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INNOVATIVE DEVELOPMENT OF REGIONS IN THE SOUTH OF RUSSIA

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Abstract

Innovation is the result of intellectual activity in the form of new knowledge, activity, product, production technology, forms of management. Innovations contribute to the socio-economic development of the territory, creating the potential for modernization. Therefore, they can be considered as an essential factor in the strategic positioning of the territory. The innovative development of Russia is determined by innovative activities in the regions, that is, by their ability to generate and commercialize scientific and technical, managerial or social products (services). The level of innovative development, which leads to differences in the sectoral structure of the economy and the level of social well-being differentiate Russian regions. The goals of regional development are reflected in the policy of innovative activity in the territory. Often this policy does not have positive results, which is explained by several failures of the system of regional innovation itself. The article proposed new conceptuality of the regional innovation policy, based on the change in the meanings of management actions from a linear model of innovation, based on the generation of scientific knowledge and the creation of innovations. The new conceptuality of regional innovation policy needs different meanings for the formation of a system for scaling, disseminating and commercializing innovations based on new approaches to the goals and management of regional innovation policy, which forms the basis of this article.

Keywords: Innovative development, regional economy, South of Russia, strategic, innovative positioning, innovation policy

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1. Introduction

An essential area of the socio-economic development of the country and its regions is not only the creation but also the commercialization and promotion of innovations. Innovations ensure the entry of enterprises into new, advanced business niches and form the basis for successful development in the future. Sectors of the region's economy, innovations are becoming the main drivers of development, contributing to a production breakthrough. Innovations contribute to the saturation of the domestic market with new high-tech products with high consumer properties, the formation of new management, marketing or financial technologies, and social instruments. The orientation of enterprises towards the implementation of scientific achievements in high-tech areas is a feature of the innovative development of the economies of countries and regions at the beginning of the 21st century. However, not all regions have the prerequisites for the development of precisely these advanced industries. Due to the peculiarities of spatial localization, the number and composition of labour resources, national and religious traditions of the population, the available natural resource potential, and the territories are limited in the possibilities of an independent generation of advanced innovations. This requires a change in the meanings and actions within the framework of the national innovation system at the regional level. The modern economy, which requires quick decisions in conditions of uncertainty. As a result, there are new organizational forms and goals of managerial influence poses for managers, state authorities and the economic community the problem of forming a new model of innovative activity of territories to achieve the goals of integrated socio-economic development and the formation of comfortable living conditions. Only a semantic reorganization of the regional innovation system will create conditions for intensive regional economic growth.

2. Problem Statement

The innovative development of the Russian Federation is characterized by inconsistency and spatial heterogeneity. Along with the leading regions that use and generate advanced technologies and produce innovative products. Some regions are lagging in their innovative development, have a weak scientific and technological base and are unattractive for investors who are ready to invest in the development of new innovative industries. The solution to this problem can be the Doing-Using-Interacting (DUI) model, which allows the regional economy being oriented towards the practical implementation of created, imported or modified innovative technologies, their commercialization and sectoral and inter-territorial scaling.

3. Research Questions

The subject of our research is the comprehension of the new conceptuality of the regional innovation system, taking into account the requirements of the modern economy, understanding the systemic failures of innovation policy and the formation of management approaches based on the transformation of goals and the necessary management actions.

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4. Purpose of the Study

The study aims to analyze the new concept of the regional innovation system and the potential of its use for Russian regions. This goal was achieved based on the following research objectives:

1. research of the model of innovation policy focused on the practical implementation of innovative technologies and their commercialization in the regional economy;

2. to identify the potential of this model for "including" its meanings into the management goals of regional innovation policy, taking into account the removal of the narrow territorial codification of innovative solutions;

3. to highlight three main failures of the system for managing innovative activity in the territory;

4. justify a new management context to ensure regional innovation activity.

5. Research Methods

The research used general scientific research methods, such as analysis and synthesis, description, comparison. An essential part of the study was the structural-logical method, systems analysis and spatial approach. A quantitative analysis of the level and spread of innovations was carried out based on statistical data from the Federal State Statistics Service of the Russian Federation and its territorial bodies in the constituent entities of the South of Russia.

