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for the EU and Beyond)” (FOLPSEC)**

**REGIONAL DEVELOPMENT, ENTREPRENEURSHIP  
AND LOCAL PRODUCTION SYSTEMS**

Edited by Soňa Čapková

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# INTRODUCTION

The regional policy of a growing number of countries has given greater importance to local production systems. The local production system as a strategy of increasing the innovativeness and competitiveness of the firms located in the region is progressively shaping the policies aimed at enhancing regional economies. The underlying idea is that networked local systems of production are among the primary drivers for regional development. The concept of local production systems is the basic subject of the project Functioning of the Local Production Systems in the Conditions of Economic Crisis which have created a network of partner academic institutions located in Bulgaria, Poland, Slovakia, Russia and Ukraine.

This book presents the results of research related to various aspects of local production systems in partners countries conducted by partner's institutions. The papers discussing some findings of primary and secondary research are divided into four sections.

The first one is focused on clusters – highly dynamic local production systems, which are generally understood to be geographic concentrations of inter-connected firms and related actors. Starting from this perspective, the section begins with addressing the more general issue of the clusters' role in smart regional specializations and the issue of protecting clusters in emergency situation. In order to illustrate the heterogeneous forms of clusters the next part of this section features three case studies on successful cases in Poland, Russia and Bulgaria.

The studies in the second section examine small and medium- sized enterprises. Small and medium-sized firms are increasingly regarded as engines of innovative activity, especially in some of the most dynamic local areas. On the other hand, local and regional factors have increased their significance in innovation processes and in economic development. Innovation processes may be regarded as regional phenomena in regional clusters, as regional resources and collaborative networks often have decisive significance for firms' innovation activity.

The third section is dealing with contextual factors concerning regional development process related to local production systems. It discusses the recent developments in regional development policies in Russia, the implementing the experience of developing local productions systems in Ukraine and it points regional marketing as a tool assisting to local production system development.

In order to demonstrate various issues associated with local production systems the papers included in the last section present and discuss the environmental, social, land-use and energy issues in economic development of cities and regions. The particular relevance is given to environmental aspect of large city development. Monotowns, heritage of socialist centrally planned economy, whose economy is dominated by a single industry or company are examined from the point of view of the corporate social responsibility. Next part reviews the land use planning in polish regional capital cities to find out the availability of land for business location.



## **SECTION I**





# **SIGNIFICANCE OF INNOVATION CLUSTERS IN THE DEVELOPMENT OF INTELLIGENT REGIONAL SPECIALISATIONS**

NOWAKOWSKA Aleksandra

## **Abstract**

At the beginning of the twenty-first century, low competitiveness of the economy and the deepening gap relative to the world's economic powers was the key problem of the European Community. These problems have become the basis for criticism of current innovation policy and the search for new methods, tools, and development trajectories. The answer to these challenges is the concept of smart regional specializations proposed along with a new vision of the development of the EU's, known as Europe 2020 Strategy.

Developing intelligent specialisations is a new way of shaping regional innovation policy which aims at reinforcing the connections between science and economy. The idea of innovation clusters successfully suits this way of thinking.

The purpose of this article is to indicate the relations and correlations between innovation clusters and intelligent specialisations. The article identifies theoretical assumptions and describes key elements of these two approaches in order to indicate correlations that take place between them.

**Key words:** regional development, innovation clusters, intelligent specialisations, regional policy

## **INTRODUCTION**

Activities undertaken for more than two decades for the sake of developing the innovation capacity in regions (defined inter alia in the scope of the Lisbon Strategy) did not bring the expected results. No satisfactory outcomes were recorded, first of all, in the building of a knowledge and innovation-based economy, i.e. the restructuring of education, deep transformations in the R&D sector and improving innovation capacity of the economy. New mechanisms of the implementation of the EU science, technology and industrial policies did not work out, either." Not only has the so called „Transatlantic gap” of productivity, innovation and economic growth in many industries and sectors not been reduced but in many cases it deepened. These negative phenomena were clear particularly in R&D activities and in high-tech and high technology sectors.

The failure of the implementation of the Lisbon Strategy provided grounds for a deep review and for the development of new operational framework and stimulating the EU development. New challenges and directions have been reflected in a new strategy "Europe 2020", which is to replace the Lisbon Strategy after 2010 and make a new opening in the building up of competitiveness and innovation of the European economy. New development plan is based on three pillars: development of knowledge and innovation-based economy

(smart growth), an economy effectively using available resources (sustainable growth) and helping social inclusion (employment and social cohesion – inclusive growth).<sup>1</sup>

The EU policy evolved with respect to the support for the development of innovation capacity: from stressing the development of the R&D sector and increasing the internationalisation of R&D activities through institutional and public management mechanisms up to the building of smart specialisation based on market mechanisms of creating, disseminating and adapting technological changes. A new way of shaping the innovation capacities in regions more than ever highlights the significance of clusters (particularly innovation clusters) thus indicating a high effectiveness of these structures in developing market relations of the world of science and economy.

## 1 IMPORTANCE OF INNOVATION CLUSTERS

Recent explosion of interest in research on clusters and their operation recorded in the last decade has shown that clusters are structures, which exceptionally efficiently boost innovativeness and technology transfer. As a result, special attention has been awarded to innovation clusters (innovative clusters) also referred to as research-driven, research intensive or knowledge-based clusters.

Structures and operating mechanisms of an innovation cluster are similar to those of a „traditional” cluster. Its participants may be all actors, who contribute to the dynamics of innovation. The structures are composed of R&D units, universities, enterprises able to generate innovation and absorb new technologies and supporting institutions (such as science and technology parks, innovation incubators or technology transfer centres) as well as industrial or service enterprises, whose activities do not necessarily directly require research and development. For the needs of the 7<sup>th</sup> Framework Programme for Research and Technological Development, the European Commission defined a research-driven cluster as a local/ regional structure consisting of research units (universities, research institutions, commercial laboratories), economic operators and local/regional authorities.<sup>2</sup> A cluster may also include other local actors, such as economic associations, Chambers of Commerce and Industry, financial institutions or consulting firms operating in a specific field of science and technology. The interpretation of a research-driven cluster highlights the role of public authorities and the territorial context of such an innovation cluster.

The fundamental and direct objective for such clusters is to establish collaboration-based relations to generate knowledge and innovation that could be exploited in the economy. Clusters are systems of dense network ties, where, due to facilitated flow of information, all sorts of innovations are generated more frequently than anywhere else. The approach clearly stresses the role of formal institutions, which impact the emergence, operations and development directions of research-based clusters. Such institutions are, among others, financing institutions (banks, venture capital funds, “business angels”), law firms (especially those, which operate in the area of intellectual property rights), surveillance bodies (standardisation committees). Institutional context of research-based clusters’ operations is largely diversified in individual countries or even in regions and significantly impacts the dynamics of innovation.<sup>3</sup>

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<sup>1</sup> Document adopted by the European Commission in March 2010, in June 2010 by the European Parliament, [ec.europa.eu/eu2020/pdf/1\\_PL\\_ACT\\_part1\\_v1.pdf](http://ec.europa.eu/eu2020/pdf/1_PL_ACT_part1_v1.pdf)

<sup>2</sup> Bąkowski A., *Klaster badawczy*, [in:] K.B. Matusiak (ed.), *Innowacje i transfer technologii. Słownikpojęć*, Publishing House of the Polish Agency for Enterprise Development, Warsaw 2008, p. 170 and [www.cordis.europa.eu/fp7/capacities](http://www.cordis.europa.eu/fp7/capacities)

<sup>3</sup> Nowakowska, A., *Regionalny wymiar procesów innowacji*, Publishing House of the University of Lodz, Lodz 2011, p. 153.

Features that distinguish an innovation cluster from a classical form of such collaboration include: (1) the industry, in which it operates: usually it is a highly innovative hi-tech industry (although innovation clusters may emerge also in industries generally considered the least innovative, e.g., food processing or construction); (2) the structure of entities participating in a cluster, where the leading role is played by R&D sector strongly supported by business environment institutions, and (3) the objective of a cluster focused on generating broadly understood innovations and technology transfer.

Two processes, contradictory at first glance, coexist in innovation clusters: exploitation and exploration. Exploitation consists in efficient use of assets and capabilities, while exploration means the development of new capabilities.<sup>4</sup> Paradoxically, exploitation necessitates a stable organisational structure, unambiguous, clear operating rules while exploration needs contradictory processes and activities: loose structures to enable new reconfigurations, create new behaviour patterns and rules. The coexistence of the exploitation versus exploration logic is the focal point for how we perceive and analyse clusters and in innovation clusters exploration logic, as their primary operating mechanism, provides the dominant perspective.

Dynamically operating and developing clusters become the key determinant of the ability of a country to attract foreign investment, generate new technological knowledge, generate investors' interest in innovation (venture capital), and to benefit from international mobility of skilled labour.<sup>5</sup> The structures are perceived as a basic form of boosting innovation in less developed economies and improving the efficiency of R&D sector. Creation of research-driven clusters became one of the pillars of economic and R&D policies of the European Union.<sup>6</sup>

Cluster structures offer non-materialised exchange of information and knowledge, in particular tacit knowledge, between the actors. The openness of clusters and their participation in other networks creates opportunities to seek and acquire elements of new knowledge fundamental for innovation. These benefits are not provided by the involvement into electronic networks as they do not enable the exchange of tacit knowledge. To be efficiently transferred, tacit knowledge requires spatial proximity and physical, direct contact, which facilitates getting to know each other, winning partner's trust and the selection of appropriate actors to create credible foundations for cooperation and exchange.

## **2 INTELLIGENT REGIONAL SPECIALISATIONS – A NEW PHILOSOPHY OF BUILDING INNOVATION CAPACITY IN REGIONS**

Building smart specialisations is to become a specific remedy for decreasing competitiveness of the European economy. Existing fragmentation of research, national dimension of science, low transfer of technology and commercialisation of research results considerably restrict concentration and consolidation of scientific activities and R&D and hamper the development of globally leading scientific centres in the EU.<sup>7</sup> As a result,

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<sup>4</sup>Nooteboom B., *Innovation, learning and cluster dynamics*, Discussion Paper No 44, Tilburg University, April 2004, p. 5.

<sup>5</sup>OECD (1999) *Boosting Innovation: The Cluster Approach*, Paris: OECD, p. 5.

<sup>6</sup>It is expressed, e.g., in the priorities of the EU Seventh Framework Programme for Research and Technological Development.

<sup>7</sup>Licht G., 2009, *How to better diffuse technologies in Europe* [in:] Prospects for science, technology and innovation, Knowledge for Growth, O'Sullivan M., 2009, *EU's R&D deficit* [in:] Prospects for science, technology and innovation, Knowledge for Growth, [www.ec.europa.eu/invest-in-research/pdf/download\\_en/selected\\_papers\\_en.pdf](http://www.ec.europa.eu/invest-in-research/pdf/download_en/selected_papers_en.pdf)

resources are dispersed and there is no specialisation in knowledge, technology and economy.<sup>8</sup>

The concept rests on the assumption that regions should not and cannot operate actively in all areas (comprehensively). They should make selective choices of domains, where their resources are the best developed and focus their scientific, research and innovation activities on them.<sup>9</sup> The originators of the approach note that "under the previous policy, too many regions have selected the same technology mix – a little bit of ICT, a little bit of nano and a little bit of bio, without making any significant changes in any of them. A more promising seems to instigate activities and develop investment programmes where new R&D and innovation projects will complement the country's other productive assets to create future domestic capability and interregional comparative advantage"<sup>10</sup>. The previous regional policy is dominated with the approach, where each region was striving to develop similar resources, which caused excessive correlation and duplication of scientific, R&D, and educational effort, which, in turn, reduced the diversity and complementarity of European resources of knowledge and innovation.

The novelty in the concept of smart specialisation consists in the integration of two perspectives of developing innovation capacities in regions, which before were considered contradictory or little related. The concept combines sectoral and regional perspectives. Sectoral perspective concerns the selection of the domain of specialisation and the identification of technological advantage of a region while regional perspective specifies the endogeneity, specificity, concentration and complementarity of regional resources needed to develop specialisation (the so called territorial advantage).<sup>11</sup>

Sectoral perspective focuses on the identification of the specialisation domain, which results from technological potential in a given area concentrated in a particular region. It formulates three fundamental conditions necessary to identify smart specialisation:

- Entrepreneurial, bottom up identification of specialisation domains. Identification of smart specialisation does not consist in ordering research, implementing an imposed industrial policy or selecting the areas of cooperation by regional authorities or experts. Entrepreneurial selection of specialisation domain should consist in seeking science and technology fields, in which the region in question is especially successful in economic terms and where scientific and research solutions meet the real needs of companies. The process should be based on a strong involvement of economic partners in the identification of specialisation, activities complementary to it and the analysis of efficiency of previous public interventions. Specialisation should be closely linked to market needs and priority directions of research financed from public resources should be identified in a bottom-up approach and meet the needs of final users.
- Accumulation of existing resources. Specialisation domain should have a well-developed base of technological resources, which create, the so called, critical mass. European regions are often too weak to be highly competitive and achieve excellence in science, technology and innovation. Selective choice and focusing on specific areas of

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<sup>8</sup>New approach to the stimulating of innovation capacity in the regions is attributed to the international expert group *Knowledge for growth* (K4G), and in particular to its two leaders: Bart van Ark and Dominik Foray. The concept was further developed and disseminated mostly by Paul David, Bronwyn Hall, and Jacques Mairesse.

<sup>9</sup>McCann P., Ortega-Argiles R., 2011, *Smart Specialization, Regional Growth and Applications to EU Cohesion Policy*, Economic Geography Working Paper, Faculty Of Spatial Sciences, University Of Groningen, [www.ipts.jrc.ec.europa.eu/docs/s3mccann\\_ortega.pdf](http://www.ipts.jrc.ec.europa.eu/docs/s3mccann_ortega.pdf)

<sup>10</sup>Foray D., David P.A., Hall B.H., 2011, *Smart specialization. From academic idea to political instrument, the surprising career of a concept and the difficulties involved in its implementation*, MTEI-working paper, November 2011, Lausanne 2011.

<sup>11</sup>Foray D., Van Ark B., 2007, *Smart specialization in a truly integrated research area is the key to attracting more R&D to Europe*, Knowledge Economists Policy Brief, nr 1, s. 2.

specialisation will help achieve the economies of scale. The previous regional policy has been dominated with general tendency to select some of the most popular technologies (e.g. ICT, nanotechnology, biotechnology). European regions tend to imitate what other regions are successfully developing rather than seeking their own, unique development areas. If all European regions compete for the leadership often in the same fields, most of them will never reach an adequate critical mass and the economies of scale.<sup>12</sup> Fundamental pre-condition for smart specialisation is the development of a sufficiently extensive area of research and innovation, which will allow to compete at international level. The power of human resources, infrastructure, experience, and specialisation network should enable to better benefit from the economies of scale and from spill-over effects.

- Strong links between specialisation domain, science and R&D. Specialisation should offer a well-developed scientific and research support of economically successful entities renowned on the market, with dense and well-developed links with business sector (technically complementary R&D sector). A well-developed institutional environment is also needed in a given specialisation domain to establish links between R&D and the economy (e.g. science and technology parks, technology transfer centres, innovation incubators), or venture capital.

Regional perspective stresses that regional environment (territory) is not neutral for building innovation capacities of businesses. Technological advantage itself, without a favourable regional environment may be insufficient to develop a highly competitive specialisation.<sup>13</sup> A region is the source of innovation and territorial development mechanisms based on the endogeneity and specificity of resources are important sources of success. Regional perspective exposes three fundamental conditions for the development of smart specialisation:

- Embeddedness and territorialisation of specialisation domains. Smart specialisation must be linked with endogenous resources (often immaterial) of a region, built for decades (in evolutionary way), resulting from traditions, experiences, social and economic past of the region, which at present give a unique flavour to the territorial unit in question. It embeds a given specialisation in its specific social, economic and spatial environment.
- Combining diversity and affinity of regional resources. Smart specialisations require regional resources to be complementary, focused around specialisation and supportive for its development (e.g. human resources, infrastructure, social capital, economic traditions, networks, experience, routine and specific social conduct). Such a specific combination of resources sometimes opens up new “space” for the development of a particular specialisation and emergence of a unique economic structure of a region. It enables effective diffusion and permeability of knowledge, innovation and technology in the economy.
- Links and relationships among regional entities. Smart specialisations necessitate dense relationships and interactions among actors operating on a given territory. Lasting links and cooperation networks, both formal and informal, involving various regional groups are needed. Cumulated experience of previous collaboration, complementary knowledge resources of the R&D sector and of economic operators, well-developed communication channels and means (all, that we refer to as cognitive, institutional and organisational affinity) are fundamental conditions for the development of smart specialisation.

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<sup>12</sup> Kardas M., 2011, Inteligentna specjalizacja - (nowa) koncepcja polityki innowacyjnej, Optimum. Studia Ekonomiczne, nr 2, s. 125-129.

<sup>13</sup> A. Nowakowska, 2011, Regionalny wymiar procesów innowacji, Wyd. Uniwersytetu Łódzkiego, Łódź, s. 96-100

### 3 REINFORCEMENT OF THE ROLE OF CLUSTERS IN DEVELOPING INTELLIGENT SPECIALISATION STRATEGY

New regional innovation policy has got the logic and operating nature of general purpose technologies (GPT) as its foundations.<sup>1</sup> The substance of developing smart specialisation is centred around this term. Based on the mechanism of general purpose technologies<sup>2</sup>, the concept of regional smart specialisation introduces the idea of regional policy differentiated depending on the development of innovation capacities. Three types of regions and regional policy trajectories can be distinguished:

- innovation leaders for a particular area of innovation – regional policy should focus on the support for the development of general purpose research and innovation (GPT);
- moderate innovators, innovation followers – regional policy should focus on the support for the development and implementation of new products and technologies;
- modest innovators (catching-up regions) – regional policy should support absorption and diffusion of technologies and their applications developed in other, better developed regions.<sup>3</sup>

The concept of intelligent regional specialisations suggests a transparent innovation policy adjusted to various innovation capacities in regions. Cluster structures fully suit this way of thinking, because:

- clusters enable the development of direct relations of cooperation between the world of science and economy, which enhances the possibility of economic success in commonly accomplished enterprises;
- clusters enable an optimal allocation of regional resources, effective development of endogenic and specific potentials that are deeply rooted in regional environment;
- clusters enable the combination of diversity and similarity of regional resources creating a specific combination in order to create innovative solutions;
- clusters are based on market mechanisms, they offer a „pro-enterprising” point of view of regional development, which enhances the efficiency and effectiveness in the development of regional specialisations;
- clusters enable an increase in the internationalisation of the economy and thus the improvement of the competitive position of a region on an international scale;
- clusters offer a flexible strategy of operations becoming entities that enable not only the development of new solutions but also absorption and dissemination of technological changes.

Being a part of an innovation cluster means the entities are much more capable of absorbing, producing and diffusing knowledge and innovation.<sup>4</sup> Ties within a cluster and

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<sup>1</sup> GPT: omnipresent technologies applied in many areas of human activities; technologies subject to continuous technical advance, which improve their economic performance; technologies, which require complementary investment in the using sectors (feedback); technologies, representing significant potential of creative derivative solutions and their practical implementations. These technologies make industrial revolutions a reality. For the first industrial revolution (18th century) it was, e.g.,: steam engine, iron, machines; for the second industrial revolution (19th century): chemicals, combustion engine, electricity or steel, while for the third industrial revolution (20th century) – ICTs, biotechnology or smart materials.

<sup>2</sup> Hall, B. H., Trajtenberg, M. (2006), *Uncovering General Purpose Technologies with Patent Data*, in Antonelli C., Foray, D., Hall, B. H., Steinmuller, E. W. (Eds.), *New Frontiers in the Economics of Innovation and New Technology*. Cheltenham: Edward Elgar pp. 389-426.

<sup>3</sup> McCann P., Ortega-Argiles R., 2011, *Smart Specialization, Regional Growth and Applications to EU Cohesion Policy*, Economic Geography Working Paper, Faculty Of Spatial Sciences, University Of Groningen, [www.ipts.jrc.ec.europa.eu/docs/s3\\_mccann\\_ortega.pdf](http://www.ipts.jrc.ec.europa.eu/docs/s3_mccann_ortega.pdf); Innovation Union Scoreboard 2014, [ec.europa.eu/enterprise/policies/innovation/policy/innovation-scoreboard/index\\_en.htm](http://ec.europa.eu/enterprise/policies/innovation/policy/innovation-scoreboard/index_en.htm)

geographic proximity facilitate the generation and exchange of new ideas, concepts, and information. Spatial proximity of cluster participants enables continuous learning and rapid dissemination of knowledge and information. Direct relations, often informal, help monitor sector/industry performance or the competition and benchmark one's own operations against those of the competitors. Non-commercial relations, based on the exchange of market information or tacit knowledge are decisive for innovation clusters. In knowledge and innovation based clusters we often deal with the emergence of new innovative companies, the so called spin-off and spin-out businesses. New economic operators, who use knowledge, innovation and technologies created in a cluster are the testimony of the maturity of such a form of economic arrangement.

## CONCLUSION

Intelligent regional specialisation is both an idea of developing innovation capacities in regions and a tool that enables the development of a unique competitive position on an international scale. As highlighted by the authors of the concept, it is a strategy of operations directed to all types of regions (not only technological leaders). An effect of intelligent specialisation should be an increase in the diversity between the European Union regions in the scope of specialisation, in defined science and technology fields and also in economy sectors.

A new way of the development of innovation capacities in regions, more intensely than ever, emphasizes the significance of clusters (particularly innovation clusters) indicating a high efficiency of these structures in the development of market relations between the world of science and economy. In consequence, the reinforcement of clusters' activity is still a priority area of the EU policy impact.

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### Contact information

Aleksandra NOWAKOWSKA, PhD, Associate Professor  
Faculty of Economics and Sociology, Department of Regional Economy and Environment  
University of Łódź  
Rewolucji 1905r. no. 39  
90-214 Łódź  
Poland  
Email: [olanow@uni.lodz.pl](mailto:olanow@uni.lodz.pl)



# CLUSTERS AND SECURITY

IVANOV Ivaylo

## Abstract

In the present paper the author's views on clusters' nature and their contemporary role are presented. The main statement is that the clusters attain more and more significance for the sustainable economic development of the different regions and countries and also for their security. The need for researching the relation Clusters – Security in the context of the fundamental role the e of infrastructures in today's societies is also concerned.

**Key words:** Clusters, Economic development, Security, Globalization, Critical infrastructures, Public Private Partnership

## INTRODUCTION

For many years, scientists and experts from all over the world are engaged in the searching of solutions to the problems related to the formation, functioning and development of the local production systems. Most frequently the attention is focused on the growing importance of local production systems (LPS) for the optimal functioning of the economy at regional level.<sup>1</sup> Fundamental kinds of LPS are the clusters. The main goal of the paper is not to discuss their nature, but to give reasons why there is direct relationship between them, between the critical infrastructure and the security.

In the context of the new global economy, quite different from those one which has been existing by the end of XX century, the clusters will be increasingly important to ensure an optimum level of security not only within the limited space areas of their occurrence, function and development. In view of the deepening economic differentiation and stratification within the different countries and their regions, namely the clusters will have a significant role in dealing with them. How? By strengthening their role in sustainable dynamic development of the regions and turning them into a catalyst for economic development at the local level, a generator of jobs, a successful partner not only of the large structural entities in a given sector, but for the local and central state administrations too.

The questions whether, how and under what kind of conditions certain cluster could be assigned to the critical infrastructures, and which part of them could be assigned as critical cluster infrastructure, especially at local level (region, district, municipality, etc.) remain open. Without finding their answers, there is not much to be achieved in revealing the connection **clusters – critical infrastructure – security**.

The infrastructures become the main means for the realization of the security nowadays. The role of the critical infrastructure for the economic development is a matter of fact. It is assumed that in the broad philosophical sense the “security” of the objects with social nature means reliability of their existence and sustainable development. Is there any role of the clusters in that process?

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<sup>1</sup>FIORENZA BELUSSI. 1999. Policies for the development of knowledge-intensive local production systems, Cambridge Journal of Economics, no. 23 (1999): 729-747.

# 1 THE CLUSTERS

The concept of clusters is a modern description of the phenomenon (observed by Marshall (1890) already in the 19<sup>th</sup> century), of geographical concentration of economic activities, which brings advantages in terms of availability of a qualified workforce and specialisation and is widely believed to be an important factor for economic development. However, it was only after Michael Porter (1990) has examined the industrial agglomeration from the firm perspective that the theme surpassed the restricted circles of economists and geographers. The original definition for clusters provided by M. Porter is: “Clusters are geographic concentrations of interconnected companies, specialized suppliers and service providers, firms in related industries, and associated institutions (for example universities, standards agencies, and trade associations) in particular fields that compete but also co-operate”.

Clusters consist of dense networks of interrelated firms that arise in a region because of powerful externalities and spill-overs across firms (and various types of institutions) within a cluster. Clusters drive productivity and innovation. Firms that are located within a cluster can transact more efficiently, share technologies and knowledge more readily, operate more flexibly, start new businesses more easily, and perceive and implement innovations more rapidly. They can also efficiently access “public goods” such as pools of specialized skilled employees, specialized infrastructure, technological knowledge, and others.<sup>2</sup> Clusters create synergies that translate into greater competitiveness at the firm and cluster levels and lead not only to improved export performance in terms of sales, but to improvements in terms of value-retention and value-addition. Thus, given all the benefits that bring and the increased social welfare, financial support allocated to firms and projects in industrial clusters is commonly justified and cluster policies have proliferated around the world being part either of industrial or research and innovation policies.

# 2 INFRASTRUCTURE PROTECTION AND SECURITY

In the last years, the contemporary society has been operating and developing in constantly changing conditions. Moreover, the functioning and development of the modern world are realized above all in the conditions of various crisis regimes. Thus, the tendency of super complex socio-economic systems to operate and to develop in the terms of increasing imbalances, nonlinearities, conflicts, crises, chaos, and catastrophes were established.

Namely this tendency imposes an objective need for research on the big problem for the crisis management of socio-economic systems. One element of it is the question, related to the functioning of the clusters which exist in the different countries under conditions of crises and conflicts.

The modern threats and challenges, such as the devastating natural disasters, local conflicts, international terrorism, and the related security risks for the state and their citizens, raised a number of questions, concerning the study of the vulnerability of modern society and the risks related to the ensuring and maintaining its vital functions.

What do we mean? The new threats and challenges, which have been already outlined, raised a number of questions related to researching of the vulnerability of the modern society and to the analysis of the risks associated with the maintenance and ensuring of its vital functions. As a consequence of the changes that occurred, it appears that in the life of modern man, the different infrastructures are fundamental because they are the underlying structures

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<sup>2</sup> PORTER, M. 2007. Clusters and Economic Policy: Aligning Public Policy with the New Economics of Competition, Harvard Business School, ISC White Paper November 2007, Rev. 10/27/09, p.3

(large complex systems) through which the functioning of modern society is possible at all. Some infrastructures deliver vital services, products, resources of the modern society - ones without which life would not be normal or would have been impossible. In this sense, these vital services, products, resources are assessed as “critical”, and infrastructures through which they are supplied acquire critical role in the societies, so they are called “critical infrastructures”. The continuous process of “supply” of goods and services for the maintenance of the current standard and living conditions of the population especially in developed countries, implemented through this complex system of infrastructures, providing the different functions of the state, has become a key for the survival of the contemporary societies<sup>3</sup>. After decades of fantastic technological upsurge, the modern society has only just begun to painfully realize the depth of its own dependence on them.

The supply of resources is becoming a problem which has strategic importance for the normal functioning of the modern critical infrastructures which is transporting them. They become more vulnerable, as a result of globalization and technological advances. Understanding of the relationship - protection of the various critical infrastructures and the security of supply for their functioning in the greatest possible degree of autonomy (compared to the dynamically changing conditions of the environment), becomes a vital issue for the quality implementation of the activities related to the provision of the security of modern societies. For those reasons come to the fore and issues related to the ability of the country, the various industries and even individual enterprises to ensure in any circumstances the relevant supply of materials and products and their associated services also. The preparation itself, the development and implementation of measures and procedures to ensure continuity of the most important supplies and services and their fair and effective distribution within the country is also a problem of great complexity. It is relevant to the management of the enterprises, the clusters, and the business as a whole in emergencies.

### **3 CRITICAL CLUSTER INFRASTRUCTURE**

Management issues of the clusters in normal situations are developed to a very high degree, as a theory and practical solutions, too. With regard to the preparation and the reaction of the clusters in emergency situations, as part of the larger research problem for crisis management of the business, this essential aspect of its managing and functioning, has not been so far subject of systematic review in Bulgarian science, much less, there is any good practice in this area.

In the context of the changes in the economic, political, and social spheres of the modern world, and the Bulgarian society in particular, examining this in its essence a management problem, could no longer be neglected.

Thus, besides the already identified threats and challenges, which have better direct impact on the economic actors, than the clusters have, there are some other factors that have an extraordinary impact on the functioning and development of the modern Bulgarian clusters and the economy as a whole. They are related to and determined by the Globalization and the openness of the economy, the rapid and revolutionary technology development, the scientific and technological progress and science, the informatization, the intellectualization, the competition, the market dynamics, and the consumer behavior.

At an internal level the environment of functioning and development of Bulgarian clusters is predetermined to a large extent by the lack of a consistent policy, the will for

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<sup>3</sup> DRAKALIEVA, P., IVANOV, I. 2010. Savremennata kontseptsiya za zashtitata na kritichnata infrastruktura: genezis, tseli, metodologiya, problemni zoni, V Tsvetkov. Ts: (ed.), Sbornik s rezultati ot izsledvaneto po proekt - Zashtita na kritichnata infrastruktura v ES i Balgariya – ikonomicheski i organizatsionni aspekti. Sofia: UI Stopanstvo.

positive change from the government, on the one hand, and on the other - the fact that the market model is being idealized and mechanically transmitted, without intending to be tailored to the specific Bulgarian conditions, to the national psychology and our cultural tradition. These characteristics of the internal environment of the clusters in Bulgaria lead to disorganization, demotivation, and numerous conflicts - especially with economic and social nature. As a result, after more than twenty-five years of transition, the Bulgarian economy continues to be one of the weakest in Europe and uncompetitive on the international market.

Against the background of this picture, the emergency situations are more frequent guest in the life of all socio-economic systems and have a direct negative impact on their functioning and development. The state of the traditional institutions - government, public, private, is defined as a crisis from the perspective of their preparedness and ability to respond to the new characterized by a high degree of unpredictability challenges<sup>4</sup>. We assume that the Emergency Situations (in the theory and practice application is found for the terms civil emergencies or non-military crises) are caused by a variety of natural, anthropogenic (manmade) and technogenic (caused by the joint action of man and nature) disasters and accidents.

According to Mindova-Docheva<sup>5</sup> (2012), the study of the problems identified was launched in the presence of significant gaps and confusions in the scope of the existing practice and procedures in Bulgaria, which cast doubt on the effectiveness of the current rules and institutional set of the social relations in the field of the crisis management at national level. Not to mention the complete lack of regulation concerning the creation of a package of economic measures to ensure economic resilience of the society in the process of crisis management.

A reservation is making that when the management of the clusters and the enterprises part of them in an emergency situation is examined, the focus of our attention does not include the whole range of clusters participants. We are interested in only those of them, which are crucial for ensuring the security of the supplies in cases of emergencies and thus constitute the critical cluster infrastructure. We narrow down our attention, because the real challenge in ensuring the critical infrastructure protection (not only the cluster's one) is in its defining. On the identification of this infrastructure special attention should be given in a separate research. This is necessary in order to ensure the implementation of a differentiated approach to the work with individual entities within and beyond, as it is not possible to choose an approach based on total protection from all threats. More productive would be to proceed to risk management.

In light of these problems it is quite natural the desire to determine the Bulgarian critical cluster infrastructure, and working mechanisms for the interaction between the government and the clusters to be built. On the other side, apart from ensuring the protection of this infrastructure and guaranteeing the security of supply of the clusters, it is important to create mechanisms for their emergency management as key elements of this system.

The need for modern mechanisms of using all the resources of the state to deal with crises is particularly strong in terms of the economic restructuring from a command to a market economy. This transformation requires new tools for planning and implementation of the activities related mostly to the perception of civil emergency planning conception. The application of the practical achievements of this concept provides a broader opportunity to move from "reactivity" to "proactivity" in the field of critical infrastructure protection – an essential factor for achieving flexible social structure that has an inherent capacity for

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<sup>4</sup> DIMITROV, D. Y. 2008. Yuridicheska i kvazyuridicheska konfliktologiya. Veliko Tarnovo.

<sup>5</sup> MINDOVA-DOCHEVA, I. 2012. Pravna reglamentatsiya na organizatsiyata na darzhavata v protsesa na upravlennie pri krizi. Avtoreferat na disertatsionen trud. Sofia

reconstruction to the original condition or to a new condition, imposed by the changing requirements.

Consequently when we talk about critical cluster infrastructure we mean that part of the cluster infrastructure which is responsible for preservation and maintenance of critical society functions and also for its optimal, resilient functioning in terms of emergencies.

#### **4 PUBLIC-PRIVATE PARTNERSHIP FOR ENSURING THE CRITICAL CLUSTER INFRASTRUCTURE PROTECTION IN BULGARIA**

The legal framework in Bulgaria, as there is such in our examining area, has been amended several times and almost completely has lost its internal logic and systematic functioning of the mechanisms laid down in it. There is a vacuum in the legislation, and where yet it exists, synchronization between its elements is missing. The establishment of adequate mechanisms for critical cluster infrastructure protection is necessary, because with the transfer to market-based economy and the withdrawal of the state from the operational management of the business it had been eliminated.

We should try to answer the question - whether there is any developed from the theory and proven in the modern mechanisms practice, which in symbiosis with those ones used hitherto to support the efforts to solve the issues we have risen in the security field in general and in field of the critical cluster infrastructure, in particular.

One of the possible modern social mechanisms for that is precisely the public-private partnership. Why?

The privatization conducted over the past 25 years and liberalization in many important sectors not only in Bulgaria led to the shrinking role of the state in the person of its public institutions in the operation of those essentially critical infrastructures. The majority of the main infrastructures is now controlled or dominated by the private sector - operators, service providers, maintenance operators, owners of networks, and others.

The question arises, how the privatization and the maximum withdrawal of the state affect (traditionally associated with providing of these services) and what are the effects on national and international preparedness for responding to civil emergency situations and on the crisis management<sup>6</sup>. This issue is directly generated by the context of the changes in the security environment on its different levels.

In a highly regulated economy, at least in theory, the state assumes the responsibility and costs to ensure the secure operation of supply systems for the necessary goods and services in virtually all circumstances. In one deregulated liberal economy the issue of protection of those systems is accompanied by a great deal complex problems. "The foreground come out issues such as: Who will implement and pay the protection measures that should be taken to ensure security; Which of the measures are in the responsibility of central and local authorities and which are of the private business; How the national solutions to these problems correspond to the processes of globalization of the markets of goods and services, and the emergence of the transnational information and communication networks"<sup>7</sup>.

In all contemporary liberal economies, the issues concerned are looked for decisions by applying one of the following three mechanisms - Direct regulation; Economic policy instruments and the Public-private partnership (PPP). PPP is hoped to answer the liability issues and financing of the security measures.

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<sup>6</sup> ANDERSSON, J., MALM, A. 2006. Public-Private Partnerships and the Challenge of Critical Infrastructure Protection. International CIIP Handbook 2006, p, 141.

<sup>7</sup> Ibid, p. 147.

The examination not only of its positive effects, but its possible negatives and dangers too, are a good starting base for further analysis of its application on Bulgarian ground. Lots of potential contradictions and conflicts in its use could be discovered.

The solution for the protection of critical cluster infrastructure directly corresponds to the decisions of the more general question in its entirety - Critical Infrastructure Protection.

It is very difficult the critical infrastructure protection issues to be solved, because lots of serious difficulties arise to combine the tasks of the national security with the interests of the business, and to determine the ratio of the roles and responsibilities of the state and the private sector.

Proceeding from the fundamental responsibilities of the state, logically shall follow generally accepted in the civil emergency planning principle, valid therefore for the critical infrastructure protection as a whole, that this activity is primarily a national responsibility. Within the public administration, the responsibilities for the construction of a national system for the critical infrastructure protection should be considered, planned, and coordinated into three basic aspects:

- sharing of the responsibilities and coordination between government agencies responsible for critical infrastructure sectors (in the horizontal direction);
- clear delineation of responsibilities (the mandate) of every level of governance in the administrative hierarchy (in the vertical direction of governance);
- determination of the leading structure on the issues of Critical Infrastructure Protection.

The real challenge in ensuring the protection of critical infrastructure is the coordination and sharing of responsibilities between the public sector and the operators of critical infrastructure.

Bearing in mind the already mentioned restructuring of the ownership in infrastructure made during the last 25 years it hardly leaves any doubt about the scale and the complexity of the task to build a working public-private partnerships for ensuring national critical infrastructure protection. And in this sense for the critical cluster infrastructure, too.

Namely the survey and finding a fair balance of the responsibilities and undertaking the burden of the preparation and implementation of national measures in the field of critical infrastructure protection is a task, which should be a subject of special attention by the national authorities of the countries already working systematically on the protection of their own critical infrastructure. If we find this balance, it will also create the necessary preconditions for effective public-private partnerships.

In our present, and it turns out not only Bulgarian, case for the critical cluster infrastructure protection and for optimizing the relationships public - private sectors the adequate implementation precisely of the public-private partnership is particularly important. Additional forms of placing the PPP in the legal framework has to be found, so that it may meet its objectives and to justify the hopes assigned to it. The so far available ones in Bulgaria works on this matter do not answer the specific questions of interest to us.

## **CONCLUSION**

The problem, connected to the governance of society as a whole, its subsystems and components in condition of various emergency situations and crises takes out an increasingly central place in the contemporary interdisciplinary studies.

The nature of modern risks requires concerted efforts and construction of complex systems for early warning, prevention, response, and control in all areas of economic life. The clusters are not an exception. At present, there are no working systems for early warning and

for crisis management at the country level either. A similar capacity does not exist at all at sectorial and enterprise level.

In today's society of the risk and mass-produced uncertainties, every poorly managed and realized risk will likely lead to a crisis and to increased uncertainty, this means - to an emergency situation. What happens to the state in this transformation – with its institutions, its structures, laws, and resources, with its stakeholders especially in the economic sphere? Reversing the logic of the processes due to the prominent facts will lead to inevitable changes in the structure of the state, its main elements and as a whole – in its present functioning<sup>8</sup>. How these processes affect and will affect economic actors and in our case in the implementation of their activities and what further changes will they inevitably bring?

In view of the global changes in the security environment and the economic development, especially at the regional level, in-depth studying the relationship Clusters - Critical Infrastructure has no alternative.

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## Contact information

Ivaylo IVANOV, PhD  
Faculty of Business  
University of National and World Economy  
“8-th of December” str.  
1700 Sofia  
Bulgaria  
[i.ivaylo@unwe.bg](mailto:i.ivaylo@unwe.bg)

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<sup>8</sup> SLATINSKI, N. 2013. Rolyata i myastoto na Balgariya v NATO v usloviyata na promenyashtiya se svyat, [online] Available at: <<http://nslatinski.org/> [Accessed 29 December 2014]

# COMBINING INDUSTRIAL TRADITIONS WITH GLOBAL COMPETITIVENESS OF LOCAL PRODUCTION SYSTEMS AS A WAY OF THEIR TERRITORIALISATION – CASE STUDY OF AVIATION VALLEY IN POLAND

SOKOŁOWICZ Mariusz E.

## Abstract

This chapter is a case study of Aviation Valley in Poland – an example of Polish local production system that operates in one of the most rapidly growing and most innovative industry. This LPS can be classified as an entity driven by large transnational companies, working on global markets. Using various descriptive methods, desk research and results of benchmarking of Polish clusters, it attempts to answer the question whether these companies are subject to territorialisation processes.

**Key words:** local production systems, transnational companies, territorialization, embeddedness, aircraft industry, Podkarpackie region, Aviation Valley.

## INTRODUCTION

One can observe the growing interest in local production systems as an important actor of regional development. It seems to be today at its peak, both among researchers and practitioners, representatives of authorities, or entrepreneurs. Despite the wide variety of types of LPS and other derivative territorial forms of organization or production, some commonly acceptable classifications have been created. This classification attempts to differentiate between the LPS composed mainly of small and medium sized enterprises and those dominated by transnational corporations (TNCs).

However, one cannot indicate “better” or “worse” types of LPS. In some cases, a type of industrial activity and territorial specificity of LPS suggest SME-based strategy of development, while in other cases large companies being leaders of LPS seem to be a better solution. In case of LPS dominated by the latter, the question about their long-term territorialisation in the regional socio-economic development appears. In case of Polish LPS, the aircraft industry in Aviation Valley cluster in Podkarpackie south-eastern region of Poland can be a good case for identifying these processes.

The chapter consists of four parts. The first one is of theoretical character and presents the classification of LPS from the point of view of the role large companies play in their structure, as well as the phenomenon of territorialisation of these entities. Next part is a description of the history of aviation industry in Podkarpackie region (Rzeszów, Mielec), which has led to the creation of the “Aviation Valley” association – one of the most competitive Polish clusters. The third part presents chosen results of benchmarking of Aviation Valley performance, while the last one presents main examples of how companies of this LPS are embedded in the territorial environment.



# 1 GLOBAL ORIENTED LPS AND THEIR TERRITORIALIZATION

It is difficult to find one, universally accepted and binding definition of a local production system. Neither is there one complete typology including all possible forms of their establishing and development. Having the roots in the concept of industrial district presented by A. Marshall in his famous work “*Principles of economics*”<sup>1</sup>, it re-developed into such concepts as neo-Marshall industrial districts (known also as Italian industrial districts)<sup>2</sup>, new industrial spaces<sup>3</sup> or the concepts of local production systems.<sup>4</sup> Other derivative concepts include: innovative milieus (Fr. *milieux innovateurs*)<sup>5</sup>, regional systems of innovation<sup>6</sup>, the concept of a learning region<sup>7</sup>, or the concept of clusters disseminated by M. Porter<sup>8</sup>, often criticised by many authors.<sup>9</sup>

More and more often, local production systems are treated as a synonym of clusters<sup>10</sup>, perceived as geographic agglomeration of companies, specialized suppliers, service providers, firms in related industries, and associated organizations (such as universities, standard agencies, trade associations), linked by commonalities and complementarities, where business competition and cooperation take place at the same time.<sup>11</sup> They are one of the forms of organization of entrepreneurship *milieu*, defined by two basic parameters: logic of networking and a territory.<sup>12</sup> The latter means that LPS or clusters are embedded in a particular space,

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<sup>1</sup> Marshall A. 1890. *Principles of economics*. London: Macmillan.

<sup>2</sup> Becattini, G. 1990. *The Marshallian Industrial District as a Socio-Economic Notion*, [in:] Pyke, F., Becattini, G., Sengenberger W., (eds.), *Industrial Districts and Inter-firm Cooperation in Italy*. Geneva: International Institute of Labor Studies, pp. 37-51.

<sup>3</sup> Scott, A. 1998. *New Industrial Spaces: Flexible Production Organization and Regional Development in North America and Western Europe*. London: Pion.

<sup>4</sup> Courlet, C. 2001. *Les systemes productifs locaux: de la definition au modele*, [in:] *Reseaux d'entreprises et territoires. Regards sur les systemes productifs locaux*. Paris : DATAR. La documentation Francaise.

<sup>5</sup> Aydalot, Ph. 1986. *Trajectoires technologiques et milieux l'innovation*, [in:] Ph. Aydalot (ed.), *Milieus innovateurs en Europe*. Paris: GREMI; Camagni, R., Maillat, D., 2006. *Milieus innovateurs. Theorie et politiques*, Paris: Oeconomica Anthropos.

<sup>6</sup> Braczyk, H-J., Cooke, Ph., Heidenreich, M. 1998. *Regional Innovation Systems. The Role of Governance in a Globalized World*. London: UCL Press.

<sup>7</sup> Asheim, B. 1995. Industrial Districts as Learning Regions. A Condition for Prosperity? *Studies in Technology, Innovation and Economic Policy*. Oslo: University of Oslo; Florida, R., 1995. *Toward the Learning Region*. *Futures*, vol. 27 no. 5, pp. 527-536.

<sup>8</sup> Porter, M. E. 1998. *Clusters and the New Economic Competition*. Harvard Business Review November-December, p. 78; Porter, M. E., 1990. *The Competitive Advantage of Nations*. New York: The Free Press.

<sup>9</sup> Feser E. J. 1998. *Old and New Theories of Industry Clusters*; [in:] Steiner, M., (ed.), *Clusters and Regional Specialisation*. London: Pion; Hamdouch, A. 2012. *Innovation Networks and Clusters: A Critical Review of the Recent Literature*. Proceedings of the 19<sup>th</sup> EAEPE Conference: Economic Growth, Development and Institutions, Porto 2007. Available at:

([www.fep.up.pt/conferencias/eaep2007/Papers%20and%20abstracts\\_CD/Hamdouch.pdf](http://www.fep.up.pt/conferencias/eaep2007/Papers%20and%20abstracts_CD/Hamdouch.pdf). Accessed 20.07.2012; Martin, R., Sunley, P. 2003. Deconstructing Clusters: Chaotic Concept or Political Panacea? *Journal of Economic Geography*. vol. 3(1), pp. 5-35.

<sup>10</sup> This perspective is accepted also for the purpose of this chapter. Hence, these two terms are used alternatively here.

