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ORGANIZATIONAL PREPAREDNESS OF SERBIAN COMPANIES FOR INTRAPRENEURSHIP

Spremnost preduzeća u Srbiji za intrapreduzetništvo

Abstract

Entrepreneurial activities and innovations in medium-sized and large companies are explained in theory by means of the concept of corporate entrepreneurship, while in practice the term intrapreneurship is becoming gradually more accepted, as one of the most significant manifestations of entrepreneurship. Assessment of corporate entrepreneurial environment is a prerequisite for successful implementation of intrapreneurial strategies, as well as for identification of internal actions to be undertaken in support of intrapreneurship. To this end, in order to adequately implement the intrapreneurial strategy, current preparedness of companies for intrapreneurship needs to be assessed. Hence, the objective of this paper is to identify the preparedness of companies in Serbia to implement entrepreneurial ideas using CEAI (Corporate Entrepreneurship Assessment Instrument). CEAI is a tool used for assessment of the following five dimensions critical to the creation of entrepreneurial environment in medium-sized and large enterprises: management support, reward/reinforcement, work discretion (autonomy), organizational boundaries and time available for innovation. Following the reliability analysis, which revealed that the original instrument with slight modifications can be applied to the companies in Serbia, their preparedness for intrapreneurship was assessed. The conducted research resulted in the assessment of current preparedness of medium-sized and large companies in Serbia for intrapreneurial activities. The research also identified potential variations in the extent of readiness among certain groups of companies, taking into account the dynamism of the industry in which the company operates. In addition to assessment of intrapreneurial activity at the company level, the presented instrument may be useful to managers in assessing the intrapreneurial spirit of certain organizational units, identifying its major suppressors and creating strategies for stimulation and implementation of intrapreneurial ideas.

Keywords: *intrapreneurship, corporate entrepreneurship, CEAI model, top management support, reward, work discretion, organizational boundaries, time availability.*

Sažetak

Preduzetničko delovanje i inovativnost u srednjim i velikim preduzećima u teoriji se objašnjavaju konceptom korporativnog preduzetništva, dok je u praksi sve više prihvaćen termin intrapreduzetništvo, što je jedna od njegovih najznačajnijih manifestacija. Procena korporativnog preduzetničkog okruženja je preduslov za uspešno sprovođenje intrapreduzetničkih strategija, kao i identifikovanje internih akcija koje bi trebalo preduzeti u cilju podrške intrapreduzetništvu. U tom smislu, da bi se na adekvatan način implementirala preduzetnička strategija, potrebno je oceniti trenutnu spremnost preduzeća za intrapreduzetništvo. Otuda, cilj ovog rada jeste identifikovanje spremnosti preduzeća u Srbiji za implementaciju preduzetničkih ideja primenom CEAI instrumenta (engl. Corporate Entrepreneurship Assessment Instrument). CEAI je alat koji se koristi za procenu pet dimenzija kritičnih za kreiranje preduzetničkog okruženja u srednjim i velikim preduzećima, a to su podrška menadžera, nagrađivanje, diskrecija (autonomija) u radu, organizacione granice i raspoloživo vreme za inovacije. Nakon sprovedene analize pouzdanosti, koja ukazuje da se originalni instrument sa malim modifikacijama može koristiti u preduzećima u Srbiji, izvršena je procena njihove spremnosti za intrapreduzetništvo. Sprovedeno istraživanje daje procenu trenutnog stanja spremnosti srednjih i velikih preduzeća u Srbiji za intrapreduzetničko delovanje, ali i identifikuje potencijalne razlike u njegovom nivou između pojedinih grupa preduzeća uzimajući u obzir stepen dinamičnosti industrije u kojoj preduzeća posluju. Pored ocene intrapreduzetničke aktivnosti na nivou preduzeća, predstavljeni instrument može biti korisno sredstvo menadžerima u proceni preduzetničkog duha pojedinih organizacionih sektora, u identifikovanju njegovih glavnih supresora, kao i u kreiranju strategija za podsticanje i implementaciju intrapreduzetničkih ideja.

Ključne reči: *intrapreduzetništvo, korporativno preduzetništvo, CEAI model, podrška menadžera, nagrađivanje, autonomiju u radu, organizacione granice, raspoloživo vreme za inovacije.*

Introduction

Entrepreneurial orientation and innovation are becoming gradually more significant for achieving sustainable competitive advantage on both macro and business levels. As early as 1990, Porter emphasized innovation as the main source of national competitiveness or, more precisely, the ability of a nation to create innovations more rapidly and more efficiently than other nations. The World Economic Forum defines competitiveness as the set of institutions, policies and factors that determine the level of productivity of a country [32, p. 4], and measures it on the basis of twelve pillars, innovation being one of them. According to the applicable methodology for calculation of the global competitiveness index, computation of the innovation subindex takes into account the following factors: innovative capacity, quality of scientific research institutions, corporate investments in research and development, cooperation of universities and industry in research and development, government procurement of advanced technology products, availability of scientists and engineers and the number of registered patents. In addition, at the global level innovation is expressed in terms of the Global Innovation Index, which presents the average of innovation input and output subindexes. Consequently, the assessment of the national innovation status requires assessing and monitoring innovativeness of companies using a number of instruments that are complementary to those explained above.

