

Innovative Activity of Russian Companies As a Driver of New Industrialization

Julia Viktorovna Kuvaeva
Ural State University of Economics
Yekaterinburg, Russia
nat-vlasova@yandex.ru

Anna Ivanovna Serebrennikova
Ural State University of Economics
Yekaterinburg, Russia
e.s.kulikova@mail.ru

Viktor Mikhailovich Pishchulov
Ural State University of Economics
Yekaterinburg, Russia
nazarovad@usue.ru

Abstract – The purpose of this study is to study individual areas of innovation in the context of generating domestic innovations, as well as introducing technological, organizational, and marketing innovations by domestic companies as a driving factor for new industrialization. The article analyzes the effectiveness of scientific and technical activities in the Russian Federation, the direct embodiment of which is received patent applications for inventions, as well as issued security documents. The indicator of “inventive activity” for Russia and a number of developed countries was calculated and the situation with the introduction of innovations by companies registered in the Russian Federation with companies that are residents of other territorial entities was analyzed. Based on the postulate that the basis of new industrialization is modern technology and production, it was stated that under the conditions of sanctions, Russia has a sufficient level of inventive activity that is not practically implemented in the daily activities of domestic companies. There is a hypothesis about the possible causes of the situation.

Keywords – *modernization, new industrialization, innovations, coefficient of inventive activity, patents for inventions, innovative activity.*

I. INTRODUCTION

In terms of the industrial development model, modernization breakthroughs occurred many times and in different countries, unlike post-industrial models, in which “the economy is not designed so that its development can be accelerated due to some mobilization efforts” [8]. In a situation where transitional and developing economies, along with developed ones, operate within the framework of the industrial world order, industrial modernization contributes to catching up and overtaking the leaders. However, in conditions when some countries have already switched to the post-industrial development model, which is based on the exploitation of the intangible production factor (that is, the

sector that creates informational, intangible values), while other countries exist in the catch-up development paradigm, where in the longer term and with much more serious effort. First of all, in such conditions, modernization transformations are carried out only if and when the state focuses its attention on the problems of development.

On the one hand, one should agree with the Doctor of Economics, Professor A.A. Auzan said that “over the past fifteen years we have tried several times to build long-term strategies ... but nevertheless ... we have never asked the question where we are going” [9]. On the other hand, floating in an unknown direction, we still have a certain backlog, largely a legacy of Soviet times, which, despite everything, is still capable of generating innovations, innovations, innovations, but for some reason this act does not contribute to obtaining any tangible results, the use whereof is possible within the new industrialization.

All this happens against the background of the fact that the state is trying to “grope the appropriate fairway”, and, in particular, in the “Strategy of the Scientific and Technological Development of the Russian Federation”, approved by Presidential Decree of 01.12.2016 N 642, defines one of the fundamental principles of state policy in the field of scientific and technological development of the Russian Federation, which is the development of high-quality technologies, the creation of innovative, breakthrough products and services, the formation of new sales markets, as well as stable position on them. At the same time, in spite of all the efforts undertaken at the legislative level in terms of defining and describing the main directions of a breakthrough, in industry, with the exception, perhaps, of construction, communications and a number of sub-sectors of metallurgy, no significant progress has occurred until now, and more. Moreover, grandiose breakthroughs are not on the agenda.

II. LITERATURE REVIEW

The analysis of the reasons for the current paradoxical situation is particularly relevant today, while Russia, according to A. Kudrin, may be in a situation of “always lagging behind” [1]. In connection with the above, it is important to state that at present there is no uniform approach in the literature to the extent to which the innovative activity of Russian companies affects the processes associated with the new industrialization, the need for which has been spoken of so much lately. At the same time, it should be noted that particular attention to the analysis of the effectiveness of scientific and technical activities in the Russian Federation was paid in particular to A.M. Melnichenko, who, on the one hand, states a certain lag in this direction, on the other hand, notes the significant potential for innovative development of the national economy, expressed by the characteristics of high patent activity and the level of technological development of domestic industrial production [2].

