parent companies. The subsidiaries with European roots disclose more diverse CSR related information and data on their websites than the ones with non-European headquarters (Table 2). This is fairly unexpected since there is no significant difference between the global websites of the same MNCs (concerning the number of CSR issues discussed). Non-European MNCs are even more active and comprehensive in their online CSR disclosure, than their European counterparts (but this difference is not significant).

If you compare the intensity of CSR communication at company level, the difference is even more striking between the European and non-European MNCs. The subsidiaries of European MNCs communicate about 6.96 issues less than their parent companies, while this gap is much larger in case of non-European MNCs (11.80 issues). It is also true that subsidiaries with European roots are more likely to have dedicated sections for CSR on their websites than the non-European-based companies.

4 Discussion and Conclusion

Literature review presented in this paper suggests that MNCs' global and local CSR activities differ for many reasons, and external and internal pressures may influence the degree of this variance within the corporation. According to the results of this study, a huge gap can be seen between parent companies and subsidiaries in Hungary in online CSR communication, hence CSR engagement of the subsidiaries looks more dissimilar to the parent company's in our case. Based on these findings H1 hypothesis can be accepted.

There are some practical reasons why global websites communicate so overwhelmingly more on CSR than the Hungarian counterparts. Global websites often summarize CSR activities of the entire MNCs, therefore actions from all operations/subsidiaries are highlighted, while the Hungarian web pages often focus on the local dimensions of CSR. Local Hungarian stakeholders are probably not interested in some global topics, albeit they are substantial in some developing countries (like deforestation issues in South America, or HIV disease in Africa, etc.).

Hungarian subsidiaries are in many cases very small or even marginal entities within the entire MNCs, hence the subsidiaries may not be motivated to fully implement the CSR actions that exist at the global level. They may not even have the resources to implement CSR activities with such complexities that one can see at the global level, and they only implement CSR actions with a much smaller scope. Moreover, Hungarian subsidiaries often deal only with sales, therefore other important functions (such as R&D, marketing, or even production) may not be present in Hungary. It also likely that local subsidiaries, like the Hungarians, have smaller budgets for communication, consequently they are not so active in online communication either (CSR disclosure included).

Nevertheless, all these factors may not explain the huge differences in online CSR communication between global operations and Hungarian subsidiaries. The findings may suggest that local (Hungarian) stakeholders do not

Table 2: Number of CSR themes and topics discussed on average on websites. Source: own elaboration
*significant at p<0.1

	Global website		Subsidiary's website	
	Mean	Std. Deviation	Mean*	Std. Deviation
European HQ (N=45)	16.80	7.42	9.84	8.20
Non-European HQ (N=25)	18.32	7.06	6.52	6.99
Total (N=70)	17.34	7.27	8.65	7.91

place enough pressure on subsidiaries to disclose information on responsible sourcing strategies, to create a CR/Sustainability report or how they treat their employees, etc., and/or the subsidiaries do not have internal motivation to implement a more comprehensive CSR strategy in the host country, and to communicate the results. These findings may suggest that MNCs involved in this study take advantage of weak institutional pressures in the host country as Tan and Wang (2011) proposed.

One can raise the question: which stakeholder group will be able to put enough pressure on the subsidiaries in the future? Looking at the most widely discussed CSR themes and topics (safety and environmental management systems, amongst many others) on the Hungarian websites, the state and the authorities seem to be one of the most influential stakeholders, but others like NGOs or trade unions may yield less power to force CSR actions of the subsidiaries. Marketing related CSR topics (responsible marketing and responsible use of the products) are underrepresented on the websites, but it may be explained with the fact that many of the MNCs in the sample are B2B companies (for example automotive suppliers), therefore they do not have a direct relationship with the consumers of the final products.

The empirical results confirmed the findings of Campbell et al. (2012), that local subsidiaries of European MNCs discuss more CSR topics on their websites than the subsidiaries of non-European (mostly US and Asian based) companies. If the intensity of online CSR communication is a good proxy for CSR engagement of a company, then it can be argued that the distance negatively influences CSR engagement of the subsidiaries. For some reasons subsidiaries of multinationals from overseas cannot translate the CSR messages, and cannot implement the CSR actions of the global headquarters. Based on these findings the H2 hypothesis can be accepted.

There are some topics that are hardly seen on Hungarian websites, but often communicated on global pages, for example companies are increasingly engaged in reaching UN sustainable development goals (SDGs), and a lot of companies in the sample communicate about their policies on human rights and about the dialogue with their stakeholders. SDGs are in the forefront of many MNCs' corporate communication, and it certainly gives opportunities for companies to organize their CSR activities into a comprehensive structure (for a more detailed discussion of these opportunities, see Scheyvens et al., 2016). It can indeed be perplexing that the above-mentioned topics are almost totally missing from the Hungarian websites. It is problematic because, if these relatively new themes are absent from social discourses in host countries, it will hinder the introduction of new concepts and approaches towards sustainability and social responsibility in the business world of the host countries.

In this paper I studied the online CSR communication practices of MNCs, focusing on the differences between global corporate websites and the websites of the Hungarian subsidiaries. A significant gap was identified between the two, concerning the number of CSR themes and topics discussed on the websites. MNCs, almost in every aspect, talk more on the global websites about their corporate social responsibility than on the subsidiaries' websites: on average they discuss twice as many CSR topics on the global sites. To present CSR issues they usually use different umbrella terms, the parent companies use the term 'sustainability' in most cases, while in Hungary only few companies use this term. It was also found that distance influenced the intensity of online CSR communication: subsidiaries with European headquarters communicate about more CSR issues on their websites, than the ones with non-European roots.

One must admit that this study certainly has some limitations that should be considered. The sample of this study only consists of Hungarian subsidiaries that were present on the top 200 list in 2017 and 8 years ago (altogether 70 MNCs and their subsidiaries), hence one should be careful with the generalization of the results. Only websites in English and Hungarian were scrutinized, even if the country of origin of the MNC was not actually an English-speaking country. Uploaded documents such as sustainability reports, CSR principles, etc. were not analyzed, although they may contain a more comprehensive description of the CSR principles and activities than the website itself. The videos and other media contents (some companies have even blogs concerning CSR issues) were also excluded from the analysis. The methodology applied did not consider the depth of communication either, the presence of certain CSR themes and topics on the websites were recorded, but the complexity of the content was not evaluated. The Hungarian subsidiaries of MNCs are usually relatively small operations, thus size of subsidiary can explain a lot of the findings.

The main differences in online CSR communication on the MNCs' global and local websites should be further examined. A qualitative study can explore why subsidiaries communicate much less about their CSR principles and actions, i.e. whether they have a smaller number of actions to talk about or they rather disregard the communication about their CSR activities because of other reasons. If local subsidiaries really implement much less CSR actions (and it is not just a communication issue), the reasons for the poorer CSR performance of the subsidiaries comparing with the parent companies should be investigated. Making comparative studies with other countries can be another future research direction, in order to see whether the presence of large differences in CSR communication between parent companies and subsidiaries exist in other countries.

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Spletna komunikacija na temo družbene odgovornosti podjetij v podružnicah multinacionalnih družb na Madžarskem

Ozadje in cilj: Številne raziskave so preučevale razlike pri upravljanju družbene odgovornosti podjetij (CSR) pri večnacionalnih podjetij po vsem svetu. Glavno vprašanje te študije je, ali obstajajo razlike med prakso družbene odgovornosti podjetij med domačo državo in državo gostiteljico?

Zasnova / metodologija / pristop: V članku so analizirane razlike v spletni komunikaciji prakse družbene odgovornosti podjetij med globalnimi spletnimi strani podjetja in spletnimi stranmi lokalnih podružnic na Madžarskem. Vzorec vsebuje 70 multinacionalnih družb (MNC) in njihovih madžarskih hčerinskih družb. Vse hčerinske družbe v vzorcu so uvrščene med 200 največjih podjetij (na podlagi prometa) na Madžarskem. Obiskali smo lokalne (madžarske) in globalne spletne strani teh MNC, na spletnih straneh podjetij pa smo iskali vnaprej določene kategorije. Beležili smo prisotnost / pomanjkanje teh CSR tem na spletnih straneh.

Rezultati: Ugotovitve kažejo, da je spletna predstavitev hčerinskih družb o družbeni odgovornosti običajno bolj omejena kot globalna komunikacija na to temo. Poleg tega se zdi, da je pomembna tudi oddaljenost od sedeža matične družba: čim dlje je sedež MNC, manj je prisotnosti CSR tem na spletnih straneh lokalne hčerinske družbe.

Zaključek: Glavni prispevek tega članka je poglobiti naše znanje o strategijah družbene odgovornosti podjetij večnacionalnih podjetij v njihovem delovanju. Potrjeno je bilo, da se njihove prakse družbene odgovornosti podjetij bistveno razlikujejo med gostiteljicami in matičnimi državami.

Ključne besede: CSR; lokalne hčerinske družbe; multinacionalne družbe; spletno komuniciranje

Performance Indicators of Management Buyouts Using the Analytic Hierarchy Process Method

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Background and Purpose: In Slovenia, few management buyout (MBO) studies have been carried out. The focus was mostly on the motives for acquisition of companies and the success rate of the acquisitions. This paper aims to analyse the indicators which suggest an impending bankruptcy or financial restructuring of companies and explore how these indicators are different for successful and unsuccessful MBOs.

Methodology: In the survey, we included 23 selected MBOs in Slovenia between 2005 and 2008, using the following financial and non-financial indicators: profitability, performance, solvency and liquidity, using the analytic hierarchy process method. The key aim of the survey was to use financial and non-financial indicators to study if target companies where bankruptcy or financial restructuring has not yet been initiated prevalently have higher aggregate values compared to those in which bankruptcy or financial restructuring procedures have already begun. Thus, we used the selected indicators to demonstrate one of the possible methods to predict the success of a particular MBO.

Results: We found that in most examples of unsuccessful MBOs, target companies have poorer results in terms of performance, solvency and liquidity, when compared to successful MBOs. Based on the selected areas, we divided the results into four quarters. We found that most target companies where MBOs had been unsuccessful are ranked in a lower quarter than most of the target companies where the MBOs had been successful.

Conclusion: The papers main contribution is the finding that the selected financial and non-financial indicators differ in cases of successful and unsuccessful MBOs. This knowledge helps us to find ways of avoiding these situations in the future.

Keywords: Management buy-outs; Management; Bankruptcy models; Financial and non-financial indicators; the analytic hierarchy process

1 Introduction

Corporate buyouts are tools which investors use to maximize the market value of shareholders' assets through positive synergies, corporate restructuring, product diversification, concentration of ownership, tax benefits, penetration of new markets, and replacing poorly-performing management staff (Ross et al. 1993; Bešter 1996; Damodaran 2001; Weston et al. 2001; Lahovnik 2013; Kamoto, 2017). According to Paredes (2003), corporate buyouts affect shareholders, corporate management, supervisors, employees, customers, suppliers, creditors and the local

community where the company operates.

An MBO happens when the target company's managers are the buyers of the controlling share. In the United States of America (USA), MBOs were first introduced in the middle of the 20th century, whereas they did not occur in the United Kingdom (UK) until the late 1970s. Franks and Harris (1989) emphasize that managerial theories argue that managers are primarily acting to serve their own interests, their wealth, they aim to build an empire, create security, reputation, and only then the owners' interests are considered. MBOs include three entities in particular, namely the buyers (i.e. the management), the target com-

pany's shareholders, and the financiers of the MBO.

A buyout of the target company is mostly financed through debt which is then transferred onto the target company. This way, financial leverage effects are used, and we speak of a leveraged buyout (LBO). For this reason, it often happens that target companies become insolvent. Michel and Shaked (1990) argue that financial effects of insolvency strongly affect the lenders, shareholders, analysts, creditors, investment bankers and other stakeholders in MBO and LBO transactions. Easterwood et al. (1997) further claim that there is empirical evidence of MBOs exploiting the target company's assets.

According to Mencinger (2009), many LBO companies were no longer able to repay their loans by 2009, resulting in a 15% increase in bankruptcies in the European Union, and in the USA, 50% of all LBOs ended up going bankrupt. While by the end of the past century the share of own financing increased, financing from other sources was still higher (DePamphilis 2003; DePamphilis 2012).

In this paper, we will begin by presenting a theoretical overview of existing literature dealing with business failure models and indicators[1] and the research methodology, followed by an empirical study of selected MBOs in Slovenia. We will verify if most target companies where MBOs had been unsuccessful[2] have poorer values of selected indicators compared to target companies where the MBOs had been successful. Further, we will distribute the target companies into four quarters, ranking from most to least successful. Over the course of our study, we encountered certain limitations, which we have described below.

2 Literature Review

Yadav (1986) claims that early signals indicating potential bankruptcy or financial restructuring allow the management and investors to take preventive measures, such as changes in business policy, reorganization of the financial structure, and voluntary liquidation. Furthermore, Cheng (2012) and Amendola et al. (2017) argues that use of financial indicators to predict bankruptcy or financial restructuring is nothing new. Events from 2008 reinforced the need for predicting and preventing future bankruptcies of companies and also giving time to react.

2.1 Bankruptcy Models

Bellovary et al. (2007) argue that, in terms of models used to predict bankruptcy or financial restructuring, 28 studies were done in the 1980s, 53 in the 1980s, 70 in the 1990s,

and 11 in the 2000-04 period. The models used between 1970 and 2004 were as follows: multivariate discriminant analysis (63), logit analysis (36), probit analysis (7), neural networks (40) and others (26).

In 1930 Smith and Winakor (1930) designed one of the first bankruptcy prediction models, where the efficiency ratio was used. They studied financially distressed companies in the span of 10 years prior to bankruptcy or financial restructuring, using 21 different financial indicators. They established that companies had worse indicators even a few years before bankruptcy or financial restructuring, proving the usefulness of financial indicators in predicting bankruptcy events. It should be emphasized, however, that this was a time of economic recession, which came as a result of the 1929 stock market crash (Aliakbari 2009; Cheng 2012).

Below is a presentation of a few models in more detail.

Univariate and Multivariate Analysis
Using univariate analysis in the period from 1920 to 1929, FitzPatrick (1934) performed a survey on 20 companies which did not go into bankruptcy, and 20 which did. He analyzed 13 financial indicators, and the study showed a significant differences between the indicators for either group.

Furthermore, Beaver (1966) used univariate analysis to study 30 financial indicators which are signals of bankruptcy or financial restructuring up to five years prior to the aforementioned procedures. The following areas were studied: (i) cash flow ratios, (ii) net income ratios, (iii) debt to asset ratios, (iv) liquid asset to total asset ratios, (v) liquid asset to current debt ratios, (vi) turnover ratios. He found that the following six financial indicators were most useful for predicting bankruptcy or financial restructuring: (i) cash over total debt, (ii) net income over total assets, (iii) current liabilities and long-term liabilities over total assets, (iv) working capital over total assets, (v) current ratio, (vi) defensive ratio. According to Cheng (2012), the predictability of two indicators, namely the total debt over total assets and net income over total assets, was higher than 50%. Other indicators were satisfactory in the first and second year (87%), but did not do well in the years to follow, while the selection of financial indicators was determined subjectively, according to the industry and company type.

Aliakbari (2009) used univariate analysis to confirm that four indicators affect the company's likelihood of bankruptcy: profitability, leverage, activity and cost structure. Furthermore, Dimitras et al. (1996) argue that the most important financial indicator is solvency, followed

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1 In analyzing bankruptcies in the USA, in most cases the phrase "business failure" is used, which refers to a company which is undergoing one of the insolvency procedures. This can include bankruptcy or financial restructuring/compulsory settlement, therefore we use the term bankruptcy or financial restructuring to refer to the foregoing.

2 According to Tutuncu (2014), unsuccessful MBOs and LBOs are those that went bankrupt.

by profitability.

Multiple discriminant analysis is an example of multivariate analysis. One such model is the so-called Altman bankruptcy Z-score model, which evaluates the company's financial well-being.

In a study carried out on 33 companies which went into bankruptcy and on 33 companies that did not, Altman (1968) chose five categories (liquidity, profitability, leverage, solvency, and activity) among 22 indicators, which the study showed were best used in combination to predict bankruptcy. The model is intended for production companies whose stocks are quoted on the stock exchange. He also chose five indicators, namely (i) working capital over total assets ratio (factor value: 1.2), (ii) retained earnings over total assets (factor value: 1.4), (iii) earnings before interests and taxes (EBIT) over total assets (factor value: 3.3), (iv) market value equity over book value of total debt (factor value: 0.6), (v) sales over total assets (factor value: 1). It turned out that the bankruptcy prediction model had a 94% accuracy rate. In 95% of the cases it correctly separated companies headed for bankruptcy from those not declaring bankruptcy one year prior to the bankruptcy, in 72% of the cases it predicted the bankruptcy two years ahead of the bankruptcy, in 48% of the cases it predicted the bankruptcy three years ahead of the bankruptcy, in 29% of the cases it predicted the bankruptcy four years ahead of the bankruptcy, and in 36% of the cases it predicted the bankruptcy five years ahead of the bankruptcy. It further turned out that the bankruptcy event can be predicted up to two years ahead of the start of the actual bankruptcy.

Logit and Probit Analysis

Ohlson (1980) studied both these analyses, using multiple logistic regression to predict bankruptcy. His study included 105 companies in bankruptcy in the period from 1970 to 1976, nine independent variables and data up to three years ahead of the bankruptcy. In the first year model, the probability rate was 85.1%, 87.6% in the second year model, and 82.6% in the third year model (Balcaen and Ooghe 2006; Cheng 2012).

Both these models were subsequently used by Gentry et al. (1985), using cash flow indicators as independent variables. Their sample included 33 companies from various industries, in the period between 1970 and 1981. The probability rate was 83% one year prior to bankruptcy, and 77% three years prior (Nunthaphad 2001; Cheng 2012).

Neural Network

Jandaghi et al. (2011) used an analysis of general neural networks to study 120 Iranian companies (60 in bankruptcy and 60 "matched" companies). Based on popularity in literature, data accessibility and expert evaluation, they defined four areas which affect a company's likelihood of bankruptcy, and within these areas they defined ten financial indicators, assigning weights to each. These areas and financial indicators are: liquidity (current ratio and quick

ratio), leverage (debt to equity ratio and debt to asset ratio), operating (inventory turnover ratio and total asset turnover ratio) and profitability (return on shareholder's equity, profit margin, return on total assets and gross margin).

K & P Model

Clark et al. (1997) used the so-called K&P model (Koundinya & Puri model), which uses the analytical hierarchy process model (AHP), using the decision tree to predict bankruptcy or need for corporate restructuring (Aliakbari 2009; Gurau 2013; Barbuta-Misu and Codreanu 2014).

As argued by Clark et al. (1997) and Gurau (2013), the model applies the AHP method, dividing financial risk into four hierarchical levels and three categories of financial risk. Thus, financial risk is determined by four attributes, namely liquidity position, earning power, asset utilization and financial flexibility. These attributes are weighted using pairwise comparisons on each hierarchical level, based on the goal on the subsequent level.

Furthermore, Huo (2006) defines the K&P financial risk model, which has three categories of financial risk and measures the financial risk of four attributes, namely liquidity position (current ratio and cash flow to sales ratio), earning power (net profit margin and total asset turnover), asset utilization (inventory turnover and total asset turnover) and financial flexibility (interest coverage, debt ratio and debt to equity ratio).

2.2 Financial and Non-financial Indicators

Bellovary et al. (2007) argue that a total of 752 different indicators were used in studies of predicting corporate bankruptcies, with the following ten being used most commonly:

- Net income / Total assets (54 times),
- Current ratio (51 times),
- Working capital / Total assets (45 times),
- Retained earnings / Total assets (42 times),
- EBIT/ Total assets (35 times),
- Sales / Total assets (32 times),
- Quick ratio (30 times),
- Total debt / Total assets (27 times),
- Current assets / Total assets (26 times),
- Net income / Net worth (23 times).

