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The Volga region banking and real sectors interaction cluster initiatives

Abstract

The article deals with the questions of organizational structure of the innovation cross-border construction cluster based on the example of the cluster model of construction enterprises in the Volga Federal region and the role of this cluster in the economy of the Volga region as an innovation mechanism of cross-regional integration, which provides a synergetic effect in the solving of complex tasks. It also analyzes the possibilities of collaboration between Volga region's financial and real sectors of economy.

Keywords: the economy of the Volga region, cross-border regional cluster, the organizational structure of cross-border cluster, refining and sale of quartz sand.

JEL Classification: G21, G24.

Introduction

The processes of clustering have become a recognizable tendency in the modern international economic systems, becoming apparent in the growing number of countries in regions. Due to this, there is an emerging necessity in deep and holistic studying of clusters of economic nature. A serious challenge for solving this task is posed by a gap among the empirical and theoretic levels of knowledge in this subject. Deficiencies in the cluster economic theory often lead to management of cluster development not reaching the planned results. Effectiveness of cluster approach to development of regional economy will depend on the depth of understanding of company clusters as a management object, its essence, quality, possible development directions. Therefore, its further research is the barest necessity, given that it is hard to imagine, that regions and countries would refrain from such an attractive instrument as the cluster approach. Moreover, creation of a network of territorial production structures, realizing competitive potential of the territories, is planned in the Conception of long-term socio-economic development of the Russian Federation by 2020 [1].

The purpose of this article is to analyze problems of organizational structure forming of the cross-border cluster in the economics of the Volga region based on the example of companies, engaged in mining, refining and sale of quartz sand in the Volga region for construction, steel, manufacturing and linked industries.

1. Literature review

Economic science is currently focussing attention on theory and practice of a new form of territorial

organization of production – regional and industrial clusters. As a result of studying and understanding of success of these cluster forms, three schools of thoughts were developed: American, British and Scandinavian.

The founders of the American theory are M. Porter, M. Storper, M. Enright, S. Rosenfeld, P. Maskell, M. Lorenzen.

M. Porter, the founder of the cluster economic concept, developed a theory, where he presented a cluster as a “group of geographically neighboring and collaborating companies and organizations, functioning in a specific sphere, characterized by the commonality of activities, and complementing each other” [5].

M. Storper proposed a theory of “ideal” regional cluster, development of which is conducted in six stages: 1 – development of pioneering firms based on the local specific methods of production; 2 – creation of a system of suppliers and a specialized labor market; 3 – development of new organizations for providing support to companies; 4 – attraction of domestic and foreign companies external to the cluster, highly qualified labor as a stimulus for organizing of cluster firms; 5 – creation of latent assets between companies, which stimulates diffusion of innovation, information and knowledge; 6 – period of the cluster decline as a result of extortion of its innovation potential and/or inaccessibility of external innovations.

Within M. Enright's theory of regional clusters, it is defined that competitive advantages are created not on the global or national levels, but rather on a regional level, where the major role is played by historical factors predetermining development of the region. Thus, a regional cluster in his definition is a geographical agglomeration of firms, operating in related industries [9].

A group of scientist – S. Rosenfeld, P. Maskell, M. Lorenzen – outline in their theory of regional clusters, that communication channels are a major element.

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The founders of the British theory of cluster organization of production are: J. Daning with the eclectic OLI paradigm, which studies competitive positions of countries and identifies the factors, creating competitive advantages (advantages of ownership – O – a higher degree of development of the technologies and possessing latent assets, location – L – competitive advantaged in the countries with benefits of opening the production, internalization – I – factors allowing to exploit the advantages for themselves not giving the production license to other companies); K. Freeman with a concept of technical economic paradigm, according to which a priority position of one of the economy domains in the global economy is determined by one technical economic paradigm, which includes a system of practical knowledge of the leading countries, while less developed countries get an “opportunity window” to transfer to a higher development level in the period change of technical economic paradigm; a group of scientists H. Schmits and J. Humphrey with the concept of value chain and cluster interaction, which displays the main opportunities of cluster involvement in value chains for increasing its competitiveness.

