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## Innovative Territorial Clusters as Instruments of Russian Regions Development in Global Economy

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### Abstract

Innovative cluster initiatives are considered to be worldwide as one of the key instruments of economic growth and the index of global competitiveness. In the early 2000s, clusters started to evolve in Russia, but they haven't been institutionally adopted, consequently that has the worst impact on the country's development and reduces their effect on the economic growth. The need in summarizing and systemizing of national and international experience has obviously arisen in order to build up innovative economics in Russian regions and to increase the economic-makers activity rate. The basic factors of the efficient economic development of innovative territorial clusters in Russian regions (for e.g., Novosibirsk Oblast) are dealt with in the article.

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*Keywords:* innovative territorial cluster; institutions of development; regional economics; innovative infrastructure; factors of success

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### 1. Introduction

It's a common overseas practice to apply the cluster approach proposed by the Harvard School of Business and based on the analysis of the country's economics and on the assessment of various cluster types competitive capacity, including innovative ones. In the Soviet Russia, territorial production complexes were thought to be cluster prototypes and aimed at the centralized economic development, however, they were destroyed in the transition period to market economy started in the early 1990s.

Porter's cluster approach is used for countries' competitive capacity indices estimates. Switzerland, Singapore, Germany, Finland, the USA, Swiss, the Netherlands, Japan, Great Britain, Norway are the countries with an active cluster position which rank first, and where 40% employees are engaged in the industrial sector activities and more

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than a half of GNP is being produced. In practice, the countries' innovative territorial clusters aren't limited by economic branches and known to be the main impetus to the rise in innovative activities among the regions. According to the cluster theory, the national economy doesn't exist, but there is the whole complex of regional (territorial) economic systems interacting with each other and with the rest of the world. These conceptual fundamentals are of prime importance for Russia, where each region possesses unique raw materials, technical and scientific-innovative potentials and characterized by economic development rate. Over the past decade, the creation process of innovative territorial clusters is putting on pace and finds the Russian government's encouragement and support.

The government of the Russian Federation is working out innovative policy, creating innovative infrastructure within large-scale projects of technical parks and development centers construction (including Skolkovo), raising funds, making pilot programmes list of innovative regional clusters evolution. In spite of these facts, the innovative activities and the processes effectiveness levels are still on the low side.

Under such conditions, we have to conduct the critical analysis of the current institutional environment, to investigate the basic factors of innovative territorial clusters formation and evolution (including comparative analysis and evaluation of foreign countries experience).

### ***Information Base and Methods***

In the research, the key fundamentals of the institutional economic and competition theories are referred to. The factors of the efficient innovative territorial clusters development have been studied by cluster approach method (according to M. Porter). To reveal the trends and for comparison, the results of analytical investigations conducted by foreign and Russian authors and organizations have been used, such as: the Ministry of the Economic Development of the Russian Federation, the Federal Agency of the State Statistics of the Russian Federation. In this paper, the experts' assessment method is applied, because there is no evidence of analytical information concerning innovative activities in official Russian statistics.

### ***Key Theoretical Principles***

1. According to Porter's theory of the national and local competitiveness, clusters are thought to be the groups of mutually interacting organizations located due to the geographical principle; for e.g.: specialized suppliers, industrial organizations, educational and R&D institutions, etc. So, these organizations are simultaneously competing and keeping in touch to achieve common goals and objectives. Globalization of competition processes leads to enhancing the role of clusters in economy rather than separate enterprises. The geographical organization position and its business relations (not only internal resources) are getting more relevant when giving priorities under conditions of competition. In this connection, the government role in regulating economic processes, the main principles and the system of its interactions with business, education and science are changing. It results in devising advanced economic policy and creating new efficient instruments of economic development.

2. The clusters borders are constantly changing together with the economic transformation, market expansion and shrinking, and also with the appearance of new branches and competitors. Moreover, cluster participants are admitted to be different organizations operating in various fields of economy with the diversity of objectives and levels of economic development. Consequently, the policy of state regulation and the programmes of cluster evolution should take into account these peculiarities and introduce permanent monitoring of changes and the system of final results estimation. The reasonableness of such a proposal is acknowledged by similar recommendations aimed at working out «the perfect cluster policy and cluster programme for policymakers:

«...Cluster organizations are part of the economy, and are thus constantly on the move. Depending on the age, economic performance, financial sources, subsidies etc. they are at different stages of development. In order to be able to offer corresponding perfectly suited financial and technical support through a cluster programme that corresponds to the development level of the clusters and networks and to further developing their knowledge and innovation capacities, governments need to get a right picture of the cluster organizations as well as which stage they are at. From this point of view, the best way is for governments to support the establishment of a Cluster League where cluster organizations could be «qualified» depending on their industrial developmental stage ».