Furthermore, Cheng (2012) argues that financial indicators are most often used in predicting bankruptcies, as they are, for the most part, determinable using formulas, they can be tracked and are expressible in numbers. He studied five financial indicators which determine whether a company is in good health or if it is likely to go into bankruptcy. The indicators are as follows: (i) profitability (return on sales, return on assets and return on equity), (ii) solvency or liquidity (quick ratio, current ratio, current liabilities to

net worth, current liabilities to inventory, total liabilities to net worth and fixed assets to net worth), (iii) efficiency (collection period, inventory turnover, sales to net working capital, assets to sales and account payable to sales), (iv) stability (leverage or gearing ratio and interest cover ratio), (v) investor ratios (earning per share, price-earnings ratio and dividend yield).

International studies also showed better accuracy in predicting bankruptcies when financial and non-financial indicators were used (Wright et al. 1996; Grunert et al. 2004; Mondal 2008; Altman et al. 2010; Pervan and Kuvek 2013; Aruldoss et al. 2015; Jones 2017). Pervan and Kuvek (2013) further argue that studies have demonstrated that models which include both financial and non-financial indicators have a 9% better accuracy in predicting insolvency of companies. Non-financial indicators are, for example, firm age, number of employees, quality of accounting information, dependence of key customers, firm owners personal credit performance and management quality.

Mondal (2008) used the so-called Hybrid Score model to study six companies undergoing bankruptcy in the period from 1990 to 1999, which corresponds to 10 to 1 years ahead of bankruptcy, and assigned weights for 16 ratios. The sum of the weights equals 1, and they were determined through applying a number of mathematical models. Market implied ratios are distance to default (years prior to bankruptcy), probability of default and asset volatility[3]. Financial ratios are liquidity, profitability and solvency. Liquidity ratios are current ratio, quick ratio, inventory turnover and current cash debt coverage.

Profitability ratios are profit margin, cash return on sales, asset turnover, return on assets, return on common equity, earnings per share and price – earnings ratio. Solvency ratios are debt to total assets and times interest earned. The lower the leverage rate, the healthier the company is and the lower the likelihood of bankruptcy, the higher other financial indicators are, the more a company is able, or fit, to tackle short-term and long-term liabilities. It turned out that in most cases, financial deficiencies had already been apparent in companies which later went into bankruptcy.

In their study, Wright et al. (1996) studied 110 MBO in the UK, in the period from 1982 to 1984. Out of these, 57 MBOs continued operating successfully, while 53 MBOs were unsuccessful. The research included financial variables (liquidity, leverage, turnover per employee, profitability, net worth to total assets, total assets, capital intensity, etc.) and non-financial variables (new products introduced after buy-out, plans to change (reduce) employment three years after buyout, share of the equity held by management, etc.) between the individual years. The study used the t-test, discrimination models and the logit model. They discovered that liquidity has a strong negative impact on the probability of an unsuccessful MBO, and it already becomes apparent one year prior to bankruptcy. Capital intensity, on the contrary, is linked to a lower probability of MBO failure.

Table 1 shows an overview of financial and non-financial indicators used in different studies in the past. We also used the indicators ourselves for the purposes of the study, and are presented below.

Table 1: An overview of some prior researches of used indicators (Source: authors)

Category/ Indicator	Prior Researches
Profitability	Altman (1968), Courtis (1978), Arrington et al. (1984), Wright et al. (1992), Dimitras et al. (1996), Herst and Hommelberg (2002), Park and Han (2002), Bellovary et al. (2007), Mondal (2008), Pušnik and Tajnikar (2008), Aliakbari (2009), Manea (2009), Jandaghi et al. (2011), Cheng (2012) and Le and Viviani (2017).
Business performance[4]	Wright et al. (1996), Safieddine and Titman (1999), EVCA (2001), Harris et al. (2005), Amess and Wright (2007), Wright et al. (2007), Cressy, Munari and Malipiero (2008), Mondal (2008), Kaplan and Strömberg (2009), Manea (2009), Jelic and Wright (2011), Pervan and Kuvek (2013) and Jones (2017).
Solvency	Beaver (1966), Bellovary et al. (2007), Pušnik and Tajnikar (2008), Jandaghi et al. (2011), Cheng (2012) and Jones et al. (2017).
Liquidity	FizPatrick (1932), Altman (1968), Tamari (1970), Arrington et al. (1984), Skok (1992), Wright et al. (1996), Clark et al. (1997), Huo (2006), Bellovary et al. (2007), Mondal (2008), Pušnik and Tajnikar (2008), Manea (2009), Jandaghi et al. (2011), Gurau (2013), Jones et al. (2017) and Le and Viviani (2017).

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3 The bankruptcy probability and asset volatility indicators were calculated using the Merton model (Mondal 2008).

4 The business performance indicator demonstrates the characteristics of a company, which may, inter alia, include the number of employees, positive and negative cash flows of companies, net profit and net loss (including company insolvency), etc. (AJPES 2016). In our study, we included the number of employees and company performance from the perspective of insolvency.

2.3 Study Aims and Hypotheses

Numerous theories and studies of unsuccessful MBOs focus mainly on shared financial characteristics of companies which became insolvent. According to Cain and Davidoff Solomon (2011), on the one hand there are some reservations against performing an MBO, while on the other hand there are some reasons to proceed with the MBO. Jensen (1991) argues that the more MBOs are financed through debt, or the greater the financial leverage, the higher the probability that the MBO itself will not be successful.

In our study we used selected financial and non-financial indicators to show which indicators affected the success or failure of MBOs in Slovenia. In this context, we focused mainly on the following goals:

- Compare selected MBOs in Slovenia and categorize individual MBOs as successful and unsuccessful, using comparable elements,
- Analyze what values appear in successful and unsuccessful MBOs using the AHP method according to different areas of interest,
- Based on the results, we classified the MBOs into four quarters (ranking from most to least successful).

In our study, we tested the following hypotheses (H) and auxiliary hypotheses:

- **H_1:** *Most target companies where MBOs had been unsuccessful have poorer values of selected area-specific indicators, compared to target companies where the MBOs had been successful.*
- H_{11}: Most target companies where MBOs had been unsuccessful have poorer values of indicators in the area of profitability, compared to target companies where the MBOs had been successful.
- H_{12}: Most target companies where MBOs had been unsuccessful have poorer values of indicators in the area of business performance, compared to target companies where the MBOs had been successful.
- H_{13}: Most target companies where MBOs had been unsuccessful have poorer values of indicators in the area of solvency, compared to target companies where the MBOs had been successful.
- H_{14}: Most target companies where MBOs had been unsuccessful have poorer values of indicators in the area of liquidity, compared to target companies where the MBOs had been successful.
- **H_2:** *Based on the entire selection of indicator, most target companies where MBOs had been unsuccessful are ranked in a lower quarter than most of the target companies where the MBOs had been successful.*
- H_{21}: Most target companies where MBOs had been unsuccessful are ranked in the 3rd or 4th quarter - that being the worst result.
- H_{22}: Most target companies where MBOs had been unsuccessful are ranked in the 1st or 2nd quarter - that being the best result.

3 Methodology

Numerous methods and models are being used in predicting bankruptcies or financial restructurings, as are financial and non-financial indicators. For the purposes of our study, we used the AHP method and the Expert Choice application, which enables the hierarchical determination of weights for specific criteria and subcriteria, regarding their importance.

According to Bolster et al. (1995), the key distinction between the AHP method and other multiple criteria decision-making methods is that the AHP method allows for systematically structuring any complex multidimensional problem.

3.1 AHP

In the assessment of successful or unsuccessful MBOs, we can use multiple criteria decision making, where we simultaneously consider multiple criteria and subcriteria, which makes it easier for us to make decisions. One of the decision-making methods using multiple criteria simultaneously is the AHP method, which helps us in deciding which alternative is better, considering the specific goal, criteria and subcriteria.

A key advantage of the AHP method is setting weights and measuring the value of alternatives through pairwise comparisons (Čančer 2005; Čančer and Mulej 2006). AHP method was used for criteria and subcriteria comparisons, to gain weights of importance of criteria and subcriteria. For the evaluation of alternatives, value functions that are included in the multi-attribute value/ utility theory, were used.

Another key advantage is measuring the decision-maker's inconsistency. It must be equal to or less than 0.1 (Saaty 1987; Donegan et al. 1992; Liang 2003). Consistency index that measures the consistency of the decision maker is calculated as follows (Čančer 2003):
where:
- λ …. largest eigenvalue of a matrix;
- k … number of attributes.

$$CI = \frac{\lambda_{\max} - k}{k - 1}(1)$$

Consistency ratio is calculated by using the following formula (Čančer 2003):

$$CR = \frac{CI}{R}(2)$$

where:
- R ... randomly consistency index.

The AHP method can be used for quantitative and qualitative criteria, where a hierarchical model is formed based on the goal, criteria and subcriteria, as well as alternatives for each decision-making problem separately. Thus, solutions for decision problems are sought in a multiple-criteria environment, to structure the complexity, perform measurements on a ratio scale and synthesis. The AHP method helps the decision makers determine which information still needs to be obtained in order to assess the effect of factors in complex conditions, for finding potential inconsistencies in making judgments about criteria importance and preferences to alternatives, for encouraging ideas in creative processes, and assessing the efficiency thereof (Forman and Gass 2001; Čančer 2003; Gavade 2014).

We performed an evaluation of MBO success rate using the AHP method in six steps, as follows (Saaty 1994; Saaty 1999; Belton and Stewart 2002; Čančer 2003; Čančer et al. 2006; Čančer and Mulej 2013; Expert Choice 2015):

4. *Problem definition:* describing in detail the problem, and specify the global goal, criteria and alternatives.

5. *Elimination of unacceptable alternatives*: specifying the requirements for the alternatives, evaluate and eliminate unacceptable alternatives, i.e. alternatives which fail to meet the requirements.

6. *Problem structuring*: specifying the global goal on the highest level, followed by criteria, subcriteria, while alternatives are on the lowest level. This way we form the decision tree.

7. *Establishing priorities:* expressing judgements about the importance of the criteria and preferences to the alternatives. It is recommended to include the relevant experts for specific field. The AHP method is characterized by the hierarchical way of assigning weights for the criteria, where the sum of the weights for each group of criteria with respect to the higher level criterion equals 1.

8. *Synthesis to obtain the final (aggregate) alternative values*: so that local priorities are changed into global priorities, and are then added up for each alternative on the last level of the model. As the criteria are structured in two levels, the aggregate alternatives' values are obtained by (Čančer 2012):

$$v(X_i) = \sum_{j=1}^{m} w_j \left(\sum_{s=1}^{pj} w_{js} v_{js}(X_i) \right) (3)$$

for each i = 1, 2, ..., n

where:
- $v_{js}(X_i)$ … local value of the ith alternatives with respect to the sth attribute of the jth criterion;
- w_{js} ... weight of the sth attribute of the jth criterion;
- w_j ... weight of the jth criterion;
- p_j ... number of the jth criterion subcriteria.

9. *Sensitivity analysis and verification:* to determinate the performance analysis, which shows how alternatives are more desirable in comparison with other alternatives according to individual criteria and with regard to the global goal.

Bagchi and Rao (1992) argue that the AHP method is useful in cases which involve complex problems and multiple criteria, where not all may be objectively measurable and where the need arises to evaluate the effectiveness of the program or project. The success or failure of MBOs depends on many factors, including the financial dimensions, industry, size, personality characteristics, products and growth. Criteria may include: financial characteristics, growth potential, employees (corporate climate and interpersonal relations), competitive advantages, organizational skills, size and products.

Furthermore, Strinivasan and Kim (1987), Zopounidis and Doumpos (2002), Stuer and Na (2003) and Sum (2015) argue that the AHP method may also be used in finance, specifically in capital planning, financial instrument selections, mergers and acquisitions, predicting bankruptcies or corporate restructuring, and predicting foreign interest rates. Kwak (2012) states that the AHP method is useful in predicting bankruptcies mainly because it allows the use of both financial and non-financial indicators.

In the period between 1995 and 1998, Park and Han (2002) studied 2144 companies in bankruptcy and companies where the bankruptcy process had not yet begun. They used the AHP method and the Expert Choice application. The model has four hierarchical levels, the second level contains two fields (financial and non-financial indicators), while each field has criteria and subcriteria within those criteria. Financial indicators have five criteria: stability, profitability, activity, productivity and growth. Non-financial indicators also have five criteria: business profitability, competitive advantage, manageability, reliability and miscellaneous. Each level also has specified weights, where the pairwise comparison method is used. Eigen-vector method was used for deriving weights from pairwise comparison matrices. In determining weights, the consensus of the group was calculated using the geometric mean of individual judgments with involvement from experts/analysts from credit rating companies and analysts (credit risk) from banks.

The Expert Choice application allows using the AHP scale when expressing judgments on criteria's importance and preferences to alternatives (Čančer 2003). In our study we used Eigen-vector method for deriving weights from pairwise comparison matrices.

3.2 Procedure

3.2.1 Data Collecting

We obtained the data for our selected areas and indicators from various databases (Agency of the Republic of

Slovenia for Public Records and Related Services, Securities Market Agency and a database that allows a broad overview of the condition of companies operating in the Slovenian market and helps discover links between related parties), annual reports and balance sheets of individual companies. Out of 28 MBOs in Slovenia during the period from 2005 and 2008, which were subject to the Takeovers Act, we collected data for 23 selected MBOs. We did not select MBOs where the acquiring companies were deleted from the court register. We have also selected only one MBO, although some target companies appeared two times.

In our study we used financial and non-financial indicators, and those which were more frequently used and which are considered to be the best predictors of bankruptcy or financial restructuring (Table 1). We used the data referring to the year in which the MBO was carried out, and in some cases for three years after the MBO, since the study focuses on the MBO year, and on MBO success or failure status. Thus we sought to prove that unsuccessful MBOs had inferior indicator values when compared to successful MBOs, both in the year of the MBO and three years thereafter.

3.2.2 Data Analysis

First we used the comparison/benchmarking method. Out of 23 selected MBOs in Slovenia in the period from 2005 to 2008 insolvency procedures were initiated in 10 MBOs, while financial restructuring was initiated in six cases of MBOs. In our study, we assumed that unsuccessful MBOs were those where companies ran into liquidity issues after the MBO was completed, and where insolvency proceedings or preventive restructuring proceedings were initiated; while successful MBOs were considered to be cases where target companies did not run into insolvency or preventive restructuring proceedings. Out of 23 MBOs, seven were successful and the rest unsuccessful.

We then used selected indicators and set weights to perform benchmarking of successful and unsuccessful MBOs in Slovenia. We used the AHP method, supported by the Expert Choice application.

3.2.3 Proceeding of the Research

Defining the problem
All selected indicators, broken down by individual areas/categories are presented in Table 2.

Elimination of unacceptable alternatives
We included only 13 alternatives (MBO) in the study, as we are unable to obtain information for all 23 alternatives with respect to all criteria and subcriteria. Some alternatives primarily operated as holding companies, therefore it

was not reasonable to use some indicators in their assessment (i.e. especially indicators relating to the operations of the business). Out of 13 alternatives, five are successful MBOs and eight are unsuccessful MBOs.

Structuring the problem
We structured the problem using the decision tree: we entered the goal being determining values of MBOs, followed by the criteria which represent four areas: profitability, business performance, solvency and liquidity, attributes/indicators for each area (subcriteria) and alternatives/target companies.

Assessment of the criteria's importance and preferences to alternatives
The data on individual MBOs according to the subcriteria was measured using the increasing and decreasing value functions and direct method. We used increasing value function for the subcriteria return on equity 1, return on equity 2, return on assets 1, return on assets 2, employment, current ratio 1, current ratio 2, quick ratio 1 and quick ratio 2, decreasing value function for the subcriterion debt to asset ratio 1 and debt to asset ratio 2, and direct method for the subcriteria management quality. With the direct method we entered data from 0 to 1, where the best value was 1 (not business failure), and the worst was 0 (business failure, depending on the number of years prior the business failure).

In multiple-criteria decision-making, the weights are often determined in groups, rather than individually, since individuals lack sufficient knowledge, experience, and there are also different opinions and priorities. In these cases, it is important to choose a suitable method for combining/unifying weights for the individual.

In the study, we set the weights depending on the importance of the impact on predicting bankruptcies or financial restructuring, and depending on the effect on the MBO (Table 1). We compared the importance of individual criteria compared to the importance of other criteria within a particular area. In this context, we had assistance from experts (analysts) dealing with valuations and restructurings (3) and financial scientists (1), and we used the compromise method. In the determination of weights we used the pairwise comparisons, taking into account individual indicators from past studies, their frequency of use, and available data.

Synthesis
The most common aggregation tool used in multi-criteria decision-making is the weighted arithmetic mean (Čančer 2012). In our study we have combined weights using the weighted arithmetic mean. The equation how we combined weights of criteria and values of MBOs is written in Chapter 3.1 AHP (Synthesis to obtain the final (aggregate) alternative values).

4 Results

4.1 Criteria importance

To express the importance of the areas of profitability, solvency, business performance and liquidity we used pairwise comparisons. Thus, for example, the criteria of profitability and solvency are equally important, while the profitability is twice as important as the business performance criterion. If the criterion in the column is more important than the criterion in the row, we used parenthesis, for example, the criteria of solvency is twice as important as the business performance. The inconsistency ratio is 0 (Table 3).

When assessing the importance of the attributes of the profitability criterion, we used the pairwise comparison, too. The subcriterion net return on assets 1 and net return on assets 2 are 1.5 times more important than net return on equity 1 and net return on equity 2. The subcriterion net return on assets 1 is equally important as the attribute net return on assets 2. The subcriterion net return on equity 1 is equally important as the attribute net return on equity 2. The inconsistency ratio is 0.

When assessing the importance of attributes for the business performance criterion, we used the following pairwise comparison: the subcriterion management quality is 1.5 times as relevant as the employment criterion. The inconsistency ratio is 0.

The following pairwise comparison was made for the attributes of solvency criterion: the attribute debt to asset ratio 1 is equally important as the attribute debt to asset ratio 2. The inconsistency ratio is 0.

When assessing the importance of attributes for the liquidity criterion, we used the following pairwise comparison: the current liquidity ratio 1 subcriterion is equally as important as the current liquidity ratio 2, and 1.5 times as important as the quick liquidity ratio 1 and quick liquidity ratio 2. The inconsistency ratio is 0.

Table 4 shows the calculated values of the weights on

Table 2: Selected indicators, broken down by individual areas/ categories (Source: authors)

Category	Indicator	Description of the indicator
Profitability	Return on equity 1	Return on equity in the year of MBO
	Return on equity 2	Return on equity three years after MBO
	Return on assets 1	Return on assets in the year of MBO
	Return on assets 2	Return on assets three years after MBO
Business performance	Management quality	Number of years until business failure
	Employment	Average full-time equivalent in the year of the MBO/three years after the MBO
Solvency	Debt to asset ratio 1	Total liabilities (excluding capital)/Total assets (year of the MBO)
	Debt to asset ratio 2	Total liabilities (excluding capital)/Total assets three years after the MBO
Liquidity	Current ratio 1	Current ratio in the year of MBO
	Current ratio 2	Current ratio three years after MBO
	Quick ratio 1	Quick ratio in the year of MBO
	Quick ratio 2	Quick ratio three years after MBO

all levels. The largest impact is carried by solvency and profitability with a weight of 0.302, followed by the criteria of financing/liquidity with a weight of 0.249, and business performance with a weight of 0.147.

4.2 Synthesis

We arrived at the final values of the alternatives through synthesis. We chose the distributive rather than the ideal synthesis method, as we are comparing all MBOs and our aim is to distinguish the successful MBOs from unsuccessful MBOs from the entire selection. All five successful MBOs have higher values in the area of business performance compared to unsuccessful MBOs (Table 5 and Figure 1), followed by liquidity and solvency, where four successful MBOs are among the top five positions (Table 5 and Figure 1), and the area of profitability, where three successful MBOs are among the top five positions and where four (out of eight) unsuccessful MBOs have poorer values (Table 5 and Figure 1).