The founders of the Scandinavian theory of cluster organization of production are B.-O. Lundval and B. Yonson with the theory of educational economy and the national innovation system, which is based on the knowledge that creating innovations and generating new knowledge is the only option to raise the competitive level of a country, especially small; B. Iceham and A. Isaksen with the theory of the regional innovation system, which proves that finding an optimal correlation of local and common knowledge within a developing industrial region and or a local regional cluster is essential for a competitive development of practically any specialized production industry and for a consistent increase of living standards of the population.

We can outline S.I. Record, E.Z. Zelinskaya, V.Y. Pogorazkaya, N.N. Vnukova and A.A. Sitinik

among other contemporary scientists who study cluster forms of organizing production.

2. Scope of research

We are considering business cluster as the union of economic entities, their suppliers, research and development and educational organizations, banking structures, respective organizational funds, state warranties, which are linked through functional dependency relationships, similarity of produced products and territorial unity on the spheres of manufacturing and selling of commodities and services, providing a maximal synergetic effect and, respectively, maximizing the value add.

Concept of clusters gained specific relevance. That is why, it is necessary to consider while choosing the possible model of cluster organization: the specifics of location of the manufacturing facilities and institutional development of regional economy, the specifics of the industry or activity, the degree of small and medium business development, the degree of agreement of economic interests of the political forces and the business, and state of the investment-innovation climate of the region [4].

Application of cluster approach is most relevant on a regional level as a result of the necessity of close contact among the cluster members. Due to that, identification of regional industrial clusters currently is an important direction of development of the regional management. Thus, Volga region cross-border cluster is a perspective mechanism of stable development and improvement of the innovation competitiveness of the Volga region.

Points of growth, in our opinion, may be historically established industries and activities, due to resource and natural potential territory of the Volga region. During the formation of cross-border cluster Volga region, it is also advisable to take into account scientific and industrial heritage of the territorial-production complexes and industrial combinations, as well as the existing system of distribution of productive forces (Refer to Table 1).

Table 1. A list of innovative territorial clusters¹ of the Volga Federal region ratified by the government of the Russian Federation [10]

Entity of the Russian Federation	Cluster name	Specialization
Nizhniy Novgorod region	Nizhniy Novgorod industrial innovation cluster in the automotive and petroleum chemistry domains	Refinement of oil and gas and chemistry Automotive production
Nizhniy Novgorod region	Saratov innovation cluster	Nuclear, laser super computer technologies
Perm region	Innovation territorial cluster of the rocket engine production “Technopolis “Noviy Zvezdnyy”	Production of aerospace equipment, engine construction, new materials
Republic Bashkortostan	Petroleum chemistry territorial cluster	Refinement of oil and gas and chemistry
Republic Mordovia	Energy efficient lighting and intellectual systems of lighting management	Equipment manufacturing

¹ Innovation territorial clusters are defined as a system of companies and organizations (members of a cluster) located on a restricted territory, which is characterized by the presence of: a research and production chain uniting cluster members in one or several domains (key types of economic activity); cluster members’ activity and collaboration mechanism of coordination; synergetic effect, expressed in an increase of economic effectiveness of activities of each company or organization caused by its high concentration and cooperation.

Table 1 (cont.). A list of innovative territorial clusters of the Volga Federal region ratified by the government of the Russian Federation [10]

Entity of the Russian Federation	Cluster name	Specialization
Republic Tatarstan	Kama innovative territorial production cluster of the Tatarstan republic	Refinement of oil and gas and chemistry Automotive production
Samara region	Innovation territorial Aerospace cluster of Samara region	Production of aerospace equipment
Ulyanovsk region	Consortium "Research and development production cluster "Ulyanovsk-Avia"	Production of aerospace equipment, new materials
Ulyanovsk region	Nuclear innovation cluster of Dimitrovgrad city of the Ulyanovsk region	Nuclear and radiation technologies, new materials

Experience of the Russian regions, based on the successes in cluster politics, points out the fact that a cluster gives a possibility to improve economic situation of the economic entities and the region as a whole. However, "economic interest of governing bodies of a state should be focused on the innovative development of territory's industry and should be really based on the integration of science, education, business, and politics to provide effective results. Respectively, high technological production, scientific centres, banking sector and the government should be the direct participants of this cluster [5].

Regarding cluster development program subsidies to the entities of the Russian Federation, these are given to the regions with already existing pilot innovation clusters, included in the first group of the list ratified by the government of the Russian Federation.