Entrepreneurial activities and innovativeness in medium-sized and large companies are explained in theory by means of the concept of corporate entrepreneurship, while in practice the term intrapreneurship is becoming gradually more accepted as one of the most significant manifestations of entrepreneurship. With intrapreneurship less effort needs to be devoted to creating innovation, as well as to achieving and maintaining competitive advantage. Although the growing need to understand conceptualization of intrapreneurship has resulted in numerous theoretical models over the past two decades, this has not diminished the necessity for further detailed examination of entrepreneurship in large companies. Kuratko underlines that large companies need to understand the

“entrepreneurial imperative of the 21st century” [19, p. 421]. Ireland adds that the development of both current and long-term competitive advantage entails incorporating innovation-based strategies into the overall corporate business strategy [16, p. 28].

Companies in Serbia are still experiencing adverse effects of the global economic situation. Moreover, the traditional deep-rooted problems of unemployment, lack of financing, inadequate infrastructure and frequent lack of managerial skills all confirm the need of Serbian companies to mitigate the effects thereof and increase competitiveness through innovation and entrepreneurial activity. Assessment of corporate entrepreneurship environment, as well as identification of internal actions that are to be taken in support of intrapreneurship, are prerequisites for successful implementation of intrapreneurial strategies [24]. Therefore, the aim of this paper is to identify the preparedness of Serbian companies to implement entrepreneurial ideas using CEAI (Corporate Entrepreneurship Assessment Instrument). CEAI is a tool used for assessment of five dimensions critical to the creation of entrepreneurial environment in medium-sized and large enterprises. This instrument shows an entity’s current ability to implement strategies based on innovation and emphasizes the areas for further improvement [18, p. 37].

The first part of this paper deals with the theoretical presentation of the intrapreneurship concept and provides a review of the existing research on assessment of the readiness of companies for intrapreneurship, with a particular focus on the instrument used both in the research and in this paper. The other, methodological part of the paper begins with the assessment of structural validity of the presented instrument. After identification of the factors that best describe the subject phenomenon in Serbia, further in the methodological analysis a comparison is made between the static and dynamic industries in Serbia in terms of their readiness for intrapreneurship. The research results ought to provide an evaluation of current preparedness of the medium-sized and large companies in Serbia for entrepreneurial activities and highlight the critical elements for its improvement. Also, the obtained instrument may be useful to managers in assessing the intrapreneurial spirit of certain organizational units, identifying its major

suppressors and creating strategies for stimulation and implementation of intrapreneurial ideas.

Literature review

Intrapreneurship

Ever since the initial theoretical insights into entrepreneurship, it has been associated with activities of independent and individual establishment of new small enterprises. Until recently, the ideas of entrepreneurship related to the efforts of large companies to create new businesses and generate new ideas have attracted little attention in the literature on the subject.

Interestingly, in the short history of dealing with entrepreneurship within large systems, authors have used different terms to explain this phenomenon in literature. While some called it corporate entrepreneurship, others used terms such as intrapreneurship or internal entrepreneurship [12], [26], [29], strategic or organizational self-renewal [34] and strategic ventures [2]. It is still unclear whether these are synonymous or simply designate different manifestations of corporate entrepreneurship. In the past few years, the prevailing view has been that corporate entrepreneurship is an area that encompasses all those elements. More precisely, when entrepreneurship in large corporations is discussed in more recent literature, the aforesaid three variables are underlined: innovation, corporate venturing and strategic renewal [11, p. 5], [39, p. 1715]. Such a more comprehensive view reconciles the long-standing debates between the advocates of entrepreneurship as an adequate combination of resources for generation of new products, processes and the like, as seen by Joseph Schumpeter, and those favoring Gater's view focused on creation of new enterprises or substantial transformation of the existing ones. Considering the objective defined in this research, special attention has been given to intrapreneurship and its most significant manifestation.

The first studies on intrapreneurship carried out in the early 1970s mostly focused on investigating the manner of developing entrepreneurship within large companies [27]. The first serious research studies on intrapreneurship took place in the 1980s and 1990s. One of the first definitions of intrapreneurship was formulated

by Burgelman in 1983. He says that intrapreneurship refers to the process of company's diversification through its internal development [4, p. 1349]. Such diversification requires a completely new combination of resources to help the firm extend its activities into new spheres of business that are marginally related or fully unrelated to its current area of business activity. Pinchot is also one of the early authors using the term intrapreneurship. He defines internal entrepreneurship or intrapreneurship as an introduction of something new or a different combination of the existing resources within an organization, i.e. as creation of new business opportunities within an existing organization and its strategic renewal [29, p. 33]. Chung and Gibbons explain intrapreneurship as an organizational process of transforming individual ideas into collective actions by managing uncertainties in the process [6, p. 12]. Although Jennings and Lumpkin on one end and Schendel on the other addressed this subject simultaneously, they had opposite views on intrapreneurship. The former two authors [17, p. 487] associated intrapreneurship exclusively with creating new products and winning new markets, whereas Schendel referred to the concept as the creation of new businesses within existing companies and their strategic transformation [31, p. 1]. This is reaffirmed by Sathe, who defines intrapreneurship as a simple process of organizational self-renewal [30, p. 23]. Guth and Ginsberg provide a perhaps reconciling view on intrapreneurship identifying its two forms, one exclusively related to the birth of new business within a company called innovation, and the other to entrepreneurial venturing, which entails organizational transformation through the change of ideas underlying the company's business, referred to as strategic self-renewal. A step further in defining intrapreneurship was made by Zahra, who divided Ginsberg's first intrapreneurship dimension into innovation, which is explained as creation of new products, processes and organizational systems, and new business venturing, which entails a company entering a completely new business and expanding its activities in the existing or a completely new market [39, p. 1715]. Some years later, Dess et al. explained intrapreneurship in relation to the efforts of a company to exploit its productive and market capabilities in innovative and creative ways [7, p. 85].

