

# The meaning of clustering to enhance the Russian economy innovative competitiveness

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**Abstract.** The development of small business in Russia, despite the attention of the state, does not give significant results. Often, the reasons for the bankruptcy of small and medium-sized enterprises are inability to manage their own financial resources or ignorance of the financial position of partners. Regular analysis of the financial situation would improve the situation. However, the existing foreign and domestic methods of analysis are not suitable for small businesses for a number of reasons, which was proved in the article on the basis of the study. The identification of restrictions for small businesses in the analysis allowed us to justify for using of the coefficient method. Comparison of the set of coefficients proposed by different authors in methods for analyzing the financial condition of small organizations and the generalization of the characteristics of small trading organizations made it possible to justify a set of acceptable coefficients for analysis. The application in the analysis for comparison of non-generally established standards, and threshold average industry values, allowed to make correct conclusions on the financial state on the basis of the proposed methodology on the example of the indicators of small trade organizations. Selection of analysis techniques implemented in the article provides not only a ready-made instrument, but also a method for its selection and adjustment.

**Keywords:** Innovation, Innovation system, Competitiveness, Cluster, Russia.

## 1 Introduction

The modern economy, based on knowledge, can not successfully develop without a pronounced innovation component. The innovative activity of various economic entities is the determining factor of efficiency and competitiveness of both themselves and the national economy as a whole. The experience of the last decades of both developed and developing countries has shown that innovative clusters are one of the most effective tools for activating innovation and improving its quality. Carrying out an active cluster policy allows strengthening the market positions of cluster members, contributing to the dynamic development of regions, increasing their export opportunities, overcoming structural disproportions, orientation to production using modern technologies, methods and forms of management.

## **2 Relevance, scientific significance of the issue with a brief review of literature**

The problems of innovative development of the national economy have been analyzed in the economic literature quite deeply. So, one of the first developers of the theory of innovative development was J. Schumpeter, who distinguished the terms "economic growth" and "economic development". He defined economic development as "the appearance of something new, unknown earlier, or, in other words, innovation," and also identified sources and factors of innovation [19]. Impact on innovation activity of scientific and technological progress, development of the economic system under the influence of innovations was considered by J. Schumpeter [18]. Theories of the postindustrial and new industrial societies that laid the foundations for the formation of a modern innovation economy were developed by J. Galbraith [7], P. Drucker [6], M. Castells [4]. From domestic authors who contributed to the theory of world innovation development, it is possible to single out N.I. Ivanova [8, 9].

Clusters play a big role in the development of innovations in the modern world. The definition of the essence of clusters can be found in the works of M. Porter [15], K. Ketels [10]. The concept of innovative clusters, their inherent features, features of evolution, the modern significance for the national economy, and the theoretical and methodological foundations for managing such structures were considered by V.K. Shcherbin [17], S.I. Record [16], D.L. Napolskikh [14], M.B. Shchepakina, Yu.V. Tomilko [20], etc. Nevertheless, the problems of choosing tools to improve national innovation systems using the cluster approach and taking into account national characteristics remain insufficiently studied.

## **3 Formulation of the problem**

The purpose of the article is to identify the specific features of the impact of cluster policy on the level of innovative development of the national economy of Russia and the development, taking into account the world experience, of proposals for improving Russian cluster policy as a factor in the development of the national innovation system. To achieve this goal, it seems necessary to determine the main features of innovation clusters and their role in the development of the national economy, to analyze the world and domestic experience in the development of innovative clusters. This will become the basis for determining possible directions for improving the cluster policy of the Russian Federation taking into account the needs of the development of the national innovation system.

## **4 Theoretical part**

Innovative development is a trend in the development of the economy, as a result of which it acquires a new qualitative state and structure that ensures the priority of innovation activity. A fairly high level of state and interstate regulation of innovative development is allocated to the European Union. This is evidenced by the high places

of the EU countries in the international competitiveness ratings. In addition to the leading European countries, the USA and the most developed Asian countries (Japan, Singapore, Hong Kong) are also among the ten most competitive countries in the world economy. The corresponding data are presented in Table 1.

