Formation of the conditions for the development of innovation

D E Morkovkin¹, D S Lopatkin², T N Shushunova², B K Sharipov³ and A A Gibadullin⁴

¹ Financial University under the Government of the Russian Federation, 49 Leningradsky avenue, Moscow, 125993, Russian Federation
² Mendeleev University of Chemical Technology of Russia, Miusskaya sq. 9, Moscow, 125047, Russian Federation
³ Branch of the National University of science and technology «MISiS» in Dushanbe, Nazarshoeva Street, Dushanbe, 7734042, The Republic of Tajikistan
⁴ State University of Management, Ryazan Avenue, 99 Moscow, 109542, Russian Federation

E-mail: 11117899@mail.ru

Abstract. In recent decades, the issues of transition to a qualitatively new path of development have come to the fore and require urgent solutions from state and regional authorities, industry and corporate structures. The study analyzed the existing innovative potential of the Russian Federation, because of which it was revealed that the costs of research and development have been reduced in recent years, and the developed nanotechnology is not fully used. Based on the results, the study proposed a model of innovative development of the Russian Federation, which consists in the convergence of state, regional, industry and corporate structures in order to develop a unified innovation strategy of the Russian Federation. In conclusion, the study presents the main findings and results of the work.

1. Introduction
The processes of transition to innovative and digital technologies are observed all over the world, which, in general, are aimed at reducing production costs, increasing the efficiency of technological processes, increasing the return on production capacities, and reducing the use of raw materials and resources. In most states, such processes have steady growth, and the number of inefficient and wasteful industries is declining every year [1-2]. At the same time, in the Russian Federation, the transition to a new development path includes a transition to innovative and digital technologies, as well as to nanotechnologies. To date, the Russian Federation has adopted federal, regional and industry programs and documents aimed at the innovative and digital transition of the national economy, and at the corporate level, programs and projects to improve technological production [3].

However, the adopted laws and programs at all levels of government do not provide a qualitative and quantitative transition to the innovative development of the national economy [4-5], in this regard, it seems necessary to analyze the current state of innovation in the Russian Federation and to develop measures to enable the transition to innovative technologies in the Russian Federation.

2. Materials and methods
The aim of the study is to assess innovation in the Russian Federation and the formation of conditions to ensure a qualitative transition to innovative technologies in the national economy. To achieve this goal, the following tasks:

- analyze the level of innovation in the Russian Federation;
- propose mechanisms to ensure the transition to innovative technologies.

Within the framework of the scientific research, methods of factorial, statistical, logical, comparative, economic and system analysis were used, which allowed the authors of the study to solve the tasks. The information base of the study was information from government statistics agencies, materials from various studies, analytical materials and corporate reports of organizations.

3. Results
In order to conduct an objective analysis, it is advisable to analyze the existing potential, in this regard, we consider the internal costs of research and development from the gross domestic product (figure 1) [6].

![Figure 1. Domestic expenditures on research and development, as a percentage of gross domestic product as a whole for the Russian Federation, as a percentage.](image-url)

From the presented figure it is seen that over the period from 2011 to 2017, an increase in the share of internal costs for research and development is observed, and in 2018 this figure decreased by 10%. It is worth noting that despite the laws and regulations adopted in 2017 related to the transition to digital technologies, the volume of domestic research and development costs in relation to GDP is reduced.

At the same time, if we consider the level of innovative activity, then the general indicators do not exceed 8.5%, and the share of innovative products is 5-7% [6-9]. At the same time, in the scientific and innovation sphere, the number of organizations performing research and development and the number of employed personnel in research and development is reduced, the volume of financing of science from the federal budget, etc. is reduced.

Next, we consider the volumes of developed and used nanotechnologies in the Russian Federation (figure 2) [6].
The number of nanotechnologies used in the whole of the Russian Federation

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Figure 2. The number of developed and used nanotechnologies in the Russian Federation, units.

The figure shows that the maximum number of nanotechnologies was developed in 2015 and amounted to 505 units, and further, their number is only decreasing. It is worth noting that the developed nanotechnologies are not used in the next year, which indicates that there is no need for the developed nanotechnologies for consumers and sectors of the national economy. Of course, this trend indicates the absence of an effective policy for the transition to an innovative development path [10-12].

Today in the Russian Federation there are several national programs aimed at the innovative development of the Russian economy, among them the Strategy of innovative development of the Russian Federation for the period up to 2020, the Concept for long-term socio-economic development of the Russian Federation until 2020, and the forecast for long-term socio-economic development of the Russian Federation for the period until 2030, the Energy Strategy of the Russian Federation until 2030 and other documents [13-16]. The largest oil and gas, energy, metallurgical, engineering, chemical, manufacturing and other companies have adopted innovative programs.

Program national documents contain the following requirements:

- development of human capital in science and innovation;
- increasing business interest in innovation and accelerating the emergence of innovative technologies;
- widespread use and implementation of innovative technologies in production processes;
- maintaining sustainable development of the national economy;
- openness of the innovation sphere and its integration into world economic processes [17-18].

In addition, regional innovation development programs are being developed in the Russian Federation that contain local problems and prospects for the transition to innovative technologies. Industry programs include goals, objectives and directions for the development of specific areas of activity, taking into account the adopted national and regional documents on innovative development. Corporate programs are developed not only taking into account the specifics of production, but also taking into account the requirements for updating, modernization, repair, sustainable development and reducing the use of natural resources [19].

Despite the fact that the Russian Federation has adopted many programs and projects in the field of innovative development, today there are no significant changes in the innovation sphere, but on the
contrary, there is a trend towards a decrease in the indicators of innovative development of the Russian economy [20].

4. Discussion
It is advisable to base the innovative development of the Russian Federation on the convergence of different fields of activity in order to achieve a single result. The combination of state, regional, industry and corporate structures will allow us to develop not only a common strategy for the innovative development of the Russian Federation, but also to identify the untapped potential, strengthen the synergistic effect and streamline the process of innovative transition (figure 3) [21].

![Figure 3. Model for ensuring the innovative development of the Russian Federation.](image)

The logic of the presented model lies in the need to build the relationship between all structures, and each level should develop its own projects and programs taking into account the requirements of the previous level and, of course, contain mechanisms for implementing programs and strategies of the previous levels. Such a system will allow solving national, regional, industry and corporate issues in the field of innovative development not for the sake of a specific region, industry or company, but with the goal of achieving a unified innovation strategy of the Russian Federation.

5. Conclusion
Within the framework of the presented research, the innovative potential of the Russian Federation was analyzed, in particular, the internal costs of research and development, the level of innovative activity, the share of shipped innovative products and the number of developed and used nanotechnologies were estimated, as a result of which it was found that a decrease in innovative activity was observed in the Russian Federation. The work proposed a model for ensuring the innovative development of the Russian Federation, including the convergence of state, regional, industry and corporate structures in order to develop a unified innovation strategy.
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