

# Strategic Approach to the Regional Innovation System

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**Abstract**—The study proves that at this stage, elaboration of an innovation-based strategy of national economic development is an objective necessity for all the industrialized countries. In such conditions, the high-priority task of the government regulation is to create favorable environment for the development of entrepreneurship and innovation activity. This research rationalizes that a workable solution to this problem may be the development of complex innovation strategies whereas such stages of strategic decision-making as forecasting and planning should include regional innovation system (RIS) building; the latter is expected to serve as a basic structural element of the investment and innovation policy of regional development.

Additionally, the research shows that stimulation of the innovation development in the regions requires engagement of the skilled professionals capable of creating a transformational system for the complete innovation process. A transition to the accumulation of the creative human capital is expected to be a stimulating factor for the innovation activity of the RIS subjects.

It has also been defined that successful development and implementation of the RIS strategy presuppose going through certain stages in a specific order; the stages are also presented in this study. The novelty of the suggested approach lies in using the resources available for RIS formation while paying particular attention to the mechanism of the RIS strategy development whereas both aspects are not currently given sufficient attention to in this area of studies.

**Keywords**—region; strategy; regional innovation system; innovation; innovation activity; stimulation.

## I. INTRODUCTION

At the current stage of development, the national economic system is to a great extent subject to the global processes, which, therefore, enhances the role of the regions as the competitors. Thus, the capability to define the advantages and

make efficient use of them in the conditions of such competition largely depends on the development of the regional innovation systems (RIS) which provide for the mutually beneficial relations between the stakeholders of the innovation activity and more efficient functioning of the regional production sphere within these systems.

The dynamics of conceptual changes in the innovation activity within different branches of national economy make developers focus more on strategic management [1].

Today, the nation faces the challenge of achieving the most effective use of the available potential of science, technology and industry in order to provide for the advantages in the sphere of technologies on the global market, which, hence, sets it on the course of innovation development. Some Russian researchers also maintain the idea that the innovation development is the only possible way of national development[2].

## II. LITERATURE REVIEW

According to the modern internationally accepted approaches, innovation is defined as the final result of innovation activity materialized as a certain new or improved product launched onto the market or a new/advanced practically applied technological process [5].

Thus, it is worth mentioning that, for the time being, the development of the strategy of the innovation-based national economy remains an objective necessity for the countries with established industries, Russia not being an exception. Due to this, the government primarily faces the challenge of creating favorable conditions for the development of entrepreneurship and innovation activity, in other words, the challenge of creating environment that would stimulate innovation

resulting in the growth of the investment capital in the sphere of innovation. Such goals are set and developed within the framework of the state innovation policy and accomplished in certain sectors of economy as well as at the regional level [3, 4].

Therefore, the realia suggest that the government should be searching for groundbreaking solutions not through selective regulation, but through developing complex strategies of innovation development. The strategic approach to the enhancement of the state mechanisms regulating innovation activity at the regional level focuses on stimulating a greater impact the science and innovation should make on the scientific and technological development of the country, economic development in its regions and improvement of the living standards [1, 3, 6].

The emphasis is also put on the stages of strategic decision-making, such as forecasting and planning which should take into account development of the RIS, the latter serving as a basic structural element of investment and innovation development policy of the region. Pertaining to this structural element in all the strategic documents will contribute to the consistent and efficient decision-making in terms of the sustainable investment and innovation development in the regions [3, 7].

### III. RESEARCH METHODOLOGY

This block of information is dedicated to the estimation of the desired future condition of the territory and means of achieving this desired condition based on the analysis of its internal socio-economic potential and analysis of the external environment from both national and international perspectives (the major effect is created by the coherent and complementary actions and policies of the major stakeholders achieved through concentrating their efforts and resources for the sake of one shared purpose) [8, 9].

From the very beginning, the strategy of RIS development should provide for the following:

- consensus and mutual understanding between the RIS stakeholders in terms of the transformations in the innovation sphere of the region; the application of the efficient tools (including Foresight technologies) of strategic planning is required; these factors result in having a shared vision of priorities, tendencies and development trends and allow establishing an efficient cooperation system based on the accepted and approved rules regulating such cooperation;
- analysis-based consolidation of the efforts and potential of all the RIS stakeholders having a shared goal (provided the analysis of the socio-economic data exposes the trends and priorities of the innovation development in the regions);
- elaboration of the road map which would reflect a plan of the consolidated actions performed by the RIS stakeholders and targeting innovation activity development in the region;
- investment and innovation vector of regional development coordinated with the strategies of regional

development, development strategies of the federal district, strategy of the socio-economic development of the Russian Federation, national strategy of the innovation development and digitalized economy programs as well as the strategies of industry development and strategies for the RIS stakeholders' development in the region;

- development and enhancement of the positive image of the region as a territory with favorable investment and innovation climate, with the emphasis on its attractiveness for investors.