We are able to confirm auxiliary hypotheses H_{12}, H_{13} and H_{14}, namely that most target companies where MBOs had been unsuccessful have poorer indicator values in the areas of business performance, solvency and liquidity, compared to target companies where the MBOs had been successful. We are able to partially confirm hypotheses H_{11}, because four out of eight target companies where MBOs had been unsuccessful have poorer indicator values in the area profitability, compared to target companies where the MBOs had been successful.

Consequently, we are able to partially confirm hypothesis H_1, namely that most target companies where MBOs had been unsuccessful have poorer values of selected area-specific indicators compared to target companies where the MBOs had been successful.

Table 5 shows the final values of the alternatives obtained with the distributive method based on the goal. The best alternative is represented by successful MBOs, namely X4 with the value of 0.165, X7 with the value of 0.109 and X9 with the value of 0.103. The worst final values are measured in two target companies where the MBO was unsuccessful, namely X10 and X12, with the value of 0.040.

4.3 Sensitivity analysis

According to the weights that were given to a specific criterion, it can be concluded that target company X4 is more successful than all other target companies and that target

Table 3: Pairwise comparison between categories (Source: authors)

Category	Profitability	Business performance	Solvency	Liquidity
Profitability		2.00	1.00	1.25
Business performance			(2.00)	(1.80)
Solvency				1.25

Table 4: Weights by categories and indicators (Source: authors)

Category	Weight	Indicator	Weight
Profitability	0.302	Return on equity 1	0.20
		Return on equity 2	0.20
		Return on assets 1	0.30
		Return on assets 2	0.30
Business performance	0.147	Management quality	0.60
		Employment	0.40
Solvency	0.302	Debt to asset ratio 1	0.50
		Debt to asset ratio 2	0.50
Liquidity	0.249	Current ratio 1	0.30
		Current ratio 2	0.30
		Quick ratio 1	0.20
		Quick ratio 2	0.20

Table 5: Final alternative values compared to the goal, using the distributive synthesis method (Source: authors)

Successful/ unsuccessful MBO	Final alternative values
X4 (successful MBO)	0.165
X7 (successful MBO)	0.109
X9 (successful MBO)	0.103
X8 (unsuccessful MBO)	0.084
X2 (successful MBO)	0.080
X3 (unsuccessful MBO)	0.079
X1 (successful MBO)	0.070
X5 (unsuccessful MBO)	0.069
X13 (unsuccessful MBO)	0.061
X6 (unsuccessful MBO)	0.051
X11 (unsuccessful MBO)	0.048
X10 (unsuccessful MBO)	0.040
X12 (unsuccessful MBO)	0.040

companies X10 and X12 are more unsuccessful than all other target companies (Table 5).

Based on the goal, we used the performance display in sensitivity analysis to see which the best are and which the worst alternatives for a specific criterion are. In the profitability criterion, the best alternative is the MBO of company X7 and the worst alternative is the MBO of company X10, in the business performance criterion the best alternative is the MBO of company X9 and the worst alternative is the MBO of company X6, in the solvency criterion the best alternative is the MBO of company X4 and the worst alternative is the MBO of company X11, in the liquidity criterion the best alternative is the MBO of company X4 and the worst alternative is the MBO of company X12 (Figure 1).

4.4 Sort alternatives into quarters

Based on the selected areas, we divided the results into four quarters, where the alternatives which demonstrated the best results are ranked in the 1st quarter, and the alternatives with the worst results are ranked in the 4th quarter. In the ranking we relied on the results we obtained through synthesis, taking into account the values of the alternatives for each criterion. The quarters are defined using the final sensitivity analysis results: because the highest values was 0.165, we set the highest value at more or equal than 0.151, then set individual quarters in intervals of 0.050. The 4th quarter lists alternatives with values between 0 and 0.050, the 3rd quarter lists alternatives with values between 0.051 and 0.100, the 2nd quarter lists alternatives with values between 0.101 and 0.150, and the 1st quarter lists alternatives with values higher than or equal to 0.151 (Table 6).

We have checked the auxiliary hypothesis H_{21}, namely that most target companies where MBOs were unsuccessful are ranked in the 3rd or 4th quarter - the worst result (Table 5 and Table 6). Based on the entirety of the selected areas, the 3rd quarter contains two successful and five unsuccessful MBOs, and the worst, 4th quarter contains three unsuccessful MBOs. Given that all target companies where MBOs were unsuccessful are located in the 3rd and 4th quarters – the worst result, we are able to confirm auxiliary hypothesis H_{21}.

We have checked the auxiliary hypothesis H_{22}, namely that most target companies where MBOs were successful are ranked in the 1st or 2nd quarter - the best result (Table 5 and Table 6). Based on the entirety of the selected areas, the 1st quarter contains one successful MBO, and the 2nd quarter contains two successful MBOs. Given that three out of five companies (more than 50 %) where MBOs were successful are located in the 1st and 2nd quarters – the best result, we are able to confirm auxiliary hypothesis H_{22}.

Consequently, we are able to confirm hypothesis H_2, namely that based on the entire selection of indicators, most target companies where MBOs had been unsuccessful are ranked in a lower quarter than most of the target companies where the MBOs had been successful.

5 Discussion

The MBOs are characterized by the fact that managers of the target company invest in the takeover a limited amount of money, while the rest are acquired by borrowing and through loans secured by the assets of the target company itself (Anabtawi 2015). Managers who have invested their own capital in the MBO or have pledged their own assets are more engaged in the success and development of the
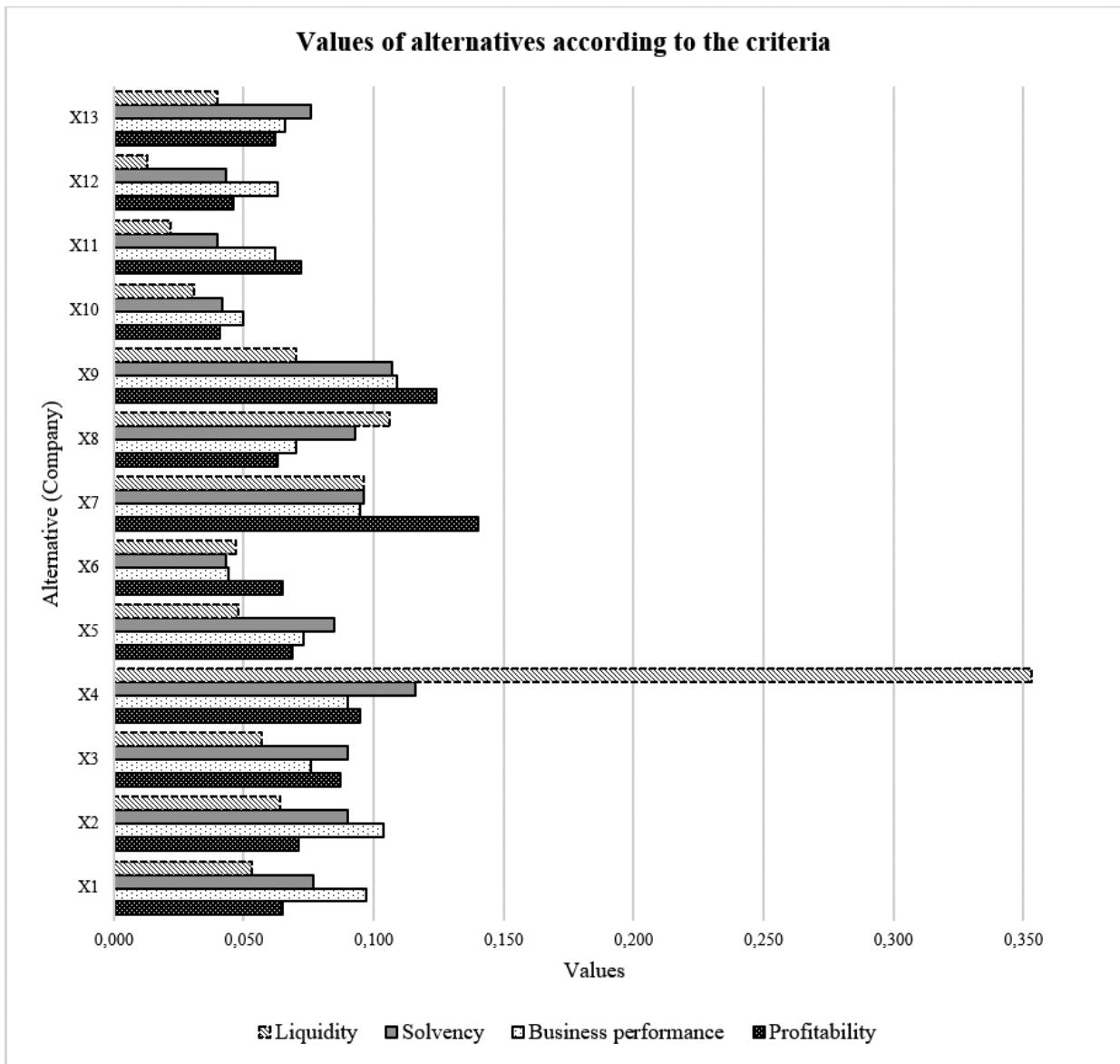
Figure 1: Values of alternatives according to the profitability, business performance, solvency and liquidity criteria (Source: authors)

Table 6: Distribution of quarters (Source: authors)

Quarter	Value of quarter
1st quarter	≥ 0.151
2nd quarter	$0.101 - 0.150$
3rd quarter	$0.051 - 0.100$
4th quarter	$0 - 0.050$

company. Nikoskelainen and Wright (2007) found out that the ownership of managers is one of the main factors in increasing the value of the takeover. Ownership of management is positively related to the increase in the value of the company. Furthermore, Andrade and Kaplan (1998) found out that many high-leveraged transactions end in bankruptcy and that more than 30% of the MBOs in the USA, closed after 1985, began bankruptcy proceedings. Thus it is important to determine, which indicators affect the successfulness or failure of the MBOs and reduces the likelihood of bankruptcy or financial restructuring.

The aim of the study was to determine whether differences in financial and non-financial indicators (shown in Table 2) exist between MBOs undergoing bankruptcy or financial restructuring and those who have not become subject to bankruptcy or financial restructuring (final results are shown in Table 5).

Using the AHP method and the Expert Choice application, we included Slovenian MBO cases where companies ran into bankruptcy or financial restructuring and cases where companies are still operating after the MBO. We included MBOs from different periods, industries, regions, sizes, we included both financial and non-financial indicators, and assigned weights to these indicators.

We established that most unsuccessful MBOs in Slovenia have poorer values of selected indicators in the areas of business performance, solvency and liquidity (but not in the area profitability), compared to target companies where the MBOs had been successful, partially confirming hypothesis H_1.

We also found that based on the entire selection of indicators, most target companies where MBOs had been unsuccessful are ranked in a lower quarter than most of the target companies where the MBOs had been successful, confirming hypothesis H_2.

6 Conclusion

In the study performed on 13 selected MBOs in Slovenia in the period from 2005 to 2008, we assessed whether financial and non-financial indicators differ in cases where the target company is in bankruptcy, compared to cases where the target company is solvent. We categorized MBOs between successful and unsuccessful, and defined financial and non-financial indicators within the areas of profitability, business performance, solvency and liquidity.

Using the AHP method and the Expert Choice application, we structured the problem using the decision tree. Alternatives data were introduced directly, with a decreasing or increasing value function, and we defined weights for individual areas and indicators using pairwise comparison, based on preferences. We then calculated the final values of alternatives that can help us to reduce the number of unsuccessful MBOs. We determined that most target companies where MBOs had been successful have higher final

alternative values of indicators in the areas of business performance, solvency and liquidity, compared to target companies where the MBOs had been unsuccessful.

Finally, we categorized the target companies into four quarters, where the first quarter was ranked best, and the fourth was ranked worst. We found that most of the target companies where the MBO had been successful are ranked in the first or second quarter, while most companies where the MBO had been unsuccessful rank in the third and fourth quarter.

Thus, we used the selected indicators and the AHP method to demonstrate that the selected financial and non-financial indicators differ in cases of target companies undergoing bankruptcy or financial restructuring as opposed to those target companies not undergoing bankruptcy or financial restructuring.

6.1 Contributions to Theory and Practice

The study relates to MBOs performed in Slovenia in the period from 2005 to 2008, when the global economic crisis began and affected Slovenia as well. Most target companies became insolvent after the MBO, so it was necessary to find ways of avoiding these situations in the future. MBOs affect many stakeholders, such as minority shareholders, creditors, employees, customers, suppliers, etc. Reducing the number of unsuccessful MBOs or preventing bankruptcies will create a better position for all stakeholders compared to an insolvency scenario (e.g. unemployment, borrowing, etc.).

Our study included target companies which ran into bankruptcy or financial restructuring, as well as target companies which are not undergoing bankruptcy or financial restructuring. The selected target companies span various industries, sizes and regions in Slovenia, and we took into account different financial and non-financial indicators and different times prior to bankruptcy or financial restructuring. Using the AHP method and the Expert Choice application, we defined weights for individual areas and indicators, allowing us to present a bankruptcy or financial restructuring prediction model (Table 4). With the model, we can predict that it is more likely that MBO is successful or unsuccessful if certain values appear in individual areas. Individual values for criteria (in our model) are presented in Figure 1.

The criterion solvency is one of the most important area of successful and unsuccessful MBOs. It has the highest weight (same as the criterion profitability) and we found out that most target companies where MBOs had been successful have higher final alternative values of indicators in the area solvency, compared to target companies where the MBOs had been unsuccessful.

To reduce the number of unsuccessful MBOs it is important to focus on solvency. One of the solution is to change the Takeovers Act in a way that will provide

greater control over financial resources and the ability to finance MBOs.

6.2 Limitations and Further Research

The study's limitations are mainly the following:
- the analysis was limited to MBOs in Slovenia, which were subject to the Takeovers Act,
- we analyzed selected MBOs in Slovenia in the period from 2005 to 2008, where cash was the envisaged method of payment for acquired shares, and not all MBOs which were carried out,
- we focused on the indicators which we could readily gain access to,
- we used secondary sources collected from different databases, annual reports and balance sheets.

Future research should focus on MBOs abroad rather than Slovenia alone, and should include a longer time span, as well as other financial and non-financial indicators. It would also be interesting to use a different method with the same indicators.

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Kazalniki uspešnosti managerskih prevzemov z uporabo metode analitičnega hierarhičnega procesa

Ozadje in namen:. Na področju managerskih prevzemov (MBO) je bilo v Sloveniji opravljenih malo raziskav. Raziskave so se osredotočale predvsem na motive prevzemov družb ter stopnjo uspešnosti prevzemov. Namen prispevka je analizirati indikatorje, ki napovedujejo stečaj ali finančno prestrukturiranje družb, ter preveriti, kako se le-ti razlikujejo pri uspešnih in neuspešnih družbah.

Metodologija: V raziskavo smo vključili 23 MBO v Sloveniji v obdobju od 2005 do 2008, uporabili pa smo sledeče finančne in nefinančne indikatorje: dobičkonosnosti, poslovanja, plačilne sposobnosti in likvidnosti, pri čemer smo uporabili metodo analitičnega hierarhičnega procesa. Glavni cilj raziskave je s pomočjo izbranih finančnih in nefinančnih indikatorjev raziskati, ali imajo ciljne družbe, kjer se stečaj ali finančno prestrukturirane nista pričela, v večini primerov višje agregirane vrednosti, kot tiste, nad katerimi se je pričel stečaj ali finančno prestrukturiranje. Tako smo s pomočjo izbranih indikatorjev prikazali enega izmed možnih načinov, kako ugotoviti, da bo posamezen MBO uspešen oz. neuspešen.

Rezultati: Ugotovili smo, da se slabši rezultati večinoma pojavljajo pri ciljnih družbah na področjih dobičkonosnosti, poslovanja, plačilne sposobnosti in likvidnosti, kadar gre za neuspešne MBO, kakor pa v primerih uspešnih MBO. Nadalje smo glede na izbrane indikatorje rezultate razdelili v štiri kvartale. Ugotovili smo, da je večina ciljnih družb, kjer so bili MBO neuspešni, uvrščena v slabši kvartal od večine ciljnih družb, kjer so bili MBO uspešni.

Zaključek: Glavni prispevek je v ugotovitvi, da se izbrani finančni in nefinančni kazalniki razlikujejo, kadar gre za uspešne in neuspešne MBO. To znanje bo pripomoglo k preprečevanju podobnih dogodkov v prihodnosti.

Ključne besede: managerski prevzemi; management; stečajni modeli; finančni in nefinančni kazalniki; analitični hierarhični proces

Influence of Entrance Exams Results on Foreign Students in Economics Studies at University of Economics, Prague

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Background and purpose: The purpose of the article is to analyse results of entrance exams and of regularly exams for foreign students in the Czech language undergraduate study programs at four faculties of University of Economics, Prague (UEP) with the intention to investigate the dependency between the results of Entrance exams from English and mathematics and (1) results of regularly exams during the study and between (2) completion rate of the study.

Design/Methodology/Approach: We have analysed 4.381 records for applicants from foreign countries who applied for studies between years 2009 and 2015. We used standard statistics methods and the method of logistic regression in the form of logit model.

Results We identified weak statistical correlation between entrance exam results from mathematics and results of regular exams. The correlation coefficient varies between 0.078 – 0.283 for investigated faculties of UEP. The same indicator for English language exams presents better values and it varies between 0.218 – 0.312. If an entrance exam result is higher by one point, the probability of successful completion of studies is multiplied by values between 1.017 - 1.042 for individual faculty per one additional point.

Conclusion: The results of the research in mathematics and English language show that excellent results in entrance exam cannot not guarantee successful regularly exams. Conclusion for the probability of completing studies is that the acceptable level of points for admission foreign students is between 150 and 170 points, depending on the faculty.

Keywords: knowledge; foreign student; university; english language; mathematics

1 Introduction

Attempts at integration of the European countries is as old as mankind itself. Perhaps the most successful attempt was made by the Romans during the Roman Empire. Under their leadership, the cultures from the Pillars of Hercules (today's Spain) all the way to the Eastern Mediterranean Region thrived or forcibly cooperated (Dray, 1992). The following religion-based attempts, whether Christian (western or eastern) or Islamic, were not as successful. Recent history, and technological progress and gradual globalization, made it again possible for student exchanges between individual states and countries. The Western,

also so-called Euro-Atlantic, civilization, including Australia and New Zealand, has become considerably more advanced in this regard since the 17th century also thanks to no, or only a minimal, language barrier between these countries. Eastern Europe was under the Soviet influence after the end of WW II, and the Russian language became the main communication language on an international level within the Eastern bloc. The fall of the iron curtain provided a new opportunity to reintegrate all European countries. This opportunity opened up for the Czech Republic (CR) in 2004 when it joined other EU Member States during the second wave of enlargement (Lukes, Zouhar, Jakl and Ocko, 2013).

The goal of this article is to analyse the mathematics and English entrance exam results of foreign applicants for Czech study programs in the period of 2009 – 2015. Only regular students were included into this research, not students from exchange study programs such as Erasmus plus or students and applicants for foreign language study programs. Based on this performed analysis, is our goal to find out if there is a dependency between the results of the entrance exams in English and mathematics and the result of the exams later during the regular study. The second goal is to analyse the probability of successful graduation for certain level of obtained points in entrance exams.

2   Education in the Czech Republic

The education system in the Czech Republic has also gradually changed as the CR went from a centrally planned economy to a transition economy and finally to a developed market economy. The education system underwent the biggest change by joining the Bologna Declaration (Stastná & Walterová, 2014). The principles of the Bologna Declaration were not implemented immediately, but their implementation had a relatively high impact on the traditional education system. This is because university education used to be continuous, i.e. four years for economic studies, five years for other studies and six years for medical studies (Berka, Jablonsky, Marek and Vrabec, 2015; Hanclova and Doucek, 2012). The Bologna Declaration brought the system of three-year undergraduate studies and two-year consequent studies. This system, including the ECTS (European Credit Transfer System), which is generally accepted and respected not only in EU Member States but also in some other countries, such as Russia, Turkey and most countries of the former Soviet Union, makes it possible to exchange students between individual countries for one semester or a longer time period, e.g. entire undergraduate studies (Vltavska and Fischer, 2014, 2015). Transformation of an educational systems in the Visegrad four countries is analysed in more detail in (Herbst and Wojciuk, 2017).