3. Competition is dynamic and based on the search for strategic differences. Traditional factors of production are getting less meaningful, and close contacts with other market participants have the greatest affect. The lateral or

horizontal integration tends to substitute the vertical integration. Under such conditions, clusters provide the best coverage of important relations, some complementarity between enterprises and organizations, and also dissemination of technologies, skills, information. These combined effects are agreed to be the fundamentals of competition, productivity growth, innovations implementation, and the strategic goals and objectives achievement. «Integration» appears to be the basis of economic activities; Russian entrepreneurs realizing the process importance use the following motto: «The best way to compete is integration».

Most cluster participants don't compete directly with each other. They try to overcome many common hurdles on the way to productivity increase. When removing them by means of interaction, they manage to meet single requirements and look for new opportunities. Clusters provide a constructive and efficient dialogue conducted between market players. Investments in cluster member development have a synergic effect.

Such conditions should be taken into consideration when determining the cluster borders. The cluster is thought to be efficient when it is being set up «at the bottom», while taking into account the needs of participating enterprises. Otherwise, when the cluster is being created «at the top», only on the government's initiative, it proves to be a formal institution with low productivity and returns on investments.

4. Clusters influence market and economic states by raising the productivity of participating enterprises, when having the ability to encourage technical and technological innovations and to promote new activities aimed at expanding clusters boundaries. In other words, a cluster is a system of interacting organizations which total effectiveness significantly exceeds the effectiveness of each separate cluster member. However, it doesn't happen by itself (see paragraph 3). To a great extent, it depends on interpersonal relations, formal and informal organizational mechanisms, cultural values and etc.

Consequently, the presence of institutions - both formal and informal - and their quality are of prime importance. However, certain conditions should be created such as: favorable economic situation on international markets and inertia absence inside the cluster.

Provided the above-mentioned conditions are available, cluster members will be able to use all the competition advantages, such as:

- availability of specialized production factors and labor force (local re-sources), which reduces expenditures on transactions;
- stimulation of constant productivity growth by conducting systematic benchmarking;
- access to investments (including governmental ones), information, social benefits;
- complementarity and flexible response to the change in market demand.

## **2. Clusterization of Russian Economy: Current Period**

The innovative infrastructure, which clusters refer to, has been evolving in Russia since the 1990s. Within the time, the evolution of cluster formations is presented by re-search-and-production centers or «towns», special economic areas, large industrial parks, technological platforms, innovative territorial clusters, which total number in 2013 is shown in Fig.1. They include: 30 technological platforms on the basis of 11 priority-oriented branches of economy, 25 innovative clusters, 27 special economic areas diversifying into: industrial / productive, technological/ implementing, and business tourism types. All the institutions are provided with the state maintenance, and their development is supported by the governmental decisions, such as:

- The concept of long-term social-economic development of the Russian Federation up to 2020;
- The strategy of innovative development of the Russian Federation up to 2020.

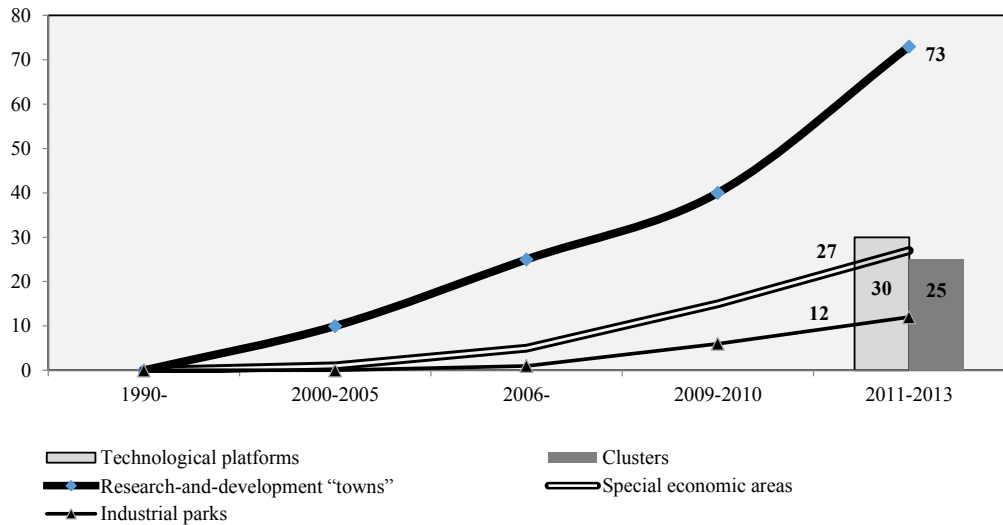


Figure 1 Russian institutions operating on the cluster basis in 2013

References: Compiled by the author with reference to the analytical materials available from open sources

Innovative clusters take prominent position in the instrument system. They tend to evolve in modern sectors, such as: IT, biotechnologies, and new materials. Innovative clusters include new companies started in the result of technologies commercialization and research done by universities and R&D organization. Methodological recommendations on cluster policy implementation in the Russian Federation regions are aimed at monitoring cluster activities.

