



State regulation of the development of the connectivity of the Russian territory

Reglamentación estatal del desarrollo de la conectividad del territorio ruso

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ABSTRACT:

This research is carried out within the framework of the Strategy for Scientific and Technological Development of Russia, approved by the Decree of the President No. 642 of December 1, 2016. In accordance with paragraph 45 of the Decree, the main tool for the implementation of the Strategy for Scientific and Technological Development is integrated with scientific and technical programs and projects that include all stages of the innovation cycle. Accordingly, the entire legal framework regulating the interaction of all stakeholders on this issue requires in-depth study and full analysis on the subject of legislative and social barriers.

Keywords: Territorial connectivity, state regulation of innovations, state authorities in Russia, knowledge-intensive sector, public-private partnership.

RESUMEN:

La presente investigación ha sido desarrollada en el marco de la Estrategia de Desarrollo Científico y Tecnológico de la Federación de Rusia, aprobada por el Decreto del Presidente N° 642 del 1 de diciembre de 2016. De acuerdo con el párrafo n. 45 del Decreto, la principal herramienta de implementación de la Estrategia se integra tanto con programas técnicos y científicos como con proyectos que abarcan todas las etapas del ciclo innovador. En concordancia con ello, todo el marco legal que regula las interacciones entre los accionistas en este asunto requiere un estudio profundo y un análisis completo de los sujetos legislativos y las barreras sociales existentes.

Palabras clave: Conectividad territorial, regulaciones estatales de la innovación, autoridades estatales de Rusia, sector del conocimiento intensivo, colaboración de los sectores público y privado.

1. Introduction

In the Russian Federation, relations between the entities of scientific and scientific-technical activities, public authorities and consumers of scientific and scientific-technical products (works and services), as well as the provision of state support for innovation activities are regulated, first of all, by the Federal Law of August 23, 1996. No. 127-FZ "On Science and State Science and Technology Policy". The federal law mentioned is a fundamental document in the field under study, but other normative legal acts and policy documents in the scientific

field should also be taken into account when identifying key features of the organization of Science and Technology in the Russian Federation. The acts studied during the study include the following:

- 1) Federal Law of September 27 2013 No. 253-FZ, "On the Russian Academy of Sciences, the reorganization of state academies of sciences and the introduction of amendments to certain legislative acts of the Russian Federation";
 - 2) Decree of the President of the Russian Federation of July 7, 2011 No. 899 "On the approval of priority directions for the development of science, technology in the Russian Federation and the list of critical technologies of the Russian Federation";
 - 3) Decree of the President of the Russian Federation of May 7, 2012 No. 596 "On Long-Term State Economic Policy";
 - 4) Decree of the President of the Russian Federation of May 7, 2012 No. 599 "On measures for implementation of state policy in the field of education and science";
 - 5) Decree of the President of the Russian Federation of December 31, 2015 No. 683 "The Strategy of National Security of the Russian Federation";
 - 6) The Fundamentals of the Policy of the Russian Federation in the Field of Science and Technology Development for the Period to 2020 and Further Prospects, approved by the President of the Russian Federation of January 11, 2012 No. Pr-83;
 - 7) Resolution of the Government of the Russian Federation of April 15, 2014 No. 301 "On approval of the state program of the Russian Federation" Development of Science and Technology "for 2013-2020";
 - 8) Order of the Government of the Russian Federation of December 8, 2011 No. 2227-r "Strategy of innovative development of the Russian Federation for the period up to 2020";
 - 9) Order of the Government of the Russian Federation of December 27, 2012 No. 2538-r "Program of Fundamental Research in the Russian Federation for the Long-term Period (2013-2020)";
 - 10) Order of the Government of the Russian Federation of December 3, 2012 No. 2237-r "Program of Fundamental Research of State Academies of Sciences for 2013-2020";
 - 11) Forecast of scientific and technological development of the Russian Federation for the period up to 2030, approved by the Chairman of the Government of the Russian Federation on January 3, 2014.
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2. Methodology

Let us consider the current science sectors in the Russian Federation:

- 1) the public sector, which includes non-profit organizations created by the State authorities and local self-government and financed, as a rule, by budgetary funds, as well as the state-created organizations, related to Infrastructure of support of scientific, scientific-technical and innovative activity (so-called development institutions, state funds of support of scientific, scientific, technical and innovative activity);
- 2) the business sector, which includes all organizations whose main activity is related to the production of products or the provision of services in the field of science in order to further commercialize the results of scientific or scientific-technical activity, as well as service organizations;
- 3) the university sector, represented by universities and other higher education institutions, regardless of the source of funding and organizational and legal form, as well as the research institutes, experimental stations and clinics created by the universities or associated with them.

