The Impact of Supply Chain Management for The Innovation Activity Development in Russia: Relevant Issues

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***Abstract*- Innovation activity plays a crucial role in the supply chain and socio-economic development of society, both globally and at the level of individual economic entities. Competent and, as a result, effective management of innovation activities contributes to the satisfaction of the material and intellectual needs of society, provides vital functions of society with fundamentally new benefits and leads to a positive economic effect for the economic entities at the micro, meso, and macro levels. An exploratory case study approach to answer the research questions has been conducted in order to develop a model for innovation management within a supply chain of large manufacturing firm. To study the features of the formation of the innovation activity practice and the current state of innovation activity in the Russia; to identify the causes of technological backwardness of Russia and assess the potential for the development of innovation activity to strengthen the position of the state at the global level.**

Keywords- *innovation, innovation activity, supply chain management, innovation environment, innovation development, innovation performance.*

1. Introduction

Consequently, there is a need for the supply Chain Management department (SCM) to develop their own model for managing innovation within the supply chain. According to the literature, as stated above, product innovation should not be done alone within the product development department, simultaneously as the supply chain is managed without structurally managing innovation. To synchronize and manage innovation on both areas will eventually prevent themoflosing competitive advantages. Therefore, innovation management could be fortunate for the supply chain department. It has also shown that there is a knowledge gap regarding how innovation processes could be driven within the Supply Chain of a large manufacturing firm. The developed countries have been gradually accumulating the knowledge required to switch to the NBIC convergence (the convergence of nano-, bio-, information, and cognitive technologies), but Russia is nowhere near such a transition. Currently, only 10% of technologies can be attributed to the fifth technological paradigm. Moreover, the technologies of the fifth paradigm include only the most strategically important sectors from a geopolitical point of view: the aerospace industry and the military-industrial complex [1]. About a half of the national technology relates to the fourth technological paradigm, based on the synthesis of hydrocarbons and related industries. The remaining significant part of the industries belongs to the third technological paradigm [2].

According to the Global Innovation Index for 2018, developed by the World Intellectual Property Organization, Russia ranks 46th in the ranking of the countries with the highest level of innovation development, yielding not only to the countries with the developed market economies but also to the countries of the former communist block such as Estonia (24th place in the rating), the Czech Republic (27), Hungary (33), Latvia (34), Bulgaria (37), Poland (39), Lithuania (40), and Ukraine (43) [3].

The theoretical and methodological basis of the study includes the fundamental work of domestic specialists in the field of the theory of innovations, their relationship with the dynamic development of the economy, regulations governing the principles of scientific, technical and innovation activity, such as Kondratiev, Glazyev, Kuzyk, Lapin, Yakovets and foreign authors such as McConnell, Brue,. Flynn, Perez, Freeman, Schumpeter, as well as statistical data characterizing the level of innovation activity in Russia.

2. Methods

System analysis is the main research instrument used in the work. Synthesis and analysis of the works of Russian and foreign scientists have been applied to study theoretical and practical material, empirical research methods, principles of formal logic.

3. Results

Interestingly, today's supply Chain Managers has shifted focus from seeing supply Chain Management (SCM) as activities for sourcing, procurement, operations and logistics activities management, to a definition based on demand fulfilment and creation First of all, the reasons for Russia's technological underdevelopment are the deep social upheavals that served as the basis for monumental socio-economic crises. Only during the 20th century, four events of this kind took place:

1. The First World War and the subsequent socialist revolution and the civil war resulted in the destruction of economic resources; at the same time, the abrupt change in the social system that had been taken shape over the centuries led to the loss of ties with Russia's important strategic economic partners;
2. Being the main victim during the Second World War, the USSR, in the territory of which the main warfare was conducted, lost a huge part of its population and also the better half of the material and technical base of many industries that used to occupy the leading positions in the world, therefore the country was thrown 20 years back in its development;
3. The Cold War regime established after the Second World War and the Iron Curtain weakened the socio-economic and scientific ties with the world community; at the same time, the initiation of the arms race caused the military-industrial complex and aerospace industry to become the most technologically advanced sectors of the USSR, consuming more than a half of all the country's resources, while the development of other industries practically stopped;
4. The collapse of the USSR in the last decade of the 20th century became the basis of a socio-economic catastrophe: large industrial and technological centers were divided between countries, the interconnection of which was broken, and the country's difficult socio-economic situation led to a “brain drain” into large foreign research centers; due to the difficult economic situation in the country, there was a shortage of certain groups of goods, and social tension grew, resulting in a series of local ethnic conflicts.

