Stages of National Innovation System Development in Russian Federation by Considering the Supply Chain Strategies

Elena V. Bodrova[*1], Tatiana V. Gorina[2], Viacheslav V. Kalinov[3]
[1,2]*MIREA - Russian Technological University* , Moscow, Russia
[3]*Gubkin Russian State University of Oil and Gas (National Research University)*, Moscow, Russia

Abstract- **They conducted the study of national innovation system development stages in Russian Federation on the basis of previously published and archival documents based on the supply chain management. They determined achievements and miscalculations in the development and implementation of state innovation policy at various stages of its implementation. Analysis of scientific literature, conclusions and recommendations of experts, statistical data, archival and published documents made it possible to expand the list of factors blocking innovation processes. The most important conditions for braking overcoming were the following ones: the need to transform the financial and economic policy towards the reconstruction and activation of innovative processes in the country industrial complex; the awareness of modernization aspirations development significance in society by the authorities, the consolidation of entrepreneurship, scientific community and state efforts; the analysis of practical experience, the rejection of erroneous decisions; the consistency in the implementation of the intended.**

Keywords: *supply chain strategy, innovation, consolidation of entrepreneurship, national system establishment*

1. Introduction

In the context of global challenges, the critical importance of the technological breakthrough for our country necessitates the study of the national system establishment (NIS) and the identification of the factors determining its lack of effectiveness. A fairly large number of publications by economists, political scientists, historians, and sociologists are devoted to the problems associated with the implementation of state innovative policy and the attempts to create a full-fledged NIS (S.P. Ryapolov, S.V. Nazarkin, I.G. Dezhina, N.I. Ivanova, B.N. Kuzyka, V.A. Mau, G.V. Osipov, I.Yu. Pilshchikova, T.Yu. Khvatova, A.I. Rakitova, Yu.V. Yakovets and many other authors). However, the list of factors determining the inhibition of innovation processes in Russian Federation at different stages of state policy evolution in this area should be supplemented substantially.

2. Materials and Methods

The theory of modernization was the basis for our research. The features of multiline modernization model include the possibility of its implementation on its own path, taking into account national peculiarities; the significance of sociocultural, subjective, and external factors. These features, as well as the differences of modernization Russian model, in our opinion, were not taken into account by the developers of various strategies and programs, which was one of the significant miscalculations. The historiography of the problem includes the studies that analyze the main trends of the Russian Federation innovation policy. The source base was both published government documents and the materials from state archives and statistical collections.

3. Result

Even before the collapse of the USSR, the Innovation Council under the Chairman of the Council of Ministers of the RSFSR was formed in June 1990, which laid the foundations of the innovation system in our country, and promising programs were developed. However, on June 9, 1992, the Chairman of the Russian Federation Innovation Committee of the Supreme Economic Council under the Presidium of the Supreme Council, Yu.A. Lebedev sent the letter to the First Deputy Prime Minister of the Russian Federation V.F. Shumeiko, requesting the preservation of the Innovation Committee [1], appealing to foreign experience. But his appeal was denied, since this "would complicate the current management apparatus and the development of a single innovation policy, and the combination of

