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**GUSAROVA Ekaterina Mikhailovna**

**THE MECHANISM OF BALANCED DEVELOPMENT OF  
REGIONAL INNOVATION SYSTEMS**

Specialty 5.2.3. "Regional and sectoral economics"

**Abstract**

dissertation for the degree  
of Candidate of Economic Sciences

**Scientific supervisor:**

Doctor of Economics, docent,  
Oleg Lazarevich Goyher

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### **Relevance of the research topic.**

The relevance of the research is determined by the current geopolitical and economic situations and the growing need to create its own developed and independent innovation system. Russia has a rich tradition of innovative research that was inherited from the USSR. However, the years of perestroika and protracted economic and political crises could not but affect the country's innovation sector. Starting in the 2010s, Russia began to actively restore the lost innovative potential. However, it should be noted that Russia has not yet reached a level where it could compete with the world leaders in innovative development in all areas of innovative culture development. Low innovation and, as a result, investment activity in the manufacturing sector, insufficiently effective organizational mechanisms for promoting innovations, reduction of scientific workers due to the decline in the authority of this profession, the introduction of a sanctions regime by a group of countries and economic communities, problems in the field of education, high depreciation of equipment, the use of outdated technologies in the production process, corruption barriers, as well as low level of public awareness of modern scientific and technical achievements – all this determines the range of main problems in the field of functioning of innovative systems in Russia. Russian and foreign analysts note that the economic space of the Russian Federation is characterized by the emergence of significant development imbalances (for example, if we consider such indicators as GRP, labor productivity, standard and quality of life, etc.). Regional inequality acts as an independent negative factor hindering balanced regional innovative development, an obstacle to interregional interactions (primarily financial and investment). As a result of the functioning of these processes, the mechanism of uniform socio-economic development in the country is disrupted. Thus, the relevance of the dissertation research is determined both by internal tasks (striving for balanced regional development, including innovation) and external factors, since the economic sovereignty of the state in the future will depend on the level of innovative development. In turn, the development of regional innovation systems requires the availability of management tools for regional and state development, with the simultaneous possibility of scaling the tools and ensuring the integration of economic systems both horizontally (between regions) and vertically

(with the aim of continuity of state priorities at the level of regions, municipalities and enterprises). Consequently, the process of developing regional innovation systems requires the creation of such a mechanism that would simultaneously ensure and reflect the interests of the production sector and consumers of innovations (society and the state). It is worth noting that currently, in accordance with the goals of strategic development, as well as in pursuance of the instruction of the President of the Russian Federation dated 12/31/2020 No. Pr-2242, following the results of the conference "Journey into the World of Artificial Intelligence" on December 4, 2020, projects aimed at the digital transformation of public administration and the integration of the state and society in the context of information systems. The implementation of such tasks is laborious and long-term in nature, a number of pilot projects have already been launched - the achievement of the main goals is planned by 2030. Therefore, the development of principles and mechanisms for the implementation of projects related to the introduction of digital technologies into the process of public administration is becoming increasingly relevant and indicates the need to review and adjust regional support measures and develop mechanisms that meet modern trends in economic thought.

### **The degree of elaboration of the research topic**

The theoretical basis for studying the basic concepts of regional economics was the work of N. N. Nekrasov, N. N. Kolosovsky, A. G. Granberg, V. S. Nemchinov, N. A. Kovalevsky, V. N. Leksin and other researchers. Various approaches to regional structures are considered in the works of V. V. Maslakov, V. Y. Plenkin, K. I. Zubkov, G. G. Gospodarchuk, etc.; the region is represented as a market and a quasi-corporation; in the studies of S. G. Vazhenin, A. I. Tatarkin, S. V. Kazantsev, N. I. Larina, A. I. Makaev, P. R. Krugman and other authors pay the most attention to the problem of competitiveness of the region as an economic unit in the global market; V. I. Vernadsky, A. G. Granberg, V. N. Ovchinnikov, A. S. Novoselov and others use a systematic approach to describe regional structures; The ecological aspect is fundamental in the works of V. I. Danilov-Danilyan, G. H. Brundtland, G. A. Yagodin, V. G. Gorshkov, N. N. Moiseev and others. Both foreign (P. Drucker, B. Twiss, J. A. Schumpeter, R. R. Nelson, W. S. J., G. Itskovits) and domestic economists (N. D. Kondratiev, N. A.

