

Improvement of Innovation Capacity of SMEs in Republic of Serbia by Connecting with Key Stakeholders

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The purpose of this paper is to examine the influence of connecting with key stakeholders in order to improve innovative capacity of SMEs. This is essential for SMEs in Serbia where these enterprises are facing numerous problems in operation and performance of innovative activities. Starting from the existing theoretical views about the importance of creating innovative SMEs business network which results in the creation and delivery of unique value to the market, the authors tend to explore the innovative capacity of SMEs in Serbia and identify opportunities for cooperation with key stakeholders. Wider interest in empirical research coincides with the need for more intensive involvement of Serbian SMEs in foreign markets. The survey was conducted on a sample of 304 SMEs in Serbia. In the survey, data were collected using personal interview and in-depth interview. The questionnaire is structured in such a way that allows to identify the importance which managers attribute to cooperation with key stakeholders, in order to increase their innovative capacity. The findings indicate that the SMEs managers in Serbia still do not perceive the importance of connecting with stakeholders to perform the innovative activities. Based on these findings, SMEs managers would do well if they pay attention to open innovation as new innovative practices which can contribute to create valuable knowledge necessary to perform innovative activities. For academics, this paper indicates the need for a further research in order to identify the obstacles SMEs in Serbia are facing within the process of networking with both domestic and foreign stakeholders, which is the reason they are underused in increasing innovative capacity.

Keywords: *Innovation, Capacity, SMEs In Serbia, Stakeholders, Connecting, Knowledge Networks, Competitiveness.*

Introduction

Competitiveness in the business environment characterized by threats and uncertainty is conditioned by the ability of an enterprise to react innovatively. Innovativeness is the key source of competitive advantage of SMEs regarding their exposure to various risks. Small and medium-sized enterprises have, on one hand, a comparative advantage due to flexibility, i.e., rapid adaptation to changes in the environment, the entrepreneurship and the innovativeness (Thurik & Wennekers, 2002; Ojala, 2009). On the other hand, this group of enterprises has a problem with providing specific resources underlying the innovations, but also the problem of solvency, i.e., to fund innovative activities. This is particularly evident in economies with limited capital and restrictive investment policies, such as Serbia (Eric *et al.*, 2012). Because of this situation, this group of enterprises can not independently develop and commercialize innovations.

The dynamic business environment creates an additional problem to the innovativeness of small and medium-sized enterprises as it continuously changes conditions and ways of doing business. In the conditions of mass production and consumption, innovative activities of these enterprises were based on information about the needs and demands of consumers which were provided by marketing research. Different innovation types were resulted from such efforts - innovations of products and services and business process innovations. Products, services and business processes that were the outcome of radical innovations have

had a greater impact on the competitiveness of enterprises, especially in the rapidly changing markets (Srinivasan *et al.*, 2002; Tellis *et al.*, 2009). Therefore, radical innovations are also identified as a source of economic growth in national economies (Story *et al.*, 2009).

Intensification of competition in many markets, increasing consumer demands and technological changes have obstructed the creation of market-friendly innovations. These innovations require creating the knowledge about customers and their needs. This results in adoption and implementation of the marketing orientation by enterprises. Marketing orientation enables enterprises to focus not only on the satisfaction of real customer needs, but also on hidden ones (Simanis & Hart 2009). This focus required a connection of specialized knowledge and skills within the enterprise, a creation of interfaces between business functions and an organizational flexibility. In developing and commercializing innovations, the links between the marketing function and the research and development function were particularly important.

The creation of superior value for consumers was often conditioned by finding specific resources and capabilities and achieving operational efficiency. The enterprises, especially SMEs, cannot provide all these conditions independently. Integration processes among participants in creating value for consumers have become inevitable. On the other hand, the requirements for rational use of resources and reduction of innovation risk to acceptable limits additionally increased under the influence of the current

economic and financial crisis. New ways of business conduct and innovation management are needed (Sinfield *et al.*, 2012). To achieve the sustainable growth, enterprises turn to the creation of different innovation networks. Innovations in the new millennium will be the result of interconnecting all parts of the organization (internal networking) and connecting with other entities (external networking) (Henke & Zhang, 2010; Huston & Sakkab, 2006).

Networking of innovation resources within an organization or between organizations helps sharing useful knowledge and skills, but also reduces the risk of innovation. This is particularly important for small and medium-sized enterprises since they are lacking resources necessary for independent development and commercialization of innovations. Formal and informal innovation networks have the potential to generate a range of benefits that cannot be acquired by individual engagement of enterprises: more innovative ideas, risk sharing, access to new technologies, access to new market, lower production and R&D costs, innovation development rate, acquisition of innovative resources (Goffin & Mitchell, 2005; Hoffman, 2005; Karaev *et al.*, 2007).

