



ECONOMIC ANNALS-XXI

ISSN 1728-6239 (Online)
ISSN 1728-6220 (Print)
<https://doi.org/10.21003/ea>
<http://www.soskin.info/ea/>

Volume 180 Issue (11-12) 2019

Citation information:

Bessonova, E., & Battalov, R. (2019). Innovative development of the Russian economy: formation of support mechanism based on the world's experience. *Economic Annals-XXI*, 180(11-12), 97-109. doi: <https://doi.org/10.21003/ea.V180-11>

UDC 330.342



Elena Bessonova

D.Sc. (Economics), Professor,
Faculty of Economics and Management,
Southwest State University
94, 50 Let Oktyabrya Str., Kursk, 305040, Russia
bessonowa_new@mail.ru
ORCID ID: <https://orcid.org/0000-0002-3884-5725>



Rustam Battalov

PhD Student (Economics), Senior Lecturer,
Faculty of Economics,
Sterlitamak Branch of Bashkir State University
49 Lenin Ave., Sterlitamak, Bashkortostan, 453109, Russia
r.m.battalov@strbsu.ru
ORCID ID: <https://orcid.org/0000-0002-3711-9078>

Innovative development of the Russian economy: formation of support mechanism based on the world's experience

Abstract. The authors analyze the features of innovative development in Russia and foreign countries, discuss the experience of building an innovation system, consider its areas that need more in-depth research, as well as some features of its formation and adaptation to the rapidly changing needs of scientific and technological progress in order to achieve its maximum positive impact on the socio-economic system. A special attention is paid to the conceptual approaches to support innovation for the formulation and implementation of the government innovation policy, as well as to the current state of the innovative development, assessing its bottlenecks from one side and prospects - from the other.

The analysis has shown that presently, all the main elements of the innovation system that exist in the foreign countries are represented in Russia as well, and the volume of the state funding for research and development tends to grow. The main problem is that the implemented measures of the state support for the innovative development do not entail tangible results, including structural changes in the economy. Especially if comparing with the countries-leaders in innovation who exceed Russia in many times.

The key problems in the innovative development of the Russian economy which must be addressed in the actualized government innovation policy we summarize as following: underestimating the role of science and innovation in achieving national economic security and increasing the country's competitiveness; low efficiency of the current system of government control of innovative development; lack of an integrated innovation strategy; low level of research staff potential; imbalances in levels of regional development; imbalance between the level of education and the level of labour force qualification; low innovation indicators and demand for innovation in the business environment; problems in the field of innovation legislation; insufficient financing of activities in the field of scientific research and development; low level of development of technology commercialization process.

Keywords: Innovation; Innovation System; Innovative Activities; Innovative Development; Innovation Efforts

JEL Classification: O31; O32; O38

Acknowledgements and Funding: The authors received no direct funding for this research.

Contribution: The authors contributed equally to this work.

DOI: <https://doi.org/10.21003/ea.V180-11>

Бессонова О. А.

доктор економічних наук, професор, факультет економіки та менеджменту,
Південно-Західний державний університет, Курськ, Російська Федерація

Батталов Р. М.

аспірант, старший викладач, економічний факультет,
Стерлітамакська філія Башкирського державного університету, Стерлітамак, Російська Федерація

Інноваційний розвиток економіки Росії:

формування механізму забезпечення з урахуванням світового досвіду

Анотація. У статті було проаналізовано тенденції інноваційного розвитку Росії та зарубіжних країн, вивчено досвід побудови інноваційної системи, розглянуто її області, які потребують більш поглибленого дослідження, а також деякі особливості формування інноваційної системи та пристосування до мінливих

потреб розвитку науково-технічного прогресу з метою досягнення його максимального позитивного впливу на соціально-економічну систему.

Особливу увагу приділено концептуальним підходам до підтримки інноваційної діяльності при формулюванні та реалізації інноваційної політики, а також оцінці сучасного стану інноваційного розвитку, його найбільш вузьких місць – з одного боку, і перспектив – з другого.

Аналіз показав, що нині всі основні елементи інноваційної системи, що існують у зарубіжних країнах, представлені й у Росії, а обсяг державного фінансування досліджень і розробок має тенденцію до зростання. Основна проблема полягає в тому, що реалізовані заходи державної підтримки інноваційного розвитку не дають відчутних результатів, у тому числі й структурних змін в економіці. Особливо в контексті порівняння з країнами-лідерами в сфері інновацій, які в багато разів перевершують Росію.

Основні проблеми інноваційного розвитку російської економіки, які повинні бути враховані в актуалізованій державній інноваційній політиці, можна структурувати наступним чином: недооцінка ролі науки й інновацій у досягненні національної економічної безпеки й підвищенні конкурентоспроможності країни; низька ефективність чинної системи державного контролю над інноваційним розвитком; відсутність комплексної інноваційної стратегії; низький рівень дослідницького кадрового потенціалу; дисбаланс у рівнях регіонального розвитку; дисбаланс між рівнем освіти й рівнем кваліфікації робочої сили; низькі інноваційні показники та попит на інновації в бізнес-середовищі; проблеми в області інноваційного законодавства; недостатнє фінансування діяльності в галузі наукових досліджень і розробок; низький рівень розвитку процесу комерціалізації технологій.

Ключові слова: інновації; інноваційна система; інноваційна діяльність; Інноваційний розвиток; інноваційна активність.

Бессонова Е. А.

доктор економічних наук, професор, факультет економіки і менеджмента,
Юго-Западный государственный университет, Курск, Российская Федерация

Батталов Р. М.

аспірант, старший преподаватель, экономический факультет,
Стерлитамакский филиал Башкирского государственного университета,
Стерлитамак, Российская Федерация

Инновационное развитие экономики России:

формирование механизма обеспечения с учетом мирового опыта

Аннотация. В статье были проанализированы тенденции инновационного развития России и зарубежных стран, изучен опыт построения инновационной системы, рассмотрены её области, нуждающиеся в более углублённом исследовании, а также некоторые особенности формирования инновационной системы и приспособления к быстро меняющимся потребностям развития научно-технического прогресса с целью достижения его максимального позитивного воздействия на социально-экономическую систему.

Особое внимание уделено концептуальным подходам к поддержке инновационной деятельности при формулировании и реализации инновационной политики, а также оценке современного состояния инновационного развития, его наиболее узких мест – с одной стороны, и перспектив – с другой.

Анализ показал, что в настоящее время все основные элементы инновационной системы, существующие в зарубежных странах, представлены и в России, и объём государственного финансирования исследований и разработок имеет тенденцию к росту. Основная проблема заключается в том, что реализуемые меры государственной поддержки инновационного развития не влекут за собой ощутимых результатов, в том числе структурных изменений в экономике. Особенно если сравнивать со странами-лидерами в сфере инноваций, которые во много раз превосходят Россию.