structural, investment, scientific and technical policies in one governing body could lead to monopolization in the field of innovation" [2]. The sad results of the state innovation policy of the 1990s are well known: from 1991 to 1998 the proportion of enterprises and organizations engaged in the development and the use of innovations decreased by 3.4 times [3]. Branch science collapsed. Among the achievements of this period, it is possible to name the creation of extra budgetary financing system for science, the transition from the financing of scientific organizations to the financing of target projects and programs, to the competitive selection mechanism of promising projects. An important role in the preservation of science was played by state scientific centers. However, the sharply reduced funding for research has led to a rapid reduction of human resources in science. Most of the research institutes, especially the branch ones, lost more than 70% of their employees [4]. The total number of RAS staff members decreased from 144 thousand to 111 thousand, and the number of scientific workers decreased from 63 to 53 thousand during 1992 - 1998. The average age has increased dramatically [5]. The scientific sphere was reformed on its own, the restructuring of scientific and technical complex enterprises and institutes was carried out, most often, without state participation, in accordance with the needs of the regional market. Thus, "pseudo-innovation" structures were formed, flexibly oriented to the market, but far from science, especially fundamental one. Since 2000, they started the process of active work over the conceptual foundations of socio-economic policy in general and politics. The Center for Strategic Research (CSR), created specifically for this purpose, has become the main platform to discuss the issues of economic development. Most experts recognized the need for a more active role of the state, primarily to ensure the framework conditions for industry development [6]. D.V. Manturov rightly calls the "Strategy 2010" as one of the main documents of that period, in which industrial policy was first defined as the tool for large-scale modernization of the economy. Among the most significant events of the first decade of the new century, the author rightly refers to the federal target program (FTP) "Electronic Russia", "The main provisions of the energy strategy of Russia for the period up to 2020, "The fundamentals of the Russian Federation policy in the development of science and technology until 2010 and beyond" [7]. The examples of large state projects related to horizontal regulatory measures in the scientific and technical sphere during this period were the development of technology-innovation zones and IT-technology parks, which started in 2006 and was carried out together with the reform of tax legislation, the purpose of which was to create preferential conditions for IT companies. This was the first experience of innovative activity encouraging with the help of interconnected tools of different directions - perhaps this predetermined the low effectiveness of this attempt, since the results of these initiatives were very modest by the beginning of the next stage [8]. One of the important strategic documents of the innovation policy of this period was the main directions of the Russian Federation policy in the field of the innovation system development for the period up to 2010 [9]. The following basic trends of innovation policy were identified: the creation of a favorable economic and legal environment; the development of innovation infrastructure; the support of intellectual activity result commercialization. The Russian government approved the Russian Federation Strategy in the field of science and innovation development for the period up to 2010, which implies the creation of the "system of interrelated tasks, timeframes and resources for target programs, individual projects and non-program activities" [10]. A year later, they developed the Strategy for the Development of Science and Innovations in the Russian Federation for the period up to 2015 [11], in which specific measures and tools were listed, but most of the tasks were not achieved [12]. In the same year, they approved the list of priority areas for the development of science and technology. In 2006-2007 they started the formation of the structural elements of the NIS: the OJSC "Russian Venture Company", the OJSC "State Corporation Rosnanotekh", the OJSC "Russian Investment Fund of Information and Communication Technologies", and "Vnesheconombank" Group of companies were established. The formation of the NIS at the beginning of 2000-ies was designated as a national priority, but the effect of the state innovation policy implemented during those years was clearly less than expected: 688 advanced production technologies were created in 2000, and 780 in 2007. The means allocated for science from the federal budget of Russia declined in 2007, reaching 0.81% of GDP, and 0.33% of GDP for civil science [13]. At the same time, the share of business in the science sector investment did not