Based on the fact that innovation is a key factor in the competitive positioning of SMEs, *the scientific problem of this article* is to analyze the innovation capacity of SMEs in Serbia, particularly the importance of SME stakeholders and connection with them in order to increase the innovation effects. Wider interest in empirical research coincides with the need for more intensive involvement of Serbian SMEs in the global market trends. Consequently, the necessity to find a basis for competitive positioning is also the subject of interest.

The object of this article is contribution of connecting SMEs with key stakeholders (business partners) to increasing their innovation capacity.

The aim of this research is to analyze the importance of connecting SMEs in Republic of Serbia for increasing their innovation capacity. It is particularly important to identify activities of connecting SMEs in Serbia with key stakeholders in the sphere of innovation of products, services and processes, as well as to assess their potential effects.

Research methods are based on comparative analysis of scientific literature and statistical factor analysis. Given the importance of connecting SMEs to generate innovations and, thereby, increase competitiveness of the economy of Republic of Serbia and its innovation capacities, an empirical research was conducted.

Novelty. Our study gives the empirical results of connection Serbian SMEs with stakeholders as a base for increasing their innovation capacity. The topic of the connection of SMEs with stakeholders and innovativeness has been previously explored (Caniels & Romijin, 2003; Simonin, 2004; Forsman, 2009, 2011; Malakauskaite & Navickas, 2011; Diaz-Perez *et al.*, 2011). However, the topic has not been sufficiently explored in SMEs in Serbia. Therefore, the results of our research will enable an insight into the relations between networking with the stakeholders and the innovative SMEs in Serbia.

Literature Review on Networking of SMEs as a Source of Their Innovativeness

The role of SMEs in the process of restructuring national economies is significant. It is confirmed by their share in the total number of enterprises and number of employees, as well as by their participation in the creation of value. For example, in the countries of European Union SMEs accounted for 99,8 % of all enterprises active in the EU-28 nonfinancial business sector, 66,8 % of total employment and 58,1 % of the value added (European Commission, 2013–2014, p. 14). This trend is characteristic both for the developed and especially for developing countries and countries in transition, where small and medium-sized enterprises are crucial for the growth of national economies. Comparative advantage lies in the possibility to react to market demands, as well as in production specialization, entrepreneurial initiative and innovation generating. However, the comparative advantage of these enterprises is not always transformed into competitive advantage with respect to the action of a large number of limiting factors and exposure to risks. In the conditions of globalization of business activities and markets, the risks are more pronounced, requiring from the managements of these enterprises to search for new ways of competing. One of the ways that can provide more durable competitive advantage is the orientation towards creating superior value for customers. An unique, distinct and specific value can be created in the market only by innovative strategies. Such a reaction requires creating an organization that is ready to face two major challenges. The first challenge is adaptability, i.e. the ability of continuous research of new possibilities and adjustment to unstable market conditions. The second challenge is arrangement which refers to the organization's ability to effectively use its resources (Cunningham, 2008; Siu, 2001; Russell-Bennett *et al.*, 2007).

Confrontation of SMEs with before mentioned challenges is limited by their greater sensitivity compared to large companies. The sensitivity stems from the following: lack of capital required for investing and generating innovations, low level of diversification of business activities, inadequate financial structure, low credit rating, dependency on loans as external sources of funding, limited access to funding sources (OECD & Centre for Entrepreneurship SMEs and Local Development, 2009).

Successful innovations are increasingly dependent on finding and efficient use of rare resources. Knowledge is one of the few resources and represents a limiting factor of innovativeness and innovation capacity increase of small and medium-sized enterprises. Gaining knowledge as an important innovation resource is increasingly linked to the creation of different innovation networks, both internal and external. The construction and development of complex networks through which knowledge flows is the pillar of effective innovation management in the new millennium (Zieba & Zieba 2014; Goffin & Mitchell, 2005). Therefore, there has been more and more talk about a new innovation paradigm called open innovations. "Open innovation is the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for

external use of innovation, respectively. [This paradigm] assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as they look to advance their technology” (Shesbrough, 2006, p. 1). Open innovation is a new way of creating innovations (Spithoven *et al.*, 2013).

The role of enterprise stakeholders is significant in open innovation paradigm. This is particularly important for SMEs that find the chances for innovation development in collaboration and networking with their stakeholders. SMEs and their stakeholders create the different types of business networks which based on cooperation and partnership. Results of a survey of 750 top managers in the world have shown that 76 % of interviewed managers consider business partners and cooperation with consumers the most important sources of new ideas, while internal activities of research and development are ranked eighth. This is understandable if we take into account that the same survey found that 30 % of the revenue was generated by the ideas from external sources (Boudreau-Lakhani, 2009). Among these stakeholders, knowledge networks are created to encourage mutual learning process and they enable the development of new knowledge. The knowledge networks are more prepared for continuous innovation of products, services and processes. They are more focused on consumers, reacting more quickly to their needs and to market changes. Finally, the knowledge networks reduce risk and increase operational efficiency. (Tellefsen, 2003; Osterle *et al.*, 2001).

