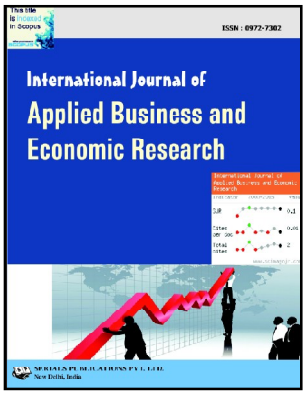

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Advantages of Cluster Approach in Managing the Economy of the Russian Federation

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Abstract: The formation of new approaches to economic growth that will unite scientific, educational and production potentials, as well as lead to an increase in the competitiveness of enterprises, the region, the economy of the nation in general, both research and educational organizations, will have a further multiplier effect on the formation of an economy processes of a new order. This trend in the formation of modern approaches, and their successful implementation will result in the transition of the Russian economy to an economy of innovative type, more adjusted to relevant world trends and markets. The urgency of implementing cluster approaches in the development of the economy on the basis of innovative territorial clusters is dictated by the need to ensure a balanced and sustainable development of the domestic economic system through the promotion of innovation in individual territories. Such actively formed territories can now become clusters. In the modern world, clusters, with their completely different policy of realizing their activities, displaying the newest forms and competitiveness, become 'springboards' that help launch territories into the economy of the future. Today, the competitiveness of the economy of the region and the state depends not only on technical achievements or inventions, but also on organizational changes that contribute to the achievement by them of high commercial results, as well as on marketing innovations in the promotion and implementation of cluster policies.

Keywords: economy, state, cluster policy, innovations, efficiency, competitiveness

JEL Classification: L84, E29, O52

INTRODUCTION

The existing territorial-spatial state economic space has caused a significant differentiation of the regions of the state in terms of the level and nature of social and economic development. The progressive experience of successfully developing territories shows that their competitiveness on a national scale is largely based on the subjects of entrepreneurship consolidated on the territorial basis (Arzhakov & Silnov, 2016).

In this regard, the formation of a new paradigm for the innovative economy is closely interrelated with the formation of zonal and polar of organization of the 'critical mass' of the activities of the state subjects. Proceeding from this, the modernization vectors of different variants of meso-economic policy should lead to the formation of cluster forms as pole centers of economic growth, the expansion potential of which would be capable of affecting adjacent regions, involving them in the zones of escalated business activity.

In the conditions of the market economy, regions do not sufficiently use the joint potential for solving social problems from the point of view of the formation of mechanisms for state interaction and actualization of the concepts of equalizing, pole and harmonized development on the basis of cluster approach that allows to harmonize and coordinate the interaction between territorial and production actors, the infrastructure and social sphere.

The goals of cluster territorial policy include the development of the sector of small and medium-sized enterprises around large companies with domestic and foreign capital, the creation of new jobs and, ultimately, the increase of the innovative potential and competitiveness of the state, ensuring an even and balanced regional development (Abramova et al., 2013).

However, in Russia's economic science there is no unified definition of territorial clusters, there is insufficient methodological support for discovering potential opportunities for cluster formation and for the choice of the optimal cluster innovation policy model that would take into account the specific character of the development of the economic system and assess the effectiveness of cluster innovation development of a certain territory. In addition, the cluster organization of territories and its individual sectors has so far been studied only fragmentarily, due to complexity of both the object and the subject.

The topicality of the issue is determined by the need to introduce qualitatively new models of consolidation of business at the state level that should promote the achievement of a multiplicative effect when creating the value of the gross regional product and the gross domestic product, help realize the innovative component of the state's economic policy and establish the management and control mechanisms of the activities of innovative regional cluster development (Lymych, 2013).

DISCUSSION

Today, under the influence of external factors and political interactions, scientific and technological progress, the introduction of innovations as an element of the competitive economy of the Russian Federation, clusters and their management and development policies have become a widely discussed topic.