exceed 30% in 2008 (in Germany - 66.8%, in the USA - 63.7%, in Japan - about 75%). The number of innovative high-tech enterprises has noticeably reduced. If there were 44 thousand enterprises and organizations of high-tech business in the Russian Federation in 2001 [14], then after five years just over 9% of enterprises in Russian industry implemented technological innovations [15]. According to sociological surveys, only 0.2% of workers in science and scientific services received the salary of over 75,000 rubles in April 2004, but these were either commercial earnings or large grants. According to the real situation with the budget funding of basic science, its status was as low as the status of education and health care. In this regard the experts reminded that China rapid economic growth was conditioned by the rapid growth of human capital due to the return of significant priorities to education, health care and science. Although per capita GDP in China was lower than in Russia, the average salary of faculty members at Peking University was 4-5 times higher than the average salary at M.V. Lomonosov Moscow State University [16]. Unfortunately, in the new century a large number of developments and strategies, including those made by the scientists of the Russian Academy of Sciences, were not demanded. Reports, projects, applications are partly published, partly stored in archives. But they were not of interest for the conductors of economic policy. Therefore, the staff of the Interdepartmental Center for Socio-Economic Measurements of the Russian Academy of Sciences should have stated in 2005 that the country was on the path of Western technology imitation and the "transplantation" of the organizational structure. And as for imitation things are far from the best. According to Rosstat data, the share of innovatively active enterprises in the total number of industrial enterprises was 10% in 2003. It was 4-6 times less than in the leading EU countries. The cost of own research in the development amounted to 7.1% of the total cost for technological innovation in industry and 3.6% in the service sector [17]. Acquisition of machinery and equipment, industrial design, staff education and training, and marketing research prevailed among the main types of innovative expenses in Russia. The costs for the purchase of new technologies, rather than finished products, were just as small as the costs on their own research and development or even less in Russia. Russian business was very weakly interested in innovation. The most important growth factor of this period was a favorable situation for world oil prices. Another significant external factor is the dynamic growth of the global economy. But the growth potential of commodity exports in Russia turned out to be practically exhausted. The most significant were not the actual technological barriers, but various organizational and economic phenomena, as well as objective structural imbalances of the Russian economy [18]. The warning of the experts from the Institute for Economic Forecasting of the Russian Academy of Sciences seems to be quite accurate: "Judging by the threatening trends in the economic dynamics at the end of 2004 and the estimates in the framework of the inertial development option, the slowdown in growth can occur quite quickly and dramatically ... And the problem is not so much because of extraordinary nature or measures, as in efficiency and speed of fundamental decision making on the revitalization of domestic final demand and economic policy priority change. Only in this case is it possible to implement the strategy of innovation and investment breakthrough" [19]. The following main factors of inhibition in the recommendations of experts were named: the lack of long-term strategies in the field of basic research; the volumes of domestic demand and financing did not correspond to the scale of set tasks; R & D infrastructure was not developed; the integration of academic and university science remained inadequate; the mechanisms of interaction between R & D and the production of goods and services remained underdeveloped. At the same time, the sphere of scientific research was notable for its enclavization and, to a large extent, its reorientation towards external demand serving. We have studied a large number of scientific publications of those years, the theses of economists, monographs, but they became only a subject of discussion on the pages of scientific journals, at conferences. They were mostly ignored by the developers of strategies and programs in the Government. There is no doubt in the legality and relevance of the conclusion formulated by the experts of the Institute of Economic Forecasting of the Russian Academy of Sciences at the beginning of the 2000-ies about the impossibility of the inertial scenario implementation, which will lead to economic development slowdown (the average annual growth rate of GDP until 2030). According to the investment and innovation scenario, based on an active investment policy aimed to restructure the production structure of the economy, taking into account the widespread introduction of innovative

technologies, the average annual rate was to be 6.5-7%. As the result of an active investment policy and innovation scenario, the experts have planned that there will be an intensive restructuring of the national economy structure: the share of energy-intensive industries will decrease and the share of less energy-intensive industries and the service sector will increase [20]. The researcher V.I. Filatov formulated a principled conclusion that, since the growth leaders of this period were export-oriented industries (fuel and energy industry, metallurgy, chemistry), and their increasing foreign exchange earnings stimulated import growth, trade and construction, neither structural modernization nor innovation revival of the economy took place, the share of all manufacturing industries rose to 81%, and the share of machinery and equipment made only 58.7% of the year 1991 level. That is, although in terms of GDP, Russia almost reached the pre-reform level by 2008, the processing industry sectors, primarily the high-tech sector of the industry, lagged significantly behind the corresponding figures of the late 1980s in terms of output [21]. The import of machinery and equipment in the Russian Federation grew 13.2 times from 2000 to 2008, domestic production of machinery and equipment increased only 2.02 times, the production of electrical equipment, electronic and optical equipment growth - 3.8 times, vehicles and equipment production growth - 1.97 times [22]. The economic crisis, which began in 2008, affected the state of domestic engineering industry and further aggravated the situation. During the first half of 2009, the production of machine tools fell by 62.4% [23]. The study showed that one of the most significant mechanisms of state innovation policy during 2000-ies was the federal target programs (FTP), which have R & D expenditures in their structure, and an increasing importance was attached to the factor of work co-financing from other extra budgetary sources in the implementation of projects. The first decade of the twenty-first century was characterized by the intensive development of the foreign economic relations in the Russian Federation, the fast economic growth of the country, but on the whole, the commodity structure of Russian exports remained undiversified. First of all, the decline of machinery, equipment and vehicles in exports continued (from 5.6% in 2007 to 4.9% in 2008). The share of Russian producers in the global markets of high-tech industries was insignificant (from 0.05 to 0.3%) [24]. The acute problem of NIS personnel potential remained. The Director of the Institute of Economics at Russian Academy of Sciences, the Corr. of RAS, R.S. Greenberg wrote the following during still relatively prosperous 2007: “neither ideal and ideally applied “market” legislation, nor the best investment climate, nor zero inflation, or all of this together will support the diversification of the national economy real sector ... Without appropriate rational behavior of the state, in other words, you can't do without the development and practical implementation of an active state structural-industrial policy, which presupposes the choice of national-economic development priorities and the application of optimal ways for their provision [25]. In 2010, the scientist also insisted on the need for a new type of economic policy - “left-wing liberal” - designed to include the re-industrialization of the economy through active structural-industrial policy and strategic (indicative) macro-planning ...” [26]. In the same year, the Academician of RAS S.Yu. Glazyev characterized the process of the fifth technological order expansion in Russia as a catching, imitative one, due to the import technological base. Among the major strategic miscalculations of modern reformers, the scientist, in our opinion, rightly called their lack of demand for the comparative advantages of Russian cultural values, the orientation of public energy "towards the destruction of the "old world" and state property plunder, which excluded intelligent management and, thus, the transition to an innovative development path [27]. On April 18, 2008 D.A. Medvedev was forced to admit that the Russian NIS does not exist as a system, its individual elements operate, but they are weakly linked to each other [28]. We believe it will be legitimate to conclude that the authorities ignored the recommendations of leading scientists, the Russian specifics of modernization, the importance of social and state and socio-cultural factors, which determined the economic situation during the post-crisis period. Back in 2010, the Center for Economic Analysis warned that with 25% increase of primary commodity production share in total exports, the economic growth per capita will be slowed down by 0.5 – 1% per year [29]. The economic development of the countries with an export-raw material model of the economy is characterized by an uneven pace, a special, sometimes crushing, dependence on external fluctuations. The events of 2014-2015 clearly confirmed these conclusions. Thus, we agree with the conclusions of those experts who believe that

