



Cluster-Management as a Technology for Increasing the Efficiency of Territory Resource Exploitation in a Region

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ABSTRACT

The topicality of cluster formation and their management is determined by the general ways of economic upswing at the present stage of developing Russia. It also lies in developing a partnership with the state, economy and science. A cluster serves as a paradigm under which the general output, beginning with its development, initial production work and ending with its sale, follows in the single chain order. In the modern market environment of functioning and development the national and regional economy everything is largely caused by the regularities of the global processes, which are determined as both the new world economic ties formation and the specific status definition of a certain state, region and enterprise in the structure of world economy. The economic integration can be considered as one of the main components of globalization. Any high-organized system seeks for strengthening its integrity objectively, for there are no specific goal, structuring and hierarchical pattern, distinguishing the system from the simple set of any things and phenomena between its forming elements when consolidating the ties and relations. Consolidating economic entities, strengthening their interactions and developing the economic and social relations between them are defined as an economic integration (the word "integer" from Latin means "whole," "unitary").

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JEL Classifications: P25, P28, R1, R12

1. INTRODUCTION

In the modern economic realism the success of a country's economic growth is directly connected with regenerating the industrial upsurge, whose delay was observed in 2001-2003. Now there is an increase in the topicality of the question about the limiting influence on the growth in the economic dynamics of the formed industrial structure.

It is logical that there arises a task how to cognize, describe and develop the industrial policy mechanisms before economics, whose main purposes must be the questions about forming steady growth and competitive recovery rate at all levels. Creating and developing cluster structures, which are interindustry complexes, playing the

role of "growth points" of the regional and national economy; in the meantime, clusters allow overcoming the structural restrictions and the diversified industrial structure, developed in a number of economic entities, answer to these purposes. These aspects define the choice of the subject for this research and its topicality.

The question about cluster formation has become one of the main keynotes for both the federal and regional social and economic development programs lately. Let us try to distinguish the most important problems about using a cluster approach in strategic documents.

Clusters are accepted to call a group of manufacturing enterprises (consumer and supplier chain), which turns out any goods or

commodity group, localized in a certain territory. However, an orientation to a certain type of commodity group is extremely important. So, for instance, the grain and oil cluster, but not the agro-industrial one is being unambiguously formed in the south of Russia. As a rule, the “industry-wide” system does not allow implementing the specific actions about cluster support subsequently.

In the authors’ opinion, cluster is an organized mechanism, mainly created by the regional entities such as business, scientific and financial organizations, universities, etc., for solving a number of the existing problems and implementing joint projects. The cluster policy as a management tool, allows the organizations, which interact with each other, to have effective work with higher educational institutes, scientific research institutes, contracting parties, competitors, etc. The main condition for an entry into a cluster is the initiator’s sharing the concept and association of himself in this or that cluster. To create a cluster, there needs a state support, namely, the infrastructure support of the self-organization processes and participant interaction.

Today there is a strategic task, called the way to innovation development before the Russian economy. The transition economy cannot be swift and universal in the modern Russian economic and social conditions. Therefore, it begins with cultivating the regional points of growth. The cluster approach has already been used for a long-time in the world. This approach had been used in Russia much before. The “rare lands” treat history, problems and prospects, which form clusters.

2. CLUSTERS AND COMPETITIVE ADVANTAGES

In the experts’ opinion, our country risks to turn into a raw appendage of the developed countries. However, all the high technologies will be exported from abroad. Import will create new jobs and will improve the living standards of people who create innovations. An original and practical exit from this situation is to create industrial clusters. First of all, a cluster is a social concept and is formed in the community of people who have similar economic interests. A cluster is a method of self-organizing a community for survival in the conditions of the difficult international competition, when there a decrease in the value of the national borders as the special economic regulators. Among economists, there is a point of view about the regions having clusters; they become the leaders of economy. These regions begin defining the national economy’s competitiveness. Those regions in the country, where there are no clusters, go into the background and often endure the strongest social crises.

Now in Russia there is an active support for development and further functioning of a new form of the territorial organization of the business (production) activity, called a cluster. Despite the essential advantage of a cluster, nevertheless, this form of enterprise organization has an essential similarity to the territorial production complex (TPC). TPC is set of industrial enterprises

in a certain territory, united by the community of a transport and geographical location and sharing the production infrastructure (Academic - Dictionaries and Encyclopedias, 2016).