Основные проблемы инновационного развития российской экономики, которые должны быть учтены в актуализированной государственной инновационной политике, можно структурировать следующим образом: недооценка роли науки и инноваций в достижении национальной экономической безопасности и повышении конкурентоспособности страны; низкая эффективность действующей системы государственного контроля над инновационным развитием; отсутствие комплексной инновационной стратегии; низкий уровень исследовательского кадрового потенциала; дисбаланс в уровнях регионального развития; дисбаланс между уровнем образования и уровнем квалификации рабочей силы; низкие инновационные показатели и спрос на инновации в бизнес-среде; проблемы в области инновационного законодательства; недостаточное финансирование деятельности в области научных исследований и разработок; низкий уровень развития процесса комерціалізації технологій.

Ключевые слова: инновации; инновационная система; инновационная деятельность; инновационное развитие; инновационная активность.

1. Introduction

The trend of the modern global change is constant increase in the innovation flow, which generates radical transformations in all areas of human activity (Romanova, 2017). The priority goal of economic development is to enhance the country's competitiveness by building the

innovation-oriented economy (Shevchenko, Razvadovskaya, Marchenko, & Khanina, 2017). In the recent years, we have seen more and more general intellectualization of production processes in the direction of its greening and personalization, which allows the consumers to get the product that is necessary for them at a given time or the service of the appropriate quality (Romanova, 2017).

The resource-oriented strategy of economic development that has evolved in Russia hinders the formation of an innovative vector of movement. We can say that at the moment all the main elements of the innovation system that exist in the foreign countries are represented in Russia as well, and the volume of the state funding for research and development tends to grow. The main problem is that the implemented measures of the state support for the innovative development do not entail tangible results, including structural changes in the economy.

The recent globalization trends in economic development, growing integration processes, and the course towards digitalization are making topical the studies devoted to the formation of the effective tools for improving the process of economic management in the increasingly uncertain and dynamic environment.

The solution of multi-aspect, highly complex tasks, consisting in the implementation of the large-scale structural transformations, is possible only with the forward-looking (strategic) management. The methodological, instrumental and competence base of it is created as a result of effective interaction of science, education, and business (Gitelman & Kozhevnikov, 2018). It is necessary to develop modern scientific approaches to management and tools for their practical realization in order to be able to implement the innovative direction of the Russian economy development.

2. Brief Literature Review

Over the last years, a large number of scientific papers by the Russian and foreign authors have been published, addressing the issues of innovation and innovative development in various fields.

Let us consider the most important Russian studies.

N. N. Zarubina's (2015) research discusses civilizational and institutional prerequisites for the innovative development of Russia. E. Rodionova and Zh. Kuzminykh (2019) consider innovation as a tool for ensuring economic growth and sustainable development of Russia.

The studies by a number of authors consider the organizational and economic mechanism for ensuring innovative development in certain sectors of the economy (Ezaov, Marzhokhova, & Khalishkhova, 2018; Korobeynikova, Korobeynikov, & Dugina, 2018).

There are studies devoted to a specific type of innovation by E. Travkina and A. Molokanov (2019), A. Shabunova, G. Leonidova and L. Mukhametova (2019).

The study of V. S. Tsirenschikov (2016) reveals changes in the analytical basis for the formation of the innovation policy of the European Union that is adequate to the objective requirements of the scientific and technological policy.

Let us consider the main foreign works on the stated problem.

Nicolai J. Foss and Tina Saebi (2016) in «Fifteen Years of Research on Business Model Innovation: How Far Have We Come, and Where Should We Go?» present a wide review of the scientific publications on the topic of the innovative business models, conduct a critical assessment and propose research topics in this area for the future.

Innovations in various industries were investigated by Chenghao Sun (2017), M. Resler, M. Kurylo, M. Logvinenko, V. Makhinchuk and A. Ivanyshchuk (2018).

A number of foreign authors have studied various types of innovation (Kerr & Akcigit, 2018; Bartoszczuk, 2015; Zaušková, Rybanský, & Mikleniová, 2016; Wang, 2016).

Innovations in small and medium-sized enterprises were studied by E. Grimsdottir, I. Runarardsson, Jakomijn van Wijk, Charlene Zietsma, Silvia Dorado, Frank G. A. de Bakker and Ignasi Martí (2018), Marcel Bogers, Henry Chesbro and Carlos Moedas (2018), V. Bekkers and L. Tummers (2018), Ch. O'Reilly and A. J. M. Bins (2019), Th. Dotzel and V. Shankar (2019).

The processes of innovative development in the European countries are considered in detail in the works of R. Baneliene, B. Melnikas, R. Strazdas, E. Toločka (2018).

3. Purpose

The purpose of the present research is to study the trends of innovative development in foreign countries and Russia. Based on the analysis of these trends the study is aimed at further identifying

the main obstacles to building an innovation system in Russia and justifying theoretical and methodological approaches to forming a management system that provides an innovative direction for the development of the domestic economy.

4. Results

The Global Innovation Index (2019) report has summarized the main trends in the field of innovative development. It has been noted that global economic growth was losing momentum compared to the previous year. Productivity growth was at a record low. Economic uncertainty was high. Despite these negative changes, innovation, measured by research and development (R&D) indicators and the number of patents, was thriving in both developed and developing countries. Today, developed and developing economies support innovation of all types to achieve economic and social development. We realized that innovation is inherent in all sectors of the economy, not just high-tech and technology sectors. The main focus is on creating and maintaining dynamic development of innovative ecosystems.

As of 2019, Russia ranked only 46th throughout the world in the Global Innovation Index. Russia was in close proximity to Croatia, Montenegro, Ukraine, Georgia, and Turkey. Leading countries in the global innovation index were Switzerland, Sweden, the United States, the Netherlands, and the United Kingdom (The Global Innovation Index, 2019).

According to the Innovation Scoreboard 2019, as of 2019, the EU's innovation indicators had been improving for four consecutive years. For the first time in history, European innovation achievements were superior to American innovation. However, the EU continued to lose some ground as compared to Japan and South Korea, and China was quickly catching up. Based on their assessments, EU countries were divided into four performance groups: innovative leaders, strong innovators, moderate innovators, and modest innovators. Sweden was the EU's innovation leader for 2019, followed by Finland, Denmark and the Netherlands (Innovation Scoreboards, 2019).

Russia lagged far behind most developed and developing countries in terms of indicators that characterized the level of innovation system development. China was the undisputed leader in the export of high-tech products. The volume of high-tech exports in the United States exceeded the same figure in Russia by 15 times, in Germany - by 21 times, and in China - by 64 times. In terms of payments for using the results of intellectual activity, Russia's lag was also significant: it was 9 times behind the United States and 64 times behind China (Figure 1).