even in the conditions of a favorable foreign economic situation of 2000-2008 it was not possible to strengthen the technological base of the country significantly due to the prevailing ideology of systemic market reforming. In general, describing the development of Russian industry in 2000-2008 as the period of recovery growth, which replaced the deep recession during the crisis 90-ies, D.V. Manturov rightly names the following blocking factors: weak institutional environment, low competitiveness of domestic industrial products as compared to imported ones; weak influence of investment volume growth on production efficiency and insufficiently high rates of new production capacity commissioning [30]. Strategic documents focused mainly on export increase. From year to year, the same problems were recorded. They did not contain a list of specific, much-anticipated measures to overcome the deficiencies in the field of subsoil use and the reproduction of hydrocarbons. Small and medium business needed support. Analyzing the current situation, experts agreed on one thing: it is impossible to build a long-term strategy for sustainable growth, to establish a competitive and innovative economic development model, based only on the preferential use of natural resources [31]. The main strategic miscalculation, from our point of view, was the bet on turning foreign exchange earnings into gold reserves, rather than investing in fuel and energy complex and high-tech industry modernization. We believe that the new stage of the Russian modernization began in 2014. Well-known scientists, experts, businessmen warned about the dangers of import consumption, accumulation, threats to economic security and lack of time. Meanwhile, much of the recommendations and projects proposed by leading experts were ignored by the government of the Russian Federation [32]. In 2014-2018 the discussions on the development of an optimal economic strategy have reached particular urgency and peremptory judgment. A significant part of scientists of the Russian Academy of Sciences and other experts believed that the only way to survive in the conditions of a global depression is not to save money and not to lend to strategic competitors at a really negative interest rate considering inflation. It is necessary to direct the available resources to the breakthrough trends of the emerging technological order, forcedly stimulate the development of scientific and technological potential and high-tech industry support. In the current geopolitical and economic situation, the only alternative for our country is to determine an accurate, scientifically based strategy for further development. For quantitative and qualitative growth of the economy, it seems possible to rely primarily on our internal reserves; the economy diversification is necessary: a shift from raw materials to the development of the processing high-tech industry. New challenges for Russia were discussed by the President V.V. Putin at the St. Petersburg Economic Forum 2017 [33]. He declared a whole range of tasks that require urgent solutions for the development of the digital economy, including the creation of a fundamentally new regulatory framework, the provision of state support to companies that have developments and competencies and an inter-sectoral effect; the creation of a full-fledged infrastructure with the participation of state and business, a significant increase of graduate number who are the experts in the digital economy, ensuring universal digital literacy; the attraction of large private investors, through the development of attractive, understandable conditions for them [34]. In 2018, the inaugural speech of the President, had the statement about the need for a breakthrough and overcoming "inertia, dense guarding and bureaucratic carrion" [35]. In the May Decree of 2018, breakthrough scientific-technological and socio-economic development was named among the most important goals of national importance [36]. However, the global ratings of innovation activity of recent years do not show high results, testifying to the effectiveness of invested resources, and allow to identify innovative ties, the legal system, the quality of regulation, investments, venture capital transactions, etc. among the weaknesses of the Russian innovation system [37]. According to domestic analysts, the reasons for the inhibition are the effect of sanctions and the fall of energy prices; low systematicity of innovation support policy; the exhaustion of “fast” investment potential, and large-scale projects have not been launched yet, or have a lasting effect. They also name coping mechanisms - serious attention to the infrastructure and the ecosystem that ensures the transformation of R & D results into high-tech products; the implementation of global programs (such as the National Technology Initiative) and industry programs (cluster support program - world-class investment attractiveness leaders) [38]. They offer well-known recipes in world practice: the stimulation of medium-sized businesses, the development of an innovative structure with the involvement of private capital, and legislation improvement. However, until now, large Russian