Each region is provided with legal foundation. For e. g. «The Programme of government support of innovative cluster development, information & biopharmaceutical technologies in Novosibirsk Region from 2013 to 2017» has been devised. The cluster members are 30 organizations including R&D institutions, innovation companies and industrial enterprises. The project brings synergy into activities of different research-and-production enterprises operating in the fields of IT, pharmacology and medicine. The share of small and medium-sized innovative companies in cluster economics accounts for 30%. The main expected indicators of productive cluster potential imply three-times increase in performance by 2016 (Table 1).

Table1. Expected performance indicators of innovative clusters in Novosibirsk Region of the Russian Federation from 2012 up to 2016. References: <http://innovation.gov.ru/node/17494>

Performance Indicators	2012 Y.	2016 Y.
Total cluster participants revenue from selling goods (raw materials aren't included) in the internal and external markets, millions of \$	155	470
Clusters international market share, %	0,03	0,09
Amount of private investments in industrial growth, new ranges development, advertising and launching onto market, millions of \$	43	129

However, the achievement of the expected performance indicators seems to be rather questionable. Firstly, the indicators of economic dynamics in whole Russia and particularly in Novosibirsk Region stay at low level. From 2000 to 2013, Novosibirsk Region (as Russia in whole) was involved in creating innovative infrastructure, for e.g.: the research and development town ( Novosibirsk Akademgorodok), Novosibirsk Industrial Park, a wide network of business incubators started at universities and R&D institutes, development centers, and an innovation cluster. In spite of these facts, quite quick and rough estimation can reveal that the institutional dynamics (Fig. 1) doesn't have

close correlation with the main indicators of regional economic development (Table 2). It is assumed that there is no significant increase in the in the regional economic development indices.

The consequences of the recent world economic crisis can't lead to retardation in regional development. Large corporations have certainly cut their investments. However, they are not key players participating in clusters formation, including the cluster of Novosibirsk Region.

Table 2. Main indicators of economic development in Novosibirsk Region of the Russian Federation in 2007-2012

References: Compiled by the author with reference to non-confidential data provided by the Federal Agency of Statistics of the Russian Federation

Index	2007	2008	2009	2010	2011	2012
Index of gross regional product, %	111,7	105,7	89,4	104,6	108,4	104,3
Index of industrial output, %	110,7	102,4	89,1	107,9	106,5	109,1
Index of fixed capital investment, %	151,6	125,4	86,5	107,8	112,5	105,2
Foreign trade turnover balance, millions of \$, the USA	200,9	21,4	370,7	-192,7	-744,0	-49,6
Index of expenditures on research and development, %	151,3	132,1	106,5	102,9	113,8	

We admit that low motivation for companies to launch innovations, the absence of large-scale projects, and a number of problems make direct economic challenges. These issues should be immediately resolved. Neither the centers of innovative development and cluster initiatives, which have been established in the regions since last year (at pre-sent, they total more than 10), nor a drift of the idea of technological consortium foundation can improve the situation.

### 3. World Expertise as a Means of Hot Issues Recognition and Successful Implementation of Cluster Initiatives

1. The first factor of success is setting up the regional institutes of cluster initiatives.

Unfortunately, the number of the institutes does not influence their activities quality. This is confirmed by Russia's rating in the Global Competitiveness Index in 2013–2014 (Table 5)<sup>4</sup>. The Russian Federation, being at the 64th place, has improved by three positions since last year. The country's macroeconomic environment has continued to improve from the 44th position two years ago to 19th position this year because of low government debt and the governmental budget that has maintained a surplus. But the country continues to receive a poor assessment of its public institutions (118th position) and shows a lack of innovation capacity (78th position). Moreover, Russia ranks 107th in accordance with «Business Sophistication» index, which value is given to represent the state of cluster development policy run by the government.