Different view on education is mentioned by Neycheva (2016) and Simonova (2016). Neycheva (2016) analyses comparison between secondary and higher education from growth point of view, and Simonova (2016) analyses assessment preferences in learning styles in English, which are important for successful finishing of studies at University of Economics, Prague (UEP).

Very important factors influencing Czech education and attempts for improving academic performance, which are described for example in (Ling and Ling, 2001; Heick, 2014).

Economic education in the Czech Republic is currently organized in compliance with the Bologna Declaration; i.e.

as three-year undergraduate studies and a two-year master's program. Economic studies usually require skills and knowledge that include logical thinking, work with abstract terms and operations, communication skills, the ability to work with foreign language materials and the ability to work in an international environment and to integrate international initiatives (Marek, 2010). This paradigm leads to two basic areas that are usually applied in selecting applicants for economic studies, i.e. mathematics and a foreign language. Nowadays, the lingua franca is English, which is not the most spoken language in the world, but a dominant language for the European community.

Our article analyses the results of English and mathematics entrance exams taken by applicants (applicant, in context of this article, is a person with completed middle school education, who applies for study at UEP) for economic undergraduate studies. For our total analysis of faculty attractiveness, we processed the data from all faculties of the University of Economics, Prague. The specialization of the faculties is rather wide and practically includes all fields of economic science. These faculties are as follows:

1. Faculty of Finance and Accounting - FFA - finance, accounting, taxes, etc.
2. Faculty of International Relations - FIR - international relations, diplomacy, law, etc.
3. Faculty of Business Administration - FBA - microeconomics, marketing, management, business economics; and
4. Faculty of Informatics and Statistics – FIS - quantitative methods in microeconomics, macroeconomics and business informatics.

For the remaining two faculties, i.e.
5. Faculty of Economics – FE - macroeconomics, regional economics, economic policy; and
6. Faculty of Management – FM - that teaches business management, health care management and management theory (more detail information at www pages of the UEP[1]),

we managed to identify the number of applications and the number of admitted students but not entrance exam results. Therefore, these two faculties (5, 6) were excluded from our detailed analysis. Descriptive statistic, as for example number of applicants and number of accepted students, were calculated using data from all faculties of UEP.

At all faculties, students can study Czech study programs as well as a limited number of other study programs that are usually taught in English. Study programs taught in Czech are attended by foreign students, who either have relationship to the Czech Republic from the past or speak one of the Slavic languages. Most students interested in these study programs come from the former Soviet Union

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1 www.vse.cz

and Slovak Republic (Maryska and Doucek, 2015). For-eign students are participating in Czech study programs together with Czech students. The advantage of these study programs is that they can be expanded with selected courses in other languages. These supplementary courses are mostly taught in English, but also in German and Span-ish. General overview of applicant's structure at UEP is presented in the Table 1.

Numbers presented in Table 1 indicate that UEP's Czech economic study programs are attractive for students from Slovakia who have no, or a very low, language barri-er. The very slight increase in this group of students during the period of 2009 – 2015 is very interesting. The main reason for increasing the number of Slovak students can be identified in opportunities for part time and full-time jobs during study period in domestic and international companies. Students from the Russian Federation placed second. The difference between their native language and the Czech language is much bigger, yet their number kept growing during the period of 2009 – 2015 and their percentage has doubled by 2015. The number of foreign

applicants during the period of 2009 – 2015 by faculty is shown in Figure 1.

Figure 1 clearly shows that foreign students are mostly interested in the study programs of FBA, followed by the study programs of FFA. They are the least interested in the study programs of FM, which may be due to the fact that the faculty specializes in management theory and health care management and/or because the faculty is located out-side Prague – in Jindřichův Hradec (in South Bohemia, approximately 150 km south of Prague).

The number of applicants is not, however, the main indicator even though it shows the popularity of the in-dividual study fields. The number of admitted students is reflected in their representation in the individual study pro-grams of the faculties (Figure 2).

Figure 2 shows that however, the number of admitted students does not provide the real picture of the number of foreign students in Czech undergraduate study programs either. The indicator that is really important is the number of students who enter the university. The number of ad-mitted students does not necessarily mean the number of

Table 1: Percentage of students applying to UEP by citizenship. Source: (authors, data UEP)

|	2009	2010	2011	2012	2013	2014	2015	Total
Czech Republic	81.93%	81.88%	81.14%	79.76%	76.95%	73.37%	73.79%	78.94%
Slovak Republic	6.12%	6.65%	6.56%	6.71%	6.87%	6.87%	6.95%	6.64%
Russian Federation	5.06%	4.39%	4.77%	5.39%	7.19%	9.75%	10.16%	6.32%
Republic of Kazakhstan	2.09%	2.01%	2.16%	2.04%	1.85%	2.15%	1.98%	2.04%
Ukraine	1.33%	1.36%	1.58%	1.92%	2.26%	2.90%	3.39%	1.99%
Vietnam Socialist Rep.	1.17%	1.19%	1.71%	2.09%	2.42%	2.16%	0.66%	1.63%
Belarus	1.06%	1.43%	1.08%	0.87%	0.93%	0.99%	1.20%	1.08%
Moldova	0.30%	0.12%	0.20%	0.18%	0.21%	0.15%	0.12%	0.19%
Other Countries	0.94%	0.97%	0.80%	1.04%	1.32%	1.66%	1.75%	1.17%
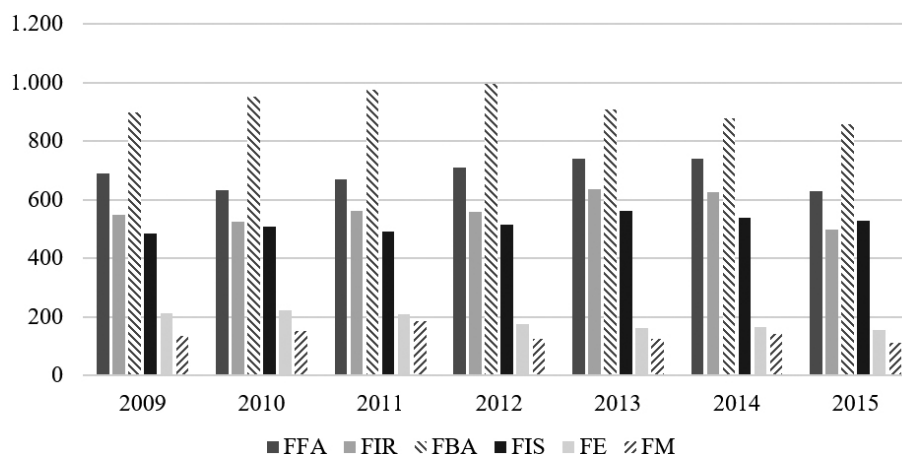
Figure 1: Trend in the number of foreign applicants between 2009 and 2015 by faculty. Source: (authors)
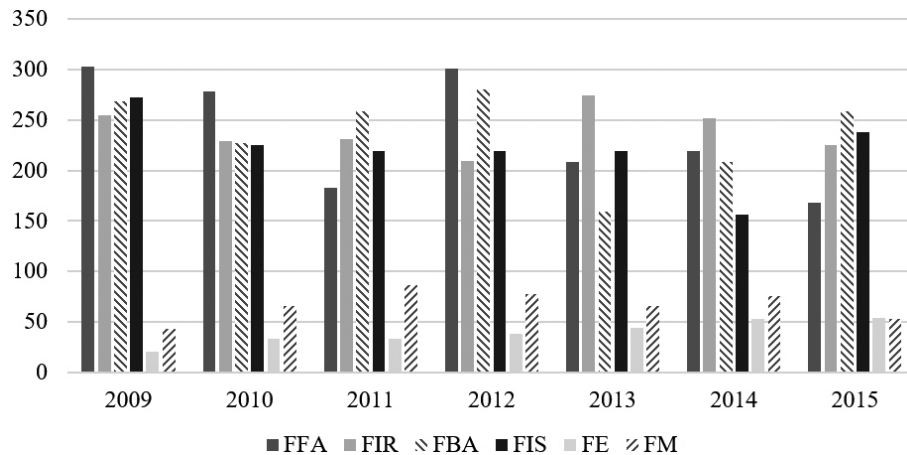
Figure 2: Trend in the number of accepted foreign students during the time period of 2009 – 2015 by faculty. Source: (authors)
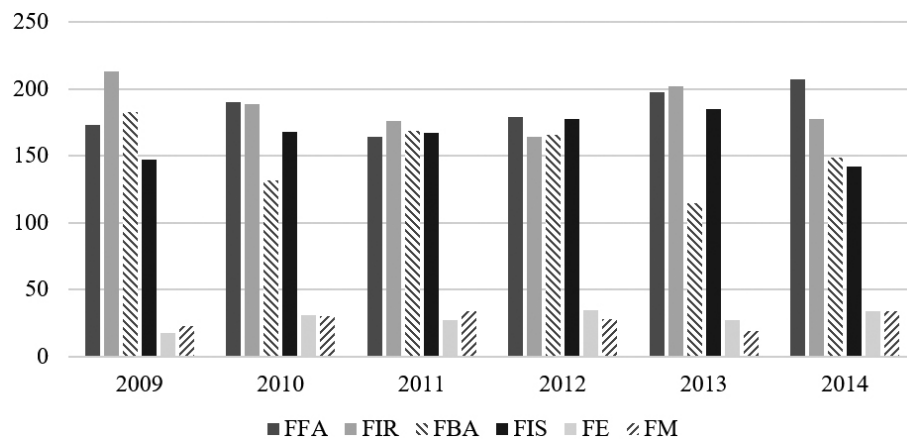

Figure 3: Trend in the number of admitted foreign students who entered the university during the time period of 2009 – 2015 by faculty. Source: (authors)

students who actually enter the university because students may pass an entrance exam and be admitted to different study programs at several universities but will enter only one university.

Figure 3 provides only data up to 2014, when the enrolment process for foreign students changed and we were not able to collect data on enrolled foreign students by faculties any more. Therefore, only data for the period 2009 – 2014 were used in further analysis.

3   Research Questions

The target group of our analysis were foreign students who applied for undergraduate study programs taught in Czech. Based on the analysis presented in the previous chapter, we formulated the following three research questions (RQs):

- RQ1: Students who obtained a higher number of points in their mathematics entrance exam have better

results in mathematics courses during their studies.
- RQ2: Students who obtained a higher number of points in their English entrance exam have better results in English courses during their studies.
- RQ3: Students who obtained a higher number of points in their total entrance exams (mathematics and English) have a better chance of completing their bachelor's studies.

The mathematics and English are defined on the first place, because currently the University has serious problems with results in standard exams in the area of mathematics and English, which are mandatory courses.

Above mentioned research questions are analysed for the entire group (for University of Economics, Prague) and by faculty.

4 Methodology of Data Collection, Processing and Evaluation

All data used for this article were obtained from UEP's entrance exams or exam agenda. The data were entered in the Internal Information System (InSYS). The basic problem was anonymization of data. The data collected for entrance exam proceedings or exam agenda processing are, in compliance with the requirements of Act No. 101/2000 of Coll.[2], anonymized (i.e. do not include any information that could identify specific persons) before they are further processed. This act requires that such data do not provide an opportunity to track down a specific applicant or to obtain his or her personal data, such as date of birth, first name, last name, etc. Data were paired by way of system unique id (database primary key), which was included in all data extracts.

We analysed only the data of foreign students who filled in an application for UEP's undergraduate study programs during the time period of 2009 – 2015. For the purposes of our analysis, foreign students mean students whose applications show a citizenship other than the citizenship of the Czech Republic.

We analysed the sample of the data of all foreign students who:

- met the condition for RQ1, i.e. have both a mathematics entrance exam grade as well as a grade in mathematics from a regular exam during their studies;
- met the condition for RQ2, i.e. have both an English entrance exam grade as well as a grade in English from a regular exam during their studies;
- met the condition for RQ3, i.e. have an entrance exam result and also completed (passed/failed) their studies, which means do not have the status "studies suspended" or "currently studying," etc.

We verified the research questions, using standard statistical methods. We described the analysed sample, using descriptive statistics, such as the number of records, mean, standard deviation, sample variance, kurtosis and skewness. Furthermore, to verify research question RQ1 and RQ2, we calculated a correlation coefficient. We were able to use this method since both variables show the normal distribution with a similar standard deviation.

The maximum number of points, which can be gained by applicants during entrance exam from mathematics, is 100 points (not percentage) and the same amount of points can be gained from English. The max total number of points from exam from both subject is 200 points. Results from standard exam can be in range from 1 (the best result

= A) to 4 (the worst result, failed = F).

The entrance exam results and the regular exam results had to be consolidated so that they could be compared. Regular exam results of 1 - 4 (4 – meaning failed) were transformed into the values of 50, 60, 75 and 90 as shown in Table 2 below. The entrance exam results were also transformed into the values of 50, 60, 75 and 90; any value higher than 90 points obtained for an entrance exam was transformed into the equivalent value of 90 used for the calculation of a correlation coefficient (see Table 2).

In the case of Research question RQ3 analysing the correlation between an entrance exam result and a successful or failed completion of studies, we transformed the completion of studies into the binary values of 0 and 1, where 0 means a student failed his studies and 1 means that a student successfully completed his study. To calculate the correlation values, we used the logistic regression, where the binary variable of studies completion was the dependent variable and the number of points obtained in an entrance exam was only one independent quantitative continuous variable (Kuncova and Wasserbauer, 2007; Rezankova, 2010). The probability of studies completion is marked as p. Then:

$$\ln (p/1\text{-}p) = \beta_o + \beta_1 X \qquad (1)$$

where is X is a number of obtained points from entrance exams,

- β_o - constant,
- β_1 - increment - points from entrance exam,
- p - probability of successful study completion.

To calculate the actual correlation, the SPSS application has been used, and to accept or reject the null hypothesis of regression parameters being zero has been used the Wald test (Rezankova, 2010) where we rejected this hypothesis if the Wald test was higher than zero.

The logistic regression (1) shows that

$$p = e^{(\beta_o + \beta_1\ NPOEE)} / (1 + e^{(\beta_o + \beta_1\ NPOEE)}) \qquad (2)$$

where is number of obtained points from entrance exams,

- β_o - constant,
- β_1 - increment - points from entrance exam,
- p - probability of successful studies completion. The estimated probability of successful studies completion if a certain number of points is obtained in an entrance exam, and
- NPOEE - the number of points from entrance exams.

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2 https://www.uoou.cz/en/vismo/zobraz_dok.asp?id_org=200156&id_ktg=1107&archiv=0&p1=1105

This act shall apply to personal data that are processed by state authorities, territorial self-administration bodies, other public authority bodies, as well as natural and legal persons. „Anonymous data" shall mean such data that cannot be linked to an identified or identifiable data subject in their original form or following processing thereof.

Table 2: Mapping of the correlation between the number of points obtained in an entrance exam and the number of points obtained in a regular exam Source: (authors, data UEP)

Result Entrance Exam	Mapping Used for Correlation	Exam	Mapping Used for Correlation
<90 – 100> points	90 points	Grade 1	90 points
<75 – 90) points	75 points	Grade 2	75 points
<60 – 75) points	60 points	Grade 3	60 points
<0 – 60) points	50 points	Grade 4	50 points

Table 3: Characteristics of the Group and Results in Mathematics – the first value in a cell (in columns between "Mean" to "Skewness") applies to the mathematics entrance exam; the second to the mathematics regular exam Source: (authors, data UEP)

	N	Mean	Standard Dev	Sample Var	Kurtosis	Skewness	Correl
Total	4.381	75.374/63.470	13.634/13.561	185.876/183.905	-1.118/-0.691	-0.394/0.734	0.241
FFA	1.171	78.642/65.961	12.018/14.198	144.437/201.576	-0.643/-1.092	-0663/0.469	0.231
FIR	1.247	74.479/60.383	14.004/13.536	196.117/183.211	-1.279/-0.808	-0.279/0.637	0.269
FBA	1.009	78.012/62.567	12.310/12.700	151.529/161.306	-0.655/-0.368	-0.636/0.834	0.078
FIS	954	69.743/60.386	14.387/12.997	206.991/168.925	-1.321/0.163	0.128/1.160	0.283

5 Results

To evaluate the research questions, we could use only the data from four faculties since FM and FE have a different admission procedure without a unified mathematics and English entrance exam and their data are not included into our research.

Table 3 presents a comparison and statistical analysis of the results of entrance and regular exams in mathematics by faculty.

The analysis of the result shows a very weak correlation between the points for a mathematics entrance exam and the points for a mathematics regular exam. The weakest correlation is at FBA (0.078). Therefore, we can conclude that "business economics and management" are not built on the use of mathematical methods, and therefore mathematics is not being developed very much. On the other hand, the strongest correlation between the results of these two exams is at FIS (0.283), which is to be expected, although we would have expected an even stronger correlation. The overall correlation for the entire data group is also weak (0.241), therefore RQ1 cannot be accepted for the entire group and for the individual faculties.

Table 4 presents a comparison and statistical analysis of the results of entrance and regular exams in English by faculty. The results obtained from this correlation analysis are even more surprising than those for mathematics. The correlation between the points obtained in an English entrance exam and the points obtained in an English regular exam during studies is somewhat higher than in the case of mathematics, but the correlation coefficient is still

very small. The entire group shows a value of 0.292, which is a weak correlation. Higher values are achieved at FIR (0.299) and FBA (0.312) – this value is the highest of the entire analysed group. The lowest correlation coefficient for students of FIS (0.218) is expected since this faculty focuses more on mathematics. The correlation for the entire data group is stronger as compared to mathematics but is overall weaker than expected. Therefore, we can conclude that RQ2 has not been confirmed for the entire group nor the individual faculties.

To verify RQ3, we used, as specified in chapter 4, the method of logistic regression, using the SPSS. The output from the SPSS for the entire UEP is provided in Table 5.

Table 5 shows that we can reject RQ3, on the significance level "Sig.," the null hypothesis of regression parameters (the Wald text is higher than zero). From equation (2) and Table 5 we can formulate that the probability that a student will complete his studies is shown by equation (3):

$$p = e^{(-4.99 + 0.030\, NPOEE)} / 1 + e^{(-4.99 + 0.030\, NPOEE)} \quad (3)$$

where is NPOEE is the number of points from entrance exams.

The value Exp (B) in Table 5 shows how the probability of completion goes up with each point obtained at the entrance exam. For the entire UEP, the probability of completion goes up 1.031 times.

Therefore, e.g. for 150 points obtained for an entrance exam, p = 0.38, for 190 points, p = 0.67 and for 200 points, p = 0.73. The minimum number of points from both exams is 0 points and max number from both exams is 200 points. The table 6 contains results for 3 levels of points, 100, 150

Table 4: Characteristics of the group and results in English – the first value in a cell (in columns between "Mean" to "Skewness") applies to the mathematics entrance exam; the second to the mathematics regular exam. Source: (authors, data UEP)

	Sum	Mean	Standard Dev	Sample Var	Kurtosis	Skewness	Correl
Total	3.604	73.490/74.234	12.040/16.346	144.948/267.190	-0.914/-1.144	-0.140/-0.425	0.292
FFA	914	75.126/5.881	10.714/15.866	114.798/251.712	-0.930/-1.197	-0.057/-0.618	0.242
FIR	1.273	75.287/75.687	11.566/15.450	133.782/238.698	-0.890/-1.210	-0.221/-0.562	0.299
FBA	803	72.821/73.344	12.394/16.130	153.499/260.159	-0.954/-1.476	-0.125/-0.327	0.312
FIS	614	68.200/69.935	12.772/18.218	163.110/331.889	-0.984/-1.831	0.223/0.014	0.218

Table 5: Calculations of the Model for Entire UEP Source: (authors, data UEP)
Note: B = the coefficient for the constant (also called the "intercept") in the null model; S.E. = the standard error around the coefficient for the constant; Wald = determine statistical significance for each of the independent variables; Df = the degrees of freedom for each variable; Sig. = statistical significance of the test; Exp(B) = the exponentiation of the B coefficient, which is an odds ratio

	B	S.E.	Wald	Df	Sig.	Exp(B)
Exam Results $\beta1$	0.030	0.002	228.335	1	0.000	1.031
Constant $\beta0$	4.990	0.324	237.571	1	0.000	0.007

Table 6: Success rate increase for UEP and the analysed faculties. Source: (authors, data UEP)

	Exp (B)	Wald test	100 Points	150 Points	200 Points
UEP	1,031	228,335	0.120	0.378	0.733
FFA	1,042	76,428	0.045	0.268	0,740
FIR	1,027	54,926	0.223	0.525	0.810
FBA	1,017	17,391	0.274	0.469	0.674
FIS	1,022	20,493	0.091	0.232	0.475

and 200 points.