companies do not implement the potential of innovative development and demonstrate low innovative activity; their leadership does not advance the innovative agenda. Experts rightly ascertain the lack of competencies for R & D management, insufficient funds and innovation support. The support for technology projects and startups in the absence of domestic demand has only a limited effect. The main thesis at the meeting of the Council on Science and Education under the President of the Russian Federation was the thesis of the need for a technological breakthrough, but it was recognized that the existing system of orders for R & D is ineffective because the tasks are poorly formulated by the state. Thus, the scientific organizations decide what problems to deal with [39].

4. Discussion

Due to the deceleration of modernization processes in the last decade, the subject of heated debate was the issues related to the development and implementation of state science and technology policy, the choice of priorities both during the period under study and in subsequent years. So, for example, V.A. Rogova among the factors of technological development highlights the key factors: the cost of research and development and the quality of human resources. The researcher substantiates the conclusion about such major personnel problems as the shortage of young experts in engineering and natural science, the lack of their intellectual activity effectiveness; low level of innovation efficiency, which impedes the growth of the economy technological level [40]. The Academician of RAS E.N. Kablov, determining the share of technologies of the fifth order at about 10% in our country, insisting on the need to provide a breakthrough - a jump through the fifth stage to the sixth, at the same time is sure that the established forms and the methods of management, organization, R & D funding doom this task to failure. From his point of view, science should become an independent branch of the economy. The measures necessary to him are the practice of 2% of the profit allocation to the Technological Development Fund; true cooperation of academic, sectoral and university organizations, etc. [41]. A well-known and highly respected Israeli expert in the field of innovation, the Academician of the European Academy of Sciences O.L. Figovsky supports the appeal by D.O. Ragozin to reorganize the mechanism of innovation process management most fundamentally and, in particular, recreate the State Committee of the USSR Council of Ministers for Science and Technology to “make the bridge” between science and production, coordinate and prevent the leak of unique inventions abroad [42, 43].

5. Conclusions

Thus, it can be stated that Russian Federation projects and programs that were implemented in the first post-Soviet decade cannot be characterized as scientifically grounded and effective. Financial and economic policy, in our opinion, should be transformed towards the reconstruction and activation of innovative processes in the industrial complex of the country. To this end, the authorities need to be aware about the importance of shaping modernization aspirations in society, consolidating the efforts of entrepreneurship, the scientific community and the state, the analysis of practical experience, the rejection of erroneous decisions, and the consistency in the implementation of plans [44]. A clear technological policy of the state is necessary, taking into account geographical and socio-cultural features, based on the audit of the existing scientific and technological potential and, thus, on the determination of priorities; targeted support for fast-growing technology midsize businesses; development of an elite engineering education adequate to the world challenges; full support of our competitive advantage - intellectual potential and fundamental science; carrying out an active industrial and technological policy, the struggle for efficiency, own R & D and engineering; development of the venture capital market. We believe that the most important conditions for the development and conduct of an independent, large-scale and effective scientific and technical policy by state in the Russian Federation are the following ones:

• availability of a developed scientific, technical and industrial potential in the country;
• striving for modernization take-off among society as a whole;
• availability of political consensus on the issue of innovation policy and activity priority for the state;
• the ability of the state and the country economy as a whole to financial and resource support for innovation, taking into account the ratio of the costs for basic research, applied R & D and development of innovations that has been established in world practice.