III. RESEARCH METHODOLOGY

In the early stages of development of any industrial economy, the potential of the territory had priority: the availability of natural resources, the area of the state, the number, age and qualifications of the population, access to the sea water areas, etc. China in this sense is a rather illustrative example of a situation in which having a large labor force as a single resource, and it is possible to achieve amazing results. In the 21st century, the described advantages certainly matter, but not so decisive, because the list of resources required for modernization today is somewhat different, and among these are “management literacy, clarity in setting tasks, effective management by the political class and people responsible for the development of the national economy, a clear positioning of the country in the world economy system and an understanding of the goal to which they are striving” [9, p. 92]. All these elements are extremely important for carrying out modernization through industrialization, and during the first decade of the 21st century, it seemed that with their presence there were simply no other limiters. In an environment where access to the resource base is virtually unlimited, the commodity market is competitive, the technology market is open, and moreover, in recent decades technology is the only thing that is constantly becoming cheaper on a global scale, new industrialization seemed to be quite a solvable task. However, today it is becoming increasingly acute that at the state level, as a decision-making center, there are no “management literacy, clarity in setting tasks, etc.”, repeatedly aggravated by sanctions, as a result of which domestic companies turned out to be or will be “Cut off” from technology. The low proportion of foreign direct investment, which carries not only financial resources, but also intellectual property, technology, equipment, management and information systems, does not add optimism [10, p. 174]. All this has made serious adjustments to the process of possible modernization through new industrialization, which at first seemed not so difficult.

The effectiveness of scientific and technical activities in the Russian Federation is considered as the basic process of formation of the modern economic structure (“new economy”)

and as a key function of the innovation environment, leading to the creation of supply in the field of information support for the production of innovative products in the real sector of the national economy [2]. In this regard, in the context of the dominant role of technology, in the case of new industrialization, it is necessary to understand whether Russia has domestic resources that can generate innovations, what is the innovative activity of Russian companies, as well as their readiness to introduce domestic developments.

IV. PRACTICAL SIGNIFICANCE, SUGGESTIONS AND RESULTS OF INTRODUCTIONS, RESULTS OF EXPERIMENTAL RESEARCHES

According to the Research and Development Institute – the Republican Research Scientific Consultation Examination Center, from 2000 to 2016 the number of patent applications for inventions in the Russian Federation grew by 45% and amounted to 41,587 applications against 28,688 in 2000. With the number of applications filed by Russian applicants was increased by 14.6%. The number of patents granted for inventions in the period under review increased by 1.9 times and amounted to 33536 patents against 17592 in 2000. The total number of patents for inventions in force in the Russian Federation, from 2000 to 2016 was increased by 60% and amounted to 230870 units against 144325 units in 2000 [3].

Table 1 presents data on changes in the number of received patent applications and issued security documents in the Russian Federation in the period from 2012 to 2017.

TABLE I. RECEIPT OF PATENT APPLICATIONS AND ISSUANCE OF SECURITY DOCUMENTS IN THE RUSSIAN FEDERATION (UNITS)

Name of the indicator	2012	2013	2014	2015	2016	2017
Filed applications for patents for inventions:						
Total	44 211	44 914	40 308	45 517	41 587	36 454
for Russian applicants	28 701	28 765	24 072	29 269	26 795	22 777
Issued patents for inventions:						
Total	32 880	31 638	33 950	34 706	33 536	34 254
for Russian applicants	22 481	21 378	23 065	22 560	21 020	2137

It should be noted that in the period under review, the dynamics of the receipt of patent applications and issuance of security documents was unstable, while there was an increase in issued patents for inventions in 2017 compared to 2012. Despite the fact that by the end of 2017, for a number of indicators we are seeing a clear decline, the number of applications for registration of intellectual property, as well as the number of patents granted, do not in themselves play a special role in the context of describing the effectiveness of scientific and technical activities in the Russian Federation

and its impact on changes in the economy. In this regard, it seems interesting, on the one hand, the calculation of the relative indicator – “the coefficient of inventive activity”; on the other, the comparison of the calculated coefficient with the similar one in a number of countries.

Unfortunately, within this study, the author was able to find in open sources comparable information as of the end of 2013, at the same time, according to experts, the current situation is not much different from the situation five years ago.