Despite the fact that over time Russia began to recover from these shocks, their consequences impede the country's scientific and technological development, which prevents Russia from ranking with the developed countries. Moreover, due to these events, Russia, in terms of technological development, today lags significantly behind not only the G7 countries but also developing countries and even the countries with the economies in transition.

Another important reason for the low level of technological development of the country is the transition of the state from a planned economy to a market economy, which is not fully completed. This applies to a greater extent to public thinking, which has not yet managed to switch over to a new economic order over 30 years. Lack of experience and informational and methodological basis required for competent innovation activity in the market system leads to the fact that commercial organizations, in pursuit of maximizing profits, borrow foreign innovations, thus limiting their own development within the country, losing the opportunity to compete with foreign organizations and weakening the country's economic sustainability.

The state is desperately trying to embark upon the path of innovation development, encouraging organizations to invest in new technologies. Today, quite a lot of attention is paid to innovation at both the micro and macro levels. At the micro level, innovation makes it possible to withstand competition in the markets. The state is often ready to provide financial support or to alleviate the financial burden, as enterprises actively introducing innovations become competitive at the global level. However, the private sector is in no hurry to invest in the innovation development, and state corporations such as Rosatom, Rostec, Roscosmos are engaged in the development and implementation of innovations to a greater extent. This is also stated in the Draft Strategy for the Innovation Development of the Russian Federation for the Period until 2020, compiled by the Government of the Russian Federation in 2011 and amended a little later, in 2014. According to the Strategy, the first milestone to the innovation development of the Russian Federation is to increase artificially the innovation performance for the account of companies with state participation and state corporations [4-6].

In Russia, a number of innovation centers and technology parks have been created in cities and territories, leading in various industry indicators, where the work on the creation of innovation technologies is concentrated. There are certain legislatively stipulated tax exemptions for such centers [7-9]. However, it is worth paying attention to other enterprises engaged in innovation activities. From a practical point of view, the selection of innovation enterprises can be quite difficult; however, competent support of the enterprises engaged in scientific research in the long term can have a long-term positive effect in the form of an increase in the competitiveness of Russian goods in the world market and, as a result, the improvement of the national economy.

Since the degree of innovation development significantly determines the level of socio-economic development of the country, special organizations are involved in its research. In general, today various performance indicators are quite widely used to evaluate various areas of life. In the field of innovation, such an indicator is the Global Innovation Index (hereinafter - GII), developed by the World Intellectual Property Organization (hereinafter - WIPO). The calculated index is a rating estimate of the innovation activity of the economies of 127 countries. To measure the rating, 81 indicators covering the most complete innovations, including the political situation in the country, the level of education, infrastructure and the complexity of doing business, are calculated. According to this rating, Russia ranks 46th as of 2018,

and the statistical compilation devoted to the study of the Global Innovation Index also defines the reasons for this position of the country [4].

This rating system (GII) takes into account the strengths and weaknesses of certain conditions that significantly affect the innovation activity in the country. The statistical collection also describes in detail the positive and negative factors that mostly prevail in the innovation environment of Russia [8-12].

The current political situation in the country and the underdeveloped legal and regulatory framework in the field of development and protection of innovations, insufficient investment in the innovation sphere and insufficient quantity and quality of innovation ties in business and, subsequently, the underutilization of venture capital obviously affect Russia's innovation potential. However, there are positive aspects that can become an impetus to the innovation development of the country. So among the strengths of Russia, the GII indicates a high level of education, the level of higher education in the field of natural sciences and engineering specialties is especially highly valued; a good level of development of the domestic innovation market is also observed. Thus, it can be noted that a great potential has been accumulated in the country related to the creation and accumulation of new knowledge, but their implementation leaves much to be desired: not in every instance, new knowledge is embodied in innovation due to the indicated barriers.