Novitsky, V. I. Vernadsky, S. Yu. Glazyev, V. I. Glazyev) made a significant contribution to the development of theoretical aspects of innovation activity. I. Mayevsky, M. I. Tugan-Baranovsky, etc.).

### **The purpose and objectives of the study**

The purpose of the dissertation research is to develop a mechanism for the balanced development of innovative systems. The achievement of the set goal was carried out by solving the tasks set, consistently revealing the topic of the dissertation research, these include: – To consider the methodological foundations of balanced innovative development of the regions; – To develop and carry out a comparative characteristic of the management systems of innovative subsystems of the region; – Analyze the current state of regional innovation subsystems and their elements; – To develop a mechanism for the balanced development of innovative subsystems of the region; – To develop an algorithm for the practical implementation of tools for the integrated development of innovative infrastructures in the region.

**The object of the dissertation research** is the innovation system of the region.

**The subject of the study** is the managerial relations arising in the process of functioning and development of innovative systems, mechanisms for regulating socio-economic development, including innovation at the regional level Methodological basis of the study

**The methodological basis of the dissertation research** was the works of foreign and domestic scientists devoted to the problems of the regional economy and its place in the formation of the innovative climate of the region, as well as the balanced development of the regional innovation system. To solve the tasks set in the course of the study, the following methods were used: formal logical methods, observation and collection of facts, hypothesis building, methods of analysis and synthesis, abstraction and generalization, statistical methods.

### **The information base of the study**

Statistical collections, results of selective statistical observations, results of sociological surveys, economic, investment and innovation ratings, materials of scientific articles, monographs, abstracts, journals were used to write the dissertation research

Research area The topic of the dissertation research and its content correspond to the passport of the scientific specialty 5.2.3. "Regional and sectoral economy" in terms of paragraphs 1.3 "Regional economic development and its factors. Problems of balancing regional development. The balance of regional socio-economic complexes", 7.3 "Innovative potential of countries, regions, industries and business entities" and 7.7 "Innovative infrastructure and innovative climate. Problems of creating an effective innovation environment".

**The scientific novelty of the dissertation research** consists in the following points:

1. A combination of generalizing indicators characterizing the balance of the state of innovative systems has been developed, which makes it possible to represent groups of regions by a combination of the potentials of innovative systems, indicators of innovation activity itself and the results of innovation activity. The value of this approach lies in the fact that the object of analysis is divided into three dependent systems that describe the overall process of innovation and emphasize the logic of the innovation process. The combination of indicators has become the basis for the identification of classification groups of regions based on a combination of various factors affecting the final state of the innovation system.

2. A theoretical model of balanced development of innovative systems has been built, based on the fact that it is proposed to understand an entity that acts on behalf of authorities, society and business representatives united in a single regional union as a driving force in decision-making on strategic and innovative development of the region. It is clarified that such an association can act as an object and as a subject of management, taking into account the performance of a number of functions, such as strategic planning and forecasting, consideration of prospects for the implementation of investment and innovation programs, concentration of efforts during periods of artificial economic and macroeconomic constraints. The unification of these three forces, three vectors, does not contradict the actual goals and objectives outlined by the federal authorities and the need to bring society and government representatives closer together. At the same time, the model is based on the creation of a digital platform based on the discursive and evaluative

principle, which also fits into the main strategic goals of the state in the field of digitalization and will contribute to the accumulation of positive experience in the implementation of similar projects in the future. The key role in the model is assigned to the expansion of the functions of participants in innovation activities and aims to combine the efforts, knowledge and competencies of various stakeholders and social groups.