As a result, business sector of the Volga Federal region will be characterized by a range of factors, such as dominance of low-tech sectors of mining industry in the structure of the economy, lack of hi-tech industrial sectors, state control of the major technically complex sectors, shortage of small innovation companies and hi-tech start-ups [4].

3. Research methodology

The subject of our research is cluster initiatives of the Volga region banking and the real sector interactions. This makes it essential to build a structure of an innovation cross-border construction cluster of the Volga region and to determine the type of its elements' interrelation.

In general, forming of a cluster starts with the organizational structure of a cluster. We determine cluster structure as an organisation of separate clusters and their joint location in a multi dimension space.

The practice of regional clustering has three approaches of cluster modelling:

- ♦ "top down", which means primary forming of consultative coordination and monitoring, and defining of an overall cluster strategy and its resourcing support;

- ♦ "bottom up", which means building up program to integrate cluster participants;
- ♦ mixed, which is characterized by the simultaneous combination of the two approaches outlined above [2].

Construction cluster, and production and sales of construction materials – quartz sand in particular, has the closest approach for modelling – linear. The approach includes objective background for cluster formation (historically geographical) and specific actions of the bodies interested in forming the cluster.

So, we discovered that there are many prerequisites (factors) for creating a cross-border cluster of economic entities, engaged in mining, refining and sale of quartz sand in the Volga federal region for construction, steel, manufacturing, and related industries.

First, this is presence of competitive organizations, which is the major condition for this cluster development.

Thus, Volga federal region has a concentration of such large system forming factories producing and refining quartz sand as: "Kvartz" PLC (Ulyanovsk region), "Nebolchinskoe karieroupravlenie" LLC (Novgorod region), "Russian mountain company" LLC (Novgorod region), "Kvartz trade house" PLC (Ulyanovsk region), "Balasheyskiy sands" LLC (Samara region), "Tashlinskiy GOK" PLC (Ulyanovsk region), "Lukyanovskiy GOK" PLC (Ulyanovsk region) and "Balkum" PLC (Nizhny Novgorod region).

All presented companies are linked geographically, since they belong to the Volga federal region, including Ulyanovsk, Novgorod and Samara regions. Economical entities of the sand business community act as suppliers of quartz sand.

Second, presence of competitive advantages for cluster development, including advantageous geographical location, existence of resources, staff, suppliers and customers, level of infrastructure development. Customers of such resources and directions of quartz sand supplies are displayed in the table below (Refer to Table 2).

Table 2. Glass sands main supply directions of the Volga Federal region

Consumer	Region	Application sphere
"Saratovstroysteklo" PLC	Saratov region	1
"Rusdzhama-Ufa" LLC	Republic of Bashkortostan	2
"Svet" PLC	Republic of Udmurtia	2
"Ruzaevskiy glass factory" CJSC	Republic of Mordovia	2
"Salavatsteklo" PLC	Republic of Bashkortostan	1,2
"Keramika" LLC	Republic of Chuvashia	3
"Zavod "Ekran" PLC	Novosibirsk region	2
Public corporation of Mordovia republic "Lisma"	Republic of Mordovia	4
"Reinforcement and isolation South Ural factory" PLC	Chelyabinsk region	3,4
"Balakhna glass" CJSC	Nizhniy Novgorod region	2
"Samara Stroyfarfor" LLC	Samara region	3
"Salavatnefteorgsintez" PLC	Republic of Bashkortostan	4

Notes: 1 – production of laminated glass; 2 – production of bottle-glass; 3 – production of ceramics; 4 – other.

Third, geographical concentration and proximity of cluster participants, required for its active interaction and collaboration.

Fourth, number and structure of participants: a cluster includes both organization producing the product and supporting organizations and stakeholder organizations, creating conditions for production and sale of the product.

Finally, and fifth, established permanent economic relationships and collaboration among cluster

participants. These relationships can have a multifaceted character, including networks among organizations of the sand business community and their customers, equipment suppliers, service organizations, educational establishments and others.

Based on these, a general structure of the construction cluster dealing with production and consumption of quartz sand in the Volga Federal region can be presented in the following way.

