

# The Analysis of Cluster Development in the Republic of Serbia

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*Abstract: Cluster, as a form of SMEs association that drives innovation, productivity and competitiveness through collaboration with educational research institutions and the public sector, is a tool for achieving economic growth in underdeveloped national economies. Precondition for the successful cluster development in transitional economies is the existence of infrastructure and legislation, as well as the national cluster development strategy. This paper investigates the main characteristics of clusters in the Republic of Serbia, European country which is still in transition from statism to a market economy. Transition process in the Republic of Serbia is characterized by reforms, new institutions, private companies and changed government role. An efficient and effective cluster development concept requires an analytical examination of economic and legal environment. The paper analyzes the cluster development in the Serbian economy, and its growth, despite the lack of national policy on cluster development. The special interest of the paper is focused on the size and nature of the clusters, industrial activities performed in the clusters and tendencies in cluster development. The purpose of this research is to emphasize the importance of clusters as a tool for achieving sustainable local economic development in the Republic of Serbia.*

**Keywords:** Cluster, Republic of Serbia, SME, Economic development, Transition

## 1. Introduction

In contemporary business conditions, due to the increasing turbulence of the business environment, a cluster needs to be a new approach, based on quality, speed, flexibility and innovation. Cluster is linking production, education and science, as conditions for economic development and innovative processes stimulating. Clusters, as one of the main pillars of development, are innovative tools that create a basis for the improvement of less developed regions, as well as for increasing production, competitiveness and exports, restructuring large inefficient enterprises, creating new employment opportunities, etc.

Michael E. Porter introduced the clusters when he published *The Competitive Advantage of Nations* [1] in which he presented a theory of local, regional and state competitiveness in the context of the global economy, which gives a significant role to clusters. Clusters represent the geographical concentrations of interconnected companies, specialized suppliers, service providers, related and

diverse businesses, related companies and related institutions - support organizations (educational and research institutions, trade associations, standard agencies, etc.) which compete, but also co-operate, in the appropriate area [2].

Clustering is one of the basic "catalysts" of economic development in local, regional and national frameworks. Experiences in the world, as well as in the Republic of Serbia, show that the way enterprises and institutions are linked into clusters is one of the essential factors of competitiveness of regions, because clusters develop unique knowledge. It is this knowledge, businesses and/or regions that provide long-term competitive advantages, in spite of the growing globalization.

## **2. Cluster Organization as a Business Model**

The decision of related and geographically close companies, institutions and organizations to work towards achieving common interests and certain competitive advantages, led to the creation of business networks and cluster development. Clusters, as a concept of economic development, encourage systematically improving processes in the production, innovation and sales of products and services.

Clusters are the basis for successful reduction of large enterprises' monopoly, as well as for the restructuring of unproductive companies, and at the same time clusters provide support to small and medium-sized enterprises to enter international markets for which these companies alone do not have enough strength and opportunities.

The tendency of grouping companies into clusters on a geographical basis, determined territorially and related to activity, as one of the forms of networking and linking enterprises, scientific, public and developmental institutions, has been present in the world in recent decades. Cluster merger represents a "relatively new form of organizational linking of business organizations in the function of increasing efficiency and competitiveness" [3].

Clustered institutions and companies are characterized by: location nearness, interaction - activity of participants, interconnection and critical mass - sufficient number of participants with a common goal and significant influence on the business organizations [4].

The word cluster is of English origin and comes from the word with meaning "bundle, set, flock, cluster, bock, sword, bunch, bouquet, group", first used by an American composer to mark a set of tight, simultaneous, densely strung tones [5].

Clusters have become a significant and complex form of organization with a crucial impact on competition, production potential and competitive export

advantage in all economies. The nucleus of the development of this organizational phenomenon, that is, the theoretical roots of the cluster, was set up a little over a century ago by the famous English economist Alfred Marshall (1842-1924). He noted the company's desire to group within a certain activity in the same geographical area, in order to optimize their economic activity and increase the efficiency of business processes of the company. Alfred Marshall, founder of the English neoclassical school of economic thought, and pioneer of microeconomic theory, was the first economist to write a detailed cluster study in his book "Principles of Economics" [6], published for the first time in 1890.

Responsible for the full popularization of the term as we know it today, and for developing the idea of clusters as a geographical concentration of the companies, is certainly the American professor Porter, who in 1990 published "The Competitive Advantage of Nations", where he gives cluster a prominent role and promotes cluster as a mean to increase the competitiveness of the region [7]. It is precisely because of its extraordinary role in the popularization of the cluster idea itself, the term industrial cluster, or business cluster, is sometimes replaced with the term "Porter cluster" [8] precisely because of the fact that Porter first used and popularized clusters.