<sup>11</sup> Gordon, I. R., McCann, Ph. 2000. Industrial clusters: complexes, agglomeration and/or social networks? *Urban Studies*, 37(3), pp. 513-532; Hamdouch, A. 2012. *Innovation Networks and Clusters: A Critical Review of the Recent Literature*. Proceedings of the 19<sup>th</sup> EAEPE Conference: Economic Growth, Development and Institutions, Porto 2007. Available at:

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<sup>12</sup> Nowakowska, A., Przygodzki, Z. Sokołowicz, M. E. 2009. *Mapping Clusters in Poland. A Comprehensive Methodological Approach*; [in:] Markowski, T., Turała, M. (eds.), *Theoretical and Practical Aspects of Urban and Regional Development*. Warsaw: Polish Academy of Sciences – Committee for Spatial Economy and Regional Planning, p. 266.

which creates its value and growth potential.<sup>13</sup> They are connected closely to a territory and form networks that provide a quick and relatively inexpensive access to resources available in firm's environment (whether tangible or intangible), used as factors for production of goods and services. This proximity facilitates also the processes of learning and adaptation and creation of knowledge and innovation.<sup>14</sup>

Depending on the size structure of enterprises as main economic actors of LPS, one can distinguish a few different types of these forms of production organization. For instance, J. Meyer-Stamer, (following the work of A. Markusen<sup>15</sup>) distinguished three categories of clusters (Figure 1).<sup>16</sup>

1. Clusters close to the Italian industrial districts, with the American Silicon Valley as the best known example. Such clusters are dominated by small and medium-sized enterprises that are specialised and strongly compete but at the same time develop a system of networks based on trust. These factors enable flexible specialisation, high productivity and create significant innovation potential
2. Hub-and-spoke clusters, with big enterprises hierarchically linked with a wide group of SMEs (e.g. Seattle – Boeing or Toyota City). Such clusters are largely based on the power of the corporations but their operations are flexible and they exploit cost advantages
3. Satellite clusters with a dominant share of SMEs dependent on external companies, where location economies result from lower costs (e.g., the Research Triangle Park in North Carolina or the Manaus region in Brazil)".

Further classification of A. Markusen introduced one additional type, so finally we can indicate four different types of industrial clusters: the first one is the Marshallian and Italianate type; the second is the hub-and-spoke; the third is known as satellite industrial platforms, and the last comprises the state-anchored clusters.

In other words, A. Markusen stressed by this classification, that in the age of global economic interdependencies and developed technologies, LPS based on small enterprises can be at most one of the forms of organization of production. The success of more and more local production systems depends on one (or a few), large firm(s), surrounded by many smaller suppliers and service providers (hub-and-spoke), branch-plants being subsidiaries of large multinationals (satellite), or driven by a public entity – possibly state company, institution of higher education, military, surrounded by related suppliers and service firms (state-anchored). It seems that among listed forms, a hub-and-spoke can contribute most positively to long term interdependencies between cluster and the territory, in which it operates (Table 1).

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<sup>13</sup> In the literature on regional development issues, a reduced frequency of using the term "region" can be observed. Instead, a concept of "territory" is being used more and more often. The territory, as distinguished from the term of "region" or "space", is not a neutral category, since it integrates economic actors not only by market mechanisms, but also by social forms of regulation (see: Sokołowicz, M. E., 2008. *Region wobec procesów globalizacji - terytorializacja przedsiębiorstw międzynarodowych (na przykładzie regionu łódzkiego)*. Ph. D Theses in the field of Economics and Management, Łódź: University of Łódź Press, p. 7; see also: Jewtuchowicz, A. 2005. *Terytorium i współczesne dylematy jego rozwoju*. Łódź: University of Łódź Press.

<sup>14</sup> Rallet, A., Torre, A. 2005. Proximity and Localization. *Regional Studies*. Vol. 39(1), p. 49.

<sup>15</sup> Source: Markusen, A. 1996. Sticky Places in Slippery Space: A Typology of Industrial Districts. *Economic Geography*. 72 (3), p. 297.

<sup>16</sup> Meyer-Stamer, J. 1999. *Strategien lokaler/regionaler Entwicklung: Cluster, Standortpolitik und systemische Wettbewerbsfähigkeit*, Institut für Entwicklung und Frieden. Universität Duisburg, Duisburg 1999; [after:] Brodzicki, T., Szultka, S. 2002. Koncepcja klastrów a konkurencyjność przedsiębiorstw (Clusters and Enterprise Competitiveness), *Organizacja i Kierowanie*. 4 (110), pp. 5-6.

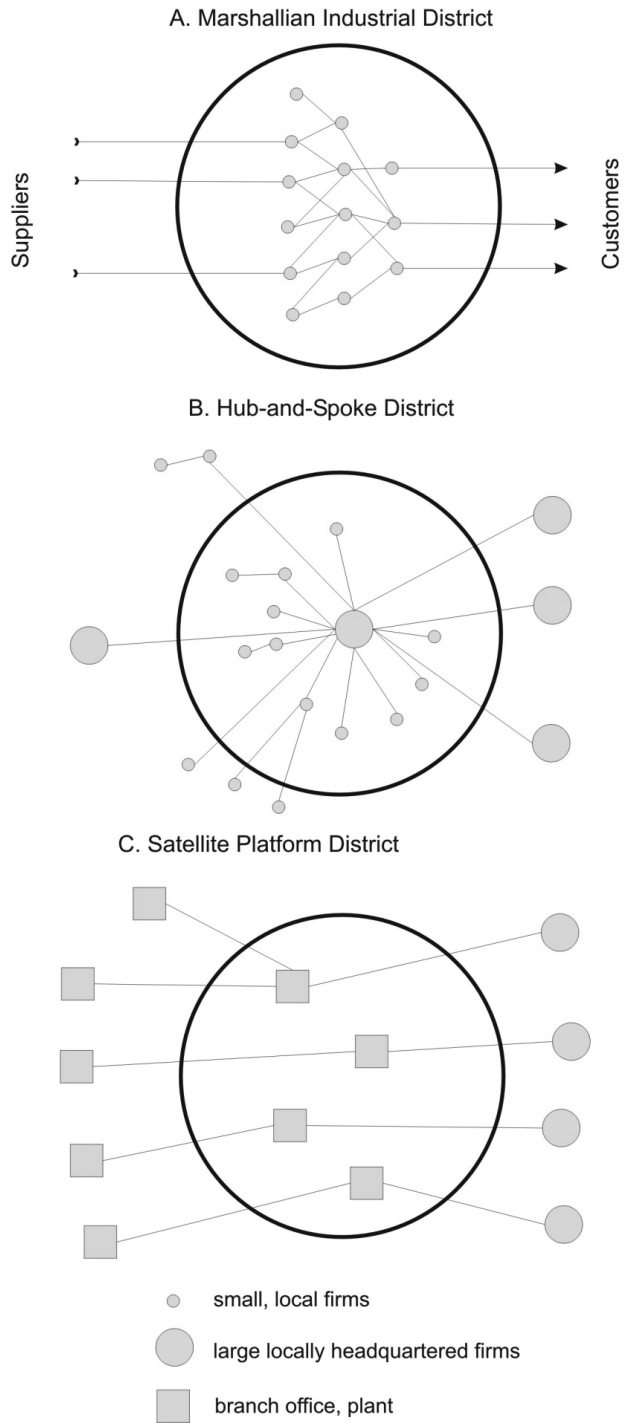


Figure 1 Types of LPS based on the A. Markusen's and J. Meyer-Stamer's concept  
 Source: Markusen, A. 1996. Sticky Places in Slippery Space: A Typology of Industrial Districts. *Economic Geography*. 72 (3), 1996, p. 297.

Table 1 A. Markusen's extended typology of clusters

Cluster type	Characteristics of member firms	Intra-cluster interdependencies	Prospects for employment
<b>Marshallian</b>	Many small, innovative, medium- sized and locally-owned firms well embedded in the regional social dynamics.	Substantial inter-firm transfers, joint R&D efforts, pool of assets for fulfilling clients' orders, in a milieu munificent in institutional support.	Dependent on the dynamism of the cluster given external evolutions. Regional entrepreneurship.
<b>Hub-and-spoke</b>	One, or a few, large firm – possibly oriented to external markets – that is surrounded by many small suppliers and service provider firms.	Large firm(s) dictate the terms of the business relations with smaller firms in the surroundings. Few interactions among spoke firms that are focused on their ties to the hub firm.	Dependent on the evolution and success of the large hub firm(s).
<b>Satellite</b>	Driven by branch-plants – possibly subsidiaries of large multinationals.	Low level of inter-firm contact and very limited interfirm ties in the cluster.	Depends on the growth of the branch plants and the success of the public policies adopted to attract more firms.
<b>State-anchored</b>	A government owned or supported, usually not for profit, entity surrounded by related suppliers and service firms.	The anchor institution is central to the majority of the inter-firm ties but there may coexist significant exchanges among co-located firms.	Depends on the public policy and the relative ability of the anchor institution to attract additional political support and funding.

Source: Ferreira, M. P., Serra, F. R., Costa, B. C., Maccari, E. A., Couto, H. R. 2012. Impact of the Types of Clusters on the Innovation Output and the Appropriation of Rents from Innovation. *Journal of Technology Management & Innovation*. 7(4), p. 74; Markusen, A. 1996. Sticky Places in Slippery Space: A Typology of Industrial Districts. *Economic Geography*. 72 (3), pp. 298-299.

It should be underlined here, that in a world where big corporations become more and more mobile and independent from the place of their location, not only the ability to attract, but to *keep capital* for a long time, decides about the success of territories. Ann Markusen named them in a metaphorical way as “sticky places”, which means places that managed to create various form of spatial organization of production being propitious for building local “business climates”. Although one can differentiate many forms of them, they possess one common characteristic, which is their “stickiness”, interpreted as the “ability to attract as well as to keep, like fly tape”, capital and enterprises.<sup>17</sup>

Enterprises are these entities that are able to put local and regional resources into markets. They possess capabilities to profit from both resources that are ubiquities and resources which cannot be transferred or imitated in other regions, but also can simultaneously contribute to building regional specificity of resources, binding their strategies with the strategy of the territory where they are localized. Thus, territorialisation (embeddedness) can be defined as a process in which enterprises simultaneously contribute to and profit from resources, which build the sustained competitive advantage of the region and cannot be transferred or imitated in other territories.<sup>18</sup>

N. Brenner claims that globalization should be understood as a process in which we can observe acceleration of flows of capital, goods, information and people on the one hand, but on the other hand, only territories being able to maintain railways, highways, ports, canals, airports, as well as informational networks and institutions, can really derive from these processes.<sup>19</sup> Capital, in its traditional meaning is to some extent “a-spatial” by nature; only

<sup>17</sup> Markusen, A. 1996. Sticky Places in Slippery Space: A Typology of Industrial Districts. *Economic Geography*. 72 (3), p. 494.

<sup>18</sup> Sokołowicz M. E. 2007. *Region in strategies of transnational companies - the phenomenon of territorialisation of enterprises*. Paper for 2<sup>nd</sup> Central European Conference in Regional Science. Novy Smokoviec, Slovakia 2007, p. 975.

<sup>19</sup> Brenner, N. 1999, Globalization as Reterritorialisation: the Re-scaling of Urban Governance in the European Union. *Urban Studies*. 36(3), p. 435

places being able to “fix capital within their territories through the provision of immobile, place-specific assets and externalities that either cannot be found elsewhere or cannot be abandoned without considerable devalorisation costs”, can be competitive.<sup>20</sup> This is what *territorialisation of capital* really means. From the LPS point of view one can say that combining the success of LPS with the success of the whole territory in which it operates, can potentially decide about more sustainable and long-term economic strategy.

## 2 AVIATION VALLEY – CLUSTER DESCRIPTION AND ITS HISTORY

Aviation Valley is one of ca. 200 clusters or cluster initiatives functioning in Poland.<sup>21</sup> As an official legal unit (association), it has been in operation since 11<sup>th</sup> of April 2003. However, forming Aviation Valley as an officially registered cluster initiative was a last stage of a long way to formal institutionalization of cooperation within local production system that existed before. The beginning of this LPS should be dated back to the initial phase of its forming through geographical concentration of aviation industry companies and research institutions in Podkarpackie region, for the last eighty years.

The capital of Podkarpackie region – Rzeszów – together with its surroundings was a place of the biggest concentration of aircraft industry from the 1930s. The origins of the Polish aviation sector date back to the period immediately preceding the outbreak of the First World War and to Aviana – a company with foreign capital established in 1910. After Poland regained its independence, next enterprises – such as Centralne Warsztaty Lotnicze (CWS – central aviation workshops), Plage & Miskiewicz, or Podlaska Wytwornia Samolotow (PWS – an aircraft plant) were established.<sup>22</sup> These private economic entities were operating neither in the capital of Poland (Warsaw) nor in Podlaskie region, and from the historical perspective are considered as the very beginnings of the aviation industry in Poland.

The actual development of aviation production, however, is undoubtedly associated with government interventions, as this branch was treated as both infant and strategic industry in the 1920s and 1930s, when both economic and political state structures of Poland had to be re-established after over one century of the absence of statehood. The first aircraft plant established in 1928 by the state was Państwowe Zakłady Lotnicze (PZL – State-Owned Aircraft Plant). Created on the basis of former CWS, it had its headquarters in Warsaw. However, in 1939 PZL had already plants located in:<sup>23</sup>

1. Warsaw – two plants manufacturing aircraft and engines under a license from Bristol
2. Mielec – a plant producing aircraft parts, established as part of the Central Industrial District<sup>24</sup> project, along with a plant manufacturing engines in Rzeszów.

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<sup>20</sup> Brenner, N. 1999, Globalization .as Reterritorialisation: the Re-scaling of Urban Governance in the European Union. *Urban Studies*. 36(3), p. 442.

<sup>21</sup> Polish Agency for Enterprise Development, *Klasy w Polsce. Katalog 2012*. Warsaw 2012, p. 8.

<sup>22</sup> PMR Research report 2009. *Report on the aviation market in Poland 14 December 2009*. For the Polish Information and Foreign Investment Agency, p. 7.

<sup>23</sup> PMR Research report 2009. *Report on...*, op. cit., p. 7.

<sup>24</sup> The Central Industrial District (Polish: *Centralny Okręg Przemysłowy*, abbreviated COP) was one of the biggest economic projects of the Second Republic of Poland. Its goal was to create a heavy industry center in the middle of the country, as far as possible from any borders, strengthen the Polish economy and reduce unemployment. The four-year plan for the development of COP was scheduled from 1 September 1936 until 30 July 1940 and was interrupted by the outbreak of the World War II and the Nazi invasion of Poland on 1 September 1939. Nonetheless, the COP project succeeded in vastly expanding Polish industry, and after the end of the war in 1945 COP was rebuilt and expanded under the People's Republic of Poland ([http://en.wikipedia.org/wiki/Central\\_Industrial\\_Region\\_%28Poland%29](http://en.wikipedia.org/wiki/Central_Industrial_Region_%28Poland%29), accessed 05.05.2015). The idea of COP can be considered as one of successful examples of economic policy inspired by the Keynesian approach to economic growth or an attempt to apply the American New Deal economic policy in Europe.

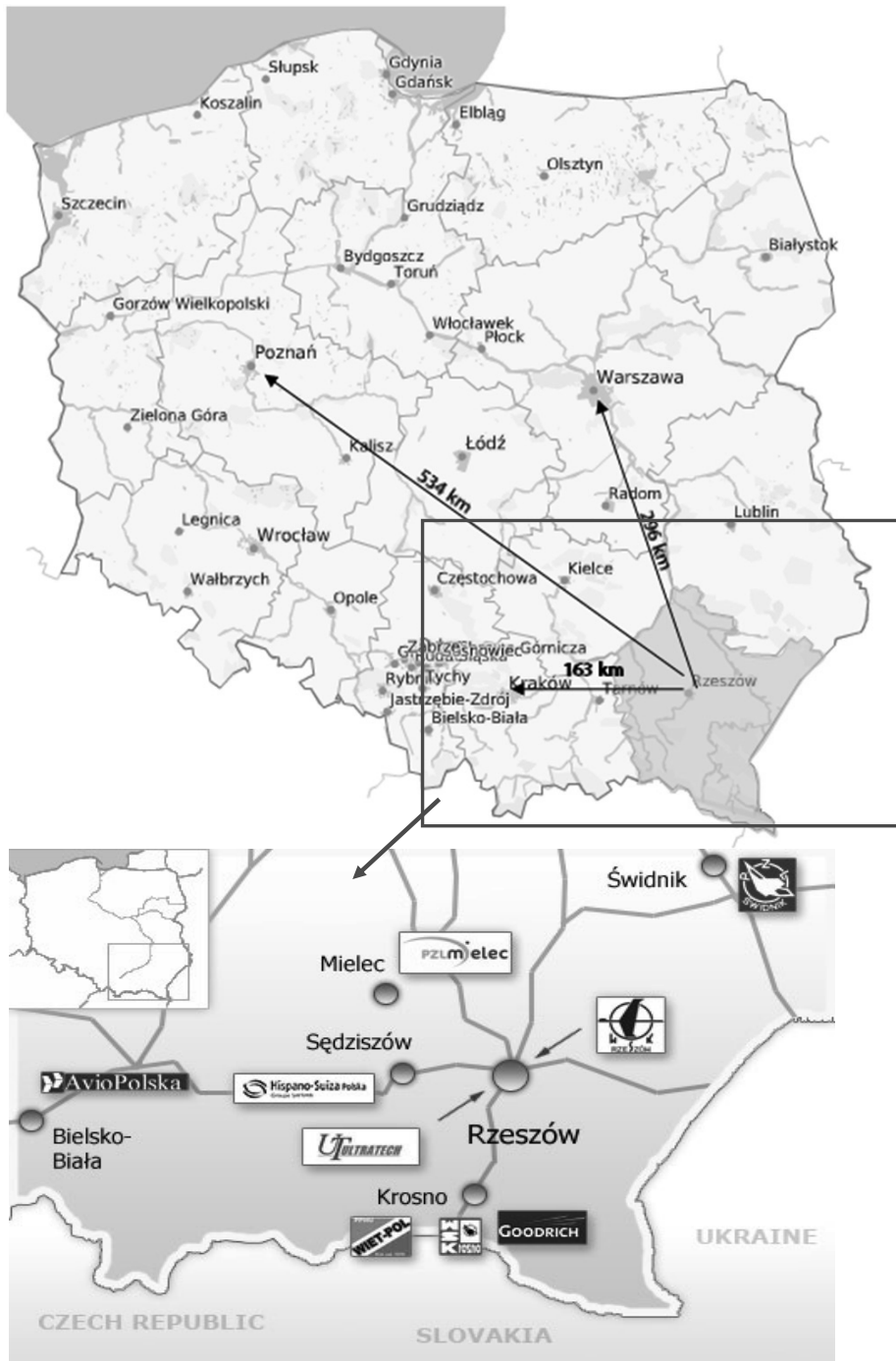


Figure 2 Territory of the embeddedness of aviation industry in Poland

Source: [http://aeronet.pl/img/dolina\\_1.jpg](http://aeronet.pl/img/dolina_1.jpg). Accessed 06.02.2015; *Cluster Benchmarking in Poland – 2010. Aviation Valley individual report*, Polish Agency for Enterprise Development, Warsaw 2010.

Location of the aviation industry plants in 1937 in Mielec and Rzeszów is considered the beginning of the dynamic development of aviation industry in today's Podkarpackie region. The tradition was continued after the World War II, by the creation of the network Wytwórnia Sprzętu Komunikacyjnego (WSK, a transport equipment enterprise), which manufactured a wide range of products related to transport. Among the most important locations of WSK one should mention: a Warsaw branch, specialized in sports, training, agricultural and multi-task aircraft, a Kalisz branch in the centre of Poland, specialized in aircraft engines (radial, turbine, turbopropeller) and flap steering systems for passenger aircrafts and three the following branches in south-east Poland:

1. Świdnik near Lublin (ca. 180 km from Rzeszów), specialized in the manufacturing of helicopters
2. WSK Mielec, established on the basis of the Mielec PZL plant, where primarily aircrafts under a Russian license were manufactured (the An-2 bi-plane and MIG-15 and MIG-17 jet airplanes), and since the 1960s their own training aircraft (TS-11 Iskra, and M-15 Belphegor)
3. WSK Rzeszow, which continued the business of the pre-war PZL plant manufacturing engines; the company produced engines for MIG-15 and MIG-17 jet airplanes and turbopropeller engines.<sup>25</sup>

Summing up, the development of aircraft and aviation industry in the Podkarpackie region and in south-east Poland, from the very beginning in the 1930s till the economic and political transformation that took place in Poland in the early 1990s, was driven by the state intervention and even by the state-owned companies. Referring to the Markusen's classification, this local production system can be considered as a state-anchored cluster – not surprisingly for this time of economic development and for this kind of industry. Changes that took place in the 1990s forced restructuring of the vast majority of companies (which was marked by overstaffing, low level of innovation and heavy dependence on eastern markets), as well as opened the Polish economy to foreign direct investment.

In other words, the post-1989 transition in Poland from a command economy to a free market system, did not spare Polish aviation industry and the region of the biggest concentration of companies and employment in this branch of the economy. As a result, the aircraft sector can currently be divided into the following groups, depending on type and historical background<sup>26</sup>:

- firms established as a result of the transformation of the former WSK enterprises into commercial companies – most of them owned fully or partially by global TNCs
- new firms established as a result of foreign direct investments
- firms still partially or fully owned by the State Treasury
- aviation companies in the SME sector.

One can observe that the most recent phenomenon in this case were huge spin-off practices, when employees of former state-owned big companies decided to run their own businesses continuing cooperation with mother activities. For example, the Aviation Valley near Rzeszow brings together 142 firms, scientific research units and other organizations, the majority of which are small private enterprises. Many small and medium companies in the aviation sector concentrate on innovation and designing and producing their own planes.<sup>27</sup>

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<sup>25</sup> PMR Research report 2009. *Report on...*, op. cit., p. 8.

<sup>26</sup> PMR Research report 2009. *Report on...*, op. cit., p. 9.

<sup>27</sup> PMR Research report 2009. *Report on...*, op. cit., pp. 7-15.

Table 2 Main data on leading aviation companies in Poland

Company	Employment		Income (millions PLN)		Income per 1 employee (millions PLN)	
	2009		2009		2009	
	2011		2011		2011	
WSK PZL-RZESZÓW, Pratt&Whitney (UTC)	4,000		770		0.19	
	3,800		933		0.25	
WSK PZL-SWIDNIK, AgustaWestland (Finmeccanica)	3,600		402		0.11	
	3,500		498		0.14	
PZL MIELEC, Sikorsky (UTC)	1,600		190		0.12	
	2,200		686		0.31	
Pratt&Whitney Kalisz, (UTC)	1,500		300		0.2	
	1,400		300		0.21	
WSK PZL-Kalisz	700		65		0.09	
	590		67		0.13	
Airbus Military EADS, PZL „Warszawa-Okęcie”	600		75		0.13	
	600		130		0.22	
Hamilton Sundstrand (UTC)	500		---		---	
	550		42		0.08	
Hispano Suiza (Safran)*	450		82		0.18	
	410		112		0.27	
AVIO Polska (Finmeccanica)*	400		158		0.4	
	440		368		0.84	
Goodrich Krosno	400		153		0.38	
	430		172		0.4	
MTU Aero Engines Poland	200		45		0.23	
	410		167		0.41	
Hamilton Sundstrand Rzeszów (UTC)	---		---		---	
	120		11		0.09	

Companies marked by Grey are member of Aviation Valley / rooted in LPS

Source: *Strategia badawcza przemysłu lotniczego 2012-2035 (Research strategy of aviation industry 2012-2035)*, version of 05.03.2015, p. 8. Available at:

[http://www.pptl.pl/download/Z2Z4L3BwdGwvcGwvZGVmYXVsdF9ha3R1YWxub3NjaS82LzE5LzE/strategia\\_20140305.pdf](http://www.pptl.pl/download/Z2Z4L3BwdGwvcGwvZGVmYXVsdF9ha3R1YWxub3NjaS82LzE5LzE/strategia_20140305.pdf). Accessed 06.02.2015

Today cluster is based mainly on the activity of large companies having long and territorially rooted history in the region (today owned by a transnational as an effect of *brownfield investment*), as well as large “newcomers”. However, more and more companies are small and medium-sized businesses, appearing in the Aviation Valley as an effect of spin-offs that started in the 1990s. Among other active actors of the cluster one can mention Technical University of Rzeszów (largely specialized in both research and education for the needs of aviation industry), Rzeszów Regional Development Agency and Regional Development Agency of Mielec. It is assumed that in the region there are ca. 75 companies operating in aviation industry, 50 of which are members of the cluster association.<sup>28</sup>

From the formal point of view, aviation industry’s local production system in Podkarpackie region formed a legal entity “Aviation Valley Association of Aviation Manufacturers”. It brings together the majority of aviation companies operating in Poland, including manufacturers of aircraft and aircraft components, their suppliers, aircraft research and development and logistics service providers, as well as educational institutions training future aircraft personnel.

As a result of the concentration of the Polish aviation industry in one specific part of the country, “Aviation Valley” is becoming a geographically descriptive term which covers the Podkarpackie region, though there are also member companies in the Lubelskie and Śląskie

<sup>28</sup> Radomska, E. 2011. Ocena funkcjonowania klastra Dolina Lotnicza. *Zarządzanie Zmianami Żeszyty Naukowe*, 1 (1), p. 11.



regions (Figure 2). Currently, south-east Poland is home to approximately 85% of all investments in the sector.<sup>29</sup>

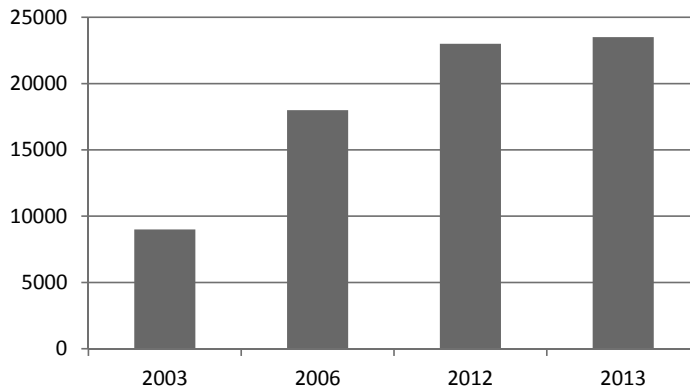


Figure 3 Number of employees in Aviation Valley  
Source: Own calculations , based on data from “Aviation Valley” Association.

The most important strategic aim of the association is to make south-east Poland a recognizable aviation region in Europe. To achieve this objective, a cluster is oriented towards supply chain development and strengthening cooperation between the aviation industry and science, supporting aviation industry enterprises, and taking efforts to adapt the educational system in the region for the needs of the sector. Furthermore, association has the ambitions to lobby the Polish economic policy in the areas of the aviation industry, attract new investors to invest their capital in the region, promote Polish aviation industry and the development of international cooperation in the European Union.<sup>30</sup>

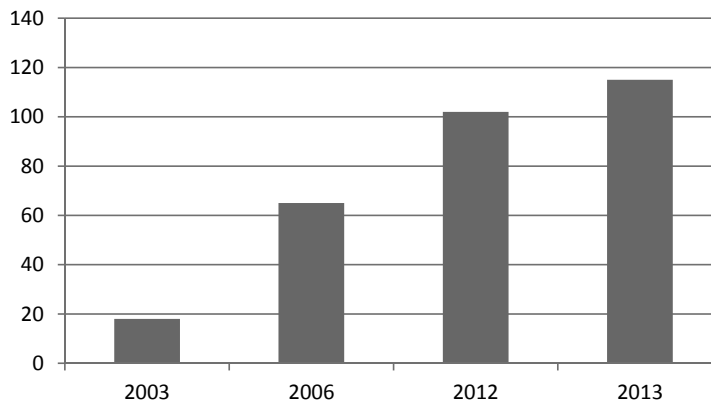


Figure 4 Number of companies in Aviation Valley  
Source: Own calculations , based on data from “Aviation Valley” Association

<sup>29</sup> PMR Research report 2009. *Report on...*, op. cit., p. 25. It worth noting that second, by the size, cluster-type organization in aviation sector in Poland – Silesian Aviation Cluster – is a smaller association of 18 companies from the area of Bielsko-Biala (city in southern Poland) with revenues at the level of 80 million euro and about 700 employees. However, The Silesian Aviation Cluster cooperates closely with the Aviation Valley Association (all members of the Silesian Aviation Cluster are also members of the Aviation Valley Association)

<sup>30</sup> Pilecki M., 2007. *Dolina Lotnicza. Innowacyjny klaster przemysłowy*, presentation for the Conference *Clusters in Poland. Synergy effect* (pl. *Klustry w Polsce. Efekt synergii*), Warsaw: Polska Agencja Informacji i Inwestycji Zagranicznych.

Companies and other organizations members to the Aviation Valley LPS, employ nowadays more than 23,000 people. It places it among 25% of clusters with the biggest employment rate in Poland, as well as the biggest number of members.<sup>31</sup>

### 3 BENCHMARKING OF AVIATION VALLEY PERFORMANCE

As one of the most recognizable local production systems in Poland, Aviation Valley is a subject of continuous benchmarking exercise carried out by Polish Agency for Enterprise Development.<sup>32</sup> It is worth noting that Aviation Valley results do not differ significantly from the level represented by the best clusters in Poland.

Among the main success factors in of the Aviation Valley, as indicated by representatives of the cluster themselves, we can find extremely long traditions of aerospace industry in the region. Another factor that testifies to the success of the cluster are human resources and infrastructure. An essential factor for the functioning of the cluster was also financial support to foreign companies in the initial period of operation, and the lack of impact of politicians on the development of this industry. So impressive effects translate into increasing confidence and greater cooperation among cluster participants.

Among the most important advantages of Aviation Valley one should mention undoubtedly those which are strongly connected with the traditions of aviation industry in the region and big concentration of companies of the same industry leading to huge agglomeration economies. These territorially tied strengths have been effectively transformed by the cluster to other ones, such as modern research and production facilities or internationally recognizable brand. Among only few disadvantages one can mention narrow specialization or still not many joint initiatives of LPS members (see Table 3).

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<sup>31</sup> Data based on the interview made for the needs of benchmarking of clusters in Poland made by Polish Agency for Enterprise Development. For more details see: [http://www.pi.gov.pl/eng/chapter\\_95809.asp](http://www.pi.gov.pl/eng/chapter_95809.asp). Accessed 16.02.2015.

<sup>32</sup> First benchmarking took place in 2010, with the participation of 47 Polish clusters (PARP 2010. *Cluster Benchmarking in Poland – 2010. Survey report*. Warsaw: Polish Agency for Enterprise Development; [http://www.pi.gov.pl/PARPFiles/file/klastry/Benchmarking\\_klastrow/Benchmarking\\_klastrow\\_2010\\_raport\\_PO\\_korekcje\\_jezykowej\\_en\\_01\\_12\\_2010.pdf](http://www.pi.gov.pl/PARPFiles/file/klastry/Benchmarking_klastrow/Benchmarking_klastrow_2010_raport_PO_korekcje_jezykowej_en_01_12_2010.pdf). Accessed 16.02.2015), while the last one (third edition) in 2014, with the participation of 35 LPS (Plawgo, B. (ed.) 2014. *Cluster Benchmarking in Poland – Edition 2014. General Report*, Warsaw: Polish Agency for Enterprise Development; [http://www.pi.gov.pl/PARPFiles/file/news/20150205\\_Cluster\\_benchmarking\\_in\\_Poland\\_2014\\_calosc.pdf](http://www.pi.gov.pl/PARPFiles/file/news/20150205_Cluster_benchmarking_in_Poland_2014_calosc.pdf). Accessed 06.02.2015)

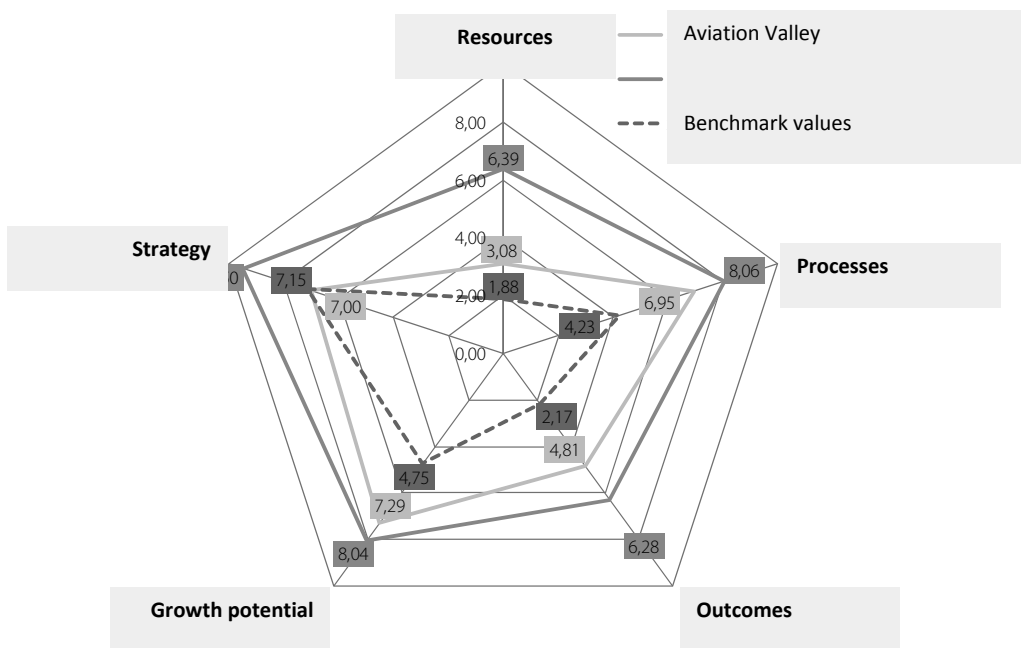


Figure 5 Results of Aviation Valley at the main areas of benchmarking  
 Source: PARP 2010. *Cluster Benchmarking in Poland – 2010. Aviation Valley individual report.*  
 Warsaw: Polish Agency for Enterprise Development.

Table 3 Success factors and strategic conditions for the development of Aviation Valley

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>– Big concentration of aviation industry companies in the region</li> <li>– Long traditions of aviation industry</li> <li>– Awareness and attachment of the local community to the traditions the aviation industry</li> <li>– Internationally recognizable brand</li> <li>– Large and modern research and production facilities</li> <li>– Strong cooperation between industry and R&amp;D sector</li> <li>– High level of engagement of TNCs in cluster activities</li> <li>– High level of cluster internationalization</li> <li>– Good relations with regional and local authorities, especially in the sphere of adaptation of educational programs to the needs of the economy</li> </ul>	<ul style="list-style-type: none"> <li>– A large share of external sources of financing</li> <li>– Membership restricted to companies in the sector (high entry barriers)</li> <li>– No joint procurement despite similar production profile of the cluster companies</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>– The increase in cross-border cooperation ties with Slovakia and Ukraine</li> <li>– The availability of EU funds for the development of cluster initiatives and innovation projects</li> <li>– Favourable conditions for foreign investors in Poland</li> <li>– Positive image of the airline industry</li> </ul>	<ul style="list-style-type: none"> <li>– Limited access to financing from business environment institutions</li> <li>– Outflow of young people to other regions</li> <li>– Peripheral location of the region</li> </ul>

Source: Own study.

Finally, there are also some positive external conditions for the development of Aviation Valley. Among these opportunities one can mention intensified cross-border cooperation ties with Slovakia and Ukraine, availability of EU funds for the development of cluster initiatives

or big attractiveness for branches of transnational companies, which are important driving force for the development of this kind of local production systems. Among a few threats elements like limited access to market financing, depopulation in the region, and its peripheral location in the country, can be mentioned.

Aviation Valley belongs unquestionably to one of the most competitive LPS in Poland and in Central and Eastern Europe. It both contributes to the improvement of competitive position of Podkarpackie region, as well as benefits from good interdependencies with its territorial environment. However, an important question for its future is a question about the level of its current and potential territorialization.

#### **4 FROM THE AGGLOMERATION TO EMBEDDEDNESS OF AIRCRAFT INDUSTRY IN THE REGION**

Among the most important initial starting points to take into consideration the question about the territorialisation of enterprises operating in the Aviation Valley one should mention the concentration of this industry in the region itself.<sup>33</sup> It is assumed, that enterprises located in Podkarpackie region realize approximately 90% of production in the aerospace industry in Poland. In consequence in 2014, the “Aviation Valley” association itself brought together over 100 companies, employing 23,000 people and generating the revenue of over two billion US dollars.<sup>34</sup>

Another embeddedness factor derives from the industrial history of the region, which started almost 100 years ago and managed to adapt continuously to changing political and economic environment. It resulted in the specific industrial atmosphere, encoded in employees’ competencies, preparedness of people to educate in fields related to this branch of industry, and territorially rooted collective memory. In addition, a natural process in the airline industry in south-east Poland was to create a network of cooperation in the Aviation Valley, based on the geographical, cognitive, social, organizational and institutional proximity.<sup>35</sup>

However, what really makes this LPS distinctive in the context of territorialization, is strong and effective interactions not only within but also between companies and the public sector, primarily in the field of technical education. One of interesting best practices in this field is a strong cooperation with vocational schools in the region, in order to solve the problem of the decreasing number of well-qualified staff, especially numerical machines operators. In the first stage, it was about forming triple connections (one patron enterprise and two schools), engaging in adjusting teaching programs to the needs of the regional labour market. This practice was followed but in a more institutionalized form of cooperation, the so called “Operators Training Centres”, financed additionally by the EU Regional Development Fund. A project aims at organizing training cycles and internships for teachers, as well as practical training for students of technical secondary schools. What is important, the teaching process is performed using modern equipment purchased for educational institutions from

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<sup>33</sup> Being aware that concentration itself is not a sufficient condition to consider the phenomenon of a cluster, it is undoubtedly a prerequisite condition. Identifying this concentration is the initial phase of the study (Isard, W. 1965. *Metody analizy regionalnej. Wprowadzenie do nauki o regionach*. Warsaw: Polish Scientific Publishers PWN), and leads to Marshallian agglomeration economies, resulting in: 1. Emergence in a labor market rich in qualified workers, 2. Easy access to companies manufacturing particular goods or rendering specific services within forward and backward cooperation linkages, and 3. Information and tacit knowledge spillovers referred to by A. Marshall as „industrial atmosphere” and leading to better innovativeness (McCann, Ph. 2001. *Urban and Regional Economics*, Oxford University Press, pp. 55-57; based on: Marshall A. 1890. *Principles of economics*. London: Macmillan).

<sup>34</sup> <http://biznes.onet.pl/wiadomosci/przemysl/przemysl-lotniczy-tetni-zyciem/7xjcb>. Accessed 18.02.2015

<sup>35</sup> See: Boschma, R. A. 2005. Proximity and Innovation: a Critical Assessment. *Regional Studies*. 39(1), p. 71.

both public funds and funds from the Aviation Valley enterprises. At the same time, the facilitator of the “Aviation Valley” association organizes a series of study visits of its members to recognized training centres for the aviation industry in Europe to meet the best practices that could be applied also in Poland. The implementation of these initiatives in the Podkarpackie region resulted in a network of learning centres at the highest quality level, where practical training takes place in conditions as close as possible to the conditions in the actual aviation industry plants. In consequence, Aviation Valley LPS contributes significantly to the permanent improvement of the level of practical training in modern manufacturing technologies, upgrading teaching to the needs of the local and regional labour market and to increasing the mobility of graduates.<sup>36</sup>

Additionally, since 2004 Aviation Valley carries out activities to promote the aviation sector in the labour market. They consist mainly in placing billboards in universities and in TV advertisements intended to encourage engineering studies. Such activities are designed to provide the cluster with the access to well educated staff in the future. The above examples show the extent, to which Aviation Valley engages in building human capital competence in the region, creating environmentally friendly branch of industry. Joining together the aims of the companies and the long-term development aims of the region provides evidence of high level of their territorial embeddedness.

Another important example of territorialisation is building cooperation ties among business and R&D representatives. In case of Aviation Valley it takes a form of a consortium: Centre for Advanced Technologies “AERONET – Aviation Valley”, being a platform of enterprises, research centres and universities. Among many results of its activity one can mention<sup>37</sup>:

- Materials Research Laboratory for Aviation Industry
- Advanced technology demonstrator–“flying” research platform
- Advanced technology demonstrator – on-board equipment
- Regional foresight<sup>38</sup> exercise – Trends of Development Technologies for the Needs of Aviation Valley Cluster
- Modern material technologies used in the aerospace industry.

One can argue that as a result of this project, Aviation Valley is today an example of Polish local production systems, where the level of institutionalization (both formal and informal) is one of the highest in Poland. High density of linkages and high level of both traded and untraded interdependencies, bode well for an even stronger embeddedness of cluster companies in this territorial set of socio-economic relation.

## CONCLUSION

Referring to A. Markusen’s typology of local production systems one should undoubtedly claim that Aviation Valley is a type “built” around large, dominating companies.

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<sup>36</sup> Plawgo B. (ed.) 2014. *Benchmarking klastrów w Polsce – edycja 2014. Raport ogólny*. Warsaw: Polish Agency for Enterprise Development, p. 141.

<sup>37</sup> PARP 2010. *Cluster Benchmarking in Poland – 2010. Aviation Valley individual report*. Warsaw: Polish Agency for Enterprise Development.

<sup>38</sup> A set of various tools used for the prediction of development trends (European Commission 2001. *Practical Guide to Regional Foresight, FOREN Network (Foresight for Regional Development)*, European Commission Research Directorate General, STRATA Programme, December). It is a systematic way of assessing future trends, technical and technological capabilities, resulting from recent scientific developments that may have a strong impact on society and its future development. It is also defined as a dialogue aimed at identifying technologies that can have economic and / or social significance (Piasecki, B. 2004. *Pierwsze kroki w foresight, [in:] Regionalna strategia innowacji – foresight regionalny. Prace Instytutu Badań nad Przedsiębiorczością i Rozwojem Ekonomicznym*, no. 1, p. 9).

However, one can observe positive evolution of relations of these companies with their regional environment over the years (Figure 6).

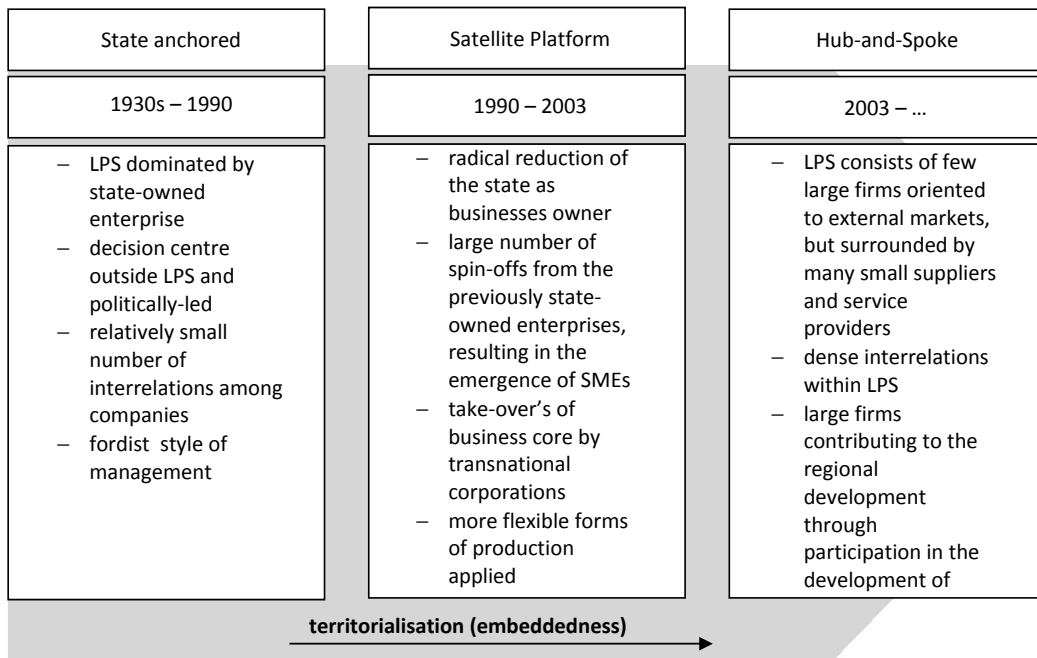


Figure 6 Evolution of Aviation Valley LPS

Source: Own composition, based on desk research and study visit observations and interviews (18.11.2014).

In the first stage of LPS development, in times of building the aviation industry in the territory, one could speak of an agglomeration of companies that was rapidly transformed into “state anchored industrial district”. This geographic concentration was mainly an effect of the activity of one big enterprise, namely Państwowe Zakłady Lotnicze (PZL – State-Owned Aircraft Plant). Being a part of a bigger national structure, controlled by the government located in Warsaw, it made this LPS dependent on political conditions. The situation continued also after the end of the World War II. In real socialism times, this fordist style management with relatively weak internal links within LPS, was still the main feature of the Aviation Valley.

Radical change took place after the collapse of the socialist system, followed by the radical reduction of direct engagement of state in the economic activities. This trend did not omit Polish aviation industry. In consequence, companies in Podkarpackie region were either liquidated or taken over by western transnational companies. The latter were attracted to Poland and to the region not only by the possibility of gaining new markets and new resource through brownfield investment, but also by active pro-investment policy. Moreover, closing of some companies or their reduction resulted in huge number of spin-offs, resulting in the emergence of SMEs who at the very first stage did not build strong linkages with dominating companies. So, the 1990s can be named as the times when the LPS operated as a satellite platform.

The beginning of the 21<sup>st</sup> century was the time of practical application of the idea to support cluster initiatives in Poland. In case of Podkarpackie, it led to the formalization of increasingly stronger interrelations, which resulted in the establishment of “Aviation Valley” association. At this time, LPS already consists of few large firms oriented to external markets

but surrounded by many small suppliers and service providers. Also, an association facilitates relations among business, R&D institutes, universities, as well as local and regional authorities. From the very beginning, among key actors in the Aviation Valley we could find branches of transnational companies. Engagement of large firms in the development of human capital and building common territorial brand can be perceived as a way of their territorialization, leading to forming a hub-and-spoke LPS in Podkarpackie. There is no doubt the case of Aviation Valley is one of best examples of embedding global actors in territorial processes, and local production system described here was main driver of this tendency.

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### **Contact information**

Mariusz E. SOKOŁOWICZ, Ph. D.  
Department of Regional Economy and Environment  
Institute of Spatial Planning  
The Faculty of Economics and Sociology  
University of Lodz  
Rewolucji no. 39 Street  
90-214 Lodz  
Poland  
Email: sokol@uni.lodz.pl

# DEVELOPMENT AND MANAGEMENT OF CLUSTER INITIATIVES. THE CASE STUDY IN BULGARIA

SLAVOVA Irena

## Abstract

Many publications discuss in detail academic and well-defined approaches for developing, creating and managing cluster processes. In almost all regions of the world the number of cluster initiatives grows, and new formations, the majority of which have a short lifespan, emerge. This raises the issue of the effectiveness of efforts to develop clusters, the types of cluster initiatives and their management, aimed at improving clusters' growth and competitiveness.