The ways of acquiring knowledge by linking SMEs with their stakeholders can be different. SMEs are often associated with large enterprises, which are the initiators of such business arrangements in order to reduce business costs. Benetton is an example of the so-called network company that is known for the use of external sources of supply, subcontracting and developing long-term relationships with a number of SMEs. The SMEs perform labour-intensive activities. Activities that require large investments and strategically important for the company are carried out in the headquarters (Camuffo *et al.*, 2001).

The customers in modern conditions are transformed into an important source of valuable concepts that significantly abates the risk in carrying out the innovative activities. Involving customers into project development triggers the innovation process and makes it more successful (Ulwick, 2002; Selden & Macmillan, 2006). Cooperation with customers in creating innovations results in better articulation of both their needs and demands. Most enterprises nurture continuous feedback to reach valuable suggestions and information (Chang & Luh, 2012; Thomke & von Hippel, 2002).

SMEs cooperation with the suppliers could significantly contribute to their innovativeness. Namely, the relations with the suppliers become critical for creating the superior customer value for they affect not only the quality as an element of the customer value, but also the total time and effort necessary to create the value. The suppliers with their ideas contribute to improvements in all business areas, thus represent the valuable source for innovations. The involvement of the suppliers in the innovation process requires the selection of the suppliers (Shahmardan & Zadeh, 2014) and suitable quality management of the

relations with them. The relations based on cooperation create trust between enterprises and their suppliers enable better interchange of knowledge and innovations transfer (Henke & Zhang, 2010).

Recognizing the importance of the company and taking advantage on that basis, SMEs often associate with one another (O’Dwyer *et al.*, 2011; Pittino *et al.*, 2013). The forms of this interconnection can be different. It can be clusters or business incubators.

Cluster is a special form of network that is used to create value for interconnected entities with a common idea - creating and delivering superior value to customers while achieving the goals of organizations and institutions involved. A cluster can be shaped as a form of network that occurs within a geographic location. In these networks the proximity of enterprises and institutions ensures certain types of community and increases the frequency and impact of interactions (Porter, 1998; Porter, 2000). Clusters encompass a number of interconnected enterprises (as well as subcontractors) of different industries and other entities important to competition (suppliers of specific inputs, components, equipment and services, marketing channels, consumers, manufacturers of complementary products and industries linked by knowledge, technology or common outputs). They also include governmental and other institutions (universities, institutes, R&D institution, standardization agencies, agencies for the development of SMEs, professional associations, brain trusts, etc.). Regarding the quality of knowledge that is created in the clusters and exchanged between the member enterprises, attention has increasingly been given to innovation clusters.

The innovativeness of SMEs is determined to a large extent by cooperation with scientific research organizations (SROs). Risk can be reduced or made certain through collaboration and association of SMEs with scientific research organizations (SROs) and by the realization of joint projects.

The practice of many successful enterprises has confirmed that cooperation with various organizations and institutions contributes to the creation of added value for consumers and to the increase of synergic effects of involved enterprises. Collaborative networks can increase the innovation capacity of SMEs (Caniels & Romijn, 2003; Szeto, 2000) and generate significant benefits. The benefits can be tangible and intangible (Simon, 1997). Tangible benefits are as follows: profits increase, improved market share, lower cost of production and R&D, access to new markets and sustained competitive advantage. The creation of knowledge and capabilities, their interchange among enterprises, and better strategic and operational alignment of goals are some of the intangible benefits. The benefits based on the use of intangible assets and mobility of resources are particularly strong in the innovation clusters (Diaz-Perez *et al.*, 2011). Above stated benefits are an effective way to improve competitiveness at all levels (Engel & Palacio, 2009; Heimeriks *et al.*, 2009; Kodama, 2009).

Apart from numerous benefits which can be generated from collaborative networks by SMEs, there are some opinions that particularly small enterprises are facing difficulties while obtaining some advantages through networking (Forsman, 2009; Forsman, 2011; Todtling *et al.*,

2009). In order to improve the innovativeness of SMEs through the cooperation with stakeholders, it is necessary to design and implement the appropriate cooperation activities of SMEs. In transition countries, the following activities which support the innovative activities of SMEs are particularly important: technology-business councils which SRO provides enterprises, organization of specific training concerning SRO organization and professional associations, development of techno parks, cooperation with SRO in innovation development, the creation of local and regional partnerships, etc.