6. Findings

The innovative development of Russia is characterised by extreme heterogeneity. This fact is explained both by objective factors: the peculiarities of the economic and socio-institutional development of the regions, the specialisation of regions, the level of development of the economic infrastructure and infrastructure of innovation activity, the volume of state support for innovation activities and the formation of instrumental portfolios to support innovative enterprises and industries, and subjective ones, which are determined the contexts of the implementation of innovative state policy, as well as the subjective predisposition of government officials and decision-makers regarding the development of innovative activities at the regional level.

Traditionally, the model of innovation policy is based on the concept of a linear model of innovation "science-technology-innovation". However, today the territories have weak advantages in the implementation of just such a policy model, which becomes a systemic failure for innovation activity. The traditional approach was first applied to large corporate R&D laboratories in the era of so-called open innovation when laboratory outputs were transformed into new technologies and commercialised into innovations through "academic entrepreneurship" (Jensen et al., 2007). Such a model is unlikely to be able to bring large-scale results for territories with different initial economic, institutional and political conditions and different levels of research, technological and entrepreneurial activity. It was this model that became the source of the creation of highly efficient innovation clusters in certain territories (for example, Silicon Valley in the United States). However, it had a profound effect of diffusion and adaptation around the world, and for Russia, it did not become a management technology for the diffusion of innovations (Sheng, 2018). This approach, although still in operation today, was linear with some

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interactivity among academia, financial capacity, and entrepreneurship. At the same time, it has a weak organisational rationale, because scientific researchers are not inclined to active entrepreneurial activity, which means they need to form specialised entrepreneurial organisations that provide infrastructural services to scientific and technological activities. This approach has become highly specialised and often uses highly advanced scientific discoveries to achieve the commercialisation of the scientific and technological outcome and the desired market entry. Accordingly, such a model of innovation policy cannot be a widespread option for action and is exclusive, being advanced, protected and property-based in terms of knowledge. It becomes clear that economically weak or personnel and technologically unprepared territories are not able to implement such a model at home.

Another approach to innovation, the Doing-Using-Interacting (DUI) model, is more adapted for implementation and distribution in regional economies (Cooke, 2013, 2018; Jung et al., 2017). This model of innovation policy is more focused on the practical implementation of innovative technologies and their commercialisation and distribution, primarily in the national economy. It is based on the premise that understanding the linkages between actors involved in innovation is key to making technology more efficient and commercialised. Innovation and its development as a systemic phenomenon is the result of a complex set of relationships between actors producing, distributing and applying various types of knowledge, information and technology. The country's innovative achievements largely depend on how these participants relate to each other as elements of a collective system for the creation and use of knowledge, as well as the technologies that they propose for implementation and replicate.

This approach presupposes a kind of recombination of actions, subjects and political decisions aimed at introducing innovations and their large-scale distribution through various organisational forms, both horizontal (clusters, networks) and vertical (small innovative enterprises, networks with large businesses) interaction. In essence, this approach is interactive among various sectoral firms and their counterparties in cross-sectoral interactions, primarily characterised by "related diversity." These conditions allow firms creating innovations that were already initially introduced in another industry, i.e. have undergone initial adaptation, as well as in "white spaces", which are unexplored areas of innovation.

In this sense, this policy option is highly diversified in the sense that it allows cross, inter-sectoral and inter-territorial scaling of ideas, technologies, management decisions from different professional fields of knowledge, on the one hand, and regions, on the other. An inclusive variant of innovative activity is being created for firms that have the necessary information about the possibility of joint use of innovations, provided that they can be publicly demonstrated as a necessary condition for their commercialization. Thus, the narrowly territorial codification of innovative solutions (ideas, technologies, actions, forms) is removed, and a piece of general accompanying knowledge is formed for subsequent translation and the necessary modification for the entire national innovation space. This concept of regional policy is quite feasible for Russian regional innovation systems.

It is necessary to identify one more point, which is extremely important for the practical use of this concept in Russia. The regional economic space in our country is exceptionally differentiated, taking into account the high proportion of territories with a narrow specialization of economic complexes, as well as the significant scale of regions and their spatial distance from each other. The economies of scale of the national innovation system impose their limitations on the processes of diffusion and scaling of

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innovations. This fact cannot be ignored. Therefore, the formation of a new conceptuality of regional innovation policy can be combined with the ideas of "smart specialization", which allows forming interaction based on the points of economic activity or "clusters" existing in the region as "interaction at the junctions". Innovation policy uses the monocultural economic nature of the territory. As a result, these process to support the financing of such innovative projects and territorial zones with federal and regional instruments. This process makes it possible to create larger-scale innovation spaces of a sectoral or, if possible, cross-sectoral nature, which in the future will require an understanding of the management context of innovative activity in this mode.