The paper presents the specificity in the development and management of the *Srednogorie Med* mining cluster's initiatives – one of the first and successfully functioning clusters in Bulgaria, created on the basis of the regional-industrial principle.

**Key words:** cluster initiatives, mining cluster; management; fields of action

## INTRODUCTION

The role of clusters in the economic development, competitiveness and innovations has been substantiated many times in numerous academic and practical surveys.<sup>1</sup> Cluster initiatives are an element of EU and national government policies; an accepted part of many countries' economic development. According to Michael Porter, "Hundreds of cluster initiatives have been launched involving virtually all regions of the world, and the number is growing. These initiatives, which take a wide variety of forms, are now an accepted part of economic development. However, we have surprisingly little systematic knowledge of these initiatives, their structure, and their outcomes. As more and more resources are devoted to efforts to foster cluster development, the need to understand best practices has become urgent."<sup>2</sup>

The existence of clusters is well-received, but the possibility for influencing their formation and growth through purposeful activities remains controversial. Efforts to develop clusters do not always have a positive economic influence, and often the financial mechanisms used by governments in many countries to support cluster development spark an interest in creating new cluster formations with the sole purpose of receiving project funding (most often from the European funds). Such a situation is observed in Bulgaria, where the number of clusters is exceptionally great. This makes cluster initiative research imperative, and calls their effectiveness, development and management into question.

The paper is organized as follows:

Firstly, the nature of cluster initiatives, their variety and common traits are clarified. The most often used in theory and practice classifications of the types of initiatives are presented.

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<sup>1</sup> Delgado, M.; Porter, E. M.; Stern, S., Clusters and entrepreneurship, Journal of Economic Geography, 2010; Delgado, M.; Porter, E. M.; Stern, S., Clusters, convergence and economic performance. Boston: Institute for Strategy and Business Competitiveness, Harvard Business School, 2011.

<sup>2</sup> Sölvell, Örjan, Göran Lindqvist and Christian Ketels. *The Cluster Initiative Greenbook*, p.5  
<http://www.cluster-research.org/greenbook.htm>

Secondly, cluster development in Bulgaria is studied and the existing problems are outlined. Thirdly, the specificity of initiatives of the mining cluster in Bulgaria, their development and management are analyzed. The *Srednogorie Med* industrial cluster is one of the first and one of the successfully working Bulgarian clusters, created in 2005 on the basis of the industrial-regional principle. The view is advocated in the article that cluster initiatives need to be aligned with the cluster's main characteristics, its geographical positioning and industrial specificity.

## 1 DEFINITIONS AND CHARACTERISTICS OF CLUSTER INITIATIVES

In academic literature and the conducted empiric surveys in the area of cluster development there is a number of definitions about cluster initiatives, which do not differ in nature. "Cluster Initiatives are organised regional sectorial networks among economic partners aiming at improving innovation performance and international competitiveness. Cluster Initiatives = "tool for innovation policy"<sup>3</sup>. In this definition, cluster initiatives are identified and examined as an instrument for innovative policy. Through the implementation of diverse cluster initiatives the cluster's growth and competitiveness are improved.

One of the most commonly used definitions for cluster initiatives comes from the authors Örjan Sölvell, Göran Lindqvist and Christian Ketels, and is presented in their book called "The Cluster Initiative Greenbook". "Cluster initiatives are organised efforts to enhance the competitiveness of a cluster within a region, involving private business, public bodies and/or academic institutions within a regional and sectorial system."<sup>4</sup>

This understanding of cluster initiatives has a wider range and places focus on the participation and joint efforts of various interested parties/participants in the cluster – the business' representatives /the companies forming the cluster, government institutions and local power, as well as the academic community. The purpose of cluster initiatives is to increase the cluster's growth and competitive power. This definition of cluster initiatives also serves as a starting point in our study.

The cluster theory underlines the uniqueness of local conditions and there are, accordingly, considerable differences in the aims and structure of cluster development efforts. Many surveys establish the existence of a number of varieties in cluster initiatives in different countries, but they also identify their common traits. Classifying cluster initiatives in different groups is necessary and beneficial, because it is used as a basis for orientation in how successfully clusters function and what stage of development they are at.

There are different classifications for cluster initiatives. In the Cluster Initiative Performance Model the initiatives are differentiated in three areas: objectives of the cluster initiative; social, political and economic setting within the nation; and the process by which the cluster initiative develops.<sup>5</sup>

According to Ketels et. al (2005), typical cluster activities include<sup>6</sup>:

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<sup>3</sup> CLOE. (2006) *Cluster Management Guide – Guidelines for the Development and Management of Cluster Initiatives*, p.8. [Online] Linz: TMG. Available from: [http://www.interreg4c.eu/uploads/media/pdf/2\\_Cluster\\_Management\\_Guide\\_CLOE.pdf](http://www.interreg4c.eu/uploads/media/pdf/2_Cluster_Management_Guide_CLOE.pdf)

<sup>4</sup> (Örjan Sölvell, Göran Lindqvist and Christian Ketels, *The Cluster Initiative Greenbook*, Ivory Tower AB, 2003, p. 9)

<sup>5</sup> (Örjan Sölvell, Göran Lindqvist and Christian Ketels, *The Cluster Initiative Greenbook*, Ivory Tower AB, 2003, p.9)

<sup>6</sup> Ketels, Christian, Göran Lindqvist and Örjan Sölvell. "Cluster Initiatives in Developing and Transition Economies." 2005, p.19. <http://www.cluster-research.org/devtra.htm>

Business environment: investment in specialized infrastructure, regulatory and policy reform.

Intelligence: dissemination of information and data on cluster-specific business, economic and technological trends.

Joint sales: promoting foreign sales, branding of the region, branding of products.

HR upgrading: technical training, management training, production process improvement, development and certification of technical standards, university and vocational curriculum improvement.

Joint production: supply-chain development, bundled production, joint logistics, joint purchasing.

Firm formation: specialized business services, spin-off and investment promotion.

R&D: joint R&D projects, commercialization of academic research.

In another survey cluster initiatives are differentiated in five areas of action: Information and Communication; Training and Qualification; Marketing and PR; Co-operations; Internationalization.<sup>7</sup>

The aforementioned classifications do not contradict each other; each of them offers a different view on the grouping of various cluster initiatives. We defend the view that the initiatives being realized must be in conformity with the cluster's main characteristics, its geographical positioning and industrial specificity.

## 2 CLUSTER DEVELOPMENT IN BULGARIA

During the 1990s many EU countries began adopting cluster oriented measures for increasing the industry's ability to make innovations and increase national competitiveness. Numerous studies show that in different states clusters arise in different periods of time. According to a study conducted by the European Observatory for Clusters<sup>8</sup>, the policy for clusters in different states begins to materialize in different periods – from 1990-1994; 1995-1999; 2000-2004 and 2005 until now. Most states began to use the term in 1990-1994 and in 2000-2004. Taking into account the fact that about half the states first began to practice cluster policy from 2000 to present day, the policy in this area is still in its early stages in many countries, while it is in a more advanced stage in others.

According to a research done by S. Barsoumian, A. Severin and T. Van Der Spek<sup>9</sup> in a number of EU countries – Germany, Finland, The Netherlands, Austria, Denmark and Spain – the cluster policies were already made prior to the year 2000. In the 2000-2005 period the Czech Republic, France, Greece, Ireland, Luxembourg, Malta and Slovakia began to build a policy based on clusters, while in Portugal and the new member states of the EU – Latvia, Lithuania, Estonia, Poland, Romania, Bulgaria, etc., such a process was noticed after 2005.

The history of Bulgarian clusterization began in 2003-2004, when the first two clusters are created; unfortunately, they have discontinued their activities. The majority of clusters in Bulgaria are the result of financial initiatives/mechanisms for supporting clusters in Bulgaria, realized for the PHARE Programme and the Operational Programme "Development of the Competitiveness of the Bulgarian Economy".

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<sup>7</sup>CLOE. (2006) *Cluster Management Guide – Guidelines for the Development and Management of Cluster Initiatives.*, p.20, [Online] Linz: TMG. Available from: [http://www.interreg4c.eu/uploads/media/pdf/2\\_Cluster\\_Management\\_Guide\\_CLOE.pdf](http://www.interreg4c.eu/uploads/media/pdf/2_Cluster_Management_Guide_CLOE.pdf)

<sup>8</sup>Cluster policy in Europe, Oxford Research, 2008 [www.clusterobservatory.eu/...eco/.../getpdf.jsp](http://www.clusterobservatory.eu/...eco/.../getpdf.jsp)

<sup>9</sup>Z. Garanti et al. *Cluster concept in policy planning documents: the cases of Latvia and Northern Cyprus Business: Theory and Practice*, 2014, 15(2), p. 134 [www.btp.vgtu.lt/index.php/btp/article/...13/pdf](http://www.btp.vgtu.lt/index.php/btp/article/...13/pdf)

With the purpose of increasing Bulgarian economy's competitiveness and preparing Bulgaria for EU membership, a strategy for developing clusters (the only one at the time) within the PHARE Programme was first worked out and a number of pilot cluster projects were carried out: "Introducing a Cluster Approach and Establishing a Pilot Cluster Model" and "Cluster Development Initiatives – Phase II", activities on which began in July 2005 and ended in April 2009.

Another, much more significant in size, financial resource in support of cluster development is from the Operational Programme "Development of the Competitiveness of the Bulgarian Economy" for the 2007-2014 period (Sub-priority 4 of priority axis 2). The possibilities for receiving project funds for the Operational Programme "Development of the Competitiveness of the Bulgarian Economy" led to the creation of a large number of newly-emerging clusters in Bulgaria, with a large portion of the registered affiliations are in the service area (sports, finance, consulting activities, etc.). By late 2013, official databases showed that there are over 230 clusters registered in Bulgaria (according to Trade Registry and BULSTAT data).

The Association of Business Clusters (ABC) points out that by the end of 2012 alone 86 "clusters" have been registered in Bulgaria, which significantly exceeds the total number of clusters in other states.<sup>10</sup> Compared to Romania, which is twice the size of our country, and has twice as many firms, it has four times less clusters – about 50, with the active ones being no more than a dozen. In neighboring Serbia, which is commensurable with Bulgaria, there are about 30 clusters, with five or six being active. In Austria clusters are also about 30, in Germany – 107, in France – 102. The data comes from the ABC.

Experts endorse the opinion that financial mechanisms supporting cluster development cause the artificial creation of such structures. Due to the lack of current analyses on the state of Bulgarian clusters, there is no accurate information about the number of actual active clusters. The majority of registered "clusters" do not respond to M. Porter's widely accepted in theory and practice definition of a cluster - "geographic concentrations of interconnected companies and institutions in the particular field, linked by common technologies and skills"<sup>11</sup>

According to representatives of the Association of Business Clusters (eng. Ventsislav Slavkov, chairman of the Board of cluster "Mechatronics and automation") one of the main reasons for the emergence/registry and decline of clusters is related precisely to the fact that usually a cluster structure is formed with the sole purpose of acquiring project funds without an internal necessity for interaction between the firms themselves. And internal relations are mainly built on trust, which is based on long-term cooperation. It is precisely the lack of internal trust and interaction that separates clusters from associations. At the base of the cluster should be the economic benefits, the economic necessity and the economic principles of interaction between firms.<sup>12</sup>

In relation to the existing problems connected to Bulgarian cluster development and the financial mechanisms supporting clusters as a source of increasing Bulgarian economy's competitiveness, the ABC deems it imperative that the Bulgarian Ministry of Economy introduce a system of accrediting Bulgarian clusters, as well as differentiating aid measures in relation to the different stages of development of cluster organizations. The ABC underlines

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<sup>10</sup> Cluster practices in Bulgaria, 2013. Published by the Ministry of Education, Youth and Science, 18, [s2b.mon.bg/i/buletins/BULLETIN\\_BROJ\\_8\\_Final.pdf](https://s2b.mon.bg/i/buletins/BULLETIN_BROJ_8_Final.pdf)

<sup>11</sup> Porter, M. E. (1998) *Clusters and the New Economics of Competition*. Harvard Business Review Database 76 (6). p. 77-90. Available from: <https://hbr.org/1998/11/clusters-and-the-neweconomics-of-competition/>

<sup>12</sup> Cluster practices in Bulgaria, 2013. Published by the Ministry of Education, Youth and Science, p. 14 [s2b.mon.bg/i/buletins/BULLETIN\\_BROJ\\_8\\_Final.pdf](https://s2b.mon.bg/i/buletins/BULLETIN_BROJ_8_Final.pdf)

the necessity for change in the conditions and requirements for renewing such procedures for the Operational Programme “Innovations and Competitiveness” 2014-2020, by seeking interaction with competent NGOs and the business in order to guarantee successful participation in the EU’s new program scheme for 2014-2020.<sup>13</sup>

The European Commission also takes notice of the increasing number of artificially created cluster initiatives in a number of member states and expresses its position on the necessity to employ a market approach when it comes to creating and supporting clusters in the EU. “The Commission’s market approach is also apparent in the undertaken engagement to avoid unsteadily large numbers of artificially created cluster initiatives. In other words, the purposeful policy for stimulating the formation of clusters goes hand in hand with the willingness to exclude un-competitive and non-perspective clusters from the circle of potential subsidy beneficiaries. In order to prevent the ineffective use of funds and even the blocking of newly-formed clusters, every new cluster initiative must be carefully developed and supported with market foresight as well as solid analysis of the regional competitive advantages, the specific knowledge available and local level expertise.”<sup>14</sup>

### **3 DEVELOPMENT AND MANAGEMENT CLUSTER INITIATIVES. THE CASE STUDY OF THE SREDNOGORIE MED INDUSTRIAL CLUSTER**

The cluster theory emphasizes the uniqueness of local conditions and there are, therefore, fundamental differences in the aims and structure of the cluster development efforts.

The specificity of developing and managing the initiatives of the *Srednogorie Med* mining cluster – one of the first and successfully developing clusters in Bulgaria is presented in this section of paper. The specific character of the extractive cluster’s initiatives is derived from the cluster’s main characteristics, its geographical position and industrial specificity.

#### **3.1 Background**

Cluster initiatives are usually initiated by the industry leaders, the government and the academia. The government holds an important role from the standpoint of financing and ensuring at least some level of organization maintenance. Usually, firms are the most influential participants when it comes to creating the cluster, developing and managing its initiatives. Such is the case with the *Srednogorie Med* mining cluster, created on the basis of the industrial-regional principle in 2005 as part of an initiative by the Central Srednogorie region’s leading industrial enterprises: *Assarel-Medet JSC*, *Aurubis Bulgaria JSC*, *Elatsite-Med JSC* and *Chelopech Mining Ltd*<sup>15</sup>.

The positioning of the leading companies in the Srednogorie region is defined by the region’s geographical characteristics, more specifically the presence of rich copper and gold ore deposits. Long-term experience, history<sup>16</sup> and traditions in the extraction and processing of copper and gold-containing mines in the region contribute to the *Srednogorie Med* cluster’s attainment of a regional identity.

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<sup>13</sup> Association of Business Clusters [http://abclusters.org/wp-content/uploads/2013/03/Stanoviste-ABC\\_pressconference-BTA-18.09.13.pdf](http://abclusters.org/wp-content/uploads/2013/03/Stanoviste-ABC_pressconference-BTA-18.09.13.pdf)

<sup>14</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0652:REV1:en:PDF>

<sup>15</sup> The *Dundee Precious Metals* company changed its corporate identity and all of its filial associations also include the name their place of operations. The *Chelopech Mining JSC* extractive company changed its name to *Dundee Precious Metals Chelopech*.

<sup>16</sup> Ore extraction in this region of Bulgaria began after World War II. The development of the copper-porphyry deposits of Medet, Elatsite and Assarel began in the early 1950s.

Apart from the companies that mine and process copper and gold-containing ores, members of the *Srednogorie Med* cluster include the related-to-the-mining-industry firms of *Geotechmin JSC*, *Optics JSC*, *Opticoelectron JSC*, *Eurotest-Control JSC*, *Air Liquide Bulgaria JSC*, *Energeo JSC*, as well as firms from the high-tech companies that produce optic, optic-mechanic and optic-electronic systems and products servicing manufacture firms. These are *Optics JSC* (Panagyurishte), *Opticoelectron JSC* (Panagyurishte).

Practice shows that efforts to develop clusters are much more successful when the business community has a higher level of trust in the government and when influential local governments make decisions to participate in the initiative. This is typical of the cluster whose active members are the representatives of local power in the municipalities of Anton, Zlatitsa, Mirkovo, Panagyurishte, Pirdop, Chelopech, Chavdar and Strelcha.

Representatives of research and educational organizations in the cluster are the *Center for management and professional training JSC*, Panagyurishte, the *University of Mining and Geology* “St. Ivan Rilski, Sofia.

The *Srednogorie Med* cluster carries out its activities in partnership with associations: *Bulgarian Mining-Geology Chamber*; *Bulgarian Association of the Metallurgical Industry*; *American Chamber of Commerce in Bulgaria*; *Die Deutsch-Bulgarische Industrie- und Handelskammer*; *Association of Business Clusters* and universities: *The Sofia University* “St. Kliment Ohridski”, *The National Defence Academy* “G. S. Rakovski”.

### ***The cluster’s role in the economic development of the state and the region***

Among the members of the cluster are mining companies *Asarel-Medet JSC*, *Elatsite Copper JSC*, *Dundee Precious Metals Ltd* – the primary and only enterprises in Bulgaria that mine and process copper and gold-containing ores, which shows *Srednogorie Med*’s leading role in the development of the mining industry, as well as the development of non-ferrous metallurgy (*Auburus JSC* – one of the leading companies in the cluster is the only processor of copper in Bulgaria). Indicators for the cluster’s defining role in the mining industry is the biggest share of metal mineral mining (with a permanent production) in the total worth of the production of mineral-raw material industry for 2011-2013 – about 60%.<sup>17</sup>

Industrial companies are predominantly export-oriented and have a structure-defining significance for Bulgarian economy with an important contribution to the state’s GDP and the development of technological innovations. They are among the major employers, investors and tax payers. The cluster’s members generate approximately 8% of the state’s GDP and provide over 8000 jobs.

For the majority of municipalities on whose territory copper and gold-containing ores are being mined, members of the cluster have a defining role in their economic development as well as the region’s development. Typical for the cluster is urban fragmentation: small population and remote settlement systems with limited potential for development, weak economic activity, poor demographic characteristics (shrinking and aging population). The large companies are the main and only alternative for economic development in the most of the municipalities, cluster’s members (especially for the smaller municipalities – Chelopech, Mirkovo, Chavdar, Anton).

## **3.2 Management**

The cluster’s functioning is realized in conformity with the Statute of the “*Srednogorie Med* Industrial Cluster” non-profit association. The cluster’s governing bodies include a general assembly, a management board (consisting of representatives of the leading firms for mining and processing of copper and gold-containing ores (*Asarel-Medet JSC*, *Elatsite*

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<sup>17</sup> Based on data from The Mineral Raw Material Industry in Bulgaria in 2012, Yearly Bulletin, 2013 p. 20-21

*Copper JSC, Dundee Precious Metals Ltd, Aurubis Bulgaria JSC* ) and mayors of the cluster's member municipalities), and an executive director.

The cluster's operative activities are carried out by the executive director and two employees with the respective competencies.

In order to strengthen the interrelations between the cluster's members, functional committees have been created which concentrate on the following areas: environment and sustainable development, healthy and safe working conditions, supply chain management and logistics, energy efficiency and energy management, development of human resources and education, research and technical development.

### ***Financing***

The cluster's activities are funded through membership dues as well as projects financed by the EF. The "*Srednogorie Med Industrial Cluster*" Affiliation is carrying out a project: "Strengthening the Administrative Body and Popularizing the *Srednogorie Med Industrial Cluster*" for the Operational Programme "Development of the Competitiveness of the Bulgarian Economy" from 2013.

According to the cluster's executive director Nikolay Minkov the fulfillment of this project will help develop the organization through increasing the administrative capacity and operative activity; it will contribute to the popularization of the cluster and last, but not least, it will strengthen the interrelations between members.

## **3.3 Mission and Goals**

### *Mission*

Prosperity of the human capital and the economy of Srednogorie region through partnership of all stakeholders.

### *Strategic goals and sub-goals:*

#### *1. Sustainable regional development*

- Sustainable development and environmental protection in accordance with national and regional priorities
- Improvement the region's technical and social infrastructure
- Growth of the quality and standard of living
- Increase of the competitiveness of the industry in Central Srednogorie

#### *2. Increasing the competitive power of the cluster and the industrial sector in the Central Srednogorie region*

- Technological innovation and implementation of innovations
- Improvement of energy efficiency
- Improvement of the working conditions in the enterprises participating in the cluster network
- Improvement of the system for enhancing the education and training of the staff for the needs of the cluster network
- Implementation of other projects of mutual interest

## **3.4 Development and management of cluster initiatives**

In keeping with its mission and strategic aims, the "*Srednogorie Med Industrial Cluster*" is carrying out initiatives in four main areas: environment; healthy working conditions; development of human resources; improving the region's economic and social development.



The priority themes are derived from the cluster's main characteristics, its geographical positioning and industrial specificity.

For research purposes in the analysis of the cluster initiatives is used one of the aforementioned classifications of fields of action: Information and Communication; Training and Qualification; Marketing and PR; Co-operations; Internationalization.

- **Information and communications**

The *Srednogorie Med* industrial cluster provides information on its activity and members through the cluster's web site; the "Shared Values" magazine for industry, clusters and competitiveness, as well as through the yearly bulletin of the Bulgarian Mining-Geology Chamber (all extractive companies are members of the Chamber).

In order to popularize the cluster association's activity and attract new members, an information database is in the works; informational and printed ad materials with a presentation clip are being produced. These activities are foreseen in the project for the Operational Programme "Development of the Competitiveness of the Bulgarian Economy", which is being carried out by the cluster.

- **Education and training**

Human resources are a key factor for the success of the companies and it's imperative that cluster efforts be aimed towards programs for increasing qualification and adopting a series of educational measures for improving competencies in front of firm employees.

The leading companies in the cluster use different mechanisms for the development of human resources. The in-company and external training and internship programmes are aimed at improving the human capital of the companies. Every year the companies increase their investment in personnel training and improvement. A long-standing practice with the companies ("Geotechmin OOD", "Elatsite Med AD", "Aurubis Bulgaria AD", "Dundee Precious Metals Chelopech") is to provide internship programs, which include a large number of students from various universities and high schools, part of them remaining to work at the company. The mining companies "Dundee Precious Metals Chelopech EAD" and "Aurubis Bulgaria AD" implement joint practical three-year internship programmes with the Vocational School for Mechanical and Electrical Engineering - Pirdop.

Education is a priority related to the cluster's activity and the development of the region. There is a long-time partnership between business and education within the boundaries of the Srednogorie region – numerous joint projects of the cluster's member municipalities with the high schools in Chelopech, Zlatitsa, Pirdop, Panagyurishte. Forthcoming is the preparation of an investment strategy for creating an educational institution in the Srednogorie region – "The Srednogorie College". The college's main purpose is to help overcome the shortage of professional staff for the industry; developing technical experts of classic and new professions; attracting teachers and young people to the region – branding and marketing the regional college in the country and abroad; expanding the partnership with educational institutions – integration with the University of Mining and Geology, the University of Chemistry and Technology, and the Technical University.

- **Environment**

The very nature of the production process – the mining and processing of copper and gold-containing ores, has a negative impact on the environment. It is for this reason that the protection of the environment is a top priority in the activities of the companies and one of the main objectives of the "Srednogorie Med" industrial cluster. A proof of the consistent activities of protecting the environment, carried out by the leading companies in the cluster is the growing investment in new environmental projects, as well as the achieved environmental results (reduced carbon emissions, reduced consumption of natural resources, reduced water pollution, etc.)

- ***Healthy and safe work environment***

Characteristic of all companies in the cluster are the constant improvements in all areas of the health and safety at work. The main actions in this respect are: a) technological measures, such as the development and modernization of production, the consistent and successful improvements in production safety; b) internal and external training on occupational health and safety, which are part of the standards for all levels of management; c) monitoring and planning of comprehensive and preventive measures to reduce and eliminate risk to the health and lives of workers and improve working conditions in all workplaces.

The programs that have been drawn up focus on risk reduction and safety and health at work. The management teams are working hard to change the mindset and culture with regard to safety by means of the most modern safety equipment.

- ***Co-operation and innovations***

Typical of all industrial enterprises for mining and processing of copper and gold ores - containing, cluster members are technological innovation. Projects, which harmoniously combine innovation, economic efficiency and significant environmental effect, are being carried out.

Research has shown that co-operation with science institutions comes down to aiding their development, participating in science forums, but there are no joint projects for scientific research and technological development. A co-operation treaty in support of future joint activities and projects between the “St. Ivan of Rila” Mining-Geology Institute and *Dundee Precious Metals Chelopech* has been signed.

There is a close co-operation between industrial companies for mining and processing of copper and gold-containing ores and local structures, namely municipalities. The long-term and well-established practice of public-private partnership contributes to the region’s economic and social development. The efforts of the cluster are aimed at supporting local development – the development of technical and social infrastructure in the municipalities, on the territory of which the companies carry out their manufacturing activities, as well as raising the standard of living.

The “*Srednogorie Med* Industrial Cluster” association is carrying joint activities by all stakeholders in the development of the “*Srednogorie 2020 – A Real Vision of the Future*” strategy and the Strategy for Employment in the Srednogorie Region by 2030.

- ***International activity***

The *Srednogorie Med* industrial cluster organizes and actively takes part in seminars, conferences and other forums for exchanging experience and information, sharing good practices. In 2014, on its initiative, a number of conferences were held, discussing themes relative to the cluster’s activity with the participation of international organizations and experts in the mining industry. Among them were the following conferences: “Industry, Energetics and Environment – Policies, Market, Challenges”; “Innovations and Entrepreneurship – Science, Research, Technological Advances”; “Environment, Healthy and Safe Working Conditions”; seminar: “Work Place and Environment; Intelligent Technology, Systems and Decisions”; round table conference: “Assets and Equipment 2014: Managing the Life Cycle, Repairs and Maintenance”, etc. Nikolay Minkov, the Executive Director of the *Srednogorie Med* industrial cluster defines the necessity to create national and transnational relations for the cluster in order to upgrade and acquire current knowledge and integrate all interested parties in the development of the Srednogorie’s regional economy. With regard to this, a visit of the European Cluster Conference is pending.

## CONCLUSION

The *Srednogorie Med* industrial cluster is one of the first clusters in Bulgaria and it belongs to the group of actively functioning clusters, distinguishing itself with its high level of expertise and technological innovations.

The development and management of the “*Srednogorie Med Industrial Cluster*” association’s initiatives are aimed at achieving its mission and strategic goals. The cluster’s main characteristics, its geographical positioning and industrial specificity play a defining role in its choice of priority areas/themes, on which the cluster initiatives are focused: environment; healthy working conditions; developing human resources; improving the region’s economic and social development.

There is a specific form of interaction between the cluster’s members – the leading companies and the municipalities on whose territory they operate; sharing a common mission, goals and priorities; co-operation in joint undertakings – seminars, training, forums; joint intern programs with local schools; building the “*Srednogorie*” College; carrying out public-private infrastructure projects (technical and social), developing a region development strategy until 2020, etc.

The study has shown that in some areas of operation in accordance with the accepted classification of cluster initiatives the joint projects/initiatives are still limited (marketing and public relations; cooperation and innovations – there is a lack of projects for scientific research and technological development). There is also hardly any participation in cluster initiatives from other stakeholders – firms that provide services, NGOs, universities and science institutes (cluster partners), etc. Successful cluster initiatives are set in motion/created by the private sector, but they require a high level of participation by a wide range of stakeholders, as well as strengthening co-operation when competition grows. Developing and managing cluster initiatives in that direction, as well as attracting new members are the main challenges that the governing body of the *Srednogorie Med* industrial cluster will have to face in the future.

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### Contact information

Irena SLAVOVA, Associate Professor, PhD,  
 Faculty of Management and Administration, Marketing and Strategic Planning Department.  
 University of National and World Economy  
 1700 Sofia  
 Bulgaria  
[irenaslavova@yahoo.com](mailto:irenaslavova@yahoo.com)

# THE CLUSTER APPROACH TO INNOVATIVE DEVELOPMENT OF THE COAL INDUSTRY OF RUSSIA: PROBLEMS AND PROSPECTS

TSVELODUB Yuliya

## Abstract

The implementation of pilot innovative regional clusters' projects has been actively enabled since 2011 in regions of Russia. Branch specifics of the coal industry, like a basic extraction industry, are associated with technological, economic, social and ecological factors that create restrictions in the participation of the industry in innovative processes. This article reviews the current risks of the coal industry, the strategic priorities of innovation in its enterprises, and the feasibility of cluster initiatives in the prominent coal mining region of Kemerovo.

**Key words:** coal mining industry, cluster, innovations

## INTRODUCTION

The purpose of the transition of the Russian economy from raw materials export model to an innovative, socially oriented type of economic development doesn't raise any doubts. The negative consequences of the choice of economic development on the basis of "raw material" model were known in advance, but the problems associated with the dependence of the economy on world conjuncture are especially evident during crisis, which stimulates to look for ways out of the current situation. Actual legislation offers initiatives to involve creation in the Russian regions of promising "points of growth" of the economies of regions through the creation of competitive regional clusters based on public-private partnerships. An interesting example is the formation of clusters in the territory of Kuzbass (Kemerovo Oblast) – the largest coal-mining region both in Russia and in the world. The role of traditional primary industries, in particular the coal industry, in the innovation process is relatively ambiguous: due to the technological peculiarities of traditional industries, ecological restrictions and the features of market conditions.

The first chapter deals with the relevance in the application of the cluster approach in the Russian economy, as set out in the Russian legislation. As a practical implementation of the cluster approach, 25 pilot projects have been approved with state support (granting subsidies), including a coal-chemical industrial cluster in the Kemerovo region. The role of the cluster approach in solving urgent problems of the coal industry in Russia, in the Kuzbass in particular, is treated in the second chapter. The third chapter represents an example of innovative territorial cluster "Complex processing of coal and technogenic waste" in the Kemerovo region, which was conceived in 2012 and has been in the process of activation.

## 1 CLUSTERS IN THE LEGISLATION OF THE RUSSIAN FEDERATION

Recently in the Russian media and scientific works, the term "cluster" became very popular. There is a wide variety of its definitions in foreign and domestic literature. Modern

economic science considers formation of clusters as one of important factors to increase of effectiveness of innovations in regions. According to M. Porter<sup>1</sup>, one of the founders of the cluster theory, "a geographical proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and externalities" gives the greatest effect of using factors of production.

In recent times, recognition of the role of cluster approach has found reflection in Russian legislation. The introduction of cluster policy has actively been discussed since 2008, and in 2011, a pilot project to create innovative regional clusters in the Russian Federation was launched.

In accordance with the Concept of Long-term Socio-Economic Development of the Russian Federation for the period up to the year 2020<sup>2</sup>, among the directions of transition to innovative socially-oriented type of economic development of the Russian economy marks out transition to a new model of spatial development of the Russian economy: in particular, by creation of a network of territorial and industrial clusters, realizing the competitive potential of the territories, as well as the formation of a number of innovative high-tech clusters.

The Strategy for Innovative Development of the Russian Federation for the period until the year 2020<sup>3</sup> provides – for activation of the innovative development of the regions – grant allocations on a competitive basis to subjects of the Russian Federation for development of clusters. According to the strategy, the implementation of cluster policy promotes competitive business through the effective interaction between the participants of the cluster associated with their geographically close proximity, access to innovations, technologies, know-how, specialized services and skilled personnel, lower transaction costs, as well as to the implementation of joint cooperation projects.

The implementation of the Strategy envisages two steps. The first phase of the Strategy (2011 – 2013 years) aims to increase susceptibility of business and economy to innovations. This stage implements a pilot project to develop mechanisms to support large-scale innovative programs of business structures, particularly support for the formation of cluster initiatives and technology platforms. The second stage (2014 – 2020 years) provides increase of the share of expenses on innovations in the country's budget. At the same time, share of private funding in aggregate expenditures on research and development should be increased<sup>4</sup>.

Practical implementation of development programs of pilot innovative regional clusters began in 2012. As a result of competitive selection announced by the Ministry of Economic Development of the Russian Federation on March 19, 2012, 25 regional clusters (among 94 bids) entered in the *List of innovative regional clusters* (approved by Order of the Government of the Russian Federation dated August 28, 2012, № ДМ-П8-5060)<sup>5</sup>.

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<sup>1</sup> Porter, M., *Konkurentsya*. 2000. Williams Publishing House. Moscow. p.207. ISBN 5-8459-0055-7

<sup>2</sup> The Concept of Long-term Socio-Economic Development of the Russian Federation for the period up to the year 2020. Decree of the Government of the Russian Federation dated November 17, 2008 № 1662-p. Ministry of Economic Development of the Russian Federation [official site]. Available at: [http://economy.gov.ru/minec/activity/sections/fcp/rasp\\_2008\\_N1662\\_red\\_08.08.2009](http://economy.gov.ru/minec/activity/sections/fcp/rasp_2008_N1662_red_08.08.2009)

<sup>3</sup> The Strategy for Innovative Development of the Russian Federation for the period until the year 2020. Decree of the Government of the Russian Federation of December 8, 2011 № 2227-p. Ministry of Economic Development of the Russian Federation [official site]. Available at: [http://economy.gov.ru/minec/activity/sections/innovations/doc20120210\\_04](http://economy.gov.ru/minec/activity/sections/innovations/doc20120210_04)

<sup>4</sup> The Strategy for Innovative Development of the Russian Federation for the period until the year 2020. Decree of the Government of the Russian Federation of December 8, 2011 № 2227-p. Ministry of Economic Development of the Russian Federation [official site]. Available at: [http://economy.gov.ru/minec/activity/sections/innovations/doc20120210\\_04](http://economy.gov.ru/minec/activity/sections/innovations/doc20120210_04)

<sup>5</sup> List of innovative regional clusters. Order of the Government of the Russian Federation dated August 28, 2012, № ДМ-П8-5060. Available at: [http://economy.gov.ru/minec/activity/sections/innovations/politic/doc20120907\\_02](http://economy.gov.ru/minec/activity/sections/innovations/politic/doc20120907_02)

Programs of clusters' development applies the following definition: an innovative regional cluster is understood as a set of enterprises and organizations (cluster members) placed in a limited area, which is characterized by availability of the research and production chain uniting participants of a cluster in one or several branches (key types of economic activity); mechanism for the coordination and cooperation of cluster members; synergistic effect in terms of improving economic efficiency and effectiveness of each company or organization due to the high degree of concentration and cooperation<sup>6</sup>.

Within procedure of competitive selection, the following groups (blocks) of criteria were considered: scientific, technological and educational potential of the cluster, production potential of the cluster; quality of life and development of transport, power, engineering and housing infrastructure of the territory of the cluster, level of organizational development of the cluster.

In the list of subsidized innovative regional clusters, there is a cluster project entitled "Complex processing of coal and technogenic waste" in the Kemerovo region. This will be discussed in the subsequent chapters.

## **2 THE CLUSTER APPROACH IN THE SOLUTION OF PROBLEMS OF DEVELOPMENT OF COAL MINING AREAS (ON THE EXAMPLE OF THE TERRITORY OF KUZBASS)**

### **2.1 The role of the coal industry in the Russian economy**

The priority of the transition of the Russian economy from resource model to innovative socially oriented type of economic development does not raise doubts that are reflected in the mentioned legislative initiatives and, if for Russia in general, the options of innovative strategy are possible. For the resource regions, innovative development of raw branches is more often is seen as a survival question. The role of raw, resource-extraction branches in the modern innovative development, as well as the ability of these traditional branches to create and perceive innovations is ambiguous. In accordance with the OECD classification, the Mining of Coal belongs to energy producing activities and is not 'hi-tech' manufacturing<sup>7</sup>. The cluster approach, in relation to the coal territories such as Kuzbass, assumes the formation of diversified complexes, for which coal is the starting point.

In addition to being one of the elements of sustainable development of the national economy, the importance of coal for other industries cannot be overstated. In fact, coal is one of the elements forming the final product of Metallurgy, it has a significant share in the railways' freight turnover (40%), it is a source of raw material for the chemical industry and the energy production (power stations). Coal is a unique mineral resource, from which a wide range of products can be obtained: from electrical energy to medicines and fuel for space rockets. Modern technologies allow the creation of more than 130 kinds of chemical semi-products from coal, which are then used for the production of more than five thousand types of product<sup>8</sup>. Having survived a restructuring period, during which the volume of product halved, the industry has seen a significant growth of its production. Since 1999, the coal

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<sup>6</sup> Methodical materials for the elaboration and implementation of the program of development of an innovative territorial cluster. Ministry of Economic Development of the Russian Federation [official site]. Available at: <http://economy.gov.ru/minec/about/structure/depino/201405216>

<sup>7</sup> OECD [official site]. Available at: <http://www.oecd.org/industry/ind/40729523.pdf>

<sup>8</sup> The Program of Development of the innovative territorial cluster "Complex processing of coal and technogenic waste" in the Kemerovo region for 2014 – 2020 years. Decree of the Board of Administration of the Kemerovo region of 20.10.2014 № 676-p".

industry of Russia has gradually increased its production from 250 to 351 million tons in 2013<sup>9</sup>, which was accompanied by a growth in the share of exports in total production.

The main share of mined coal field in Russia is concentrated in the following basins: the Kuznetsk Basin, the Pechora Basin, the Irkutsk Basin, the Kansk-Achinsk Basin, the Moscow Region, the Eastern Donbass, the Tunguska Basin, the Lena Basin, the Kizelovsk Basin. The Kuznetsk coal basin (Kuzbass) is located in the Kemerovo oblast (South of Western Siberia), which is the largest industrial region of the Russian Federation, the base for industrial development not only in Siberia, but the whole country. Today, the share of the Kemerovo region accounts for 73.5 percent of hard coal production in Russia, for 73.3 percent of the production of coking coal, and for the group of coking coal of high rank – 100 percent<sup>10</sup>.

## 2.2 Actual problems of development of the coal industry of Kuzbass

Despite the impressive quantity of extraction, the coal industry now is in a rather difficult situation. For the period up to 2030, the Program of development of the coal industry of Russia provides an increase in coal mining in Russia to 480 million tons<sup>11</sup>. However, there are a number of objective factors: the instability of the world prices for coal, the saturation of the domestic market, high transport costs of the Kuzbass producers, infrastructure constraints, the relevance of environmental issues in the areas of coal mining – complicates the implementation of the program.

At present, the coal industry faces the following branch risks. One of them, a high dependence on export sales and an environment of the world fuel market and at the same time the compression and insufficient development of Russian domestic coal market<sup>12</sup>. The main challenge to the development of the coal industry is the excess of supply over demand of coal. This led to long-term decline in prices on foreign coal markets<sup>13</sup>. The reasons for this phenomenon are the stagnation in the Eurozone and the consequences of the "shale revolution" in the United States. There was redistribution of global flows of coal, and most importantly, competition in the traditional markets of the Russian coal aggravated.

Another risk factor is a large transport arm combined with high railway tariffs (which do not cover all the costs of the carrier for the transportation of coal) for delivery of Russian (Kuzbass) coal from production places to consumers that significantly reduces the profitability of domestic suppliers of coal production.

Under these conditions, the coal exporting companies of Kuzbass are especially vulnerable. This coal basin is equidistant from both ports of the western direction, from the

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<sup>9</sup> Russian Federal State Statistics Service [official site]. Industry of Russia – 2002. Available at: [http://www.gks.ru/bgd/regl/B02\\_48/Main.htm](http://www.gks.ru/bgd/regl/B02_48/Main.htm); Industry of Russia – 2014. Available at: [http://www.gks.ru/bgd/regl/b14\\_48/Main.htm](http://www.gks.ru/bgd/regl/b14_48/Main.htm).

<sup>10</sup> The Strategy of attraction of investments in the Kemerovo region for the period up to 2030. Investment portal of the Kemerovo region [official site] Available at: <http://keminvest.ru/news/97.html>.

<sup>11</sup> The Program of development of the coal industry of Russia for the period up to 2030. Decree of the Government of the Russian Federation of June 21, 2014 № 1099-p Ministry of the energy of the Russian Federation [official site]. Available at: [http://minenergo.gov.ru/documents/fold13/index.php?ELEMENT\\_ID=17442](http://minenergo.gov.ru/documents/fold13/index.php?ELEMENT_ID=17442)

<sup>12</sup> FRIEDMAN Yu.A., LOGINOVA E.Yu., RECHKO G.N. 2014. Theory and practice planning of innovative development of raw materials industries: on the example of Kuzbass coal industry. *Vestnik Kuzbasskogo gosudarstvennogo tekhnicheskogo universiteta*. Vol.6 (106), pp. 131-136.

<sup>13</sup> The Program of development of the coal industry of Russia for the period up to 2030. Decree of the Government of the Russian Federation of June 21, 2014 № 1099-p Ministry of the energy of the Russian Federation [official site]. Available at: [http://minenergo.gov.ru/documents/fold13/index.php?ELEMENT\\_ID=17442](http://minenergo.gov.ru/documents/fold13/index.php?ELEMENT_ID=17442)



ports of the eastern direction, and the average distance in both directions exceeds 4500 km, while the share of transport tariffs in the consumer price reaches 40 – 45 percent<sup>14</sup>.

The governor of the Kemerovo region, Aman Tuleyev, noted that in the conditions of the crisis, Kuzbass can not lose its niche in the global market which it has occupied for 15 years. So today, the companies even have increasing exports of coal, especially to the Asia-Pacific region, and are selling at low prices, but would not miss the markets<sup>15</sup>.

The current state of the industry requires the state to solve the problem to restore and increase the demand for coal in the domestic market. Dependence on the external market is a dependence on the factors which almost aren't coming under influence both by the state and by individual companies. The domestic market needs to be developed, which is impossible without the active assistance of the state<sup>16</sup>.

Along with the challenges posed by the global market conditions and the transport remoteness, the coal industry risks are associated with traditional technological features, which had accumulated over the years of its functioning, such as: a high level of wear and tear on the coal plants (disposals of fixed assets in the Russian coal industry in the 2000s. is much faster than updating); slowdown in investment activity in the face of declining profitability of the coal business in Russia; conditions of coal mining become complicated, in particular in the areas of traditional production, which includes the Kuzbass; shortage of highly qualified personnel (increase in the average age of miners); low labor productivity in the Russian coal industry in comparison with the main world competitors.

For 10 years (from 2004 to 2013), labor productivity in the coal industry of the Kemerovo region grew by one and a half times and makes 230 tons per 1 person per month. But in general in the region per person employed in the industry produces about 3 thousand tons of coal per year, and in Australia, Germany, USA – 10-14 thousand tons of coal per year<sup>17</sup>.

Among the risks of the coal industry is also environmental unfriendliness of coal relative to other types of fuels, particularly, of gas.

The coal mining enterprises have negative impact on all main components of the environment, causing their unfavorable changes. Natural landscapes are violated and degraded, water bodies, air and soil cover is polluted in solid, liquid and gaseous contaminants. The situation in Kuzbass is exacerbated by the geographic location: Kuznetsk Basin is surrounded by the Mountain Shoria in the south, the Kuznetsk Alatau in the east and the Salair Ridge to the west. It leads to the fact that harmful substances cannot bypass mountains, concentrating exclusively in Kuzbass. As a result, Novokuznetsk, Kemerovo and Prokopyevsk are the cities of the Kemerovo oblast which contain the highest level of air pollution.

Exploitation of coal fields in Kuzbass is carried out both underground and in the open way. A problem of land rehabilitation is not solved, and also the problem of solid wastes of

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<sup>14</sup> The Program of development of the coal industry of Russia for the period up to 2030. Decree of the Government of the Russian Federation of June 21, 2014 № 1099-p Ministry of the energy of the Russian Federation [official site]. Available at:

[http://minenergo.gov.ru/documents/fold13/index.php?ELEMENT\\_ID=17442](http://minenergo.gov.ru/documents/fold13/index.php?ELEMENT_ID=17442)

<sup>15</sup> Information portal of the Kemerovo oblast. Available at: <http://kemoblast.ru/news/miners-day/2014/08/29/gubernator-aman-tuleev-za-15-let-investitsii-v-ugolnuyu-promyshlennost-kuzbassa-dostigli-rekordnogo-obema-i-sostavili-600-mlrd-rublej.html>

<sup>16</sup> Grigoriev A. Coal industry – 2014 (report). The institute of Natural Monopolies Research. Available at: [http://ipem.ru/research/fuel/fuel\\_presentations/97.html](http://ipem.ru/research/fuel/fuel_presentations/97.html)

<sup>17</sup> Information portal of the Kemerovo oblast. Available at: <http://kemoblast.ru/news/miners-day/2014/08/29/gubernator-aman-tuleev-za-15-let-investitsii-v-ugolnuyu-promyshlennost-kuzbassa-dostigli-rekordnogo-obema-i-sostavili-600-mlrd-rublej.html>

the coal industry, which are, on the one hand, man-made accumulation of various mineral resources, on the other hand, are a source of negative impact on the environment.

These factors lead to a loss of competitiveness of the Russian coal industry in the global and domestic markets. Among the ways to solve this problem is primarily the increase in labor productivity, production efficiency in general and the use of coal products, rational system of processing of technogenic waste.

### **2.3 Place of cluster approach in modernization of the coal industry of Kuzbass**

In accordance with the Program of development of the coal industry of Russia for the period up to 2030<sup>18</sup> for the old coal basins, in particular the Kuzbass in response to the challenges of the current situation, there may be a gradual transition to the use of coal at the production site. The cluster approach, consisting in the creation of interconnected productions based on coal deposits, aiming at a fuller use of the potential of coal as a fossil, is intended to serve this goal. Promising is the creation of: the coal-energetic clusters, the coal-technological clusters, focused on the generation of electricity by coal, deep processing of coal to obtain products with high added value, the use of waste products; as well as coal-chemical clusters (including production of coke from low-rank coking coal, synthetic liquid fuels and new chemical products).