3. A mechanism for the formation of innovative systems in the region has been developed based on the principles of the balanced development model of innovative systems, which is based on a system of interconnections of three complexes: complex No. 1 "Preparatory system for evaluation and design", complex No. 2 "System for the development and implementation of tools", complex No. 3 "Information management system for innovative development". The mechanism allows for evaluation according to the developed criteria and contributes to the creation of conditions for a more open and prompt exchange of information between all participants in the process (government, society and business). The mechanism for the formation of innovative systems in the region takes into account the development of a draft strategy for the development of communication links with all participants in the process and stakeholders, and also offers experimental indicators characterizing the balance of the use of innovative infrastructure development tools. The mechanism is distinguished by the expanded functional roles of participants in the innovation process (government, society and business), the use of an adapted methodology for evaluating tools for the balanced development of innovative systems.

4. An algorithm has been developed for the implementation of the mechanism for the formation of innovative systems in the region, formed on the basis of a model of balanced development of innovative systems and defining a sequence of actions describing the time of implementation of each stage, its goals, possible limitations, with the designation of the functional roles of stakeholders and performers. To improve the efficiency of the algorithm implementation, a plan for using a system of motivational tools for categories of public and industrial sectors was defined, the main stages of designing the Internet portal "Electronic Management of the Region" were characterized, indicating the markers-the results of each subprocess, a risk map was drawn up during

the implementation of the mechanism and a plan was outlined to neutralize their negative impact.

5. A mathematical model has been developed for the formation of a balanced strategy for the development of innovative systems (GBS model), which contains three dynamically changing elements: society (population) – S, business – B and government – G. Each system is divided into constituent elements, the values of which determine the state of the innovation system at the moment. In order to assess the state of the system in quantitative terms and determine the level of its separation from the balanced state, a mathematical form of the GBS model is proposed and the balanced state of innovative systems of all subjects of the Russian Federation is calculated. The model allows us to quantify the state of the system and shows the level of its separation from the balanced state.

**The theoretical significance of the scientific work** lies in the fact that the results of the research complement and expand the understanding of new concepts of the regional economy, new factors of the formation of an innovative environment in the region are highlighted.

**The practical significance** is expressed in the fact that a set of original analysis tools is proposed, including an analysis of management systems of global and regional innovation systems; a set of indicators for assessing the balance of innovation systems is developed; approaches to evaluating tools for the development of innovative infrastructures and potential elements for the formation of regional innovation systems are formulated; an analysis of the decision-making system in the process of regional development is presented innovative systems. The results obtained can be considered as a contribution to the development of analytical approaches to the assessment of the main components of regional innovation systems, the use of which will significantly expand the possibilities of a comprehensive quantitative and qualitative analysis of system elements, will identify previously overlooked impact factors and ultimately ensure the modernization of the country's socio-economic development system, as well as the realization of synergetic effects and potential systems.

**Approbation of the study**

The main provisions of the results of the dissertation research were presented at international conferences: "International scientific and practical Conference "New behavior of market participants in the digital economy" (Moscow, 2020), "Strategic development of socio-economic systems in the region: an innovative approach" (Vladimir, 2020, 2022), "Modern research in the field of social sciences, entrepreneurship, economics and business" (G. Kazan, 2019), XXI Scientific and Practical Conference on Strategic Management issues "Strategic development in conditions of uncertainty" (Vladimir, 2023)

Practical results and recommendations of the chapter "Development of a mechanism for the balanced development of innovative infrastructures in the region" became the basis for the development of a project for the All-Russian competition of youth projects "If I were President" (17.09 – 09/19/2021), and were awarded a diploma. Some theoretical provisions of the dissertation research were presented as part of the International Management Olympiad in 2023 and were canceled by the diploma.