In Russia, historically, innovative sectors of the economy were concentrated in the Central, Northwestern, Volga and Ural macroregions, which have a more industrial profile of the economy based on new advances in science and technology. South of Russia lags behind other macroregions of the country in terms of innovative development (Gershman et al., 2018). So, within the South Russian macroregion in 2018, the share of organizations implementing technological, marketing and organizational innovations in the total number of surveyed organizations is 7.5 %, which corresponds to the all-Russian level, and in the North Caucasian District – only 2.9 % (Table 1). At the same time, the leading subjects in the macroregion in terms of innovation in the activities of enterprises and organizations are Krasnodar Territory, Rostov and Astrakhan Regions, and all the North Caucasian republics, unfortunately, are outsiders in this respect (Table 1).

Table 1. Indicators for assessing the level of innovative development of constituent entities of the South of Russia, 2018

Territory	Share of organizations implementing technological, marketing and organizational innovations in the total number of surveyed companies, %	The volume of innovative goods and services in the total volume of manufactured and shipped products, services performed, %	Costs for technological innovations in the total volume of goods shipped, work performed, services, %
Southern Federal District	**7.5**	**5.6**	**1.1**
Republic of Adygea	2.8	8.0	0.6
Republic of Kalmykia	2.5	3,4	0.3
Republic of Crimea	3.5	0.8	0.5
Krasnodar region	10.7	11.5	1.2
Astrakhan region	6.8	0.1	0.4
Volgograd region	4.2	2.2	0.8
Rostov region	7.7	5.8	1.8
Sevastopol	3.2	4.5	0.5
North Caucasian Federal District	**2.9**	**4.4**	**0.8**
The Republic of Dagestan	1.1	0.3	0.2
The Republic of Ingushetia	4.8	0.4	–
Kabardino-Balkar Republic	3.8	0.9	1.0
Karachay-Cherkess Republic	1.8	0.4	0.0
Republic of North Ossetia -	3.2	0.4	0.1

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Alania			
Chechen Republic	0.2	–	0.0
Stavropol region	4.9	9.0	1.4
South of Russia as a whole	…	5.4	1.0
Russian Federation - total	7.5	6.5	2.1

The scale of the influence of innovative technologies and industries on the region's economy of the South of Russia is directly determined by the share of the volume of innovative goods and services in the total volume of production. With the all-Russian level of 6.5 % in 2018, the share of innovative products in the total volume of produced and shipped goods and services in the Southern Federal District is 5.6 %, and in the North Caucasus – 4.4 % (Table 1). Within the macroregion, there are four leading regions in terms of this indicator – Krasnodar Territory (the share of manufactured innovative products is 11.5 %), and Stavropol Territory (9 %), Republic of Adygea (8 %) and Rostov Region (5.8 %). However, in most constituent entities of the South of Russia (8 out of 15), the share of innovative products in the total production volume does not exceed 1 %.

The introduction of innovations into production requires investment (Plaskova et al., 2019). It is the investments that allow purchasing new equipment and technologies, launch the production of innovative products, and stimulate R&D at the manufacturing enterprises themselves. Expenditures on technological innovations in the Southern Federal District for the period 2010–2018 increased by four times – from 10 to 41.1 billion rubles, and in the North Caucasus – by 1.1 times from 6.5 to 7.1 billion rubles (with an increase in the whole of the Russian Federation – by 3.7 times). It is in these regions that advantages have developed that are of strategic importance for giving impetus to the innovative development of their economies. Such advantages for them are:

- high level of scientific potential;
- availability of highly qualified labour resources;
- favourable investment climate for external stakeholders;
- fast pace of construction of infrastructure facilities;
- a set of regional policy measures aimed at supporting innovation in various sectors of the economy (Mirgorodskaya et al., 2018);
- created spatial forms of economic activity in the form of technoparks, economically active zones.