At the same time, the GII reveals the obvious problems of innovation development in the country. If the innovation potential of Russia is at a high level, then the weaknesses in the field of innovation entrepreneurship are clearly visible, especially in terms of investing in innovation activities.

The problem of insufficient innovation activity in Russia is associated with insufficient experience in conducting business in a market economy and a high level of competition, poor development of the strategic planning system for innovation activity. Many economic entities care about obtaining the maximum possible financial effect, often not paying attention to the long-term development perspective. Such a view on business development leads to a decrease in the position of not only the organizations themselves in world markets, as they are not able to compete with international companies whose strategy is based on a balance between maximizing profit at the moment and the prospect of developing the enterprise in the future, but the whole Russian economics.

Therefore, the state at the expense of state corporations engaged in a large volume of development and implementation of innovations, the Skolkovo modern innovation center created in Moscow, which has active state support, including the assigned status of a special economic zone of a technology-innovation type, is trying to incite the innovation activity in the country. The Draft Strategy for the Innovation Development of the Russian Federation for the Period until 2020, compiled by the Government of the Russian Federation in 2011, and amended a little later, in 2014, states that the buildup of the innovation activity artificially through companies with state participation and state corporations is the first milestone to the innovation development of Russia. However, despite the measures taken to support innovation, the private sector is in no hurry to invest in innovation development.

Contrary to the state program, according to a study performed by the Federal State Statistics Service, the level of innovation activity of organizations has even decreased over time. In 2010, the proportion of organizations that implemented innovations was 9.5%, while in 2017 this value dropped to 8.5%, which can be seen in Figure 1.2. Moreover, the dynamics of this indicator does not have a pronounced trend, although it is more prone to decrease, due to a decrease in the innovation activity of enterprises that have actively introduced innovations and an increase in the number of newly created organizations that are not inclined to introduce innovations.

At the same time, a study of the share of innovation goods, works, and services in the total number of goods shipped, works performed, and services rendered showed that the specific gravity of innovations actively increased from 2010 to 2013, after which the value decreased, reaching a level of 7.2% in 2017, which is also shown in Figure 1.

When comparing data on the specific gravity of organizations implementing innovations in the total number of organizations and the specific gravity of innovation goods, works, and services in the total volume of goods shipped, work performed, and services rendered, it can be noted that the difference between these indicators decreased until 2016. Moreover, in 2016, the proportion of innovation goods, works, and services exceeded the proportion of organizations engaged in innovation. This may indicate that organizations that have implemented innovations do not abandon a development strategy through the introduction of innovations, but, on the contrary, significantly increase their innovation activity. New organizations refuse further development through the introduction of innovations. In 2017, the innovation performance of organizations decreased, but it is premature to talk about a trend towards a decrease in the activity of the organizations implementing innovations.

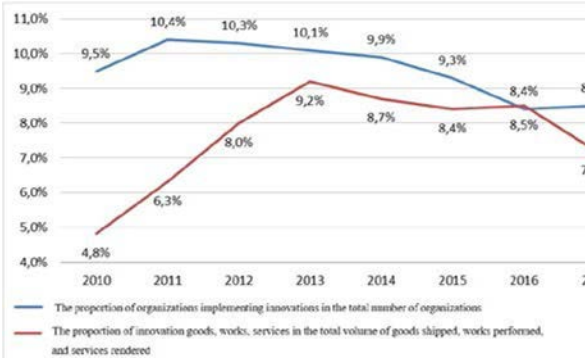

Figure 1 - Innovation performance of the organizations in the RF (Dutta, 2018).

Obviously, such reluctance of organizations to be engaged in the innovation activity is associated with a high risk of significant financial losses. One of the main factors of low innovation activity is the transition to a market economy. Due to the fact that only at the end of the 20th century the country switched to a market economy, while in the administrative-planning system all the innovations were planned and financed by the state, the tradition of innovation development at the expense of private capital has not yet been developed. This led to stagnation in the development of tools for predicting innovation in the enterprise. Due to the lack of a competent base for the economic analysis of innovation, the enterprises are not able to predict properly the results of innovation and are not ready to make investments in the high-risk sphere.