We performed the analysis and calculations for all faculties of UEP and the overall result is provided in Table 6.

Table 6 shows that the probability of completion goes up the most with an increasing number of points at FFA – 1.042 times with each obtained point and the least at FBA 1.017 times. Table 6 also shows the probability of completion for the typified number of points obtained for an entrance exam – the points are 100, 150 and 200. In this case, the difference between the individual faculties is really huge since the probability at FIR is 0.810 while that at FIS is only 0.475.

We found the dependency between the entrance exam results and probability of successful completion of undergraduate studies. We identified it as positive (better entrance exam results increase the probability of successful completion of studies). There is a big difference between the faculties, and the strongest correlation is at FIR and the weakest at FIS.

We can conclude that RQ3 has been confirmed for both the entire group and the individual faculties.

6 Conclusions

The fact in the overall summary of our findings is that the total number of foreign students applying every year to UEP's Czech study programs during the period of 2009 – 2015 was practically constant (760 students in 2009, 744 students in 2014). Decreases are minimal and different over time. The number fluctuates between 740 and 760.

Foreign students at the Faculty of International Relations have the highest probability of completing their studies, based on their entrance exam results. This faculty (where International Trade is the major field of study) essentially educates specialists in the international environment, in particular trade, political science and diplomacy. Both the nature of these studies and the motivation of foreign students, who are educated in and for a multi-cultural environment, contribute to the higher success rate in their studies as a whole. On the other hand, the major focus of the Faculty of Informatics and Statistics on informatics or quantitative methods is often very surprising and foreign students have problems dealing with it. In fact, students

who applied to the Faculty of Informatics and Statistics sometimes try to figure out what they would like to study and, after the first year, take entrance exams to other faculties of UEP or even to other universities that focus more on humanities.

Another basic limit concerning our reflections and calculations is the fact that the entire UEP has a relatively large group of foreign (and not only foreign) "students" who obtain a very small number of ECTS credits in the first semester or the first year. These students very quickly changed their priorities during or even before the first semester and are not in fact interested in studying the field of study or faculty they chose. They prefer to work in the Schengen Area. After having discontinued their studies due to an insufficient number of ECTS credits, they return to their homeland or move to other states of the Schengen Area. Sometimes they stay in the Czech Republic and repeatedly take entrance exams to another faculty of UEP or to faculties of other universities.

Further question that must be answered by deans annually by entrance procedures is "How many obtained points is sufficient for entrance to study program?" By answering this question, we can meet two different approaches. The first one – pragmatic one – is to enrol the highest number of students that is possible, because the financial payment from the Ministry of Education, Youth and Sport is "per capita". The second approach is related to quality of students and to further quality-oriented indicators as for example are completion rate, time to degree and retention or dropout rate. Results of our research showed that to enrol students on the level of 150 points from entrance exams is acceptable for FIR and FBA. If faculty enrols students under the level of 150 points, it is sure that they apply pragmatic approach, but not the quality-oriented approach.

In this article presented research offers to faculty management basic sources for decision making process in enrolment of applied students for economic studies at University of Economics, Prague.

7 Further research

In our survey, we shall analyse individual groups of students based on the number of ECTS credits obtained in the first semester or the first year. We shall group students using a cluster analysis. We shall decide whether to use a single-criterion cluster analysis, where the criterion shall be the number of obtained ECTS credits, or a multi-criterion cluster analysis, where the number of obtained ECTS credits and e.g. the completion of some key subjects in the individual fields of study or the completion of entire studies (e.g. macroeconomics, microeconomics or mathematics courses) and final grades shall be considered. After that we shall normalize the data, i.e. we shall convert all criteria to the same scale (0;1). It may seem an unnecessary step since the values are already from the given scale;

however, this normalization shall readjust extreme values and their significance for the entire model. The next step shall involve the application of the model of probability of completion of studies for individual groups that we obtained, using the cluster analysis.

The subjective perception of studies by students represents another factor that affects the study results at the university. We expect to take this factor into account in our survey conducted among students in the form of a questionnaire. We are currently working on the questionnaire and we would like to analyse the following factors in particular:

1. Reasons for problems in handling studies on the part of the student:
   - Predisposition factors (lack of skills, unsuited motivation, personality characteristics);
   - Unsuited behaviour patterns (bad study habits, procrastination);
   - Insufficient initial knowledge base.

2. External reasons:
   - Environmental factors (general adaptation problems, family problems, problems with integration in the social environment);
   - The student's financial situation;
   - Unreasonable study demands, unsuitable way of teaching;
   - Cultural differences in teaching and in the social environment.

The next steps of this research are based on new approach of data gathering, which will be based on real-time gathering. This real-time gathering will relate to changes in data model and extension of the data model for new data.

We expect, that this change helps us with implementation of predictive-analytics which will improve the pass-rate of the student. One of the best-case scenario will be contacting of students which are not visiting lectures or have not good results in tests during semester. This is crucial part of the project which is requested by the project sponsor.

Acknowledgement

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Povezava med rezultati sprejemnih izpitov tujih študentov ekonomskih študij na Ekonomski univerzi v Pragi in njihovim študijskim uspehom

Ozadje in namen: Namen članka je analiza rezultatov sprejemnih izpitov in rezultatov rednih izpitov tujih študentov na dodiplomskih študijskih programih, ki se izvajajo v češkem jeziku, na štirih fakultetah Ekonomske Univerze v Pragi (UEP), z namenom raziskati odvisnost med rezultati sprejemnih izpitov iz angleščine in matematike ter (1) rezultati rednih izpitov med študijem in med (2) uspešnim zaključkom študija.

Zasnova / metodologija / pristop: Analizirali smo 4.381 zapisov – prijav študentov iz tujih držav, ki so podali vlogo za študij med leti 2009 in 2015. Uporabili smo standardne statistične metode in metodo logistične regresije v obliki logit modela.

Rezultati: Ugotovili smo šibko statistično povezavo med rezultati sprejemnih izpitov iz matematike in rezultati rednih izpitov. Koeficient korelacije se giblje med 0,078 - 0,283 za preiskovane fakultete UEP. Isti kazalnik je za izpit iz angleškega jezika pokazal nekoliko boljše vrednosti, giblje se med 0,218 - 0,312. Če je rezultat pri sprejemnem izpitu višji za eno točko, je verjetnost uspešnega zaključka študija večja za faktor od 1.017 do 1.042, odvisno od posamezne fakultete.

Zaključek: Rezultati analize izpitnih rezultatov iz matematike in angleščine kažejo, da odlični rezultati pri sprejemnem izpitu ne morejo zagotoviti uspešnih rednih izpitov. Zaključek o verjetnosti dokončanja študija je, da je sprejemljiva raven točk za sprejem tujih študentov med 150 in 170 točk, odvisno od fakultete.

Ključne besede: znanje; tuji študent; univerza; angleški jezik; matematika

The Transition of Young People from Study to Employment in the Light of Student Work

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Background and Purpose: We are living in a time of accelerated globalization, which has a far-reaching impact for youth employment. Therefore, the paper presents the problem of the transition of tertiary educated young people into the working environment in terms of the importance of education and gaining work experience during their studies. The main purpose of the study was to analyze the attitudes and thinking of students regarding the selection of studies and work experience that young people are gaining during their studies with student work in connection with their job prospects.

Design/Methodology/Approach: The data used in our research come from a broader research on Slovenian Youths (SY) dating back to 2013. Among all the respondents of SY we selected those who classified themselves as students aged between 19 and 24, who filled out the part of the questionnaire pertaining to employment. The research hypotheses were tested with the analysis of variance (ANOVA) and independent samples t-test.

Results: We found that among students who chose to study for different reasons there were differences in the belief that they will immediately find employment after graduating. We also found that between those students who supported themselves during their studies and those who only studied there were differences in individual statements regarding their transition from education to employment. We concluded that work during their studies, especially in the field of the profession they were studying for, had a positive impact on the thinking of students pertaining to the transition toward employment.

Conclusion: The analysis of employment issues faced by young people with tertiary education was supported by empirical data, while in conclusion suggestions for improvement were presented. The article also deepens the understanding of the problems of youth employment in a broader perspective and the understanding of the observed developments in society.

Keywords: youth employment; tertiary education; work experience; job search

1 Introduction

Over the last decade, the economic crisis has had a major impact on the functioning of the labour market in the European Union. According to Eurostat data, until 2014 there was a decline in employment and an increase in unemployment, especially among young people. This is consistent with the statements of various authors (Coleman, 2000; Sprangers, 1992; Teichler, 2009) claiming that the economic downturn, spreading of new technologies, rational-

ization of jobs, etc. mainly affect the young people, including those with the highest levels of education. The problem is, above all, the fact that youth unemployment in most EU countries is more than two times higher than the total unemployment rate (Eurostat, 2017). Dietrich (2012) describes a variety of reasons for high youth unemployment in Europe. In addition to the economic crisis he mentions the big role of the education system that does not offer young people knowledge and skills needed in the labour market, lack of mentoring for young people, improper re-

cruitment policy and lack of work experience. In addition to working experience, many authors (e.g. Baydetskyy, 2013; Donik, Pajnkihar & Bernik, 2015; Bencsik, Horváth-Csikós & Juhász, 2016; Sokół & Figurska, 2017) classify professionalism and level of education among the factors of successful youth employment.

The 21st century is characterized by a knowledge-based economy, so it is not surprising that one of the strategic objectives of the European Union is also the increase in the share of tertiary education (Europe 2020, 2010) by 2020. Domains and Arim (2016) state that higher education has also been promoted to ensure the safe financial future of young people. Ule and Živoder (2012) warn that educational capital does not necessarily mean a better position on the labour market, as it has proved to be ineffective in Slovenia and the unemployment rate of young people with tertiary education has increased sharply. Other authors also mention the difficulty of the transition of graduates to the workplace. Murphy, Blustein, Bohling and Platt (2010), as well as Alves and Korhonen (2016), report that transition from tertiary education to work is increasingly longer, and above all diverse and individualized. In addition to a longer period of unemployment, Domen and Arim (2016) mention the increase in precarious work, and thus the association of young people with mental health problems, for example, depression.

Allen and van der Velden (2011), Støeren and Arnesen (2011), Humburg, van der Velden and Verhagen (2013) classify their work experience, especially those related to the study program, among the most important factors for the successful and appropriate employment of graduates. Robert and Saar (2012) have shown that student work has a positive impact on the employability of graduates, if it is related to the field of study. Alves and Korhonen (2016) mention that each work during the course of tertiary education contributes to the growth of social capital, which facilitates graduates to become involved in the working environment. Scott (2012: 189) also emphasizes the positive significance of work experience and mentions that students can develop soft skills even in relatively low-skilled jobs, build career networks, and gain references and information that enables better job matches later in life.

In many countries across Europe, the phenomenon of student jobs is widespread in addition to study (Hauschildt, Gwosć, Netz and Mishra (2015). In Slovenia, as many as 67% of students are performing work during study (Eurostudent SI 2010, 2010). According to the above facts, graduation would be expected to facilitate the inclusion of graduates into the working environment. However, of particular concern are the Eurostat data (2018) according to which Slovenia has high unemployment rate among young people with tertiary education compared to other countries in the European Union, especially in the 25-29 years age group. In the European Union, unemployment among young people with tertiary education is only higher in Greece, Italy, Spain, Cyprus and Croatia. In this age

bracket, which coincides with the period after the end of studying, Slovenian youth is actively involved in finding a job. Since at this age, young people are much more mature and have mostly formed goals and desires to meet different expectations (e.g. to prove themselves in their profession, to make a home for themselves, and to have a family), perception of unemployment is much more difficult.

According to the findings of Powers and Wojtkiewicz (2004), students begin to be aware of the importance of employment opportunities too late, i.e. only a few years before seeking employment, therefore, we were wondering whether young people are even aware of the problems they will face in the labour market. Therefore, the aim of the research was to find out the views and reflections of Slovenian students regarding the choice of study and employment opportunities in connection with the work experience acquired through student work. In the paper, we first reviewed literature in relation to education, work experience and employment of young people. We used the literature review as the basis for the setting up of research hypotheses which we studied with the analysis of the research among Slovenian students. In the end, we discussed the results and presented the limitations and proposals for further research.

2 Literature review

2.1 The importance of education and employment

In modern societies, knowledge is essential for the development and advancement of economy. Välimaa and Hoffman (2008) even use the term "knowledge-based society" for developed societies. Education has proven to be an important factor affecting youth unemployment (European Union, 2014) and education is therefore encouraged, especially tertiary. In its strategy (Europe 2020, 2010), the EU stated that it is necessary to achieve that 40% of the population aged 30-34 will obtain tertiary education by 2020. In Slovenia, we achieved this goal already in 2013 and, according to Eurostat data, the share is still growing, thus being much higher than the average in the EU. Even among young people in the age group of 20-24 years and those in the 25-29 years age group, there is an increase in the proportion of those with the tertiary education.

Hanushek and Woesmann (2010) found that the tertiary education obtained exerts a positive impact on economic growth, however, the effect is even greater if the offer of individuals who have achieved this level of education meets the demand in the labour market. In 2014, 47.3% of young people between 20 and 24 years were included in tertiary education in Slovenia (Eurostat, 2016), therefore ranking among the top EU countries. On the other hand, many authors point to the problem of over-education

(Groeneveld and Hartog, 2004; Mørch and Du Bois-Reymond, 2006; Quintini, 2011; Baert, Cockx and Verhaest, 2013) resulting in numerous disadvantages. We could say that education is becoming a necessary but not sufficient condition for employment, therefore, it is necessary to regard the issue of tertiary education and youth employability problems from a broader perspective.

Potočnik (2009) studied the motives of entering a university and perception of Croatian students regarding the success in searching for employment. She found that gender, age and years of study were not important factors, as differences arose from objective factors. Most of the students attended the desired faculty, mainly because of their interest in the field of study, followed by the high employability in a certain profession. Most students thought that they will find employment easily. Since this is a period in which we are faced with high unemployment of graduates, it is understandable that young people want to know the job prospects of each profession before actually choosing a study. Thus, the study which delivers the most reliable employment has an important role when young people choose their fields of study. The HEGESCO survey results (Allen, Coenen and Humburg, 2011) show that graduates with a BSc degree in information sciences, technical sciences and health sciences find a job sooner than the graduates of humanities, social sciences and services. This could therefore be the reason behind the increase in recent years of enrolments in science, computer science and health care in Slovenia, while enrolment in social sciences, business and law decreased (SURS, 2016). On the other hand, it is always necessary to take into account internal factors that affect the selection of studies and the related personal values. Most authors mention how important it is to consider one's own desires when choosing a study, because this conditions the success of individuals in their studies and later work. Man namely spends a third of his life in the working environment where he/she develops and achieves self-realization which, as Galimberti (2009) puts it, represents the key condition for happiness. Therefore, we wanted to know why young people chose certain studies, was this really their desire or have they reached this decision due to better job opportunities.

2.2 Work experience and employment

Panzaru (2013) mentioned that a financial crisis, when employers are looking for experienced staff, signifies a major problem for young people experiencing transition from education to employment. During their studies they only rarely obtain formal work experience to assist them in finding employment. Therefore, it is important that students are working in the industries they were educated for as the work experience gained during their studies, especially those related to the content of the study program, have a significant impact regarding the shorter search time

and the adequacy of employment after graduation (Robert in Saar, 2012). Støren and Arnesen (2011) note that work experience related to their studies reduce the possibility for all kinds of mismatched employments (horizontal and vertical) and for unemployment. Thus, the difference between the impact of work related to studies is important. The authors claim that work which is not related to the study content exerts a lesser impact on the success of obtaining a job after graduation. Similar were the findings by van der Velden and Allen (2011). The authors stated that work which is not related to the study in the long term allows for a certain protection against unemployment, but it does not help graduates to find work quickly, nor does it increase the chances of higher pay for their work.

EUROSTUDENT survey data show that in most countries at least two out of five students are involved in employment activities closely related to their field of study. In Estonia, Finland, Latvia, Norway, Romania and Sweden, this share is at least 50% (Hauschildt et al., 2015: 103). In Slovenia, the majority of students obtain work experience before the first employment through student work that falls into the group of atypical employments (Kosi, Nastav and Šušteršič, 2010). In our opinion, the problem lies in the fact that their professional skills are largely unrelated to the study area. However, this work experience should not be ignored, since Souto-Otero et al. (2012) demonstrated that a large part of the competencies that employers are looking for include soft skills: communication skills, ability of team work, flexibility, self-confidence, etc. Thus, the student work that is not directly related to the field of study is seen as an advantage in finding a job, because students in addition to the acquisition of soft skills also learn about the reality of the labour market, get to know the employers and establish important connections for finding a job after graduation. We wanted to know whether the majority of students perform student work related to their field of study and what are the views of these students pertaining to the seeking of employment after graduation.

2.3 Seeking employment

Scarpetta, Sonnet and Manfredi (2010) mention two important groups in young jobseekers: young people who are moving from one limited term employment to another and young people who, after unsuccessful job search, return to the education process. As regards the first group of young people (moving from one limited term employment to another), it should be noted that the European labour market recorded an increase in non-standard forms of employment. The report (ILO, 2015) mentions that is why policymakers and institutions began to advocate reform of the labour market in order to reduce the regulatory gap between workers in standard and non-standard forms of employment. Slovenia is one of the EU countries with the highest percentage of the fixed-term and short-term em-

ployment, as well as temporary jobs (Eurofound, 2012; Eurostat, 2015). Ignjatović and Trbanc (2009) stated that both forms should be a springboard for the transition of young people into regular employment, however, they often lead to unemployment. We could say that the individual risk of young people is growing as partial and precarious jobs do not provide individuals with material and social security. Because such forms of work do not guarantee independence, as they only last a short time (Ule and Živoder, 2012), young people do not become independent, but rather prolong the stay with their parents, which is a trend in all of the Mediterranean countries (Klanjšek, 2013: 5-6). Another group of young people who, after an unsuccessful job search, return to the process of education are regarded by Ule and Živoder (2012) as a result of the lack of job opportunities and the equation of higher education with a better position in the labour market.

After 1990, Slovenia began to be faced with the chaotic transition of young people from education to employment. There has been a rise in youth unemployment, temporary and part-time employment, with the young remaining unemployed for longer or shorter periods of time when changing employment, while obtaining additional education in the form of in-service course or during unemployment. Standing (2014) draws attention to the weaknesses in precarious work, as these do not bring security and stability to individuals. The author continues by asserting that a person can only develop strong identity in a predictable and secure environment, while workers in atypical forms of work are subject to persistent insecurity and anxiety. Particularly worrying is the fact that in the last ten years there was an increase in unemployed graduates which is not proportional to the increase in the volume of relevant jobs.

According to data from the DEHEMS project (Melink and Pavlin, 2009) Slovenia is among the countries where graduates on average (depending on the direction of their study) need a relatively long period between the end of the study and their first employment. Therefore, we wanted to know which factors were relevant to students in finding a job.

3 Methodology

3.1 Research hypotheses

Based on extensive literature review we stated for research hypotheses:

The issue of the choice of study and students' attitudes towards employment opportunities was based on the findings of various authors (e.g. Groeneweld and Hartog, 2004; Potočnik, 2009; Allen, Coenen & Humburg, 2011) and presented the following hypothesis:

- RH1: Between the students who selected their studies for various reasons (exact wording stated in Table 3) there are differences in the belief that they will find a job immediately after graduation.