In the 21st century, researchers in this field increasingly emphasize the positive correlation between intrapreneurship and company's performance [38, p. 260], as well as the contribution of intrapreneurship to gaining competitive advantage at both the national and international levels [15, p. 238], [20, p. 153]. In addition, a significant number of studies underline the need to incorporate intrapreneurship in the overall corporate business strategy. The effects may be quite the opposite to the expected ones if a company is unprepared for intrapreneurial activities. Hence, the aim of this paper is to assess the preparedness of Serbian companies to implement intrapreneurial strategies.

The Corporate Entrepreneurship Assessment Instrument

Assessment of the corporate entrepreneurship environment, as well as identification of internal actions that are to be taken in support of intrapreneurship, are prerequisites for successful implementation of intrapreneurial strategies [7, p. 57]. In this regard, in order to adequately implement an intrapreneurial strategy, it is necessary to assess the current organizational preparedness for corporate entrepreneurship (OPCE). As this is a new area of interest, authors emphasize the necessity of developing new instruments for the measurement of this phenomenon. An instrument in the focus of the existing literature is the Corporate Entrepreneurship Assessment Instrument (CEAI). Originally developed by Kuratko, Montagno and Hornsby, the instrument entailed assessment of three intrapreneurship dimensions: management support, reward/reinforcement and work discretion (autonomy) [21, p. 56]. The said instrument was subsequently elaborated on in research studies [15, p. 237] and supplemented with two more dimensions – organizational boundaries and time availability. These authors developed CEAI by combining the variables that were previously identified in the works of Miller and Friesen, and later on adapted and supplemented in the research by Ginsberg, Morris and Paula and by Covin and Slevin. The final version of the instrument, defined through the joint work of the said authors [40], was used in the presented paper. The instrument was used for the measurement of organizational

factors contributing to and stimulating entrepreneurial activities in large companies.

In a number of studies after 2002, the identified five dimensions of the original instrument (Appendix 1) have been used to evaluate the preparedness of a company for intrapreneurship. The first dimension, top management support, refers to the willingness of senior managers to facilitate and promote entrepreneurial behavior within the company, including championing innovative ideas and providing resources people need for taking entrepreneurial actions. The second dimension, work discretion (autonomy), entails top managers tolerating failure of their subordinates. In addition, autonomy to a large extent means delegation of authority and responsibility, i.e. giving the middle and lower-level managers and employees decision-making responsibilities and freedom from excessive oversight. The third dimension refers to the reward system. Creation of an adequate reward system entails the development and use of rewards and promotion of significant achievements to encourage and motivate employees. A well-developed reward system is a basic source of motivation for an individual in creation of innovative solutions. The fourth dimension is time availability, i.e. ensuring time for initiating and pursuing innovation. This dimension requires assessment of employees' workload in order to give individuals and groups of employees sufficient time for innovation and structuring of their jobs in a manner that supports such efforts and achievement of both short-term and long-term organizational goals. The final dimension, organizational boundaries, pertains to precise explanations of the expected outcomes of employees' work and to the development of mechanisms for evaluation, selection and implementation of innovation. In the aforescribed or modified form, the instrument has been used in numerous research studies worldwide [23, p. 286], [1, p. 735], [35, p. 395].

Although the instrument's reliability has been previously tested, many authors, its creators among them, recommend its further empirical validation. Hornsby underlines that, due to its novelty, additional analysis of the instrument's structure is required before establishing it as an effective measure of the corporate preparedness for entrepreneurial actions. The authors mention cultural or demographic differences as additional arguments for the instrument's

further verification [9, p. 130]. Consequently, the aim of this paper is to determine the reliability of the instrument's use, as well as to measure the preparedness of companies in Serbia for intrapreneurial strategy implementation. In the presented study, the analysis results ought to show what factors and variables within them best describe the state of entrepreneurship in Serbian companies, as well as to indicate differences, if any, in significance of the resultant factors depending on the dynamism of the industries in which they operate.

Intrapreneurship in companies in Serbia

Considering the above presented literature on the subject, the aim of this paper is to confirm the validity of the proposed CEAI in Serbia, or, more precisely, to determine how the original instrument can be applied in Serbian companies for assessment of their entrepreneurial capabilities and readiness to implement innovation. The paper's secondary goal is to determine current preparedness of Serbian companies for intrapreneurship within industries characterized by different degrees of dynamism.

The research was carried out among middle and first-line managers. These managers were selected as the target group because, as the instrument's creators themselves explained, they are the link between top managers and employees and can therefore encourage entrepreneurial activities in both formal and informal ways [40, p. 256]. Senior managers are excluded from daily activities so that the middle management can play a significant role in communicating creative ideas to the top management, as well as in the process of their evaluation in the context of the defined corporate strategy. Middle managers may thus contribute to formalizing the significance of entrepreneurship upon definition of the mission, vision and future business strategies. On the other hand, first-line managers may encourage creative thinking and innovation in informal discussions with employees.

The original CEAI questionnaire was sent to 130 managers. The response rate was 73%¹. The questionnaires

were distributed to medium-sized and large companies belonging to different industries (pharmaceutical industry, IT, beverage industry, tobacco industry, textile manufacturing, transportation industry, etc.), accompanied by a cover letter explaining the objective of the survey and prospective surveyee's role. The letter emphasized the anonymity of the surveyees and confidentiality of the data obtained in the survey. In addition to the questions taken over from the original CEAI questionnaire, questions on participants' personal characteristics were added (gender, position and duration of work within their organization), as well as the question about the industry in which the company operates. In the sample of 95 managers surveyed, 53 were women and 42 men. Mid-level managerial positions were occupied by 37% of participants, while the remaining 63% were first-line managers. Furthermore, 86% of managers had been working for less than 10 years in their respective companies, whereas the remaining 14% had been there for over 10 years. CEAI used for measuring the preparedness of companies for intrapreneurship comprised 48 statements (Appendix 1). Surveyees expressed their agreement with the offered statements via a 5-point Likert scale (1 – strongly disagree; 5 – strongly agree).