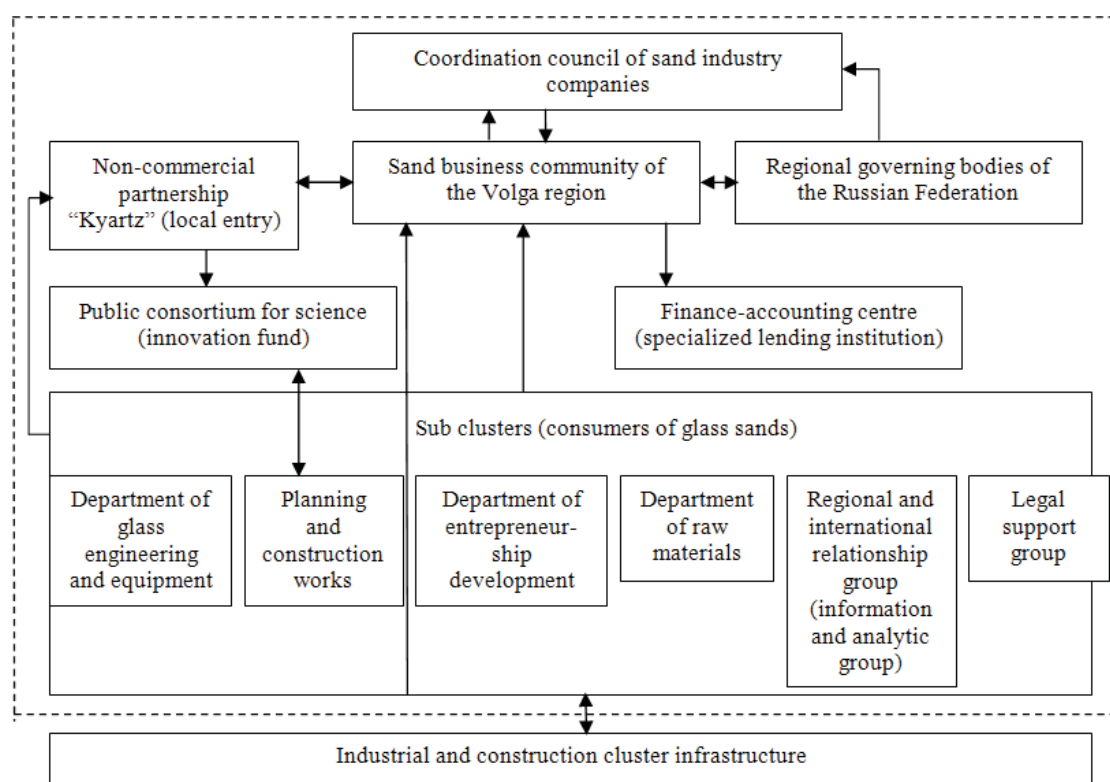


Fig. 1. Structure of an innovation cross border construction cluster based on an example of a cluster model of construction companies in the Volga Federal region

Currently, the main elements of the Russian construction innovation model of the Volga Federal region are the following:

- ◆ high technological production;
- ◆ business sector or economic entities themselves;
- ◆ research and academic sector or science centres;

- ◆ banking structure;
- ◆ the state in the role of the state private partnership.

At the same time, the goal of cluster existence can be reached only in the case, when every system element will aspire to achieving its own dynamically changing goals.

4. Description of results

The first and the most significant element of a cross-border cluster of construction companies in the Volga Federal region is high technological and innovative production of quartz sand and glass.

It is important to outline that glass industry serves as the main consumer of quartz glass resources, which include natural and refined sand. The industry uses the sand for producing laminated window, technical, laboratory, medical and perfumery glass, cans and bottles.

Glass sands are used in much smaller quantities for production of ceramic products (ceramic tiles), fibreglass and glass reinforced resin (including heat insulating materials) as filtering materials for water refinement in pulp and paper factories and municipal refinement constructions.

Glass sands are also used by companies producing construction materials, in particular dry construction mixtures with high requirements to sand quality. Besides that, glass sands are utilized for producing founding forms.

As we can see, quartz sand is used extremely widely, besides that the process of extraction and refinement of quartz sand is constantly developing, different innovations are being incorporated, nanotechnologies are being developed, which support the production of the new types of final products from the raw material – quartz sand. Thus, this environment favors the creation here of the innovation cross-border construction cluster taking into account the industry specifics.