Connecting SMEs in Serbia

The role of small and medium-sized enterprises in the process of restructuring the economy of Serbia and joining the European integrations is becoming increasingly important. Although in Serbia the development of this particular sector started in the eighties of the twentieth century, a significant development was noticed at the beginning of the new millennium. In 2013, SMEs sector accounted for 99,8 %, employing 45,3 % out of total number of employees, generated 33 % of gross domestic product (GDP), 39,1 % of total investments, with 49,8 % share in export, 58,2 % in import, generated 70,8 % of external deficit of Serbian economy (<http://www.gov.rs>). In particular, their importance to the Republic of Serbia is reflected in fostering competitiveness of the economy, more efficient solving of unemployment, increasing GDP, elimination of certain structural disproportions, more efficient integration into the international trends of connecting with global companies, improvement of various forms of business cooperation with business entities in the region, and so on (Eric *et al.*, 2012).

There is no doubt that SMEs in Serbia are confronted with many problems in their business operations and performance of innovative activities. Conditions related to the innovativeness of enterprises in Serbia can be observed indirectly, by decomposing the New Global Competitiveness Index (NGCI) which measures competitiveness of national economies. In "The Global Competitiveness Report 2014–2015" Republic of Serbia is ranked 94th of the 144 countries (WEF, 2015, p. 14–15). It is the lowest position in relation to all neighbouring countries, except Albania. The analysis of sub-indices and pillars of competitiveness provides data on the specific reasons that led to such a bad position of Serbia. Serbia is the lowest ranked country according to the indicators related to business sophistication (132th of the 144) and innovation (108th of the 144) The lowest individual score of the Serbian economy relates to innovation (2,9 of the maximum 7) (WEF, 2015, p. 20).

Information on innovativeness of SMEs from Republic of Serbia can also be obtained on the basis of reports related to the use of EIS (European Innovation Scoreboard) system for monitoring the result of innovation processes. Regarding the movement of the total innovation index (SII-Summary Innovation Index) it can be concluded that the innovative performance of Republic of Serbia indicate certain increase (SII for Republic of Serbia in 2014 is 38,5 as compared to 25,1 in 2007). The innovative performance in Serbia are, therefore, significantly below from the average of EU-28 (SII

for Republic of Serbia in 2014 is 38,5 % as compared to 55,5 for the EU-28 for the same year). Regarding SII index for the period of 2007–2014 in the neighbouring countries, it can be concluded that the situation in Serbia is more favourable compared to Bulgaria, Macedonia, Romania, Croatia and Hungary but less favourable compared to Slovenia (European Innovation Scoreboard, 2015, p. 20). Joining European integrations is conditioned, among other things, by changes in strategic attitude toward the enterprise stakeholders. Networking resources with them is crucial in bridging the gaps of knowledge, resources and skills that could be essential to increase the innovation capacity of SMEs.

The development of clusters as a form of interconnecting SMEs is particularly supported in Serbia in order to create conditions for the promotion of national and business competitiveness. The experience of developed countries shows that economic policy actors create favourable institutional framework and stimulating environment for the rapid growth of clusters. Such efforts exist in Serbia as well, but they are of a more recent origin, which is related to delayed transition processes in the Serbian economy in relation to the countries of Central and Eastern Europe. Competent institutions, especially the Ministry of Economy of the Republic of Serbia, support cluster development. The process of developing market infrastructure is a strategic goal of the Serbian state, organizations and institutions at all levels. Establishment of the Agency for Development of Small and Medium-sized Enterprises by the Government of the Republic of Serbia was aimed to support and assist the development of small and medium-sized enterprises. Such an environment encourages SMEs to develop a market orientation, transforming into systems that will manage the market and contribute to balanced regional development, increase in living standards and decrease of unemployment.

Implementation of Serbian Government programs for supporting the development of SMEs has enabled the formation of a number of clusters in the territory of Serbia. They are concentrated in large cities and developed areas of the country (National Agency for Regional Development of Serbia, 2015). The majority of clusters in Serbia are in the early stages of development. The most successful are considered to be Automotive Cluster Serbia, Serbian Software Cluster and BIPOM Cluster (small agricultural machinery that is in phase III of the development) (<http://www.klasteri.merr.gov.rs>).

The existence of scientific research organizations represents a limiting factor in improving the innovative capacity of SMEs. Data of the National Bureau of Statistics show that in 2013 there were 237 such organizations in Serbia, but also that there was a strong geographic disparity in their numbers. Most of these organizations (63,3 %) are concentrated in the region of Belgrade, 12,2 % in Vojvodina, 11,8 % in the region of Sumadija and Western Serbia, and 12,7 % in Southern and Eastern Serbia (Statistical Office of the Republic of Serbia, 2014). The situation is similar when it comes to organizations that are registered as manufacturing development centres, and innovation development centres. Data on registered innovation-development and innovation centres show that most of these organizations are located in the areas of Belgrade and Novi Sad, and that they realized the largest number of projects funded by the state through

the relevant ministries, and therefore that most of the funding has been directed to these two centres.