As is known, the cluster approach in the management of the domestic economy is an alternative to the long-established traditional industry. The decline in governance and the role of the public sector in the management of domestic industries, regionalization, formation and strengthening of horizontal links led to the fact that the policy of managing the economy of the state is being reshaped.

In the conditions of constant growth of competition, modernization and innovations, the management of the current system of the Russian economy faces certain difficulties, connected with the need to attract attention and consolidate the efforts of many management objects to achieve the different goal of providing the population of the state with high quality goods and services.

The achievement of the goal of the development of a new Russian economy, largely depends on the highly effective organizational mechanism of leadership and quality assurance.

Many world powers are already widely using cluster policy, which in turn is a key element of the state economy and thereby increases its competitiveness in the market. At the same time, the development of regional clusters, as elements of progress and a way to improve the key economic indicators, is seen as an important competitive advantage of the modern Russian economy, which provides a synergic effect.

The cluster approach and cluster regional policy in the structure of the national economy is one of the areas of action of the state program to strengthen the industry, which in turn will provide increased competition.

This innovation in the economic structure of the country determines the priorities to create a more efficient management of the socio - economic sector.

At present, there is no single understanding and definition of a cluster, nor is there a clear understanding of which cluster policy model should be applied in Russia and how effective clusters will be for individual industries and regions of the Russian Federation. For example, according to the definition given by M. Porter, a cluster is the geographical concentration of related structures, organizations, companies that specialize in the supply of a certain type of goods, as well as serving enterprises that work in related industries and institutions (e.g., universities) in specific industries that compete against each other, but work together at the same time.

The regional cluster, one of the elements of the cluster approach in managing the economy of the state, is understood as a geographical agglomeration of companies and enterprises that operate in several related branches of the economy.

Scientific research and expert opinions highlight the following advantages of cluster work in the region: an increase in labor productivity in organizations that participate in the cluster, reduction of the impact of unfair competition through better coordination of activities, the most accessible way to obtain information, effective combination of basic factors of production, the emergence of new internal business structures of the cluster, the possibility to disseminate innovation, the supply possibilities.

The implementation of effective cluster policy in the economy of the state relies on the constant interaction and clarity in the relations between local governments, state authorities, scientific and technical centers and entrepreneurs in order to coordinate efforts and interactions in improving innovation in production and services.

All these factors make it possible to improve the efficiency and effectiveness of the main indicators of the state economy.

Currently, a large number of cluster projects of various specializations are operating on the territory of the Russian Federation. For example, the Government of the Russian Federation approved a list of 25 pilot innovative territorial clusters.

The state also assists in forming the structure of cluster type organizations by restructuring large organizations and unions, or re-organizing state property by entering cluster enterprises or newly created structures into charter capitals.

The work of cluster entities in the Russian economy is in the competence of the Cluster Development Centers, or the corporations of regional development, or the state itself. Very often, the funds for the activities of clusters are provided from subsidies from the federal and regional budgets. The transition to a new model of management and implementation of the state economy is reflected in the Program for the Long-Term Social and Economic Development of the Russian Federation until 2020. In this program, one of the directions of development of the innovative society-oriented economy of the Russian Federation is the formation of a network of territorial production clusters that contribute to the growth of the competitive potential of the territory (Nosova *et al.,* 2016; Oleinikova *et al.,* 2016).

The state cluster approach and is implemented through effective state support of all directions of economic growth. This mechanism is a catalyst for innovation processes that ensure the technological re-equipment and modernization of regional industries through the work of the developed Federal Innovation Programs for leading companies with participation and involvement of the public sector, large investments in R&D, manufacturing and procurement of modern equipment, goods and services on the domestic market (Doronina *et al.,* 2016).

A cluster is characterized by highly developed infrastructure, by highly competitive production and direct interaction with the scientific and educational institutions, which enables the region to enter the world market and be competitive there. The product, which is produced by the residents of the cluster, is certified and patented; it provides an opportunity to take full advantage of its uniqueness.