**Table 1. Innovative and global competitiveness of the world's leading countries in 2016-2017 [21-24]**

Country	2016				2017			
	Rt. GCI	Mark GCI	Rt. GII	Mark GII	Rt. GCI	Mark GCI	Rt. GII	Mark GII
Switzerland	1	5,78	1	66,28	1	5,86	1	67,69
Sweden	6	5,50	2	63,57	6	5,52	2	63,82
Netherlands	4	5,61	9	58,29	4	5,66	3	63,36
USA	3	5,67	4	61,40	2	5,85	4	61,40
U. Kingdom	7	5,49	3	61,93	7	5,51	5	60,89
Denmark	12	5,35	8	58,45	12	5,39	6	58,70
Singapore	2	5,69	6	59,16	3	5,71	7	58,69
Finland	10	5,44	5	59,90	10	5,49	8	58,49
Germany	5	5,58	10	57,94	5	5,65	9	58,39
Ireland	24	5,18	7	59,03	23	5,16	10	58,13
Russia	43	4,48	43	38,50	43	4,64	42	39,16

In Table 1, two well-known indexes used for the comparative evaluation of the countries of the world are used for evaluation: the Global Competitiveness Index (GCI) and the Global Innovation Index (GII). According to the presented data, the leaders in innovative development are among the most competitive countries in the world.

Russia is not among the leaders in the field of innovative and global competitiveness, which confirms the weakness of its innovation system. Systematizing the reasons for the insufficient level of Russia's innovative development, we can single out the following:

- Inadequate development of some mandatory elements of the national innovation system (insurance of innovative investments, a system of venture financing, leasing of high-tech products);
- The specific structure of the Russian economy, which determines the great profitability of investment in the raw materials sector;
- Insufficient level of state regulation and support of innovative activity;
- Narrow scale of distribution of the most perspective innovative developments;
- Insufficient attractiveness of innovations for many enterprises, which determines their weak susceptibility to new developments.

A study of the experience of developed countries shows that the successful development of national innovation systems largely depends on the qualitative level of development of institutions that ensure the development and promotion of innovations. Actively used and clusters institute, especially clusters of innovative type. The cluster is the optimal environment for the creation, implementation and dissemination of innovations, which is determined by the following features of it [27]:

- Availability of highly qualified labor resources;
- Geographical proximity, creating favorable opportunities for the dissemination of knowledge;

- The functioning in clusters of numerous representatives of small and medium-sized businesses, which are characterized by a high degree of flexibility, contributing to innovative growth.

Therefore, the more clusters in the country (industrial and innovative), the greater is its potential in the field of creating and promoting innovation.

## **5 Practical value, suggestions and results of implementation**

Innovative clusters are of considerable interest for the Russian economy, they have been the object of state economic policy for more than 10 years. The development of a conscious system innovation policy at the macro and meso levels began after the crisis of 2008. In 2012, the Prime Minister of Russia approved a list of 25 territories selected on the basis of a tender, at which innovative territorial clusters will be formed with the support of the state. Almost all federal districts in Russia are clustered in different degrees.