Novelty of our construction cluster structure is described by the alternative set of cluster elements.

In our opinion, participation of the state private partnership plays a crucial role as there are benefits from project realization for every participant of the partnership. The author outlines the following positive externalities among others: financial, budget, social economic, ecological, political, technological etc.

In our opinion, the key objectives of the state private partnership should be:

- ◆ defining cluster development strategy theory;
- ◆ defining of structure for cluster participant interaction and coordination of their work;

- ◆ establishing instruments regulating cluster development;
- ◆ creating investment framework and forming investment project portfolio;
- ◆ identifying cluster crediting and financial accounting mechanism;
- ◆ monitoring cluster development and effectiveness of its functioning.

Every participant gets a positive effect as a result of participation in the state private partnership. The state decreases the burden of financial expenses on the project budget, provides an opportunity independent potential and idea realization to its subordinate bodies and organizations. The state has its taxpayer list increased and hence new contributions to the state budget. Private investor has the main profit from the union with the state in the form of reduction of tax rates or lending rates through the state subsidizing the project. Thus, stable income, political support of the project and corporate social responsibility are provided within the current legal space.

In our opinion, banking sector is the necessary element in the structure of the construction cluster. This is key as fiscal-financial relationships derive in significant quantities from the state and private investment partnership. However, there is a problem of lack of close cooperation of the banking and the real sectors of the economy while the structure of the cross-border cluster in the Volga Federal region is being built.

Displayed misbalance is caused as a result of controversies in the interests in their activities, as the credit organizations prefer keeping moderate risk levels, targeting short and middle term deals with high yield, while the real sector of economy is described by high risks of projects insolvency, requirements for the long-term money with the insufficient level of returns at the initial stages of projects (short and middle-term perspective).

Nevertheless, creation of a specialized lending institute is required in the cluster structure for complete functioning, resolving tasks of consolidation of monetary funds of participants and decision making related to investment issues. This institute will act as a financial accounting centre, servicing cluster participants. The idea of creating a cluster investment non-bank credit company is not new; it was developed by the Ministry of economic development of the Russian Federation. It provides an opportunity to legally enable these companies to attract investors' money onto current accounts, investing these funds into the specified long-term investment projects and, most importantly, it provides the rights for making all payment transactions related

to conducting investment projects. At this point, it is necessary to consider that cluster investment non-bank credit company will achieve the following:

- ◆ increase transparency and manageability of all financial flows of the cluster;
- ◆ provide control of the planned fund utilization while using cluster lending;
- ◆ will monitor the profitability of projects through direct participation in the authorized capital of economic entities;
- ◆ provide an increase in the volume of the stock market through the release of economic entities at IPO;
- ◆ increase the calculation speed of transactions between entities;
- ◆ provide safety and security of banking transactions;
- ◆ lower financing risks of investment projects.

Thus, currently it becomes essential to attract the attention of the banking sector to working with the real sector. Important factors here are: high competitiveness and stable economic growth, which stimulate development of the new technologies. Innovative cluster strategy will in turn stimulate attraction of the banking structures. To realize these, federal budget should dedicate funds for the starting capital, followed by attracting funds of the private companies and banks. Shared ownership in company operations is a tool used to satisfy their economic interests, i.e. interested investors become company shareholders. Because commercial banks cannot be engaged in business activities, in this context, the main value will become cluster-investment-bank credit organization.

Thus, the presence of contradictions in the interests of the banking and real sectors of the economy will be solved long terms of project management (project financing), as the banks themselves will take control functions in its jurisdiction. A shortfall in bank profits in the initial stages of the project will be offset by the attraction of foreign investment through network cooperation subjects cluster with foreign suppliers, customers and investors, as well as through the mechanisms of public-private partnerships in cross-border clustering.

To date, the volume of lending to the real sector of the economy by banks exceed the own funds of credit institutions in Russia. But loans and other placements with non-financial enterprises and resident organizations, are only 14.6% of GDP. The reason for this is, among other things, low capitalization of banks (own funds of the banking sector to GDP is 5.4%), which does not allow to finance the growing industry.

Cross-border cooperation of banks will stimulate their partnership through syndicated loans. Currently, this mechanism is rarely used because banks are not interested in cooperation with each other, there is no appropriate tools to facilitate their involvement. The cross-border cluster collaboration of banks through syndicated lending will be observed a one-time interest of all parties. For businesses as the opportunity arises lump issuing large amounts of a single borrower with a simultaneous increase in terms of the grant of loans.