It is also necessary to note that in the creation and establishment of a cluster, as well as in the process of carrying out its financial and economic activities, risks are inevitable.

Management of risks occurs at the stage of cluster strategy formation, as well as in its implementation, at all levels of management and in all areas of activity (Aquere, Dinis-Carvalho & Lima, 2013).

All risks that may have a negative impact on the achievement of the set goals and results are subject to review and re-evaluation.

Thus, we can state that cluster approach is a progressive way of organizing production and solving the main sectoral problems of the Russian economy.

RESULTS

To determine and characterize all available territorial clusters and their innovative development policies more accurately, we will analyze the territorial and sectoral composition of domestic clusters and their impact on the development of the Russian economy.

In accordance with the specifics of the economic sector of the state and geographic peculiarities 6 sectoral cluster areas were formed:

1. Nuclear and radiation technologies;
2. Manufacture of aircraft and spacecraft;

3. Pharmaceuticals;
4. New materials;
5. Chemistry and petro-chemistry;
6. IT and electronics.

In order for these directions to develop effectively, to be competitive in the world markets, their rational geographical is necessary (Orobia *et al.,* 2013).

An analysis of their location within the borders of the state shows that the country's leadership gives special attention to the leading regions (federal districts) with the greatest production potential, favorable social sphere and developed infrastructure.

The majority of innovative territorial clusters are found in the European part of the country, since this territory is characterized by the highest population density and is leading in economic activity.

The Asian part of the Russian Federation has only 7 out of 25 innovative clusters. The majority of clusters are in actively developing regions with a high level of innovative activity: Privolzhsky Federal District (9 clusters), Central Federal District (6 are in Moscow, and the Moscow Region), Siberian Federal District (5 clusters).

The innovative clusters of the Volga Region make up more than a third of all clusters, but the scope of their activity is not large. The total number of innovative entities in the form of territorial clusters is almost equal to their number in the Central Federal District, which reflects roughly the same production capacity of these territories.

The Urals and the Far East Regions have one cluster each. The policy of innovative cluster development is reflected in the activities of the Titanium cluster, the Aircraft and Shipbuilding cluster of the Khabarovsk Krai. Their location is conditioned by the fact that the main raw materials and production capacities are located in close proximity. However, there are also some drawbacks – poor transport infrastructure, and remoteness from potential consumers.

The newly formed clusters, which are included in the list of innovative clusters, have characteristics of various models of territorial organizations. From the point of view of the territorial location, the following clusters can be distinguished:

– clusters in clearly defined and provided operational boundaries (Closed Administrative-Territorial Unit 'Sarov Innovation Cluster', Zheleznogorsk);
– association of enterprises, scientific and educational organizations in the network of large-scale agglomerations;
– dispersed clustered formations.

Innovative territorial clusters are distributed mainly in territories with a high level of scientific and technological potential and production capacities. These areas are special economic zones, closed administrative and territorial entities: Sarov, Moscow, Troitsk, Perm, Khabarovsk, and others.

Many of innovative clusters base their work on the existing specialization of industrial enterprises, such as innovative territorial clusters located in the Republic of Tatarstan, Arkhangelsk Region, and

Khabarovsk Krai. They started with the transfer of the results of scientific and technological research to the activities of industrial companies.

The development of production potential and attraction of investment to finance the clusters and the economy of the Russian Federation is the goal of the state's development program.

To implement this, it is not enough to subsidize clusters from the budget, it is also necessary to make a positive image for investors. In general, each cluster has its unique potential growth, which is uncharacteristic for the producers operating in the territory of its location.

In order to analyze the functioning of domestic clusters - it is necessary to assess its most important indicator - the total economic potential.

This indicator includes the following characteristics: production, investment and technological solutions.

Production potential is the main factor that determines the potential and actual competitiveness of the territorial cluster. One of the indicators that allows to assess the production potential of the cluster is the volume of aggregate revenue from sales of non-raw materials. Thus, in 2012, this indicator was 1.9 trillion rubles, and in 2016, it was 3.8 trillion rubles, the growth rate was 105%.