With the purpose of generating innovations as initiators of growth and development of SMEs, models of connecting in the form of business and technology incubators are increasingly being proposed. It is believed that they represent one of the most successful methods for supporting innovations. Incubators provide support to SMEs especially in the initial phase of operations through reduced operating costs, access to knowledge, consulting and administrative services. They have become an instrument of economic development which is applied in developed countries. Bearing in mind their numbers in these countries, it can be concluded that the Republic of Serbia significantly lags behind not only the developed but also the transition countries (in the European Union there are over 900 business incubators, countries in transition have around 250, and Serbia 16 of them) (<http://www.bitf.rs>; <http://www.emins.org>). The majority of these incubators is connected with institutes, research centres and universities and represents a link between academic research and the application of results in SMEs. External experience and knowledge, training and consultation provide assistance to managers and entrepreneurs in all phases of the development of new products and services, from concept to commercialization.

Defining Research Hypothesis

Connection of SMEs and formation of different types of business networks does not automatically imply a significant improvement of their innovativeness. There are no adequate studies in Serbia which would confirm the importance of connecting SMEs with various partners for the creation of successful innovations. In order to clarify this problem, a study was conducted with the aim to establish whether the connecting SMEs with stakeholders in the country and abroad improves the innovative capacity of SMEs in Serbia. In that respect, it is intended to determine the importance of connecting SMEs with key stakeholders, identify the most common connecting activities and potential benefits from them. Starting from the defined purpose of research and the abundance of limiting factors that affect the performance of the innovative activities of SMEs in Serbia, the following hypotheses are proposed:

H1: Cooperation with customers and suppliers in Serbia is more important for SMEs than the cooperation with customers and suppliers abroad.

H2: Integration in clusters contributes the improvement of innovative capacity of SMEs in Serbia.

H3: Connecting within business incubators contributes the improvement of innovative capacity of SMEs in Serbia.

H4: Realization of cooperative activities contributes the improvement of innovative capacity of SMEs in Serbia.

H5: Lower costs and access to markets are the key benefits from connecting SMEs with key stakeholders in Serbia.

Research Methodology

Research Data

To verify the aforementioned hypothesis, it was released the empirical research. The survey was conducted on a sample of 304 small and medium-sized enterprises on the territory of Serbia. The starting point for the selection of enterprises (units in the sample) was the information on both number and structure of SMEs received from the Serbian Business Registers Agency. Based on the database of this Agency, active small and medium-sized enterprises were identified in Southern and Eastern Serbia. The data from the sample indicate that the majority of surveyed enterprises come from the Nisava District (78 %, i.e. 236 enterprises).

To ensure the reliability and relevance of the data, the following criteria were used in the sample selection: the enterprises are registered and carry out activities in the territory of Serbia, the size of small and medium-sized enterprises, the structure of SMEs within specific industries, the enterprise business success (i.e. that it made a profit in previous year) and that the enterprise has had certain export activities in recent years. The export activities of SMEs were important for the selection of the sample. Therefore we believe that the enterprises which had the export activities in previous years, have contracts with stakeholders from the neighbouring countries, so that the connecting possibilities with them is greater. Regarding business activities, the largest shares in the sample of enterprises belonged to the following industries: wholesale and retail trade – 34,39 %, processing industry – 26,49 %, professional, scientific and technical activities – 8,84 %, construction – 7,24 %, transport and warehousing – 5,63 %.

More than 2/3 (81,90 %) of the surveyed enterprises belong to small businesses, while the rest (18,09 %) are from the group of medium-sized enterprises. The most represented in the sample are the enterprises with up to 10 employees (36,2 % of respondents), while the second group includes those that employ 11 to 30 persons. The structure of enterprises included in the sample per individual business activities corresponds to the participation per individual activities. In this sense, most of the respondents belong to the wholesale and retail trade, processing industry, professional, scientific and technical activities, construction, and transportation and warehousing (103 enterprises, or 79, 27, 22 and 17, respectively).

Investigation was carried out through personal interviews based on a previously designed questionnaire. The data collection was conducted in the period from 25 July to 30 December 2011. In most cases, over 80 %, the investigation was carried out directly, face to face. This contributed to a very good reaction of enterprise representatives regarding the participation in the survey.

Variables

The innovation capacity rate of SMEs is measured by two variables: the rate of R&D expenditure (compared to net operating revenue) and the number of employees in the R&D activities. The first one was reported by respondents in terms of the percentage of net operating revenue that had been invested in R&D activities. The given options were: less than 1 %, 1–5 % and more than 5 %. The given answers

for the second variable were: no employees, less than 10 employees and 10–30 employees in the R&D activities.

The analysis of importance connecting with key stakeholders is based on the three variables:

- Cooperation with key stakeholders (customers, suppliers, scientific research organizations, institutes and consultants, as well as the cooperation within the established clusters and business incubators).
- Cooperation activities with key stakeholders.
- Potential benefits of cooperation with key stakeholders.