In Serbia, cluster initiatives are related to different sectors and many of them have become serious cluster organizations, some are still developing, while others due to lack of financial resources, lack of managerial knowledge, and awareness of the needs for such synergy, are still looking for their purpose and its identity [9]. Because there is no single database, it is difficult to determine the total number of cluster initiatives in Serbia. The National Agency for Regional Development, through the program of support to innovative clusters, has provided significant support to cluster initiatives in Serbia, while the latter was subsequently taken over by the Development Agency of Serbia.

### **3. Cluster Characteristics and Factors**

According to "Cluster Initiatives in Developing and Transition Economies" [10], cluster development in developed and highly developed countries was significantly accelerated in the 1990s, while in transition countries in the 2000s. Cluster development initiators in developed countries (Brazil, China, India, Turkey, etc.) are mainly donors and government institutions, to a lesser extent enterprises; in transition countries (Albania, Bosnia and Herzegovina, Croatia, Serbia) are enterprises, donors and to a lesser extent the government; in highly developed countries (Switzerland, Austria, the Netherlands, Luxembourg, Germany, etc.) are governments and companies.

Regarding the economic area, clusters in the developed countries are mainly represented in agriculture and food production and basic production (furniture, footwear, textiles), much less in capital-intensive production (cars, chemicals, plastics, energy equipment, etc.) and "high tech" activities (air industry, biotechnology, finance, pharmacy, medical equipment) and tourism. Clusters in transition countries are represented in agriculture and food production, then equally in capital-intensive production and "high tech" activities, considerably less in tourism. Clusters in highly developed countries are mostly represented in "high tech" activities and capital-intensive production, slightly in the agriculture and basic industry.

The main objectives of clustering in developed countries are primarily the increase of additional value, the increase in exports, support for innovation, the development of the supply chain, the increase in employment, to a lesser extent improving the business environment, reducing costs, seeking funds, commercializing academic research. The objectives of cluster formation in transition countries are to increase exports, support innovation, develop the supply chain, improve the business environment. In highly developed countries, the goals of cluster formation are mainly the development of the supply chain, improving the business environment, increasing employment, commercialization of academic research [11].

The objective of clustering can be increasing the competitiveness of domestic products in the domestic and foreign markets; better and more efficient use of domestic resources; initiation and support of cooperation between enterprises, educational and developmental institutions; linking with funds for financing innovative projects; training and education, as well as many other interests of both the member and the region, as well as the government.

Benefits and the advantages for cluster members are numerous: export promotion, realization of larger and more complex projects, development of human potential, procurement of common resources and optimization of allocation, exchange of different business and technological knowledge, experiences and best practices, joint research and development of products and solutions, joint marketing, product branding, savings due to size, more efficient lobbying and obtaining public support, development of quality culture.

By forming a cluster, business organizations strive to achieve greater competitiveness through cooperation and competitive relations, thus strengthening the regional identity and building national and international reputation. Important factors for the cluster formation are [12]:

1. A strong scientific base - mainly involving leading research organizations such as university departments, hospitals / medical schools and charities, as well as leading world scientists and a critical mass of researchers;
2. Entrepreneurial culture - expanding awareness of trade and entrepreneurship in secondary schools, universities and research institutes is of great importance for

the development of entrepreneurial culture, recognition of the role of entrepreneurs and role models in business behavior;

3. The ability of incubators and clusters to attract professionals and workers with key competences - depends on the reputation, specialty, and location that provides an attractive place for the lives of workers and managers;

4. Growth of the company base - in certain industries and groups;

5. Commercial space and built infrastructure - an important factor for clusters are incubators located close to research organizations. Facilities with laboratories and other flexible arrangements, as well as space for the expansion of transport links, mainly consisting of highways, railways and international airports;

6. Availability of sources of finance - availability of external sources of funding in order to provide funds for necessary investments, projects and development is a particularly important factor for cluster development;

7. Business support services and large enterprises - donors (large enterprises in related sectors, specialized business advisors, patents, employment, legal issues and ownership);

8. Knowledge and skills - training courses, trained workforce, improvement of professional qualities and increasing the potential of employees through continuous training and learning;

9. Effective networking - a common desire for businesses to connect to a cluster, the existence of regional trade associations, the promotion of mutual cooperation;

10. Policy of support from the environment - support of economic development agencies, national and a sectoral policy of innovation support, stimulating fiscal and legal environment.

#### **4. Characteristics of Cluster Networking in the Republic of Serbia**

In order to successfully organize clusters, according to Morača [13], it is necessary to develop the following areas: education and training; favorable start-up businesses; legal system; own research capacities; IT connectivity; SMEs doing business in domestic and foreign markets; tax system; technological capacities in SMEs; supporting small business; cluster promotion. However, it's important to determine what areas will have development priority, or what is the reflection of a particular area in other fields. Institutions in the Republic of Serbia are most often not ready to provide professional assistance to the development of SMEs, which is particularly relevant for tax and financial institutions, because financing start-up business by banks is very difficult.