In the conditions of territorial remoteness of Kuzbass and considerable transportation costs, to reduce the influence of length of haul for the development of the region in the Kuznetsk coal basin will develop the local use of mined coal, is envisaged the establishment of a number of power technology clusters, allowing to pass to the complex development of the resources of coal deposits, the extraction and use of methane. Preproject elaboration and feasibility studies on formation of Karakansky, Mencherepsky and Serafimovsky power technological clusters are already executed. Industrial extraction of gas of methane from coal seams for use in national economy will start.

On the region of Kuzbass (Kemerovo region), having a large list of ready to implement technologies that are localized in enterprises and research organizations in the region, Russia pins high hopes to achieve technological leadership in the field of deep processing of coal. The Kemerovo region, being the center of the Russian coal industry, proposed the creation of a cluster on its territory "Complex processing of coal and technogenic waste". The region has manufacturing, research and human resources to achieve this goal, resulting in Russia will form a completely new type of economic activity, where the coal will be the start of the chain on the formation of value added.

## **3. IMPLEMENTATION OF THE PROJECT OF AN INNOVATIVE TERRITORIAL CLUSTER "COMPLEX PROCESSING OF COAL AND TECHNOGENIC WASTE" IN THE KEMEROVO REGION**

### **3.1 Targets of the program of creation, activities and funding of the cluster**

In 2012, the Kemerovo region has commenced the development of a territorial cluster "Complex processing of coal and technogenic waste" which reflects the targets of deep

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<sup>18</sup> The Program of Development of the Coal Industry of Russia for the period up to 2030. Decree of the Government of the Russian Federation of June 21, 2014 № 1099-p Ministry of the energy of the Russian Federation [official site]. Available at: [http://minenergo.gov.ru/documents/fold13/index.php?ELEMENT\\_ID=17442](http://minenergo.gov.ru/documents/fold13/index.php?ELEMENT_ID=17442)

processing of coal in Kuzbass until 2020. It aims to create a fundamentally new kind of economic activity at the interface between organic chemistry, chemical materials, coke chemistry. This will allow to change the technological platform of the coal industry and to remove existing restrictions on the development of the industry.

Coal is considered as the initial stage of the chain to receive products with high added value. As a result of the technological processing of coal, the cost of the final product will increase tenfold. Available within the cluster technology solutions as a result of deep processing of coal and industrial wastes will allow to receive more than 100 different products of coal chemistry, among which: coke, semi-coke and coke gas, chemical products (benzene, phenol, cresol), carbon materials (sorbents, fiber, pitches, nanotubes) as well as gasoline, construction and carbon materials<sup>19</sup>.

In total at the enterprises of the coal-chemical cluster, 26 thousand people are occupied (2% of the economically active population in Kuzbass)<sup>20</sup>. Successful interaction of the enterprises in the Kuzbass is not a completely new idea. At the time of the URSS, in its territory existed Kemerovo chemical junction. This can currently be seen as a kind of cluster. However, with the fall of the Soviet Union, many technological chains have been destroyed. The present cluster "Complex processing of coal and technogenic waste" in the Kemerovo region has been included into the list of innovative regional clusters and is a pilot project in the field of coal power, coal chemistry and processing of industrial waste.

Actualization of the cluster's program of work has only been solved in October 2014, when it was approved a new program for the development of the cluster for 2014 – 2020 years. Its implementation is charged to the regional authorities of the Kemerovo region. Between the years of 2014 – 2017, grants are allocated in the amount of 2,488.560 million rubles for the development of the cluster. This includes about 97.7% - from the federal budget, and 2.3% - from the budget of the Kemerovo region<sup>21</sup>. The subsidies will be directed to the development of energy, engineering, innovation, education infrastructure of the cluster, research and development, training, retraining and skills development, implementation of pilot investment projects in clean coal energy and processing of industrial waste.

Activity of residents of the innovative cluster is carried out in 5 key directions of deep processing of coal<sup>22</sup>:

- coal chemistry (coal gasification to produce chemical semi-products);
- coke chemistry (coking of coal to obtain metallurgical coke and chemical semi-products);
- carbon materials (preparation of highly nanomaterials from coal);
- getting electric power (technology and equipment for clean and efficient combustion of coal);
- processing of waste (technology of return of technogenic waste to economic circulation with receiving a range of construction materials).

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<sup>19</sup> Rada, A.O., Gumenny, A.S. 2014. Kuzbasskiy ugle naukograd. *UGOL KUZBASSA*. Vol.5 pp. 20 – 24.

<sup>20</sup> The Program of Development of the innovative territorial cluster "Complex processing of coal and technogenic waste" in the Kemerovo region. 2012 Available at: <http://innovation.gov.ru/sites/default/files/documents/2014/5989/1835.pdf>

<sup>21</sup> The Program of Development of the innovative territorial cluster "Complex processing of coal and technogenic waste" in the Kemerovo region for 2014 – 2020 years. Decree of the Board of Administration of the Kemerovo region of 20.10.2014 № 676-p".

<sup>22</sup> The Program of Development of the innovative territorial cluster "Complex processing of coal and technogenic waste" in the Kemerovo region. 2012. Available at: <http://innovation.gov.ru/sites/default/files/documents/2014/5989/1835.pdf>

### 3.2 The cluster members: anchor companies

Within the initial program of development of the cluster (of 2012 year), its anchor residents (members) are two industrial giants: JSC "Koks" and Kemerovo JSC "Azot".

JSC Koks (The Kemerovo coke-chemical plant) – is one of the largest producers of metallurgical coke in Russia, manufacturing 30 different kinds of product. From the total amount of the coke exported by Russia, the greatest share has the production of the Kemerovo coke-chemical plant<sup>23</sup>. The revenue of JSC Koks in 2013 was 20,1 billion rubles<sup>24</sup>. In the past, the Kemerovo coke-chemical plant was a "core" of the Kemerovo chemical junction.

Kemerovo JSC "Azot" is a powerful industrial complex, which produces more than 40 chemical products on the basis of the modern chemical equipment. The company's products are used in agriculture, industry and construction. The largest manufacturer of ammonia, nitrogen fertilizers and caprolactam in Siberia and the Far East, Kemerovo JSC provides 80% of the supply of ammonium nitrate to agricultural and industrial customers in the region. In the 1990s, this company was "maternal" in relation to the plants such as Kemerovo plants of chemical fiber, plastics, dyes, silk fabrics. Currently, a high level of profitability and the company's profitability is reached. For 2012, the revenue from product sales reached 27.9 billion rubles, amounting to a gross profit of 12.5 billion rubles, and a net profit of 4.7 billion rubles<sup>25</sup>.

In accordance with the program of development of the innovative territorial cluster "Complex processing of coal and technogenic waste" in the Kemerovo region for 2014 – 2020, the number of anchor residents increased by four<sup>26</sup>:

JSC "SUEK" – the largest producer of thermal coal (production volume of 96.5 million tons in 2013), one of the main exporters of coal (42.4 million tons of coal in 2013), has the largest-scale investment program in the coal industry;

JSC "HC" SDS-Coal" is one of three leaders of the Russian coal industry. It produces high quality thermal and coking coal mined using open and underground methods. 86.2 percent of the extracted coal is exported;

LLC "PO "Khimprom" – the leading producer of chemical products (products of chlorine production, acid, organic synthesis products, auto chemicals, heat transfer fluids);

LLC "Zavod polukoksovaniya" (production of semi-coke of different brands, coal tar, carbonized products).

### 3.3 Innovative, scientific and technological, and educational potential of the cluster

Along with the large participants in the list of residents of the cluster includes 20 innovative companies that are engaged in deep processing of coal, producing carbon materials, construction materials, industrial waste treatment, perform design work, and automation of production processes, etc. Among them:

LLC "Sorbenty Kuzbassa", specializing in the production of sorbents from raw coal by method of plasmochemical activation;

CJSC "Tekhnoparkinvest-Kuzbass" (ground gasification of coal to produce synthesis gas, hydrogen, synthetic liquid fuels and granulated slag);

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<sup>23</sup> JSC Koks [official site]. Available at: <http://www.koksgroup.ru/our-business/geography/kemer/koks/>

<sup>24</sup> Rada, A.O., Gumenny, A.S. 2014. Kuzbasskiy uglenukograd. *UGOL KUZBASSA*. Vol.5 pp. 20 – 24

<sup>25</sup> Kemerovo JSC "Azot" [official site]. Available at: <http://www.sbu-azot.ru/ru/press-tsentr/251-azot-podtverdit-rejting-a>

<sup>26</sup> The Program of Development of the innovative territorial cluster "Complex processing of coal and technogenic waste" in the Kemerovo region for 2014 – 2020 years. Decree of the Board of Administration of the Kemerovo region of 20.10.2014 № 676-p".

CJSC "NPC" Sibecotehnika"(development of environmentally friendly technologies on coal processing, including on the preparation and use of coal-water slurry fuel (CWF);  
LLC "Ekomash" (processing of liquid and solid waste of coking coal);  
LLC "MIP NPC "Ecosystema" (construction materials from waste coal, obtaining fuel briquettes from waste of mining, processing of coal by methods of gasification and pyrolysis).

The scientific infrastructure of the cluster is represented by scientific divisions of Federal State Institution of Science "Kemerovo Scientific Center of SB RAS (Kemerovo)", such as the Institute of Coal, Institute of Coal Chemistry and Chemical Materials (of the order of 10 units and laboratories Kemerovo with the number of scientists 286 people).

The scientific and educational system of the cluster represented by universities of Kemerovo and Novokuznetsk: Kuzbass State Technical University (Kemerovo), Siberian State Industrial University (Novokuznetsk); Kemerovo State University. The represented organizations have a wide experience in research on deep processing of coal and industrial waste, and qualified personnel training for the coal chemical industry.

Innovations implementation infrastructure of the Kemerovo region is represented by JSC "Kuzbasskiy technopark". The main purpose of Kuzbasskiy technopark is to unite the scientific, intellectual and industrial potential of the region for connection between science and business and for the stable development of the region<sup>27</sup>.

### **3.4 The long-range and active projects of the cluster**

The following 5 projects are distinguished as promising projects of the cluster for 2015 – 2020 years<sup>28</sup>:

1. Creating power technological cluster on the basis of the coal open-cast "Karakansky – West" (investor CJSC "Belovskaya Mine"). Specialization – extraction and utilization of methane, production of coking products (semi-coke, thermocoke), chemical products (phenol, benzene, cresol), electric power and construction materials from waste of coal generation.
2. Creation of power technological complex for deep processing of coal based on the Mencherep deposit (investor JSC "INTER RAO UES"). Specialization – production from coal chemical semi-products (methanol, benzene), coke-chemical products (pitches) and synthetic motor fuel, electricity and construction materials (concrete, blocks) from the waste of the coal generation.
3. Creation of the Power technological complex " Serafimovsky " for deep processing of coal (investor MPO "Kuzbass"). Specialization – extraction and utilization of methane, production of chemical semi-products (methanol, dimethyl alcohol, benzene, phenol) and products (high-octane gasoline, jet fuel, rocket fuel), clean production of electricity, production of construction materials based on waste of coal generation.
4. The complex of the underground gasification of coal in the fields of the mine "Distant Mountains" (investor CJSC "IC "Yukas-Holding"). Specialization – production of heat and electricity by underground gasification of coal in place and synthesis gas production, production of chemical semi-products (paraffins, ammonia , acetic acid, olefins) and products (gasoline).
5. Technological complex for deep processing of brown coal on the basis of deposit "Itatskoe" (investor LLC "Coal-C"). Specialization – production of semi-coke and smokeless fuel briquettes; sorbents and carbon materials resistant to corrosion space.

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<sup>27</sup> Kuzbasskiy Technopark [official site]. Available at: <http://technopark42.ru/article/50/>

<sup>28</sup> The Program of Development of the innovative territorial cluster "Complex processing of coal and technogenic waste" in the Kemerovo region for 2014 – 2020 years. Decree of the Board of Administration of the Kemerovo region of 20.10.2014 № 676-p".

Thus, along with the regional cluster in Kuzbass, there is an advanced idea of coal-chemical and power-coal clusters in the industry.

The program of the cluster is being updated so that practical results and indicators of performance are too early to discuss. But as an already active cluster, it is possible to give an example of coal and power cluster on the basis of the coal opencast Karakansky.

The driving force in the creation of this cluster has been private business with the assistance of the regional authorities.

In 2010, as a result of the alliance, initiatives, and strategic thinking, the Governor of the Kemerovo oblast Aman Tuleyev and Georgy Krasnyansky (project investor) initiated the creation of the Karakansky coal energy cluster (Belovsky district, Evtino village). The formation of this cluster will result in creation of the first energetic and technological complex that will deploy innovative energy and resource saving technologies for deep coal processing.

The development of breakthrough directions in the coal industry will make the Kuzbass more competitive at the level of the new technological way. This will create a model of corporate performance that will benefit all: enterprises of Kuzbass, miners, region. Following an efficiency review, the company was able to reveal the following data: for the period from March 2010 to August 1, 2014, the company produced and sold more than 10 million tons of coal, and created 430 workplaces<sup>29</sup>.

In 2011, in Kuzbass on the basis of CJSC "Belovskaya Mine" was registered LLC "KARAKAN INVEST" – an innovative company specializing in the production and sale of high-quality coal products, which advances the Karakansky coal energy cluster, merging the extraction, processing and generating capacities of the Karakansky coal opencast.

Karakansky coal opencast is among the leaders in the Kuzbass in labor productivity, making the company's cost one of the lowest in the region. In 2012, to optimize logistic schemes for transportation and to increase overall effectiveness, KARAKAN INVEST made the decision to construct a railway line with total length of 32.6 kilometers from the station "Uglepogruzochnaya" (CJSC "Belovskaya Mine") to the connecting station "Ulus"<sup>30</sup>.

To develop the industrial structure of the cluster, the following is provided: the creation of coal mining complex with projected capacity of 4 million tons of coal per year with further increase of capacity up to 6 million tons per year; processing plant with capacity to 6 million tons of coal per year, heat station with power up to 45 MW, plant on production of thermocoke, transport and loading complex with a capacity of up to 10 million tons per year<sup>31</sup>. The experience of public-private partnerships is useful in the implementation of ambitious projects of clusters in the territory of Kuzbass.

### **3.5 Actual position of development of the cluster**

Inherent property of any cluster is a system – the functioning in the mode of a uniform organism. The interaction between firms and related institutions should promote a synergy effect for the companies in the cluster, to reduce obstacles for business development, innovations and economic growth in the region. This cluster of the Kemerovo region provides the whole complex of mutually complementary companies: industrial, research, educational, service providers working together to enhance competitive advantages of the final product.

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<sup>29</sup> Karakanskiy proekt. Materials with a press conference held on the eve of the Miner's Day 2014, published in the journal "Avtorskiy proekt" of 01.10.2014. KARAKAN INVEST, LLC [official site]. Available at: <http://www.karakan-invest.ru/presscenter/publication/download/compressed.pdf>

<sup>30</sup> Development strategy. KARAKAN INVEST, LLC [official site]. Available at: <http://www.karakan-invest.ru/en/company/history-and-development-strategy/>

<sup>31</sup> Karakanskiy proekt. Materials with a press conference held on the eve of the Miner's Day 2014, published in the journal "Avtorskiy proekt" of 01.10.2014. KARAKAN INVEST, LLC [official site]. Available at: <http://www.karakan-invest.ru/presscenter/publication/download/compressed.pdf>

Since the creation of the program in 2012, the position of cluster members have remained at the starting line.

In the summer of 2014, in the business incubator, Kemerovo Technopark established two new institutions: Center for Cluster Development and Regional Engineering Center. The Ministry of Economic Development has agreed to grant 17 million rubles (about 8.5 million rubles per center) on a one year program to support small and medium-sized businesses. An engineering center is established for different forms of the audit of industrial enterprises and the development of programs to improve their activity. A Center for Cluster Development is established to create the conditions for effective interaction of cluster members: to unite small and medium enterprises, the scientific community - university research groups and academic institutions, to provide their interests in other regions and abroad. The Center is a mechanism of forming communication and interaction between members of the business community<sup>32</sup>.

## CONCLUSION

The cluster approach has been admitted as one of the promising directions of transition of the Russian economy to an innovative model of development. For the modernization of the coal industry, this approach is used in the old mining regions, which is the Kemerovo region (Kuzbass area). For territories with "heavy" industrial structure, the cooperation of large companies (anchor residents of the cluster) with small and medium businesses (innovative enterprises) is the preferred model. The accumulated potential of innovative practices of the research institutions and universities included in the cluster should have impact on the whole chain of creation of a value added in the processing of coal which is the basic element of the chain.

State participation gives a signal about the importance of the project for the economy of the country and the region for the companies participating in the cluster, in the conditions of objective restrictions of the current economic situation in the country. In many cases, the contribution of the state consists in development of infrastructure of regions, but imperfection of horizontal ties, cooperation of participants requires initiatives of the private sector (business).

Successful implementation of the program of the cluster "Complex processing of coal and technogenic waste" in Kemerovo region, which at this stage is in the process of actualization, is designed to change the technological platform of Kuzbass coal industry and to remove existing restrictions on the development that will allow the coal industry of Kemerovo region, not only to survive the crisis, but also to enhance the competitiveness of the region on the basis of an innovative component, which in turn will allow Russia to secure the status of an advanced coal power applying high technology in mining and processing of coal.

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<sup>32</sup> Spitsyn, S. 2014. Vzyali na perspektivu. *Expert-Sibir*. 1-4 (438). Available at: <http://expert.ru/siberia/2015/04/vzyali-na-perspektivu/>

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**Contact information**

Yuliya TSVELODUB

Senior Lecturer, Chair of Mathematical Methods for Economics and Planning

Faculty of economics

Novosibirsk State University

Pirogova street, 2

630090 Novosibirsk

Russian Federation

Email: [yula.ts@gmail.com](mailto:yula.ts@gmail.com)



## **SECTION II**



# INTERCOMPANY RELATIONS OF INNOVATIVE FIRMS WITHIN LOCAL PRODUCTION SYSTEMS

YUSUPOVA Almira

## Abstract

Innovative enterprises' intercompany cooperation as an important characteristic of local production system is discussed in the paper. New institutional approach is used as a theoretical foundation for this research. Research is aimed to find out the relationship between companies' innovative activities, behavioral characteristics and attitude to partnership cooperation. Main attention is paid to small and medium size companies. Empirical part is based on data of special survey of Siberian firms. The results show that most companies develop partnership cooperation spontaneously; they don't have regular cooperation management. Large domestic and foreign corporations are seen as reliable and effective partners for small and medium size firms.

**Key words:** intercompany networks, partnership cooperation, innovative activities

## INTRODUCTION

Performance of any firm is related to its cooperation with many economic actors. This cooperation is influenced by external environment and has influence to it. Firms create and develop partnership relations of various types. Forms and methods of such relations depend on company's size, its specialization, regional position, history, corporate culture, market power and other factors. In modern economic environment partnership interactions could be understood as a part of relational resources which are used by any company along with others. Such resources play important role in the development of related local production systems. Nature and character of relational resources, role of partnership cooperation as a tool of relational resources' potential increase and other similar problems are discussed in a number of research papers (Cheung et al., 2010, Ziolkowska 2014). These relations are especially important for the companies which have high level of innovative activities.

*The main aim of this research* is to find out if there is any relationship between types of partnership cooperation used by innovative company from one side and its innovative activities and models of innovative behavior from the other. Research is focused on the small and medium size business.

We understand partnership relations as the whole complex of relations and cooperation with different economic agents which take place in the process of company's creation and operations. They cover links between particular enterprise and all its partners.

Several classifications of partners and partnership relations suggested by different researchers could be found in literature. Usually they are discussed in the context of marketing strategies' analysis. For example Morgan and Hunt (1994) defined partnerships with consumers, suppliers, horizontal and internal partnerships as main forms of internal and external cooperation. We concentrate our attention on the first three types, internal partnerships are not considered. The set of external partners includes: consumers, suppliers,

intermediaries, consultants, research organizations, government and public institutions and others.

## 1 PROBLEM STATEMENT

Theoretical background of firms' cooperation could be related to basics of new institutional economics. Classical analysis should start from O. Williamson's (Williamson, 1981) approach, presenting firm and market as alternative forms of economic organization. Firm here deals with hierarchy and strict mechanisms of relations' regulation, while market is associated with free flexible schemes. At the same time Williamson didn't limit his explanations with two dimensions system only. He also suggested various hybrid variants of organizations. Many cases of intercompany partnerships could be good examples of such hybrid forms.

Companies usually are limited in their capability to outrun their competitors basing only on their own strategic resources and competencies (Methodology of Network Forms of Business Organization Research, 2014). Entrepreneurs have to cooperate as well as to compete with other actors in order to be successful. Cooperation provides an opportunity to concentrate resources and efforts of partners on the creation of greater value in order to distribute revenues later. Usually revenues are distributed under competitive rules. Partnership relations provide environment for these processes. System of company's links with partners could take different forms: unique transactions, long term relations, standard contracts between buyer and seller, strategic alliances, networks, vertically integrated structures etc. (Methodology of Network Forms of Business Organization Research, 2014).

Many researchers prove that cooperation between separate independent firms is regulated not only by formal institutions. Growing importance of interfirm networks is pointed out in many research papers. For example this importance was proved by Sheresheva (2010) and other authors.

Interfirm network is presented by the set of independent enterprises. Both market leaders and firms which don't have market power could join such networks. For the small market players intercompany networks have special importance as they provide element of quazi integrated structure. Joining networks small firms could obtain cumulative (virtual) size, use economy of scale and improve their competitive position.

We are mainly interested in the activities of innovative companies. Under contemporary economic environment innovative activity could not be carried out by single firm only, many actors are involved in these processes. Competitive advantages of successful companies are based mainly on the cooperation with such partners as suppliers and consumers, producers of complementary products and services, distributors and dealers, government and public organizations, universities and research institutes. Very often such cooperation is developed with help of network structures.

Interfirm networks appear as a result of integration processes which take place at many industrial markets. M. Sheresheva (2010) shows that networks have different genesis. They have different origin and appear as a result of different tendencies which sometimes have controversial character. Interfirm networks could be interpreted as medium and long term coordination mechanisms. Market type of organization is based on classical contracts, hierarchy deals with relational ones, while hybrid form uses neoclassical contract which provides partners with some level of flexibility. Networks help to regulate and coordinate cooperation in a certain manner but they can't avoid future conflicts between members. Therefore special regulating and managing mechanisms should be introduced.

Each individual firm joins several network schemes simultaneously within its operation. These interfirm relations get special importance under unstable economy. Probability of

opportunistic behavior naturally increases under crisis when well-established stable relations are destroyed. Companies try to achieve two goals in these circumstances: to save existing relations and to create new chains. This has special relevance to the suppliers. Y. Popova (2010) explained that practice of Russian companies during 2008 crisis proved tendency which was mentioned above.

Russian economy provides interesting practice of network cooperation in general. Pure market forms of economic organization couldn't be developed successfully within Russian environment. Most companies use long term contracts with their main partners. A number of empirical works aimed to study such experience appeared during recent years. Most of them deal with nature of network cooperation and its results. Y. Popova (2010) described the results of large scale survey and showed that most companies incurred additional financial costs when they've built networks. This study was carried out in collaboration with experts from Russian Economic Barometer. It was shown that more than 70% of CEOs were interested in stable long term partners. They considered that partnership relations helped to consolidate resources and to increase competitive advantages. It should be noted that in most cases cooperation is developed vertically. Most market agents don't trust horizontal partnerships. Very often existing networks help to find new partners.

As it was already pointed out partnership cooperation in general is very important for innovative entrepreneurship. Network structures correspond to the most important type of cooperation. Networks help to disseminate information on innovations, they provide opportunities for resource exchange, feedback from consumers, and they favor the promotion of definite innovative product.

Significant advantage of network is based on its flexibility and developed capacity to adapt to external environment. This has special importance for complicated products when it is difficult to organize direct control of all resources and competencies and when external environment is very unstable (Kolesnik & Gorlacheva, 2012).

In addition network cooperation helps to avoid breaks between different stages of innovative process. This characteristic has special value for small and medium size businesses.

Network cooperation can take different forms; one of them is presented by business associations (BA). They provide great assistance to innovative companies, number of empirical papers is devoted the role and place of BAs in Russia, it was found out that about 40% of Russian industrial companies are members of BAs, about 50% of them consider such membership useful and beneficial (Essays of Russian Industry Modernization: Firms Behavior, 2014). We have found that BAs give effective informational help to innovative companies (Yusupova, 2012)

It was proved that many innovative companies got effective support from cooperation with universities, research institutes and service intermediaries (Methodology of Network Forms of Business Organization Research, 2014). M. Ziolkowska (2014) pays attention to the fact that companies included in developed cooperation networks have strong advantages in the process of foreign markets entrance. This author also proves that management of cooperation and relations becomes important and actual in contemporary conditions. However this is not fully understood by companies' CEOs. It was discovered empirically that partnership cooperation management is carried out only by 25% of Polish enterprises. Attention in these cases is paid mainly to the relations with suppliers, consumers and to less extent competitors (Ziolkowska, 2014).

In general the potential of partnership cooperation is not used by entrepreneurs totally. Very often this cooperation is developed spontaneously; therefore companies make mistakes which limit their growth. Entrepreneurs in Russia also deal with this problem. Most partnership relations are not such effective as they could be. Survey of innovative potential of

Rostov region revealed that 80% of respondents (different actors of innovative system) marked low trust between partners as significant barrier for innovative development (Methodology of Network Forms of Business Organization Research, 2014).

Summing up these assumptions it is possible to note that there is real necessity to develop effective schemes of partnership relations; on the other hand, there are no any reasonable models of these relations' management. Therefore studies of nature and character of partnership relations within entrepreneurial activities are actual and urgent.

## **2 PARTNERSHIP INTERRELATIONS OF INNOVATIVE COMPANIES: EVIDENCE FROM SIBERIAN FIRMS**

Our paper is focused on the problems of innovative entrepreneurship. Empirical part is based on data collected with the help of special survey of Siberian innovative companies. Major part of the sample is presented by companies and entrepreneurs who work at Novosibirsk research center which is marked by favorable innovative infrastructure. Several companies representing other Siberian cities are also included in the sample. Forms of innovative firms' intercompany cooperation were studied; companies' attitude to the role of this cooperation was analyzed within our research. Small and medium size Siberian innovative companies were selected for the analysis.

Our data confirm that innovative companies develop formal and "informal" types of cooperation. Already mentioned BAs are interesting examples of the informal one. It is interesting to note that these associations are created by state authorities as well as by innovative entrepreneurs independently.

We studied relations between companies' characteristics and its attitude to different types of intercompany cooperation. Main survey was developed as the part of large scale research of innovations transfer. The main methodology is explained in several publications (Kravchenko et al, 2011).

Characteristics of firms' innovative behavior were compared with several indicators reflecting different features of development including interfirm cooperation. The part of the sample used for this step of research included 59 companies located mostly in Novosibirsk oblast. Some results are discussed below.

All set of responding companies was divided into two parts at the first step of analysis. A special group of so called "leaders" was selected, it included companies working at national and international level and producing products with high level of novelty (products which are new for Russia or even for the whole world). Such companies have very high level of innovative activities. We suggested that their behavior should differ from other market participants, which formed the second group of so called "other companies"

General respondents' attitude to the participation in BAs as the form of cooperation was examined at the first stage. Results show that majority of companies consider BAs as an important factor of business support. Companies understand BAs as a tool of effective informational support. It is interesting to point out that leaders gave higher scores for BAs comparing with other companies.

Going further we concentrated on partnership relations with enterprises and research institutions. We tried to estimate how important is this cooperation for innovative companies and how it is related to the firms' basic characteristics which included product's novelty, market scale etc.

Analysis revealed that in general companies didn't estimate detached partnerships high. Leaders consider them to be more important. Then these estimations were compared with novelty of product produced by company. According to our initial assumption the higher novelty reflects the higher innovative activity. The aim was to find out the relations between



innovative activity and importance of partnership cooperation with the selected actors. Correlation coefficient was used as an indicator of such relationship. It should be noted that the importance of cooperation was reflected only by the scores given by respondents.

The results obtained for the whole sample differ from those for the separate groups. Thus weak positive correlation between the level of novelty and cooperation with research institutes and universities was found for the whole sample. The same conclusion could be formulated for the group of non leading companies. However correlation of these factors turned to be negative for the group of “leaders”. They are not interested in cooperation with official academic institutions, demonstrate tendency to autonomous development. Calculations and interpretations of the results are shown in our special paper (Yusupova, 2012).

Here we would like to concentrate on some further steps of our research in more details. Geography of main consumers was considered as one of the characteristics of innovative company. This feature reflects the scale of market where company operates. All firms under our study were divided to 5 categories according to consumers; location, they are:

- 1 – Companies operating within Novosibirsk oblast;
- 2 – Companies operating within Siberia;
- 3 – Companies operating within Russia;
- 4 – Companies operating within CIS;
- 5 – Companies operating within the whole world;

If any company operated within several markets we selected the widest.

One step of the research was devoted to the *relations between market scale and attitude to the importance of partnership relations* with other actors of innovative system. As it was already mentioned such relations either directly or indirectly are reflected in several parts of the survey. Analysis of some components is presented below. We concentrated on three aspects which were tentatively called “directions”.

“Direction 1” - “Cooperation with large companies” as a tool of innovative companies’ development support

“Direction 2” - “Cooperation with universities and research institutes” as a tool of innovative companies’ development support

“Direction 3” - “Cooperation with research institutions and enterprises” as a factor of innovative companies’ success

Respondents were asked to value the importance of selected partnerships directions for their companies in the relevant context (either tool of support or factor of success). Evaluation was made with the help of 6-grade scale (0-5).

It was suggested that higher level of innovative activity is typical for companies oriented to the wider markets. Again our aim was to define relations between innovative activities and attitude to the importance of partnership cooperation. According to initial hypothesis companies with high innovative activity should give high scores to the importance of partnership relations. They should try to take advantages of all partners’ opportunities. Again correlation coefficients were used as relationship’s indicators. In addition we analyzed existence of relationship between estimations of different partners’ importance. According to general research approach all relations were analyzed for two stages of company’s life cycle: stage of creation and stage of development. We consider that company’s’ behavior, its barriers, difficulties and attitude to different problems depend on the stage of life. It should be noted that similar stages are considered to be important in other papers also, for example Polish research mentioned earlier is based on the same assumptions (Ziolkowska, 2014).

Correlation coefficients which turned to be significant are shown below in table 1. Other coefficients were insignificant. The results show that an initial hypothesis about the higher estimations of partnership by companies working at wider markets was not confirmed. It

should be pointed out that positive correlation between market scale and estimation of partnership with research institutes as tool of support (Market scale – Direction 2) was found only for leaders at the stage of creation. It could be suggested that leading companies oriented on wide markets are interested in cooperation with such partners at early stages of their development. However our previous results and absence of other correlation show that in general innovative companies don't consider relations with the indicated partners as real important part of their activities, part which should be developed and managed seriously.

Rather interesting results were obtained for relations between scores given to different types of partnerships. It could have been assumed that all or most scores should be correlated positively. If company's manager or owner considers that partnership with research institute is important he should give rather high scores to the relations with other actors also. Results show that this is not true. Strong positive correlation was found only for scores given for partnership with research institutes and universities as a tool of support and scores given to partnerships with enterprises as success factor. This correlation was demonstrated by leaders at the stage of creation.

Table 1 Correlation between Market Scale and Estimations of Partnership Relations' Importance

Relations under analysis	Correlation coefficient	p-value
Leaders - Stage of creation		
Market scale – Direction 2	0,39	0,08
Direction 1 - Direction 2	0,41	0,06
Direction 3 - Direction 2	0,66	0,001
Other companies - Stage of development		
Direction1 - Direction 2	0,48	0,02

Positive correlation (though meaning of coefficient is lower) was also found for scores given by other firms to partnerships with research institutes and with corporations at the stage of development. It is interesting to note that similar relationship was found for leaders at the stage of creation. It could be suggested that non leading companies meet the same problems as leaders with some time lag.

*Separate part of research* was based on a special survey which included set of questions concerning partnership relations directly. Our aim here was to find out business partners who have great importance for companies, dominant types of agreements, relations between companies' characteristics and models of cooperation. Some results are presented below. Total number of analyzed observations here is 39. Cooperation with partners of main types was examined. These types include following groups: small and large business companies, state institutions, foreign companies. These partners could act both as resource suppliers and as consumers of innovative companies' products. In addition questions covered cooperation with banks, competitors, BAs, universities and research institutes. It was also assumed that state authorities could act not only as supplier or consumer but also an informational, infrastructural, regulative partner. Averaged scores of all partners' importance are presented in table 2.

It turned out that in general consumers got higher scores than suppliers. According to respondents' opinions the most important role was given to large companies as consumers. In the group of suppliers the highest score was obtained by small business. It is possible to suggest that innovative companies prefer to get orders from large corporations and to buy components and semi-manufactured articles from small firms.

Table 2 Average Scores of Partners' Importance (evaluation was based on 0-5 scale)\*

Partner	Average score of importance
Consumers	
Small business (C-SB)	3,21
Large business (C – LB)	3,62
State structures (C- Gov)	2,82
Foreign companies (C – FC)	2,08
Suppliers	
Small business (S – SB)	2,90
Large business (C – LB)	2,46
State structures (S – Gov)	0,64
Foreign companies (S – FC)	1,87
Other partners	
Companies working at the same market (Competitors)	2,00
Banks and other financial institutes (Banks)	2,00
Research institutes (RI)	1,92
Universities (Univ)	1,36
Business associations (BA)	0,90
State structures (Gov)	1,87

\*notation conventions which are used in further illustrations are shown in brackets

Separate question was devoted to informal types of cooperation in relations with different partners. General results are presented on figure 1.

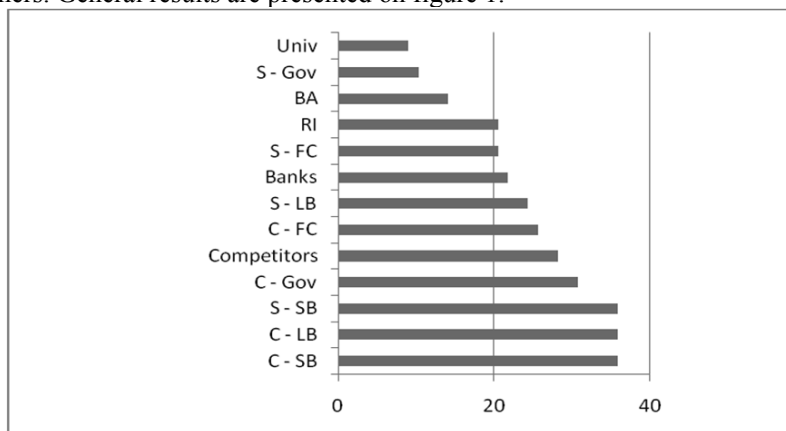


Figure 1 Share of companies which use informal relations with different partners, %

Our results show that innovative entrepreneurs use informal models of cooperation in relations with all partners. In greater extent this applies to the relations with large and small companies as consumers and small companies as suppliers. It should be pointed out that this figure reflects only the fact of application while definite forms and frequency are not taken into count.

Analysis of the results obtained revealed that there is no any correlation between the level of product novelty and scores of partners' importance. No correlation was found for the level of novelty and use of informal models of cooperation.

Separate step was devoted to the analysis of correlation between the scores of the importance of different partners. Coefficients which turned to be significant (p-value is less than 0,05) are presented in table 3. Some values which seem more interesting from the point of view of interpretation are marked by bold. As it could be seen the strongest positive correlation was observed for the scores of role of research institutes and universities. This looks quite appropriate and could be explained by the nature of these actors. Negative correlation was obtained for the scores of importance of small companies as suppliers and universities. It is possible to suggest that companies which are oriented to the deliveries from small enterprises are not inclined to cooperation with universities. It is worth to pay attention to the positive correlation of the scores of the importance of same agents acting in different roles (for example small firms as consumers and suppliers). Such correlation was found for large business and foreign companies. It could be interpreted so that innovative companies consider these actors to be reliable partners and in general are interested in cooperation with them.

Table 3 Correlation of Scores of Different Partners' Importance

Pairs of partners	Correlation coefficient
1	2
Consumers small business –Competitors (CSB- Competitors)	0,383
Consumers small business – Business Associations (CSB – BA)	0,333
Consumers large business - Consumers foreign companies (CLB – CFC)	0,438
Consumers large business - Suppliers large business (CLB – SLB)	0,434
Consumers large business - Suppliers foreign companies CLB – SFC)	0,471
Consumers large business –Competitors (CLB – Competitors)	0,328
Consumers large business – Research institutes (CLB – RI)	0,463
Consumers large business – Universities (CLB – Univ)	0,327
Consumers foreign companies - Suppliers foreign companies (CFC – SFC)	0,408
Suppliers small business - Suppliers large business (SSB – SLB)	0,504
Suppliers small business – Universities (SSB – Univ)	-0,375
Suppliers large business - Suppliers state structures (SLB – Gov)	0,318
Competitors - Banks and other financial institutions (Competitors – Banks)	0,34
Research institutes – Universities (RI - Univ)	0,658
Research institutes - Suppliers state structures ( RI – Gov)	0,444
Universities – Business associations (Univ – BA)	0,43
Universities - State structures (Univ – Gov)	0,467
Business associations – State structures (BA – Gov)	0,428

In general large business was mentioned in the table more often than other actors; this frequency confirms the importance of corporations as partners of innovative companies.

## CONCLUSION

Our research of the models and forms of partnership cooperation of innovative companies is going on. Some preliminary conclusions are formulated below:

- Partnership relations could be understood as an important element of relational resources of any company. The role of such resources is constantly increasing under contemporary economic situation. Effective system of partnership relations gives an opportunity to achieve competitive advantages even for small companies which could use the potential of large firms under quazi integration. Partnership relations are especially important for innovative entrepreneurship.

- Forms and models of partnership relations are very different. Innovative companies use both formal and informal types.

- In spite of the existence of many indirect confirmations of the importance of partnership relations for innovative companies in general these relations in most cases are formed spontaneously without deep justification. This is reflected by various controversies in the results of formal survey data analysis. Regular management of partnership relations doesn't exist yet.

- Our results show that many innovative companies consider large domestic and foreign corporation as reliable main partners. Taking into account that innovative system is very complex and includes different various elements it is possible to note that these very actors could play important role in the development of innovative entrepreneurship. They could act not only as active innovators themselves but also as effective supportive partners of small and medium size business.

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**Contact information:**

Almira YUSUPOVA  
Institute of Economics and Industrial Engineering SB RAS,  
Novosibirsk State University,  
e-mail: yusupova@ieie.nsc.ru

# CONSTITUENTS OF SUCCESS FOR SMALL INNOVATIVE BUSINESS DEVELOPMENT: THE EXAMPLE OF NOVOSIBIRSK REGION (RUSSIA)

KHALIMOVA Sophia

## Abstract

This paper analyzes the characteristics of small innovative business development. The factors that contribute to the success of innovative companies are in the focus of our attention. Information data base is results of the survey of small innovative companies in Novosibirsk region. We examine separate components of success as well as their combinations – that are strategies for success. The main purpose of the paper is to identify common patterns of small innovative business development successful development.

**Key words:** innovative business, small innovative companies, factors of success.

## INTRODUCTION

In today's economic reality special attention is focused on innovation activity, which is becoming one of the key elements that determine the development of the economy. The high level of innovation development promotes intellectual capital, leads to the creation of new markets and new jobs, economic growth and higher living standards.

Modern literature examines a variety of theoretical approaches that explain the various aspects of innovation activity and innovative development. One of them is the concept of innovation systems. It is a research approach that considers innovation as a result of numerous interactions of different parts of the system. Innovation processes are not linear, they are random and depend on past development.

In developed countries companies operating in competitive markets are the core of innovation systems. What kinds of companies play a major role in these processes and have the greatest potential for innovation? There is no clear answer to this question. There are theoretical and empirical evidence proving the special role of big business as well as of small innovative companies. Large companies have a number of advantages with respect to small and medium-sized companies, which arise to some extent from their ability to attract significant resources. For large companies it is easier to attract a variety of financial resources, they may carry large research laboratories, etc. The advantages of small businesses are in their flexibility, low levels of bureaucracy and, as a result, high-speed response to market changes.

Small innovative firms are an important component of the innovation system. They are the link between science and its practical applications: it is the small companies who often undertake the risk of new products and technologies development and the risk of transformation knowledge into a commodity. [2]

For Russian small companies share of R&D costs, which is one of the key indicators of innovation, account for approximately 30%, while for medium and large it is about 16%. This indicates the innovative role of small companies in the Russian innovation system [1]. According to the survey, in contrast to large and medium-sized companies, which are focused

on improved production (upgraded) innovative products, small businesses is focused on the introduction of new ones [4].

Policy for development of small innovative entrepreneurship must take into account the real needs of its subjects. In this regard, it is important to analyze the features of the existing small innovative business, in order to know how it works, and what it needs.

This paper analyzes the features of small innovative businesses development in the Russian innovation system (in the Novosibirsk region in particular). Factors that contribute to the successful development of small innovative companies are in the focus of our analysis. The main purpose of this paper is to identify common patterns of successful development of small innovative businesses.

## 1 SMALL INNOVATIVE COMPANIES IN NOVOSIBIRSK REGION

Novosibirsk region is one of the innovatively developed regions of Russia. According to governmental statistics [11], the share of domestic expenditure on research and development in the region's GRP in 2009 and 2011 was 2.8 and 2.5% respectively, which is significantly higher than the all-Russian level (1.5 and 1.4%, respectively). For this indicator, Novosibirsk region is close to such countries as Germany (2.8%) and Austria (2.7%) [14]. In small innovative business development Novosibirsk region is also ahead of a nationwide level (see Table 1): the region's indicators are significantly higher. Thus, the statistics shows that small companies are an important element of regional innovation system of the Novosibirsk region.

Table 1 Small innovative companies in Novosibirsk region

	2009	2011	2013
<b>Share of small companies performing technological innovations, %</b>			
Russian Federation	4.08	5.11	4.75
Novosibirsk region	6.07	6.89	8.01
<b>Share of innovative products, %</b>			
Russian Federation	1.38	1.48	2.07
Novosibirsk region	5.25	4.18	6.34

Source: [10]

This paper presents the results of one the parts of the research conducted in IEIE of SB RAS since 2009 [5-8]. The data for the study was collected through the questionnaire of the small innovative companies in Novosibirsk region in 2009-2011. 117 managers of small innovative companies took part in the questionnaire. And the research sample consists of 88 companies.

Let us give some characteristics of the sample of companies under study. 52% of the companies are young, they were founded less than ten years ago. The companies operate mainly in B2B market. The novelty level is high: more than half of products are new for Russian and world market. Companies under study produce different kinds of electrical equipment, analytical instruments, medical equipment and medicines, etc. Own ideas and results of own research and development (R&D) are the main source of innovative ideas.

The majority of the companies (84.1%) are financed mostly from the firm's resources and that is typical for all kinds of small companies in Russia.



## 2 CONSTITUENTS OF SUCCESS OF SMALL INNOVATIVE BUSINESS

Successful development is composed of a variety of different components. In this study, analysis of the features of the development of innovative business is conducted in the context of the 4 groups of factors: access to the market, competitive ability of the product, human resources and management, institutional environment. In each of the categories typical constituents of success are formulated. On the other hand, the features of small firms are analyzed in the context of life-cycle of organization, with the focus on the founding stage and stage of development, which lay the foundation for the company's future. [5]

Companies under study were asked to rate with a 6-point scale (from 0 – does not matter – to 5 – the most important), what constituents they believe to be key to the success of the company. Obtained average ratings of factors of success are shown in Fig. 1.

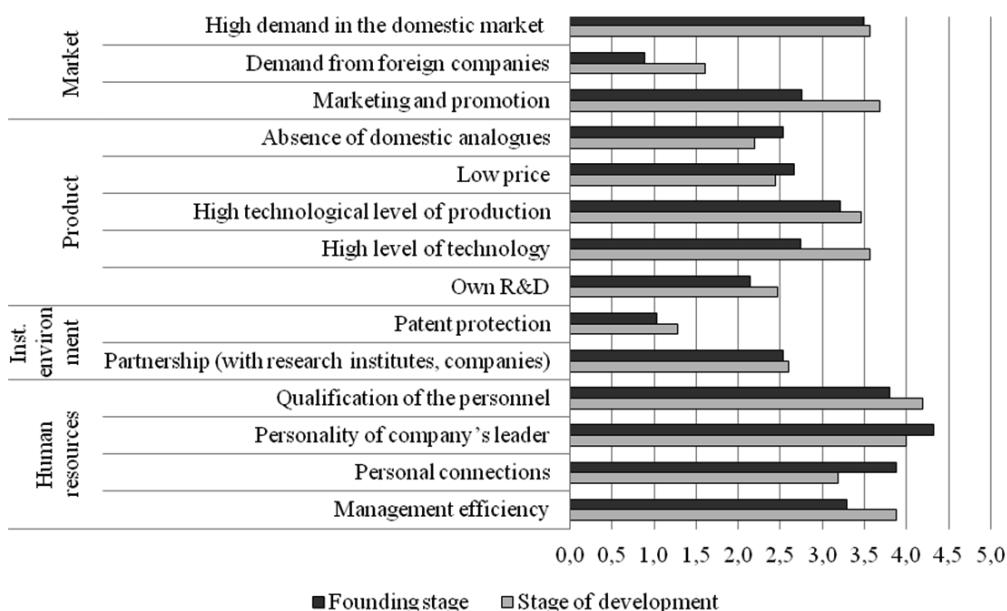


Figure 1 Average ratings of constituents of success of small innovative business

We can see that, according to representatives of innovative business, the key terms in the company's success are the factors of human resources and management, obtained average ratings of these factors are higher than of the others. Personality of company's leader as well as personal connections play a major role when creating o business. In a further development qualification of the personnel and management efficiency are added to the list.

Among other constituents of success we want to note the important role of domestic demand. Thus, despite the high level of novelty of product produced even by world standards, Novosibirsk companies associate their development primarily with the domestic market. This suggests that innovative business sees many opportunities in the Russian domestic market.