Practically, all the institutes have been established at the government's expense, but the efficiency of these investments is always very low. Unfortunately, Russia is accustomed to “absorbing” the budgets, but not to bearing the responsibility for their efficient use. In spite of the fact that the funds are distributed on the contest base, not all the participants are authorized to access them. In such conditions, businesses are not ready to invest in innovative infrastructure and risky projects. Finally, it aggravates the situation and leads to efficiency reduction of the existing institutes.

2. The second factor of success is the developed productive cluster base which is used for making advanced technological decisions and their commercialization. For e. g, clusters are known to be the base for further economics clusterization in Finland, which takes one of the top positions in the index chart. In this case, Russia is facing the following difficulties:

- Firstly, we are trying to skip over the stage of productive clusters development, in the same way we've discarded the idea of the economic modernization (reindustrialization) stage and tried to proceed to innovation. According to unofficial data, nearly 230 cluster amalgamations are currently operating in different regions of Russia. They haven't been officially registered as clusters, but in reality these mergers are referred to them. However, the

government doesn't collect statistical data concerning the clusters quantity, their activities results, their contribution in economic development of the whole country and separate regions, problems and development potential. Simultaneously, it puts greater stress on the activities of 25 innovative clusters. Finally, Russian statistics doesn't assess the impact on the economic state of Russian enterprises being The European Cluster Collaboration Platform (ECCP) 4 members.

- Secondly, the current situation evidently shows that the society is not ready to accept innovative economy. Under such conditions, we have to change the mentality, modify the system of education and science, upgrade tangible assets in order to make innovation process become more complex in nature than point-like.

3. The third factor follows the second one: it is the initiative arising «at the bot-tom» as the cluster participants' demand for further integration and obtaining new opportunity while overcoming different obstacles.

The problem is that Novosibirsk Region cluster (and other 25 regional clusters) was set up «at the top» on the government's initiative and supported from the federal budget. «Own-brand» organizations have been involved into the cluster according to their status, but not considering the needs. In some cases, the requirements have been taken into account, but they are not supported by internal resources and abilities. In the result, the goals haven't been coordinated and interdepartmental barriers haven't been overcome yet. The programme of development is rather declarative. Moreover, there's no logic in merging two branches, such as informational and biopharmaceutical technologies, because it doesn't allow appointing the member company as a common control and monitoring centre.

4. The fourth factor is of prime importance, that is efficient and professional regional cluster management. Intensification of cluster initiatives has accelerated the development of cluster management as a special type of professional activities demanding special training. In Europe, the need in such specialists is constantly rising together with the increase in the number of organizations dealing with the cluster development; at the same time professional clubs and associations are being started (TCI is the most representative). It could be explained by the fact that cluster policy is targeted not only at base infrastructure creation, but firstly it is devised to foster the efficiency of cluster-participants interaction and enhance the competences<sup>5</sup>.

In Russia, the role of professional managers is undervalued. It is assumed, that engineer's degree received by a high-school graduate will allow the owner to become a professional manager and to run large mergers and monitor relations. Most Russian universities, the Academy of Science of the Russian Federation, and different companies (including small and medium-sized businesses) experience difficulties caused by efficient management problems. Large corporative structures whose top-managers have been trained abroad can realize the importance of professional managerial skills.

Once enhancing the integration of state, business and education (so called «triple spiral»), we have to resolve the issue of teachers and managerial staff training.

5. The fifth factor is a systematic assessment of the cluster activities results and its influence on the regional economics. It's a common practice to apply benchmarking as an assessment method in overseas countries.

Russia's problem is the absence and the shortage of reliable information, data bases, effective communication for providing the information applied in benchmarking. The problem solution directly depends on the actions taken by the regional government administration; although the initiatives are stated in programmes, they aren't always efficiently put into practice. All the above-mentioned factors should be thoroughly considered to estimate the efficiency of using Federal Budget funds drawn to implement cluster initiatives by regional governmental and supervising bodies.

#### **4. Conclusion**

Russia will be able to resolve the strategic issue of innovative economic development only through the regional advance. Innovative territorial clusters prove to be one of the key instruments of regional development under modern conditions. Even though the innovative infrastructure has been created, the quality of the institutional environment is still low in the regions and in its turn prevents the cluster member from achieving their full potential.

To settle the acute problem successfully, we have to satisfy the need in: efficient institutes which enable cluster participants to agree on objectives and to interact effectively; smart government policy which stimulates initiatives from the bottom and motivates small and medium-sized companies to launch innovations; professional cluster management; benchmarking for estimating cluster efficiency and its effect on the regional economics.

Knowledge of the best world expertise will foster practical implementation of the set objectives and will allow Russian government to develop an effective cluster policy and to provide regional competitive capacity in global economics.

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