TABLE II. COEFFICIENT OF INVENTIVE ACTIVITY IN RUSSIA AND WORLD COUNTRIES

Name of the state	Indicator value, %
Israel	7,29
Germany	7,62
Canada	9,37
Italy	1,52
Sweden	2,45
Austria	2,84
France	2,56
Australia	1,04
New Zealand	15,25
Japan	25,92
Russia	2,49

At first glance it may seem that in comparison with New Zealand and Japan, in terms of inventive activity, Russia is lagging behind forever and hopelessly. At the same time, the indicator calculated for Russia is at the level of Sweden, Austria and France, surpassing the corresponding data for Australia and Italy.

The coefficient of inventive activity itself is important, but at the same time, an indirect indicator that does not reflect the level of introduction of innovations generated by society into the production process, and this is what should be the subject of special attention when studying the possibilities of using domestic developments by Russian companies. In addition, in this regard, it is of interest to analyze the innovative activity of economic entities operating in the territory of the Russian Federation.

On the one hand, there are no dramatic changes in the dynamics towards a decrease in the innovative activity of economic entities. However, if we compare these data with the indicators in the countries listed in Table 2, the picture becomes depressing. Comparing the level of innovation activity of enterprises in Russia with the level of activity of enterprises in other countries in 2013, according to the report of Rosstat “On the state of innovation activity in the Russian Federation” gives the following picture: Israel – 75.2%, Germany – 66.9%, Canada – 63.5%, Italy – 56.1%, Sweden – 55.9%, Austria – 54.4%, France – 53.4%, Japan – 48.5%, New Zealand – 45.1%, Australia – 42.2 % [four]. It should be noted that the report of Rosstat marked 40 countries and completes the rating of Chile, with an indicator of 19.2%. It is important to note that the data of Rosstat do not fix the belonging of

innovations introduced by domestic companies to their territorial origin (Russia or other countries), and if we set ourselves to analyze the proportion of organizations implementing domestic innovations, the data will be even more shocking.

TABLE III. MAIN INDICATORS OF INNOVATIVE ACTIVITY OF ORGANIZATIONS IN THE RUSSIAN FEDERATION FOR THE PERIOD FROM 2011 TO 2017 IN %

	2011	2012	2013	2014	2015	2016	2017
Innovative activity of organizations (the proportion of organizations engaged in technological, organizational, marketing innovations in the reporting year)	10,4	10,3	10,1	9,9	9,3	8,4	8,5
Proportion of organizations engaged in technological innovation in the reporting year	8,9	9,1	8,9	8,8	8,3	7,3	7,5
Proportion of organizations engaged in organizational innovation in the reporting year	3,3	3,0	2,9	2,8	2,7	2,4	2,3
Proportion of organizations that carried out marketing innovations in the reporting year	2,3	1,9	1,9	1,7	1,8	1,4	1,4

Not the worst indicator of the coefficient of inventive activity for the Russian Federation among the countries surveyed is certainly a product of human capital, the level of which in Russia is quite high. However, the assumption that the significant potential of Russia's human capital “condemns” the country to the success of innovative development is not realized by itself, in any case, this did not happen a quarter of a century after the collapse of the USSR. [5]

V. CONCLUSIONS AND DISCUSSION OF THE RESULTS

At the beginning of the article, we did not accidentally emphasize that in modern conditions, when the

economy of some countries actually operates within the framework of the post-industrial model, and other countries, including Russia, are swimming in the wake of catch-up development, planning to make a modernization breakthrough by means of new industrialization, all how many productive transformations are possible only if the government focuses its attention on problems and development prospects. Such attention is possible only in the situation of the presence of real political will to change. In Russia, there is not such a will. There are several reasons for this, but within the framework of this study I would like to provide a description of the reasons for the current situation, using the non-trivial point of view of L. Balcerowicz and A. Zhonets regarding the motives for which people who make government decisions refuse to implement the most important actions from an economic point of view. or, at least, they do not take for this purpose how many active measures.