Different constituents of success play different roles at different stages of business development. Some of them are perceived as more important at the founding stage, others at the stage of development. Such factors as personality of company's leader, personal connections, low price of the product, absence of domestic analogues are rated higher ant the

founding stage. These factors are aimed to occupy a niche in the market place. In the future, those elements of success that help to hold position come to the fore, they include qualification of personnel, management efficiency, marketing and promotion, the level of technology, technological level of production. At the stage of development personality of company's leader and personal connections are also considered as one of the most important constituents of success, but at this stage of the life cycle of personal qualities alone are not enough.

### **3 STRATEGIES FOR SUCCESS OF SMALL INNOVATIVE BUSINESS**

Considering how small innovative business evaluates the various constituents of success, we in fact analyze them separately. However, having one of the constituents, even the key one, still will not guarantee successful business development. The company will succeed if it relies on a combination of several different elements in its development. Not only the key constituents of success are important for the successful development, but other seemingly minor points, when in combination with the main terms, will also contribute to achieving success. Here we start with the assumption that a combination of several elements, that can be not the key ones, gives a synergistic effect when joint contribution of these elements to the overall success may be higher than one would assume, based only on estimates of their importance for successful development.

Combining multiple constituents of success in combination, on which company will rely in its development, in fact, is the finding of a strategy for success.

In strategic management it is discussed how to build an innovative strategy for the company to get a competitive advantage, which would allow the company to become a monopolist and receive a conditional monopoly profits. [3] For small innovative companies it is even more important, since by virtue of their objective characteristics one wrong strategic decision can be fatal for the business, and conversely, the right decision will exalt it to the top of success. And here it is useful not only to turn to the theoretical foundations, but also take into account the experience of other similar companies.

How to choose those constituents of success, which will contribute to achieving the best results? To do this, we turn to the factor analysis (principal components method), by which we combine the elements of success discussed in the several bigger factors – strategies for success.

The meaning of the factor analysis states that the observed variables are the result of latent characteristics which are hidden from direct measurements [9]. Thus, the same latent variable affects several observed ones. The number underlying causes, that determine the characteristics that we observe and measure, is significantly less than the number of observed variables. Thus, using factor analysis we determine the factors that affect our analyzed components of success.

Here we conduct factor analysis separately for the founding stage and for the stage of development: as a result we obtain success strategies for different stages of the life cycle.

First, let us consider the strategies for success at the founding stage. Table 2 shows the results of the factor analysis (for clarity of further arguments the average ratings of constituents of the success are also presented in the table).

Table 2. Choosing strategies for success with the help of factor analysis (founding stage)

<b>Constituents of success</b>	<b>Factor loadings</b>	<b>Average ratings</b>
<b>Component 1</b>		
Management efficiency	0.80	3.29
Personal connections	0.72	3.88
Qualification of the personnel	0.70	3.80
Personality of company's leader	0.68	4.33
Share of total variance – 32.15%		
<b>Component 2</b>		
Marketing and promotion	0.77	2.75
Low price	0.59	2.66
Patent protection	0.56	1.04
Partnership (with research institutes. companies)	0.55	2.54
Share of total variance – 11.67%		
<b>Component 3</b>		
High level of technology	0.82	2.74
High technological level of production	0.69	3.22
Own R&D	0.57	2.15
Absence of domestic analogues	0.56	2.54
Share of total variance – 8.68%		
<b>Component 4</b>		
High demand in the domestic market	0.73	3.48
Demand from foreign companies	-0.70	0.89
Share of total variance – 7.98%		
<b>Share of total variance (total) – 60.48%</b>		

The application of factor analysis allowed us to identify four principal components (table shows the factor loadings of constituents of success included). These four components add up to 60.48% of the total variance, i.e. selected components explain 60.48% of variation of the random variable (in our case – the company's success on the founding stage). In fact, in our case, the variance of the random variable shows how successful or not the start of small innovative business is. Thus, this means that the identified components explain success of business at the founding stage to 60.48%. Let us look at each of the selected components in details.

The first component unites a group of terms “human resources and management”, it includes three of the most important, according to the small innovative business, constituents (personality of company's leader, personal connections and qualification on personnel) and the fifth most important element of success (management efficiency). So, this group of terms defines a strategy for success that comes from the fact that a key element of success is people. Human resources explain more than 30% of the successful start of business.

The second component consists of constituents of success from the groups “access to the market”, “competitive ability of the product” and “institutional environment”. The combination of these elements determines how the company is positioning itself and promotes on the markets. Despite the fact that individually each of these elements of success are not rated so high, together they form a largely successful (and important) strategy, which accounts for almost 12% of the successful launch of an innovative company.

The third strategy for success – the third component, which defines almost 9% of success, is a strategy of development based on emphasis on product quality. It brings together almost all the group “competitive ability of the product”. Competitive ability of products, in this case,

implies a high level of technology and the high technical level of production. Thus, we found that the technological features and quality are important to a successful start only in the third place. These elements are the innovative aspect (especially for our sample, given the high level of novelty of the products). The obtained results show that even for innovative business, despite the important role of the technological content, the successful start is determined not only and not so much by the brilliant idea itself. For an idea or a development to become an innovation, it should be demanded by the market. First strategies for success identified are geared to the conquest of the market. The leaders of innovative companies understand what is needed to develop the innovation from an idea. We can conclude that in the Novosibirsk region there are innovative managers who understand the peculiarities of launching innovative products to market and are able to successfully lead the company through the founding stage.

And finally, the fourth component is the factor of demand. It includes the high demand in the domestic market and the demand from foreign companies that belong to the group “access to the market”. Here, in contrast to the first three selected components, the ingredients for success have different signs of factor loadings. This means that at the founding stage to achieve success the company should focus either on the domestic or foreign markets. For the start-up company it will be extremely difficult to catch two birds, so it must choose one of them. The fourth strategy explains the success at the start to almost 8%.

Now let us turn to the stage of development. Table 3 shows the results of the factor analysis (for clarity of further arguments here the average ratings of constituents of the success are also presented in the table).

Table 3 Choosing strategies for success with the help of factor analysis (stage of development)

Constituents of success	Factor loadings	Average ratings
<b>Component 1</b>		
Personal connections	0.80	3.18
Personality of company’s leader	0.76	4.00
High technological level of production	0.62	3.46
Qualification of the personnel	0.58	4.19
Low price	0.34	2.44
Share of total variance – 33.19%		
<b>Component 2</b>		
Own R&D	0.77	2.46
Patent protection	0.74	1.28
Absence of domestic analogues	0.65	2.19
High level of technology	0.61	3.57
Share of total variance – 11.89%		
<b>Component 3</b>		
Marketing and promotion	0.74	3.68
Management efficiency	0.65	3.87
Demand from foreign companies	0.48	1.61
Share of total variance – 8.58%		
<b>Component 4</b>		
High demand in the domestic market	0.77	3.57
Partnership (with research institutes. companies)	0.65	2.60
Share of total variance – 7.52%		
<b>Share of total variance (total) – 61.18%</b>		

At the stage of development, as well as at the founding stage, there are four principal components that add up to 61.18% of the total variance. I.e. selected components attribute 61.18% of the success in doing business at the stage of development. Let us turn to each of the selected components.

The first component combines elements of the success of the groups “human resources and management” (qualification of the personnel, personality of company’s leader and personal connections) and “competitive ability of the product” (high technological level of production and low price). Strategy for success here is to offer quality products at a low price, but this alone is not enough for successful development. Personality of company’s leader as well as personal connections play an important role. Business development depends not only on the characteristics of the product and its quality, but also on personal connections and the personality of the manager. Without these constituents of success business cannot be created nor developed. The first strategy for success combines both elements that have high ratings and elements that are rated low enough. Individually, these elements, may be, are not so important for success, but their combination explains 33% of success.

The second strategy for success is composed of the constituents of success related to the competitiveness of products and the institutional environment. Elements of success outlined in this component are the innovative component, they are particularly important for innovative business. Thus, at the stage of development the second most important strategy for success, that explains almost 12% of success, involves development based on using unique and high-level technologies. Despite the fact that by the contribution to the total variance it is the second strategy for success, it combines elements that are individually rated not very high. Here synergistic effect can be seen when the joint contribution of the secondary elements to the overall success is higher than the one of the more important.

The constituents of success from the groups “access to the market” and “human resources and management” belong to the third component. This strategy involves the orientation mainly on the foreign market. In this case, we can assume that the competition on the external market is higher since here product promotion becomes important. Successful development in foreign markets gives about 9% of total success.

The fourth component combines factors of access to the market and institutional environment.

The fourth strategy for success is the focusing mainly on the domestic market. The successful development in domestic market accounts for about 8% of total success. Sustainable partnerships are needed for the successful development in the domestic market. To some extent, this strategy echoes with the first one, where personal contacts (which develop into partnerships between companies and organizations) play an important role. However, it is more important that having stable and strong partnerships is the key to product quality. One of the most significant barriers for the development of small innovative businesses (and business in general) is the lack of qualified personnel [12, 13], which cannot but affect the quality of the products. In these conditions, the existence of strong partnerships, where the parties know each other well and know what to expect from each other, helps to reduce the impact of this barrier.

#### **4 PATTERNS OF SUCCESSFUL DEVELOPMENT OF SMALL INNOVATIVE BUSINESS**

Let us present the arguments discussed above in the form of a diagram showing how different groups of elements form a strategy for success at the founding stage (Fig. 2) and at the stage of development (Fig. 3).

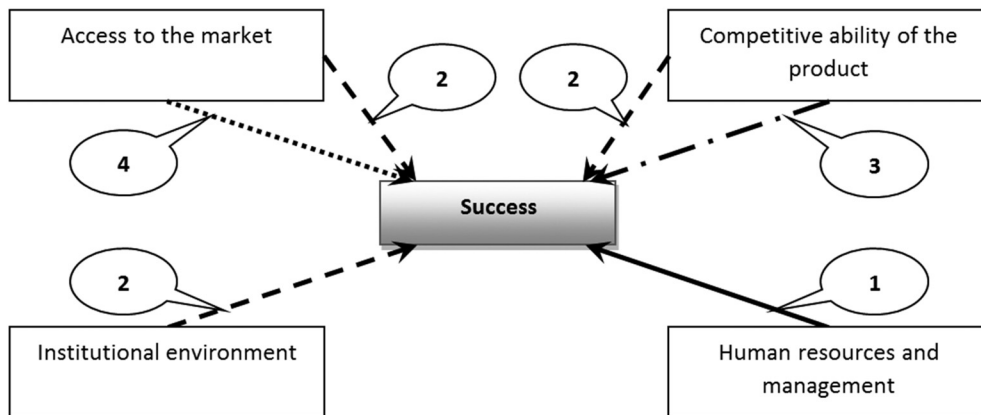


Figure 2 Strategies for success at the founding stage

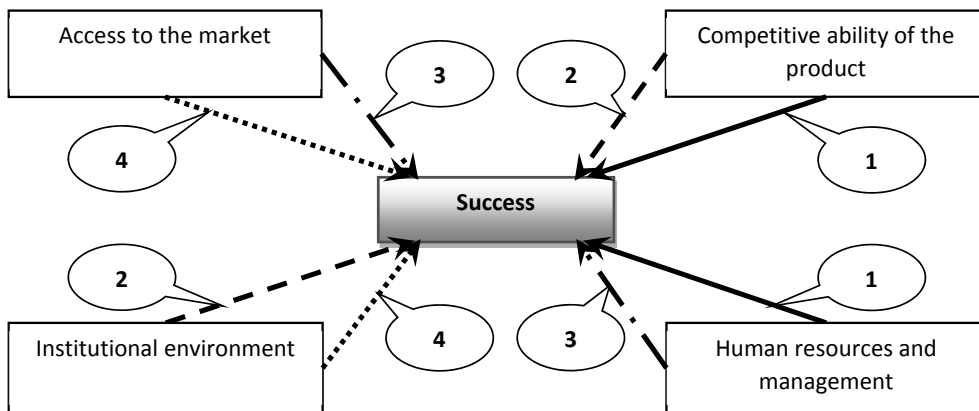


Figure 3 Strategies for success at the stage of development

When creating a business almost all strategies for success consist of only one group of constituents of success. Only the second strategy involves elements of success related to three different groups (“access to the market”, “competitive ability of the product” and “institutional environment”). Other strategies for success are specialized and aimed only one of the sectors. On the other hand, groups of elements “institutional environment” and “human resources and management” are involved in only one strategy for success.

At the stage of development, on the contrary, each strategy includes elements of success of the two different groups, and each group is involved in the formation of two different strategies. As the business develops strategies for success become more complex and include elements from different spheres; to focus only on one thing is no longer enough for the successful development.

In the diagrams (Fig. 2 and 3) it is shown that the success of small innovative business relies on four grounds. The scheme describing the stage of development seems to be more “stable” as it is based on all four bases equally. It seems that at the stage of development success is largely a result of the developed strategy, while at the founding stage random factors have a greater impact. It should be noted that these results are based on an analysis of the opinions of small innovative companies regarding the laws of business development. I.e.

according to the small innovative business, if at the start success to some extent may be accidental, the successful development is impossible without the harmonious development of all aspects of the enterprise's activity, including product quality and human resources, market positioning and interaction with the environment.

## CONCLUSION

The analysis showed that the main constituents of the success of small innovative business lie in the sphere of human resources and management, with technological level of production becoming more important when business develops. There exists no universal recipe for success, but the generalization of experience of innovative companies' development in Novosibirsk region revealed the typical features and patterns of running a small innovative business. Identified strategies for success help to understand in what areas one should concentrate resources without spraying efforts.

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### **Contact information**

Sophia KHALIMOVA, PhD.

Department of Economics, Novosibirsk State University

Institute of Economics and Industrial Engineering of SB RAS

17, Lavrentiev prospect

Novosibirsk, 630090

Russia

sophiakh@academ.org



# REGIONAL DISPARITIES AND THE SMALL AND MEDIUM-SIZED ENTERPRISE SECTOR – THE CASE OF SLOVAKIA

ČAPKOVÁ Soňa

## Abstract

The endogenous regional policies oriented to developing the region's internal potential pay particular attention to the development of medium-sized, small and micro-enterprises. The performance of SMEs is affected by regional economic factors such as unemployment, average incomes, etc. Despite Slovakia recovered relatively swiftly from the 2009 global crisis the growth has been unevenly balanced across regions and inequalities in regional and household income have widened. Regional disparities are persistent and rising over time. In the paper we provide a broad insight into regional differences of SME sector in Slovakia in the context of national indicator of SME sector and regional disparities.

**Key words:** micro, small and medium-sized enterprises, regional disparities, region, Slovakia

## INTRODUCTION

Micro, small and medium-sized enterprises (SMEs) are considered to be one of the essential driving forces in national and regional economies. They are flexible and can adapt quickly to changing market conditions. They generate employment, help diversify economic activity and make a significant contribution to exports and trade. SMEs also play an important role in innovation and the high-tech business, due to their flexibility and creativity many of them became large businesses. SME sector has gained additional attention in the economic crisis, as it is widely viewed as a key aspect of economic dynamism.

The Slovak economy is heavily dependent on SMEs, as they provide 72% of employment and 67% of value added, well above the respective EU averages of 67% and 58% (EC, 2014).

Small and medium entrepreneurship plays in Slovak republic the irreplaceable role in balanced regional development. However, they are usually very closely associated with the regions in which they operate. The SMEs performance in a region will not only depend on the endogenous capacities of the firms but also on particular regional circumstances.

## 1 SMEs' SIZE, EMPLOYMENT AND LABOUR PRODUCTIVITY

In this part we present a few basic indicators describing the significance of SMEs in Slovakia in a broader international context. In more details we compare the size structure, employment and labour productivity of SMEs in different sectors in four FOLPSEC countries.

The latest internationally comparable indicators of the enterprise size structure are provided by OECD-Eurostat Entrepreneurship Indicators Programme which breaks down enterprises in five size classes based on the number of persons employed: 1-9, 10-19, 20-49, 50-249, 250+ (figure 1). This classification reflects the EU „number of employees“ criterion used (along with turnover or balance sheet total) to define SMEs: micro < 10, small < 50, medium-sized < 250.

In Slovakia as in all countries most businesses are micro-enterprises, i.e. firms with fewer than 10 employees. Moreover, micro firms in Slovakia are more common than in the EU or OECD as a whole and account for a higher than average proportion of firms and employment.

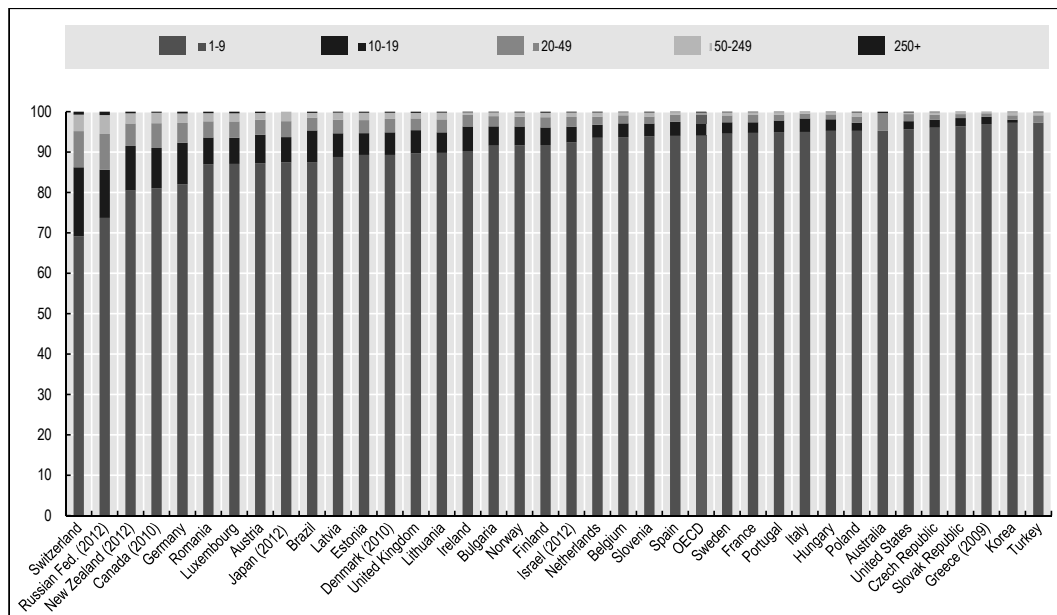


Figure 1 Enterprises by size in percentage, 2011

Source: OECD (2014a), *Enterprises by size: Percentage, 2011 or latest available year, in Entrepreneurship at a Glance 2014*, OECD Publishing, Paris

Micro-enterprises in Slovakia account 96 per cent of all firms with the highest proportion of micro-enterprises being found in the construction sector. However, there is substantial variation in the percentage of the workforce employed by micro-enterprises. Micro-enterprises in services account almost 48% and in construction even more than 72 % of total employment in their sectors, while in manufacturing the contribution is only 23,4%.

Table 1 Proportion of enterprise number, employment and productivity by size and sector, 2011

Sector	Manufacturing					Services					Construction				
	1-9	10-19	20-49	50-249	250+	1-9	10-19	20-49	50-249	250+	1-9	10-19	20-49	50-249	250+
<b>% of enterprise number</b>															
Bulgaria	77,7	9,1	8,0	4,3	0,9	93,6	4,0	1,8	0,5	0,1	87,9	8,1	2,8	0,9	0,3
Poland	86,9	4,1	4,3	3,8	0,9	96,6	1,6	1,1	0,6	0,1	95,8	2,0	1,3	0,7	0,1
Russian Federation (2012)	79,5	9,2	6,8	3,8	0,7	79,5	9,2	6,8	3,8	0,7	79,5	9,2	6,8	3,8	0,7
Slovak Republic	94,9	2,0	1,6	1,3	0,3	95,6	2,9	1,0	0,4	0,1	99,0	0,18	0,6	0,22	0,003
<b>% of person employed</b>															
Bulgaria	11,7	6,2	14,8	32,9	34,3	43,7	13,5	13,8	14,2	14,7	32,2	10,8	14,1	24,5	18,5
Poland	16,5	3,8	9,0	29,9	40,8	52,5	4,7	8,3	13,0	21,6	51,3	7,6	10,2	18,2	12,6
Russian Federation (2010)	0,3	0,6	1,7	17,3	80,1	1,6	2,2	5,8	28,6	61,9	-	-	-	-	-
Slovak Republic	23,4	5,3	8,8	25,7	36,8	47,9	12,8	9,1	13,0	17,2	72,1	1,6	11,5	13,4	1,4
<b>Labour productivity*</b>															
Bulgaria	64,4	59,3	57,5	84,6	152,7	66,7	101,9	113,9	141,4	144,1	81,9	79,2	61,8	137,1	123,6
Poland	42,1	66,2	72,4	88,1	141,3	53,8	127,7	157,5	157,8	149,6	73,2	99,7	129,5	115,8	162,4
Slovak Republic	53,1	68,1	88,0	101,9	135,8	74,0	97,0	179,2	128,7	111,0	80,6	150,0	102,7	186,4	188,2

\*Average per sector = 100

Source of data: OECD (2014a), *Entrepreneurship at a Glance 2014*, OECD Publishing, Paris.

Employment in manufacturing is dominated by the largest firms, they employ around 37% of people working in the sector, despite accounting for less than half a percent of all manufacturing firms.

Firm size matters for productivity. Similarly to most other countries, in Slovakia larger firms are on average more productive than smaller ones, particularly in the manufacturing sector (Labour productivity level has been measured as current price gross value added per person employed). However, this is not universally true. In some countries, for example Switzerland, data indicates that medium-sized firms have higher productivity than larger firms (OECD, 2014)

## **2 REGIONAL DISPARITIES IN SLOVAKIA**

SMEs are a critical component of regional economies. Their small size enables them to be flexible and adaptive, to innovatively diversify and to reduce production costs. Many local and regional governments are recognising the critical role SMEs have for their regions and are implementing strategies to facilitate SME development. Global financial crisis has highlighted the need for more information on the situation and performance of micro, small and medium sized businesses in regions. SMEs indicators at the national level can hide disparities at the regional level and may be imperfect in informing policies designed to address regional differences in income, employment and production.

Regions of Slovakia are statistically divided according to EU territorial classification into four NUTS 2 level regions – Bratislava region, Western Slovakia, Central Slovakia and Eastern Slovakia. In terms of territorial administration, the Slovak Republic is divided into 8 regions (corresponding to the EU's NUTS 3 level).

Regional inequality is in Slovakia among the highest in the OECD and is increasing. (OECD 2014b). Regional disparities were already high before the economic crisis. Regional inequality is apparent in terms of GDP per capita, employment and income indicators. The eastern regions have a much higher incidence of poverty, as economic activity is heavily concentrated in the west, particularly around the capital, Bratislava. GDP per capita in Bratislava region is the 5th highest among 272 regions in the EU28. Regional GDP per capita ranges from 186 per cent of EU average in Bratislava to only 51% in Eastern Slovakia. The economic crisis has increased the gap in GDP per capita between leading and lagging regions, the poorest regions got worse off and the richest region got better.

Unemployment is concentrated in the central and eastern regions. Two thirds of the unemployed live in the eastern and central regions. On the other side, skills shortages in the Bratislava region persist alongside skills mismatches and uneven availability of technological and human resources in the central and eastern regions.

The disposable income of households is a better indicator of the material wellbeing of citizens than gross domestic product per inhabitant. Disparities in regional income per capita within countries are generally smaller than GDP per capita. Still in the Slovak Republic inhabitants in the top income region were more than 60 percent richer than the median citizen in 2011 ( Figure 2) .

According to OECD analysis (OECD, 2014b) the main reason for the significant regional disparity is the combination of low job creation in the east and central part of the country and insufficient labour mobility to the west, in particular from low-skilled workers. Inadequate transport infrastructure raises costs for those who might establish firms in the lagging regions. The mobility of low skilled unemployed is hampered by the lack of affordable housing where the jobs are.

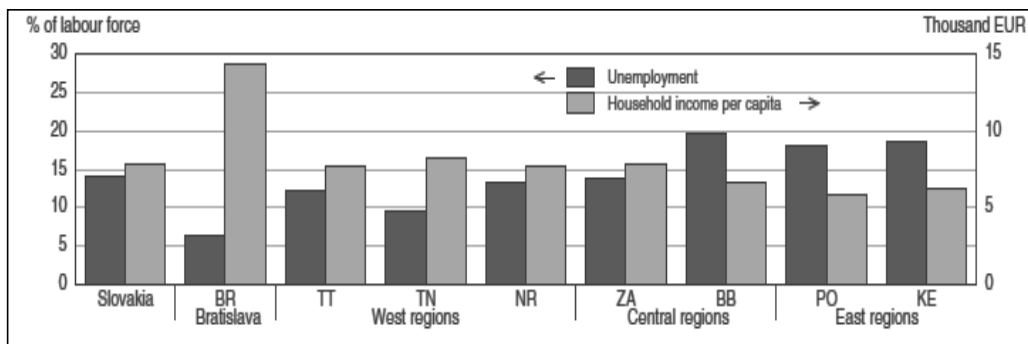


Figure 2 Regional disparities: Unemployment and household incomes per capita in 2011  
 Source: OECD (2014b), *OECD Economic Surveys: Slovak Republic 2014*, OECD Publishing. ISBN 978-92-64-11357-2

### 3 SMALL AND MEDIUM-SIZED ENTERPRISES IN REGIONS

Recent analyses (Partnership agreement, 2014) present that interregional disparities mainly between capital city region and the rest of the country are reflected also in SME sector. More than a third of the total number of SMEs (excluding selfemployed) is concentrated in the Bratislava. SMEs in the Bratislava region generate more than 30 % of total sales and nearly a third (32.6 %) of the added value created in the sector (2011). Companies in this region provide jobs to a fifth (20.1 %) of employees in Slovakia (2012). The region exhibits a high degree of entrepreneurial activity - 38.9 % of all start-ups in the SR were registered in Bratislava region in 2012. Result of the survey conducted by Slovak Statistical Office show that more than a quarter of high-tech industrial enterprises, more than a fifth of mid-tech enterprises and almost a half of the enterprises providing knowledge-intensive services operate in this region. Within high-tech sectors, as much as a half of the total number of high-tech enterprises and knowledge-intensive services started up in capital region. This data reaffirm, that the highest rates of entrepreneurial activity are generally found in most developed region.

At the regional level, development of the SME sector is determined by a number of local factors. SMEs statistic indicators at the regional level provide important insights to these differences. Therefore we have looked at SMEs in all Slovak regions in the light of the comparable numbers of small trade licences, small and medium-sized enterprises, their share in export (Table 2), but we also explore some qualitative characteristics of the SME sectors in regions with different levels of development.

Table 2 Regional distribution of SMEs in 2011

	Bratislava	West			Central		East	
	BA	TT	TN	NR	ZA	BB	KE	PO
Number of SMEs per 1000 persons of labour force	153,1	47,2	41,5	43,8	41,3	39,9	43,4	37,1
Number of small trade licences per 1000 person of labour force	159,8	134,1	142,0	131,3	172,8	119,6	102,0	144,6
Regional structure of SMEs export	24,7	15,4	11,7	14,9	10,2	7,9	7,3	8,0

Source of data: SBA (2013), *Report on the State of Small and Medium Enterprises in the Slovak Republic in 2011*, Bratislava June 2012

The situation of SMEs in different areas is related to the manner in which local entrepreneurs perform their functions. From this perspective, not only the number of SMEs is

an important factor, but also the performance of these businesses. As the recent crisis, characterised by tighter credit restrictions, has arguably hampered new start-ups and impeded growth in existing businesses we have explored the number of births of enterprises (Figure 4) and the number of high growth enterprises (Figure 3) in Slovak regions.

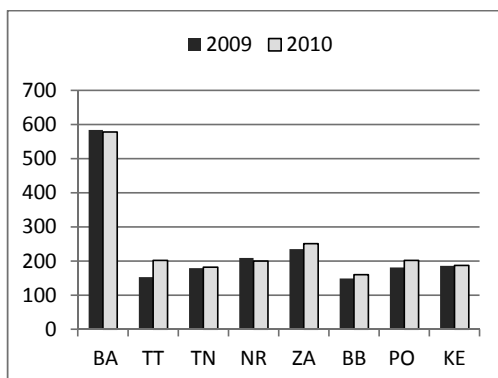


Figure 3 Number of high growth enterprises measured in employment (growth by 10% or more)  
Source of data: Eurostat

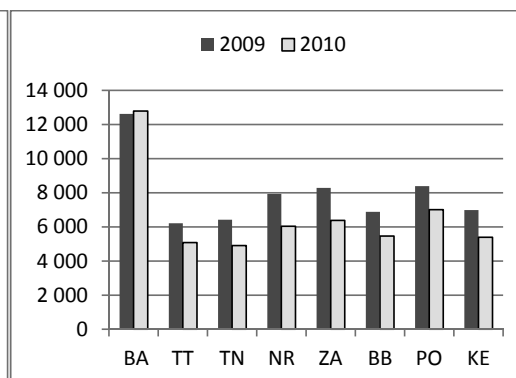


Figure 4 Number of births of enterprises  
Source of data: Eurostat

The Slovakia case confirms that birth rates of enterprises tend to be higher in the capital region compared to the national average (OECD 2014a).

Overall, regional disparities in the development of SME sector are relatively small, except for the region of the capital Bratislava, which is distanced from the other regions in particular with respect to the performance achieved.

Innovation is an important driver of entrepreneurship and of growth. The innovation performance of SMEs in region will not only depend on the endogenous capacities of the firms but also on their relationships with other firms and external institutions. The regional differences that exist in innovation performance of SMEs are presented in Table 3.

Innovation by small firms appears to be more affected by hampering factors than in medium firms. Despite, small businesses can be important drivers of growth and innovation. At the same time, larger businesses typically have competitive advantages in technological innovations, e.g. economies of scale, cheaper credit, etc.

Table 3 Innovation in small and medium-sized enterprises

	Number of employees	Bratislava region	Western Slovakia	Central Slovakia	Eastern Slovakia
% of enterprises with innovation activities	10 - 49	37,6	25,5	28,8	27,2
	50 - 249	48,0	37,7	34,6	41,7
% of enterprises with technological innovation	10 - 49	22,3	13,3	12,2	15,3
	50 - 249	29,5	24,0	22,4	27,0

Source of data: Statistical Office of the Slovak Republic (2014). *Innovation Activity of Enterprises in the Slovak Republic 2010-2012*

Different challenges to innovation exist and affect firms in different ways depending on their size and region (amongst other factors). Understanding the factors that hamper innovation and how these differ for small and medium firms, as well as for different regions provides an important tool to support different policy responses to foster innovation.

## CONCLUSION

Maintaining and developing existing small and medium-sized companies in the region, and promoting start-ups are becoming increasingly the focus of regional activities. The initial support for incubators and business innovation centres have in the past few years shifted towards more strategic emphasis on supporting entrepreneurship and on providing access to finance. Creating a regional environment in which there are positive conditions for companies by means of synergies and added value in cooperation, creating tailor-made infrastructure with centres for start-ups, innovation and technology; promoting the formation of networks and clusters are the basic aspects of regional economic policy.

However, current public support to SMEs faces several problems in context of regional policy. It is too general, supply-driven and commonly of inferior quality. Moreover, effectiveness of invested public resources is often questionable. Collecting and exploring indicator on structure and characteristics of SME sector at the regional level provide important insights to its contribution to economic growth, job creation and innovations and highlight the efficiency of national and regional entrepreneurship policies.

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## Contact information

Soňa ČAPKOVÁ, PhD, Associate Professor  
Faculty of Economics  
Department of Public Economics and Regional Development  
Matej Bel University  
Tajovského 10  
975 90 Banská Bystrica  
Slovakia  
Email: [sona.capkova@umb.sk](mailto:sona.capkova@umb.sk)

# **TAXATION OF THE SMALL ENTERPRISES, INCLUDED IN REGIONAL INVESTMENT PROJECT**

PRISHCHEKO Elena

## **Abstract**

The article considers the issues of tax planning with the help of which you can competently, and most importantly, legally significantly reduce the tax liabilities of the small innovative enterprises.

Specific features and imperfection of the Russian tax system has played a major role in the emergence and spread of tax minimization schemes in Russia and massive tax evasion. But you can use legal methods of avoiding excessive tax burden, using tax planning. This method is based on the observance of tax legislation, i.e. construction of a system that enables to combine marketing and financial plans with the aim to effectively control and to respond to changes in the external environment, environmental organization, and on the internal processes in the enterprise. Many taxpayers do not represent the essence of tax planning, and why the state is generally gives the taxpayer an opportunity to minimize tax payments, what are the limits of tax planning.

**Key words:** taxation, small innovative enterprises, strategy of taxation.

## **INTRODUCTION**

In modern conditions of economic activity of enterprises achieving commercial goals is impossible without a well-organized tax planning. Under the tax planning refers to the purposeful activities of the organization focused on maximizing the use of all the nuances of the existing tax legislation to reduce tax payments in the budget, the legitimate use of all existing benefits and particularities of tax law in their favor [2]. Tax optimization is a part of the main task of financial management - financial optimization, i.e. the choice of the best way to manage the financial resources of the enterprise. The basic functions of tax planning to reduce tax payments in the budget at the increase in net income and reduce the costs associated with the simultaneous maintenance of accounting and tax accounting. Tax planning is a legitimate way to avoid taxes using offer law benefits and methods of reducing tax liabilities (implementation of the policy of "acceptable" taxes) [3]. The goal of tax planning - tax system to achieve maximum financial results at minimum cost.

## **1 TAXATION OF SMALL INNOVATIVE ENTERPRISES IN RUSSIA**

### **1.1 Some main features of taxation companies implementing regional investment projects on the territory of Russian Federation.**

Small innovative enterprises in the Russian Federation in conditions of unbalanced economic-legal system (legal support is often a consequence of economic development), needs state support as an economic entity, so as to be in a very difficult fiscal situation.

Constant changes in legislation leading to errors in calculations and complicate planning. Those changes, which, at first glance, seem to be positive, the result may not be to the benefit of enterprises. Therefore, optimization of the tax regime for small businesses is a vital issue that requires careful study and analysis, both in theory and in practical application.

Creation of favorable investment climate, height of investment attractiveness of the local production systems, allows increasing business activity of businessmen, production of commodities volumes, works and services on territories of region. In turn it provides the height of profitable part of regional and local budgets due to the increase of tax payments, and increase of employment due to creation of additional workplaces, socio-economic development of territory, and as a result, decline in future removal of reasons of social tension.

The features of accounting in small innovative enterprises and the government's desire to support this sector of the economy helps small business to imply simplified taxation system, accounting and reporting. Currently, depending on the types and amounts of activity and number of employees tax accounting in small enterprises can be implemented in several ways: in the traditional system, according to the simplified taxation system and the system of the single tax on imputed income. Among the small innovative businesses have a good sensitivity to special tax regimes, which, of course, economically beneficial for many of them, but not for all. From here arises the problem of choosing a small business particular system. We can say that, indeed, not all companies that fall into the category of small businesses economically viable transition from the traditional system of taxation on special tax regimes. At first glance, the advantage that receives small businesses by reducing tax payments should play a decisive role in the choice of tax regime. But consider the complexity of separate accounting of business transactions, assets and liabilities. Having reviewed the allocation of costs, we can conclude that the recognition of certain expenses for purposes of calculating the single tax in the application of STS may require such work that are not under the power of small organizations, which are focused simplified taxation system. Moreover, in the absence of a clear mechanism for the allocation of expenses by type of activity, the tax authorities may disagree with the elected taxpayer's method of allocating costs. Obviously, the situation is much improved, taxpayers, as the object of taxation of a single tax in the USN chose revenues. In the period of 2014 till 2029, tax incentives were established for companies implementing investment projects on the territory of the far Eastern Federal district and individual subjects of the Russian Federation. The Tax code establishes the concept of the regional investment project (RIP) and the criteria it must meet:

- each project is the sole participant;
- the project may not be assigned to the production (processing or transportation of oil, natural gas, manufacture of excisable goods (except motor vehicles and motorcycles), as well as the activities for which the rate is 0 % tax on profits;
- the volume of capital investments in accordance with the investment Declaration shall be not less than 50 million rubles during its implementation within 3 years or not less than 500 million rubles in the implementation within 5 years. The law of the Russian Federation may be increased by the minimum amount of capital investment, and may also have additional requirements that must be met to RIP;
- on land on which the project will be implemented, not buildings, buildings owned by individuals or organizations who are not parties to such project. The exceptions are access roads, communications, pipelines, electric cables, drainage and other infrastructure.

For recognition of the company by the taxpayer party RIP requires the simultaneous fulfillment of the following requirements:

- state registration of a legal entity made in the subject of the Russian Federation, in which the project is implemented;



— the organization does not have separate divisions located outside the subject of the Russian Federation, in which the project is implemented; the organization does not apply special tax regimes;

— the organization is not a member of a consolidated group of taxpayers; the organization has not previously been a member of the project and is not a party (the successor of the participant) another of the project;

— the organization has in the property (lease for a period of not less than until 1 January 2024,) the land on which it is planned to implement the project;

— the organization has a construction permit, if such permit is required for the project;

— the organization is not a resident of the special economic zone of any type.

However, there are exceptions: non-profit organizations, banks, insurance and clearing organizations, non-governmental pension funds, professional participants of the securities market, and residents of the special economic zones couldn't get benefits from special tax regimes.

For participants of the regional investment project the rate of the profit tax payable to the Federal budget in the amount of 0% within 10 years of the project. Reduced rate of tax payable to the budget was established for constituent entity of the Russian Federation. The project participants shall be entitled to use a preferential rate, if the income from the sale of goods produced as a result of the project, amount to not less than 90% of the total qualifying income. Participants REAP obliged to keep separate records of income (expenses) received (made) during project implementation and in the implementation of other economic activities [5]. Each project should not be implemented without prior expertise of professionals working in the field of financial and tax management. And for new large-scale programs qualified external consultants on tax planning are supposed to be necessary. Before "tax planning" is identified with the minimization of tax liabilities and payments, now tax planning were considered as the control of economic and financial activities.

## **1.2 Single cycle tax planning**

Consider tax planning, which consists of four interrelated phases of a single cycle [6]:

1. Knowledge and understanding of taxes is the precise knowledge of the current tax legislation, its further development; an understanding of what positive or negative side it has for the company.

2. Compliance with tax laws - timely and accurate preparation of tax returns, reports, notices and other documents, the full payment of all tax payments.

3. Representation before tax authorities - sending tax returns, reports, notices and other documents to the tax authorities, assistance to the tax authorities during tax audits and other phases of compliance with tax laws, negotiations with tax and other authorities on issues of violation of tax legislation, tax cuts and write-off of tax arrears, representing the company in legal authorities in cases of tax offences.

4. Tax optimization - planning and management of business operations to achieve the most advantageous tax position in the long term. Understanding the limitations of tax planning aimed at minimizing the tax consequences on individual transactions and specific taxes, led to the emergence of a new approach to tax planning that corresponds to the term "tax optimization" [2].

Tax planning should be considered:

— the condition and tendencies of development of the tax, customs and other laws;

— the main directions of the budget, tax and investment policy;

— complex legislative, administrative and judicial measures used by the tax authorities to prevent tax evasion and avoidance, minimization;

— the professionalism of tax consultants.

### 1.3 Strategies of tax planning

Tools of tax planning are based, firstly, on the level of managerial decision-making (operational, tactical or strategic), and secondly, from the measures used in the planning of tax deductions, which are differentiated on the basis of the severity of the tax burden in one way or another tax jurisdiction, table 1.

Table 1 Differentiation of tax planning strategies

The tax burden	Activities and personnel requirements	The need for tax planning/ Frequency
10-30%	Clear accounting, internal documents, the use of direct benefits. The level of a professional accountant. One-time consultations external tax consultant.	Minimum, one-off events
30-55%	Tax planning is part of the overall system of financial management and control, special preparation (planning) contract schemes typical, large and long-term contracts. Requires specially trained personnel, control and guidance of the Finance Director. Customer service in a specialized company.	Need regular events
55-80%	The most important element in building and strategic planning activities of the organization and its current daily activity for all external and internal areas. Requires specially trained personnel and to establish close interaction with all services to the organization and supervision of a member of the Board of Directors. Ongoing work with external tax consultant and tax lawyer. Special program development, mandatory tax analysis and examination of any organizational, legal or financial events and innovation tax consultants	Essential daily activities
More 80%	Change the scope and/or tax jurisdiction	

Tax planning, as well as any activity that has administrative in nature, performs operational functions, control and planning functions, depending on which transforms the objective aspect of the process of tax planning and changing planning taxes.

## CONCLUSION

Companies seek to maximize their income and profits, and, maybe, minimize their tax burden. They are interested in not only the amount of taxes paid, as well as the final financial result. Therefore, the main task of corporate tax planning is the selection of taxes that allows optimizing the tax system [1].

- Order management system taxes worked well, you need to meet the following conditions:
- the presence of interrelated development strategies, business plans and budgets;
  - the willingness of the administration to carry out tax planning based on the strategic and tactical plans, as well as clearly defined management principles;
  - organization of a system of collecting and processing the information focused on the use of network technologies and Internet resources;
  - the selection of the structural unit (s) responsible for the organization of tax planning holistically oriented system. I would like to mention that during the economic crisis of

survival and further development of a particular company depends on the effectiveness of its management, which is caused, including timeliness of obtaining timely financial information and forecasting changes in tax laws [4].

The importance of this method, the author finds that, as not to see - taxation planning is not dealing with the past and future tax liabilities, i.e., fulfillment of financial obligations arising from today's decisions. In other words, tax planning starts with defining the strategic goals of the enterprise, which form the need for the adoption of certain management decisions. The company is a very important development of tax policy on the basis of forecasts and tendencies of development of the Russian tax system, taking into account possible changes in the external environment. Therefore, it is necessary to know not only the current tax legislation (i.e., to keep track of all the introduced changes and additions), but also to predict and assess the financial activities of the company in connection with these changes.

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## Contact information

Elena PRISHCHENKO, PhD  
Economic Department  
Novosibirsk State University  
Demakova18-12  
630128  
Novosibirsk, Russia  
Email: [acro@academ.org](mailto:acro@academ.org)



## **SECTION III**



# IMPROVING THE EFFICIENCY OF REGIONAL DEVELOPMENT POLICIES IN RUSSIA: INNOVATIVE APPROACHES

NOVOSELOV Alexander - MARSHALOVA Asya

## Abstract

The paper analyzes the reasons of ineffectiveness of regional development policies in Russia. One of the problems is the inconsistency of regional policies that is manifested in the fact that the declared priorities of economic development come into contradiction with the extremely expensive and ambitious state investment projects that require significant public investment. Another serious problem of modern Russia is the unduly big disparities in the level of socio-economic development of different regions. The authors reason the necessity of developing investment policy that will be consistent with regional policy priorities and will allow creating a favorable investment climate in different regions of the country taking into account regional specificities.

**Keywords:** regional development policies, regional and municipal governance, competitiveness, regional planning, efficiency of regional management.

## INTRODUCTION

The specifics of regional development policy in Russia are connected with the fact that Russia is the world's largest country in total land area and has a vast resource potential, which gives it a tremendous global advantage. However, a national economic model based on extracting minerals distributed unevenly across the country has brought about enormous imbalances and resulted in an ineffective use of economic and human potential. Besides, Russia has a high concentration of economic, financial, and intellectual potential in just a few regions and in the capital Moscow. In fact, only 9 from 85 regions account for half of total Russian GDP. The economic gap between rich and poor regions is very high. Despite the overall positive socio-economic trends in the first decade of the twenty-first century, there are still regions in Russia where people who live below the subsistence level account for approximately one third of the local population.

Disproportions in the distribution of financial and tax potential are even more acute. Regional financial problems are compounded by the specifics of the Russian tax system and the concentration of resources in a few large companies. Regional budget deficits remain a persistent problem and even rich regions often fail to cope with their financial commitments.

Russian officials have repeatedly made efforts towards balancing socio-economic development and supporting regions. However, they have proven ineffective because regional policy lacked a strategic course.

## 1 CURRENT CHALLENGES OF REGIONAL DEVELOPMENT

In the current context of the extremely negative external factors impact on the financial and economic situation in Russia, raw materials export can not any longer compensate

shortcomings and losses caused by a general ineffectiveness of a management system at all its levels. Practically total absence of positive results achieved in implementing main priority programs of Russia's economic development is the indisputable evidence of this ineffectiveness.

It is clear that among challenges presenting a certain threat to Russia's sustainable economic development the key one is the exaggerated role of raw materials sector in the Russian economy and, accordingly, very high financial and economic dependence of the country on a world raw materials market, primarily on that of fuel and energy. It is well-known that Russia uses "the oil needle". For this reason the priority directions of economic development of Russia are considered to be the diversification of the economy, its transition to the innovative development, the establishment of modern knowledge-intensive high added value industries and modernization of obsolete fixed assets in the traditional branches of the Russian economy. But no big stride yet has been made toward solving this problem. For example, according to the official statistics, the share of the raw material sector in the balanced financial result 2008-2012 year-wise ranged from 20 to 25%. The share of electrical and optical equipment production didn't exceed 1% at the same period. Fuel and energy resources revenues still remain to be the main sources of the national income in the Russian federal budget. Yet have not been created the effective mechanisms able to ensure diversification of the economy, stimulation for innovative products demand and the attraction of private investors for the development of the real sector of the economy.

The inconsistencies of state economic policy of Russia are manifested in the fact that priorities declared by the government come into contradiction with the extremely expensive and ambitious state investment projects, among them – the Skolkovo Innovation Center, the Russky Island Bridge, World University Summer Games in Kazan and the Olympic Games in Sochi. It's needless to say that the exceedingly high costs needed for the implementation of these federal budget projects are incommensurable with their negligible impact on the development of the mentioned above territories.

The analysis of the results of investment policy implementation in Russia has revealed the absence of systematic approach in strategic planning of economic development and the lack of differentiated approach in considering investment climate discrepancies of Russia's regions. In the period from 2005 to 2012 about 23.1% of the total amount of government investment is accounted for by two subjects of the Russian Federation – Moscow (16.2%) and Saint-Petersburg (6.9%). In 2014, continuing to show the tendency of concentrating state investments on the territory adjoining to Moscow, the Government of the Russian Federation has made a decision to allocate significant public funds for the Third Transport Ring Road construction. It would be quite reasonable and realistic to entice private investors to this project, but in this case, considerable intellectual and organizational efforts would be required whereas it is much easier to make budgetary provisions for these purposes.