It should be noted that out of the 14 countries reviewed, the volume of high-tech exports increased in comparison with 2010 in 11 countries, while in 3 countries it declined (Sweden, Japan and the United States). The largest growth over the period under review was observed in South

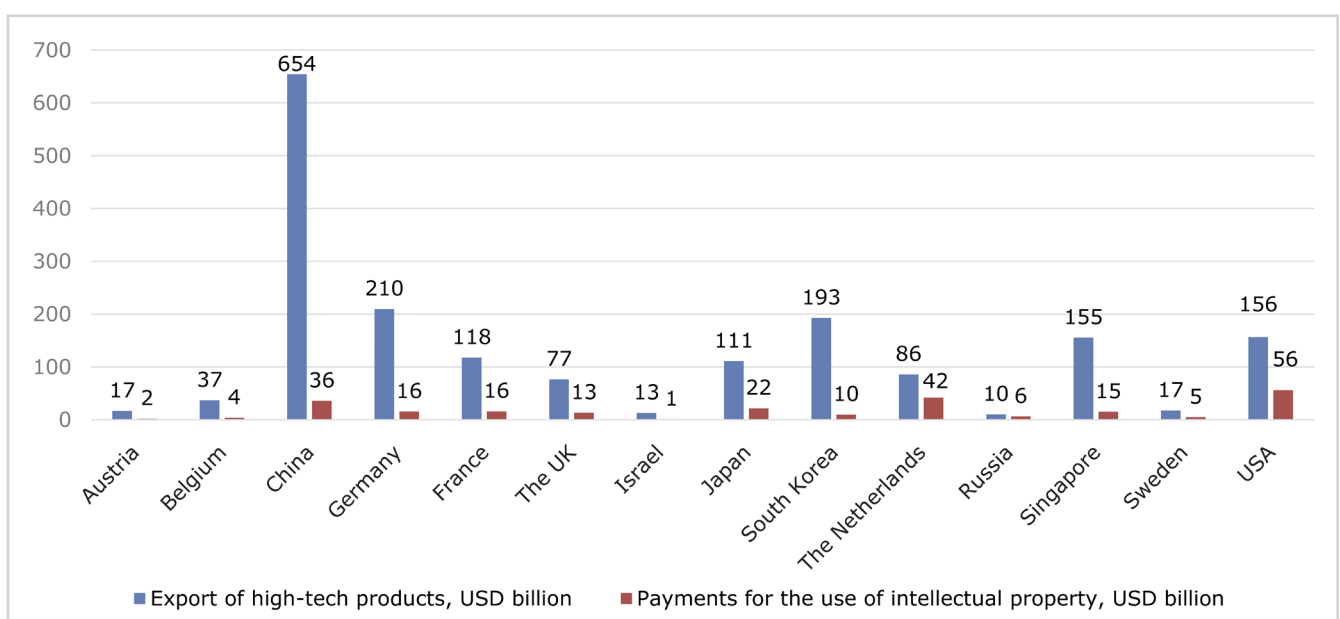


Figure 1:
International comparison of innovative development indicators for 2018
Source: Compiled by the authors based on the World Bank data (2019)

Korea - 46%, China - 38%, and Israel - 22%. In Russia, the increase was 90%, but the current figure as compared to the other countries remained extremely low.

Figure 2 shows the dynamics of R&D expenditures share in GDP. The leaders in this indicator were Israel (in 2017 - 4.58%) and Korea (in 2017 - 4.55%). The dynamics of changes over the period under review was positive for all the countries represented, with the exception of Russia which also had the lowest share of research and development expenditures in GDP: in 2010, this figure was 1.13%, in 2017 - 1.11%.

In China, there was a trend of intensive growth of scientific and technical potential: spending on research and development reached USD 553.4 billion in 2018, against USD 451.2 billion in 2016, and USD 153.7 billion in 2011 (according to the Federal State Statistics Service, 2019). In terms of the number of employees engaged in research and development, the leader was China with 3.9 million people engaged in 2016. The United States is expected to invest in R&D in 2019 about USD 581.03 billion.

The resource-oriented economic model that has formed in Russia leads to rapid depletion of natural resources and has a negative impact on the environment. Various kinds of institutional transformations, the importance of which is obvious, are not able to overcome the negative impact of factors that determine the development of economy - labour, capital, and financial resources. In our opinion, the reason lies in the low efficiency of public administration, which also proves the study by Romanova (2017).

Table 1 shows the main indicators of innovative development in Russia according to the Federal State Statistics Service (2019).

Over the period from 2010 to 2018, the ratio of research and development expenditures from budget and non-budget sources in Russia had not changed, amounting to 69% and 31%, respectively, in 2010, while in 2018 - 64% and 36%, respectively. In terms of amount, the total volume of expenditures had doubled over this period.

In countries with a high level of socio-economic development, the main source of research funding is private business. In 2016 in the United States it financed 62.3% of R&D expenditures