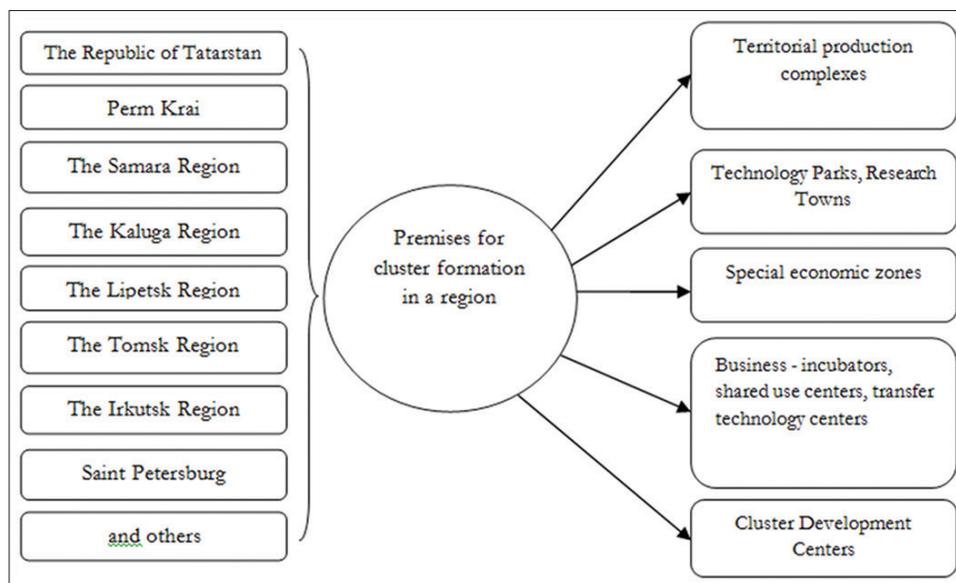
A cluster is a different association of enterprises (firms, banks, scientific research institutes, higher educational institutes, etc.), localized in a certain territory and created on a voluntary basis. These enterprises interact with various fields of business activity (in the sphere of production or services) on a cooperation basis that leads to increasing the competitive advantages of all participants, who are members of this cluster.

So, a cluster is set of enterprises, which are compactly located and closely connected with each other, have the same kinds of activity and are set up around the head offices, covering production, delivery and sale in the narrow fields of activity.

The experience of the European countries shows that cluster formation allows increasing the efficiency in different types of economic activity, resulted in the interconnected development, joint project promotion and economy on expenses. In addition, using the cluster approach to the economic growth of territories makes a productive influence on increasing labour productivity, encouraging innovations introduction and reducing costs for their implementation.

Now there is an active development of cluster-management in Russia (Figure 1). This approach is very important, for it brings the essential economic benefits. The additional cost that exceeds, as a rule, higher expenses of the high competition for the specialized real estate, the skilled workers and consumers in the region, is established for a group of companies, which work within clusters. It points out to clusters being formed in the natural way from decisions, which are directed to profit maximization. More high efficiency and innovative activity in a cluster are extremely important for the community of a region, as these factors cause the stability of the territory’s wellbeing in the continuous period. The quality of business environment is of importance to the performance and innovation levels, which are come up by enterprises within a cluster in this certain area.

There were several small clusters around monopolists-suppliers in the Soviet period, but generally a variety of the industry was revived by the monocultural practice. There was the concept “scientific-industrial complex” and “territorial industrial cooperation” in the USSR. The planned system and management principle in the business placed firm restrictions on their activity. For instance, the principle of choosing a supplier was often quite defined not by the interests of an enterprise, but the authority’s order. As a result of it, the parts, which were made in the region, were necessary to deliver from other republics. The industrial complex was formed on the inner-union division of labour principles, and then the huge number of suppliers could be for thousands of kilometers from the main production (Lobova and Bogoviz, 2015). The Soviet complex had the hierarchical structure “the industrial hub-complex-area” and the modern cluster has the networking and broke, and many producing units just stopped existing.

Figure 1: The domestic experience in the territorial organization of cluster systems at the federal and regional levels

M. Porter studied this question widely in his works. He distinguished the following types of economic benefits:

- Companies work more effectively within a cluster, referring to more specialized assets and suppliers than they do out of a cluster;
- Companies, which are part of a cluster, can reach higher level of innovations, more close ties with their consumers and adopting experience from the adjacent companies allows generating more new ideas. In this case, the cluster environment reduces costs for experiments;
- A new business is set up quicker within clusters. Start-ups (we shall beat) are more dependent from external suppliers and partners. Clusters also reduce falling expenses in this or that economic sector of enterprises, for businessmen-losers can return to the local labour market, i.e. to the fields of activity, which are familiar to them (Porter, 2009).

To implement the project for cluster-management formation, in the authors' opinion, there need the following modules:

1. Region capacity development;
2. A close cooperation with parties to a cluster and its development;
3. To increase the efficiency in the cooperation between the state and business;
4. To study industrial and business environment;
5. To inform social organizations and change their attitude to this question.