According to the Russian cluster observatory and geoinformation system "Industrial parks. Technoparks. Clusters" in Russia there are 41 territorial innovation cluster, of which 29 (70.7%) are included in the list of pilot innovative territorial clusters [5, 13]. The level of organizational development of Russian innovation clusters is divided as follows: 22 clusters have an initial level of organizational development (54%), 9 - medium (27%), 8 - high (19%). Fatherland innovative clusters are located in all federal districts, except for the North Caucasus and the Crimean. The largest representation - in the Volga and Central Federal Districts (15 and 10 respectively), the smallest - in the Urals and the Far East (one in each). The largest number of innovative clusters in the Russia is specialized in the field of pharmaceuticals and microelectronics and instrument engineering (5 each). According to the Ministry of Economic Development, for the period 2013-2016 pilot innovative clusters reached the following indicators [21]: 7.39 trln. rub. - volume of products, works and services produced; 137,4 ths. - the number of new / modernized high-performance jobs; 55.9 ths. people - underwent professional retraining and advanced training as collaborators of cluster organizations; 2848.5 ths. rub. - average annual output per employee of a cluster organization; 551.64 bln. rub. - volume of investments from extrabudgetary sources. In general, we can note the positive trend indicators that characterize the development of innovative clusters of Russia. Twelve clusters have been recognized by the Ministry of Economic Development of Russia as leaders of the world's investment attractiveness [25].

One of the mechanisms allowing to strengthen innovative activity is an effective innovative cluster policy, which involves the use of the following tools [3, 14, 26]:

- Regional, interdepartmental and interregional strategies and programs for innovative development;
- State support for the process of commercialization of the results of scientific research and applied developments;
- Creation of a favorable business climate that creates conditions for the work of innovatively active industrial enterprises;
- Stimulation of demand for cluster products;
- Cooperation of scientific and educational institutions, organizations of innovative infrastructure and industrial structures;

- Development of state-business-science partnership;
- Regular monitoring of the development of innovative, cluster-oriented activities;
- Development of infrastructure and communications;
- Assistance in the formation of competent human potential.

The basic document defining the framework of Russia's cluster policy is the "Concept of Long-Term Social and Economic Development of the Russian Federation for the Period to 2020" [1]. The need to support initiatives to create and develop clusters is aimed at the "Strategy of innovative development of the Russian Federation for the period until 2020" [2]. However, the really active cluster policy began to be implemented from June 2012, when the "List of Pilot Programs for the Development of Innovative Territorial Clusters" [12] was formed.

Mechanisms for supporting the development of clusters in Russia include the use of most measures taken abroad: a special tax regime, concessional lending and debt financing, loan guarantees, investments in state programs and investment programs of state companies, direct investment, development of venture ecosystems in regions, subsidies to companies and co-financing of regional programs, support for foreign economic activities of cluster members, programs for clusters, information support for cluster members. Most public funds allocated to support clusters are spent on the development of innovative and educational infrastructure (about 70%) [11].

## 6 Conclusions

Thus, the conducted research showed that for the development of the Russian national innovation system, clusters play an important role. In turn, for successful functioning of clusters, it is necessary to take into account foreign experience and direct efforts to the following directions:

- Development of clusters on the basis of a network of business incubators, medium and small companies, cooperating with state authorities, which will contribute to the creation of an innovation infrastructure and attraction of foreign investors;
- Obligatory accounting of regional specificity, including foreign economic potential of regions. This determines the need to develop an Innovative Cluster Program for one of the most promising regions of Russia - the Far Eastern Federal District;
- Development of legislation in the field of public-private partnership, commercialization of innovations, imports of promising foreign technologies;
- Regular monitoring of the production capacities of organizations - actual and potential participants of the cluster, conducted in a uniform manner, and is the basis for making managerial decisions;
- Formation together with foreign partners (for example, Chinese) clusters in those sectors that are strategically important for Russia;
- The formation of a business climate conducive to the development of small and medium-sized businesses of an innovative orientation;
- Popularization of innovative business by the state with its simultaneous financial support;
- Development of regional production, transport, financial, social infrastructure.

As a result of applying this approach, we can expect an increase in the efficiency of Russian national innovation system.