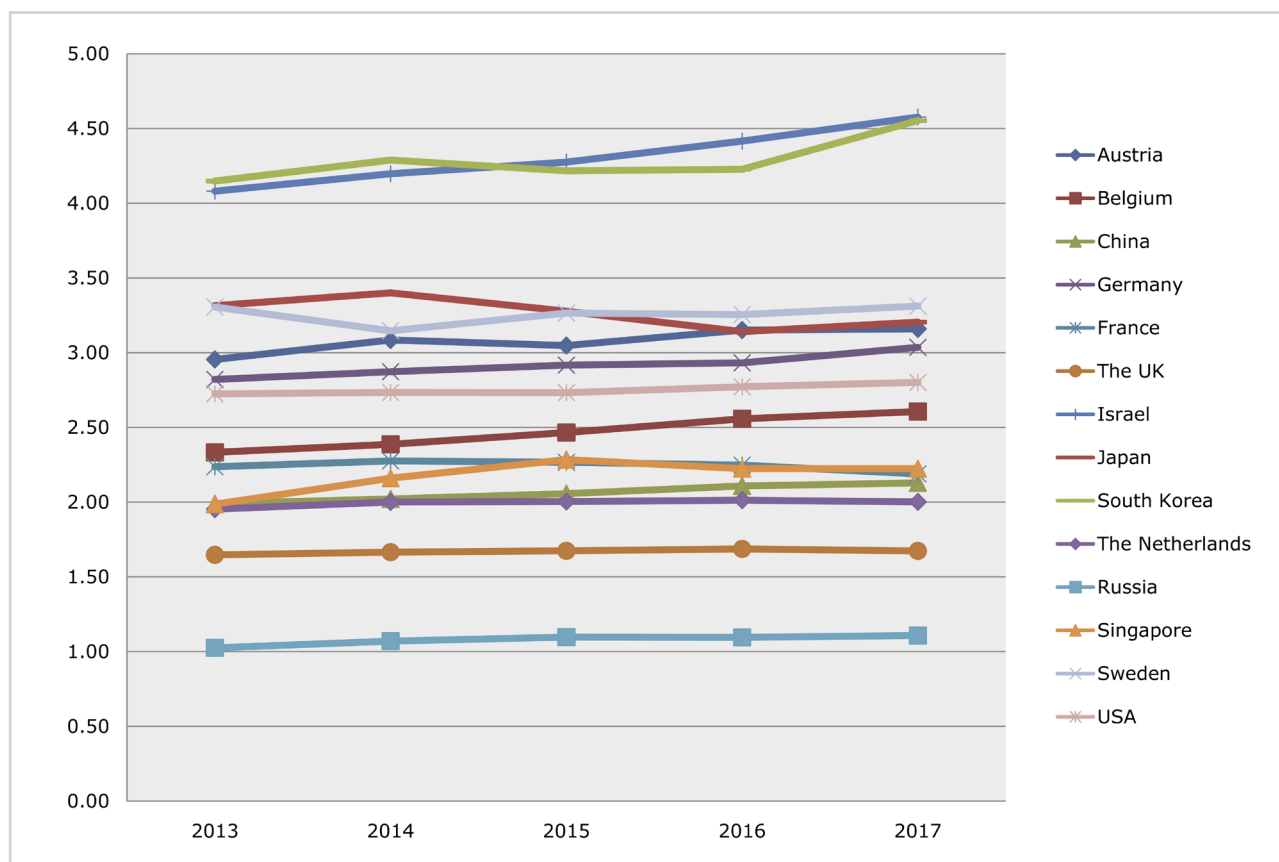


Figure 2:
International comparison by share of research and development expenditures in GDP
Source: Compiled by the authors based on the World Bank data (2019)

Table 1:
Dynamics of the main indicators of innovative development in Russia

Indicator	2010	2013	2014	2015	2016	2017	2018
Internal expenditures on research and development, mln. rubles, which includes:	523 377	749 798	847 527	914 669	943 815	1 019 152	1 028 248
<i>budgetary funds</i>	360 084	493 367	568 691	617 402	621 974	650 219	661 163
<i>extra-budgetary funds</i>	163 294	256 431	278 836	297 267	321 841	368 933	367 084
Number of organizations that performed research and development	3 492	3 605	3 604	4 175	4 032	3 944	3 950
Number of employees engaged in research and development, people	736 540	727 029	732 274	738 857	722 291	707 887	682 580
Number of researchers, people	368 915	369 015	373 905	379 411	370 379	359 793	347 854
Worth of shipped goods, kinds of work, services, mln. rubles	1 243 713	3 507 866	3 579 924	3 843 429	4 364 322	4 166 999	4 516 276
Spending on technological innovations, mln. rubles.	400 804	1 112 429	1 211 897	1 200 364	1 284 590	1 404 985	1 472 822
Innovation efforts of organizations, %	9.5	10.1	9.9	9.3	8.4	8.5	
Share of small enterprises that implemented technological innovations, %		4.8		4.5		5.2	
Number of patents submitted	42 460	44 256	39 272	42 687	39 829	36 192	37 406
Number of patents issued	33 555	34 810	36 726	32 981	31 274	31 607	32 757
Developed advanced production technologies, units	864	1 429	1 409	1 398	1 534	1 402	1 565
Advanced production technologies applied, units	203 330	193 830	204 546	218 018	232 388	240 054	254 927

Note: As of December 31, 2018, USD 1 = RUB 69.2

Source: Compiled by the authors based on the Federal State Statistics Service data (2019)

(government - 25.1%; foreign sources - 5.2%, other sources - 7.4%); in China, these figures were respectively 76.1%, 20%, 0.7%, 3.2%; in Germany - 65.6%, 27.9%, 17.1%, 6.3% (Figure 3).

In the structure of internal expenditures on research and development for the socio-economic goals in the Russian Federation in 2018, the largest share was occupied by the economic development (40%), the overall development of science (16%) and social goals (5%), the remaining part falls on other goals. At the same time, priority was given to the development of industrial production in the economy.

There was a tendency for Russia to lag behind developed countries in terms of spending on R&D from business sector organizations funds: in 2018, they amounted to RUB 112,397 million, or about USD 1,624,234.1 (the Federal State Statistics Service, 2019).

The number of organizations performed research and development in the Russian Federation had increased from 3,492 to 3,950 units between 2010 and 2018. This growth is insignificant, if we consider the dynamics for this period as the trend was ambiguous: the largest number of scientific organizations operated in 2015 (4,175 units), and then began to decline, with the largest share occupied by research organizations (1,574 units in 2018). The largest share among organizations that performed research and development in 2018 was occupied by public sector organizations (1,511 units), followed by business sector organizations (1,304 units).

The number of employees engaged in research and development in Russia for the period from 2010 to 2018 tended to decrease: from 736,540 people in 2010 to 682,580 people in 2018. The similar trend was observed concerning the number of researchers: decrease from 368,915 people in 2010 to 347,854 people in 2018.

The volume of shipped innovative goods, works, and services in 2018 amounted to RUB 4,516,276 million, which is almost 4 times more than in 2010. At the same time, the cost of technological innovations accounted for about 2% of the total volume of goods shipped, works and services performed.

The number of organizations that implemented organizational innovations (2.1% of the total number of surveyed organizations), organizations that implemented marketing innovations (1.3% of the total number of surveyed organizations), and organizations that implemented environmental innovations (1.1% of the total number of surveyed organizations) is extremely small and tends to decrease.

The level of innovation efforts of the Russian organizations is extremely low: 8.5% in 2017. For the period from 2010 to 2017, this indicator had decreased by 1%.

Many researchers see an important role in the formation of an innovative vector for the development of the enterprise economics of small and medium-sized businesses. Small innovative business can provide efficient and rapid development, implementation and commercialization of various types of innovations. The share of small enterprises in Russia that implemented technological

innovations in 2017 was only 5.2% of the total number of small enterprises surveyed, which is a very low indicator.

It should be noted that the submission of patent applications and the issuance of titles of protection tended to decrease: in 2018, 37,406 patent applications were submitted and 32,757 patents were issued, while in 2010, these figures were 42,460 and 33,555, respectively. At the same