Moreover, due to the inability to use methodological recommendations in the field of innovation management and innovation at the executive level, the leaders of many companies ignore the possibilities of innovation development as a tool for the strategic development of the organization [13-17].

. In addition, in Russian practice, a peculiarity is observed - the innovation activity is often equated with the investment activity, despite its pronounced features. The innovation activity implies the use of unique resources, and in addition to "financial feasibility, fundamental novelty, patent and licensed cleanliness, priority in innovation, and the competitiveness of innovations introduced are taken into account" (Drucker, 2007). However, the developed "Guidelines for Assessing the Effectiveness of Investment Projects" do not consider these features and the distinguishing feature of the innovation projects is only the presence of a high level of risk (20%).

"The Main Directions of the Russian Federation Policy in the Field of the Development of the Innovation System until 2020" were approved by the Government of the Russian Federation only in 2005 and it was decided to focus on the innovation development of the country. Measures to support small enterprises implementing innovations and new degrees of encouragement for young scientists and inventors were identified, a strategy for the innovation development of the country, covering many areas of activity, was developed. Moreover, the Oslo Manual (recommendations on collecting data on innovations) was translated into Russian in 2010, the development of new forms of statistical reporting on innovations, and the approach to Western standards for measuring innovation activity were designed to improve the situation in this area.

Despite the active measures taken by the state to improve the innovation activity, this slightly improved the situation in the country. Ten years is a very short time to establish the traditions of innovation development.

For its part, the state's desire for the traditions of innovation development, established in Western countries, is quite justified, since the country's economy is developing through innovation. On this basis, in the Western countries, in particular in the USA, a whole scattering of new products, services, methods of production and provision of services, organization of jobs, marketing methods developed by private organizations arose. At the same time, due to favorable market conditions, many innovators have become successful entrepreneurs.

In terms of the rather weak innovation development of the Russian economy, nowadays a lot of attention from prominent scientists, students, graduate students, and young specialists is paid to finding reserves to increase the innovation activity in Russia. For this purpose, a series of large scientific and practical conferences, round tables, seminars, articles, monographs, and other scientific works are published. Among the mass of such sources, two works should be distinguished, based on a study of the positive experience of foreign countries in the field of innovation development: monograph "Russia - 2050": the strategy for innovation breakthrough by [19], who studied the potential of the country, as well as a collective monograph "Innovation Development of the Economy: International Experience and Problems of Russia".

It is no coincidence that [18] call the first half of the 21st century the era of innovation, when all sorts of processes are accelerated at all levels of social life, and the process of globalization has led to the fact that innovation is spreading very quickly. In this regard, there is a requirement to immediately respond to rapidly changing global conditions in order to maintain competitiveness in the face of fierce global competition. At the same time, innovation planning does not require hasty decisions, as for making the right managerial decisions regarding the introduction of unique goods, works, and services, the use of new methods of organizing production and management, new marketing methods, or methods not previously used on this site, one should thoroughly consider their potential [20-22]. That is why in the modern world, the introduction of innovation is an extremely risky means of achieving maximum benefits. However, with a competent approach, the organization's development strategy by introducing innovations is able to bring maximum income at the present time and create a certain airbag for some time due to the use of unique objects and having a reputation as a pioneer in a particular industry.

Due to the fact that only at the end of the 20th century, the country switched to a market economy, and in the administrative-planning system all innovations were planned and financed by the state, the tradition of innovation development at the expense of private capital has not yet been fully developed. The state is trying in various ways to incite the innovation development of organizations, as this leads to an improvement in the socio-economic conditions of the whole country. However, the methods specified in the Strategy for the Innovation Development of the Russian Federation [23] do not give a positive effect: the innovation performance of organizations is