The clusters have been popularized in the Republic of Serbia in the period 2008-2013, through the "Cluster Development Incentives Program in Serbia" which was implemented by the Ministry of Economy and Regional Development of the Republic of Serbia and Germany Association for Technical Cooperation

(Deutsche Gesellschaft fuer Technische Zusammenarbeit - GTZ). According to the research study carried out by Radulovic [14] the reason for organizing enterprises to clusters in the Republic of Serbia is overcoming common business problems, and not economic benefits. The study also stated that small and medium enterprises, organized into clusters, could be the main driving force of economy, if government helps them in seeking partners.

In Serbia, today there are officially over 20 clusters, and most of them are in the second phase of development, while for several cluster initiatives it can be said that they are in the zero phase of development. Most clusters have been identified in the field of tourism, as well as in agriculture and food industry. Serbian Automotive Cluster, ICT Network Cluster and Cluster Bipom are the most successful clusters in Serbia's economy. In addition, the clusters of the so-called 2nd (higher) phases of development include: Cluster of flower producers Sumadian flower, Cluster Galenit for collection and recycling of batteries and accumulators, construction Cluster Dundjer from Niš, Royal Holiday Fund - tourist cluster of the municipality Kraljevo with its surroundings, Cluster of medical tourism, Netwood - cluster of furniture manufacturers, Wood Agency - cluster of wood processing companies of Serbia, Serbian Film Association - SFA. Clusters in the 1st phase of the development are: Istar 21 - association for improvement of cooperation and development of tourism in the Danube region, Memos - association for improving the competitiveness of metal producers, FENIKS - cluster of the Serbian aviation industry, association of textile manufacturers Asstex, Agroindustrija, Cluster of fashion and clothing industry of Serbia - FACTS, Cluster of food manufacturers of Serbia - POLUKS, Fund Tourist cluster of micro-region Subotica-Palić, Vojvodina ICT cluster. The Ministry of Economy and Regional Development of the Republic of Serbia supported these clusters in the period from 2007 to 2011 through Public invitations to support their development. The zero-phase clusters, that have self-organized and work without the support of the Government are: Textile cluster LZOTEKS, Cluster for preservation of old crafts in Serbia and Cluster Somborski salas [15].

However, there are numerous obstacles in the cluster development in the Republic of Serbia, manifested through: lack of financial resources needed for the development of small businesses, lack of professional staff and private entrepreneurs who have the necessary experience and business culture in the sense of risk readiness, inclinations for team work, cooperation and association, mistrust and unwillingness for cooperation between enterprises and research and development institutions, undeveloped common cluster infrastructure (design centers, laboratories, training centers, etc.) and financial self-sustainability. Establishment of appropriate research centers, export promotion agencies, quality assessment institutions, etc., as well as the strengthening of business associations, the promotion of new brands and locations, can significantly contribute to the strengthening of the competitiveness of cluster members.

## **5. The Importance of Accelerating Development of Clusters in the Republic of Serbia**

The overall economic environment is extremely important for the operation of each individual cluster. A favorable general economic situation implies, for example, the availability of relatively inexpensive capital, rising demand and the security of cash flows. The general stability of the economy is particularly expressed in the level of inflation, in the of employment level, in the level and dynamics of the economic activities (growth rates and other indicators), through monetary policy, international economic relations. For business organizations involved at international market, the foreign exchange balance of own and foreign countries is very important [16]. Lack of favorable financing sources, inadequate legal framework for business, lack of employees with certain occupations and qualifications, mismatch of business with requirements of quality standard, as well as lack of information about markets and technologies, are some of the key problems in the Republic of Serbia [17]. Banking institutions are reluctant to provide adequate financial support when it comes to start-up business organizations. For start-ups, banks bind the lack of credibility, given the fact that newly established companies do not have enough documentation to enable a realistic financial risk assessment. The international financial institutions' contribution is to promote investments in underdeveloped national economies, help downsize poorness and upgrade the quality of people's lives. In particular, IFC, the private sector arm of the World Bank Group, transfers investment in the underdeveloped national economies, acquires financial resources on the international capital market and ensures technical help and council to governments and economies.

The Republic of Serbia should accelerate the development of clusters using different measures. Improving the quality of the banking sector offers for SMEs, development of new financial instruments, creating conditions for investment of entrepreneurial capital, investments of business angels in SMEs, strengthening the SMEs' ability to access different financial resources are just few of them.