The issue of performing student work during study related to the direction of students' study and attitudes towards employment opportunities was based on the findings of numerous authors (e.g. Van der Velden and Allen, 2011; Støeren and Arnesen, 2011; Souto-Otero, Ulicna, Schaepkens and Bognar, 2012 Robert and Saar, 2012; Panzaru, 2013; Hauschildt, Gwosć, Netz and Mishra, 2015) and the following hypotheses were made:

- RH2: Between the students who work and those who do not work during their studies differences exist, on average, regarding the belief that after graduation they will immediately find a job.
- RH3: Between the students who work in their profession and those who do not differences exist, on average, regarding the belief that after graduation they will immediately find a job.

The issue of finding a job and the factors that appear important to students in finding a job was based on the findings of various authors (e.g. Scarpetta, Sonnet and Manfredi, 2010; Ule and Živoder, 2012; Klanjšek, 2013; Humburg, van der Velden and Verhagen, 2013) and the following hypothesis was put forward:

- RH4: Between the students who work and those who do not work during their studies differences exist, on average, regarding the assessment of factors (acquaintances/friends, professionalism, education, political connections, luck) which they consider to be important in finding a job.

The research hypotheses were tested by independent samples t-test and ANOVA. The assumptions of both test were checked prior the statistical tests were conducted (normality of the variable under study in each group was verified by coefficient of skewness and kurtosis as suggested by Field (2013)), but details are not provided.

3.2 Data collection and sample

The data are part of a broader research on Slovenian Youths (SY) dating back to 2013 (Flere et al., 2014). The main research interests were focused on demographic changes and intergenerational cooperation, education and training, employment and entrepreneurship, living and housing conditions, lifestyles, health and welfare, media, political participation, mobility and globalization. The probability sampling (stratified quota sampling) included young Slovenians aged 16 to 27.

Among all the respondents of SY (907 participants) we selected those who classified themselves as students aged

between 19 and 24, who filled out (fully or at least part) the part of the questionnaire pertaining to employment. Of the 272 respondents, 37.5% were males and 62.5% females. The average age of respondents was 21.85 years with standard deviation equal to 1.61 years. Respondents were selected from all regions: 14.0% from the capital city, 4.4% from the second largest city, 13.2% from cities with more than 10,001 inhabitants, 16.9% from cities with more than 2,000 and less or equal to 10,000 inhabitants, while the majority of respondents (51.5%) originated from smaller towns with less than 2,000 inhabitants.

4 Results

First we present the descriptive statistics of questionnaire items included in the research hypotheses. The item 'I believe I will find a job after graduation' was measured with a 3-point scale where 1 signified 'I believe I will find a job immediately after graduation', 2 stood for 'I believe I will eventually find a job, and 3 meant 'I do not believe I will find a job'. On 3-point scale respondents evaluated the item with average 2.11 and standard deviation 0.716 (frequencies are presented in Table 1).

Students were asked to rank five factors of job seeking according their importance from 1 the most important to 5 the least important (Table 2). On average, the most important factor (on the whole sample) was acquaintances/friends (M=2.14, SD=1.254), followed by education (M=2.53, SD=1.258), expertise (M=2.93, SD=1.131), and luck (M=3.57, SD=1.320). On average, the least important factor of job seeking was political connections (M=3.83, SD=1.366).

The first research hypothesis was tested with the analysis of variance (ANOVA). Of the entire sample (Table 3),

the lowest score regarding expectations that they will find a job immediately after graduation was achieved by students who chose a study for which they thought that there was a real possibility for enrolment, although the study did not coincide with their wishes (M = 2.56), followed by students who were studying what they wanted to study (M = 2.08). The highest average scores regarding expectations were recorded by respondents who chose a study which provided jobs, although this study did not coincide with their wishes (M = 1.95).

ANOVA (Table 3) showed that there existed statistically significant differences among three groups of students regarding their beliefs that they will find a job immediately after graduation (F = 4.007, $df1$ = 2, $df2$ = 241, p = 0.019) at 5% significance level.

Thereafter, the ANOVA multiple comparisons with Hochberg's GT2 test, which is suitable for unequal group sizes (Field, 2013), were performed. Results revealed that students who chose a study with real possibilities to enroll, although the study did not coincide with their wishes, have on average had different expectations that they would find a job immediately after graduation than students who were studying what they wanted to study (p = 0.025) at 5% significance level. Similarly, students who chose a study with real possibilities to enrol, although the study did not coincide with their wishes had different expectations than students who chose a study which provided jobs, although this study did not coincide with their wishes (p=0.032 at 5% significance level. Therefore, the first research hypothesis could be confirmed.

The second research hypothesis was tested with the independent samples t-test (Table 4). On the 3-point scale (ranging from 1 - 'I believe that I will immediately find a job' to 3 - 'I do not believe that I will find a job'.), the students who worked during their studies estimated their

Table 1: Frequencies and percentages for questions regarding study program and work during the study

Question	Answers	N	%
Choose of a study program	I am studying what I wanted to study.	221	85%
	I chose a study, which provides jobs, although this study does not coincide with my wishes.	20	8%
	I chose a study for which I thought that there was a real possibility for enrolment, although this study does not coincide with my wishes.	19	7%
Finding a job after graduation	I will find a job immediately	52	21%
	I will eventually find a job	120	48%
	I will not get a job	79	31%
Working during the study	Yes	173	64%
	No	98	36%
Working in the field for which they are trained	Not working in their profession	115	66%
	Working in their profession	58	34%

Table 2: Frequencies and descriptive statistics for importance of five factors in job seeking

Factors of job seeking	Percentages					Descriptive statistics		
	1 - the most important	2	3	4	5 - the least important	N	M	SD
Acquaintances / friends	45%	17%	20%	13%	5%	271	2,14	1,254
Expertise	10%	29%	26%	27%	8%	271	2,93	1,131
Education	27%	25%	22%	19%	7%	271	2,53	1,258
Political connections	8%	15%	12%	18%	48%	271	3,83	1,366
Luck	9%	14%	20%	24%	33%	271	3,57	1,320

Table 3: Results of ANOVA for students' beliefs that they will find a job immediately after graduation according to the three groups of study selection criterion

Study selection criterion	Decriptive statistics			Results of ANOVA	
	N	M	SD	F	Sig.
I am studying what I wanted to study.	209	2.08	0.703	4.007	0.019
I chose a study, which provides jobs, although this study does not coincide with my wishes.	19	1.95	0.780		
I chose a study for which I thought that there was a real possibility for enrolment, although this study does not coincide with my wishes.	16	2.56	0.629		

Table 4: Results of t-test for independent samples for students' beliefs that they will find a job immediately after graduation according their work status

	Descriptive statistics						Results of t-test		
	Students who work during their studies			Students who do not work during their studies					
	N	M	SD	N	M	SD	t	df	Sig. (2-tailed)
Students' beliefs that they will find a job immediately after graduation	163	2.14	0.710	87	2.03	0.723	1.124	248	0.262

possibilities that they would find a job immediately after graduation with an average of 2.14, while the mean value for the respondents who did not work equaled 2.03. The two-sided p-value was 0.262 (t = 1.124, df = 248), indicating that there existed no statistically significant differences in beliefs on possibilities of immediately finding a job after graduation at 5% significance level between students who did or did not work. Therefore, the second research hypothesis could not be confirmed.

Students who work in their profession estimated the possibilities that they would find employment immediately after graduation with a mean value of 1.95, while those

who worked but not in their profession scored the mean value of 2.24 (Table 5). The two-sided p-value of the independent samples t-test was 0.011 (t = -2.575, df = 161), indicating that there existed statistically significant differences in beliefs on possibilities of immediately finding a job after graduation at 5% significance level between students who did or did not work in their profession. Therefore, the third research hypothesis could be confirmed.

Students ranked five factors (acquaintances/friends, expertise, education, political connections, and luck) from 1 - the most important to 5 -the least important (Table 6). For each of the five factors t-tests were performed aimed

Table 5: Results of t-test for independent samples for students' beliefs that they will find a job immediately after graduation according their work in profession

| | Descriptive statistics | | | | | | Results of t-test | | |
| | Students who work in their profession | | | Students who do not work in their profession | | | | | |
	N	M	SD	N	M	SD	t	df	Sig. (2-tailed)
Students' beliefs that they will find a job immediately after graduation	56	1.95	0.749	107	2.24	0.671	-2.575	161	0.011

Table 6: Results of five t-tests for importance of factors for job seeking according to the groups of students who did or did not work

| | Descriptive statistics | | | | | | Results of t-tests | | |
| | Students who work | | | Students who do not work | | | | | |
	N	M	SD	N	M	SD	t	df	Sig. (2-tailed)
Luck	172	3.55	1.348	98	3.61	1.273	-0.358	268	0.720
Political connections	172	3.67	1.427	98	4.11	1.209	-2.713	229.9	0.007
Education	172	2.71	1.323	98	2.20	1.074	3.410	236.8	0.001
Expertise	172	2.94	1.119	98	2.91	1.158	0.194	268	0.846
Acquaintances/ friends	172	2.13	1.266	98	2.16	1.241	-0.186	268	0.853

at testing differences between the students who worked during their studies and those who did not. At 5% significance level, the differences were confirmed for education (t = 3.410, df = 236.8, p = 0.001) and political connections (t = -2.713, df = 229.9, p = 0.007). Therefore, the fourth research hypothesis could not be confirmed, since differences were confirmed only for two of the five factors.

5 Discussion

5.1 Reasons for the selection of a study and the transition from education to employment

Our analysis of the SY research showed that the majority of respondents (85%) stated that they were studying what they wanted to study (Table 1). The result can be explained by the possibility of a wide selection of studies which are certainly enabled by the new role of universities. The latter have become accessible to a wider circle of students, while also higher education institutions with new programs emerged, which should have a positive impact on competitiveness in education. This is a gratifying figure, but it raises the problem of rising unemployment of young graduates. The problems are mainly reflected in

those young people who have either graduated from new faculties or new courses that employers are not familiar with. Consequently, after the completion of tertiary education many young people are prepared to accept work at a lower position and at a lower salary (Toš, 2004).

Only 8% of respondents chose a study which provides jobs (Table 1), although the study did not coincide with their wishes. The fact that an individual chose to study what he/she wants is important as this is the only way to achieve personal satisfaction also after joining the work environment. On the other hand, Medveš and Muršak (2010) noted that young people did not think of qualifications in the functional way anymore, so job prospects are gradually losing importance in deciding for a certain university. The fact is that the field of study plays an important role in recruiting graduates, as mentioned by the authors of the HEGESCO and REFLEX studies (Allen, Coenen and Humburg, 2011; van der Velden and Allen, 2011). The results of these projects indicate that the labour market is slowly becoming saturated as far as certain professions in the social sciences and humanities are concerned, making it harder for the tertiary educated graduates to get a job in their field of study than their peers in the fields of science and technology. Therefore, many authors (ILO, 2013) highlight the problem of over-education, causing large costs to various countries. These young people, in spite

of their tertiary education, may become redundant as was demonstrated by Rifkin (2004) who perceives an increasingly automated world as the biggest problem.

The remaining 7% of respondents chose a study for which they thought that there was a real possibility for enrolment, although the study did not coincide with their wishes (Table 1). It is a fact that for young people under 19 years of age studying has become a way of life. In Slovenia, more than 90% of students who have completed secondary education and qualify for enrolment in degree programs end up actually enrolling in tertiary education. Medveš and Muršak (2010) interpret the continuation of education at the tertiary level in Slovenia as a response of young people to the risk of social marginalization experienced by those who achieved only lower or vocational education. The problem lies in the fact that employment at the levels of skilled workforce provides neither social prestige nor income above the poverty line.

By analyzing the SY research, we found that only 21% of respondents believed that after graduation they will find work immediately, while 31% of respondents indicated that they will not get a job, and the majority (48%) of them believed that they will eventually find a job (Table 1). We believe that in relation to the labour market situation the respondents had realistic expectations. It is namely a worrying fact that the young people after graduation cannot readily be incorporated into the working environment, because youth is a dynamic period of life that is full of passages in various fields. Of these the transition from education to the world of employment is among the most difficult and crucial to the continued development of young people. Society needs to be aware that the unemployment of educated youth is especially critical both in terms of designing their attitude toward work and work ethic as well as for their self-esteem and, more broadly, in terms of society as a whole. Therefore, we believe that already during their studies more attention should be focused on the links that allow improving the employability of graduates. In Slovenia, the biggest expectations are placed in the activities of career centers within educational institutions, set up over the past few years.

We wanted to check whether there were differences between the students who selected a certain study for various reasons as regards the assertion that they will soon find employment. By testing the hypothesis H1 we found that there were differences between the group of students choosing the statement *'I chose a study for which I thought that there was a real possibility for enrolment, although this study does not coincide with my wishes'*, and the other two groups of respondents (*'I am studying what I wanted to study'* and *'I chose a study which provides jobs, although this study does not coincide with my wishes'*). Students who have chosen a particular study only because of the real possibility for entry into a certain faculty, although the studies are not consistent with their wishes, generally considered they will not find employment im-

mediately after graduating. The reason can be found in the fact that in Slovenia more enrolment positions are tendered for free tertiary education as there are students who have completed their secondary education. By entering tertiary education, young people obtain the status of a university student which allows them to work via student referrals. It is a temporary and occasional form of work which is very popular for employers in Slovenia due to non-bureaucratic procedures. In this way, students have a greater chance to obtain a job compared to other forms of work that are available to young people without student status. The downside of work via the student referrals is when taking advantage of student status only because of the work, which often appears in the form of fictional enrolments.

5.2 Student work and the transition from education to employment

We explored how the possibility of obtaining employment after graduating was perceived by students who worked during their studies and how it was understood by those who did not work. By analyzing the SY research, we found that of all the respondents two-thirds were students who worked during their studies, while one-third did not work. Various authors have studied the positive and negative sides brought by work that was performed by students during their studies. Among the positive aspects most often referred to are the obtained work experience that enable better employment opportunities (Humburg et al., 2013). Since gaining work experience before finding first employment presents a problem any work that a person can obtain while studying is welcome as it enables young people to develop soft skills which are very important for employers when selecting a suitable candidate for a particular job. Therefore, we assumed that students working during their studies will think differently about the possibility of employment after graduation, as during work they can already familiarise themselves with potential employers, working environment, and they also have the opportunity to talk about job opportunities. However, by testing the hypothesis H2 we did not find significant differences in beliefs on possibilities of immediately finding a job after graduation between students who did or did not work.

Hauschildt et al. (2015) refer to the fact that type of work conducted during studies is important as working in the same profession for which the students are training has a very positive impact on employability. Therefore, we only analyzed the students who work. Among them, only 34% worked in the field for which they were trained, while 66% of them did not work in the field for which they were trained. By testing the hypothesis H3 we found significant differences in beliefs on possibilities of immediately finding a job after graduation between students who did or did not work in their profession. We found that those who work in their profession largely considered that they will

find a job immediately after graduation, so we can assume that they were aware of the importance of such work experience. This was appreciated, since Humburg et al. (2013) found that employers in recruiting graduates attach great importance to relevant work experience – work experience related to their field of work. They connect them with the expertise and knowledge of the working environment, therefore, they exert a major impact on the selection of a suitable candidate.

5.3 Seekfing employment

Our analysis of the SY research showed that among the factors the respondents considered important in finding employment acquaintances and friends were regarded most important, followed by education, professionalism, luck), while the least important were the political connections. The importance of acquaintances and friends can be attributed to the increasingly widespread networking, both personal as well as via the Internet which has become an important tool for social life. The methods of employers are namely increasingly changing as they also use modern ways of getting to know the candidates. Montgomery's and Kugler's studies (as quoted in Pelizzari 2004) also show that the informal links are often a successful way of searching for a job.

We thought that the students who were in direct contact with the employer will assess the mentioned options differently, as they could follow the issue of employment in the workplace. Nevertheless, by testing the hypothesis H4 we did not find the significant differences between the students who worked during their studies and those who did not. In assessing the significance of individual factors only differences regarding the factor of 'education' were statistically significant, as this factor was considered less important by the students who worked during studies, compared to the students who did not work. This might be due to the fact[1] that students perform works via the student referrals that are easy to carry out and are mostly not associated with their profession (Kosi et al., 2010). Based on the results of the SY research we could claim that students were aware of the importance of informal connections in the search for employment, while also realizing the importance of education and professionalism.

6 Conclusion

The transition of young people from study to the working environment represents a particular problem for individual countries of the European Union. Among them is Slovenia, which has been experiencing a high unemployment rate

for young people with tertiary education for many years. We examined the mentioned issues from the point of view of the opinions and attitudes of Slovenian students towards employment after completing their studies. We found that among the students who chose to study only because of the real possibility for enrolment, although the study did not match their wishes, and those who have chosen the study because of their desire or because of the possibility of employment, there were differences in the belief that after completing their studies they would immediately find a job. Furthermore, we found that between students who work and those who do not work on average there were no differences in the belief that they will find a job immediately after finishing their studies. There were, however, differences between students who perform student work in their field of study and those who perform work outside their field of study. Those students who worked in their field to a greater extent considered that they will find employment at the end of their studies. The last finding was that between students who work and those who do not work on average there were no differences in the assessment of the factors that they found important in finding a job. In assessing the relevance of individual factors, statistically significant differences were found only in the "education" factor, which is why this factor was considered as less important by students who worked in comparison with students who did not work.

It can be concluded that working during their studies, especially in their study field, has a positive impact on the thinking of students as they believe to a greater extent that they will obtain employment immediately after graduation, while their expectations regarding job search are more realistic. As employers also claim that work experience of graduates are very important, in addition to their generic competences, and sometimes in the selection process even make up for other deficiencies (Humburg et al., 2013), we see opportunities in the accelerated integration of education with practice. This can be greatly contributed to by career centers which only emerged at faculties in Slovenia in recent years, as among their important duties they also include the care for better employability of graduates. As intermediaries between employers and educational institutions they allow students to gain work experience in the field of their studies, through practice, project work, student work, etc. Experience, gained by students through international mobility (eg the Erasmus programme), can also facilitate the transition to the working environment, as the Bryla (2015) confirmed the positive impact of international student mobility on their employability.

In the research analysis, we limited ourselves to the part on employment which represents only one of the twelve sets of the extensive survey on the life of Slovenian

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1 Physical and other undemanding works together account 71.6 % of all work performed by students trough the students referrals (Kosi, Nastav & Šušteršič, 2010).

youth. A disadvantage of the survey may also be a sample from which institutionalized residents were excluded, i.e. students who do not live at their permanent address (for example, those staying in student dormitories). We believe that it would be useful to repeat the survey and check if the views of young people or students on employment changed.

In the future, it would be sensible to carry out a survey of the state of affairs and on employment positions and considerations on graduates, and at the same time to conduct a survey on the needs for tertiary educated personnel among employers. This would give a more complete picture of the needs for tertiary educated youth, while mass education in terms of marketing higher education and subservience to the logic of capital, as Leurogetel (2003) calls it, would be replaced by the quality and employability of graduates.

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Prehod mladih iz študija v zaposlitev v luči študentskega dela

Ozadje in namen: Smo v času pospešene globalizacije, ki ima daljnosežen vpliv na zaposlovanje mladih. Zato v prispevku predstavljamo problematiko prehoda terciarno izobraženih mladih v delovno okolje z vidika pomena izobraževanja in pridobivanja delovnih izkušenj med študijem. Glavni namen raziskave je bil analizirati stališča in razmišljanja študentov glede izbora študija in delovnih izkušenj, ki jih mladi pridobivajo med študijem s študentskim delom v povezavi z njihovimi pričakovanji glede zaposlitve.

Zasnova/metodologija/pristop: Vir podatkov je predstavljala raziskava Slovenska Mladina iz leta 2013. V vzorcu smo zajeli tiste, ki so imeli status študenta in so bili stari med 19 in 24 let ter so izpolnili del vprašalnika, ki se je nanašal na zaposlitev. Raziskovalne hipoteze smo testirali z analizo variance in t-testom za neodvisna vzorca.