The development of the syndicated loan market will stimulate the development of the stock market by issuing banks' part of its share in syndicated loans in the form of derivatives that increase the liquidity of debt and will give banks the opportunity to participate in the new loan transactions.

We should not lose sight of the fact that together with the increase in the volume of banking transactions banking income increases. Thus, the steady growth of the economy based on innovation development, will contribute to the strengthening and development of the credit and banking system, which in turn at the recovery phase will be to reduce economic risks, and therefore the activity of the banking system will become stable.

Nevertheless, as a rule, regional governing bodies are unable to influence the entrepreneurs directly, but at the same time they can create the environment to increase economic activity. We support the opinion of A.U. Yakovleva-Chernisheva, who points out that executing remits of regional governing bodies in the domain of managing entrepreneur structures implies meeting a range of requirements [7]. Considering the Volga region governing bodies and the cross-border economic entities cluster outlined by us, which deals with mining, refining, and sale of quartz sand in the Volga region for construction, steel, manufacturing, and related industries, in our opinion, they should meet the following requirements:

- ◆ consider at the sand business community as an independently functioning and developing open object within the regional system;
- ◆ comply with the externally determined conditions of functioning;
- ◆ meet specific conditions;
- ◆ interact with the higher level management system;
- ◆ provide development of all management process elements by large systems (setting goals, objectives, methods, development priorities, management structures);
- ◆ have features allowing adapting to the changes in the management object.

This considerably complicates the management process, causing a requirement to coordinate a big number of connections related to the remits of different authorities and to use new organizational forms for managing development of entrepreneur structures.

Specialization and collaboration in a cross-border cluster lead to the increase of the level of concentration and competition, that affects quality improvement for the produced goods, use of new technologies and equipment, improving qualification of staff, innovation incorporation among others. In general, combining regional efforts in a cross-border cluster leads to a synergetic effect.

Conclusion

The feasibility of establishing a cross-border cluster Volga – sharing of research and development, intellectual capacity, reserves of economic growth, infrastructure and so on.

Nonetheless, development of cluster organization is restricted in a range of regions, and Volga region in particular. This is caused by a low level of initiative, responsibility and real actions of regional and municipal bodies responsible for establishing of the favorable investment and innovation climate; imperfection of managerial and economic mechanism of cluster participants' cooperation and agreeing interests, inadequate level of business innovation activity and demand for the innovative products, inadequate interest level of municipal and regional governing bodies in modernization and lack of experience of creating industrial clusters in Russia.

Based on the outlined above, it is possible to make a conclusion that cluster status has an important meaning for constituting entrepreneur structures (makes attracting additional resources easier, facilitates forming of a positive image, brand development) as well as for regional governing bodies (supports strengthening of competitive positions, stimulates economic growth, creates conditions for more effective resolution of social

problems). In this way, nowadays, importance of cluster approach to managing development of entrepreneur structures is high, which should be recognized and supported by the regional governing bodies of the Russian Federation.

That is why in the current situation in Russia, as in other developed countries, there is an emerging understanding of clusters being a unique form of synergetic uniting educational, academic and production companies. Experience shows that given proper management and adequate resourcing (including financial aspect), cluster functioning and development significantly increases innovation activity and a number of innovations in the clusters itself and in the rival clusters. Therefore, creation of specialized methods and instruments of cluster projects support, primarily infrastructure projects, is a relevant objective and a perspective development direction for the state's innovation activity support in the Russian Federation.

Potential instruments of innovation clusters support from the financial institutes are the following: budget, tax and fiscal-lending and customs stimulus.

It is required to create an effective system of financing small engineering companies, starting from their incubation through venture funds and a system of state grants; to develop stable connections between universities, research centres and small engineering companies.

Non-financial instruments of support should also consist of such forms of assistance as: creation of partnerships with foreign companies, research centres, creation of a favorable environment for entrepreneurs and engineers, and also having a tolerant attitude to failures while creating new products and technologies.

Therefore, the creation of special methods and tools targeted support for cluster projects, primarily infrastructure, is an important task and promising direction of development of the system of state support for innovation in Russia.

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