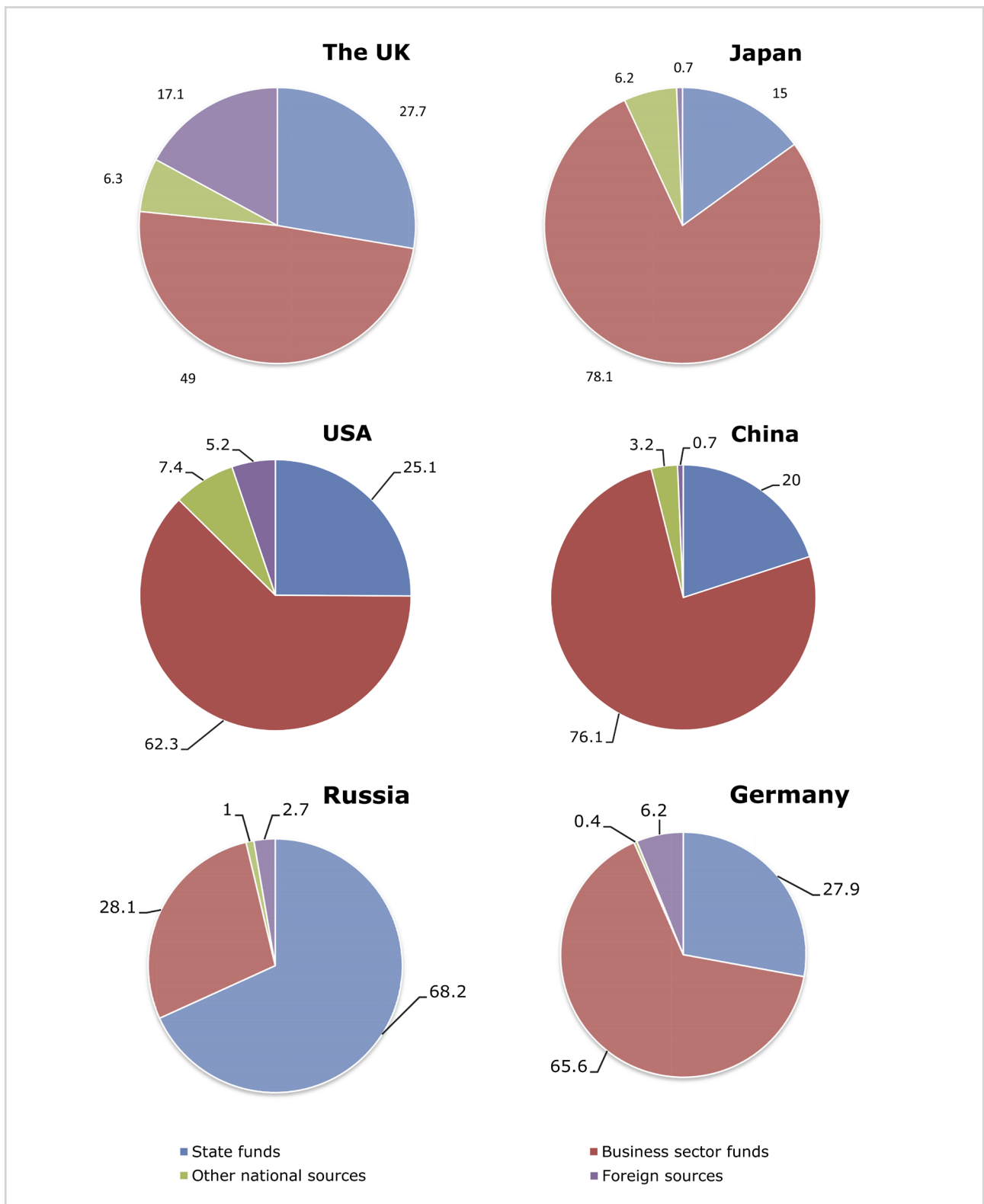


Figure 3:
International comparisons of expenses on research and development by sources in 2016
Source: Compiled by the authors based on the Federal State Statistics Service data (2019)

time, the indicators of developed and applied advanced production technologies show a steady growing trend.

It should be noted that the largest amount of expenditure on technological innovations falls on low- and medium-tech industries: mining, production of coke and petroleum products, and production of motor vehicles. The machinery and equipment manufacturing sector which is responsible for updating the material and technical base accounts for only 1.1% of the cost of technological innovation and 2.5% of innovative products output (Figure 4).

In the Russian economy, there is an imbalance between resources spent and results due to the lack of a unified strategy for building innovative capacity.

In our opinion, the activation of innovative activities in high-tech sectors of industrial production has the greatest multiplier effect for stimulating the accelerated development of other sectors of the economy.

Russia's innovation space is highly differentiated which creates a number of problems for the spread of innovative impulses (Table 2).

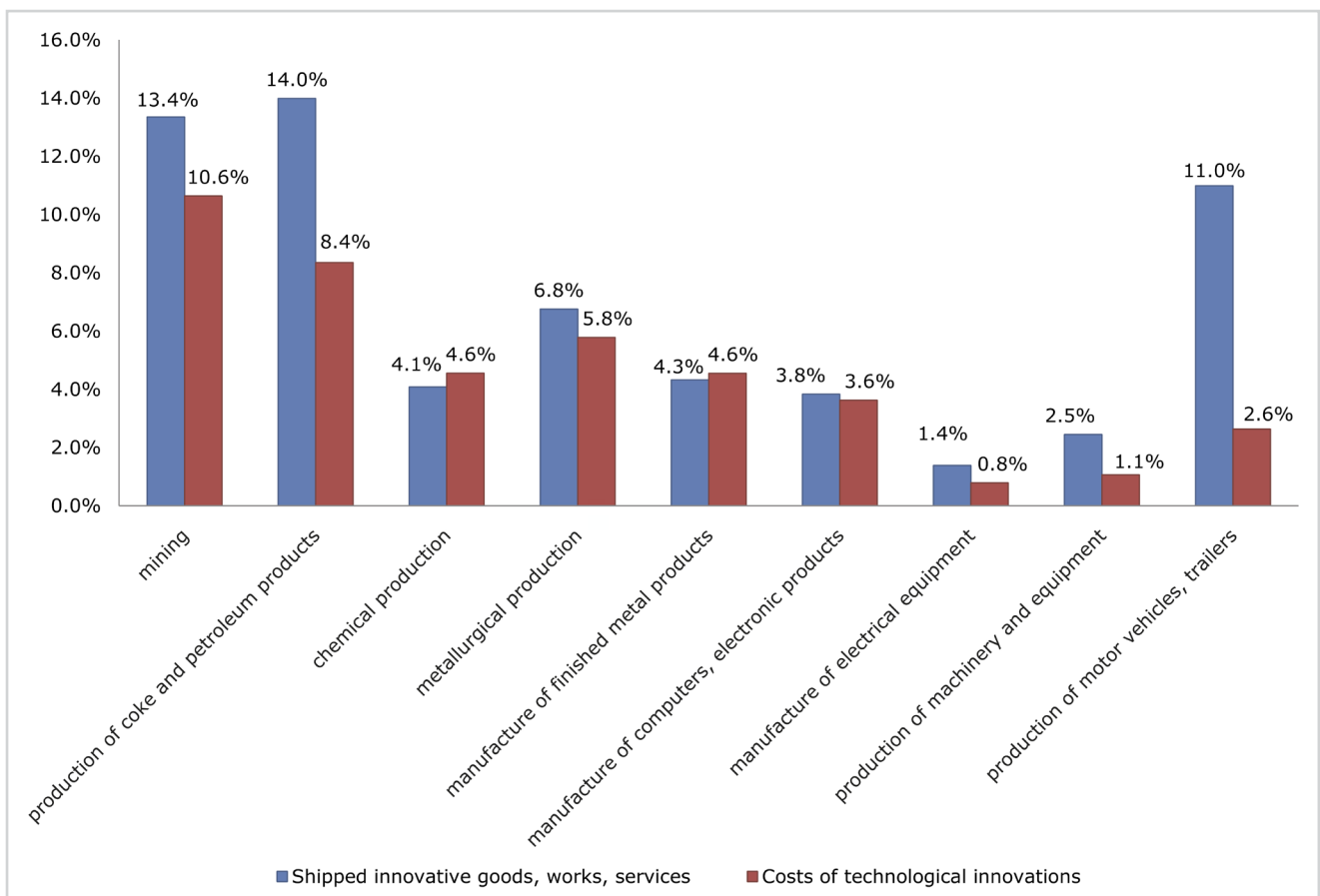


Figure 4:

Expenses on technological innovations and the volume of shipped innovative goods, works and services for some types of economic activities in their total amount in Russia, 2018

Source: Compiled by the authors based on the Federal State Statistics Service data (2019)

Table 2:
Differentiation of the Russian regions by main indicators of innovative development

Indicator	Year	Minimum	Average	Maximum
Innovation efforts of organisations, %	2017	0.2	7.7	24.7
Number of employees engaged in scientific research and development per 10 thousand employees in the economy, people	2018	0.9	49.9	286.2
Internal expenses for research and development per 10 thousand people employed in the economy, mln rubles	2018	2.5	137.1	1 226.1
Expenses for technological innovations of organizations per 10 thousand people employed in the economy, mln rubles	2018	0.4	158.5	4 600.6
Volume of innovative goods, works, and services per 10,000 people employed in the economy, mln rubles	2018	3.7	27 428.1	321 586.7

Source: Compiled by the authors based on the Federal State Statistics Service data (2019)

For all the above given indicators of innovative activities, there are significant gaps between the minimum and maximum values. It should be noted that the cost of technological innovations per 10 thousand people employed in the economy in the leading region exceeds the average value by 29 times.

Thus, we can summarize the key issues in the innovative development of the Russian domestic economy:

- underestimating the role of science and innovation in achieving national economic security and increasing the country's competitiveness;
- low efficiency of the current system of government control of innovative development;
- lack of an integrated innovation strategy;
- low level of research staff potential;
- imbalances in levels of regional development;
- imbalance between the level of education and the level of labour force qualification;
- low innovation indicators and demand for innovation in the business environment;
- problems in the field of innovation legislation;
- insufficient financing of activities in the field of scientific research and development;
- low level of development of technology commercialization process.

It is impossible not to note that the formation of an innovative way of life is significantly affected by the process of the so-called digital economy evolution, which is a set of all types of economic activities based on the use of digital technologies.

In order to create innovations under the conditions of digitalization of the economy, it is necessary to build new business models, create new managerial and organizational competencies that require significant investment of financial resources.

The model of innovative development that has evolved in Russia is characterized by the absence of a clear innovation strategy focused either on the independent formation of new technologies or on building the infrastructure for the reproduction of borrowed technologies. This leads to distortions in the functioning of the innovation system manifested in the fact that domestic enterprises are not able to perceive new technologies, their practical application. Hence, there is an objective need to develop and implement mechanisms aimed at harmonizing the balance of «resources-results» of the current innovation system. If «resources» are characterized positively and include the indicators of financial expenses on research and development and technological innovation, education, information sector, number of patents, then the indicators of «results» - the introduction of new technologies, export of high technologies - have remained persistently low over a long period of time.

In the Western countries, there is a clear understanding that well-being in the development of a country is based on its ability to create and master innovations as a fundamental factor that ensures economic growth and social progress. Innovations in the modern world are the main driving force of economic and social prosperity, as they lead to dynamic economic growth and development of the labour potential, they improve the environmental situation and contribute to saving natural resources by developing new production and consumption technologies and improve the overall quality of life of the population (Tsirenschikov, 2016).

Based on the study of the Global Innovation Index 2019, two problems were identified: weakening of government support for R&D in some countries; and increased protectionism which affects technology-intensive sectors and knowledge flows as well as creates risks for global innovation networks and exchange of innovations (Cornell University, INSEAD, & the World Intellectual Property Organization, 2019).

If the above trends are ignored, this can become an obstacle to international trade, investment, and labour mobility and lead to a slowdown in productivity growth and the spread of innovation on a global scale (Cornell University, INSEAD, & the World Intellectual Property Organization, 2019).

It should be noted that in recent years, there is an increasing need to modernize the economy as a whole, re-energize its structure and improve management tools for conducting research and project designs at the intersection of science, education and technology which create interdisciplinary tools for designing and managing the future. Consequently, there is a need for a mechanism of coordination and integration in science, education, and business (Gitelman & Kozhevnikov, 2018).

Economic growth in developed and developing countries is possible due to the introduction of new technologies created both domestically and those that were borrowed. These technologies

reduce the resource intensity of production process of goods and services, including the reduction of capital intensity and labour intensity. The process of introducing new technologies involves, along with the implementation of these technologies into production processes, improving management tools and the skills of personnel.

In our opinion, the creation of a modern high-tech manufacturing sector in the Russian economy should be supported by an adequate state innovation policy.

There is an objective need to move from a course aimed at obtaining rapid income from the sale of non-renewable natural resources to a course of sustainable socio-economic development based on the formation of own sources of progressive dynamic growth of territories thanks to innovative management principles (Golova & Sukhovey, 2017).

Building the innovation system in Russia requires changes that affect the main elements of the innovation component, which is a set of innovative companies, technical and technological, managerial, and infrastructure units that contribute to the implementation and increase of innovative processes efficiency that are the basis of modern socio-economic development (Golova & Sukhovey, 2017).

Due to the significant level of the Russian regions' differentiation by the level of innovation development, the most important aspect of innovative component formation of the regional economic development is the specificity of local innovation system and orientation to production and technology area type.

When developing an integrated approach to improving the innovation process in the Russian economy, it is important to focus on providing support throughout the entire innovation cycle, from finding resources to create an innovative product up to bringing it to the consumer. Furthermore, it is necessary to build complex system interactions between fundamental and applied research.

When initiating measures to create an innovative vector for the domestic economy development, it is necessary to take into account that innovation is not a universally applicable tool for bringing social and economic relations to a new level. Benefit from innovation is directly determined by the system of institutions and the effectiveness of their interaction within the country (Romanova, 2017).

Developing an integrated strategy for the formation of innovative activities

Creating an integrated system of priorities for the Russian economy development will allow achieving a clear alignment of the interests of business, the government and society. An integrated strategy for innovative development should include three main components: scientific and technological, industrial and institutional development of the country (Romanova, 2017).