Reliability of the Corporate Entrepreneurship Assessment Instrument

The first step in the analysis is the reliability assessment of CEAI. The results of the studies conducted so far vary, ranging from a number of identified factors different from the originally defined ones [3], [13] to differing original variables describing the factors [14, pp. 942-943], [35, p. 3051]. Adhering to the methodology applied by the authors who have already examined the structure of the original instrument, this paper also makes use of Cronbach's alpha to assess the instrument's reliability.

The results of the research conducted by Hornsby et al. suggest that the 48 variables observed ought to be grouped into five factors referred to as management support, work discretion, reward/reinforcement, time availability and organizational boundaries [40, p. 269]. Nevertheless, as already stated, having carried out empirical studies, some authors concluded that organizational boundaries

¹ Due to a low response rate in the first round, in the second round of obtaining information, personal contacts were used to approach corporate managers.

do not explain the phenomenon and excluded this factor from further analysis [3].

The results of the reliability analysis conducted in this research are consistent with the results of Hornsby et al. More precisely, the obtained values of Cronbach's alpha justify the use of all five factors in evaluation of the observed phenomenon with one variable (question) excluded from the organizational boundaries factor.² Cronbach's alpha for the top management support factor equals 0.941, 0.890 for the factor of reward/reinforcement, 0.810 for time availability and 0.817 for the work discretion factor. As for the organizational boundaries factor, the value of Cronbach's alpha with all variables included equals 0.536, which is below the limit for this reliability indicator. If one variable is excluded (*During the past year, my supervisor and I frequently discussed my work performance*), the value of Cronbach's alpha is satisfactory and equals 0.742 (Appendix 2). The results obtained in this part of the research show that the original instrument with slight modification can be used for the assessment of preparedness of Serbian companies for intrapreneurship. More precisely, the reliability analysis results show that, in assessing company's OPCE from the sample, only one question out of 48 was excluded.

Furthermore, this paper assesses the current level of companies' readiness for intrapreneurship using the identified factors and variables that describe them, followed by the analysis of potential differences in its level among certain groups of companies taking into account dynamism of the industry to which they belong.

² Nunnally (1978) has indicated 0.7 as an acceptable reliability coefficient.

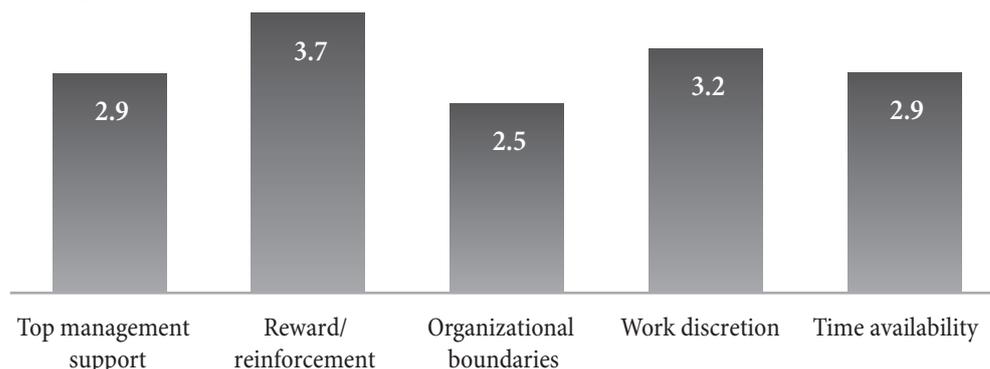
Assessment of the preparedness of Serbian companies for intrapreneurship

After confirming the instrument's reliability, further in the paper we analyzed the preparedness of companies in Serbia for intrapreneurship. The chart below presents all five factors of the model in the tested sample of Serbian companies.

The manner of determining the value of the aforesaid factors has been fully taken over from the original methodology implemented by the creators of the used instrument [18, pp. 45-46]. More precisely, the values of observed factors were obtained as the average of the variables describing them. The results of the analysis demonstrate that, on average, the preparedness of companies in Serbia for entrepreneurial activities is at a medium level (OPCE=3.0) mostly due to lack of management support with regard to encouraging, developing and implementing entrepreneurial ideas (2.9), lack of time for employees to develop and implement strategic innovations (2.9) and also due to excessively bureaucratic operating procedures that suppress creativity and innovative ideas of employees (2.5). On the other hand, there are no procedures in place that emphasize the significance of innovative behavior and select the best ideas for implementation. Interestingly, the best ranking factor in companies in Serbia is the factor of employee rewards, suggesting that the system of monetary incentives to reward innovation is in place.