Rezultati: Ugotovili smo, da med študenti, ki so izbrali študij iz različnih razlogov, obstajajo razlike v prepričanju, da bodo takoj po študiju našli zaposlitev. Ugotovili smo tudi, da med študenti, ki poleg študija delajo in tistimi, ki samo študirajo, obstajajo razlike v posameznih izjavah glede njihovega prehoda iz izobraževanja v zaposlitev. Zaključili smo, da delo med študijem, še posebej na področju stroke pozitivno vpliva na razmišljanja študentov glede prehoda v zaposlitev.

Zaključek: Aktualna obravnava problematike zaposlovanja terciarno izobraženih mladih je podprta z empiričnimi podatki, v zaključku pa so podani predlogi za izboljšanje stanja. Članek tako pripomore k razumevanju problematike zaposlovanja mladih s širšega vidika in k razumevanju opazovanih dogajanj v družbi.

Ključne besede: zaposlovanje mladih; terciarna izobrazba; delovne izkušnje; iskanje zaposlitve

Organization, Autopoiesis and Human Potential as Paradigm of the Future Organization

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Background and purpose: Eternal challenge to researchers of organization theory is how to develop a suitable organization for increasingly more complex internal and external processes, and how to set a simple definition for it. Demanding environment of organization and civilization is under constant pressure of competition for profit. This dynamics of profit is blinding humans so that they are drawing away from themselves and from creativity in organizations. A human too often reacts automatically, meaning that they do not use all the potentials which is a paradox of organization. Therefore, the contribution of autopoiesis – as a complete intertwinement of processes of characteristic characteristiccontinuous movement in the area of creativity and holistic human culture – is important. When speaking about paradigm of tomorrow's organization, we are speaking about a person in organization, interpersonal self/co-dependence and self/co-dependence on micro and macro level. The purpose of our contribution is to research - inside this more and more virtual organization – the position and role of an individual, humanity and human potential as a creative potential of organic-humane organization.

Design/Methodology/Approach: Research is based on qualitative approach. For more comprehensive study of autopoiesis in organization we used mixed methods. When forming the concept, we used the natural law as life circle and compared it with organization.

Results: We developed a concept of autopoietic building blocks as life circle, presenting a concept of organization of future. The concept can be a comparative tool for perceiving processes in an organization. With results we substantiated that organization is losing processes of emotions and thinking of a human.

Conclusion: Accepting autopoiesis on all levels of human activity and consequently increasingly more conscious organizations and society as a whole, results in processes, when autopoises influences the cultural development of society in the sense of connecting science, art, high technologies and spirituality. Results can serve as a guideline and challenge to humane organizations.

Keywords: organization; autopoiesis; human potential; concept of autopoietic building blocks

1 Introduction

Technological progress is in a »spasm«, it spins in the absence of a human as a conscious creator of an organization and society. Here we see the future of human activity so that they by their thinking process create organization which will be able to produce high technology in concepts of 4.0 (r)evolution. The rolemodel of open and natural action is the great mind Tesla who equated physical work with mental work and devoted his alert life to thinking (Tesla, 2013). In-depth thinking is conditioned by "open heart" and mind, which can be connected with love and freedom of people towards themselves, compassion for others and with general culture.

We look at it through philosophical and biological frame, all with the intention to find the principles in the multifaceted phenomenon, named by Maturana and Varela (1980), the pioneers of this discovery, as »autopoie-

sis«. They reveal it as a natural circular organization with self-organizational characteristics, and by this establish a theory about activity of living organism. We wish to present autopoiesis as a (co)evolution of life circle, which realises itself in self-organization. The process begins in a cell of autopoietic people and it somehow continues in an autopoietic organization, society and civilization.

Lauc (2000) establishes that through philosophy, thinking of freeing a human develops and that only then we can speak about free thinking, which is a whole in a circle of circles. In the research we are studying autopoiesis from its discovery to nowaday attempts of its use in the most complex environments. We found out that we cannot speak about the progress of society if it does not allow humans their natural activity. The existing organization does not have complete understanding of human potential, which starts in justice and trust in the comprehensive chain of a metabolic process as a (r)evolutionary process in the cosmic sense (Jantsch, 1980). In a modern individual we can detect the prevalence of unconscious activity and lack of reflection which, we suppose, is one of the central problems of research. We came across reflection as conscious thinking in the model »Sine curve« (Ovsenik, 1999). We can say that a human is able to control their activity by feedback, named reflection or thinking, and realize it up to concepts, which are in accordance with human and nature.

Current overloading of networks can be felt everywhere, the consequences are shown as unsuccessful organizations and bad health of individuals who create them, so it is necessary to change the base which is built from the building blocks. Since this is a living system, it is significant that such changes are carried out with feeling for self/co-person. A man is not a »machine« as treated by the mechanistic paradigm, however we can detect concepts of Industry 4.0 as concepts which in the future will be equalized with a robot or even more, the artificial intelligence will prevail. It is important that organization self/co-preserves in its autonomy and connection in the networks of action, thus our intention is to recognize and research the principles of autopoiesis, form them and set the building blocks of autopoiesis, as well as recognize developing 4.0 organization with them (Balažic Peček, Brcar and Bukovec 2017).

2 Theoretical background

2.1 What are the views on future organization?

Organization as human co-operation for achieving goals is defined by authors according to their understanding, perceiving and in-depth studying. Definitions are numerous and we have determined that despite the development, the exact definition of the phenomenon, called organization, has not been developed yet. Challenging is the definition about post-modern organization (Vila, 2000, p. 1): »Organization of 21st century has no fixed outlines and forms.«

Among various definitions we prefer simple and meaningful definition, stated by Ivanko (1982, p. 9): »Organization is a whole.« During his scientific resarches Ivanko critically determines (2002, p. 13): »It seems that a more unclear phenomenon than the phenomenon of organization does not exist in economic theory and practice...« Later he supplements his definition (Ivanko, 2004, p. 1): »Organization is a concious activity that is being carried out and maintained by the will of people, so that a whole would be created from multiplicity.«

A comprehensive and meaningful definition was written by Mayer (1994, p. 17): »It is a system in which people in the process of creative co-operation realise their ideas in the direction of higher spiritual prosperity.« Ovsenik has devoted his life to research of organizational thought and activity of a person in organization, and already at the beginning of his research set the thesis / equation (Ovsenik, 1999, p. 27): »Organization = relationships between people«. Later Bukovec (2009, p.17) upgrades the definition by adding direction of action: »Goal oriented relationships between people.« In conclusion of his studies Ovsenik presents differentiation between organization and »self-organization« as a natural phenomenon and »Organization« as social institutions (Ovsenik, 1999, p. 288).

Vila and Kovač (1997, p. 15) state that great emphasis is put on definitions and are aware of dimensions of the organization phenomenon. This enables the students to gradually enter into understanding of this field. However, they very rationally define organization with three attributes: »subject, structure and process«. Capra (2002, p. 80) recognises three different types of action: matter (from external world), form (from human relationships) and purpose (internal understanding).

Ovsenik (1999) introduces a comprehensive view on organizational science, with an outline of creation and development of organizational thought. He finds the origin of organization in the Greek word »organon«, meaning a tool, and the word »organizare«, which means forming something into a whole, so that it works in the same way as human organism. We prefer Ovsenik's definition (Ovsenik, 1999, pp. 123-125): »Organization is an analogue circular process that rotates again and again in circular-spiral process«.

Capra (2002, pp. 102-105) is convinced that: »Humane organization should be understood as a living system«. Vila and Kovač (1997, p. 307) state that business environment is becoming increasingly more complex due to new trends. As a consequence of changes in the environment new organizational concepts have been formed with components: dynamism and openness; at the same time also network organizations appear. Ambrož and Lotrič (2009, p. iv) state that flexible organization is required in dynam-

ic environment: »Modern organization opens to environment, it is adaptive, it stimulates risk and it is becoming less supported with rules and procedures, which inhibit quick adaptation to new circumsatnces.« The above definition is upgraded by Ovsenik and Ambrož with awareness of organization connection (2010, introduction): »In modern business world the image of organization that works as a system is becoming increasingly more present.«

Malić (1976, pp. 19-23), as a physicist, differs between: spontaneous and mental (conscious), potential, relative and absolute organization. He stresses that organization is like an organised form and it is necessary to understand all interrelationships correctly. He describes the mental organization as highly organised conscious system, which is highly creative and gives a person full life, both physically and mentaly. He defines formulas for all forms of organizations and unfortunately not for mental organization. We cannot put aside Kljajić's views on organization (Kljajić, 1994, p. 228): »Technology, mainly information science, and evolution of man's psyche will allow us to transcend classical forms of organising.« On this way he gives us excellent advice to consider (Kljajić, 1994, p. 230): »Minimal effort, maximal comfort.« We understand that we should follow simplicity, although we are studying the system, called »Life in organization«.

2.2 Autopoiesis as a phenomenon of biological organization

Theory about action of a living organism – »autopoiesis« Chilenian biologists Maturana and Varela (1980, p. x) define and reveal to scientific public in their pioneer work. They see the source of living in the cell as a basic unit which produces live matter. They realized that it is a generally closed structure of self-production and self-organization and that the order of connections between elements and processes is established, which are essential for their action on the ground of priority relations. This negation of negation points out Kordeš (2004, p. 176) as well, who says that the essence of autopoietic systems is not in relations between the system components but in the processes. The esssence of autopoietic system is continuous production of abilities of producing oneself and thus maintaining your own organization. Maturana and Varela (1980) present autopoiesis as a natural circular organization of living systems and its consequences. The authors have discovered a suitable term for this new phenomena, which unambiguously describes dynamics and autonomy of living systems. Luhmann (1995, pp. 1-2) deines living or autopoietic systems as a specific type of systems. He establishes that they are a depiction of a life's abstraction, in which the principle of self-referencing is built; this is important in materialisation of life and in circulation of self-reproduction. Whereas Capra and Luigi (2014, p. xi) determine that in last thirty years there is a tendency to

introduce a new view on the concept of life as a new understanding of creating life.

Maturana and Varela (1980, p. 5) explain the autopoiesis theory by going into the cognitive process, which is of key importance so that a human knows and is aware that their ability to know depends on biologic integrity. Also Capra (1997, p. 44) points out that seeing is a basis of process of cognition which is founded on self-knowing, followed by real knowledge.

This is what Lauc emphasizes as a basis of autopoietic organization that a human is the one who alone sets themselves personal goals on the way of personal development. He stresses that they have to be rational, natural, efficient and humane (Lauc, 2000, p. 133). Ovsenik sees a man as an observer and actor which are natural roles of an individual as a subject and not as an object that is equalized and treated as a machine in mechanistic paradigm. He emphasizes that it is important that each of us qualifies themselves and develops into a full-blooded and all-around personality. In the new doctrine he develops and shows a new view of organization where the phenomena of social and natural organization are equally considered (Ovsenik, 1999, pp. 25-27). Social systems are not only observed but also paradoxical systems, says Luhmann (1995 pp. 7-9). In them self-referential activities are not carried out as a part of autopoietic process. Maturana and Varela (1998, pp. 205-206) speak about mutual harmony so that we see a co-person and live in co-existence as accepting fellow men which includes giving love. They add that without love, as accepting others, no social processes and humanity exist. Lauc (2000, p. 54) devoted himself to aspects of love and as a driving power of progress pointed out harmonisation of processes in free action, with presence of the highest aspect of love Agape; he adds that Eros is still an enigma for many people, in theory as well as in practice. Jantsch (1980, pp. 50-51) defines novelties and confirmation of information, explains that paradigm includes material as well as mental structures. He adds that this is information that creates new information and this is also the motive of conscious self-organization.

If biologists Maturana and Varela (1980) as pioneers defined autopoiesis as a natural circular process, Železnikar (2016, p. 10) uniquely defines it in cybernetic informational system as an including whole materiality and spirituality, with oscillation between growth and dying out. Kordeš (2004, pp. 91-92) is aware of his part in the creative circle, where there is constant exchange of creation and stability. He determined that living beings are affected by creative circle, named by Maturana and Varela (1980) as »autopoiesis«. Dalai Lama XIV (2000, p. 48) adds that inner peace is the way to genuine happiness, which includes a great deal of compassion and develops conscious care for co-people.

Lasan gives a short but meaningful definition (Lasan, 2005, p. 7): »Life is breathing, moving and thinking.« Pavuna (2017) self-confidently interprets his scientific

supposition: »Life is love in action.« Self-organization is about a certain mentally determined, planned self-law-fulness which does not endure exact observation (Hlebš, 2017, pp. 10-11). Disturbances are detected in a human which show themselves as blockades or as unworking programmes because a human simply does not allow certain programmes to be activated, notes Djurdica (2011, p. 98). Are we actually not prepared for modern thinking? Feyerabend (2008, p. 132) asks himself why a person does not allow and recognize the most important motives for peace, love, compassion, sense for the holiness of nature and natural life.

Capra (2002, p. 13) explains from his point of view that autopoiesis is a continuous production of oneself and that cells have two important characteristics: membrane as a limit and network/web of metabolism as a process. Quantum physicist Pavuna (2017) reveals his findings that a holistic coherence is an un-local method of energetic resonance which is a support to unique person. Jantsch (1980, pp. xiii- xv) observes self-organization from another point of view as continuous micro and macro natural dynamics of processes which in their continuous movement create co-evolution, where the absolute and ultimate goal is humane aspect. He adds that a new concept of ecosystem is needed as a non-reductionist perspective of evolution's self-organization.

2.3 Human potential as the key for future organization

By investing into human capital the organization achieves the largest self-efficiency with release of human potential. People with their motivation and knowledge contribute to self-learning interdisciplinary teams, which self-create and help organization to progress (Lauc, 2000). As mentioned by numerous authors, interdiscplinarity will be upgraded into transdisciplinarity (Detela, 2006; Cerovec, 2013; Kukić, 2015; and others). To understand the organizational self-learning, Capra (2002, pp. 116-119) suggests that we revise the lessons on understanding life in organization, and he adds that the most efficient way is release of organizational potential to learn, which is support and strengthening of active community. Such organizations are full of motive, not because of higher profitability of organization, but because of the fact that we feel more that our lives are worth the effort. Consequently, spontaneous appearance of new order is one of the characteristics of life.

Morgan (2004) confirms that it is necessary to use the mental process, when we recognize that a human is the one who creates our world. Anthropologist Trstenjak (1985) would agree with this - he suggests that we should not forget to create the world. We perceive this as a characteristic of autopoiesis that we are dependent on self-organization. Feyerabend (2007, pp. 196-197) says that experience is the one which directs a person and thinks that thinking in us

is the base of human thinking and consequently activity. Basically, there are three important factors: we live, learn and follow (pp. 196-197). Lauc (2000) is convinced that the lack of humanity in organization lies in the decision for allopoietic and not autopoietic way. The author's thesis is that is autopoiesis includes humane work of an individual, which is in harmony with everything.

Dalai Lama (2000, pp. 53-55) adds that consequences are often hidden in the background of extreme actions, which cause pain to co-people. In organizations personal passions of the leading and profit level of companies are fulfilled, yet potentially negative effects for man and environment are not considered. Happiness originates in interpersonal relationships. Unselfishness brings us the greatest joy, as we have fewer worries for ourselves and resultantly less time when we are thinking of others. Already Tesla (2013) tried to stress this with unthinkable technological visions of the third millenium. As a connection of science, art, high technologies and spirituality, we see today a big scope of unexplored; we can say that these are unimagined possibilities of research in spiral as eternal research. Dalai Lama (2000, p. 9) says that there are sound reasons that imbalance of technical progress in comparison with social progress is ruining a human, who is due to this internally unhappy. He sees here the possibility to eliminate human problems by developing human potential.

Ideal organization identifies and supports its informal network of relations and integrates its innovations into its own structures. Informal active communities enable the organization to live flexibly, with creative potential and ability to learn. One of first steps towards such an organization is allowing the social space for informal communication, as the author points out (Capra, 2002, pp. 110-111). Schwab (2016) sees the new technological revolution as a challenge of humankind. It is a new understanding and directing, because transformation will include the entire humankind. He estimates that the fourth industrial revolution will include change in dimension, expansion and complexity as never before in human history. Roblek, Meško and Krapež (2015) introduce a question: How important is 4.0 industry and what are the influences for creating added value of organizations and society? Waibel et al. (2017) decisively predict that the next generation of production system will act as a self-organization, included in cyber-physical network.

3   Methods

3.1 Research question

Research question (RQ) of our study is: How - with the concept of autopoietic building blocks - to develop a model of organization of future, which will enable self/co-organization and self/co-production in life circle?

3.2 Qualitative methods with action research

Ambrož and Colarič Jakše (2015) say that post-modernism has balanced the relationship between qualitative and quantitative methods. Mesec (1998) points out that with holistic view on a human not only the entirety of human is studied but also practical problems of people from life, whereas with action research (AR) we reduce distances of involved levels. Železnikar (2011) emphasizes that the development of technology with exponent growth and entirely new concepts is inevitable. In the research we did a circular study and tried to close a circle of circles in the sense of AR spiral of planning, action and reflection. Mesec

(2009, pp. 14-22) writes that by process of cognition and changing we add to personal and common growth. He describes the course of AR as a model of spiral of processes: observation, thinking, planning and activity. For the initial information tool of research we use »Informational Graph of Autopoiesis – IGA« (Železnikar, 2016) Figure 1.

The research of autopoiesis in organizations is based on interdisciplinarity of abstract phenomena and mutual intertwinement. From the researched literature of authors Mesec (1998), Mali (2006) and Ambrož and Colarič-Jakše (2015) we establish that for research of abstract phenomena it is necessary to follow ontologic process of research, whereas for scientific validation and confirmation it is necessary to use mainly qualitative research method. Mesec
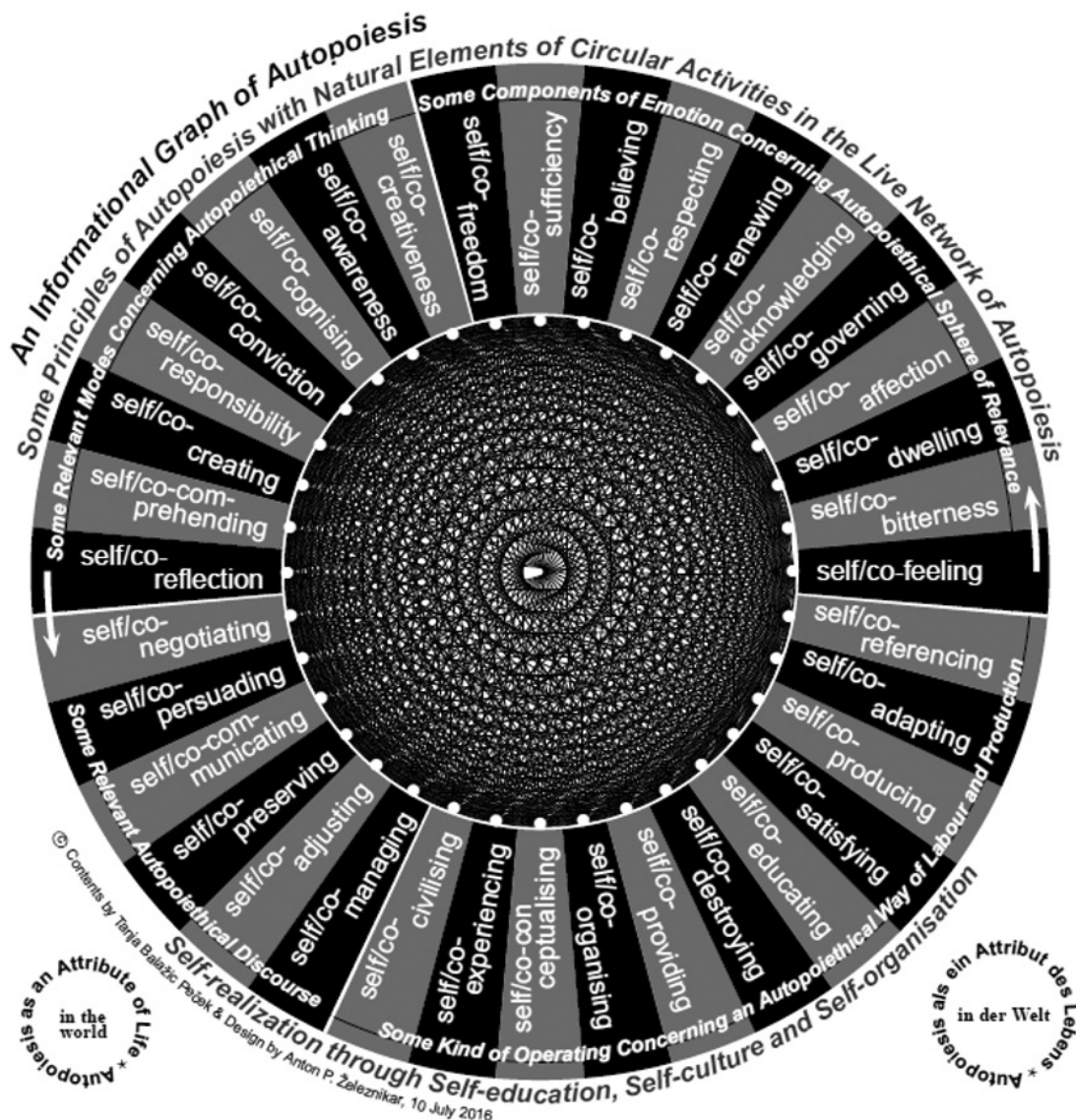
Figure 1: Informational graph of autopoiesis »IGA« (co-operation T. Balažic Peček and A. P. Železnikar)

(1998, pp. 27-35) says that we use qualitative research if we are interested in purpose, process and relation between research and theory. He points out that holistic perspective on human is not only studying organism as a whole but also practical problems of people in life.