When designing a strategy for innovative development, it is necessary to take into account the features of each region, its production and technological classification due to the high degree of differentiation in terms of innovation efforts. While implementing the process of development and introduction of innovations, not only the ability of the research sector of a territorial entity to produce progressive solutions and technologies is of crucial importance. Of no less importance is also the structure of demand for innovations in a particular region, the susceptibility of its economy to innovations, and the readiness of real sector enterprises to participate in innovative projects related to the development and absorption of innovations (Golova, Sukhovey, & Nikulina, 2017).

For the successful implementation of this strategy, it is important to create an effective monitoring system that allows checking the actions of innovative companies under the conditions of extreme instability, and, if necessary, to adjust the controlling actions directed upon innovative development at the appropriate times.

We can say that there is an urgent need to introduce new management models that contribute to the formation of the state as a platform. Moreover, the formation of platforms is relevant not only at the state level, but also at the level of building new business models within companies (Romanova, 2017).

To achieve the main goals of the innovation development strategy, it is necessary to form a new progressive concept of innovation policy aimed at high-quality dynamic innovation-oriented economic growth.

We agree with the opinion of those authors who speak about the importance of a radical restructuring of the public administration system in terms of regulating economic relations. At the same time, the role of the state is not limited only to the function of financial support for innovative

activities, but consists in active participation in the creation and organization of markets, development and application of new modern tools for the introduction and dissemination of innovations, as well as monitoring, which allows assessing the effectiveness of measures implemented by the public authorities.

We offer the following list of activities as specific recommendations for the innovation policy improving:

- 1) Increasing the volume of both public and private investments in intangible assets. The main focus should be on stimulating innovative projects aimed at making fundamental changes in the spheres of social and economic life (Tsirenschikov, 2016). At this stage, it is necessary to have a project selection plan and evaluation criteria which will allow excluding potentially inefficient projects at the initial stage.
- 2) Competent labour market policy aimed at improving the skills of personnel in order to meet the requirements of innovative transformations, on the one hand, as well as to smooth out the negative consequences of the spread of unemployment due to the labour automation.
- 3) Creating and improving conditions for accelerated dissemination of new knowledge and its assimilation by opening up national innovation systems.
- 4) Creating demand for innovative products.
- 5) Increasing the potential of research and innovation by eliminating imbalances in the innovative development of the Russian regions.

Development of new tools for analyzing innovations

It is necessary to develop a new approach to the assessment of innovation processes which allows us to identify the factors that stimulate or constrain both socio-economic development and determine innovative development.

Furthermore, it is important to take into account the changing nature of innovations, namely: a sharp reduction in their life cycle;

- increasing the complexity of their formation due to the convergence of different types of technology;
- concentration of profits from innovation in the individual companies that dominate the global market;
- commitment of innovation to the consumer that needs a solution to a specific problem rather than a product/service;
- the consumer acts as the initiator of innovation;
- reducing the level of operating costs (Tsirenschikov, 2016).

Priority should be given to finding methods of stimulating impacts and tools to accelerate the introduction of innovations and their ubiquitousness, depending on the availability of adequate framework conditions that include various aspects from well-functioning management infrastructure facilities to effective markets. Their task is to redistribute various types of resources in favour of innovative development. To get a fair picture of the conditions for the successful formation of innovations, it is necessary to consider the following provisions:

- simultaneous consideration of several types of assets that are promising in terms of innovation, which will allow us to give an adequate assessment of the directions of innovation process support;
- updating the scientific base will start the process of activating the development of global innovations;
- increasing the level of professional competence of scientific personnel;
- creating optimal conditions for dissemination and strengthening of knowledge flows necessary to support innovations, their accelerated and ubiquitous introduction;
- forming a positive attitude towards innovations among the population, its involvement in design and development (Tsirenschikov, 2016).

Improving the process of innovations' commercialization

Commercialization of innovations is a link between participants being involved in innovative activities. Due to the large number of participants in the innovation process who have different interests, it is necessary to take measures to eliminate the contradictions that arise:

- 1) regulation of enjoyment of intellectual property rights;
- 2) improvement of legislation in the field of innovation;

- 3) creating protection barriers from unfair competition;
- 4) reducing administrative expenses of the private sector in the process of innovation (Kiselevich, 2019).

5. Conclusions and Perspectives of Further Research

Innovative technologies and approaches to management decision-making are the basis for effective use of available resources, improving quality, reducing product prices and increasing competitiveness.

For successful development of Russia within the framework of the innovation paradigm, it is necessary to implement the following measures:

- an integrated strategy for innovative development;
- developing new tools of innovations analysis;
- revealing the strengths and weaknesses of innovative development, identifying promising areas;
- forecasting probable trends in the field of innovation;
- identifying industries and specific regions with the largest innovation potential, research of growth points;
- improving the process of commercialization of innovations;
- revealing the main problems in the field of innovative development and designing a plan of corrective measures.