It is possible to single out a private non-profit sector of science, which includes private organizations that do not aim to make profit (for example, public organizations) and carry out certain activities in the scientific, scientific-technical sphere.

Federal State Statistics Service order of August 5, 2016 No. 391 "On the approval of

statistical tools for the organization of federal statistical supervision of activities in the field of education, science, innovation and information technology" determines the types of scientific organizations related to each of these sectors of science.

The public sector of science includes:

- 1) research institutes;
- 2) design, engineering and technological organizations;
- 3) design, design and survey organizations for construction; experimental enterprises and others.

The university sector of science (higher education sector) covers:

- 1) leading classical universities (Lomonosov Moscow State University) and St. Petersburg State University) without branches (territorially separate subdivisions);
- 2) branches (territorially separate subdivisions) of leading classical universities;
- 3) federal universities without branches (territorially separate subdivisions);
- 4) branches (territorially separate subdivisions) of federal universities;
- 5) national research universities without branches (territorially separate subdivisions);
- 6) branches (territorially separate subdivisions) of national research universities;
- 7) other organizations of higher education without branches (territorially separate subdivisions);
- 8) branches (territorially detached units) of other higher education educational institutions;
- 9) research institutes (centers) subordinate to the organizations of higher education and (or) the Ministry of Education and Science of the Russian Federation (in the part of higher education);
- 10) design and engineering organizations subordinate to educational organizations of higher education and (or) the Ministry of Education and Science of the Russian Federation;
- 11) clinics, hospitals, other medical institutions at educational institutions of higher education;
- 12) experimental enterprises subordinate to educational organizations of higher education;
- 13) others.

The business sector of science consists of:

- 1) research institutes;
- 2) design, engineering and technological organizations;
- 3) design, design and survey organizations for construction;
- 4) industrial production organizations;
- 5) experimental enterprises;
- 6) others.

The sector of private non-profit organizations includes:

- 1) voluntary scientific and professional societies and associations;
- 2) public organizations;
- 2) charity funds;
- 3) research institutes;
- 4) others.

The main components (subsectors) of the public sector are the so-called academic and applied subsectors.

The academic subsector is focused on conducting fundamental research and includes about 900 organizations. The main organization whose purpose is to ensure the continuity and coordination of fundamental scientific research and exploratory scientific research in the

Russian Federation in the most important areas of natural, technical, medical, agricultural, social and human sciences, expert scientific support for the activities of government bodies, scientific and methodological guidance scientific and scientific and technical activities of scientific organizations and educational institutions of higher education Is the Russian Academy of Sciences (hereinafter - RAS).

By the order of the Government of the Russian Federation No. 2591-r of December 30, 2013, scientific organizations that are part of the RAS system have been transferred to the Federal Agency of Scientific Organizations (hereinafter - FASO). The FASO is responsible for legal regulation and provision of public services in the field of organization of activities carried out by subordinate organizations, including the fields of science, education, health and agro-industrial complex, as well as federal property management of organizations subordinate to FASO.

The RAS structure includes the following regional branches: the federal state budgetary institution "Far Eastern Branch of the Russian Academy of Sciences", the federal state budgetary institution "Siberian Branch of the Russian Academy of Sciences", the federal state budgetary institution "Ural Branch of the Russian Academy of Sciences". To achieve the objectives of the activity, to solve the main tasks and to carry out the functions of the RAS, its departments in the fields and areas of science operate: mathematical sciences; physical sciences; nanotechnologies and information technologies; power engineering, mechanical engineering, mechanics and management processes; chemistry and materials science; biological sciences; Earth sciences; social sciences; historical and philological sciences; global problems and international relations; physiological sciences; agricultural sciences; medical sciences.