For research process Mesec (1998, pp. 36-39) directs us into sequential analysis, which we repeat several times inside research, and by making circles we strengthen and broaden knowledge on phenomena we are researching. We see this method as an autopoietic method as it in abstract meaning illustrates a model of autopoietic organization, working according to the principle of re-processing and re-structuring of the given problem, and closing of circles (Lauc, 2000, p. 9). Ovsenik (1999, p. 14) stresses that a human is a self-recognizing, self-observing and self-aware observer with abstract thinking.

From similar point of view Mesec (1994, p. 133) explains that the roles of "researcher" and "user" can be in two holders, whereas if there is one holder, we talk about "self-research". The author says that self-research is a legitimate sort of AR, where as a limitation he sees self-reflection, which usually is not broad enough frame of research in an individual. The main approach and course of activities coincides with findings of Ambrož and Colarič-Jakše (2015, p. 65), who claim that this is a repetitive process of: observing, rationalization and validation.

3.3 Methodology of forming autopoietic building blocks as concept of life circle

The intention of studying natural principles is to learn and pass on the activity by the analogy method into an organization. Our supposition is that if a system works in nature, it also works in a human and organization, which are a part of it. We considered how to arrange the autopoiesis principles and again authors show us the way how to deal with sistematization. Maturana and Varela (1998) say that a human has the ability of: observing, thinking, recognizing and understanding. Mesec (2009, pp. 14-22) states that with the process of recognizing and changing we contribute to personal and group growth. He describes the course of AR as a model of spiral of processes: observing, thinking, planning and acting. Lauc (2000) presents as a transformation process of human decision: feeling, thinking, speaking and acting. This directs us to consideration how to set the strategy of autopoietic building blocks. If we follow the authors, we can summarize that if we observe something, we feel it, create emotions, think about it, consider it, recognize it, speak about it, try to understand it and thus act. When we self/co-operate, we can self/co-observe ourselves, become self/co-aware and we try to act more consciously in the spiral of actions. Kordeš (2004) describes creative circle, in which there is a circular exchange of creation and stability. Ivanko (2015) explains

dialectic method as a base of organization theory with creation and changing. Železnikar (2017) says that inside cybernetic informational circle there is growth and dying. Lauc (2016) suggests that AR researcher should recognize, gain, develop and change. He mentions that this is a recognition circle, where a wave as well as particle is observed, and explains that these are quantum particles and their intertwinement. Lauc's suppositions correspond to our philosophy since we recognize with feelings, gain knowledge with self/co-thinking and self/co-considering, we develop in such a way that we self/co-observe, self/co-direct and self/co-change, so that we self/co-operate.

We studied theoretical background where authors use life circle as a supposition of part as a whole. We look for some models of life circles as examples from nature, already established terms in work processes and science, which serve as a base for forming the concept of autopoietic building blocks. On the ground of comparison of models and self/co-reflection we formed autopoietic building blocks as life circle. Each model was defined with four parts of one whole. Why is a human included in the circle? Lasan (2005, p. 7) answers this question: »Laws in a body are determined, but a human has to awaken himself/herself. Without their own activity nothing happens.« On the other side an individual who works over his ability for a longer time, does not have time for thinking (Ambrož and Lotrič, 2009, p. 64). Humans can react automatically due to external influences of environment forget that they are self-responsible for their dynamics. We are talking about dynamics that activates self/co-feelings and continues into thinking, speaking and activity. When forming autopoietic building blocks, sequence is important, as present in AR spiral.

4 Results

We are focused on our conceptual model, where we pointed out human as an observer and actor. After self/co-reflection of the observer, researcher and co-researchers, and based on the previous research and co-operation, we formed a conceptual group of four directional building blocks: BB1-Emotions, BB2-Thinking, BB3-Directing, BB4-Activity (Balažic Peček, Brcar and Bukovec 2018).

The research concept of autopoietic building blocks as life circle was developed as a deductive-inductive model, according to guidelines of Ambrož and Colarič-Jakše (2015), in which we inserted research with AR spiral (Mesec, 2009). Most attention in qualitative analysis was given to process building blocks; we can say that this is a demanding analysis which requires from a researcher a lot of experience and knowledge in the research area. Various authors point that out: Mesec (1998) stresses the courage of such research, Ambrož and Colarič-Jakše (2015) demanding systematics and depth, whereas Brcar (2016) emphasizes difficulty itself.

After studying theoretical background on self/co-principles in autopoiesis, as described by Maturana and Varela (1980, 1998), Capra (1986 and 2002), Jantsch (1980), Ovsenik (1999) and Lauc (2000), we designed »IGA« with A. P. Železnikar. The purpose of »IGA« is to present the comprehensive, systematic and informational view of autopoietic building blocks, as referred to in the continuation. »IGA« is the base and the research tool for research of autopoietic building blocks in 4.0 organization (Balažic Peček, Brcar and Bukovec 2017).

We developed methodology for a concept of autopoietic building blocks as life circle so that we refer to Maturana and Varela (1998), who say that a man has the ability of: observing, thinking, recognizing and understanding. Lauc (2000) included in the process of decision making the transformation process of: feeling, thinking, speaking and acting. With their findings and with findings of others (Mesec, 2009, Ambrož & Traudi Mihelič, 1998) we develop a concept. In the nature we look for models of natural laws in life circle and recognize in them that the activity of a whole is conditioned by four parts. Theoretical background is taken into account when making the concept of methodology of forming autopoietic building blocks and validation. Kordeš (2004) helps us conclude the development of the concept as creative life circle with findings of creative circle, and Mesec (2009) with AR spiral (Figure 2).

The concept of forming autopoietic building blocks as life circle was developed with four building blocks: BB1-Emotions, BB2-Thinking, BB3-Directing, BB4-Activity, with the AR spiral in the centre, as a characteristic of autopoiesis (continuous interaction). Researching according to the concept of forming autopoietic building blocks as life circle is connected with natural laws and in such a way some natural models are set, so that we can say that the research itself is autopoietic. The originality of the concept of autopoietic building blocks is shown as life circle, a circle of emerging and decay. AR spiral in the centre means that we are researching, acting and developing groups and thus an individual self/co-develops as an observer and actor in internal and external world. This duality of self/co-operation of human was put into the basic concept of the research and served as a starting point practically in all parts of the research. We can say that with continuous self/co-operation autopoietic activity is being implemented, which starts with self/co-relationship, thus triggering the processes of feeling, thinking, directing and activity, as presented with directional building blocks
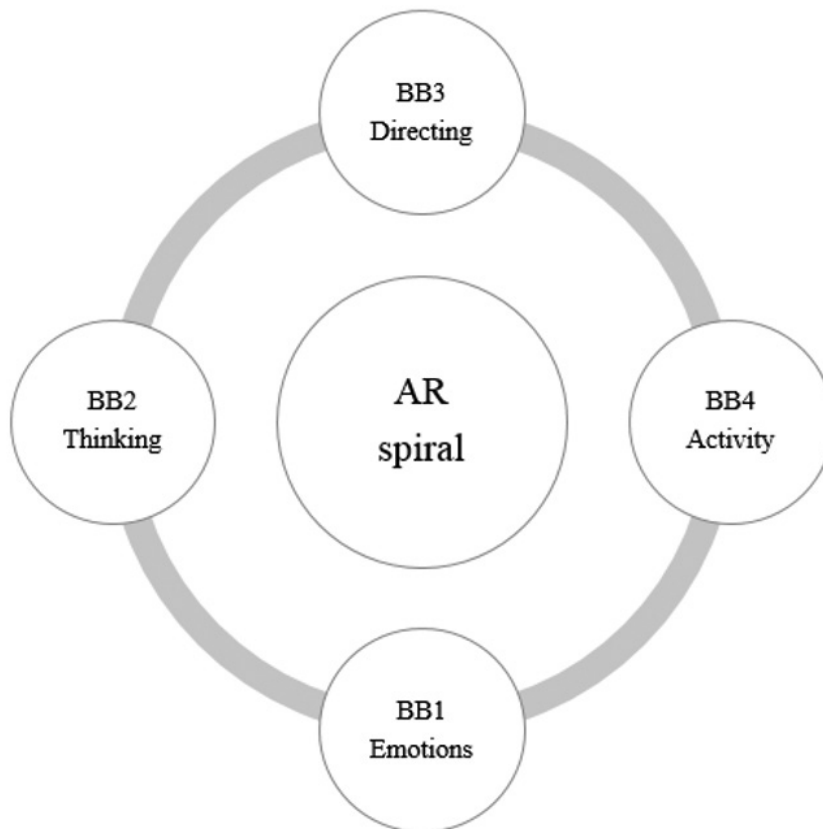

Figure 2: Concept of autopoietic building blocks as life circle

from BB1 to BB4. We suppose that in BB1-Emotions and BB2-Thinking, there is internal or vertical activity present, while in BB3 and BB4 there are mainly external processes or horizontal activity (Balažic Peček, Brcar and Bukovec 2018).

5 Discussion

When researching the organization of future there is a constant challenge of how to define it, so that all levels of awareness are included. When we speak about levels, we are looking into a human, who is multifaceted, but nevertheless holistic and studied in this way. Also Ivanko (1982) defines organization like this, and says that it is a whole, and later (Ivanko, 2002) includes conscious activity as well. On the level of Organization the research is directed from understanding the system as a sum of its own parts towards the system, understood as a web of connections between the system parts. By including cognitive processes into the study of living System, the research becomes more comprehensive, since it involves the entire life process: sensing, emotions and knowing (Ovsenik & Ambrož, 2010).

Conscious activity of a whole can be connected with the theory of autopoiesis, which says that processes start in a cell (Maturana and Varela, 1980). We are aware that here also the processes of self-organization and self-production in autonomously closed structure start. Ovsenik (1999) says: "organization = relationship between people" and at this point we can say that organization is opening or closing towards the other person, co-worker, which we assume is of key importance for co-operation. This is the point, where a person decides about their compassionate activity, on the basis of emotions, knowledge and other factors of engagement.

With autopoiesis we can also explain the claim of Vila and Kovač (1997) that organization is: subject, structure and process. Studying a person as an observer and creator (Maturana and Varela, 1980; Ovsenik, 1999) leads us to cognition that a person is a subject, in which the autopoietic processes start. With continuous activity processes re-process the structure (Lauc, 2000) and when speaking about organization, we can notice an inseparable connection between a person and organization. This can be also confirmed with the assertion of Capra (2002) that the shape is created from human relationships and that the purpose is in internal understanding of a person itself.

When discussing the activity of organization, Ovsenik (1999) mentions that we can compare it with the activity of human organism. Capra (2002) emphasises the meaning »of living organism«. We perceive the realisation of these cognitions as a complicated system, underlined by authors in the lifelong research of autopoiesis and its laws. Capra and Luisi (2014) answer the question »What is death?« by visually showing in the picture the organs of the human

body (as an organism), which are in mutual interaction, which means that they are alive. On the other hand they present unconnected organs which do not live, and that can be transferred by analogy to the organization.

When studying organization we are increasingly deepening in the internal processes of a human, especially if we consider Malić (1976), who says that organization is spontaneous and mental, adding that organization is more conscious and thus gives a person full life. We can say that organization is more creative, if it allows the realease of human potential to express the freedom of existence. An important factor in creativity is reflection of consciousness, but this does not happen due to a lack of time, but the dehumanization of organizations happens (Capra, 2002). Consequently we can explain dehumanization as non-living relations between people, which is assumed by mechanistic paradigm. We suppose that only continuous liveliness and organic form of organizations leads to creative organization of future. This must be above all humane, otherwise a human will be in subordinate position to artificial intelligence, which is created in 4.0 information revolution.

We assume that a man was formed by evolution. This natural law must be followed also in the future, if we want to keep a Human as a holder of mental processes. Kljajić (1994) confirmed this when saying that evolution of human psyche will allow surpassing of classical organization. Maturana and Varela (1980 and 1998) connect through the cognitive science also the cognitive process and indicate that the transdisciplinary approach proves itself as necessary, especially when describing mental processes and body.

A person has the ability of perceiving another person and the environment with all their emotions, thus forming relations in the cognitive process. With this intention we formed the »concept of autopoietic building blocks as life circle«. We wanted to present the way of perception of a person from emotions, thinking, directing and activity, in the continuous cognitive circle, which we try to explain also from the perspective of autopoiesis to substantiate the connection of human potential and organization. The »Concept of autopoietic building blocks as life circle« is our attempt to present the release of human potential in an organization.

With such culture a human can be active self-/co-operating subject, who uses emotions and thinks, therefore he/she is an operator and potential of an organization. The organization of future should not allow the treatment of a human as a matter, as treated in the mechanistic paradigm. We learn that treatment of a human as an object hinders »flow of movement« and self/co-operation in an organization, pointed out by many authors (Jantsch, 1980, Lauc, 2000 and others). Autopoiesis is »alive« and gives vivacity to a human as well as organization. Organizations suppress originality of life and when a life is dying, organization is dying as well. It seems like a battle for survival of en-

trenched paradigm which does not realize that constant growth of the same building blocks eliminates and thus ruins building blocks that are important for harmony and complementarity of building blocks. We suppose that creative harmony of an organization can be "awakened" with autopoiesis on all levels.

That a base of organization is harmonic co-operation can be seen also with Ovsenik (1999), and competitiveness is a principle of allopoetic organizations, which are becoming more dependent on external world and do not develop self-organization. It is necessary to use mental process, as confirmed by Morgan (2004), when we see that a human is the one who creates our world. We recognize this as an autopoietic characteristic, we are dependent on self-organization. From the biological point of view we can assume that mental process is the base of creating and independance of a human in organization. **Our vision is a moral society so that we self-/co-motivate and co-create the needs of a free Human.** Schwab (2016) believes that a new technological revolution is a challenge for humanity. This is a new understanding and directing since a transformation will include the entire humankind.

Thus we can confirm the research question that by implementing vivacity in an organization, we create conditions for operation of self/co-organization. We can say that this is complex intertwinement of different principles, which need to be studied interdisciplinarily, whereas in the future transdisciplinary aspect of researching should be achieved.

6 Conclusion

We performed research mainly in qualitative way and we decided according to action research what good practice of studying autopoiesis is. We established that with AR method we can form a concept of autopoietic building blocks. The concept is given balance of activity by building blocks: BB1-Emotions, BB2-Thinking, BB3-Directing, BB4-Activity. These are cover autopoietic building blocks, whereas inside there is activity of process autopoietic building blocks, which continuously re-process and re-structure organization on all levels. The result is a concept of autopoietic building blocks in which AR spiral is inserted, which gives self/co-organizational abilities to organization of future organization. With this we can confirm the research question that with the establishment of vivacity in organizations we create the conditions for operation of self/co-organization. We assume that this comprehensive harmonic intertwinement of autopoietic building blocks in continuous movement ensures healthy, creative and complete activity of human and organizations. In future organization the emphasis must be put on the establishment of processes, based on moral values and healthy human activity on all levels.

We are aware - and the research has confirmed this -

that the potential of organization is a Human and control of their emotional-mental ability. Important in a person are: heart, as love of self/co-existence, self/co-feeling, and mind, as freedom of self/co-operation, self/co-responsibility for active self/co-organizing. We live in organizations and civilization where constant competition of profit is present. And exactly this dynamics of profit is blinding a Human to react more and more automatically, we can say robotically. Battle for profit is deluding people so that they have forgotten how to forgive, love themselves and others. In this point we see danger that artificial intelligence overpowers the human, resulting in dying out of civilization. Let us try to find the optimal way for self/co-realization, as a contrast of a contemporary individual and organizations of the future, which are already alive today.

We can conclude that a human and organization are losing their vivacity of natural activity. The originality of life is being repressed in a human, and when life is dying, organization is dying as well. Humans have a chance to transform organization with autopoietic principles as: »Autopoietic 4.0 Human (R)Evolution« (Balažic Peček, 2018).

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Organizacija, avtopoieza in človeški potencial kot paradigma organizacije prihodnosti

Ozadje in namen: Večni izziv raziskovalcem organizacijske teorije predstavlja vprašanje, kako razviti ustrezno organizacijo za vse bolj kompleksne notranje in zunanje procese in jo postaviti v okvir enostavne definicije. Zahtevno okolje organizacije in civilizacije je obremenjeno z nenehnim tekmovanjem za profit. Prav ta dinamika profita slepi človeka, da se oddaljuje od sebe in od kreativnosti v organizacijah. Človek vse prepogosto reagira avtomatsko, kar pomeni, da ne izrablja vseh potencialov, kar pomeni paradoks organizacije. Prav zato je pomemben doprinos avtopoieze kot celovitega prepleta procesov nenehnega gibanja na področju ustvarjalne drže in celostne kulture človeka. Ko govorimo o paradigmi jutrišnje organizacije, govorimo o človeku v organizaciji, v medsebojni samo/so-odvisnosti na mikro in makro ravni. Namen našega prispevka je znotraj čedalje bolj virtualne organizacije raziskati položaj in vlogo človeka, humanosti in človeški potencial kot ustvarjalni potencial organsko-humane organizacije.

Zasnova/metodologija/pristop: Raziskava temelji na kvalitativnem pristopu. Za celovitejše raziskovanje avtopoieze v organizaciji smo uporabili mešane metode. Pri izdelavi koncepta smo uporabili naravni zakon kot življenjski krog in ga primerjali z organizacijo.

Rezultati: Razvili smo koncept gradnikov avtopoieze kot življenjski krog, ki predstavlja koncept organizacije prihodnosti. Koncept je lahko primerjalno orodje za zaznavanje procesov v organizaciji. Z rezultati smo utemeljili, da organizacija izgublja procese občutenja in razmišljanja človeka.

Zaključek: Sprejemanje avtopoieze na vseh ravneh človeškega delovanja in posledično vse bolj osveščenih organizacij ter družbe kot celote rezultira v procesih, ko avtopoieza vpliva na kulturni razvoj družbe v smislu povezovanja znanosti, umetnosti, visokih tehnologij in duhovnosti. Rezultati so lahko vodilo in izziv humanim organizacijam.

Ključne besede: organizacija; avtopoieza; človeški potencial; koncept gradnikov avtopoieze

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