We further examined whether there was a statistically significant difference between companies in dynamic and those in static industries in respect of these factors. According to Miller and Friesen, dynamism refers to the

Figure 1: Organizational preparedness for corporate entrepreneurship (OPCE) in Serbian companies



Source: Results of the present research.

presence of changes in the environment, or more precisely, dynamism of the environment creates opportunities for a firm within the existing markets and related fields [22, p. 3]. Zahra and Ellor find that a dynamic environment will encourage companies to exploit opportunities in the current or a new market [37, p. 9]. Certain studies stress that firms in a turbulent environment tend to be more innovative, proactive and less averse to risk than those in a stable environment [25, p. 137]. Miller and Friesen confirm the hypothesis that, unlike the firms with low standing, the more successful ones have higher correlation between the dynamism growth and the innovation growth [22]. For all the aforesaid reasons, the following hypothesis was examined:

H1: There is a statistically significant difference in top management support (work discretion, reward/reinforcement, time availability, organizational boundaries) between the companies operating in dynamic industries and those operating in static industries.

More precisely, companies in dynamic industries have higher operational preparedness for corporate entrepreneurship (OPCE) than those in static industries.

Before testing the hypothesis, the companies from the sample were classified into two groups, i.e. into those operating in dynamic industries and those operating in static industries, using the methodology developed by Dess and Beard (1984) and further improved by Sharfman and Dean a few years later [8], [33]. These authors measure the dynamism of a particular industry by assessing its market and technology instability indicators. The number of employees and the number of companies within the industry were used as market indicators, while their instability was determined based on the deviation of the real values from the linear trend estimation over a five-year period. The standard error of the deviations obtained was divided by the mean of the observed indicator during the said period in order to arrive at the so-called instability index of the particular market indicator for the industry observed. On the other hand, blended data on the number of technologically innovative companies relative to the total companies within the analyzed industry over a period of the past five years were used as technological instability indicators. All the data used for

these purposes were obtained from the Statistical Office of the Republic of Serbia. Following the methodology of the aforesaid authors, the obtained values of market and technology indicators were standardized since they were not measured using the same measurement scales, and the sum of the two groups of indicators was increased by 3 to ensure the positive values of the resulting industry instability indexes. Based on the results obtained and taking into account the mean of the dynamism index of the overall economy, all industries were classified into two groups – dynamic and static. In the sample used for the purposes of the present research, 59% of companies belong to dynamic, while the remaining 41% to static industries. The formula for calculation of the industry instability index is provided in Appendix 3, as well as the analysis results obtained for all industries in Serbia for which the required data were available.

After defining two groups in the sample, an independent samples t-test for comparing means was used to test the hypothesis. Based on the test results presented in detail in Table 1, we came to a conclusion that we cannot claim that there is a statistically significant difference in total OPCE between the companies operating in dynamic and static industries ($p=.156$). However, once we look for and test the differences in specific factors of OPCE, takeaways are quite different. Based on the results, it was concluded that there is a statistically significant difference between the companies operating in static and dynamic industries in respect of top management support ($p=.021$), reward system ($p=.026$), work discretion ($p=.043$) and time availability ($p=.003$) factors, at the significance level of 5%. With regard to the organizational boundaries factor ($p=0.832$), no statistically significant difference was identified between the observed two categories of companies.

Although we cannot maintain with certainty that there is a statistically significant difference between these two groups of companies in respect of the overall organizational preparedness for corporate entrepreneurship, differences were still identified per its constructs. For a more detailed examination of the direction and causes of the differences identified, a comparative overview of all five OPCE factors for the two groups of companies observed is provided further in this paper. As presented in Figure

2, companies operating in dynamic industries exhibit better preparedness for intrapreneurship than those in static industries with regard to top management support, rewards and work discretion. When it comes to the time availability factor, the situation is quite the opposite. More precisely, on average this factor had much better scores in companies operating in static industries than in those in dynamic industries. Finally, organizational boundaries as an OPCE construct were evenly ranked with rather low scores in both groups of companies.

In dynamic industries, work discretion and reward factors on average show the best scores. In static

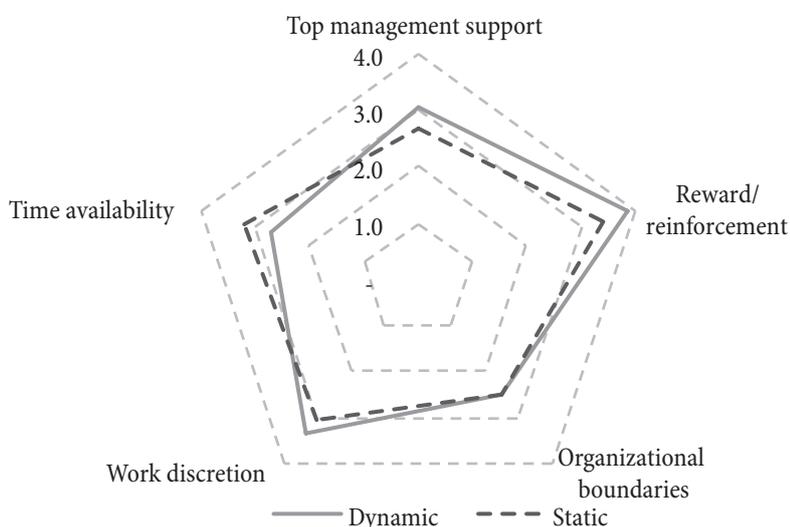
industries, the best scores on average pertain to the reward/ reinforcement and time availability factors while all the other factors had low scores. Organizational boundaries, which entail precise explanations of the expected outcomes of employees' work and development of mechanisms for evaluation, selection and implementation of innovation, had low scores in both groups, which certainly ought to be considered when creating future strategies of all types of companies. In fact, among the biggest problems regarding low innovative activity of individuals in both static and dynamic industries are the rigidity of work processes and a great number of bureaucratic procedures