More than a quarter of the total government investment is allocated to the city of Moscow, Moscow region and to St. Petersburg. Thus, it is these three subjects of the Russian Federation that have the most favorable investment climate and have more ability to attract private investment than all of the other regions, so it can be inferred that all of the rest of the federal subjects of Russia has little prospect of investment-driven development. In addition, there appeared some new priority directions of spatial economic development in Russia, such as the development of Crimea and the Far East as zones of advanced economic growth. It can be assumed that in the first place for the development of the infrastructure in these regions will require significant government investment. Therefore, essential is the development of a new investment policy that will be consistent with the policy priorities and will take into consideration the influence of all factors creating investment climate in different regions of the country.



Unduly big disparities in the level of regional socio-economic development are also a serious problem in modern Russia. As a comparison, per capita money incomes of the population in Moscow are 2.1 times that of the national one, and those of the Republic of Kalmykia are only 0.44 of the national average money incomes. The average monthly salary in Moscow is 1.88 times that of the average for Russia and that of the Republic of Dagestan is 0.51. Per capita investment in the period of ten years in Moscow is 1.42 times that of the average national level, and in the Republic of Ingushetia it is only 0.21.

Actually, the differentiation in the living standards and the quality of life of population is even more, as each subject of the Russian Federation is characterized by a different degree of spatial heterogeneity of socio-economic development. For example, in the Novosibirsk oblast, population, industrial potential and infrastructure are concentrated in the city of Novosibirsk and in the Novosibirsk urban agglomeration, while rural areas are characterized by a backwardness of transport and social service sectors development, low population density and low money incomes. In 2012, the average monthly wages and salaries in municipal districts ranged from 23.9 thousand to 12.3 thousand rubles, while in the rural areas of Novosibirsk oblast average wages ranged from 21.4 thousand to 5.1 thousand rubles, with the average oblast's wages and salaries being equal to 23.2 thousand rubles.

Over the past 10 years the population in all rural municipalities has decreased, and in some areas – almost by a quarter. A trend in the change of population may serve as an integral indicator of this differentiation: population grows (or at least does not decline) in relatively wealthy subjects of the Russian Federation. The less developed a region is, the more is the decline of population. After the analysis of the current situation it entirely logically provokes the conclusion that regional policy conducted in Russia is ineffective and the continuation of the existing trends will have a negative impact on the country's overall economic development and may lead to social tensions and instability. Mass public protests against the unpopular decision of the Moscow authorities to reduce the number of public hospitals are a good example. This is particularly troubling as it happens when municipal medical facilities in Siberia remain poorly staffed, there is a lack of doctors and nurses and their salaries are very low. Besides, the salary gap between doctors having equal qualification and doing the same work or work of equal value in regions and in Moscow is significant: the salary of doctors working in Moscow is a two – three times that of doctors working in other regions of Russia. Therefore it's quite logical that professionals leave regions for Moscow in search of higher salaries.

The current trends in the development of rural municipal units will be accompanied by the growing public discontent and a drain of rural population from villages. In order to radically change these trends it is necessary to solve a wide range of challenges, including the reduction of excessive differentiation in the level of socio-economic development of territories, but the main challenge is to provide the innovative management of municipal units' economic development.

Speaking about the necessity of transition to the innovation management system, it should be said that the basic strategy of an innovation approach is to create a management system based on methodological principles reflecting the objective laws of socio-economic development of society.

## **2 MAIN PRINCIPLES OF REGIONAL DEVELOPMENT PLANNING**

*The principle of system approach to management decision making.* Violation of this principle can be seen when analyzing the state regional economic policy aimed at the development of recreational and tourism sectors of the country's economy.

The state certainly has a strong interest in the development of these sectors. So, in the district of Sochi new roads and interchanges, about 10 tunnels, stations, dozens of hotels and two new railways connecting Sochi with Adler and Krasnaya Polyana have been built, the airport has been redeveloped and expanded, mountain and coastal tourism clusters have been created. The state succeeded in attracting private investors' funds that made up approximately 65% of all investments. Created was a modern infrastructure for the development of winter sports. Today in Sochi there are all conditions for year-round resort operation. But after the Olympic Games period, in the middle of summer of 2014, hotels and boarding houses were filled only one-third although prices were quite reasonable. The airfare, however, is so high that holidaymakers prefer low cost and comfortable vacation in Turkey.

Here is another example showing that officials who make state managerial decisions and allocate financial resources, are either not familiar with the laws of the market, or don't have an exact picture of the true socio-economic situation in the country. With per capita money incomes of population in Moscow being more than twice as high as that in Novosibirsk (for instance, in 2012 it was 48622 rubles, and in Novosibirsk - 23245 rubles), Muscovites would rather choose to stay in comfortable resorts in Spain, even if round trip air ticket price to the Crimea is only 7000 rubles, while residents of Novosibirsk will unlikely go to the Crimea with the round-trip air ticket price being 37500 rubles. Without considering the possibilities of real consumers, one may declare the Crimea a free economic zone, but the effective development of its main sector of the economy - tourism will remain to be a big question. If, when solving problems of domestic recreational and tourism sector development, non-system approach will continue to be used, then funds invested in tourist zones development will never pay off.

*The principle of considering social objectives in developing territories.* One of the most important contemporary issues even in the context of low unemployment is the lack of staff, especially qualified one, a situation that is particularly acute in rural areas. Many officials of rural municipalities of Siberia consider a shortage of personnel, particularly that of trained professionals to be the main challenge. This is the lack of doctors, teachers, teachers, educators, cultural workers and skilled agricultural workers. The problem lies in the quality of life in rural areas, rather than in low salaries (in the public sector salaries, by the standards of rural population, are not low). Skilled workers who have secondary special or higher education, in addition to having decent salaries, want to have a real opportunity to buy comfortable housing, get a quality education for their children and leisure-time activities, a wide range of recreation facilities, i.e., another, better quality of life.

Everywhere government financial support for the construction of comfortable housing including social housing and hostels for both public sector workers and for those, working in agricultural enterprises is used as the main way to solve the challenge of personnel attraction and retention. But, first, the amount of funding does not correspond to the real needs, and secondly, the average price per square meter of housing in the areas of the Novosibirsk oblast is about 30 thousand rubles, as required is comfortable housing, supplied with gas, water and wastewater disposal system. In this case, even 50 m<sup>2</sup> of housing for a family will cost 1.5 million rubles. For a young family it is very much even in the case of higher wages and with the average wage in rural areas being 10-15 thousand rubles, this price is high-sky. It is the state that should address and overcome staffing issues in rural areas and its policy should be focused on improving housing conditions and social level of living of rural population. Nowadays the issue is being raised that young specialists having received education at the expense of the State budget funds should be obliged to work on the assignment within a given time in rural areas. Probably, it is even fair, but in this case, a necessary condition should be a provision of specialists with comfortable accommodation, with their wages being not lower than the average ones for the region.

However, this is no longer sufficient for the young specialists at their will instead of on compulsion to move to small towns and rural areas to settle there. Young people today have significantly changed their requirements to medical, educational, cultural services and leisure opportunities. The modern standard for such services providing implies the availability of the Internet and computer software, modern medical equipment, high level of improvement of the premises, which offer state and municipal services. To operate such equipment higher workers' qualification is needed. All this inevitably results in a significant increase in the cost of social services financed from the budget. The increase of budget expenditures for social services is accounted for by the fact that before the transition to a market economy at least 30% of social services cost was financed by large enterprises, including agricultural, and today they should be covered only from the budget.

*The principle of harmonizing the regional entities' economic interest.* The priority of food security of the country is hardly questionable. Meanwhile, the interests of food producers are not adequately reflected in the economic policy of the state as far as the development of the agro-food industry is concerned, which does not correspond to the needs of the state.

A significant part of the rural economy is characterized by a pre-industrial level of agricultural technology development and, accordingly, extremely low productivity. In the Novosibirsk region much of agricultural production is made up of a relatively small number of large agricultural enterprises and farmers, with lots of people of working age working only in their private households. In many regions processing of agricultural products, as well as procurement and marketing infrastructure are entirely or almost entirely absent.

Farmers and individual entrepreneurs, and they are much more numerous than large producers today, are cut off from the market of finished products. This is due to phasing out of cooperation activities related to procurement and primary processing of agricultural products of individual households. Currently, only consumer cooperatives operate in rural areas, which soon will be driven out by the competition of large supermarket chains due to its low profitability and lack of government support.

The exclusion of agricultural producers from the market is related to the closure of food industry enterprises (milk and butter production, meat processing plants, grain storage bins) in most regions. Farmers have to carry raw grain to the Altai region grain elevators and storage bins, as grain sorting, packing, storing and processing services in the immediate neighborhood of Novosibirsk region are either unavailable or their cost is too high because of transportation expenses. Moreover, after the entry of Russia into the World Trade Organization (WTO) strengthened have been the requirements for slaughter or killing of animals prescribed as food for mankind. As a result, rural enterprises lose their own food market, which is being replaced by supermarket chains. Agricultural products grown in regions are transported to Novosibirsk for processing at large processing enterprises, often at a distance over 100-300 km and regions have to buy meat for hospitals and kindergartens at a high price at places where processing enterprises are located. Besides, available in rural areas is only poorly paid agricultural labor, while higher paid workplaces at processing enterprises have moved to the city.

So as to improve the efficiency of agricultural production, it is necessary to support and restore the primary processing of agricultural products in rural areas and to create a favorable environment for the interaction between major and small agricultural producers and for the revival of cooperation.

To improve the economic efficiency and living conditions in rural areas, state policy should be designed to ensure the effective specialization and cooperation of agricultural producers taking into account regional specificities. A focus on isolated smallholder farmers in small rural settlements only slows down the deterioration of agricultural production in Siberia. This policy is not able to provide jobs and promote social and economic development of rural areas.

Competition for the food market of Russia from foreign countries imposes more stringent requirements on the quality of the product and its cost. In these circumstances economically advantageous are large producers having diversified production, supplied with modern equipment, and what is most important - access to the ultimate consumer. Only in cooperation with large-scale highly efficient farms small peasant farms will be able to stay up and ensure the minimum necessary profitability just for the simple reproduction. It is to be noted that in developed countries, farms with good infrastructure are not profitable either, even at much larger volumes of state support.

In the Soviet period the function of private households' supply and service infrastructure was performed by consumer cooperative societies. It is obvious that under conditions of scarcely populated areas, low density of paved roads and lack of adequate state support, consumer cooperative societies have significantly scaled down their activities, especially in the field of supply and processing. But with the introduction of private ownership of land and with the formation of a class of small producers in agriculture the role of procurement and supply organizations, serving producers in rural areas should increase. Misunderstanding of a special role of smallholder food production in agriculture has led to its decline and to a significant setback in the production of agricultural products by private households (in the Soviet period households produced as much as 30% of certain types of agricultural products).

It is not easy to obtain credit even to successful rural entrepreneurs. Moreover, after Russia joined the WTO a real support to agricultural production was reduced. Currently, farm subsidies provided to agricultural producers do not depend on the costs of land improvement (by using fertilizers, herbicides, etc.) and other real costs, but depend only on the size of a farm land. There is every indication that deteriorating conditions for agriculture exert a detrimental effect on efficient farming.

Without active public support of agricultural producers, housing and infrastructure development prospects for rural areas sustainable development are very pessimistic.

Thus, even this brief analysis suggests that laws, based on a set of known principles of management should be at the core of innovative approach to the system of governance at all levels.

### **3 GOVERNANCE MECHANISM OF REGIONAL POLICY IMPLEMENTATION**

In the generalized form, the governance function performed by regional executive bodies can be presented as the creation of a system effectively using the competitive advantage and resource potential of the region. It is possible to say that the process of governance of a region's development is the creation of proportions among various elements of the regional system that provide its efficient socioeconomic growth. Different regional units make up the uniform administrative system of the federal state; its units not only differ by the scale and status in the system of federal setup, but by the objectives they are to achieve and by the mechanism of their administration.

The governance of a region is control over its functioning and development. A question naturally arises concerning the essence of socioeconomic development governance, because economic and social processes directly meet here in decision making results at all levels of governance: federal, regional, and business. The competence of each power level implies the creation of a favorable environment for people's life activity and the preservation of the natural system and favorable environment for business and other organizations. The socioeconomic functions at all levels of the administrative system ultimately lie in the creation of sustainability, rational application of regional resources, and maintenance of a balance between economic, natural, and social systems.

In order to ensure the effective development of the regional economy and liquidation of socioeconomic disparities, it is important to detect in advance the situation arising from the confrontation of different interests in order to prevent conflicts and their negative consequences. This is also important for the development of a policy of efficient interaction between regional governing bodies and business in dealing with common problems and for the integration of efforts in order to practically implement the socioeconomic programs of a region. The plurality of interacting economic interests that should be taken into account in the formation of governance mechanisms at the regional level can be reduced to two groups: (a) the interests of business structures concerning the development and functioning objective of the regional economy; (b) regional interests related to the provision of balanced comprehensive development of the economy and social area and the active participation of a region in interregional interactions, increasing the efficiency of the use of its resource potential.

The economic interests associated with the activity of business structures are regulated by the existing legislation, so the interaction in this field is guaranteed by the system of legal instruments. A different situation arises regarding socioeconomic objectives of a general regional character. This field has no clear-cut norms and rules regulating agents' interactions that would be mandatory to all involved organizations. So, in terms of regional governance, it is necessary to consider the interaction between economic interests and those arising in this situation, at the basis of which qualitatively new integrated interests are.

The regional sustainability process represents a constant interaction between different structural elements of the regional economy (population, public organizations, business structures, and regional governing bodies), under which each party is guided by its own interests, and these interests do not always coincide with each other. The role of governing bodies of the regional socioeconomic system is to develop a mechanism regulating intra-systemic relations, allowing for the creation of long-term stable financial-economic ties based on some balance of interests.

In a market environment, regions and cities are competing in different areas and aspects. In this competition, those regions win that have the strongest competitive positions. As is shown by international experience, one of the critical advantages in a system of competitive positions can be the formation of a favorable business environment on the basis of a system of financial and nonfinancial incentives. Financial incentives are privileged loans, subsidies, loan guarantees, tax privileges, etc. Nonfinancial incentives include simplification of licensing procedures, issue of permissions, business consulting, subsidies for research and design works, provision of land plots for development, etc.

In the creation of a favorable business environment in a region, an important role is played by regional governance bodies and public organizations of entrepreneurs. In accordance with the concept of regional marketing, it is reasonable to create a special noncommercial organization, which will be able to perform the marketing of social and infrastructural services. This organization should represent public and private sectors, as well as various social groups. Its founders can be regional governance bodies, manufacturing enterprises, commercial banks, trade organizations, social services, etc. The main task of such an organization is the development of a regional marketing strategy and the implementation of a marketing program oriented to the provision of a high living standard, total employment of the population, restructuring of production, and the development of a market infrastructure. A regional marketing strategy should be developed on the basis of estimating the strengths and weaknesses of a region's economy with account of its economic and geographical location, the location of manufactures near capacious markets or sources of raw materials, etc.

The basic directions in the new system of a region's governance are the achievement of publicly important results, improved quality and access to public services, lower intervention

of regional bodies in the economy, lower costs of inefficient purchases for public needs, and higher public trust in regional governance bodies. The final results of the formation of a new system of regional governance should be higher competitiveness of a region's economy, better investment climate, higher quality of life, better manageability at the regional and municipal levels, higher efficiency of budgetary expenditures, and stronger coordination within the regional community.

## CONCLUSION

A realistic estimation of all undertaken measures for the perfection of regional governance and the available proposals, characterizing the general concept of economic reformation at the regional level, allow for the following conclusions. First, the basic elements of the socioeconomic systems of regions are not equally prepared to a transition to a new model of regional governance. Second, the powers of official bodies of the hierarchical system of territorial governance are not clearly defined. Third, the economic, social, and financial norms, which should perform the functions of financial economic instruments, providing the achievement of objectives and tasks of integrated socioeconomic development, are not justified. Fourth, in some governmental links of a region's economy, there is a lack of worldview susceptibility and personnel preparedness to a transition to a new model of regional governance.

From this it follows that a transition to a new model of economy governance of a federal subject should be of a stepwise character and implies the constant replacement of ineffective elements of the economic mechanism.

The Russian experience in the last decade has visually shown that, to achieve the objectives of regional governance, it is not merely enough to formulate them, supply with a legal framework, and develop a plan of action. In order to achieve significant publicly important results, it is needed to introduce a system of governance by results which connect the objectives, measures, and resources necessary for the achievement of governance objectives. This system should use a mechanism of project management, the application of which allows one to have control not only at the decision-making stage, but also at the implementation stage. The absence of this mechanism considerably impedes the achievement of the outlined results at both regional and municipal levels of government. Its introduction is equally important for the formation of a new system of governmental regulation on the whole and for the solution of many other problems associated with the implementation of structural transformations in the economy.

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### Contact Information

Alexander NOVOSELOV, D.Sc. (Econ.), Professor  
 Institute of Economics and Industrial Engineering  
 Siberian Branch of the Russian Academy of Sciences  
 17, Ac. Lavrentiev prosp.  
 630090, Novosibirsk  
 Russia  
[asnov@ieie.nsc.ru](mailto:asnov@ieie.nsc.ru)

Asya MARSHALOVA, PhD., Associate Professor,  
 Institute of Economics and Industrial Engineering  
 Siberian Branch of the Russian Academy of Sciences  
 17, Ac. Lavrentiev prosp.,  
 630090, Novosibirsk  
 Russia  
[marnov@ieie.nsc.ru](mailto:marnov@ieie.nsc.ru)

# ADAPTATION OF THE EXPERIENCE OF CLUSTER PRODUCTION SYSTEMS IN DEVELOPED NATIONS TO THE NEW CHALLENGES OF ECONOMIC EVOLVEMENT IN UKRAINE

SOKHATSKA Olena - KURYLYAK Yevheniy

## Abstract

In article we reviewed directions of successful global experience adaptation of clustered forms production organization in implementing the economic reforms in Ukraine due to severe economic and financial crisis conditions. It is emphasized - we can't talk about using this experience by individual businessmen or representatives of the regional authorities, it's important for cluster policy to become an integral part of economic policy. Article offers basic elements of clustering policy in formative period in whole new approaches to functioning of small and medium businesses, by development of this form of production organization in priority sectors: IT, agriculture, defence industry, refining industry, etc.

**Key words:** Cluster, economic reform, economic policy, knowledge economy, networks of competence.

## INTRODUCTION

Given the accumulation of a significant amount of new scientific knowledge and practical nature in the field of clustering for Ukraine is particularly important a need to adapt this resource for the national economy. We are not talking about using it as initiatives of individual businessmen or regional leaders, but about the transformation of clusters in an important strategic element of economic policy. The creation of clusters needs to be an integral part of socio-economic goals and ideas of development in the system of economic reforms which taking place in 2015. Cluster policy is focused mainly on the development of small and medium-sized enterprises, because they provide an opportunity to address issues of employment, to engage in innovative activity large amounts of workers. In advanced economies, the share of employment in these enterprises is 50-70%, and the share in GDP - 50-60%<sup>1</sup>. On the base of small and medium businesses the production systems of the cluster type are established, which provides the opportunity to expand the boundaries of economic freedom, create jobs and build up the middle class. The association of small and medium enterprises in clusters gives a benefits, that are traditionally characterized by a large production. Among them stands out - increased financial opportunities for the use of scientific-technical progress and economy on scale. As evidenced by international experience, the successful implementation of the cluster approach requires the development of special national program, which will determine the promotion and support of clusters in various sectors of the economy. This can be considered as traditional approaches to the creation of local production systems that are drawing near their wider interpretation as agglomerations, and identified ways of creating clusters of world-class, focused on innovative development.

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<sup>1</sup> Bazilevich V.D. Economic theory: Political Economy [Electronic resource] / Access Mode: [http://pidruchniki.ws/1299101039956/politekonomiya/klasifikatsiya\\_pidpriyemstv\\_rozmirom\\_maliy\\_biznes\\_novi\\_vidi\\_pidpriyemstskoyi\\_diyalnosti](http://pidruchniki.ws/1299101039956/politekonomiya/klasifikatsiya_pidpriyemstv_rozmirom_maliy_biznes_novi_vidi_pidpriyemstskoyi_diyalnosti)



# **1 DIRECTIONS TO ENHANCE THE ROLE OF CLUSTERS IN TRANSITION OF UKRAINE TO THE KNOWLEDGE ECONOMY**

## **1.1 Prerequisites of cluster policy orientation in to the knowledge economy**

The answer to the question on how to achieve leadership positions in the global economic space is situated near the plane of development the ideas of knowledge economy. In the political-economic debate, it is also defined as classes of "decent" places in a competitive global environment. In conditions, when Ukraine is forced on its territory to wage undeclared war and the disruption of traditional trade flows with the Russian Federation, primarily should be considered a problem of reorientation of business and markets of the Customs Union countries, especially Russia, to the markets of other countries. Having in regard the provisions of the Association Agreement between Ukraine and the European Union, favourable institutional conditions for this are opening on the European markets. There is no doubt that for european consumers will become very popular the ukrainian agricultural products, food industry, and with time also an energy. Today it is the most successful Ukrainian products on the world market. However, in long term conditions should be produced a strategy for promotion of Ukraine on the innovative products markets. For foreign markets "are particularly interesting the new industries, because they are the future. IT, education, health protection, which can go into medical tourism in Ukraine. We may already have such a complex product of Ukrainian land: not only of fertile lands, but also of the people" <sup>2</sup>. The orientation of the cluster component of Ukrainian reforms on the ideas of the knowledge economy is a top priority to achieving real european identity of Ukraine in scoping the future, if we understand it as the implementation of modern values of world civilization. Focusing on the production of knowledge and the formation of new technological processes and production, though the most difficult, however, but least risky, at the same time, way into the circle of leaders. After all, economic growth based on the production of traditional and commonly used products does not give global recognition. This is illustrated by the African and especially Asian countries. Thus, when the average world export growth in 2005-2012 years around 3.5%, North America had a rate of 3.5%, Central and South America 1.5%, Europe - 2,0%, CIS - 3%, Asia 7% (China 11%, India 10,5%, Japan 2.5%) and Australia - 3,0% <sup>3</sup>. Ukraine as a country that integrates into the European economic space, should take as a main strategic guideline - European Union. It is quite clear that public authorities and business environment should first carefully study the processes of knowledge economy development, typical for Europe.

## **1.2 The output base of R&D in the development of cluster processes in Ukraine**

The reformers of Ukraine should take into account the fact that from the five key objectives of the EU strategy 2020 identified the achievement of the share of expenditure on research and development in GDP <sup>4</sup> at the level of 3% (EU-27) while the rate was 2,03% in

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<sup>2</sup> Pavlo Sheremeta held a meeting with representatives of the economic services of local authorities / Press service of the Ministry of economic development 14.04.2014 // [Electronic resource] / Access Mode:<http://www.me.gov.ua/News/Detail?title=PavloSheremetaProvivNaraduZPredstavnikamiEkonomichnikhSluzhbbMistsevikhOrganivVladi>

<sup>3</sup> WTO: International trade statistics 2013 / [Electronic resource] / Access Mode: [http://www.wto.org/english/res\\_e/statis\\_e/its2013\\_e/its13\\_world\\_trade\\_dev\\_e.htm](http://www.wto.org/english/res_e/statis_e/its2013_e/its13_world_trade_dev_e.htm)

<sup>4</sup> In statistics the term "intensity of R&D" is used.

2011 and a 2.01 in 2010. These figures (presumably, they are average for the EU-27 as a whole) below the cost of R&D in many developed countries. Thus, according to the latest statistics published by the state statistics Committee of Ukraine in 2013, the share of expenditure on R&D in Japan was 2.01%, South Korea - 4.0% and the United States - 2.87% (2009), but higher than in China (1.7% in 2009). Among the EU-27 only in Finland (3,78%), Sweden (3,37%) and Denmark (3,09%) the intensity of R&D exceeded the goal of the Strategy and the indicator of the United States. In other countries such as Germany, Austria, Slovenia, Estonia, France, the Netherlands and Belgium, the intensity of R&D was higher than the average in the EU-27, although still below its target value, 3%, (respectively 2,84%, 2,75%, 2,47%, 2,38%, 2,25% and 2,04%)<sup>5</sup>. The intensity of R&D in Ukraine is much lower than in developed countries and most countries of the EU. It was 0.75% of GDP in 2012, despite the fact that in 1990 this indicator in Ukraine was 2.3%<sup>6</sup>. The cost analysis for the development of R&D in Ukraine allows to draw at least two conclusions. First, the destruction of the economy through the creation of oligarchic model in conditions of weak governance and operation of the inherited Soviet assets by private entrepreneurs that were in power or in the management of state-owned enterprises, has brought the country to a state of a backward country. Secondly, despite the presence of a large number of problems in the economy, the government must adopt a program for the accelerated development of R&D. It is necessary to put the European benchmark of 3% of GDP. If every year the existing level of cost will increase by 0.25 points, till 2020 Ukraine may reach the level of the strategy "Europe 2020".

### **1.3 Sectoral priorities in justification of the cluster policy of Ukraine**

Priorities in scientific and technical sphere of Ukraine must first be identified as alternatives for consideration. They are recently indirectly discussed in connection with forced reorientation of export flows from Russian market to Europe. They can be arranged in the following sequence: : i- Agriculture and food industry ; ii- Medicine and medical tourism; iii- Engineering and shipbuilding; iiiv- Aviation and space. It should be noted that basic research on agriculture, food industry, medicine and medical tourism can have a joint interdisciplinary program. At the junction of these sciences we should always expect the most promising areas of application development, which will be adapted in the know-how for the production and practical medicine. The corresponding methodology may be used in the strategy of creation the networks of competence, which would cover the engineering and shipbuilding, aviation and space. Such approaches will allow at minimum cost - maximize the results.

It is reasonable to assume that with the establishment of the initiative networks of competence, might occur the temptation to monopolize access to sources of financing due to the current position in the industry. So, in engineering and shipbuilding on the exclusive right to determine the branch of scientific-technical policy can claim Dnipropetrovsk, Kharkiv, Mykolaiv, Odessa, Kyiv. To avoid this from happening, it would be worthwhile to elect a new geographical location of the coordinating center of competence network. It is advisable to choose in the area of country center. Under this condition it will be easier to attract new personnel that will be difficult (if not impossible) in the traditional placement of the largest industrial enterprises and institutions.

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<sup>5</sup> State statistics service of Ukraine. Scientific and innovation activity in Ukraine. Statistical compendium. K., 2013. – P. 150, 153 [Electronic resource] / Access Mode: [www.ukrstat.gov.ua](http://www.ukrstat.gov.ua)

<sup>6</sup> Compliance on the development of scientific-technical potential and innovation activity in Ukraine / Verkhovna Rada of Ukraine / Bulletin of the Verkhovna Rada of Ukraine (BVR), 2004, N. 43-44, P.494 // [Electronic resource] / Access Mode: <http://zakon4.rada.gov.ua/laws/show/1786-15>



Fig. 1 The location of the coordination centres of competence networks in Ukraine (project)

As shown in Fig. 2, the location of the coordination centre of competence network on the issues of agriculture and food industry, it is advisable to choose the Central Ukraine. It may be South of the Vinnytsia region, climatic conditions of which are close to almost all regions of the country. Western Ukraine could become a center for medicine and medical tourism, where there are complex conditions for scientific research in the field of medicine, and for the establishment of medical institutions of a new type based on the use of natural-climatic factors. For coordination of new approaches in the fields of engineering and shipbuilding it is useful to consider Kyiv region (not Kyiv), or the angle South of Kyiv region - North Khmelnytsky region - South-West of Cherkassy region. They are close to the leading scientific and technical institutions (Kyiv, Zhytomyr, Poltava, Kharkiv, Dnipropetrovsk, Chernihiv). The location of the coordination centre of competence for the sphere of aviation and space exploration in the region is reasonable, given the economic and political factors. This region is relatively far away from the borders and not densely populated, which contributes to a better provision of trade secrets. Moreover, on the territory of Kirovograd region there is a flight academy of National aviation university. The creation of competence networks centres will ensure the formation of their human and physical asset, which will take a hub of scientific problems and get the best clusters to achieve the ultimate goal. With time on their basis should be developed a national scientific-production corporations with global strategic objectives. Some distance of the centre from regional cities will avoid corruption in the recruitment process and will facilitate the solution of everyday problems. For this purpose it will be necessary to provide the allocation of the site for construction and development of scientific-industrial and residential complexes. The prototype of this approach can be borrowed from the policy support of clusters in UK, where one of the most successful in the North East of England in 2005 was created the cluster of processing industry (North East Process Industry Cluster - NEPIC) in Teesside in the chemical industry. The cluster has been quite successful, especially in attracting new investment. Human potential formed mainly from local youth. For this purpose, they organized a number of meetings in universities and schools, during which the visitors were convinced that the chemical industry is a place for a successful career. NEPIC has arisen as a result of two regional cluster initiatives: Pharmaceutical & Speciality (P&S) Cluster and the Teesside Chemical Initiative (TCI). Their

members came to the conclusion that the pharmaceutical and chemical industry is so interconnected that can bring mutual benefit on the basis of association. The subject of the cluster activity includes pharmaceuticals; biotechnology; chemical, polymer, rubber, petrochemical and other products. In these areas company has become the engine of development not only for regional, but also for national economies. Cluster companies provide annually about a billion pounds to regional GDP (25%) and 20% working in the region. Petrochemical industry in Teesside production ranks first in the UK and second in Europe. The formation of new competence networks in the framework of the national economy transformation policy, in the knowledge-based economy, requires a systematic approach to participants recruitment. It should be based on socio-economic trends that are inherent to the country in the corresponding period of development. Especially important is the evaluation of legal support for the development of long-term complementary cooperation, with which termination of network will be unacceptable, i.e. the emergence of important links, that may delay or frustrate the achievement of the goal, will be impermissible. Thus the horizon of the activities of all participants of the project must be global in order to ensure a high level of competitiveness of the final products. There is no need to prove that the production of new knowledge requires the inclusion to the network competence of institutions, which carrying out research and provide educational services. However, in Ukraine, the mechanism of their functioning have "preserve" in the first half of the twentieth century. The new law on higher education, adopted by the Verkhovna Rada of Ukraine in June 2014, brings it closer to european standards. However, the search for a new model of organization of educational and scientific activity cannot be completed on this stage. In the contrast, the new law creates a breeding ground for new searches. Thus, it is necessary to take into account the experience of providing new features to academic centers that have developed after the Second world war in the United States, in particular the pioneering experiments on the organization of the Massachusetts Institute of Technology (MIT) and Stanford University in the area of contacts with businesses. For new approaches commercialization of scientific research is becoming no less important than the education and research activities. As noted by K. B. Matusiak, the task of higher education institutions in the era of globalization, while ensuring a high level of education and scientific research, is turning them into international centres of entrepreneurship and technology transfer. Academic transformation is a specific combination of ideas of Humboldt (unity of education and research) and Schumpeter (creative destruction)" <sup>7</sup>. Commercialization of scientific activity cannot be considered only as a subject of provision subsidies through various grants. Equally effective may be the cooperation with the mediation of institutions specializing in the organization of direct contacts between business and science. This practice developed in the UK, where the regional development Agency has developed 9 programs for creation of collaborating Centres with industry (Centres for Industrial Collaboration - CISs). They contribute to the transformation of the regional scientific and technical resource to the needs of entrepreneurs, facilitating their access to the latest scientific and technical achievements. The program helped to expand the role of the local universities in the direction of marketing, market research, pricing policy development, negotiation, obtaining lucrative contracts. The direction of the universities to the needs of the business, highlights by CISs will, to have their offices in immediate proximity to the producing departments. The fact that enterprises that cooperate with CISs, do not receive any grants, contributed to the awareness of companies of the studies value in which they have invested their own funds. In addition, the inclusion to the network CISs provided access to world class scientists and retrofits involving equipment of

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<sup>7</sup> Innowacje i Transfer Technologii – Słownik Pojęć / Praca zbiorowa pod red. K.B. Matusiaka. – Warszawa: Polska Agencja Rozwoju Przedsiębiorczości, 2006. – S. 313

the highest quality. Importantly, customer research managed to ensure their implementation within the agreed time and within a certain budget<sup>8</sup>. Thus, in the region Yorkshire & Humber thanks to CISs initiatives, recorded sales growth, expanding to new markets and business development for hundreds of companies. CISs collaborated in carrying 1,700 projects with enterprises, estimated at 40 million pounds, that made it possible to save more than 1,300 jobs in the region<sup>9</sup>.

## CONCLUSION

Elaboration of the national cluster program should clearly identify the level at which it is designed. Since the cluster approach is primarily a managerial technology association of small and medium enterprises, to the extent it should focus on improving the competitiveness of the region that hosts the cluster members. Through the prism of the region, should be considered the impact of clustering on the industry development and the state as a whole. Development of cluster economic policy has a rich structure and depends on the profile of the cluster management subjects activity. In this cluster, it is advisable to differentiate in terms of stardom. This system was developed by experts from the European cluster observatory, by analogy with the hotel classification. It has a four-tiered grading - 0; 1\*; 2\*; 3\*, which is set to star cluster on the basis of indicators of size, specialization and the share of workers in the employment structure of the region. Given the characteristics of the cluster organization's priority activities in the system of cluster policy, we should highlight the orientation on market challenges and leadership in technology and product aspects of entrepreneurial activity; marketing and PR, internal communications; use of scientific achievements, the formation of new knowledge, innovation and unique value. The orientation of the cluster component of Ukrainian reforms on the ideas of the knowledge economy is a top priority to achieving real European identity of Ukraine in scoping the future, if we understand it as the implementation of modern values of world civilization. Ukraine must provide 3 % of the intensity of R&D, which will bring the total cost to perform research and development in the gross domestic product of 10 billion \$. In terms of this policy clusters will be able to play a decisive role in the transformation of Ukraine in a relatively short period of time in state with the knowledge economy and to deprive the burden of oligarchic economic model. This task can be successfully resolved using the german experience of coherent innovation strategy of the government and private sector companies through a network of "competence". Priorities in scientific and technical sphere of Ukraine in the system of financial policy cluster support should be placed in the following order: Agriculture and food industry; Medicine and medical tourism, Engineering and shipbuilding; Aviation and space.

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<sup>8</sup> Sztern Ł. Współpraca nauki z biznesem. Formy i narzędzia wspierania / Łukasz Sztern // Współpraca nauki i biznesu. Doświadczenia i dobre praktyki wybranych projektów w ramach Programu Operacyjnego Innowacyjna Gospodarka na lata 2007–2013. Warszawa: Polska Agencja Rozwoju Przedsiębiorczości, 2013. – S. 38 [Electronic resource] / Access Mode: <http://www.parp.gov.pl/files/74/81/626/18863.pdf>

<sup>9</sup> European Commission: Centres for Industrial Collaboration [Electronic resource] / Access Mode: [http://ec.europa.eu/regional\\_policy/projects/practices/pdf.cfm?sto=1419&lan=7&country=UK](http://ec.europa.eu/regional_policy/projects/practices/pdf.cfm?sto=1419&lan=7&country=UK)

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### **Contact information**

Olena SOKHATSKA, professor, doctor of economics;  
Yevheniy KURYLYAK, PhD Student  
Faculty of International Management and Marketing  
International Economic University  
11 Lvivska Street  
46000  
Ukraine  
[sokhatska@mail.ru](mailto:sokhatska@mail.ru)  
[kurylyak23@yahoo.com](mailto:kurylyak23@yahoo.com)

# REGIONAL MARKETING IN THE CONTEXT OF LPS ESTABLISHMENT, FUNCTIONING AND DEVELOPMENT

TONKOVA Stanka

## Abstract

Regional marketing begins and ends with the image of the regions. When sufficiently developed, it enriches the specific aspects of the perception of the region, as well as the projected by that perception "image" of a particular region. Regional marketing is a prerequisite for the increase of the competitiveness of the regions. Within the present article regional marketing is seen as a reliable tool for balancing the various interests of many entities involved in the establishment, functioning and development of local production systems. Through regional marketing research public authorities and local governments can attract different stakeholders to the cause of the future development of local production systems, including civil society. The emphasis of the study is on the communication policy between the subjects of regional marketing.

**Key words:** local production systems, regional marketing, "consumption" of the territory, "seller" of the territory, balancing the interests

## INTRODUCTION

Regional marketing is a tool for balancing the various interests of many entities belonging to the local production systems (LPS). Public authorities and local government can use regional marketing to create the necessary conditions for their establishment and development, such as: a favourable investment climate to attract external investors; retention of already established and functioning within the LPS economic entities etc. They can attract different stakeholders to the cause of the future development of local production systems. All this implies not only personal contacts with potential investors, and particular stakeholders in and outside the regional system. In no less extent a dialogue with the representatives of the general public is needed, as public authorities and local governments expect their ideas for and support to initiatives for the establishment and development of LPS and for the development of strategies and plans for regional economic and social development. Against that background, the present study highlights the main approaches in the attraction of different stakeholders (potential investors, stakeholders in regional systems and beyond) through regional marketing tools.

## 1 REGIONAL MARKETING IN THE CONTEXT OF THE "CONSUMPTION" OF THE TERRITORY FOR ESTABLISHMENT AND DEVELOPMENT OF LPS

LPS establishment and development require the availability of certain prerequisites and conditions within the regional systems. In the context of regional marketing these could be seen in the following two aspects of the relationship between the potential "buyer" of the territory and the actual "seller", notably:

√ needs of the "users" of the territory, developed during the envisioning and communicating with the idea of the territory to be considered an appropriate economic, social

and natural environment for the establishment and functioning of LPS, as well as for the development of different entrepreneurial initiatives;

√ needs of the "seller", reflected in its strategic and planning documents for economic and social development and justified by arguments based on strategic objectives, priorities, strategic goals and specific measures, thus motivating the "users" of the territory to adopt the idea of that particular "seller" rather than the idea of another one.

Regional marketing differs from conventional marketing applicable to consumer goods. The difference could be summarized in the following three aspects: 1) regional marketing is a marketing with a specific object of study - the applicability of marketing philosophy to the management activities of the functioning and development of regional systems; 2) as special type of function, organically connected with all phases of the management process, regional marketing provoke, maintain and/or modify attitudes and behaviours: within that context the relations of the localized business entities and the citizens to the realities of a specific regional system together with the relations between such entities beyond that system are foreseen; 3) regional marketing is a process that includes a system of targeted and linked in time actions. These three aspects of the difference between the regional and conventional marketing are subordinated to the objective of increasing the competitiveness of the region by attracting more "users" of the territory.

The business entities, in their capacity of "consumers" of the territory, intending to build-up or develop their businesses, are faced with the need to adapt to the regional environment and actively participate in the process of creating the necessary conditions and prerequisites for its future development. The internal regional environment may in some cases broadcast messages about "absorption" of the economic initiatives, while in other cases it can create barriers of technical, organizational and psychological character. Technical barriers correlate most often with the unsatisfactory level of the technical infrastructure. Organizational barriers mainly affect the management systems and most often are rooted in the imperfections in the work of the public administration. As to the psychological barriers - they stem largely from the inadequate preparation of the population in the region to perceive and implement the innovations. Regional marketing is the tool through which the perception of the "users" of the territory for the region is enriched with specific aspects, together with the projected by that perception "image" of the region. Marketing aims to inspire in the "users" of the territory confidence in the regional environment through the image, based on information on the realities from the position of today and tomorrow. Regional marketing contributes to the identification of the niche in which a given community differs from the other ones.

For the "sellers" of the territory is important to take into account the psychological aspects of the behaviour of the "users" of the territory. The essential thing is that the "consumers" of the territory act not only in compliance with the perception they have developed in terms of intra-regional environment, but also in compliance with the role they have been assigned to or is assigned within the process of implementation of the activities related to regional environment development. Demand for support among businesses and the public about regional development is a major task of the "seller" of the territory. The bilateral relationship between "users" and "sellers" of territory requires highlighting on the one hand of the likely effect of the strategic actions planned by the regional authorities, and the unique contribution of the stakeholders (business entities and the public) to the strategic planning process and implementation of the strategic plan, on the other one.

In the present context it is not a purely psychological interpretation of one or another perception of the economic agents for the regional system, or a matter of precognition of still non-existent realities in it. Because the precognition as a concept is not just a mental reproduction in the minds of the individuals of something seen, narrated, read, suggested, etc. It is the projection of the future, i.e. something that is going to happen. Therefore, the



perception is a form of an anticipatory reflection, and in the present aspect - a form of perspective regional economic perception of the environment. In this sense, the perception is a product, a result from the activities of the business entities in the process of their adaptation to the external realities. It is related to the overall organization and behaviour of the economic agents.

The economic agents always rank the advantages of the territory offered, according to a preliminary adopted by them theoretical establishment they put as a basis for the choice of one or another decision. Regional authorities focus on the development and implementation of policies that promote both the creation of new businesses and the attraction of other businesses from other regions in the country and abroad. The role of regional marketing in this respect is multi-fold: 1) to ensure coordination of the objectives of the economic agents to regional goals and interests and to find the "golden point of intersection" i.e. the place where the interests of the economic agents and the regions highly coincide; 2) to contribute to the active adaptation of the regional system to the requirements of already functioning or potential economic agents; 3) to influence them purposefully and actively through information marketing packages.<sup>1</sup> Precisely to the needs of the "consumer" and the "seller" of the territory of Veliko Tarnovo region is focused the vision defined in the Regional Development Strategy 2014-2020: "The area of Veliko Tarnovo is emblematic for Bulgaria and a dynamic Danube region, within which diverse and complementary industrial, transport and logistics, agricultural, tourist, cultural and educational activities are carried out, thus attracting investors and tourists and ensuring a high quality of life for the residents of the area."<sup>2</sup> In compliance with the strategic objectives<sup>3</sup> six key priority areas of interventions are formulated. These are focused on investments and institutional support to the development of the region. It is important to mention that among the six priorities of the Regional strategy for development of the Veliko Tarnovo region priority 1 "Investments for Growth and Jobs" occupies the top position. That priority clearly defines: "Increasing the prosperity in the Danube Region for the development of the knowledge society through research, education and information technologies; support to the competitiveness of the enterprises, including cluster development". And last but not least, the planned measure 1.2: Provision of incentives to support enterprises and implementation of investment intentions in the manufacturing and food industries through: provision of administrative incentives; support for the development of clusters and professional organizations; establishment of a territorial network of enterprises operating in these fields. The implementation of priority area 1 will help to achieve the following two strategic objectives as defined in this strategy: 1: "Economic growth with higher rates than the national average" and objective 2: "Social security, equality and viability".

## 2 SUBJECTS OF REGIONAL MARKETING

The "sellers" and the "users" of the territory with a significant contribution to the establishment and development of LPS can be divided into the following groups of potential subjects of regional marketing: bodies of state and local government; organizations from the financial and non-financial sector; NGOs, civil society representatives; citizens and others.

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<sup>1</sup>КИТА, J., F. Dano, D. Repkova, P. Kita. 2007. *La compétitivité des entreprises sur le territoire de la Slovaquie dans l'Europe*. L'Europe et le développement régional. ISLA, Lisboa.:302-316. ISBN: 978-989-95523-0-2.

<sup>2</sup> Regional strategy for the development of the Veliko Tarnovo region for the period 2014-2020, p. 56. <http://www.vt.government.bg/index.php?page=7>

<sup>3</sup> For example, strategic objective 1 "Economic growth with higher rates than the national average" for "sustainable growth based on effective implementation of innovative approaches, technologies and interaction between agriculture, manufacturing, tourism industry and scientific potential to increase the competitiveness of the economy in the area" is bound with priority 1: Investments for Growth and Jobs. <http://www.vt.government.bg/index.php?page=7>

The subjects of regional marketing can participate directly and/or indirectly in the management of the regional systems. The applicability of the marketing philosophy to the management activities of the processes of establishment and development of LPS requires a high level of public agreement between the subjects of regional marketing in terms of: vision, strategic goals and priorities for the socio-economic development of the regional systems, as well as unity of views concerning the complex of socio-economic measures for their implementation. To make this possible it is necessary to respect the principles of social partnership; interaction; cohesion; optimal combination of public and private interests. The significance of the positive behaviour of both the business entities and the public towards the change within the regional systems in the regions as a condition for the establishment and development of LPS is unquestionable. There is a close connection between the attitude of the business world towards the territory and the appropriate economic measures for regional development to be implemented.<sup>4</sup> For example, attracting investors from neighbouring regions or those from other countries is an attractive economic measure from the point of view of the technical-technological and economic perspective of the system. However, if the attitude of the population from the region to these investors is negative, or for one reason or another hostile, then inevitably appropriate measures to change that attitude should be carried out or adequate to the established realities alternative solutions should be found.

Through marketing the bodies of state and local governments seek to unite people's perceptions of the desired future. Here, however, we are talking not about programs oriented towards broadening and deepening population knowledge in a given scientific field, or programs aimed at the education of groups of people. We are talking about programs, including resources and efforts oriented towards the entrepreneurial interest and support in a given territory. In case the public is aware of the scope and mechanism of realization of the economic measures, it shows a higher degree of concern about the implementation of the planned guidelines for the development of the region. In such an event marketing should include measures to strengthen its links with the strategies, initiatives and results of the implementation of local economic development programs. A natural result of the implementation of such an approach is the better coordination between the horizontal and vertical programs, as well as the advertising to the outside world of the services offered by the regional economy. Regional marketing activities help to create an atmosphere of support from the public for the initiatives contributing to the development of local production systems and suggesting confidence in the future of the specific regional system.

Public support resurgence and human potential full expression in regional economic initiatives are essential for the efficient running of the transformation processes at local level. Regardless of the size of the region and the financial resources at its disposal, there is always the opportunity to do more than your budget allows. Volunteers and special interest groups of the population could be attracted to the cause of the public support for the implementation of instant operations on specific projects, programs and plans through appropriate forms. Diverse forms of communication between local government and citizens could reasonably be interpreted and from another perspective - as a means of involving local people in the implementation of specific programs and projects for LPS establishment.

A good example in this context is the Development Plan of the Municipality of Plovdiv (2014-2020)<sup>5</sup> It displays the existing potential for the development of the municipality: good geostrategic position; two transport corridors; better accessibility; rich in natural and

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<sup>4</sup> ZAIT, D. 2007. *La création d'un "baromètre" local d'attractivité pour les IDE*. L'Europe et le développement régional. ISLA, Lisboa.: 385-392. ISBN: 978-989-95523-0-2.