## References

1. About the Concept of Long-Term Social and Economic Development of the Russian Federation for the Period to 2020, [http://www.consultant.ru/document/cons\\_doc\\_LAW\\_82134/28c7f9e359e8af09d7244d8033c66928fa27e527/](http://www.consultant.ru/document/cons_doc_LAW_82134/28c7f9e359e8af09d7244d8033c66928fa27e527/).
2. About the the approval of the Strategy for Innovative Development of the Russian Federation for the period up to 2020, [http://www.consultant.ru/document/cons\\_doc\\_LAW\\_123444/f62ee45faefd8e2a11d6d88941ac66824f848bc2/](http://www.consultant.ru/document/cons_doc_LAW_123444/f62ee45faefd8e2a11d6d88941ac66824f848bc2/).
3. Akopyan, A.R. The role of clusters in the development of modern national innovation systems of world economic entities, Moscow (2016).
4. Castells, M. Information Age: Economics, Society, Culture. HSE, Moscow (2000).
5. Clusters, <https://www.gisip.ru/#ru/clusters>.
6. Drucker, P. Business and Innovation. Williams, Moscow (2007).
7. Galbraith, J.K. New industrial society. AST, Moscow (2004).
8. Ivanova, N.I. Formation and evolution of national innovation systems. Russian Academy of Sciences, Moscow (2001).
9. Ivanova, N.I. Russia in a polycentric world. In: Innovations as a driver of socio-cultural development, pp. 61-76. Trendy, Novosibirsk (2013).
10. Ketels, C.H.M. The Development of the Cluster Concept – Present Experiences and Further Developments, [http://www.isc.hbs.edu/pdf/Frontiers\\_of\\_Cluster\\_Research\\_2003.11.23.pdf](http://www.isc.hbs.edu/pdf/Frontiers_of_Cluster_Research_2003.11.23.pdf).
11. Khafizov, R.R. Territorial clusters as drivers of innovative development of the region, <https://www.slideshare.net/Friifond/2016-63940723>.
12. List of pilot programs for the development of innovative territorial clusters, [http://economy.gov.ru/minec/activity/sections/innovations/politic?WCM\\_PI=1&WCM\\_Page.556a41804309ce5898fbbb1aee474279=3](http://economy.gov.ru/minec/activity/sections/innovations/politic?WCM_PI=1&WCM_Page.556a41804309ce5898fbbb1aee474279=3).
13. Map of Russian clusters, <http://map.cluster.hse.ru/list>.
14. Napolskikh, D.L. Innovative cluster as an institution for territorial development. Pero, Moscow (2013).
15. Porter, M.E. Competitive strategy. Alpina Publisher, Moscow (2011).
16. Record, S.I. Development of industrial-innovative clusters in Europe: evolution and modern discussion. SPSUEF, St. Petersburg (2010).
17. Shcherbin, V.K. Infrastructural components of the innovation economy. Center for System Analysis and Strategic Studies of the National Academy of SB, Minsk (2010).
18. Schmookler, J. Invention and Economic Growth. Cambridge. HUP, MA (1966).
19. Schumpeter, J. The theory of Economic Development. Capitalism, Socialism and Democracy. Eksmo, Moscow (2008).
20. Shechepakin, M.B., Tomilko, Yu.V. Theoretical and methodological aspects of managing the innovation cluster. Yug, Krasnodar (2013).
21. The Global Innovation Index 2016, <https://www.globalinnovationindex.org/gii-2016-report>.
22. The Global Innovation Index 2017, <https://www.globalinnovationindex.org/gii-2017-report>.
23. The Global Competitiveness Report 2017–2018, <http://www3.weforum.org/docs/GCR2017-2018/05FullReport/TheGlobalCompetitivenessReport2017%E2%80%932018.pdf>.
24. The Global Competitiveness Report 2016–2017, [http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017\\_FINAL.pdf](http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf).
25. The participants of the priority project of the MED for the development of innovative clusters were selected, <http://economy.gov.ru/minec/about/structure/depino/2016191004>.
26. Titova, N.Yu. Identification of industrial clusters, environment and factors of their formation. Economics and Entrepreneurship № 2(55), 58-66 (2015).
27. Voronov, A.S., Leontieva, L.S. To the question of types of regional innovation clusters. Statistics and economics 3, 8-9 (2016).