The most important and the greatest state influence on the business organizations is related to defining the institutional basis of the economic system, on the one hand, and defining and implementing the measures of economic policy, on the other. From the aspect of legal and political environment, the Republic of Serbia in period from 2004 to 2012 has made a significant shift in completing a stimulating business environment and foreign and domestic investors. The acceleration of economic reforms has increased the legal safety of business organizations and improved business conditions, especially important for foreign investors: the laws have passed that enable a better business environment, protection of property, contracts, creditors and investors, economic subjects, bankruptcy, registration of business organizations, civil proceedings, mortgages,

foreign trade operations, protection of competition, etc. In period 2007-2012, the Ministry of Economy of the Republic of Serbia had a budget of 1.61 million EUR for cluster development programs. This program included 26 clusters of 43 mapped, and 86 registered [18]. Danish program for local economic development in the Balkans, LEDIB, in period 2007-2012, allocated 3 million EUR for the cluster development in the agriculture, construction and textile sector in the area Nisava district. The EU program SECEP, worth 3.5 million EUR, in period 2009-2011 invested in cluster development in Serbia and the establishment of Serbian Association of Exporters. The project "Vojvodina Metal Cluster - VMC" was realized in period 2011-2013 with the EU financial support in the amount of 739.687 EUR and own participation in the amount of 122.319 EUR. The EU has invested about 50 million EUR in Serbian SMEs, including 20 million EUR in direct credit line, until 2006, with an additional 6.5 million EUR from IPA in 2007 and 2008 [19].

Improving the economic environment implies, above all, the creation of a legal environment and the administrative business framework that provides legal security, administrative simplicity, incentives for the economic development, implementation of the EU motto "Think first of all about the little ones", and more. All measures taken must be implemented efficiently at all government levels [16].

Cluster further development requires improvement of the economic environment, that should be realized through improvement of legal environment. The Republic of Serbia should establishing an incentive legal framework adapted to the SMEs operations (improvement of legal framework for founding, operating, shutting down of SMEs, reduction of fiscal and para-fiscal charges, improvement of the labor relations, inspection supervision, and the like). Administrative procedures in the state administration and local self-governments should be effectively implemented (strengthening of e-government, establishment of a one-way system, efficiency control of administrative procedures and administrative costs of the economy, improvement of conditions for SMEs participation in public procurement). The Republic of Serbia should strengthen the transparency of regulatory and public policy processes, the Entrepreneurship and competitiveness council should be established, as well as the mechanisms to monitor the effects of regulations relating to business environment.

### **Conclusions**

Cluster as a networking concept is relatively a new way of economic organization in order to improve the development of innovative business, employment, productivity increase, technology diffusion, greater export and strategic linkage, and therefore clusters represent a natural mix of businesses rather than a set of factors for which this connection is imposed.

In the process of globalization, the advanced economies are increasingly competing with high productivity and innovative strategies. It is of great



importance, for creating these competitive advantage, to develop research, advanced technology, innovation, knowledge and finance. The groups of professional individuals, companies and institutions, that best assemble into a cluster, is a combination of cooperation and competition and an effective instrument for raising the economy of the region to a higher level.

Intensive technical and technological progress and globalization have significantly affected the structure of clusters whose role in competition and competitiveness has become extremely important. In addition to clusters affecting productivity growth, they are also a response to both the process of globalization and the uneven regional growth and development. Clusters accelerate the specialization of small firms and influence the improvement of their mutual cooperation, encourage the establishment of new firms, increase the productivity of companies within the cluster, strengthen their competitiveness and enable their export advantages, influence the growth and stimulation of the economic volume of production and creating conditions for mutual cooperation and thus increase the economic performance of the company.

Functioning of clusters in the Republic of Serbia is a particular challenge for certain industries and related activities, but also an incentive for the government to create an incentive production environment and stimulate clustering through links with scientific research institutes, universities and other scientific institutions, in order to achieve faster cluster development and the development of entire economy. Due to the role that clusters play in raising the competitiveness of the Serbian industry, it is reasonable that the state provides the development of transport and market infrastructure, provides the conditions for the increase in the number of development and research institutions, the creation of a stable macroeconomic environment, the development of institutions for quality standardization, etc. The state and its institutions play an important role in the development of clusters by: stimulating mergers, organizing trainings for employees in the cluster, influencing the increase of competitiveness in the domestic and international market, forming expert teams for monitoring the business of clusters, affecting the creation of a more favorable business environment for successful cluster development, etc.

Cluster development measures in the Republic of Serbia must go towards fostering cooperation and partnership between companies, government, research and academic institutions, as well as increasing cluster cooperation in order to share knowledge, experience and practice. Different sources of funding need to be provided for the implementation of cluster development measures in the Republic of Serbia.

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