These components will promote region competitive recovery. Module 1 forms a transfer of skills to the businessmen of a region and separate territories, guaranteeing the level of competition preservation inside a cluster. Module 2 works with a certain group of clusters at broadening their tides and competitive activity. Module 3 helps the state and business to define competitive priorities in relation to the national competitive environment. Module 4 improves the main work about analyzing industries and selecting clusters. Module 5 provides reliable information and changes expectations and prerequisites, if necessary.

So, the classical concept “cluster” was introduced by Michael Porter. He defined it as a group of the neighboring companies, which are closely related and united between each other by organizations, which work in a certain branch of economy, and are determined by a community of activity and mutually explanatory of each other. Porter defined a cluster as effective ways for economic system competitive recovery. At present clusters are referred to the flexible meso-economic systems, including the economic entities of a micro-level, which are connected with themselves by the mono-component ties and unite into achieving the set common goals and keeping their independence (decision-making autonomy and asset ownership) in their structure.

3. CLUSTER-MANAGEMENT IN REGIONAL DEVELOPMENT

A conceptual development of clusters is one of the advanced distinctions of the modern theory and practice of studying economic activity organization, which showed its high efficiency in the developed countries and regions. This theory arose at the end of the 20th century and integrated a number of advantages such as competitiveness, institutionalism, innovative and territorial industrial development, which went into the background. A basis for cluster management is a certain kind of activity to concentrate on the borders of certain territories, where the favorable conditions have been created for them to exist.

The reforms in the field of economy and business, the efficiency in territory resource exploitation in the regions of the country and also a thought-over economic branch play a huge role in region development. Creating the new forms of organizations and labour co-operation is also referred to the main regional trends. Treat such forms a cluster. Today they received a wide concept of management. By the example of our country, now the dynamical developing territories are those, where there are agricultural or industrial clusters.

The list of innovative territorial clusters is approved at government level. At present there are 25 clusters in the territory of Russia. Its territories are divided into districts and they have a wide range of productive activity, Table 1.

The concept of long-term prospects for the social and economic development of the Russian territories till 2020 forms several directions of cluster policy:

1. Territorial industrial clusters (the most perspective ones for our country), which are focused on high-tech productions in the priority branches of development. The process of product support and promotion to the local and world market is considered, the Russian brand formation and maintenance and compensation for the international patenting are considered there.
2. Territorial industrial clusters in weak territories, which are guided by processing raw materials and energy industry, power industrial clusters on hydroelectric power station basis, timber industry clusters.
3. Tourist and recreational clusters in territories, which are unique in natural resources, rich historical and cultural heritage.

The proposals for developing the selected 25 clusters can be considered to be the most reworked ones. The projected value of the consolidated revenues per the 25 selected clusters in 2016 will make 3810, 6 billion roubles at 2011 values, an increase by 105% as against 2011.

To achieve the estimated figures of the 25 selected clusters, it is supposed to focus on the following directions (Glukhova, 2012):

- To grant subsidies to the budgets of the subdivisions of the Russian Federation in the terms of co-financing innovative territorial cluster programs, implemented by the subdivisions of Russia in such directions as transport, power, engineering and social infrastructure development, personnel training and development and work and project performance in the sphere of studies and developments, etc.;
- To give support to implement pilot cluster development programs within the federal target and government programs and to use the funds of institutes for development;
- To participate in developing the state companies' clusters (it is one more type of additional financial load upon the government-sponsored companies).

It is worth noting that it is insufficient to speak of a breakthrough in cluster policy for a success in these 25 pilot projects. There exist directions to be scaled. They are as follows:

- To develop scientific parks, business-incubators by means of state private enterprises;
- To stimulate the demand for innovation goods;
- To improve the quality of learning services;
- To encourage building the international ties, including trans-border cluster and a number of others development.

In its way, a cluster is unique in formation from the viewpoint of property relations, developed within its framework. A cluster forms its configuration on the property right to various objects such as real estate, goods of new generation, raw material, etc., which provides their most effective application. Clusters represent a certain base for these transfers, as they allow combining fundamental science, elaborations