However, to date, there are few operating technoparks in the regions of the South of Russia in comparison with other subjects of the Russian Federation. They function in the Rostov and Astrakhan regions, the Kabardino-Balkarian and Chechen Republics, in the Krasnodar Territory, and are being created in two more constituent entities – Kalmykia and the Crimea. The rest of the regions expressed only their intentions to create this form of innovative development on their territory (Godina et al., 2019).

In the regions of the South of Russia, 18 clusters are registered, the specialization of which extends from traditional industries related to the processing of agricultural products (for example, "Donskoye dairy products" in the Rostov region, "Milk cluster" in the Chechen Republic), to tourist and recreational activities (for example, profile cluster in the Astrakhan region) (Ablaev, 2015). However, clusters

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associated with mechanical engineering (in the Rostov region), the building materials industry (Republic of Ingushetia, Volgograd region), pharmaceuticals (Krasnodar Territory, Volgograd region) have a pronounced innovative character in their activities (Gorochnaya, 2015). However, it should be noted that the general geographic zone of the entire macroregion with the corresponding natural, economic, cultural conditions is in many respects similar. This condition demonstrates the isolation of the implementation of innovation policy in each region and the limited potential of intersectoral and interterritorial interaction in the implementation of innovation activity. This reason is the main for the low indicators of innovative activity according to national ratings.

7. Conclusion

There are three main failures of the innovation activity management system.

First, in the modern Russian regional innovation system, there is no crucial driving organization and institutional structure that can form the goal of the region's innovative efforts. On the one hand, the region has the necessary spatially organized forms of innovation activity, and a primary management mechanism has been created; there are interested companies and other actors. Thus functional capabilities have been created but without a specific goal and appropriate design for the implementation of innovative actions of economic and state actors. Accordingly, the problem of social action is to first determine the goal or "target action" for the development of innovation. This problem is exacerbated when the dominant underlying model is the linear model already discussed. Typically, it is expected that the "modality" will be provided by the regional university, which usually does not have the ability or authority to lead regional innovation and act as a focal point for innovation activity. This process may be because the university also lacks "innovative assets", that its best research knowledge does not correspond to the request for innovation in the regional economy, or this knowledge is not yet used for commercial purposes, or it may simply lack goals and mechanisms for attracting innovators (Kempton, 2019). Quite often, such dilemmas are not only ignored, but imperiously implemented as political decisions, but they cannot become the basis for the formation of an effective regional innovation system.

Secondly, the failure of the regional innovation system is the result of the failure of the communicative action. This failure is the failure of the processes of "discursive rationality", meaning the absence of the existence of arguments that can lead to a consensus in regional politics. It is often referred to as a "networking" problem, and no potential regional innovation system can be such without being connected to open transparent networks and practices. Networks in the form of organized clusters can exist in the region, but they can be exclusive, closed and geographically limited. In the context of the new conceptuality of the regional innovation system, territorial resources should widely support targeted innovations. These innovations maybe are not even so much fundamental science, because its funding should be the prerogative of the state in the context of national development and national security goals (Belussi, 2018). Regional funding should be directed to applied research projects, taking into account the goals of regional development and the priorities of intersectoral and inter-territorial interaction to promote innovation and their commercialization.

The third failure is the existence of the problem of low diversity. Many regions depend not only on the industrial monoculture. They find that they are "locked" in this monoculture both due to inaction and

on behalf of the highest authorities. Acts of inaction occur when central government decision-makers abandon infrastructure investments that can help diversify the regional economy. Accordingly, closed monocultural territories lose any opportunity to introduce effective innovations unless it enhances monocultural development and affects the growth rates of this particular specialization. As a result, this process leads to a lack of industrial diversity of regional development and the formation of a diversified, and therefore low-risk, the economic system of the region, which creates the problem of blocking innovative activity due to special managerial goalkeeping the system stable due to the ease of managing the monoculture of the territory.

However, in the area of economic policy, this means that regional authorities need to think of economic sectors as modules that need to be integrated to accelerate regional innovation. This modular approach is increasingly seen as a way to promote regional innovation policy. This approach allows unlocking the development of industry specialization by rotating recombination interactions from vertical to horizontal (interaction in industry and inter-territorial spaces) in order to enhance Schumpeter's "recombination" innovations.

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