The first variable was examined based on the responses to the next offered answers: cooperation with customers and suppliers from Serbia, cooperation with customers and suppliers from the former Yugoslavia, cooperation with foreign customers and suppliers, integration in clusters and business incubators.

The second variable was the importance of the activities for improvement of enterprise innovation capacities. The offered answers were: technology-business councils, trainings, cooperation with SROs, allocation of funds, techno parks, local partnership, and government programs.

The third variable was the potential effects of cooperation with key stakeholders. The respondents were also asked to assess the following items: access to markets, regional financial institution, lower costs, consistent legal framework, access to SROs, mobility of employees (managers, engineers and workers).

The respondents were asked to assess the importance of the cooperation with key stakeholders, the importance of the cooperation activities with them and potential benefits of the cooperation. It was graded by using a three-point scale: 1=low importance, 2=medium importance, 3=great importance and dichotomous responses: yes or no (for integration in clusters and business incubators).

Analysis of the responses was carried out by using descriptive statistical methods. In addition to the descriptive statistics, factor analysis was also used in analysing the survey results.

Research Results

Cooperation with Key Stakeholders

Serbian SMEs find opportunities to increase their innovation capacity in creating relationships with key stakeholders based on cooperation and partnership. It is evident from the responses to the question of how managers assess the significance of stakeholders for the innovation capacity of enterprises. Result shows that the respondents attribute great importance for increasing the innovation capacity which cooperation has with customers and suppliers from Serbia (68,8 % and 59,5 %, respectively). Significantly less importance has cooperation with foreign customer and suppliers (28,9 % and 20,7, respectively), as well as cooperation with customers and suppliers from the former Yugoslavia (16,1 % and 7,2 %). Cooperation with scientific research organizations, institutes and consultants, integration in clusters has a little importance for increasing the innovation capacity.

Factor analysis was also used in the analysis of important key stakeholder for increasing the innovation

capacity. Based on the data from the correlation matrix, it was determined which variables are mutually correlated. The value of Bartlett's test (p-value is 0.000) and the Kaiser-Meyer-Olkin measure (the value is far above 0,5), indicate the validity of applying the factor analysis.

Applying the criterion of characteristic values, it can be concluded that only three groups of factors are significant (eigenvalues higher than 1). Also, the same number of factors was confirmed by applying the criterion that is based on the percentage of explained variance (the first three extracted factors explain almost 60 % of the total variance). Applying the criterion of a simple line segment plot (Scree Plot), once again it is confirmed that three is the optimal number of factors that can be extracted before the scope of unique variance begins to dominate the common variance structure – see Figure 1.

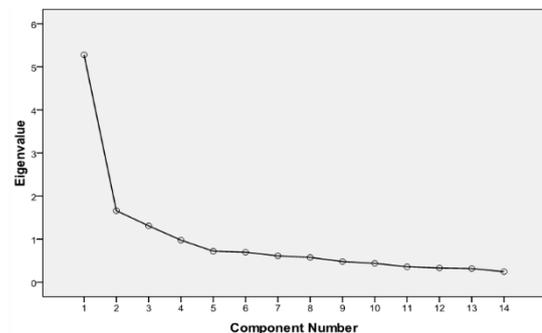


Figure 1. Scree Plot

After the rotation, there is the factor matrix in which only a certain number of variables with high values of factor loadings can be clearly extracted for each factor – see Table 1. The first factor involves the following: cooperation with SROs, universities, cooperation with institutes, cooperation with consultants, and integration in the clusters. The second factor involves the cooperation with customers and suppliers from the countries of the former Yugoslavia and beyond the borders of the former Yugoslavia. The third factor includes cooperation with customers and suppliers from Serbia which the respondents considered most important for increasing the innovation capacity of their enterprises.

Taking into consideration that clusters are an important factor that increase the innovation capacity of SMEs, it is important to examine the views of the respondents about the importance of connecting through clusters and business incubators and their correlation with the R&D expenditure and the number of employees in the R&D activities. By analyzing the responses of the respondents, it may be concluded that most of the enterprises in the sample are not included in clusters (249 companies). Also, the responses indicate that the intensity of innovative activities observed as the R&D expenditure is higher in enterprises that are not interconnected within a cluster – see Table 2.

Table 1

Rotated Component Matrix^a

Variables	Component		
	1	2	3
Connecting within business incubators	,817	,026	-,008
Cooperation with institutes	,795	,109	-,014
Cooperation with universities	,776	,095	-,044
Cooperation with SROs	,768	,081	,046
Cooperation with consultants	,762	,019	-,067
Integration in the clusters	,727	,166	,176
Cooperation with foreign customers	,205	,793	-,012
Cooperation with foreign suppliers	,220	,719	-,122
Cooperation with ex-YU customers	,201	,653	,439
Cooperation with ex-YU suppliers	,286	,587	,168
Cooperation with customers from Serbia	,202	,060	,807
Cooperation with suppliers from Serbia	,242	,079	,732

Extraction Method: Principal Component Analysis.