Table 1: Independent samples t-test

		Levene's test for equality of variances		T-test for equality of means						
		F	Sig.	T	Df	Sig. (2-tailed)	Mean difference	Std. error difference	95% confidence interval of difference	
									Lower	Upper
Top management support	Equal variances assumed	5.659	.019	2.464	93	.016	.4108516	.1667613	.0796967	.7420066
	Equal variances not assumed			2.368	69.902	.021	.4108516	.1734854	.0648375	.7568658
Rewards	Equal variances assumed	6.035	.016	2.392	93	.019	.4694093	.1962580	.0796799	.8591388
	Equal variances not assumed			2.279	67.263	.026	.4694093	.2059703	.0583204	.8804983
Organizational boundaries	Equal variances assumed	.664	.417	-.220	93	.827	-.0343727	.1565671	-.3452839	.2765384
	Equal variances not assumed			-.213	73.192	.832	-.0343727	.1611399	-.3555099	.2867645
Work discretion	Equal variances assumed	.815	.369	2.085	93	.040	.2923535	.1402133	.0139178	.5707892
	Equal variances not assumed			2.058	78.033	.043	.2923535	.1420522	.0095512	.5751558
Time availability	Equal variances assumed	1.179	.280	-2.949	93	.004	-.4800870	.1627798	-.8033355	-.1568385
	Equal variances not assumed			-3.029	88.781	.003	-.4800870	.1584733	-.7949809	-.1651931
OPCE	Equal variances assumed	1.613	.207	1.463	93	.147	.1315797	.0899469	-.0470371	.3101964
	Equal variances not assumed			1.434	75.830	.156	.1315797	.0917846	-.0512319	.3143912

Source: Results of the present research.

Figure 2: Comparative illustration of OPCE factors in dynamic and static industries



Source: Results of the present research.

that restrict and suppress creativity of individuals. This factor can be further improved through stimulation of both vertical and lateral communication, creation of interdisciplinary work teams, strengthening of supervision and creation of small organizational units. Apart from organizational boundaries, time availability proved to be a factor with adverse effects on preparedness of companies in dynamic industries for corporate entrepreneurship. This particularly refers to tight time frames defined for completion of tasks, which leads to insufficient time available for dealing with broader strategic issues of companies. Given the better scores this factor showed in entities within static industries, we may assume that the reason for such divergent results resides in the volume and frequency of changes in the environment. More precisely, companies operating in dynamic environments are constantly exposed to changes, which, if such companies wish to remain competitive, must be monitored and adapted to. Consequently, managers permanently create new tasks and give employees tighter deadlines for their realization. Such continuous adaptation of employees to new activities does not leave them much time for contributions of a strategic nature.

On the other hand, besides organizational boundaries, the lack of top management support is distinctly the main cause of unpreparedness of companies in static industries for intrapreneurship. Such lack is evident in driving employees' creativity, as well as in implementation and promotion of their ideas. The reason for this may be the fact that the managers in static industries are less aware of the significance of innovation. Such behavior may be justifiable in the observed static environment since, as presented in the previous studies, excessive innovation is a feature much more typical of dynamic than of static industries [22]. In other words, high level of innovation is associated with the high performance of companies operating in an environment where changes are hard to anticipate. In an environment characterized by low volume of change, rigid competition and the like, high costs of implementing innovative ideas are probably less necessary than in dynamic environments. Expenditures necessary for the realization of an idea may frequently exceed the benefits such idea will bring.

Bearing in mind the aforesaid studies that consider corporate entrepreneurship activities justified exclusively in highly dynamic circumstances [22], [25], we cannot claim with certainty that higher levels of all five OPCE factors are desirable for both groups of companies observed. According to those studies, high levels of all OPCE factors are more desirable in dynamic industries. Hence, low values of top management support, organizational boundaries and work discretion are desirable in the group of static industry companies as they are not motivation drivers of employees' entrepreneurial behavior. However, the time availability factor and well-developed reward systems may be redirected toward achievement of higher efficiency in current operations rather than toward discovery and implementation of innovation. Quite contrarily, in companies operating within dynamic environments, improvement of organizational boundaries and time availability may create an internal atmosphere suitable and stimulating for employees' entrepreneurial activities. The aim of this research was merely to identify the current preparedness of companies for intrapreneurial activities and not to define the level of preparedness that is desirable or recommended for different conditions of business operations. In order to define the required levels of five OPCE factors and thereby confirm the above presented conclusions, it is necessary to determine the level of entrepreneurial activities that contributes the most to the performance of companies in dynamic industries, as well as in static industries.

Conclusion

The research conducted and presented in this paper is a response to the invitation of Hornsby et al. to further examine the structural validity of the proposed instrument for measurement of intrapreneurship (CEAI). As the reason for the required additional investigation, the authors specified a relatively short period of use of the proposed instrument worldwide, as well as the need to identify the impact of cultural differences on its structural diversification. The results of the instrument's reliability analysis confirmed the existence of five factors that best describe the observed phenomenon in Serbian companies. Those five factors, with a single question excluded, structurally match the factors of

the originally set model, referred to as management support, rewards, work discretion, organizational boundaries and time availability.

By evaluating all five factors in the sample of medium-sized and large companies in Serbia, the preparedness of Serbian companies for intrapreneurship was identified. The analysis results demonstrate that, on average, the level of preparedness of companies for corporate entrepreneurship is not high, which is mostly caused by the lack of top management support with regard to encouraging, developing and implementing entrepreneurial ideas, as well as by the excessive bureaucratization of work procedures that suppress employees' creativity and innovation. On the other hand, there are no procedures in place that emphasize the significance of innovative behavior through stimulation, evaluation, selection and implementation of ideas. It is interesting that in companies in Serbia the best ranking factor is the reward factor, suggesting that the system of monetary incentives to reward innovation is in place.