At present, the functions and powers of the founder and owner of the federal property of the Russian Academy of Sciences on behalf of the Russian Federation are carried out by the Government of the Russian Federation. In a number of republics and regions of the European part of Russia, the RAS has regional scientific centers that unite research organizations in regions whose integrated development has important economic and cultural significance.

The largest is the St. Petersburg Scientific Center. In the Moscow region there are Pushchino, Troitsk Scientific Centers, Scientific Center in Chernogolovka, in the Volga region - the Samara and Saratov Scientific Centers. Scientific centers operate in the capitals of Bashkortostan, Tatarstan, Karelia, and the Kola Peninsula (the town of Apatity). In addition to the existing scientific centers in Dagestan and Kabardino-Balkaria, in 2000 the Vladikavkaz Scientific Center of the Russian Academy of Sciences and the Government of the Republic of North Ossetia-Alania was established. Complex Research Institute of the Russian Academy of Sciences (Grozny) was created at the request of the administration of the Chechen Republic of the Russian Federation on the basis of scientific institutions formerly part of the Chechen Academy of Sciences. In 2002, the Southern Scientific Center of the Russian Academy of Sciences was established.

Regional research centers of the Russian Academy of Sciences are established in the order set by the Government of the Russian Federation. It can be stated that there is no clear legal regulation concerning regional scientific centers, hence the emerging problems in the activity of these centers: multi-subordination, lack of funding, lack of staff, duplication of research topics.

Among the positive effects of the creation of regional scientific centers is the supposed consolidation of universities, research institutes, production organizations and design offices on their basis, that is, the actual possibility of forming scientific innovation clusters for the development and implementation of new methods and high technologies in various fields of science and technology.

Sources of financial support of RAS are:

- a) subsidies from the federal budget;
- b) funds of state and private foundations;
- c) funds from income-generating activity carried out by the Russian Academy of Sciences on

- the basis of the legislation of the Russian Federation, including the implementation of paid civil contracts with legal entities and individuals in the Russian Federation and other states, state and municipal contracts;
- d) funds from the use of property and property rights of the Russian Academy of Sciences;
 - e) voluntary monetary and other contributions, donations from legal entities and individuals (including foreign ones), grants from legal entities and individuals (including foreign ones), as well as from international organizations that have received the right to grant grants in the territory of the Russian Federation in the established The Government of the Russian Federation. The property of the RAS, received in the form of donation, donation or by will, is used by it in accordance with the legislation of the Russian Federation proceeding from the purposes and objectives of the Academy;
 - f) funds received from other sources not prohibited by the legislation of the Russian Federation.

According to [Art. 4](#) of the Federal Law "On the Russian Academy of Sciences, the reorganization of state academies of sciences and the introduction of amendments to certain legislative acts of the Russian Federation", the expenses associated with the financial support of the RAS activities, including financial support for the activities of its regional branches and monthly cash payments to members of the RAS, are envisaged a separate line in the federal budget for the corresponding year and for the planning period. RAS is recognized as the main administrator of federal budget funds intended for financial support of the activities of its regional branches.

Other state academies of sciences, which are created in the form of federal state budgetary institutions, are: Russian Academy of Education, Russian Academy of Architecture and Building Sciences, Russian Academy of Arts. The founder and owner of the property of the state academies of sciences is the Russian Federation.

State academies of sciences participate in the coordination and conduct of fundamental scientific research and exploratory research in the relevant branches of science and technology, carry out scientific and methodological support for the implementation of sectorial state programs, scientific advisory and expert support in the relevant branches of science and technology. The state academies of sciences are also funded from the federal budget.

According to the resolution of the Russian Academy of Sciences, the Government of the Russian Federation approves the [program](#) of fundamental research in the Russian Federation for a long-term period, envisaging the allocation of federal budget funds for fundamental research and exploratory research in the Russian Federation, including a plan for carrying out these studies, justifying their resource support for a period of validity of this program, the values of the target indicators of its implementation.

It should be noted that all scientific organizations and educational institutions of higher education carrying out fundamental and exploratory research funded by the federal budget, shall each year in [the order](#) established by the Government of the Russian Federation, submit to the Academy of Sciences reports on fundamental and exploratory research, of the received scientific and (or) scientific and technical results.