Rotation Method: Quartimax with Kaiser Normalization. a. Rotation converged in 4 iterations.

Table 2

Integration in Clusters/Business Incubators and the R&D Expenditure and the Number of Employees in the R&D Activities

Integration in clusters/bus. incubators		R&D expenditure (%)			Number of employees in the R&D activities		
		<1%	1–5 %	>5 %	0	<10	10-30
Clusters	Yes	30 (9,9 %)	14 (4,6 %)	11 (3,6 %)	25 (8,2 %)	29 (9,5 %)	1 (0,3 %)
	No	130 (42,8 %)	86 (28,3 %)	33 (10,9 %)	152 (50 %)	97 (31,9 %)	0 (0 %)
Bus. incubators	Yes	30 (9,9 %)	36 (11,8 %)	16 (5,3 %)	38 (12,5 %)	43 (14,1 %)	1 (0,3 %)
	No	130(42,8 %)	64 (21,1 %)	28 (9,2 %)	139 (45,7 %)	83 (27,3 %)	0 (0 %)

Source: The authors' research

If we observe the enterprise involvement in one of the clusters and the number of employees in the R&D activities, using Pearson's chi-square test, we believe that there is a correlation between these indicators (p-value is 0,014). Here we deal with moderately strong correlation between these two indicators, which is confirmed by Cramer indicator of 0,167.

Putting R&D expenditure and the enterprise involvement in a cluster into a relation using chi-square test, we believe that they are not correlated (p-value is 0,273). Thus, the involvement in a cluster does not affect R&D expenditure and vice versa.

Putting the involvement in one of the business incubators and R&D expenditure into a relation using chi-

square test, it can be concluded that there is a correlation between these two indicators. The involvement in a cluster affects R&D expenditure and vice versa (p-value is 0,003). Also, Cramer's V (value is 0,195) indicates that there is a strong correlation between R&D and the involvement in one of the business incubators – see Table 3.

By analyzing the involvement in one of the business incubators and the number of employees in the R&D activities, we believe that these two phenomena are mutually correlated (p-value for Pearson's chi-square test is 0,013), and according to Cramer's V indicator this value is 0,169, that indicates the presence of a relatively moderate correlation between these two phenomena – see Table 3.

Table 3

Associations between Integration in Clusters/Business Incubators and the R&D Expenditure and the Number of Employees in the R&D Activities

	Pearson Chi-Square	p-value	Cramer's V
Integration in cluster*the number of employees in the R&D activities	8,469	0,014	0,167
Integration in cluster*R&D expenditure	2,594	0,273	0,092
Integration in bus. incubator*R&D expenditure	11,599	0,003	0,195
Integration in bus. incubator*the number of employees in the R&D activities	8,703	0,013	0,169

Source: The authors' research

Activities for the Improvement of Enterprise Innovation Capacities

On the assumption that the cooperation with key stakeholders is important for increasing the innovation capacity of Serbian SMEs, respondents were asked to assess the importance of specific activities of cooperation with partners in the region related to innovations. However,

the category of activities that are given a great deal of importance in comparison to others includes programs funded by the government, local partnerships and collaboration with SRO-scientific research institutions – see Table 4.

Table 4

Activities for the Improvement of Enterprise Innovation Capacities

	No response		Little importance		Medium importance		Great importance		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Technology-business councils	44	14,5	149	49	85	28	26	8,6	304	100
Trainings	47	15,5	149	49	78	25,7	30	9,9	304	100
Cooperation with SRO	46	15,1	145	47,7	75	24,7	38	12,5	304	100
Allocation of funds	48	15,8	145	47,7	87	28,6	24	7,9	304	100
Techno parks	52	17,1	172	56,6	65	21,4	15	4,9	304	100
Local partnerships	51	16,8	141	46,4	77	25,3	38	12,5	304	100
Government programs	51	16,8	142	46,7	66	21,7	45	14,8	304	100

Source: The authors' research

Potential Benefits of Cooperation with Key Stakeholders

The data which show how managers of SMEs perceive the potential benefits of cooperation with stakeholders are indicative. Offered modalities of answers were: lower business expenses, access to new markets, access to regional

financial institutions, consistent legal framework, access to available scientific research institutions, mobility of employees (managers, engineers, workers). Responses revealed that the respondents considered as the most important potential effects access to new markets (35,2 %), lower costs (28 %) and access to regional financial institutions (20,1 %) – see Table 5.