In addition, the results of the present research demonstrate that there are significant differences in respect of the top management support, rewards, work discretion and time availability between the companies operating in different environments in terms of dynamism. However, when it comes to organizational boundaries, we cannot claim that a statistically significant difference between the two groups exists. At the same time, this factor was evaluated as the least reliable using Cronbach's alpha. Higher management support in creation and implementation of innovative activities, better employee reward systems and higher levels of work autonomy (discretion) were identified in companies operating in dynamic industries. With regard to the time availability factor, the results of the conducted research suggest that this factor shows better scores in companies belonging to static industries. In both groups, the least contributing to the entrepreneurial activity implementation is the organizational boundaries factor, implying that the governing structures of both static and dynamic companies need to create a system in which employees know what is expected of them in the context of innovation, as well as to establish procedures for selection, evaluation and successful implementation of ideas.

The presented CEAI can be useful to managers in the process of diagnosing current preparedness of Serbian companies for intrapreneurship, as well as in assessing what actions need to be taken in order to improve entrepreneurial activities. In addition, the instrument is helpful in identifying elements that may have destructive influence on intrapreneurship and employees' motivation for entrepreneurial behavior. Hence, ongoing monitoring and improvement of intrapreneurship create a company that permanently seeks new business opportunities and whose environment facilitates exploitation of unique business opportunities for development and achievement of sustainable competitive advantage. However, the results of the present research cannot demonstrate the necessity of a high level of entrepreneurial activity in the observed groups of companies, which is certainly important as the subject of future investigation. As emphasized above, there are certainly factors likely to stimulate an adequate level of entrepreneurial activity. One of those factors may be the environment a company operates in, viewed through changes in the market requirements, behavior of competitors, technology development and the like. More precisely, it is important to assess if the high level of entrepreneurial activities is desirable in both static and dynamic environments. If not, improvement in these organizational factors needs to be aligned with the company's specific optimal level of entrepreneurial activities.

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Appendices

Appendix 1: Original CEAI survey distributed to corporate managers

<p>Management support</p> <p>1. My company promptly adopts new work methods and procedures. 2. My company promptly adopts new work methods and procedures proposed by employees. 3. Upper management levels accept my ideas and suggestions. 4. Upper management levels are known to have experience with the innovation process. 5. Individuals whose individual innovation projects prove successful are paid in cash. 6. Employees in my firm are encouraged to assume risks. 7. Funds for financing new projects are available. 8. An employee can get time off work in order to develop his/her idea. 9. Senior management levels encourage innovators to implement their ideas without rigid procedures. 10. In my organization, developing one's own ideas and working on projects with colleagues from other departments (units) are encouraged. 11. My organization supports the realization of new ideas even if some of them are likely to fail. 12. In my company, individual risk-takers are recognized for their willingness to champion new projects even though the successful outcome thereof may not be certain. 13. Employees who successfully implement their ideas within the company get promoted in any department. 14. My company encourages creativity of its employees. 15. Employees working on a project may make decisions without complying with the rigid company procedures. 16. There are several options for financial support of individuals with innovative projects in the company. 17. Employees are often encouraged to take calculated risks regarding the implementation of their ideas within the company. 18. The term "risk-taker" is considered a positive attribute for people in my company. 19. In my organization, there is considerable desire among employees to create and implement ideas in collaborative effort, irrespective of the department or function they belong to.</p>
<p>Employee reward/reinforcement</p> <p>20. Whenever I come across an obstacle in my work, my manager always helps me to overcome it. 21. The rewards I receive depend on my performance at work. 22. My supervisor will increase my scope of work if I am assessed as a good performer. 23. My supervisor will propose that I should be rewarded if I perform well. 24. My supervisor will praise my work before his/her boss if my achievement is outstanding. 25. There is a lot of challenge in my work/job.</p>
<p>Organizational boundaries</p> <p>26. There is little uncertainty in my work/job.* 27. In the past three months, I have followed standard operating procedures in carrying out my tasks.* 28. I clearly know how well and in what time I am expected to complete my tasks.* 29. I always know exactly what is expected of me in doing my job.* 30. There is a precise description of my job.* 31. There are many written rules and procedures that I must follow to carry out my tasks.* 32. During the past year, my supervisor and I have frequently discussed my work performance.</p>
<p>Work discretion</p> <p>33. At work, I feel as my own boss. 34. Criticism and punishment I receive at work are the consequences of the mistakes I make.* 35. This company encourages my creativity and supports implementation of my own methods of work. 36. This company gives me freedom to use my own judgment during work. 37. This company allows me to make maximum use of my abilities. 38. I have the freedom to decide how to carry out my tasks. 39. It is my responsibility to decide how my job will be done. 40. I almost always get to decide what I will do in my job. 41. I have full autonomy in carrying out my work. 42. At work, I do not follow numerous work procedures and steps on a daily basis.</p>
<p>Time availability</p> <p>43. I always have enough time to get everything done efficiently. 44. Deadlines for completion of my tasks are reasonable. 45. My coworkers and I always find time for long-term problem-solving at work. 46. I feel that I am under pressure due to deadlines for completion of my work.* 47. For the past three months, my current workload has prevented me from developing new ideas at work.* 48. I do not have much time to think about wider organizational problems due to the structure of my job.*</p>

*reversed questions

Appendix 2: Results of reliability testing of the measurement instrument used

Table 1a: Cronbach's alpha for the management support factor

Reliability statistics		
Cronbach's alpha	Cronbach's alpha based on standardized items	No. of items
.941	.941	19