The fact is that the results, both at the level of the entire economy, and in terms of encouraging individual enterprises to introduce domestic innovations, in the end, always depend on the individual decisions of specific people. These decisions can be viewed as the result of the interaction of individual preferences and the situation of choice [6]. Individual preferences are determined by motivational predispositions, among which external motivators of a monetary nature (income or wealth as a source of consumption), external social motivators (reputation, position in society, etc.), as well as internal motivators of pleasure are usually distinguished. The motivational predispositions of an individual translate the situation of choice to the level of a set of permissible decisions. The set of permissible decisions has two dimensions: the first one defines the actions that this person considers to be permissible, and the second one ascribes certain actions to certain actions, which makes it possible to streamline them in accordance with the preferences of this person [7, p. 73-74]. In the opinion of L. Balcerowicz and A. Zhonets, a person will not introduce innovations if such innovations have a low expected utility in the situation of choice and with his (person) motivational predispositions compared to alternative options (for example, embezzlement, rent chase, etc. .) [7, p. 74]. Stimulating the introduction of domestic innovations (in the presence of which we were convinced) by domestic companies is a complex and time-consuming project that has a long-term return. It is for this reason that it is possible to assume that, guided by motivational considerations of a monetary nature (since other motivators do not usually participate in the state decision-making process), people who make the most important decisions for the domestic economy do not seek to choose a long-term and costly process of encouraging companies to introduce innovations the reason that such a process in the short term has a low expected utility compared to other possibilities, such as the same full income. Focusing on the need for a new industrial paradigm for the domestic economy, one of the key criteria for a sensible innovation policy on the part of the state is to choose a competent reorientation of rental income received from “raw leviathans”, including in

favor of supporting the development of domestic innovations, as well as introduction by Russian companies. At the same time, in the conditions when the modern Russian elite is the largest beneficiary of a rollback to the raw model of the economy, and its economic interests are crucially in the exploitation of natural resources and are partly determined by the sphere of financial speculation [9, p. 92], stimulating processes the development and implementation of innovation is quite a difficult objective.

References

- [1] «Mozhem otstat' navsegda»: Kudrin o problemah v rossijskoj ehkonomike, iz-za kotoryh ot nas budut «otvorachivat'sya dazhe sosedi» [Electronic source]. Retrieved from https://tvrain.ru/lite/teleshov/lectures_on_the_rain/mozhem_otstat_navsegda_kudrin_o_problemah-445789/ (data obrashcheniya 23.09.2018).
- [2] Melnichenko A.M. (2018) Analiz sostoyaniya i tendencij rezul'tativnosti funkcionirovaniya innovacionnoj sredy Rossijskoj Federacii v oblasti nauchno-tekhnichejskoj deyatel'nosti, *Nauchnyj zhurnal NIU ITMO*, No.1, pp.41-48.
- [3] Rezul'tativnost' nauchnyh issledovaniy i razrabotok. Informacionno – statisticheskij material: Federal'noe gosudarstvennoe byudzhethoe nauchnoe uchrezhdenie «Nauchno – issledovatel'skij institut – respublikanskij issledovatel'skij nauchno – konsul'tacionnyj centr ehkspertizy [Electronic source]. Retrieved from http://www.csr.ru/archive/stat_2017_efficiency/efficiency_2017.pdf.
- [4] Otchet Rosstata o sostoyanii innovacionnoj aktivnosti v RF [Electronic source]. Retrieved from <http://edrj.ru/article/22-03-16#sdfootnote7sym> (data obrashcheniya 14.10.2018).
- [5] Dutkevich Petr, Sakva Richard, Kulikov Vladimir (2015) *Chevert' veka posle SSSR. Lyudi, obshchestvo, reformy*, MGU.
- [6] Balcerowicz L. (1995) *Socialism, Capitalism, Transformation*, Central European University Press, Budapest, p. 4-15.
- [7] Balcerovich L. (2012) *Zagadki ehkonomicheskogo rosta*, Moskva: Mysl', p. 512.
- [8] Inozemcev V.L. (2010) Modernizaciya Rossii v kontekste globalizacii, *Mirovaya ehkonomika i mezhdunarodnye otnosheniya*, No, 2, pp. 90-103.
- [9] Auzan A.A. (2015) Strategiya dolgosrochnogo razvitiya Rossii: novizna podhoda, *Trudy vol'nogo ehkonomicheskogo obshchestva Rossii*, Vol. 196, pp. 229-237
- [10] Mirkin Ya.M. (2011) *Finansovoe budushchee Rossii*, Moskva:GELEOS Publishing Hous; Kehpital Trejd Kompani, p.480.