Table 1: Some clusters of Russia

Northwestern Federal District	<ul style="list-style-type: none"> • Medical and pharmaceutical industry cluster, radio technology cluster (St. Petersburg, the Leningrad Region); • IT, radio electronics, instrumentation technology, means of communication and info-telecommunications development (St. Petersburg); • Shipping industry innovation cluster (the Arkhangelsk Region)
Central Federal District	<ul style="list-style-type: none"> • Pharmaceutics, biotechnology and biomedicine cluster (Obninsk), the Kaluga Region; • MIPT - XXI cluster (Moscow Institute of Physics and Technology), Dolgoprudny, Khimki, the Moscow Region; • Biotechnological innovation territorial cluster of nuclear physical and nanotechnologies (Dubna, the Moscow Region); • New materials, laser and radiation technologies (Troitsk), Moscow; • "Zelenograd" cluster
Volga Federal District	<ul style="list-style-type: none"> • Energy-saving lighting technology and intelligence lights control (the Republic of Mordovia); • The Sarov innovation cluster (the Nizhni Novgorod Region); • Nuclear innovation cluster (Dimitrovgrad, the Ulyanovsk Region); • The consortium "The academic industrial cluster 'Ulyanovsk-Air'" (the Ulyanovsk Region); • The Kamsk innovation territorial industrial cluster (the Republic of Tatarstan); • The Nizhni Novgorod industrial cluster in the field of automotive industry and petroleum chemistry (the Nizhni Novgorod Region); • Innovation territorial space-air cluster (the Samara Region); • Petrochemical and territorial cluster (the Republic of Bashkortostan); • The innovation and territorial cluster of rocket engine -building "Technopolis," "Novy Zvezdny" (Perm Krai) Titanous cluster (Sverdlovsk)
Urals Federal District	<ul style="list-style-type: none"> • Pharmaceutics, medical and information technologies (The Tomsk Region); • Coal and industrial complex processing (the Kemerov Region); • Innovation technology cluster, Closed Administrative-Territorial Unit, Zheleznogorsk, Krasnoyarsk Krai; • Innovation cluster of information and biopharmaceutical technologies (the Novosibirsk Region); • Altai biopharmaceutical cluster (the Altai Territory)
Siberian Federal District	
Far Eastern Federal District	Innovation and territorial cluster of aircraft and shipping industry (the Khabarovsk Territory)

of a design concept and absolutely new high-tech producing units together and to be the base for complex knowledge, which is directed to practice. Basing on this theory, the favorable conditions for industry re-equipment are created, zones for the priority investment directions are defined and complex engineering and manufacturing proposals are made for the favorable investment decisions in a region. Investing in the enterprises of the allied industries, which interact with each other, provides a big return from these investments.

The main task of the cluster policy in regions is an absolute change in industry policy and innovative technology introduction, demanding from creating the essential new institutional forms, which will change the former regional management model radically. The authorities' aspiration is often down to aspire to unite the enterprises and organizations of several different branches in their territory that can bring to a synergetic effect (Kiryanova). In the course of making regional changes, cluster-management makes a start from the new fundamental scientific decisions, not from the ways of rationalizing the developed production modes as before. In the modern world cluster support must include elimination of barriers for introducing innovations, investments from regional local authority in the human capital and infrastructure and the geographical concentration of the related enterprises support. In general, supporting the regional authorities for cluster-management formation and development must be in the following directions:

- To form premises for a constructive dialogue between business and authorities, for creating harmonious reference points in the field of cluster participants' interests and strengthening cooperation between them;
- To make measures for demand promotion, i.e. to form consumer preferences in a certain region, to develop development the related and support sectors of economy, the state order;
- To develop the professional education system for forming the necessary competences in a certain region;
- To develop external relations, to eliminate trade barriers, to protect intellectual property rights, to implement joint infrastructure and investment projects;
- To create the favorable economic, institutional and other conditions in a region.

The well-created and thought out policy of cluster support in a region is an effective tool for regional competitive recovery, its potential in the field of innovations, rates of economic growth and also the most important condition for providing the stability and economic independence of a region in the globalized world.

4. CONCLUSION

A cluster is an industrial complex, which is formed on the territorial concentration of the exclusive distributors' networks basis, primary

producers and consumers, connected by a manufacturing chain and acting as an alternative to a sector approach.

A cluster possesses the specific characteristics such as the strong ties between cluster participants, geographical concentration, well-developed information network, clear specialization within a cluster and innovative predisposition of approaches.

It is logical confirmed that a typical cluster comprises small and average companies, each of which does not draw from the competition of another company, which is part of a cluster, but a compact arrangement is especially favourable because of the fact that there appears the possibility of using the specialized resources. Speaking about a territorial arrangement of clusters, it is necessary to make a reservation that cluster borders are considerably indistinct and are not accurately defined.

Clusters can arise either spontaneously, naturally or be artificially formed under the local authorities' rigid control. For cluster existence and functioning, the following conditions are necessary to create:

- To form the corresponding infrastructure;
- To have the created organizational and communicative structure that performs the administrative functions and provides forming the innovative community as a subject of regional territorial development, having a partnership with business, the central and local authorities;
- To give a cluster in a framework of the central authorities' industrial and regional policy, which is adopted by the local innovative community;
- To use the new management technologies,
- Business initiative;
- To have an opportunity and a need for sharing economic entities.

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