<sup>5</sup>Development Plan 2014-2020, Plovdiv Municipality. Available at: [https://www.google.bg/webhp?sourceid=chrome\\_instant&rlz=1C1KMZB\\_enBG546BG546&ion=1&espv=2&ie=UTF-](https://www.google.bg/webhp?sourceid=chrome_instant&rlz=1C1KMZB_enBG546BG546&ion=1&espv=2&ie=UTF-)

anthropogenic resources hinterland; a city with a millennial history with preserved material evidence of life in prehistoric times, Early and Late Antiquity, the Middle Ages, the Ottoman period, the Renaissance and the period after the Liberation; cosmopolitan city of multi-ethnic and religious dialogue contributing to the creation of rich tangible and intangible cultural heritage; a centre of national importance for the territory of the South Central Region and Southern Bulgaria, that provides daily, periodic and occasional services to the significant contingent of the population in the settlements (municipalities) located within its urban gravitational field and in its area of influence; a city of the future, resultant from the self-esteem and civic engagement of its inhabitants - guarantors of the preservation of the historic memory and the successful development of one of the oldest living cities in the world.<sup>6</sup> Of course, these potentials are displayed on the background of existing problems, divided into three groups: unfavourable administrative-territorial structure as the city - municipality has a limited non-urban land resource; underdeveloped inter-municipal cooperation, which hampers the economic, social and spatial development and the effective participation in the EU Cohesion Policy; lack of long-term vision, organizational and financial resources to create a bright own brand, able to integrate into a unique and incomparable whole the huge advantages and potentials of the municipality.<sup>7</sup> Vision 2020 of the municipality is defined in line with potential and existing problems. According to that vision entitled "PLOVDIV, ANCIENT AND ETERNAL" the town of Plovdiv should be "a modern and prosperous, administrative, academic, economic and cultural centre of the South Central Region; a city with realized scientific potential; a city with worthily presented cultural heritage and contemporary art - preferred European destination; a city with a dynamic, competitive economy based on knowledge and new technologies; a city providing security, attractive living environment and quality of life, equality and opportunities for all; a place where young people see their future"<sup>8</sup>

The plan of the Municipality of Plovdiv is focused on attracting the attention of stakeholders by building a technology park on the basis of agricultural technologies and the food industry - "Agrofoodtech". The technology park will include administrative, scientific, logistics and manufacturing centre. It will bring together high-tech companies and production units in agriculture and the food industry. The establishment of the technology park will contribute to enhancing the image of the municipality as a good place to work, to do business and to carry out research. The functioning Regional Research Centre, will improve the quality of life through the development of education and science, and will foster regional development. The Research centre will bring together all branches of the Bulgarian Academy of Sciences, 6 universities, 3 institutes, 12 innovative companies, and the foundation "21<sup>st</sup> century Plovdiv".

In the spotlight is the establishment of clusters through cooperation of companies, municipalities and settlements with similar physical, social and natural resources. 14 companies acting on the territory of the Plovdiv municipality and the municipality of Panagyurishte joined the cluster "Lasers and Optics". That cluster supports the development of innovations and the knowledge economy. The potential for development of a cluster for cosmetics and essential oils, based on the long tradition of the economic operators in that industry, should not be ignored. The entrepreneurial centres established and functioning within the municipality have an important role to play for the development of cluster-based LPS in the Plovdiv region. Such a unit is the Centre for Entrepreneurship Plovdiv created at the Technical University of Sofia - Plovdiv Branch. Its subject of activity is to increase the entrepreneurial culture and support the launching and development of technology companies in the South Central region. Another example is StartUP Bulgaria, created at the Plovdiv

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<sup>6</sup> Development Plan of the Municipality of Plovdiv (2014-2020), p. 22.

<sup>7</sup> Ibid. p. 23.

<sup>8</sup> Ibid. p. 141.

University with the aim to attract young entrepreneurs in the city of Plovdiv. The centre is an organization of business enthusiasts gathering together entrepreneurs, investors, students and young people who want to start their own business in order to boost the entrepreneurial spirit of Bulgarian people, to turn their ideas into successful businesses.

Furthermore, in the strategic part of the Development plan of the Municipality of Plovdiv the priority area 3: Products with brand Plovdiv is based on the idea for successful manifestation of local specificities and presenting them as a variety of products, attracting the interest of investors and guests of the municipality. Plovdiv brand products will present the unique opportunity for culture, science and education, quality and dignified life in the municipality. Priority Area 6: Cooperation in development foresees the development of clusters in cooperation with other municipalities in the region.<sup>9</sup> In defining the above mentioned priority areas, as well as the other priority areas in the municipal plan objective information on the status, opportunities and needs of the municipality as a community of various stakeholders is used. Ways of their implementation and expected concrete benefits for the development of the municipality are also taken into account. The priority areas are presented for discussion and dissemination to the public. That approach encouraged citizen participation and supported the initiative of various interested groups to present their ideas and proposals. Thus, through the Development plan the various interests were balanced and the innovation potential of the municipality was maximized.

No less important are the business meetings with the representatives of the administration of the neighbouring municipalities and of their business entities devoted to the implementation of inter-municipal cooperation. Due attention should be paid to the opportunities to build-up public-private partnerships, as well as to the implementation of based on these partnerships projects in the public sector. For that purpose, within the process of strategic and planning documents development, special measures should be taken to form positive public opinion and encourage active citizenship for support and involvement of businesses in the public-private partnership. In addition, constant communication with people outside the regional system whose actions may contribute to the success of the regional economic initiatives is needed. Within that process the following target groups could be defined: Parliament members; highly qualified specialists working in state institutions; NGOs experts directly or indirectly involved with the development and implementation of various programs and projects financed by the Structural Funds and the Cohesion Fund of the EU; experts in international financial institutions - the European Investment Bank, the International Monetary Fund, the World Bank. It should be mentioned that these projects and programs could also be funded by the Bulgarian state or through different combinations of the financial sources presented above.

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<sup>9</sup> Ibid.pp.149-152; 159-161.

### 3 COMMUNICATION BETWEEN THE SUBJECTS OF REGIONAL MARKETING

Communication between the subjects of regional marketing (sender and addressee - economic agents) is a complex process due to several main reasons generally valid in contemporary marketing, namely<sup>10</sup>: 1) it is absurd to transfer all the information from the "seller" of the territory to the "buyer" of territory and to observe an unwritten prior agreement between the entities of regional marketing that the information about the "selling" territory should be limited; 2) the "sellers" of the territory have hidden power to send selective information about the "selling" territory i.e. the "seller" does not inform the "buyer" of those characteristics of the region, which can cause negative reactions in the "buyer"; and 3) the "buyers" of the territory are not able to perceive all the information about the "selling" territory and to promptly evaluate it.

The reasons that complicate the communication between the subjects of regional marketing are related to the formulated by Herbert Simon principle of bounded rationality. The very essence of this principle is rooted in the potentialities of human knowledge. According to Simon human behaviour is rational only in terms of the intentions of the particular subject. Because, on the one hand, people tend to act rationally, but, on the other hand, in practice, they could perform this action in a more or less limited extent. Applied to the economy, the principle of the bounded rationality is formulated by Simon as follows: "The searching of the target function maximum is too complicated, if at all possible, thus the individuals pursue a strategy of seeking satisfaction and seek a solution meeting pre-defined constraints".<sup>11</sup>

In fact if a decision has to be rational, it is necessary that the decision-maker – the "buyer" of the territory has a wide panoramic view of possible alternatives as a set of economic actors and "territorial pleasantries." It is also important that the decision-maker take account of the full range of effects resulting from each alternative. Of course, some consequences - both in their nature and in their dimensions - can be identified with some certainty. Some others could be defined as alleged, and others - as potential consequences. The decision of the "buyers" of the territory is accompanied by risk and uncertainty. As a rule, the decision-makers in the face of the "buyers" of the territory have limited information. The limitations of the information about the "selling" territory are determined once by its potential value (price) and a second time – by something that will be dominant throughout the XXI century - the price of the time factor. Any further search for information is costly in terms of time required and resources committed. Moreover, on the one hand, the decision of the "buyers" of the territory is affected by the psychological characteristics of the decision-maker and by the set of its social perceptions. On the other hand, the higher the extent to which societal perceptions reflect the relationship between the economic entities and territory, the more reliable is the understanding of and the decisions about the territorial activity of the economic entities. The social perceptions, built on the experience, combined with the knowledge and the patterns of thinking of the "buyer" of the territory are social interpretation of the "selling" territory and determine his behaviour. The social perceptions of the "buyer" of the territory promote greater knowledge of reality and orientation therein, and substantially affect the behaviour of all decision-making bodies, whose rationality is limited. It is about extending the strict psychological interpretation of the "mental" perceptions. According to that interpretation, based exclusively on perceptions defined as non-existent, but already anticipative realities, the perceptions are a product resulting from the adaptation of the external reality to a given socio-cultural reality. It is difficult to contest the opinion of A. Bailly<sup>12</sup>, that the perception of a space is

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<sup>10</sup>See .: DURANKEV, B. *Communication Policy*. In vol. Marketing. Op. Manuf., pp. 310. ISBN: 954-494-493-1.

<sup>11</sup>SIMON G. 1993. *Rationality as process and product of thought*. – THESIS. (3): - 27.

<sup>12</sup>BAILLY, A. 1997. *La perception de l'espace urbain. Les concepts, les méthodes, leur utilisation dans la recherche urbanistique*.. Paris: Centre de recherche d'urbanisme 1977: 26-31.

built on the basis of the information obtained from the reality. His vision for the filtering of the information is true: 1) by the bodies of state administration at regional level, and those of local government (the addressee); 2) by the information consumers (organizations from the financial and non-financial sector, NGOs, civil society (sender)).

For brevity, these are denominated as economic agents who gather, select and organize the information according to their socio-economic status, experience and most importantly – according to their own resource opportunities. Only after this selective or transformative gathering of information the economic agents create a secondary image that is transformed into a simplified model of the reality. Against that background, it should be emphasized that the fragmentary knowledge of the "selling territory" obtained directly or indirectly through the media, contacts with other individuals, etc., lead to the formation of a positive or negative picture of the actual space. The latter automatically determines the spatial preference of potential economic agents. We can definitely say that the case is not just about the actual distance in kilometres between the variables in the relation "social perceptions - spatial preferences", but also about the psychological distance associated with the experience of the economic agents and with their territorial differentiation.

The economic agents are at the centre of the economic dynamics. They are directly involved in the processes of regional development and have common interests in terms of economic dynamism. As stated by A. Bailly, in fact, a duality in the role of economic agents could be observed. On the one hand, they interfere in the activities of the economic, social and political organizations that structure the studied space. The links between these organizations play a decisive role in the process of renewal and innovation within the regional systems. In other words, there is an interaction between the really organized territory and the territory adopted by the economic agents, which they animate. Therefore, the economic agent will act not only depending on the perception that is built for the space, but also depending on his role in the development of this area. The practice of economic agents, implementing one or other activity on the territory, is actually the area, the sphere of realization of their ideas. The spatial behaviour of the economic agents depends on the developed in their minds simplified models of the reality as well as on their spatial preferences. In reality, the economic agents in their capacity of "consumers" of the territory face at least two problems: 1) the development of the fullest possible social perception of the regional system, starting with the perception of the economic space as space itself; 2) the interpretation of the already established relationships between the space and the localized socio-economic communities. In fact, who are the subjects whose perceptions are the subject of the analysis and who are involved in the preparation and in the decision-making to "purchase" the territory? Undoubtedly, these are the representatives of the management teams when it comes to financial and non-financial organizations, regardless of their size. As the practice in the last decades of the XX century and the first decade of the XXI century shows, the representatives of state and local government are very actively involved in the development, validation and implementation of decisions related to "consuming" the territory. These executive authorities seek to attract investments, guided mainly by the motive to create new jobs. They are, so to say, trying to "catch" the business entities in order to achieve their local objectives. Government representatives at state and local level create, organize and develop the promotion and commercialization of the territory. They represent some of the leading institutional actors in the "game" for the "sale" of the territory. Of course, the spectrum of players should be extended - to the institutional ones should be added the functioning business entities involved in the development of areas of entrepreneurial activity, as they form to a decisive extent the economic profile of the regional systems. Therefore, in solving problems related to matching the interests of the subjects of regional marketing it is appropriate to identify on the one hand the key institutional actors, and the institutional networks in which they are involved, on the

other one. Only in this way the economic agents will be able to build a realistic perception of the alternatives they have as "consumers of the territory". The perceptions reflected in the projects for the future of both groups of management teams - those of the business entities and those of the institutions – are based on the identity of the territory. Lack of precise perceptions distorts and deforms the economic reality. Here in particular it comes to the understanding of the profound nature of the processes in the economic environment that affect the set of individual decisions. However, the lead role is played by the interpretations of the "users" of the territory concerning the policy of intervention on the territory carried out by the central and regional authorities.

While studying the territorial competition between the regional systems to attract new economic agents is very dangerous to create disinformation. Sources of such disinformation could be the existing misconceptions of the public actors for the economic picture in the regional system. As a result, those who "bought territory" could be disappointed due to difficulties in the processes of their entry into the regional economic milieu, which is not covered by the previously developed by them perception of the milieu. If other conditions are equal, information-based marketing helps for the realization of any marketing initiative. Important role in this respect have the information packages of the regional community. With rich content and maximum focus, they are a vital component of the regional marketing. High-quality developed these packages could be repeatedly used for different purposes from the viewpoint of saving of resources and in particular of highly skilled labour. It is unacceptable these packages to be duplicated. From the position of the authenticity of the information and the use of its analytical capabilities any contradictions between the packages being developed should be excluded. Information packages development is a complex and lengthy process, requiring highly skilled labour and advanced creativity. Moreover, even in the initial stages the following questions should be answered:<sup>13</sup>:

- What are the essential characteristics of the different target groups subject to influence through marketing efforts?
- What do the target groups know for the regional community in so far?
- What additional information is needed for the target groups at the beginning of the development of the information packages or later on?
- How will the target groups use the information packages?

Indication of successful marketing is the timely delivery of the information packages for the regional community to the target groups these are designed for. Quite important is the reaction of the target groups in the new environment of interaction with the "users" of the territory. There are great opportunities in this regard. We are talking not only about the potential of the traditional media, but also about the newest information systems and technologies. The target subjects of regional marketing, irrespective of the information means and technologies, feel the necessity of providing mostly information packages that provoke thinking and response to the message contained in the information package, presenting the regional system as a whole or its individual parts.

## CONCLUSION

Within the process of regional marketing implementation in the context of LPS establishment and development, and target subjects attacking it is desirable to apply the principle of integrated marketing communications. The choice of combination between them depends on many factors: marketing budget of the regional system; personal preferences of

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<sup>13</sup> See PRESTON, E., Richard, Ch.R. Bryant, D. J. Dudyca. Explaining the Economic Base of the Local Economy. *Economic Development Bulletin* N 8 University of Waterloo, Ontario N2L3G1, Canada: -,11.

the target subjects of impact; level of development of the information database; the development phase of the target subjects of impact; the manner in which the "users" of the territory perceive the information content etc. We can not deny the opinion of Stan Rapp and Thomas Collins, that after the completion of the great turning point in marketing connected with the concepts of transition from "powerful pressure on the market to fill every niche, from the advertising monopoly to dialogue with consumers, from bombarding of the market to the building-up of relationships, from the passive client to the interested partners .... more and more are perceived as market imperatives of the information economy."<sup>14</sup> In this direction should be developed and the methods of information attack on the "users" of the territory. They should not be viewed as a passive target. On the contrary, they are rather an active partner in the bilateral marketing relations and do not require information packages that influence them in favour of the establishment and development of local production systems.

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## Contact information

Stanka TONKOVA, D.Sc. Professor of Regional planning  
 The faculty of Management and Administration  
 University of National and World Economy  
 "8-th of December" str. N 1  
 1700 Sofia  
 Bulgaria  
 tonkova@unwe.bg

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<sup>14</sup> RAPP, Stan. Th. Collins. 1997. *New Maximarketing*. Translated from English. Chelyabinsk, "Ural LTD": p.58. ISBN 9780071342513.



## **SECTION IV**



# LARGE CITY AS A LOCAL PRODUCTION SYSTEM: ENVIRONMENTAL ASPECTS

BURMATOVA Olga

## Abstract

The article describes the main environmental problems in large cities. Factors affecting the ecological situation and the possible consequences of their impact on the formation of the ecological situation on the territory are showed. In case of the city Novosibirsk its features with point of view of the formation of the environmental situation were analyzed. Main elements of the image of the future large cities are formulated. It is shown with what the requirements and conditions are associated in modern conditions of economic development the main challenges in the field of the formation of a favorable ecological situation. An adequate response to the appropriate challenges, in the opinion of the author, requires the strengthening of state regulation in the sphere of environmental protection. In accordance with this fact recommendations on improvement of the management mechanism in the environmental field are supposed.

**Keywords:** large city, the environment, the environmental image of the future, challenges for the formation of a favorable ecological situation.

## INTRODUCTION

In recent years in the world of regional development much attention is paid to the functioning of the local production systems (LPS). This was particularly relevant in the context of the global economic crisis, when the survival of the regions at different levels of development and the extent depends on the capabilities of their self-development, good governance and providing a variety of public and private institutions.

Local production systems are widely understood - it can be regions of different types and rank, including municipalities, industrial centers and industrial nodes, territorial-production clusters, free economic zones, a variety of innovative combinations, regions of new development, etc. In spite of this broad definition of LPS they should have a number of essential characteristics, of which the main ones are the economic viability of the territory (especially the presence of the economic potential, the necessary and sufficient for self-development), manageability (the presence of the subject for management of given territory) and institutional factors (the presence of the institutional mechanisms underlying decision-making on the area and providing, in particular, the training of qualified personnel, conducting research and innovation, tax, financial, organizational and other support for development). One example LPS may serve cities satisfying the above requirements.

The range of problems covering various aspects of interactions in the system "big city – the environment", is very broad and includes, in particular, such problems as the formation of the favorable environmental conditions as an important factor of the human environment; ensuring stability and the maintenance of a suitable equilibrium of the state of ecological systems of the city; management of environmental processes in the big city; identification of the role of public authorities and local self-government in maintaining a healthy ecological environment of the metropolis; the development of the green economy as a mechanism

modernization and innovative development of the territory; creation of the effective operational environmental monitoring in the conditions of a large city; increasing the level of ecological culture of the population and the extent of civil society participation in the formulation and implementation of environmental policy and other.

All of the above allows you to look at the city as a complex functional system in which an important place belongs to environmental problems. The spectrum of relevant issues covers the different aspects in the system "city - environment", which, in turn, allows fully and comprehensively review the formation of the environmental situation in the cities, to identify the arising problems and suggest possible ways of their solutions.

Every city is unique not only in its architecture, historical conditions of development, location and climate, but also on the emerging transport and economic relations and features of the production, including combinations of various industries, their composition, their branch specificity, the scale and nature of location, which is extremely important for the formation of the ecological situation in the territory.

The study of the ecological specificity of each city is the task extremely important because it determines the conditions of people's lives, their health, longevity and the comfort of the environment. This is particularly relevant problem for large cities (Fig. 1), because a large city - it, respectively, and the high concentration of population, industry, energy, transport, construction, etc. that leads to increased pressure on the environment and the formation of anthropogenic landscapes over large areas.

All this accompanied by a multifaceted impact on the environment, affecting all of its components - the atmosphere, hydrosphere, flora and fauna, soil, relief, climate, etc. As a result, in large cities, a new and largely artificial environment is created.

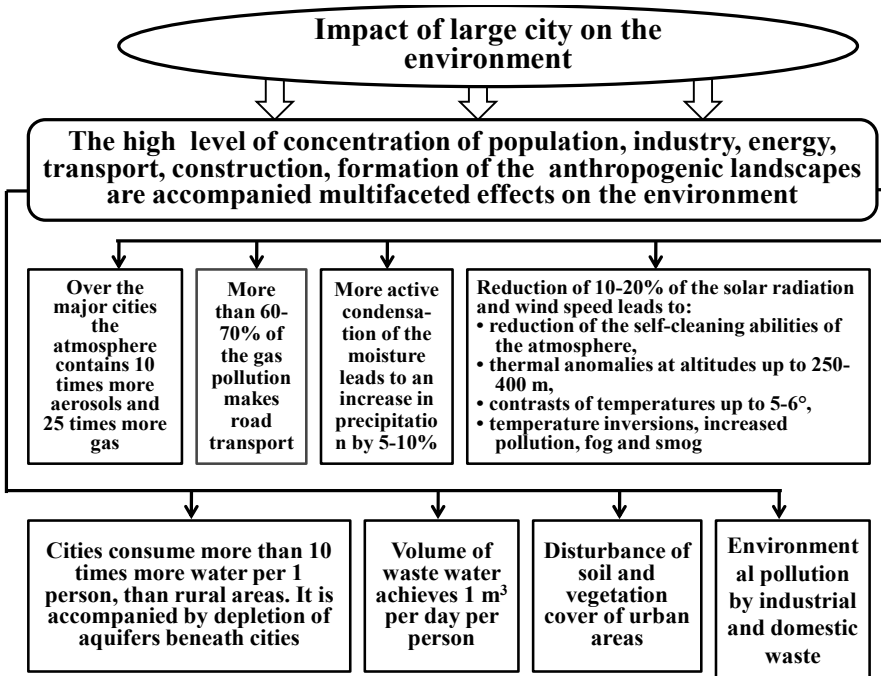


Figure 1 Possible consequences of impact of the large city on the environment

# 1 FACTORS DETERMINING THE FORMATION OF ENVIRONMENTAL SITUATION IN THE CITY

In every city of the environmental situation, priority environmental issues and finding approaches to their solution are determined, as a rule, by three groups of aggregated factors:

- 1) the specific conditions of the region or city (spatial aspect);
- 2) industry features productions that are presented in the region or in the city (production aspect);
- 3) approaches to solving environmental problems in the framework:
  - a) separate economic entities (organizational and technological aspects),
  - b) the city as a whole, including the environmental policy at the level of the city and its districts (management aspects).

In more detail, these factors are presented in Fig. 2.

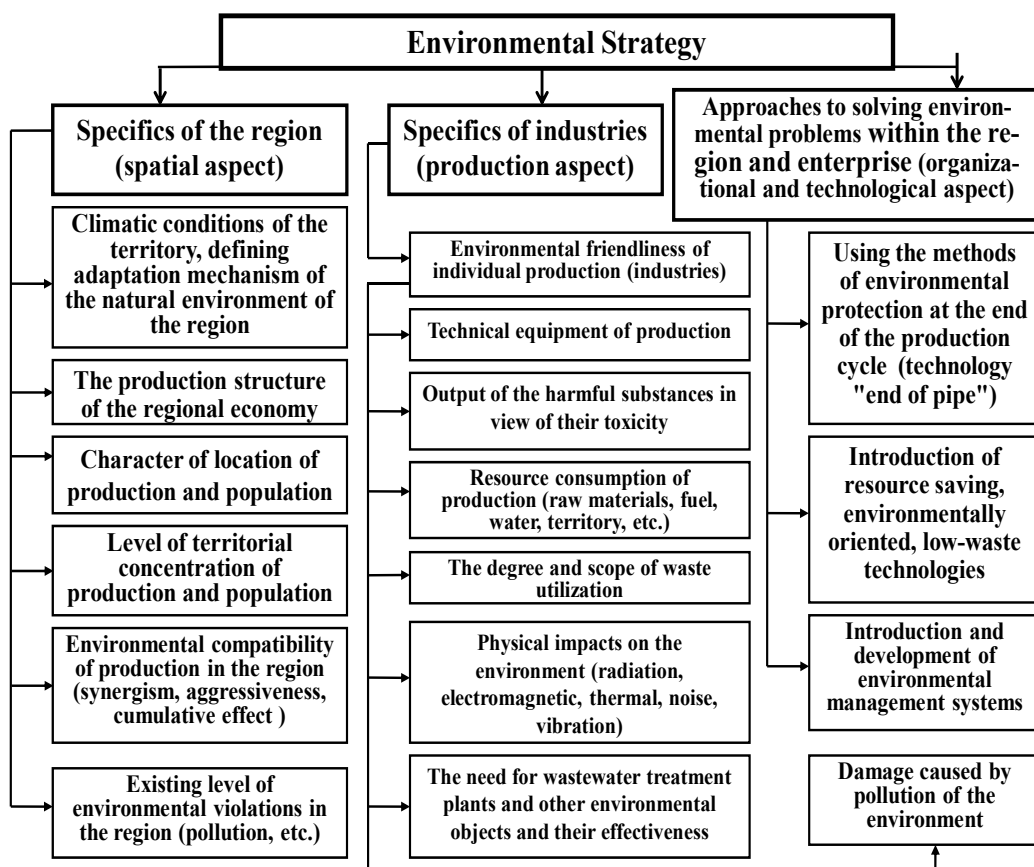


Figure 2 Factors influencing the choice of environmental situation on a territory

Results of imposition of these factors on the territory of the Novosibirsk city (Fig. 3) testify that from the standpoint of the formation conditions of the environmental situation, the region relatively lucky only with branch structure of production (meaning first of all the absence of typical polluting industries). For the remaining factors the situation is sufficiently urgent that in the perspective of socio-economic development of the region under study

determines the urgency of developing and implementing the necessary environmental measures that form the basis of the program in the field of environmental protection and determine the main directions of improving the system of environmental management in the region [1].

Based on the analysis of the environmental situation in the Novosibirsk region one can formulate environmental vision of the future of the region, the challenges in creating a favorable environmental conditions, as well as identify strategic environmental priorities and directions of the environmental performance.

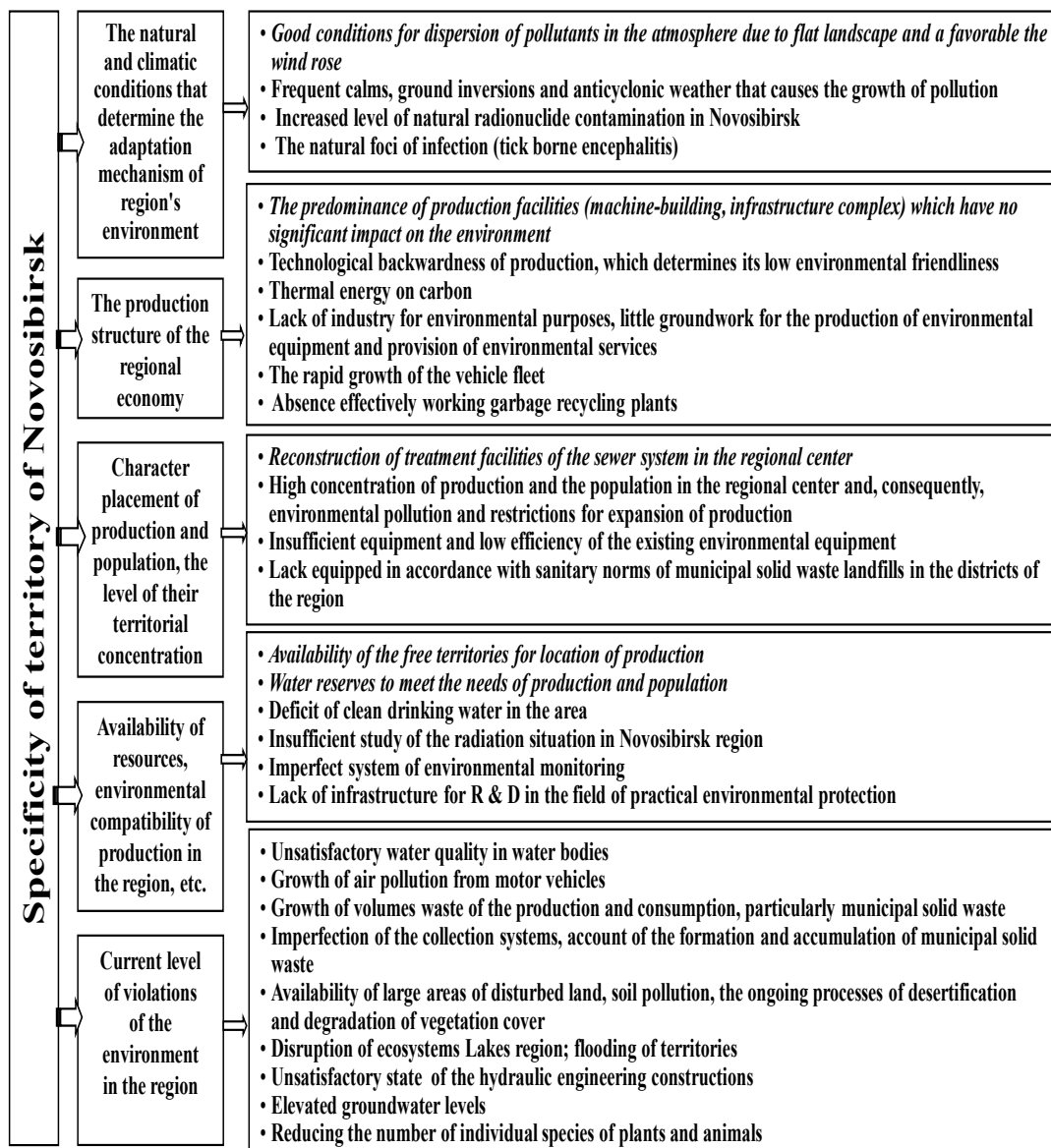


Figure 3 Features of the Novosibirsk from positions forming the ecological situation (in italics are marked favorable factors)

## **2 ENVIRONMENTAL IMAGE OF THE FUTURE**

The main elements of the image of the future of any large city must be such characteristics that suggest improvement in the quality of the natural environment and ecological conditions of human life, including:

- 1) a healthy environment,
- 2) the greening of production,
- 3) creation of effective environmental sector and
- 4) the conservation and protection of nature.

In its turn, a healthy environment includes:

- improving the quality of the natural environment and ecological conditions of human life,
- creating environmentally safe and comfortable living environment for the population in the cities, places of work and leisure, social activity,
- improving the health and increasing the life expectancy of people.

Cleaner production is impossible without the observance of the following conditions:

- transition to environmentally-friendly technology,
- reducing the environmental impact of all anthropogenic sources,
- improving the system of environmental regulation,
- economic incentives for environmental activity,
- creating a new regional economic model, which takes into account the total permissible anthropogenic load on the environment, reconstruction of regional industrial systems, the implementation of economic activity taking into account the environmental capacity of the site.

Creating effective environmental sector of economics includes:

- the formation of the market of eco-development, goods and environmental services,
- the introduction of environmental audit, environmental certification, environmental insurance,
- formation of ecological requirements to the technology development.

The preservation and protection of the natural environment require, first of all, implementation of the following measures:

- implementation of new methods of spatial planning, land use and development,
- conservation of natural ecosystems,
- increase biological productivity,
- recovery of species diversity.

Formation of ecological vision of the future (which, however, in territorial aspect is versatile enough because it is formed on the basis of common social, economic and environmental requirements) provides for forming of such base on which in the perspective should be created the necessary conditions in order to make the harmonious interaction of economy and ecology in the region by the reality.

## **3 CHALLENGES IN THE FORMATION OF ENVIRONMENTAL SITUATION**

Taking into account specifics of each city lies at the basis of regional environmental policy and identifies opportunities to respond to external challenges from the standpoint of the formation of a favorable ecological situation.

In modern conditions of economic development the main challenges in the formation of the ecological situation in the regions of the country conditioned by the following circumstances:

- 1) the transition to new standards of life and environmental safety, the introduction of resource-saving and environmentally sound technologies;
- 2) the weakness of the modern state of environmental policy in the Russian Federation;
- 3) imperfection of the techniques to determine of economic damage caused by the economy and health by pollution of the environment;
- 4) low investment activity among the nature users into the conservation activities;
- 5) weak economic interest of the nature users in the complying with environmental requirements;
- 6) the imperfection of statistical reporting on the use of natural resources and protection of the environment, lack of control of financial discipline in the field of resource and environmental charges;
- 7) the tightening of conditions for access to international markets from the viewpoint of environmental standardization and regulation;
- 8) increasing international competition due to increasing demands for environmental quality and safety, the transition to the taking into account the environmental parameters of technologies used for production;
- 9) low environmental responsibility of business and generally low ecological culture of people.

#### **4 STRATEGIC ENVIRONMENTAL PRIORITIES AND THE ENVIRONMENTAL ACTIVITIES**

One of the most important conditions for effective implementation of the strategic developments in the region is to strengthen state regulation in the field of environmental protection. Of particular relevance in this connection acquires the solution of problems of the formation of the economic mechanism of environmental regulation aimed at promoting environmental management and environmental protection, promotion and support of environmentally responsible business, improving the organizational structure of management and legal foundations of environmental protection. From the quality of an appropriate mechanism depends largely the effectiveness of the implementation of medium-and long-term forecasting documents in the field of ecology.

Adequate response to these challenges requires, in our opinion, the strengthening of state regulation in the sphere of environmental protection. Of particular relevance in this context the decision of problems of formation of the economic mechanism of environmental regulation aimed at promoting rational nature management and environmental protection, promotion and support environmentally responsible businesses; improvement of the organizational management structure and legal framework of environmental protection . The quality appropriate mechanism depends largely on the effectiveness of the implementation of medium and long - term forecasting documents in the field of ecology both at the level of the RF subjects and municipalities.

On the one hand, this mechanism generates the external environment, the rules of the game for all participants at the national environmental field, including regional and local levels. On the other hand, existing today in Russia the mechanism of environmental regulation is weak, it lacks many of the controls (primarily economic, including incentives) that have



become common in the practice of environmental policies in other countries. A number of controls in Russia declared, but are purely symbolic, without little or no impact on the state of affairs in the field of environmental protection (for example, environmental audit, environmental insurance, environmental certification and other).

In our opinion, the main directions of the mechanism of implementation of environmental measures at the Federal level, requiring the most urgent attention and determining the effectiveness of environmental policy at the city level include the following [2, 3, 4].

1. Strengthening of environmental authorities, extension of opportunities and empowerment of regional and local authorities in the field of environmental protection.

After the abolition of the State Committee on Ecology the field of environmental protection was without specialized state bodies and, respectively, since 2000, the actual amount of government activities in the environmental field is constantly decreasing, personnel potential of the environmental services undermined, significantly reduced the composition of the environmental inspectors (from 100 thousand to 3 thousand people), a growing number of environmental violations and their latency increases, the environmental situation in the country and regions the situation is getting worse.

2. The development of economic incentive mechanism of rational nature management and environmental protection, promotion and support of environmentally responsible business.

Developed mechanism of environmental regulation in Russia does not have a stimulating effect. This is manifested, in particular, in the imperfect estimation of the tax base of the use of natural resources, including low interest rates of payments for natural resources use and reproduction of natural resources; unjustified reduction of rates of payments for natural resources use and reproduction of individual natural users; the underestimation of the value of natural resources; the absence of payments for recycling and secondary use of natural resources.

Without the development and implementation of stimulating elements in the system of levers and management practices it is impossible to achieve a shift towards active transition to resource-saving and environmentally friendly technologies. Direct economic interest of business in solving environmental problems is required and the task of the state is this interest to create. For this purpose it is necessary to widely implement preferential taxation (in particular, this may be the release of such enterprises from the VAT for a period of technical and technological re-equipment of fixed assets, ensuring resource conservation and environmental safety of functioning of production); credit (for the creation and implementation of new resource-saving and environmentally friendly technologies and equipment, accelerated depreciation of fixed assets environmental purposes, the establishment of the premium costs for environmental products and so on, as well as various kinds of payments (regulatory, excess, punitive, compensatory) and other.

3. The increase in the cost of the environment from all possible sources of funding.

In Russia there has been a steady tendency of the reduction (absolute and relative) budget expenditures for environmental protection on the background of their low level. The share of expenditure on environmental protection at the expense of the budgetary system is less than 0.1 % of GDP. There is a reduction of funding and the closure of Federal targeted environmental programs. In 2000-2001 the Federal environmental Fund was eliminated and, although environmental funds of subjects of Federation and regional environmental funds were not abolished, their activities, in most cases, declined. Thus environmental activities lost, though relatively small, but sufficient collected target funds at the Federal, regional and local levels. The final blow on this source of funding has caused the collapse of the system of payments for environmental pollution, which was formed environmental funds. The problem

is compounded by the low specific gravity of resource taxes in the payment system, forming the budgets of all levels; insufficient financing of environmental protection measures from the budgets of all levels, specialized funds, funds of enterprises - users of natural resources, and weak supervision of financial discipline of the resource and environmental charges.

4. The regulation and improvement of the system of environmental charges.

The existing system of environmental charges, do not have the necessary legislative framework, essentially exhausted and currently plays a symbolic role is primarily due to the exceptionally low base rates (approximately 10% of the rates adopted in Kazakhstan, Belarus, Moldova, Georgia, and only about 2% of the rates that have been enacted in most countries of the European Union). In addition, in recent editions of a number of environmental laws (On the protection of the environment, Forestry, Water and other codes of the Russian Federation and Federal laws) was used way of the waiver targeted use of funds received in the budget as payment for environmental pollution and resource payments. As a result in the sphere of environmental protection in Russia, always funded at unacceptably low levels, were lost and the crumbs that had.

5. The improvement of the regulatory-legal framework, forming the regulatory - legal field which are adequate to the current economic and environmental situation.

Existing environmental legislation does not provide tools that encourage enterprises that use natural resources to environmentally responsible behavior. It seems that in modern conditions of Russia in the sphere of legal regulation of environmental protection the overriding objective should be not so much an increase in the number of environmental laws and regulations, but the focus and efforts to teach the polluters to strict compliance with environmental legislation and other requirements adopted in the country environmental regulations. We are talking about the creation of such a mechanism of the application of laws, which would ensure proper compliance with the environmental law and the inevitability of punishment for violation of environmental legislation. Besides that, environmental laws do not provide economic guarantees for the protection of the environment and compensation for harm to nature and man. The discrepancy persists between the standards of liability for environmental offences (fixed by the Code of administrative offences) and the extent caused environmental damage. These standards are in most cases too soft.

6. Measures to restore the mandatory of the state environmental expertise of projects of new construction as virtually the only legitimate tool for companies to demonstrate for the society their environmental soundness.

Significant changes for the worse has undergone in recent years the state ecological expertise, especially after the adoption of the new Urban planning code of the Russian Federation dated 29.12.2004, No. 190-FZ and Federal law "On amendments to the Urban planning code of the Russian Federation and certain legislative acts of the Russian Federation" dated 18.12.2006, No. 232-FZ. Due to the introduction of these regulations at the legislative level was almost cancelled the obligation of the state ecological expertise of projects of new construction. The elimination of this extremely important and quite successful working of the Institute, on the one hand, led to the fact that the state environmental policy has lost effective tool for the prevention of possible negative impact on the environment. Essentially in the conditions of Russia the state environmental expertise was the only warning lever of influence of the state on environmental activities of economic entities. On the other hand, the collapse of the Institute of ecological expertise deprived environmentally responsible business in fact, the only legitimate tool to demonstrate the society their environmental soundness.

7. Preventing the destruction of environmental management system, regional environmental monitoring, creation of a system of informing the population about the environment.

In 2000 was eliminated the local level of the environmental control under the guise of the transfer of the functions from the Centre to subjects of Federation. Actually more or less effective control had remained no more than in one of the four subjects of the Federation, other work has almost stopped (although this fact is masked in the formal reports). Abolition of the system of environmental supervision, that was carried out in the course of the current administrative reform, led to the fact that the supervisory authorities (since 2004) were reassigned to the departments which they must control. After making changes to some legislative acts of the Russian Federation in 2006-2007. virtually eliminated municipal environmental control. However, it is the municipalities - is the primary unit responsible for the living conditions of the population and depriving them of a mechanism for obtaining information about the state of the environment means the depriving of opportunities to take appropriate measures to improve the quality of life of the population. The weakening of environmental control has led to the rapid and widespread growth of environmental violations and the deterioration of the environment. In addition, the weakening of environmental control is accompanied by the establishment of the practice, when environmental criteria were used as a tool for selective control of certain companies and even redistribution of assets.

More and more minimized the system of the environmental monitoring (especially at the regional level). Today, we have no monitoring sources of pollution (in the 90-ies it was carried out by the territorial bodies of the State Committee on ecology of Russia), no monitoring of ecosystems. Currently in Russia there is no Unified state system of environmental monitoring (USSEM), although the Government decision on its establishment was made in 1993. There is no Agency that would be willing to obtain the necessary powers to guide the creation of such a system and to carry out this work in practice. Attempts to create USSEM in the 90-ies came to naught because of disagreements between the agencies that have the individual components of such a system, but do not tend to consolidate these components to into an integrated system. As a result, these departmental elements potential USSEM remain completely disconnected. Definite contribution to the work on the inhibition of the formation of USSEM made departments (primarily resource), rightly feared that the existence of such a system will lead to the strengthening of the environmental monitoring of compliance with environmental regulations.

#### 8. Extension activities for development of the specially protected areas system.

There is a reduction of activity in the development of the system of protected areas. If in the 1990s about 50 protected areas (PAs) of federal significance was opened or expanded in the country, then from 2000 to 2006. - only two. Issues of management by the system of protected areas are not adjusted. Issues of management by the system of protected areas are not adjusted. After the abolition of the State Committee on ecology the management functions were transferred to the Rosprirodnadzor, thereby we have the situation when in controlling department were combined control and monitoring functions, but so should not be. From May 2008 these functions were transferred to the converted from the Ministry of Natural Resources to the Ministry of Natural Resources and Environment. Whether it will lead to the improvement of the system of protected areas, it is difficult to say. One of the causes of the present unsatisfactory state of protected areas in Russia is lack of funding. However, world experience shows that the success of the functioning of protected areas is largely determined by their own high yield, primarily due to the organization in such territories, eco-tourism.

#### 9. Environmental education as a basis for ecological well-being of the country.

In Russia remains the low ecological culture of the population as a whole, the low level of public awareness about the environment, the low level of environmental training of managers and specialists of organizations and population.

## CONCLUSION

In general, a large city it is not only big problems (including environmental), but also a great opportunity for their decisions. Almost all environmental problems of the big cities not only have a tendency to be aggravated, but many of them more or less may be solved, as evidenced by the world practice, when the effective solutions for many ecological problems of big cities are being constantly seek and are being found.

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## Contact information

Olga BURMATOVA, PhD., Associate Professor  
Department of Regional and Municipal Governance  
Institute of Economics and Industrial Engineering of Siberian Branch of the Russian  
Academy of Sciences (IEIE of SB RAS)  
Prospect of Academician Lavrentiev, 17  
Novosibirsk, 630090  
Russian Federation  
Email: burmatova@ngs.ru

# MONOTOWNS IN SLOVAKIA AND RUSSIA AS A SPECIAL CASE OF SOCIAL RESPONSIBILITY

BLAM Inna, PETRÍKOVÁ Katarína, BORSEKOVÁ Kamila

## Abstract

The paper analyzes actual issues of the corporate social responsibility practices in monofunctional towns in Slovakia and Russia. It is shown that maintenance and development of essential living conditions in many towns depends upon the direct participation of big local businesses. The paper argues that there is a principal difference between the current social policy conducted by the dominant local employers and the policy that was conducted in the past. The process of social investment restructuring is obviously under way, and it includes thorough analysis of the expenses and the cost efficiency control.

**Key words:** corporate social responsibility, monofunctional towns, one company towns, Slovakia, Russia, monotowns

## INTRODUCTION

Social responsibility of companies is historically a young concept, which was developed due to finding solutions of world global problems, especially the problem of exhaustibility sources and devastation of environment. These problems are caused by the negative consequences of enterprise's economic activities, it is clear that expectations of society are turning to the companies as the main actor of the potential reimbursements. But the entrepreneur cannot solve these issues alone; they have to integrate into the business and also in relationships various partners concerning the social and environmental issues.

The first part of the paper defines the corporate social responsibility with focus on the social sphere and relationships between local dominant employer, local government and community. In the second part of the paper we characterize the specific form of towns that were created by the dominant employers in Russia and in the Slovak Republic. We analyse their social policy and the development during last decades. To conclude the paper we summarize the advantages and disadvantages of the monotowns.

## 1 SOCIAL RESPONSIBLE BEHAVIOR IN THE TERRITORIES

Social responsible behavior is a part of the corporate social responsibility (CSR) that was introduced by Bowen in 1953 (Bowen, 1953). He saw CSR as obligations of businessmen to pursue the policies, to make the decisions, or to follow the lines of action which are desirable in terms of the objectives and values of our society. During next few decades of 20<sup>th</sup> century the theory of CSR was broadly developed (e. g. Davis, 1960; McQuire, 1963; Heald, 1970; Johnson, 1971; Preston, Post, 1975; Carroll, 1979; Jones, 1980; Strand, 1983; Drucker, 1984; Cochran, 1985; Epstein, 1987; Carroll, 1991, etc.). The concept of CSR has been researched from the various points of view, and also the new terms were introduced, as social investments, responsible investing, environmental friendly behavior, etc.

For the paper purposes we focus on the social sphere of corporate social responsibility as one of the CSR pillars. The concept of triple bottom line defines a company's ultimate worth in financial, social, and environmental terms (Pavlik, Bělčík, 2010). By the other words, it is named also 3P – profit, people and planet. The social sphere of CSR “gives precedence on the balance of economic power in the society. Competition in the business arena is common, and encouraged, behavior, but maximizing the bottom line in social terms requires that a business foster an environment in which all can succeed. This might seem counterintuitive, but in the big-picture it is better for a whole society to thrive than for one single corporation to thrive alone. This will allow the company to continue to exist, and it will foster good-will between the company and the society that it exists in” (Brusseu, 2011). The purpose of the activities in the social sphere is to increase the life quality of stakeholders according to the principles of sustainable development (Čierna, 2008). One of the key stakeholders are the employees of the organization that realizes the social responsible activities. To the responsible activities belong the employee policy, health care and safety of employees, training and qualification of employees, care about the marginalized groups of employees. But the social sphere includes also the relationship to the external environment, especially to the local government and community in the territory where is an organization located.

Interrelations between a municipal authority and a dominant local employer often involve situations when the business has power leverage in determining the conditions of its participation in social policy. Social facilities and public programs in such towns being de facto financed by the business, the latter has an ability to dictate the conditions of its social investments.