References

1. Baneliene, R., Melnikas, B., Strazdas, R., & Toločka, E. (2018). Innovation activities and the impact of investment in R&D on economic growth: assessment and modelling. *Terra Economicus*, 16(5), 66-76. doi: <https://doi.org/10.23683/2073-6606-2018-16-4-66-76>
2. Bartoszczuk, P. (2015). Ecoinnovations in European countries. *29th International Conference on Informatics for Environmental Protection (EnvirolInfo 2015) Third International Conference on ICT for Sustainability* (pp. 19-26). doi: <https://doi.org/10.2991/ict4s-env-15.2015.3>
3. O'Reilly, Ch., & Bins, A. J. M. (2019). The Three Stages of Disruptive Innovation: Idea Generation, Incubation, and Scaling. *California Management Review*, 61(3), 49-71. doi: <https://doi.org/10.1177/0008125619841878>
4. Chenghao Sun (2017). Research on the Mechanism Innovations of Rural Finance against the Background of Supply-side Reform. *Proceedings of the 2nd International Conference on Education Technology and Economic Management (ICETEM 2017)* (pp. 142-146). Atlantis Press. doi: <https://doi.org/10.2991/icetem-17.2017.32>
5. Ezaov, A., Marzhokhova, M., & Khalishkhova, L. (2018). Information and Consulting Support of the Agro-Industrial Complex as a Tool for the Transfer of Innovations. *Proceedings of the International Scientific Conference «Far East Con» (ISCFEC 2018)* (pp. 909-911). Atlantis Press. doi: <https://doi.org/10.2991/iscfec-18.2019.208>
6. Gitelman, L. D., & Kozhevnikov, M. V. (2018). Paradigm of management education for a technological breakthrough in the economy. *Economy of region, Centre for Economic Security, Institute of Economics of Ural Branch of Russian Academy of Sciences*, 2(1), 433-449.
7. Golova, I. M., & Sukhovey, A. F. (2017). Development of Innovative Component for the Region's Economic Security. *Ekonomika regiona (Economy of Region)*, 13(4), 1251-1263. doi: <https://doi.org/10.17059/2017-4-22> (in Russ.)
8. Golova, I. M., Sukhovey, A. F., & Nikulina, N. L. (2017). Problems of Increasing the Regional Development Innovative Sustainability. *Ekonomika regiona (Economy of Region)*, 13(1), 308-318. doi: <https://doi.org/10.17059/2017-1-27> (in Russ.)
9. Edvardsson, I. R., Grimsdottir, E., & Durst, S. (2019). Knowledge creation in knowledge-intensive small and medium sized enterprises. *International Journal of Knowledge-Based Development*, 10(1), 75-94. doi: <https://doi.org/10.1504/IJKBD.2019.10019584>
10. European Commission (2019, June 17). *Innovation Scoreboards 2019: The innovation performance of the EU and its regions is increasing*. Retrieved from https://ec.europa.eu/regional_policy/en/newsroom/news/2019/06/17-06-2019-2019-innovation-scoreboards-the-innovation-performance-of-the-eu-and-its-regions-is-increasing
11. van Wijk, J., Zietsma, Ch., Dorado, S., de Bakker, F. G. A., & Martí I. (2018). Social Innovation: Integrating Micro, Meso, and Macro Level Insights From Institutional Theory. *Business & Society*, 58(5), 887-918. doi: <https://doi.org/10.1177/0007650318789104>
12. Kiselevich, I. A. (2019). Commercialization of Innovations: A New Vector of the Union State. *Sovremennaya Yevropa (Modern Europe)*, 86(1), 128-137. doi: <https://doi.org/10.15211/soveurope12019128137> (in Russ.)
13. Korobeynikova, O., Korobeynikov, D., & Dugina, T. (2018). Issues on Diffusion of Digital Payment Innovations in Agribusiness in Russia. *International scientific and practical conference «AgroSMART - Smart solutions for agriculture» (AgroSMART 2018)* (pp. 378-382). Atlantis Press. doi: <https://doi.org/10.2991/agrosmart-18.2018.71>
14. Bogers, M., Chesbro, H., & Moedas, C. (2018). Open Innovation: Research, Practices, and Policies. *California Management Review*, 60(2), 5-16. doi: <https://doi.org/10.1177/0008125617745086>
15. Foss, N. J., & Saebi, T. (2016). Fifteen Years of Research on Business Model Innovation: How Far Have We Come, and Where Should We Go? *Journal of Management*, 43(1), 200-227. doi: <https://doi.org/10.1177/0149206316675927>
16. Federal State Statistics Service (2019). *Official web-site*. Retrieved from <https://www.gks.ru>
17. Resler, M., Kurylo, M., Logvinenko, M., Makhinchuk, V., & Ivanyshchuk, A. (2018). Analysis of current trends in innovation and investment activity of ukrainian metallurgical enterprises. *Investment management and financial innovations*, 15(2), 116-128. doi: [https://doi.org/10.21511/imfi.15\(2\).2018.11](https://doi.org/10.21511/imfi.15(2).2018.11)

18. Rodionova, E., & Kuzminykh, Zh. (2019). Regional aspects of implementing innovations as a lever for economic growth and sustainable development in Russia. *Proceedings of the International Scientific-Practical Conference «Business Cooperation as a Resource of Sustainable Economic Development and Investment Attraction» (ISPCBC 2019)* (pp. 491-496). Atlantis Press. doi: <https://doi.org/10.2991/ispcbc-19.2019.37>
19. Romanova, O. A. (2017). The Innovation Paradigm of New Industrialization in the Conditions of the Integrated World Economic Way. *Ekonomika regiona (Economy of Region)*, 13(1), 276-289. doi: <https://doi.org/10.17059/2017-1-25> (in Russ.)
20. Shabunova, A., Leonidova, G., & Mukhametova, L. (2019). Social innovations like the instrument of social changes. *Proceedings of the International Scientific-Practical Conference «Business Cooperation as a Resource of Sustainable Economic Development and Investment Attraction»* (pp. 389-393). Atlantis Press. doi: <https://doi.org/10.2991/ispcbc-19.2019.63>
21. Shevchenko, I. K., Razvadovskaya, Yu. V., Marchenko, A. A., & Khanina, A. V. (2017). The harmonization of mechanisms for the strategic development of the national innovation system. *Terra Economicus*, 15(1), 103-129. doi: <http://ecsocman.hse.ru/data/2017/03/25/1251074702/Terra%2015.1-8.pdf> (in Russ.)
22. Cornell University, INSEAD, & the World Intellectual Property Organization (2019). *The Global Innovation Index 2019: Creating Healthy Lives - The Future of Medical Innovation*. Retrieved from https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2019-intro4.pdf
23. Dotzel, Th., & Shankar, V. (2019). The Relative Effects of Business-to-Business (vs. Business-to-Consumer) Service Innovations on Firm Value and Firm Risk: An Empirical Analysis. *Journal of Marketing*, 83(5), 133-152. doi: <https://doi.org/10.1177/0022242919847221>
24. Travkina, E., & Molokanov, A. (2019). Modern Types of Financial Innovations in the Conditions of Digitalization of the Global Banking System. *Proceedings of the 2nd International Conference on Economy, Management and Entrepreneurship* (pp. 12-22). Atlantis Press. doi: <https://doi.org/10.2991/icoeme-19.2019.5>
25. Tsirenshchikov, V. S. (2016). Prognostication in EU's innovation development. *Modern Europe*, 71(5), 23-33. doi: <https://doi.org/10.15211/soveurope52016107121>
26. Bekkers, V., & Tummers, L. (2018). Innovation in the public sector: Towards an open and collaborative approach. *International Review of Administrative Sciences*, 84(2), 209-213. doi: <https://doi.org/10.1177/0020852318761797>
27. Wang, D. (2016). Study on Effectiveness of Technological Innovations on the Development of SMEs. *Proceedings of the 2016 2nd International Conference on Education Technology, Management and Humanities Science* (pp. 219-222). Atlantis Press. doi: <https://doi.org/10.2991/etmhs-16.2016.49>
28. Kerr, W. R., & Akcigit, U. (2018). Growth through heterogeneous innovations. *Journal of political economy*, 126(4), 1374-1443. doi: <https://doi.org/10.1086/697901>
29. The World Bank (2019). *Indicators*. Retrieved from <https://data.worldbank.org/indicator>
30. Zarubina, N. A. (2015). The Civilizational and Institutional Contexts of Innovation-Driven Development in Russia. *Mir Rossii. Sotsiologiya. Etnologiya (World of Russia. Sociology. Ethnology)*, 24(2), 28-49. Retrieved from <https://elibrary.ru/item.asp?id=23295267>
31. Zaušková, A., Rybanský, R., & Mikleniová, R. (2016). Eco Innovations in Slovakia and Their Marketing Communication. *Proceedings of the 3rd International Conference on Applied Social Science Research* (pp. 214-217). Atlantis Press. doi: <https://doi.org/10.2991/icassr-15.2016.62>

Received 10.10.2019

Received in revised form 29.10.2019

Accepted 5.11.2019

Available online 30.12.2019