At present, one of the drawbacks of the public sector of science is its lack of transparency. There are no reporting standards for scientific organizations that would make it possible to draw a conclusion about the effectiveness of scientific research. The introduction of such standards will make the activities of the public sector of science more transparent and understandable for potential business partners and will allow more effective implementation of scientific and technological achievements. As the practice of individual applied scientific institutes, which have the organizational and legal form of joint-stock companies shows, such a proposal is quite feasible. Reports on the effectiveness of scientific research should be public in the part not related to information of limited access. This, in turn, will create an integral system of state monitoring of scientific, scientific and technical activities in the Russian Federation.

For a long time, Russian science has only interacted with the state. In the dialogue with the

State scientists formulated requirements to the subject of research. The population was invited to treat science as an art that does not require practical output. A big gap between what science can and what society and business need became the outcome of this approach. As a result, the structure of science remained conserved in the priorities of the previous technological order, and the participation of the society in the formation of the research order was and remains minimal. This problem must be solved at the level of law.

Another major problem in the activity of the academic subsector of the public sector of science is the difficulty in the turnover of the results of scientific and technological activity. This is due to the fact that most academic research institutes are state budget institutions, and it is necessary to transfer the development to the private sector represented by private capital. There is no formal problem. There is a civil law regulating the turnover of property and property rights, and a number of leading scientific organizations successfully transfer the created results into business. However, for most organizations in the academic sector, the registration of the results of intellectual activity (hereinafter RIA) and the transfer of rights to them remains a challenge because of the lack of funds for the identification and design of RIAs, understandable and simple methodologies and recommendations for the transfer of rights to RIAs.

The integration of scientific and production structures in the form of a research and production consortium can facilitate the implementation of scientific results. The Scientific and Production Consortium is the association of enterprises of the real sector of the economy, scientific organizations and higher educational institutions that carry out a joint production and scientific and technological program aimed at implementing priority scientific and technological projects and creating basic platform technological solutions and supply chains that solve operational and tactical tasks replacement of high-tech imports and determining the global competitiveness of the Russian economy in medium and long-term perspective. An attempt to realize this idea is traced in the creation of technological platforms, which in practice has not been provided organizationally and financially, due to this only a few technological platforms contribute to the unification of business, science and education.

The creation of the consortium allows the organization to participate in the activities of several multidisciplinary associations, integrating in the network of scientific and production links, thus contributing to finding the sphere of the most effective application of the research results and in parallel providing the process of new product or service production technology diffusion. The formation of consortia should be closely connected with the solution of the most important problems arising on the way of realization of the basic purposes of development of the country and life of the society and its members.

The applied subsector of the public sector of science has been subjected to numerous changes over the past 25 years in connection with the processes of economy reforming that took place in the country. It should be noted that the result of privatization, which took place in Russia in the 1990s, was the serious damage inflicted on the scientific organizations of the applied subsector, which led to a long state of science stagnation. The so-called plant science was actually destroyed. The scientific institutions that existed at the enterprises has and lost their advantages in the market, as the enterprise and the existing scientific Institute at it privatized separately, which led to the direct destruction of Scientific-Production Associations (SPAs).

After the revision of the State priorities in the beginning of 2000s some positive developments in this area can be observed. At present, the applied subsector includes more than 1200 organizations. 10% of the public sector of applied science organizations is endowed with different statuses in order to obtain state support.

3. Conclusions

Completing a brief overview of the state sector of science in Russia, it is necessary to highlight the following trends in its development for the near future:

1) ensuring progressive structural changes in the economy and realization of national

- competitive advantages in the scientific and technological sphere;
- 2) scientific support and support of such basic functions of the State as maintenance of national security and defense capacity of the country;
 - 3) provision of a high level of fundamental research as the main element for generation of new knowledge in the innovation economy;
 - 4) ensuring development of national scientific and technological base of high-tech branches of economy (national priorities of technological development) in conditions of underdeveloped private sector of research and development;
 - 5) ensuring a holistic innovation system and effective replenishment of the "market failures" through the formation of elements of innovative infrastructure and the implementation of activities in areas where there is a lack of entrepreneurial initiatives;
 - 6) development of personnel potential of organizations for science and higher education by effective integration of scientific and educational activity.
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