Besides, there are other patterns of business-government relationships in the context of social responsibility:

- *social partnership*, the most harmonious pattern of coordinating the interests of authorities, community and businesses with the aim to promote prosperity and better living standards for the population;
- *semi-voluntary, semi-mandatory charity*, when local authorities expect businesses to take part in financing social programs “at their own will”, otherwise the businesses should expect problems with the government complicating their commercial activities;
- *reciprocal exchange*, when business participation in social programs is traded for reciprocal concession by the authorities in the areas important to the business.

In most cases when the relationship between the authorities and the business follows the patterns of direct administrative command or reciprocal exchange, it has informal character. The dominance of informal practices leads, however, to a neglect of public interest in favor of certain officials' specific interests (Chirikova, 2012).

In such situations, the institute of social responsibility is misused. It sanctions activities reprehensible from the public point of view masking them as fully legitimate. Social investments by private businesses are transformed into non-transparent and unpredictable levies beyond the scope of the public budget planning and control. Sometimes businesses exchange their social investments for exclusive privileges or subsidies of various kinds including the immunity from traditional taxation. In such cases the corporate social responsibility serves as a cover-up for collusion between the businesses and the authorities that reduces the transactional costs of reaching this kind of agreements. This malpractice is fraught with significant losses for the society as a whole whose interests are neglected in covert deals between the officials and the businesses.<sup>1</sup>

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<sup>1</sup> See, for example, Polishchuk L. 2008. Misuse of Institutions: Its Causes and Consequences. *Voprosy ekonomiki*, #8.

## 2 MONOTOWNS

The dominance of one strong local employer that has a decisive power to influence the further development activities in the territory resulted in establishing monotowns. In the monotowns as towns with a dominant local employer (or monofunctional towns or one company towns or monotowns<sup>2</sup>) is specifically important the relationship with external environment. In practice, it includes mainly activities in the social sphere and social investments beneficial mainly for the community. The phenomenon of monotowns was widely recognized in the Russian Federation; in Slovakia we can also identify some of them. However, few years ago there appeared specific problems of this type of urbanization, which we analysis in the next chapter.

### 2.1 Monotowns in the Russian federation

In official documents, there are some discrepancies in the criteria of putting an enterprise in the category of ‘the dominant local employer’ (or *gradoobrazuyuchsheie predpriyatiye*, literally, a ‘city-forming enterprise’). The Russian Federation Government Resolution No.1001 of 29.08.1994 defines it as ‘an enterprise employing no less than 30 per cent of the total number of people working on the enterprises located in the urban dwelling unit; or one that controls the public utility or engineering infrastructure objects that serve no less than 30 per cent of the inhabitants of the urban dwelling unit.’ The Federal Law of 26.10.2002 No.127-FZ defines ‘the dominant local employer’ as ‘a legal entity that employs no less than 25 per cent of the working population of the relevant dwelling unit.’(Monogoroda..., 2008, p. 7)

In today’s Russia, different businesses have framed different definitions of social responsibility that reflect primarily the development patterns of the companies in question and the scale of their activities. The bigger is a business, the stronger is its desire to follow international standards of responsible behavior. The availability of many examples of such activities offered by foreign firms notwithstanding, the social policy of major Russian companies can seldom be praised for its consistency or systematic approach. Too many small businesses share the belief that their responsibilities do not spread beyond paying taxes and wages.

A distinctive feature of the Russian economy is a considerable number of one-company towns, which have been forming its industrial basis for decades. In 2008, about 40 per cent of Russia’s urban localities could be put in the category of monofunctional towns while their share in the aggregate gross regional product of Russian Federation was also approximately 40% (Monogoroda..., 2008, p. 18). Being so widely present, dominant local employer companies deserve a special attention with respect to the social policy they conduct.

Monotowns in Russia have a centuries-long history. The first stage of one company towns development in Russia can be related to the rise of new enterprises in the époque of Peter the Great. The next stage began in the end of the 19<sup>th</sup> century and involved mainly the textile and the coal industries. In the early 1930s, most new monofunctional towns were emerging as a part of territorial-production complexes that united several interrelated enterprises on a common production site. A big part of the monotowns of that period of rapid industrialization was built by the labor of GULAG prisoners, Norilsk was one of them.

A significant number of one company towns emerged in the Eastern part of the Soviet Union during World War II as a result of the mass evacuation of the enterprises. After 1950, the major tendency in the new production location was the construction of new capacities in small- and middle-sized towns, mainly in the eastern regions of the country, where these enterprises became dominant employers. Many narrowly specialized centers were formed as

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<sup>2</sup> In the paper, these terms are used interchangeably.

*electric-power towns (goroda-energetiki)* based on newly built power stations. Sparkling examples are the towns of Bilibino in the middle of Chukotka region near the Bilibino nuclear power plant and Sinegorie in the remote Magadan region near the Kolyma hydraulic power plant. Narrow specialization is attributable also to many oil-and-gas production centers.

The government defense and nuclear policy involved the creation of so-called ‘closed towns’ with acute entry and exit restrictions. The concentration of the state effort in the area of R&D led to the creation of so-called ‘science towns’ (*naukogrady*).

In the Soviet Union, a special characteristic of a one-company town was the de-facto inseparability of the dwelling unit and the dominant local employer that provided not only jobs but also major social goods including housing, heating, kindergartens, polyclinics, schools, etc. Nowadays, there are hundreds of one-company towns in Russia where dominant local employer companies still take a considerable part in financing local health care, education, public transportation and utilities. Inherited from the Soviet past, such practices proved to be not so easy to get rid of. Maintenance and development of essential living conditions in many towns depends upon the direct participation of big local businesses (Polishchuk L., 2009, p. 12).

The story of the *Baikalski pulp and paper mill*, the dominant employer in the city of Baikalsk, is a bright illustration of the degree to which the population of a monofunctional town and the urban infrastructure depend upon the successful functioning of one dominant company. Built in the 1960s, the mill was considered a major polluter of the lake Baikal, hence environmental activists for a long time have created obstacles to its normal work and insisted on a full closure of pulp production. The decision to gradually stop the production was made in the Fall of 2013, and at the same time the mill started the process of laying out the employees<sup>3</sup>. Now the town suffers both from social tensions caused by unemployment and from the difficulties with keeping alive its basic infrastructure – the power station, the water-cleaning system, the plumbing. In the past, all these facilities were not just a property of the mill, they were a part of its producing assets (with one exception, though: in 2008, when the zero discharge closed-loop water recycling system was built for the mill, the town received an independent sewage system as a by-product). The city of Baikalsk authorities did not even have their own place to dump household waste; they used one of the mill’s storage facilities (Ivanter A., Popov A. 2013).

Dominant local employers differ considerably in the results of their economic activities, the complexity of the production processes, the personnel skills, and their role in the regional socio-economic development. In some subjects of the Russian Federation one or two ‘one-company towns’ support the development of the whole region. As a rule, these towns specialize in export-oriented industries such as oil and gas, ferrous and non-ferrous metallurgy, chemicals, timber, etc. For example, the stability of the Lipetsk region and the city of Lipetsk crucially depends upon the economic well-being of the NLMK Group whose tax payments provide for 31% of the city tax income and 27% of the consolidated regional budget (<http://lipetsk.nlmk.ru/social-responsibility/region>; cit. 17. 2. 2015). The tax payments of the Norilsk Nickel Group to the Krasnoyarsk provincial budget amounted to 28.6 billion rubles in 2013, 10 per cent less than in 2012 (MMC Norilsk Nickel Report on Corporate Social Responsibility, 2013, p. 98). Out of this sum, the city of Norilsk administration received 3.7 billion rubles. Because of the bearish trends in the world non-ferrous metals markets, the company’s share in the revenues of the city of Norilsk dropped from 60 per cent in 2011 to

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<sup>3</sup> During the period of the plant’s sluggish work in 2010-2013, about three thousand people left the town (of the total population of 14 thousand). <http://lifeneews.ru/news/124619>; cit. 17. 2. 2015



only 25 per cent in 2013 while its share in the revenues of the Krasnoyarsk province declined from 35 per cent in 2011 to 22 per cent in 2013.<sup>4</sup>

In the recent years, the Russian business has attempted various patterns of influencing the life of host territories. This try-and-error approach has allowed to find new forms of cooperation with local communities and to select those that maximize social and economic benefits for the company. The local support measures that major companies undertake in the regions are as important for the companies themselves as for the local communities. Natural tendencies of business development where the defense from competitors and unpredictable circumstances play a dominant role force the businesses to conduct social programs without any push from the side of the authorities. The profitability of dominant local employers, the peculiarities of local socio-economic situation, the power and the authority of the local officials dictate the scale of the social policy conducted by dominant local employers as well as their relationships with local authorities. Successfully developing large-scale business enterprises that provide high living standards for the inhabitants of 'one-company towns' can be found, mainly, in metallurgical or oil-producing regions. For instance, seventeen such towns account for 38 per cent of the urban population of the Sverdlovsk region, similarly, 79 per cent of the Yugra region urban population lives in thirteen 'one-company towns'. At the same time, out of the total number of 85 subjects of the Russian federation, forty do not have any 'one-company town' with a dominant employer (Zubarevich N.V., 2005, p. 61). Absolutely different situation exists in depressive 'one-company towns' of Russia where production slowdown and enterprises' closures have been followed by skyrocketing unemployment and prolonged nonpayment of wages. These, combined with low mobility of the laid out workers, have led to a catastrophic decline in living standards. Within the country, many depression zones have been formed with rising social degradation.

Social policy of dominant local employers is characterized both by common features and by some specific accents contingent on local peculiarities related to economy and the mechanism of sharing responsibility with local authorities.

Being trapped in a closed territory with limited potential inflow of workforce from outside forces local companies to conduct internal corporate policies aimed to keep skilled employees on a leash. Internal social policy is to a considerable degree directed towards preserving traditional values and serves paternalistic expectations of the personnel. Internal social programs provide for the whole spectrum of the needs of the employees and their families including medical treatment, recreation activities, educational programs, additional social payments and pension programs, holiday gifts, pecuniary bonuses, etc. In fact, internal social policy is financed by the money that otherwise could be paid out in the form of wages.

In an attempt to provide decent working conditions, as well as to avoid social tensions in the community, a company has to make sure that the standard of living and social security of its employees is on average comparable with the whole city standards, i.e., a company must provide for decent living standards outside the enterprise fence. But Russian industrial urban areas are characterized by under-developed social infrastructure, poor housing conditions, aching public transportation system and undeveloped leisure-time entertainment facilities. Hence dominant local employers invest considerable funds in the maintenance of decent urban environment. Main directions of social expenditures by the enterprises are: repair and maintenance of local social infrastructure, construction of medical and educational facilities, organization of city holidays and festive activities, public utilities, construction of objects of religious or artistic value. Social purposes expenses by dominant local employers make up a significant share of government financing, 30 per cent on average. In some cases, like in

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<sup>4</sup> Calculations are based on the data published on the official sites of the city of Norilsk (<http://www.norilsk-city.ru/>), Ministry of Finance of the Krasnoyarsk province (<http://minfin.krskstate.ru/openbudget/budget>) and the MMC Norilsk Nickel Annual Report 2013 ([http://www.nornik.ru/\\_upload/2014/NN\\_AR\\_2013\\_rus\\_EGO.pdf](http://www.nornik.ru/_upload/2014/NN_AR_2013_rus_EGO.pdf)).

Norilsk, the company's social expenses exceed the government ones by 30 per cent (Monogoroda..., 2008, p. 41).

However, there is a principal difference between the current internal social policy conducted by the dominant local employers and the policy that was conducted in the Soviet past. The process of social investment restructuring is under way. It includes thorough analysis of the expenses and the cost efficiency control. Special programs are being developed with pronounced aims and priorities in the area of social investments. At the same time, institutional framework for such a policy is being constructed; rules and forms of control over social spending are being developed. Managerial teams are being educated to use decision-making schemes flexible enough to suite the purposes of social projects development.

## 2.2 Monotowns in the Slovak Republic

In the Slovakia, as one of the post socialist countries of the Central and East Europe, was influenced also in the second half of 20s century by the policy of Soviet Union and also by the policy of Czechoslovak Republic. These resulted in orientation of some Slovak cities only on the industrial production (e.g. Dubnica nad Váhom, Detva – heavy industry, Trenčín – textile industry). It caused partially the creation of monotowns with the industrial dominance.

The other important factors of the developing monotowns are also the natural conditions, e. g. mineral water springs or mountains. That is why we can identify also as monotowns the spa cities (e.g. Piešťany, Dudince, Turčianske Teplice) or recreational cities (e.g. Vysoké Tatry).

The towns with the monofunctional orientations were developed also in some cases by big entrepreneurs who decided to situate their companies in the Slovak territory. To these territories belong towns as Partizánske, Svit or Podbrezová.

*Podbrezová* is situated in the Central Slovakia. It was established in 19<sup>th</sup> century, it was clustered in the valley of river Hron and close to the complex of Železniarne Podbrezová, a. s. It is an integrated producer of steel and the seamless steel tubes ([http://www.zelpo.eu/Company\\_Profile](http://www.zelpo.eu/Company_Profile), cit. 6. 2. 2015). During almost 175 year of its tradition the company has faced with various obstacles, but from the early beginning the company is a key driver of the regional development. It is a well-known producer of metallurgical products and the best in the central Europe. Production facilities in Slovakia, Czech Republic, and Spain are brought together under the brand name ŽP Group. Sales from the company are conducted in 50 countries of the world and through their own sales and marketing network.

In the field of social behaviour and policy, the company is engaged in the tourism activities (it is an owner of hotel, Golf park, Ski centre, castle) and by the Foundations of ŽP it supported the education, culture and sports, local health facilities and so on. Because of the company in this small town it is possible to find the sport clubs in various sport arts, e. g. biathlon, football, hiking, skiing, skittles, volleyball, hand gliding etc. The company is also a founder of own private secondary metallurgical vocational school and private high school (<http://www.podbrezova.sk/historia.html>; cit. 6. 2. 2015).

Podbrezová belongs to the successful stories of monotowns. The town thanks to Železniarne Podbrezová has built the modern infrastructure, accommodation's facilities, all public services are available. The number of inhabitants is 3876 to 31. 12. 2014 (<http://www.podbrezova.sk/obyvatelia.html>). It is not dramatically changing, but the last years it has stagnated.

The other selected examples of Slovak monotowns are Svit and Partizánske. Both towns were established as new territories for the expanding of Baťa concern production. *Svit* belongs to the youngest Slovak towns. It was founded in 1934 because of the decision to build here a new company for production of viscose fibres. The name of the town is an abbreviation from

the title of the company Slovenská Viskózová Továreň – SVIT. Nowadays, the number of inhabitants is cca 7400 persons. By the territory (4.5 km<sup>2</sup>) it is the smallest town in the Slovakia (<http://www.uzemneplany.sk/sutaz/historia-a-sucasnost-mesta-svit>, cit. 6. 2. 2015). The town is famous by its typical architecture – “Baťa’s houses in red colour, which were built as a part of infrastructure for the company’s employees.

*Partizánske* was established 5 year later as Svit also by the company Baťa. Even the first name of the town was Baťovany. An industrial production was in the youngest Slovak town for many years focused on footwear and leather industry. Today it begins diversifying the local economy with more dominant tertiary sector (<http://www.partizanske.sk/historia.phtml?id3=1629>, cit. 6. 2. 2015). Nowadays, in the town live 23 278 inhabitants.

In the Slovak Republic, the original monotowns do not face with so serious obstacles as in the Russia Federation. We think that the example of Podbrezová can be as a model for other towns with monooriented economy. The company Železiarne Podbrezová as a dominant employer in the region influence also significantly the regional development. In the field of employment, social behavior and investments it brings a lot of advantages for the inhabitants (e. g. infrastructure, sport, cultural activities, etc), on the other hand as a dominant employer the company can regulate the level of labor wages, and goods and services in the region.

The towns – Svit and Partizánske are not more so monooriented. The local economy has adapted to the new industries and services, but the footwear industry is still one of the most developed.

## CONCLUSION

Until recently, large Russian companies, which were created on the basis of former Soviet enterprises, have been holding the leading position in the area of extended social policy. Over the market reform years, their top managers have not only preserved elements of the old social security net but also have attempted some rationalization and compromise settlements with the aim to reconcile the objectives of the private enterprise with the goals of social development.

Some companies have found new patterns of assistance to a local community, which allowed them to expand their social function from a simple “big wallet” role to the position of an initiator and an architect of new forms of cooperation with the authorities and the community. These include educational programs for local public employees, assistance in budgeting, realization of integrated programs aimed at the development of local community and social partnership. The companies have engaged in the development and realization of long- and medium-term programs, and have created special institutions in order to conduct social policy more efficiently.

It was the monotowns where the big companies started the practical realization of social projects’ technologies aimed at the expansion of local communities’ participation in social activities.

In the Slovak Republic, the tradition of monotowns had appeared mainly during 20s century with the orientation on the industry. Nowadays, most of the towns have diversified its industry and developed also other economic sectors.

To the advantages of the monotowns with the dominant entrepreneur belong the social investments and policy that realize the company in relations to its employees and local community. The excellent example in the Slovak Republic is a town Podbrezová, where the importance of steel industry is still dominant in the local economy. In the other towns, as Svit, Partizánske, the orientation has changed. The company’s activities were removed to the countries with lower production costs, so the towns were forced to diversify the structure of economy, even if there is still a branch of Baťa company.

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## **Contact information**

Inna, BLAM, Kandidat nauk (an equivalent to PhD)  
Economics Department  
Novosibirsk State University  
Pirogova 2  
630090 Novosibirsk  
Russia  
inna.blam@yahoo.com

Katarína, PETRÍKOVÁ, Ing. PhD.  
Institute of Economic Sciences  
Matej Bel University  
Cesta na amfiteáter 1  
974 01 Banská Bystrica  
Slovakia  
katarina.petrikova@umb.sk

Kamila BORSEKOVÁ, Ing. PhD.  
Institute of Economic Sciences  
Matej Bel University  
Cesta na amfiteáter 1  
974 01 Banská Bystrica  
Slovakia  
kamila.borsekova@umb.sk

# SERVICE AND INDUSTRIAL AREAS IN LAND-USE PLANS – POTENTIAL FOR THE DEVELOPMENT OF LOCAL PRODUCTION SYSTEMS IN REGIONAL CAPITALS IN POLAND

FELTYNOWSKI Marcin

## Abstract

The paper purpose is to present the potential of regional capital cities in Poland when it comes to providing land for the development of business (service) and industrial functions. We need to stress that these areas impact the competitiveness of cities and are decisive for their future growth. They create opportunities for establishing links between enterprises and institutions based in a given city, which helps building innovation potential within the territorial unit in question. That is vital particularly in agglomerations, which are considered knowledge and innovation concentration centres. The paper provides an analysis of the potential of available industrial and business areas and enables to assess which of regional capitals offer the biggest land reserves capable of hosting these two functions.

**Key words:** land-use plans, business and industry land allocations, local production systems, spatial planning policy.

## INTRODUCTION

Space is a fixed resource hence we should manage it properly to provide all local actors with the possibility to meet their needs. Location of local production systems is also connected with space and relationships built within these spaces, which develop into links between entities operating in a given area. As Porter points in his writings clusters are embedded in geographic space and form concentrations of interconnected companies and institutions operating in a particular market area. The connections can be formal or informal. How can possibly cluster-based collaboration be created? Actors within a cluster collaborate and compete with one another for clients and markets<sup>1</sup>. However, the first step consists in creating space that could comprise economic operators and at present that is the task of local authorities. Collaboration among companies becomes feasible as a result of the reduction of distance among them, which facilitates the establishing of relationships. As a result, market is mobilised and value added is created for cooperating entities. The proximity of companies and institutions together with repeatable contacts among them deepen collaboration and mutual trust enhancing the capacity to absorb, produce, and disseminate innovation<sup>2</sup>.

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<sup>1</sup> Porter M.E., 1998. Clusters and the new Economics of Competitions, Harvard Business Review, Reprint Number 98609.

<sup>2</sup> Nowakowska A., Przygodzki Z., Sokołowicz M.E., 2009. Stan rozwoju klastrów w Polsce w ujęciu regionalnym [in:] Kapitał ludzki – innowacje-przedsiębiorczość SOOIPP, Annual 2008, P. Niedzielski, K. Poznańska, K.B. Matusiak [eds], Zeszyty Naukowe nr 525, Ekonomiczne Problemy Usług No. 28, Szczecin.

Agglomerations offer a specific environment for the development of relationships among operators, in particular their cores, which helps minimise transaction costs. Cores of agglomerations are often places where knowledge and innovation concentrate and substantially increase their potential compared to other less prominent centres in the country. Obviously, the growth of an agglomeration usually depends on the policy pursued by local authorities.<sup>3</sup> Spatial planning policy is a component of the local policy, which enables building up innovation potential in big cities.

Location factors were first highlighted by Weber, who started with identifying three location factors: transport, labour, and agglomeration. Further works on the subject expanded the theory of location with new factors, such as: markets and raw material base. Weber's approach was cost-based and it focused on the reduction of costs involved in individual factors.<sup>4</sup> Independently of the approach, the set of business location factors in the theories of location continuously evolved. Changes with regard to that are discussed in the work by Dziemianowicz, who highlights differences in location factors identified in two time slots, i.e., in the 1960s and 1990s.<sup>5</sup> Location factors listed in the studies from the end of the 20th century clearly include elements pointing to the fact that location of businesses depends also on the potential of a particular city or town and is not always an immediate consequence of cost related location factors. The policy of local authorities is also mentioned.

Location of companies in cities depends on resources, which they can offer and on the site ensuring the best possible use of spatial location at micro level. We mean here the wish to get an easy access to roads and means of transport. Factors connected with infrastructure are also relevant as they enable reducing initial costs relating to business location. Business – industrial areas in cities create potential, which helps building relationships among newly established economic operators and develop local production systems.

Development policy pursued by local authorities impacts location behaviours of companies. Spatial planning policy may prove to be vital as it improves local potential by shaping local law concerning new space where start-ups may develop or which may receive existing companies. The process can be supported by local authorities who through local regulations make it possible to create areas of proper quality for developing business and industrial functions.

## 1 LAND-USE POLICY IN POLAND

Spatial planning - an instrument of local authorities, which creates spatial development - is important as it builds potential for newly established operators as well as for those who wish to change their location. The main act, which regulates issues connected with spatial planning in Poland is the Spatial Planning and Management Act of 2003<sup>6</sup>. It entrusts a commune, a basic territorial unit, with the responsibility for spatial planning.

Two strategic documents are worked out by communes: study of conditions and directions of spatial management and a land-use plan. Study of conditions and directions of spatial management in a commune is a mandatory document for all territorial units. It

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<sup>3</sup> Jewtuchowicz A., 2000. Innowacja i organizacja transferu technologii jako element konkurencyjności regionu [in:] M. Klamut, L. Cybulski (eds), *Polityka regionalna i jej rola w podnoszeniu konkurencyjności regionów*, Publishing House of the Wrocław University of Economics, Wrocław, pp. 119–127; Jewtuchowicz A., 2013. *Terytorium i współczesne dylematy jego rozwoju*. Lodz: Publishing House of the University of Lodz.

<sup>4</sup> Budner W., 2004. *Lokalizacja przedsiębiorstw. Aspekty ekonomiczno-przestrzenne i środowiskowe*. Poznan: Publishing House of the Poznan University of economics, Poznan, p. 57.

<sup>5</sup> Dziemianowicz W., 1997. *Kapitał zagraniczny a rozwój regionalny i lokalny w Polsce*. Warsaw: Euroreg, p. 17.

<sup>6</sup> Act of 27 March 2003 on spatial planning and management, *Journal of Laws [Dz.U.]* 2003 no. 80 item 717 with further amendments.

provides a framework of spatial policy exercised by local self-government. However, the document is binding only on local authorities and related institutions with respect to their competencies, not on local actors.

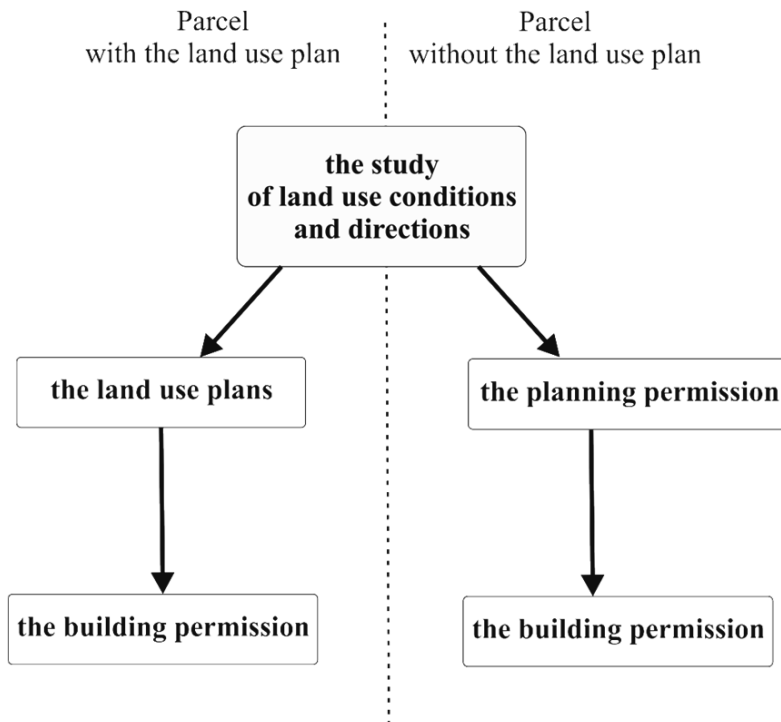


Figure 1 The way to get the building permission

Source: Feltynowski M., 2013. Land information system – a tool to keep the registry of planning permission. Case study of the Szczutowo commune. Infrastructure and ecology of rural areas No. 2013/ 04 (2)

Land-use plans as a rule are optional. They create local law and their content is binding on all local actors. Local plans allocate land and decide on the dividing lines. They identify the following seven general allocation categories: housing, service facilities, rural land, technical and production facilities, green areas and water, transport and technical infrastructure. Land allocation for a particular use and land management links to the need to develop functional connections between individual districts in the city. It is also important that local plans shorten the investment process. That is because administrative decision on planning permission is omitted and building permit is issued based on land-use plan (Figure 1.). Local plans also enable better monitoring of the behaviour of local actors because they become local law. They lay down detailed guidelines on how land may be used in given districts of the city. Their adoption helps better protect the environment and ensures proper functioning of the urban mechanism.

For firms seeking concrete business locations local plans perform an information function. Operators looking for land for their new activities get a clear guidance from the plan and learn about parameters of potential new investment projects, which facilitate their location decisions often of strategic importance. Independently of their size, economic operators must face a location decision when they start a business or at a later stage. These are often key decisions for the future of businesses in service and industry markets.



From the viewpoint of the development of local production systems, areas allocated for service and industrial functions become important for the development of cities. These areas may host economic operators, who may become parts of existing local production systems or develop such systems in new sectors, which previously were not directly linked with the territorial unit in question. The only ramification in locating companies comes from the local law, which identifies authorised business profiles to which a company must conform. Local law, in turn, must comply with sustainable development principle and meet environmental requirements.

## 2 METHODOLOGY

The paper uses a comparative method consisting in the assessment of the ratio of areas allocated for business (service) and industry operations in land-use plans. First stage of the assessment includes all regional (voivodeship) capital cities in Poland. In total we ended up with 18 cities of different potential but with the same status of a regional capital city. The main differentiating criterion was the area of each city which in this particular group varied from 5,834 ha in Zielona Góra to almost 52,000 ha in Warsaw, the capital of the country. Similarly population in these cities in 2013 accounted for fewer than 120 K in Zielona Góra while in Warsaw it exceeded 1,724 K. We should recognise, however, that the most important assessment criterion was the coverage with land-use plans. The average for the studied group was 39% of the area covered with plans while the median was 42%; that is why we took the average as the point of reference and conducted detailed analyses for cities where land-use plan coverage was above the average. In total 11 cities met the criterion (Figure 2.). The largest in terms of the area was Kraków, which also had the biggest population. On the other extreme end of the group covered by the study was Zielona Góra.



Figure 2 Localisation of cities participating in the study

Source: own work based on maps from Central Geodetic and Cartographic Documentation Centre.

Data on the coverage with local land-use plans came from the Local Data Bank of the Central Statistical Office. On top of that, we also used data from the Ministry of Infrastructure and Development collected for the study entitled „Planowanie przestrzenne w gminie” [Spatial planning in a commune] for 2013. Only for Olsztyn data referred to 2012 because the questionnaire for 2013 was not complete. The study „Planowanie przestrzenne w gminie” is an annual inquiry of the Central Statistical Office for the Ministry of Infrastructure and Development. Collected data enable to monitor spatial planning in communes and show how land-use plans are obeyed. These studies are also used to collect data on land allocations in land-use plans, which allows identifying development directions approved by local authorities.

### 3 SPATIAL PLANNING IMPACT UPON BUSINESS AND INDUSTRIAL LAND ALLOCATIONS

The review of data on spatial planning in communes selected for the study demonstrates that more local plans translate into bigger areas in the city covered with plans, which produces higher plan coverage ratio. Average number of local plans binding in 11 studied cities was 169. Lublin has got the fewest documents of such type, only 19. On the other extreme there is Gdańsk with 531 binding local land-use plans. Gdańsk is also a regional capital with the highest land-use plan coverage ratio (68%). Independently of that, the average coverage ratio for local land-use plans amounts to 49.2% in analysed cities; it is the lowest in Poznań where it slightly exceeds 40%. Besides Gdańsk, high coverage ratios for land-use plans was reported for Zielona Góra and Wrocław with respective ratios of 59% and 54.6%. We should admit that all regional capitals within the study group either have already achieved or will most probably soon achieve the real coverage with land-use plans identified in literature, i.e., 50%<sup>7</sup>.

Table 1 Data relating to land-use plans in the analyzed cities

City	No. of land-use plans	Land-use plans area [ha]	Land-use plans coverage ratio
Białystok	102	4,714	46.2
Gdańsk	531	17,822	68
Gorzów Wielkopolski	64	3,496	40.8
Kraków	130	15,752	48.2
Lublin	19	6,360	43.1
Olsztyn	59	4,403	49.8
Poznań	174	10,491	40.1
Szczecin	208	13,828	46
Toruń	167	5,193	44.9
Wrocław	335	15,980	54.6
Zielona Góra	67	3,441	59

Source: own calculations based on data from Central Statistical Office of Poland.

Through land-use plans local authorities are trying to make use of the potential of areas situated within city borders. By making appropriate choices they must specify management directions of individual areas, which reinforces the position of a local unit in offering potential

<sup>7</sup> Śleszyński, P., Bański, J., Degórski, M., Komornicki, T., Więckowski, M. 2007. Stan zaawansowania planowania przestrzennego w gminach. Warsaw: Polish Academy of Sciences Institute of Geography and Spatial Organisation.

business or industrial allocations. Independently of the proportion of the city covered with local plans, local authorities must approach emerging functions of city areas in a sustainable way. Importantly, solutions proposed in local plans should observe spatial order, the overarching goal of spatial planning.

Analysis of land allocations in land-use plans of regional capital cities reveals differences in the proportion of land used for service and industrial functions. The biggest investment area for such allocations can be found in Gdańsk where the authorities allocated almost 56% of the total area for services and industry in land-use plans. At the other end there is Poznań where local authorities decided to allocate only 12% of the area covered with land-use plans for services and industry. In the analysed group of cities service and industrial allocations represented on average 26.1% whilst the median was 22.3%, equal to the ratio reported for Zielona Góra. Most of the cities decided to allocate from 20% to 30% of areas covered by land-use plans for service and industrial functions. Outside of this range we can find ratios reported for Gorzów Wielkopolski and Gdańsk, respectively, 41.7% and 55.9%. The situation in Poznań, Kraków and Wrocław is completely different with ratios amounting to 11.9%, 14.5%, and 17.8%, respectively.

Table 2 Service and industrial areas in land-use plans in the analyzed cities

City	Service area – percent of land-use plans	Service area [ha]	Industrial area – percent of land-use plans	Industrial area [ha]
Białystok	21.8	1,028	5.8	273
Gdańsk	27.9	4,972	28	4,990
Gorzów Wielkopolski	22.9	801	18.8	657
Kraków	9.6	1,512	4.9	772
Lublin	8.5	541	18	1,145
Olsztyn	10.8	476	9.7	427
Poznań	9.9	1,039	2	210
Szczecin	11	1,521	9	1,245
Toruń	24.6	1,277	4	208
Wrocław	13	2,077	4.8	767
Zielona Góra	15.4	530	6.9	237

Source: own calculations based on data from Ministry of Infrastructure and Development.

More detailed analyses have shown that in all cases activities relating to the 3rd sector dominate in land allocations. Only in Gdańsk and Lublin the area allocated for services is smaller than that for industry. The ratio for Gdańsk is 27.9% to 28% in favour of industrial land allocation while in Lublin 8.5% to 18%. In both regional capitals local authorities want to promote industrial land. All the remaining cities allocated more areas for services. The biggest disproportions were identified in Toruń where service areas occupy chunks of land by more than 20 percentage points bigger than industrial land. Big differentiation was also found in Białystok where the difference reaches 16 p.p. In other cities the differences contain within 10 p.p. in favour of service areas.

## CONCLUSION

We need to stress that local authorities in most regional capital cities provide for the possibility to develop service and industrial functions in their local land-use plans. That makes us think in positive terms about the potential to develop local production systems.

Spatial policy of analysed cities demonstrates that despite differences in areas allocated for services and industry in land-use plans, local authorities are taking the first step to enable collaboration of local entities based within new industrial and service areas. Ensuring the potential to economic operators such as investment areas lays ground for joint activities in regional capitals.

Availability of proper infrastructure guaranteed by local authorities is a vital element of the development of entrepreneurship in new investment areas. Sometimes infrastructure must be expanded in areas proposed in local plans as service and industrial allocations. Additional element that could support the potential of land resources is adequate tax policy of local authorities, which may stimulate and encourage using the potential of land reserves offered by local authorities for use. We need to stress that spatial policy pursued by local authorities complements other sectoral policies of the city and often is decisive for business location decisions of economic operators.

Studies conducted in 11 regional capital cities provide evidence that priority in spatial management is given to creating allocations for the 3<sup>rd</sup> sector. At the same time, local authorities do not forget land reserves for industry, which allows us to conclude that they see the potential in the development of both functions. Rarely does it happen that local authorities in regional capitals decide to give the priority and develop land reserves for industry placing services on the second place. We need to stress that the results show directly the possibility to locate new economic operators in surveyed cities as there are land reserves for industry and services.

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### **Contact information**

Marcin FELTYNOWSKI, Ph.D.  
Department of Regional Economics and Environment  
Institute of Spatial Planning  
The Faculty of Economics and Sociology  
University of Lodz  
Rewolucji no 39 Street  
90-2014 Lodz  
Poland  
Email: [marcinf@uni.lodz.pl](mailto:marcinf@uni.lodz.pl)

# REGIONAL ELECTRICITY MARKETS IN RUSSIA: PERSPECTIVES AND CHALLENGES

MKRTCHYAN Gagik  
MELTENISOVA Ekaterina

## Abstract

In Russia electricity sector was recently restricted: functions were divided into monopoly and competitive ones. Regional electricity markets with distinguish features appeared and supposed to compete and cooperate with each other. Nowadays all regional markets are created and in this article the attempt to analyze regional markets' structure was made. Results demonstrate that some regional markets in Russia are supposed to be oligopoly. Under these conditions it seems to be important to create effective regulations mechanism and free flows of electricity among regional markets that helps the decrease the electricity prices and consequently decline producers costs creating conditions and incentives for development of local production systems (LPS).

**Key words:** regional electricity markets, market structure.

## INTRODUCTION

Wholesale markets for electricity and also for power exchange appeared in Russia during industry liberalization. Before that cross-subsidized price forming system existed that means higher electricity prices for producers and lower for population. That provides high costs and no incentives for developing of small and innovative enterprises especially in electricity scarce regions that slows down development of LPS.

Nowadays some competitive ways for determining price are created such as day-ahead action which set 24 hourly electricity prices the day before physical delivery. Such sector should stimulate the decrease in electricity prices in all regions (despite its scarce in energy resource) and consequently stimulate the development of LPS.

In Russia 2 timing zones were creates – Europe and Siberia. Inside them six united energy system (UES) appeared – Urals, Volga, Siberia, Central, South, Northwest. This UES has common dispatching system. Europe wholesale markets includes Urals, Volga, Siberia, South and Norwest. And Siberian UES includes in Siberian wholesale markets. Trade could be organized inside one zone – Europe or Siberia and couldn't be transferred across different markets.

In this research main emphasize was made on generation companies as they were supposed to compete with each other. And these results present a part of big research of regional electricity markets' structure and concern wholesale generation companies, main market players. Then I mention key issues about Russian electricity sector, companies and some features of regional wholesale markets. Then we will consider market share of WGCs on regional electricity market and integration process that is typical for them during last years. Further the attempt to evaluate monopoly power of each company will be made. Following Lindenberd and Ross [3] we will try to use Tobin's  $q$  for this purpose.

The main goal of this article was to define whether conditions for successful development of LPS appeared. To answer this question the attempt to analyze regional electricity markets was made and also to evaluate the level of market power for main wholesale players. If there is high level of market power that means that some generation companies would be able to manipulate electricity prices ad prevent development of LPS.

Significance of electricity markets for LPS explains with its high rate in company's costs and high prices even may cause the increase in shadow economies( Schneider et al, 2010).

## **Literature overview**

From the beginning of restructuring process some international specialists expressed concern about creation competitive regional electricity markets in Russia. So Franz Hubert [2] analyzed international experience to find lessons and potential threats for Russia, such as tendency of growing share of generation companies to decrease their cost. David Kennedy, representative of European Bank of Reconstruction and Development [4] expressed concern about possibility of outcomes that would not support the objective and worried about large size of main market players. World Bank [7] in its turn share previous opinions about large size of generation companies and consequently possibility of using scale economies, named Russian plan of restructuring probably the largest and the most complex electricity ever attempted anywhere. Researches of Meltenisova et al. [5] and Russel Pittman's one [6] made an attempt to calculate market power with indexes to conclude about competitiveness on regional electricity markets. They shared widespread fear and proved that generation companies could try to monopolize electricity and it would be feasible for regional with limited transmission import capabilities.

Absence of competition on regional electricity markets could cause to manipulation in electricity prices on wholesale markets and increase costs of producers decreasing perspectives and opportunities for development of LPS.

## **1 REGIONAL ELECTRICITY MARKETS IN RUSSIA**

Time passed and electricity sector in Russian changed with the number of generation companies, electricity flows between regional markets took place. Moreover electricity is supposed to be quite complicated sector so some traditional methods of calculating monopoly power could be unappropriated. Large size of generation companies is urgent question for Wholesale Generation Companies, that explains the reason why main emphasize was made on them.

In research the attempt to define whether WGCs have monopoly power on regional markets and also to compare received results with international experience. US companies were regarded for this purpose. Three companies operating on Californian market were included in research. This experience was chosen to follow with Russian electricity sector and this US market faced with troubles just because of monopoly power of some companies.

### **1.1 Some main features of electricity regions markets**

Russian generation companies were supposed to become private, and dispatching with transmission functions became state-owned. In generation sector – Hydro WGCs (named RusHydro) including hydro generation and Rosatom (generating electricity on nuclear sources) also remained under state control. Competition was supposed to develop between WGCs and TGCs. First one were large companies including generation capacities of no neighboring regions to prevent monopolization. TGCs were smaller included neighbouring capacities and were supposed to provide customs with electricity and heat.

As concerns regional wholesale markets there are 7 of them, which differ drastically with installed capacity that we are able to conclude from Table 1. Far East market differs from others predominantly because of climate conditions. We could see that Central (including Moscow) and Siberia with Urals region are in group of leaders with high level of installed capacities.

Table 1 Installed capacities on regional electricity market

<b>Region</b>	<b>Installed capacity (in MWh, in 2014)</b>
Central	51 681,8
Volga	26 209,7
Urals	47 587,5
Northwest	23 386,3
South	19 302,3
Siberia	49 241,7
Far East	9061, 0

## 1.2 Main regional electricity markets' players

As I've already mentioned in the beginning of restructuring process some experts expressed concern about large size of some generation companies. Nowadays for WGCs we could observe tendency to increase generation capacities with the help of integration process. WGCs aim to reduce their costs and capture scale economies. So nowadays we could observe only 4 of WGCs instead of 6 ones that were created in the beginning of electricity restructuring. So Inter RAO integrated with WGC1, WGC3 including capacities of Bashenergo (former independent regional enego) and TGC11. Vertical integration also took place in the sector. Gazprom bought shares in WGC-2 and WGC6. And WGC-4 and WGC-5 are controlled with big international energy companies German E.ON and Italian Enel respectively.

As a result here we can conclude that WGCs try to increase their capacities to become larger (in the Table 2 installed capacities are presented).

Table 2 Installed capacity of WGCs in 2014 (in MWh)

<i>InterRAO</i>	<i>WGC-2</i>	<i>WGC-3 (E.ON)</i>	<i>WGC-5 (Enel)</i>
27 635	18 480	10 345	9 676

It proved concerns of World Bank that generation companies would try to become multi-plant as it allows to find subtle way to manipulate transmission. It's known that large integration companies could have good economic and commercial rationales but only if the wholesale market works effectively.

Table 3 provides us with information about WGC's installed capacity market share in regions in 2013. To include years before this period seems to be useless as integration process took place just during these years.

Table 3 Installed capacity share of WGCs on wholesale electricity market in 2013 (%)

	Inter RAO	WGC-2	E.ON	Enel	Total (WGCs)	RusHydro	RosAtom	Total
Central	14	7	4	5	30	3	25	58
Volga	0	0	0	0	0	26	16	42
Urals	28	12	14	11	65	4	1	70
Northwest	12	13	0	0	25	13	25	62
South	2	24	0	2	35	29	10	75
Siberia	8	3	3	3	14	49		63
Far East					0	37		37



Here we see that in some regions generation companies have more than 30% of installed capacity. In Ural WGCs have 65% of installed capacities, in South – 35% and 30% in Central regions. Moreover InterRAO and WGC-2 (Gazprom) are presented almost on all regional markets. It means that companies have a possibility to cooperate with each other to get monopoly power. If we add state-owned companies and calculate companies' installed capacity share we get following results. We see that RusHydro added to numbers as a tight oligopoly in South and Siberia regions. That's why experts express a serious concern that market power of WGCs will be reduced only if hydro plants in fact operated independently of the oligopoly.

## **2 EVALUATION OF MARKET'S POWER**

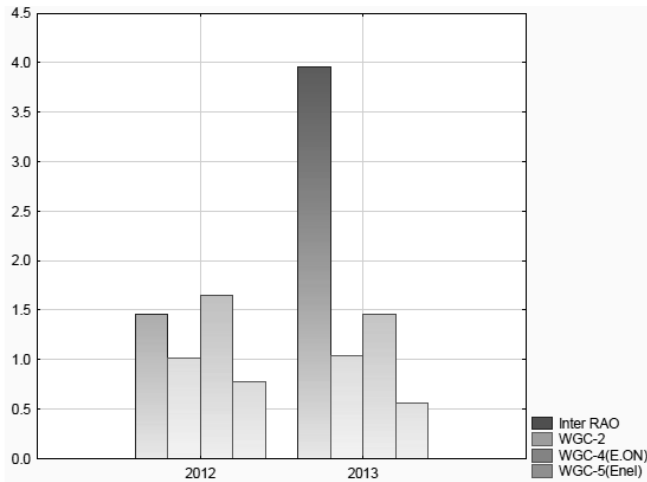
### **2.1 Tobin's q as a measure of market power**

But installed capacity sometimes doesn't reflect a real market share and some researches try to find an alternative way to define monopoly power. In 1981 Ross and Lindenberg [3] offered to evaluate market power with Tobin's q calculation. If we examine firm with increasing monopoly power than q should increase. If q is greater than 1 the market value of the firm is in excess of its replacement cost. If there is free entry other firms could enter the industry by purchasing the same capital stock as the existing firm. Thus if there is the absence of barriers to entry and exit q will be driven down to one as new firm enter. A monopolist who can earn monopoly rent in excess of the ordinary returns on the employed capital. Market will capitalize these rents and the market value will exceed the replacement cost.

So Tobin's q ratio was chosen as an indicator of market power. It was calculated based on formula of Chung and Pruitt [1]. They present simple formula for approximating Tobin's q that uses available balance sheet information. They also demonstrated correlation between the q values obtained via the simple approximate q formula and more theoretically correct one. Main assumptions here are that replacement values of a firm's plant, equipment and inventories are equal to their book values, market values of the firm's long term debt is equal to its book value. They made cross-sectional comparison of q-Value from 1978 to 1987 for 90 companies.

### **2.2 Analysis of Russian electricity companies**

Based on annual reports Tobin's q was calculated for Russian companies. It was calculated for last two years, as main integration process began during this period. In 2012 InterRAO and E.ON demonstrate high level of Tobin's q, and in 2013 InterRAO became the leader in this ratio. This fact could be explained with last stage of integration WGC1, 3 and BaskirEnergO that gave company significant competitive advantage.



**Picture 1. Tobin's q as a measure of market power for Russian companies.**

## CONCLUSION

So we may make some conclusions. Despite on electricity flows between regions they are still insignificant and on some regional market WGCs have about 30% of installed capacities. Moreover integration process should be a matter of serious concern as generation companies become larger that allows to capture scale of economies and influence on market price. Calculations proved it – InterRAO has a high Tobins'q ratio, that was used as measure of market power. Company represents almost on all regional markets and its share is quite significant. Besides InterRAO is a leader here other WGCs also has q higher than 1 that testifies a possibility of monopoly power. And the last but not the least integration process prevents development of competitive market, large generation companies aren't attractive for strategic investors and at the same time they could provide new market players with effective management and plenty of financial funds that sector really needs.

All these facts decrease the incentives and conditions for development of LPS in regions.

So we emphasized the importance of appropriate industry structure and market rules with effective regulation. Of course there are possibilities to make more detailed research of regional electricity market's structure with including TGCs and taking into account electricity flows between new market regions.

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### **Contact information**

Gagik MKRTCHYAN, PhD, professor  
Ekaterina MELTENISOVA, PhD, professor assistant  
Economic Faculty  
Novosibirsk State University  
Pirogova street 2  
630090 Novosibirsk  
Russia  
Email: gagik@ieie.nsc.ru; emeltenisova@gmail.com

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