References

[1] *State Archive of the Russian Federation* (SARF). F. 10265. Inv. 1. C. 53. pp. 188-189.
[2] SARF. F. 10265. Inv. 1. C. 60. pp. 184-185.
[3] Pilshchikova I.Yu. *Institutional risks and threats to the implementation of state innovation policy*: Dis. by the Cand. of politics. Rostov-on-Don, p. 17, 2010.
[4] Tsapenko I.P., Yurevich A.V. "*Decreasing" science*. // World Economy and International Relations. M., № 2. p. 17, 1995.
[5] *Archive of the Russian Academy of Sciences* (ARA. F. 2. Inv. 31. C. 387. p. 57.
[6] Details: Bodrova E.V., Gusarova M.N., Kalinov V.V. *The evolution of the state industrial policy in the USSR and the Russian Federation: monograph* / Ed. by E.V. Bodrova. M.: REGENS, 940 p, 2014.
[7] Read: D.V. Manturov. *State regulation of industry for 25 years*. Industry in 2000-2009 // The issues of state and municipal government. №4. p. 101, 2016.
[8] Read: Dezhina I. *Reforms in the Sphere of Science* / Dynamics of Innovation Activity and Innovative Development // Economy in Transition. Essays on the economic policy of post-communist Russia. Economic Growth of 2000-2007 / Ed. by E. Gaidar, A. Radygina, K. Rogov, S. Sinelnikov-Murylev, V. Starodubrovsky, L. Freinkman. Institute for the Economy in Transition. M.: Publishing House "Delo" of the Academy of National Economy, 2008. URL: http://www.iep.ru/en/publikatcii/4239/publication.html (reference date: 11.02.2019).
[9] Electronic resource URL: http://base.garant.ru/190268/ (reference date: 11.02.2019).
[10] Electronic resource URL: http://www.vneshmarket.ru/content/document_r_E1A27E9C-DB87-4C97-9E05-8F0AA78BC152.html (reference date: 11.02.2019).
[11] *Strategy for the development of science and innovations in the Russian Federation for the period up to 2015* [Electronic resource] //http://www.consultant.ru/document/cons_doc_LAW_101907/ (reference date: 03.04.20179).
[12] Details: Bodrova E.V., Gusarova M.N., Kalinov V.V. *The evolution of the state industrial policy in the USSR and the Russian Federation: monograph* / Ed. by E.V. Bodrova. M.: REGENS, 2014. 940 p.; Manturov D.V. State regulation of industry for 25 years. Industry in 2000-2009 // The issues of state and municipal government. №4, 2016.
[13] Read: Larionova E.I., Motova M.A., Chinaeva T.I. *The state and dynamics of the main indicators in research and development sphere* // The issues of statistics. №4. p. 54, 2009.
[14] *The issues and the prospects for the development of high-tech business in Russia*. [Electronic resource] // National Institute for System Studies on Entrepreneurship. Official site. URL: http://www.nisse.ru/work/press/press_182.html (reference date: 04/03/2019).
[15] Trofimova I.N. *Has Russia become more competitive than at the end of the 90-ies*? // Statistics issues. №1. p. 43, 2009.
[16] ARAS. F. 2. Inv. 31. C. 22. p. 28.
[17] Uzyakov M.N. *Prospects for the socio-economic development of Russia and the assessment of ways to reform the fuel and energy complex* // ARAS. F. Inv. 5. C. 159, 1981.
[18] ARAS. F. Inv. 5. C. 159. p. 18, 1981.
[19] ARAS. F. Inv. 5. C.159. p. 51, 1981.
[20] ARAS. F. Inv.5. C.161. p. 35, 1981.
[21] Filatov V.I. *Problems of innovative demand development in the industrial sector of Russia* // Problems of the innovation system development in Russia / Ed. in charge, Doctor of Economics E.B. Lenchuk. M., p. 75, 2010.
[22] Russia in figures of 2009. pp. 229-232, 2009.
[23] Read: On industrial production in January-June 2009, Rosstat website (www.gks.ru).
[24] rchive of the State Duma of the Federal Assembly of the Russian Federation. F. 10100. Inv. 193 p-5. C. 68. p. 91.
[25] R. Greenberg. *On two imperatives of the proposed reformation course* (to the publication of the monograph of the RAS scientists "On the Program for Russia Socio-Economic Development. 2008-2016") // Russian Economic Journal. № 11-12. p. 104, 2007.
[26] R. Greenberg. *On the new "big privatization" and other "unpopular reforms*" // Russian Economic Journal. No. 3. pp. 31-32, 2010.
[27] Glazyev S.Yu. *The strategy of advanced development of Russia in the context of the global crisis*. M., p. 205, 2010.
[28] *Stenographic report on the meeting of the State Council Presidium "On the development of the Russian Federation innovation system*." April 18, 2007 [Electronic resource]. // The Russian Federation State Council. URL: http://archive.kremlin.ru/text/appears2/2008/04/18/200916.shtml (reference date: 11/29/2018).
[29] Innovative development. Economy, intellectual resources, knowledge management / Ed. by B.Z. Milner. M., p. 46, 2010.
[30] Manturov D.V. *State regulation of industry for 25 years. Industry in 2000-2009* // The issues of state and municipal government. №4. pp. 107-108, 2016.