### IV. RESULTS

The requirements above can be met on the condition that the innovation activity is stimulated in the regions, which can be achieved through hiring professionals capable of creating a breakthrough system of the innovation cycle in the short term providing for the high efficiency and competitiveness of the innovations in Russia:

$$FR \leftrightarrow AR \leftrightarrow Dv \leftrightarrow D \leftrightarrow C \leftrightarrow Ms \leftrightarrow IP \leftrightarrow M \leftrightarrow S \quad (1)$$

where FR is fundamental research;

AR is applied research;

D is developments;

D is design;

C is construction;

Ms - mastering;

IP is industrial production;

M is marketing;

S is sales.

However, it should be taken into account that the current mechanism of the state regulation of innovation development has flaws when it comes to its methodological base, provided the conditions of the innovation activity development as well as the specifics of the scientific and technological potential remain uncertain[10, 11].

Due to this fact, successful development and implementation of the RIS strategy requires going through a number of definite stages that all together make up an algorithm of the RIS strategy development and implementation reflected in Table 1.

TABLE I. STAGES OF THE RIS STRATEGY DEVELOPMENT

1) Estimation of the resource, organizational and legal capacity for the RIS development of the subjects of regional development	At the organizational stage of the RIS strategy development, its mechanism should be adapted in order to provide for the multilevel participation and its workability. At the regional level, it is easy to notice the well-established cooperation between the subjects of private and public sectors and define their individual contribution into the innovation development. Efficient regional management in this field can be achieved, providing the activities of the governmental authorities, business, academic community and general public are properly coordinated in the process of the RIS strategy development and implementation. The next step is starting a
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	dialogue at the regional level while focusing on the issues of innovation activity and initiating the RIS strategy development, which should result in forming a working group of experts from the academic, business and infrastructure subsystems of the RIS. The working group is expected to function as the main controlling body in the process of strategic planning of the innovation development in the region.
2) Elaboration of the RIS strategy development mechanism based on multilevel participation	Strategic planning of the innovation development in the regions (which also includes planning of the RIS development) requires organizing target subgroups focusing on the detailed analysis of a separate strategic area. Their job is organizationally and technically intensive with considerable workload, involving use of various resources and employment of staff engaged in the strategy development and implementation at different stages.
3) Analysis of the established RIS, including the quality of the interconnections between its subsystems and key stakeholders	This stage calls for a detailed diagnostics of the current condition of the innovation development in the region and for the estimation of the merits and flaws of the innovation system (SWOT and PEST analyses). The analysis helps define condition of the academic and innovation infrastructure and compare statistics; it also includes socio-economic and expert analysis of the survey results (the stakeholders of the RIS performing as the respondents of the survey on the innovation processes in the region and degree of cooperation between the key RIS stakeholders).
4) Setting goals, objectives and measures of the RIS development strategy in conformity to the chosen model	Foresight remains a relevant methodological tool in the RIS strategy development; successful network-based development of multiple regions proves the power of unity when an agglomeration of numerous enterprises results from the application of the Foresight technologies, the latter also efficiently applied in innovation clustering and building network infrastructure.
5) Defining the optimal task sequence, the responsible parties and the mechanisms of monitoring and evaluation	Finding the optimal model of RIS and an adequate strategy of its development makes the key stage of the strategy implementation, influences the efficiency of the strategy as a whole and defines the smart specialization of the region and priorities of its development depending on the resource, organizational and legal capacity of the regional management. Apart from exposing certain unique functions and assets, smart specialization also helps identify competitive advantages of each region and makes regional partners focus on the concept of the future development of the regional innovation system.

Source: elaborated by the authors; based on [12, 13, 14]

## V. CONCLUSION

The proposed approach involves the available resources of RIS development while focusing on the mechanism of the RIS strategy development, which accounts for its originality as these issues mostly remain unaddressed in the contemporary research [15].

Another rational measure may be assigning certain quantitative and qualitative characteristics to the basic socio-economic indices including those reflecting the parameters of innovation activity targeted by the federal and regional authorities as the results of designated activities. The adopted programs of action in the short and long term will give the local authorities an opportunity to fast track solutions to the vital (current) problems and coordinate the work of all the organs and stakeholders of the regional development while providing for the sustainable development according to its smart specialization. We hold the opinion that the primary goal at the regional level has to be the elaboration of the regional development concept as a representation system of the strategic choice, the objective and priorities of development and its basic provisions as per its separate constituents and means of goal accomplishment.

**Acknowledgments:** «The reported study was funded by RFBR according to the research project 19-010-00952».

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