The leading place in terms of total revenue was held by the territorial cluster in the sectoral area 'Chemistry and petro-chemistry'. The revenue of this innovative project amounted to 1.1 trillion rubles; its sub-clusters had a cumulative revenue of at least 274.4 billion rubles on average per cluster of the sectoral direction).

The Ministry of Energy of the Russian Federation did not neglect such positive dynamics of the innovation cluster development and approved a plan for the development and operation of the innovative territorial cluster for the period until 2030 (Grahova & Gapsalamov, 2014).

This project includes the creation and development of six petrochemical clusters: the West Siberian, the Volga, the Caspian, the Northwest, the East Siberian and the Far East.

The average indicator for the development of innovative clusters and their combined revenue in the filed of information technology and electronics was 174.4 billion rubles, while the lowest indicator was observed in the clusters of the 'Nuclear and Radiation Technologies' - 73.6 billion rubles, and 'Pharmaceuticals' - 45.5 billion rubles.

In order to ensure the achievement of the expected results, it is necessary to make frequent adjustments to the activities of enterprises – production of goods, services, extraction of raw materials, etc. All these sets of activities and measures are interrelated with the implementation of the main organizational and economic activities (Law *et al.,* 2009).

As such, the state's clustered formations are a specific part of the overall economic policy. To implement an effective economic policy in this sphere, it is necessary to synchronize the actions of all cluster participants continuously at the federal, regional and local levels. The management of such entities on the large scale implies the management of complex projects that are developed by public or private programs.

Each project for the development and functioning of the cluster has its own participant, and its program, which must be coordinated with and approved by other participants. It is advisable to create a

coordinating center on the territory of the region, oblast, krai or the state, which will include cluster members and local government bodies.

This implies the organization of the so-called management company for the development of a territorial cluster. However, sometimes even this is not sufficient. Then it is necessary to create the so-called market of management companies of the innovative cluster. Otherwise, the created coordinating center of cluster management can turn into another bureaucratic structure (Kobersy, Barmuta, Muradova, Dubrova & Shkurkin, 2015).

In order for the cluster to function effectively, it is also necessary to make up creative teams capable of presenting new initiatives to determine the 'points of growth'. This way of conducting the cluster development policy will ensure a full-fledged human resources capacity, which will be the main advantage in assessing the competitive factors of organizations.

Another important point is also that at present, the clusters are not short-term projects; in fact their practical importance and implementation on the territory of the Russian Federation will allow to trigger more active economic development, and increase the investment activity of the whole state.

At present, the Russian economy has gained small but significant practical and theoretical experience in the creation of innovative clusters. Therefore, it is important to generalize the accumulated experience, as well as to assess the impact of Russian clusters on the innovative activity of the market.

In addition, economic clusters act as an important tool in modern state innovation policy. They were conceived as the tools that could unite many spheres of economic activity, which are separate elements of the region's innovative systems (science, business, education, etc.) and ensure their structural renewal (Hsieh & Lee, 2012).

The main goal of the cluster approach remains unchanged – it is the growth of competitiveness of all participants and the operating elements of the cluster that are part of the Russian economy.

There are examples when enterprises in such metallurgy and petrochemistry, by actively exporting their products, building intensive interregional connections and gaining raw material independence were able to reduce production costs and received significant financial and organizational help for investment and innovation. Economizing and receiving additional profits from introduction of deeper processing of raw materials allows such enterprises to innovate in reconstruction and modernization of production and technological re-equipment.

Domestic and foreign experience shows that there is a significant impact of cluster integration on investment and innovative activity of enterprises of the petrochemical complex.

Integration in petrochemical industry is aimed at reducing the 'double surcharge', and, accordingly, at increasing the profits of all entities, which allows to consolidate and refresh the existing technological chains, and eliminate the difficulties of independent entry of domestic enterprises into the external market (Lima & Porcile, 2013).