The list of the author's publications in peer-reviewed scientific publications. Included in the "List of peer-reviewed scientific publications in which the main scientific results of dissertations should be published, established by the Higher Attestation Commission under the Ministry of Education and Science of the Russian Federation":

1. Gusarova E. M. Features of intersubjective relationships in the region as a spatial socio-economic corporation // Bulletin of the Samara Municipal Institute of Management. - 2020. – No. 3. – pp. 34-41. – ISSN 2071-9558.
2. Gusarova E. M., Goicher O. L. The external and internal environment of the region as a spatial socio-economic corporation // Economics and management of management systems. – 2021. – № 1 (39). – Pp. 10-19. – ISSN 2223-0432.
3. Gusarova E. M., Goicher O. L. Analysis of factors of influence on the instruments of balanced development of innovative structures in the region // Municipal Academy. - 2022. – No. 4. – pp. 94 – 102. – DOI: 10.52176/2304831X\_2022\_04\_94. – ISSN 2304-831X.
4. Gusarova E. M., Goicher O. L. Approaches to determining the level of development of innovative systems in the region // Municipal Academy. - 2022. –



No. 2. – Pp. 146 – 156. – DOI: 10.52176/2304831X\_2022\_02\_146. – ISSN 2304-831X.

5. Gusarova E. M., Goicher O. L. Features of the mechanism of formation of a balanced strategy for the development of innovative infrastructures // Economics and entrepreneurship. – 2022. – № 11 (48). – Pp. 581 – 583. – ISSN 1999-2300.

Other publications:

6. Gusarova E.M., Goicher O.L., Bugrova O.S., Vinogradov I.M., Kudryakov R.I. The model of managing a region as a quasi-corporation, taking into account the innovation component International scientific and practical conference “New behaviors of market players in the digital economy” // Springer Nature Switzerland. – 2020. – T. 368 – C. 64 – 72 (Scopus)
7. Gusarova E. M. Changing the approach to innovation in the region (on the example of the Vladimir region) // Modern research in the field of social sciences, entrepreneurship, economics and business : collection of scientific tr. based on the materials of the international scientific and practical conference (20 dec. 2019). – Kazan : Professional Science, 2019. – 124 p. – pp. 5-12. – ISBN 978-1-79483-029-5.
8. Gusarova E. M. The region as a spatial socio-economic corporation // Bulletin of the Vladimir State University named after Alexander Grigoryevich and Nikolai Grigoryevich Stoletov. Ser.: Economic Sciences. – 2020. – № 3 (25). – Pp. 18-22. – ISSN 2409-6210.
9. Gusarova E. M. Region as a spatial socio-economic corporation: economic and social aspect // Strategic development of socio-economic systems in the region: an innovative approach (June 03, 2020). – Vladimir : Transit-X, 2020. – pp. 120-124. – ISBN 978-5-8311-1300-6.
10. Gusarova E. M., Goicher O. L. Features of investment and innovative development of the Vladimir region // Bulletin of the Vladimir State University named after Alexander Grigoryevich and Nikolai Grigoryevich Stoletov. Ser.: Economic Sciences. – 2022. – № 1 (31). – Pp. 18-28. – ISSN 2409-6210.
11. Gusarova E. M. Comparative descriptive characteristics of innovative

infrastructure management systems in the regions of the Russian Federation // Economic research and development. - 2023. – No. 11. – pp. 126 – 137. – ISSN 2542-0208.

12. Gusarova E. M. Instruments of innovative development of regions: essence, factors and incentive measures // Strategic development in conditions of uncertainty : materials of the XXI Scientific and Practical Conference on Strategic issues. management, November 17, 2023 / under the general editorship of A. E. Illarionov. – Vladimir : Vladimir branch of RANEPa, 2024. – pp. 26-34. – ISBN 978-5-907789-03-6.

**The structure and content of the work.** The dissertation work consists of: an introduction, three chapters, each of which contains three paragraphs of the conclusion, a glossary and 12 appendices. The total volume of the work is 358 pages, including 36 tables and 44 figures, 12 appendices and 198 bibliographic sources.