Table 5

Potential Effects of Cooperation with Key Stakeholders

	No response		Little importance		Medium importance		Great importance		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Access to markets	35	11,5	88	28,9	74	24,3	107	35,2	304	100
Regional financial institutions	34	11,2	123	40,5	86	28,3	61	20,1	304	100
Lower costs	41	13,5	95	31,2	83	27,3	85	28,0	304	100
Consistent legal framework	43	14,1	111	36,5	101	33,2	49	16,1	304	100
Access to SRO	44	14,5	128	42,1	101	33,2	31	10,2	304	100
Mobility of workers	40	13,2	133	43,8	90	29,6	41	13,5	304	100
Mobility of engineers	40	13,2	130	42,8	88	28,9	46	15,1	304	100
Mobility of managers	38	12,5	134	44,1	77	25,3	55	18,1	304	100

Source: The authors' research

Our results suggest that our four hypotheses are confirmed, deducing that: the cooperation with customers and suppliers in Serbia is more important for SMEs than the cooperation with customers and suppliers abroad (hypothesis 1); connecting within business incubators contributes the improvement of innovative capacity of SMEs in Serbia (hypothesis 3); realization of cooperative activities contributes the improvement of innovative capacity of SMEs in Serbia (hypothesis 4); and lower costs and access to markets are the key benefits from connecting SMEs with key stakeholders in Serbia (hypothesis 5). However, the correlation of innovation capacity and involvement of enterprises in a cluster is weak (hypothesis 2 is not confirmed). This can be explained by the already mentioned fact that clusters in Serbia are at the initial stages of development and that the effects are still invisible. Such attitudes of respondents can be explained by the underdevelopment of institutions and inadequate market infrastructure.

Conclusion

The aim of this research is to analyze the current situation and the ways of connecting SMEs in Serbia with a prerequisite for increasing their innovation capacity. The main concern is whether SMEs in Serbia believe that they can increase their innovative capacity by cooperation with their key stakeholders. To answer this question we first observed the existing theoretical views on the importance of connecting with stakeholders in order to increase the innovativeness of SMEs. Due to the problems SMEs are facing and concerning the competitive advantage maintaining (OECD & Centre for Entrepreneurship SMEs and Local Development, 2009), this group of enterprises increasingly focuses on the introduction of new innovation practices. Such new practices are open innovation as a way of creating successful innovations (Shesbrough, 2006; Spithoven *et al.*, 2013). The joint creation of superior value and connecting with key stakeholders in the conduct of specific projects facilitate the generation, collection and dissemination of market information and knowledge. In this

way, creativity and success of particularly high-risk projects increases. The creation and transfer of knowledge through various forms of business networks can provide the critical level of specific and, more frequently, specialized competencies necessary to increase the innovation capacity.

After the literature review, the results of the empirical research realized in Serbia were presented. The results showed that SMEs in Serbia also have similar problems in carrying out innovation activities, with the difference that they multiply due to a very long duration of the transition process compared to other countries of Central and Eastern Europe. Moreover, inadequate systemic efforts and institutional support of the state represent an additional problem for these enterprises. Therefore, the interviewed managers do not perceive the importance of key stakeholders for the increase of innovation capacity as expected. A variety of business networks, such as clusters and business incubators, considered in the developed world as opportunities for growth and development of SMEs, have not been used as an opportunity in Serbia. Their size, degree of specialization and orientation of the region to the relevant industries are the limitations due to clusters and business incubators in Serbia have not yet produced the expected results. Inclination towards independent, that is, closed-type innovations can, however, only partially be attributed to the action of these factors.

Limitations and Directions for Further Research

The empirical research, whose results are presented in this paper, has several limitations that condition limited deduction, as well. Coverage and size of the sample (investigated enterprises are located in the region of Southern and Eastern Serbia which significantly lags behind

in economic development compared to other regions in Serbia) are the most important limitations of the empirical study, for which the research results cannot be considered relevant to all the SMEs in Republic of Serbia.

The other limitation refers to the variables for measuring the innovative capacity of SMEs. Namely, for this study, two variables, which are the rate of R&D investment and the number of employees in the R&D activities, are used. The rate of R&D expenditure is a key indicator of the presence of internal resources for generating innovation. However, there are certain problems in calculating this rate in SMEs (particularly in small enterprises with frequent informal R&D activities (Santamaria *et al.*, 2009). Also, the innovative activities do not differentiate from the rest of business activities (Forsman, 2009). Therefore, for more reliable measurement of the innovative capacity, apart from R&D investment, it is also necessary to include other variables, e.g. capabilities and external input gained through networking (Forsman, 2011).

Due to the limitations of empirical study research, the results cannot be considered relevant to all the SMEs in Serbia. Therefore, this study should be considered preliminary. Also, it indicates that it is necessary to conduct further research. It will be focused on the effects of business orientation, organizational culture and managers' awareness of the innovativeness of SMEs in Serbia. Namely, it is important to confirm whether the presence of marketing orientation, organizational culture based on such an orientation and managers' awareness of SMEs that the long-term competitive advantage can be provided by connecting and cooperating with key stakeholders, could increase their innovative capacity.

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