The socio-economic discipline of the regions and economic systems developing on their territory means that it is essential to consider the interests of companies that form the potential of this region and largely determine social and political stability in it. In this regard, regional policies and strategies of

development should be based on a comprehensive analysis of the features of the functioning of regional companies and on the consistency of regional and industry goals.

This refers to the budget-forming regional companies that form the economic profile of the territorial-industrial complex of the region. The priority of the development of such structures is stated in the Program of Long-Term Social and Economic Development of the Russian Federation until 2020. In this program document, the creation of a network of territorial structures that realize the competitive potential of the territories is named as one of the main goals of the innovative model of the country's development. Clusters have an ability to innovate, because cluster members are able to respond quickly to the needs of customers, as they have access to new technologies.

Within the cluster, cooperation in the research and development work is also possible; the competitive pressure stimulates enterprises to create innovations. It is also important that the peculiarity of the cluster organization is closely connected with the characteristics of the institutional environment and the development of the infrastructure of the region in which clusters are formed. The direction of the relationship is determined bilaterally. The development of a cluster is influenced by the supporting infrastructure in the region. Effective clusters help develop the region's economy by structuring the regional business space (Lesnik & Mingalyova, 2013; Matveev, Trubetskaya, Lunin, Rousek & Kopnov, 2016).

The influence of the cluster organization on the social and economic development of the region in the form of feedback can be traced to the innovative activity of the enterprises of the region. Clusters account for the positive external effects associated with the presence in one region of companies whose activities are aimed at the creation of a single product or service. These external effects are manifested in the increase of innovation activity and the concentration of human capital. As a result, the level of clustering of regions and the share of innovative products in the region are correlated (Cabrita, Cruz-Machado & Cabrita, 2013; Osadchy & Akhmetshin, 2015).

CONCLUSION

The domestic science has developed conceptual approaches to the methodology for assessing the impact of cluster formation on the innovation activity of regions.

There are examples of such integration in the created special economic zones, technology parks, business incubators, etc. In our opinion, it is necessary to help the research in this field.

The assessment of the efficiency of clusters includes considering such indicators as the number of innovative start-ups that have attracted investments. They can be introduced into the financing strategies of clusters.

The effectiveness of cluster policy in the Russian economy is associated not only with the modernization of production and infrastructure, but also with the support they receive from the state. The role of human resources, research and innovation centers in enhancing the innovation activity of the cluster-based region is a strategic priority.

The contours of the emerging cluster support program generally correspond to the best foreign practices. At the same time, it is impossible to ignore the risks of borrowing them blindly, without a

meaningful adjustment in the format and increasing the effectiveness of interaction between organizations in the clusters.

Improving cluster policy implies the implementation of a range of measures in the following key areas: the creation of organizational mechanisms and the formation of a culture of interaction of diverse actors in clusters with an emphasis on new approaches, effective combination of economic activities; priority of the principle of reaching a consensus on the solution of common problems of increasing competitiveness; development of management systems in the cluster on the basis of feedback between their participants.

Clusters are evolving systems. Successful today, tomorrow they may lose dynamics and prospects for various reasons (including external ones - the progress of science and technology, changes in the world market, etc.).

Rapidly growing clusters often face various barriers and constraints, due to which the implementation of joint projects can drag on for years, while reaching maturity may take more than a decade. The difference in the dynamics and efficiency of cluster development holds new risks: the cluster policy may lose its effectiveness if the initial choice of objects for support turns out to be non-optimal (or even erroneous). In this regard, monitoring and evaluation of the effectiveness of clusters, which lay the information base for the subsequent adjustment of the list of participants supported by the state, and the scope and directions of such support, are of particular importance.

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REFERENCES

Abramova, E., Apokin, A., Belousov, D., Mikhailenko, K., Penukhina, E., & Frolov, A. (2013). Future of russia: Macroeconomic scenarios in the global context. *Foresight Russia, 7*(2), 6-25.