[31] Sukhorukova S.M., Pogorely A.M. *Biosphere approach to the theory of economic growth* // Russian technological journal. Vol. 5. № 5. pp. 86-106, 2017.

[32] Details: Bodrova E.V., Gusarova M.N., Kalinov V.V. *The evolution of the state industrial policy in the USSR* ... pp. 348-803.

[33] Speech by V.V. *Putin at the plenary session of the SPIEF-2017,* 02.06.2018 [Electronic resource] // URL: http://kbrria.ru/politika/vladimir-putin-vystupil-na-plenarnom-zasedanii-pmef-2017-18879 (reference date: 06/15/2018).

[34] Speech by V.V. Putin at the plenary session of the SPIEF-2017. 06/02/2017 [Electronic resource] // URL: http://kbrria.ru/politika/vladimir-putin-vystupil-na-plenarnom-zasedanii-pmef-2017-18879 (reference date: 03/15/2019).

[35] The Russian Federation President speech at the inauguration on May 7, 2018. // [Electronic resource] URL: http://kremlin.ru/events/president/news/57416 (reference date: 09.03.2019).

[36] Ali Akbar, Ahmadi , Abolghasem, Bagheri Sirayi , Mohammad Hossein Moghadasan. *Information technology; a facilitator for improving dynamic capabilities through knowledge management utilization*, UCT Journal of Management and Accounting Studies**,** Issue2, pp. 27-36, 2014.

[37] Decree No. 204 of the Russian Federation President (May 7, 2018) "On the national goals and strategic objectives of the Russian Federation development for the period up to 2024". // [Electronic resource] URL: http://www.garant.ru/hotlaw/federal/1195467/#ixzz5Eyjx9ysQ (reference date: 03/

[38] The Global Innovation Index 2017. http://www.wipo.int/pressroom/ru/articles/2017/article_0006.html (reference date: 01/05/2019).

[39] Russia became the "main loser of the year" in the ranking of countries with innovative economies according to Bloomberg // [Electronic resource] URL: https://www.dp.ru/a/2017/01/17/Rossija_stala_glavnim_neu

[40] The session of the Council for Science and Education [Electronic resource] URL: http://www.kremlin.ru/events/president/news/56957 (reference date: 05.01. 2019).

[41] Rogova V.A. *Personnel problems of high technology development in Russia according to the Global Innovation Index* // Russian technological journal. V.6. №4. pp. 105-140, 2018.

[42] Muhammad K. The Effects of Electronic Human Resource Management on Financial Institutes. Journal of Humanities Insights. 02(01):01-5, 2018.

[43] Kablov E.N. *The sixth technological order // Science and Life.* No.4, 2010 // [Electronic resource] URL: https: //www.nkj.ru/archive/articles/17800

[44] Figovsky O.O. Ragozin is right! *It is necessary to recreate the State Committee for Science and Technology in Russia* // [Electronic resource] URL: http: //nizi.co.il/wp-content/uploads/2016/09/article.compressed.pdf (reference date: 05.01. 2019).