Table 1b: Cronbach's alpha for the reward/reinforcement factor

Reliability statistics		
Cronbach's alpha	Cronbach's alpha based on standardized items	No. of items
.890	.889	6

Table 1c: Cronbach's alpha for the organizational boundaries factor

Reliability statistics		
Cronbach's alpha	Cronbach's alpha based on standardized items	No. of items
.536	.587	7

Item-total statistics				
	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
VAR00026	14.858586	13.878	.206	.523
VAR00027	16.070707	12.679	.514	.410
VAR00028	16.111111	11.875	.542	.383
VAR00029	15.909091	11.818	.564	.375
VAR00030	15.888889	12.896	.351	.462
VAR00031	15.959596	12.468	.414	.435
VAR00032	15.020202	19.755	-.365	.742

Reliability statistics		
Cronbach's alpha	Cronbach's alpha based on standardized items	No. of items
.742	.749	6

Table 1d: Cronbach's alpha for the work discretion factor

Reliability statistics		
Cronbach's alpha	Cronbach's alpha based on standardized items	No. of items
.817	.821	10

Table 1e: Cronbach's alpha for the time availability factor

Reliability statistics		
Cronbach's alpha	Cronbach's alpha based on standardized items	No. of items
.810	.810	6

Appendix 3: Industry dynamism index

Formula for calculating the dynamism index $D = Z(Emp + Comp) + Z(Tech) + 3$, where *Emp* refers to the number of employees instability indicator, *Comp* refers to the number of companies instability indicator and *Tech* represents technology instability indicator. Letter *Z* in front of the indicators suggests that the values of the indicators have been standardized.

Table 1: Dynamism index

Industry	Instability indicators			Dynamism index	Industry classification
	Market instability indices		Technology		
	# Employees	# Companies			
Manufacture of computer, electronic and optical products	1,6%	1,3%	66%	6,11	D
Manufacture of tobacco products	2,6%	1,9%	50%	5,89	D
Financial and insurance activities	1,9%	0,8%	34%	3,71	D
Manufacture of electrical equipment	1,0%	0,8%	36%	3,41	D
Manufacture of basic pharmaceutical products and pharmaceutical preparations	1,0%	1,6%	29%	3,36	D
Manufacture of weapons and ammunition	0,7%	0,4%	39%	3,22	D
Information and communication	1,1%	0,7%	33%	3,17	D
Manufacture of food products	0,7%	0,5%	36%	3,06	D
Professional, scientific, innovation and technical activities	0,8%	0,2%	35%	2,89	D
Manufacture of wearing apparel	0,4%	0,7%	34%	2,84	D
Administrative and support service activities	0,8%	0,3%	32%	2,73	S
Manufacture of chemicals and chemical products	0,2%	0,2%	35%	2,57	S
Construction	0,6%	1,1%	26%	2,57	S
Manufacture of leather and related products	0,4%	1,3%	24%	2,51	S
Accommodation and food service activities	0,9%	0,3%	28%	2,47	S
Manufacture of basic metals	0,3%	0,1%	38%	2,74	S
Electricity, gas, steam and air conditioning supply	0,2%	0,2%	38%	2,69	S
Manufacture of rubber and plastic products	0,4%	0,3%	29%	2,31	S
Water supply; sewerage, waste management and remediation activities	0,4%	1,1%	22%	2,26	S
Wholesale and retail trade; repair of motor vehicles and motorcycles	0,7%	0,3%	22%	1,96	S
Printing and reproduction of recorded media	0,6%	0,4%	21%	1,89	S
Transportation and storage	0,2%	0,3%	25%	1,86	S
Manufacture of beverages	0,6%	0,4%	20%	1,76	S
Agriculture, forestry and fishing	0,1%	0,4%	23%	1,74	S
Manufacture of paper and paper products	0,7%	0,7%	10%	1,38	S

Appendix 4: Results of the independent samples t-test

Table 1: OPCE of companies in Serbia

Descriptive statistics									
	No.	Minimum	Maximum	Mean	Std. deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. error	Statistic	Std. error
Top management support	95	1.0000	4.7900	2.895263	.8208556	-.369	.247	-.430	.490
Rewards	95	1.0000	5.0000	3.687474	.9643441	-.831	.247	.114	.490
Organizational boundaries	95	1.0000	5.0000	2.501789	.7468871	.390	.247	.318	.490
Work discretion	95	1.8000	4.7000	3.221053	.6841511	-.048	.247	-.503	.490
Time availability	95	1.1700	4.6700	2.909053	.8118171	-.089	.247	-.326	.490
OPCE	95	2.0400	3.9800	3.042947	.4338788	-.237	.247	-.473	.490

Table 2a: Comparative overview of OPCE factors in dynamic vs. static industries
(dynamic industries=1, static industries=0)

Group statistics					
	Dyn	N	Mean	Std. deviation	Std. error mean
Top management support	1	56	3.063929	.7214598	.0964091
	0	39	2.653077	.9007195	.1442305
Rewards	1	56	3.880179	.8261972	.1104052
	0	39	3.410769	1.0858840	.1738806
Organizational boundaries	1	56	2.487679	.6986376	.0933594
	0	39	2.522051	.8202156	.1313396
Work discretion	1	56	3.341071	.6519277	.0871175
	0	39	3.048718	.7007033	.1122023
Time availability	1	56	2.711964	.8252326	.1102763
	0	39	3.192051	.7107490	.1138109
OPCE	1	56	3.096964	.4106709	.0548782
	0	39	2.965385	.4594553	.0735717

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