Arzhakov, A. V., & Silnov, D. S. (2016). Analysis of brute force attacks with ylmf-pc signature. *International Journal of Electrical and Computer Engineering*, *6*(4), 1681-1684. doi:10.11591/ijece.v6i4.10320.

Aquere, A. L., Dinis-Carvalho, J., & Lima, R. M. (2013). Project cell: Cellular organization of the building design process. *Journal of Construction Engineering and Management, 139*(5), 538-546. doi:10.1061/(ASCE)CO.1943-7862.0000590.

Cabrita, M. D. R., Cruz-Machado, V., & Cabrita, C. (2013). Managing creative industries in the context of knowledge-based urban development. *International Journal of Knowledge-Based Development, 4*(4), 318-337. doi:10.1504/IJKBD.2013.058524.

Doronina, I. I., Kulikova, N. N., Razzhivin, O. A., Kostyukhin, Y. Y., Silnov, D. S., & Sadovnikova, N. A. (2016). Human resource management features of an innovative cluster. *International Review of Management and Marketing*, *6*(6), 57-62.

Grahova, S. I., & Gapsalamov, A. R. (2014). The role of merchants in the life of the Russian society: Oral tradition case study. *Bylye Gody*, *33*(3), 410-416.

Hsieh, P. & Lee, C. (2012). A note on value creation in consumption-oriented regional service clusters. *Competitiveness Review, 22*(2), 170-180. doi:10.1108/10595421211205994

Kobersy, I. S., Barmuta, K. A., Muradova, S. S., Dubrova, L. I., & Shkurkin, D. (2015). The system of the methodological principles of management of enterprise development. *Mediterranean Journal of Social Sciences, 6*(3S4), 25-30. doi:10.5901/mjss.2015.v6n3s4p25.

Law, K. M. Y., Helo, P., Kanchana, R., & Phusavat, K. (2009). Managing supply chains: Lessons learned and future challenges. *Industrial Management and Data Systems, 109*(8), 1137-1152. doi:10.1108/02635570910991346.

Lesnik, A., & Mingalyova, Z. (2013). The development of innovation activities clusters in russia and in the czech republic. *Economy of Region,* (3), 190-197.

Lima, G. T., & Porcile, G. (2013). Economic growth and income distribution with heterogeneous preferences on the real exchange rate. *Journal of Post Keynesian Economics, 35*(4), 651-674. doi:10.2753/PKE0160-3477350407.

Lymych, Y. (2013). Optimization of macroeconomic regulation of the innovative-investment opportunities model in the national industry. *Economic Annals-XXI, 3-4*(2), 32-35.

Matveev, Y. V., Trubetskaya, O. V., Lunin, I. A., Rousek P., & Kopnov, V. A. (2016). Clusters and their role in economic development. *International Journal of Economic Perspectives*, *10*(3), 113-125.

Nosova, S. S., Mackulyak, I. D., Lyubimtseva, S. V., Askerov, P. F., Shkalaberda, L. I., & Aliev, U. T. (2016). New management model of modern russian economy: Regional aspect. *International Review of Management and Marketing, 6*(6), 21-26.

Oleinikova, S. A., Kravets, O. Y., Zolotukhina, E. B., Shkurkin, D. V., Kobersy, I. S., & Shadrina, V. V. (2016). Mathematical and software of the distributed computing system work planning on the multiagent approach basis. *International Journal of Applied Engineering Research*, *11*(4), 2872-2878.

Orobia, L. A., Byabashaija, W., Munene, J. C., Sejjaaka, S. K., & Musinguzi, D. (2013). How do small business owners manage working capital in an emerging economy?: A qualitative inquiry. *Qualitative Research in Accounting and Management, 10*(2), 127-143. doi:10.1108/QRAM-02-2012-0008

Osadchy, E. A., & Akhmetshin, E. M. (2015). Integration of industrial and educational sphere in modernization of economic relations. J*ournal of Applied Economic Sciences*, *10*(5).