decreasing. The catastrophic consequences of the shortest transition to a market economic system due to the lack of proper training of specialists of a new profile, the abrupt opening of the national market and the enormous import of goods from abroad, the "continuous privatization", the reduction of state support for innovation and investment, as well as technological degradation, have led to a sharp decline in production and the inability of domestic products to compete with imported ones, and Russian enterprises are on the brink of bankruptcy. Therefore, Kuzyk and Yakovets, seeing salvation for the Russian economy as an innovation breakthrough, offer to use foreign experience to get on the tracks of the innovation development of the state. In their opinion, the country's rapid innovation development (innovation breakthrough) can contribute to further socio-economic progressive movement. "If a strategy to revive Russian and (more broadly) Eurasian civilization (as part of fourth-generation local civilizations) based on an innovation breakthrough is not selected and implemented, Russia will be for a long time moved to the category of secondary powers".

"The core of the implementation of the innovation breakthrough strategy is the revival and transformation of the high-tech structure of Russia ..." [24]. Indeed, the achievements of science and technology, highly qualified scientific and personnel potential, the use of natural resources have a huge impact on the innovation and, as a consequence, the socio-economic situation of the country. This is also evidenced by the fact that the countries that use their potential in these areas to the greatest extent have reached a higher level of development. When considering the dynamics of the development of the high-tech sector in Russia on the basis of a change in the share of high-tech products in GDP, presented in Figure 2, a gradual increase can be noted. Moreover, the share of high-tech products in GDP in 2017 is about 1/5, which at first glance may seem like a very good indicator. However, despite the high indicator, due to the peculiarities of accounting for these products, it can be stated that the development of the high-tech sphere is not at a high enough level:

- The study of high-tech and science-intensive

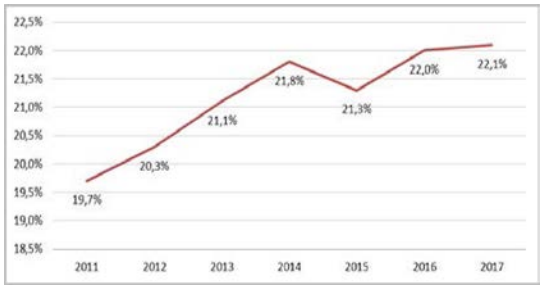

Figure 2 - The share of high-tech products in GDP (Dutta, 2018).

products includes service and public service organizations;

- The share of high-tech products exported is extremely small, which indicates the inability of Russian high- tech products to withstand competition in the world market;

- The largest share of high-tech products in Russia is occupied by the products intended for the military-industrial complex.

The activity of small enterprises in the field of innovation development can also have a significant impact on the socio-economic development of the country. The innovation activity of small enterprises is

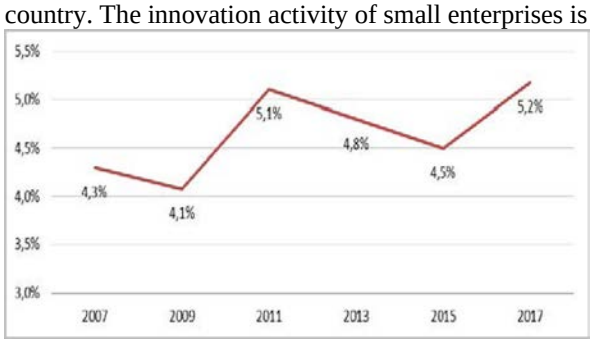

Figure 3 - Innovation performance of small enterprises (Dutta, 2018).

not associated with high-tech innovations; however, the bulk of such enterprises are the enterprises of the consumer center, so their activity may affect the socio-economic level of development of the country. However, according to the results of a study in 2017, the innovation performance of small enterprises was at a very low level, although the tendency to increase the innovation activity of small enterprises, although implicitly, can be traced from the 2013 level, which can be seen in Figure 3. Therefore, the state should take additional measures to intensify the innovation activity of small enterprises, since at the moment, only 5% of small enterprises introduce innovations in the framework of their activities.

There are three factors that lead to the reluctance of small enterprises to pursue the innovation policy with a focus on the creation and implementation of innovations:

- Tendency to phased development of the enterprise without possible risks;
- Lack of tools for competent planning of innovation activity among top managers of enterprises;
- Lack of adequate support for organizations involved in innovation.

At the same time, the level of innovation activity of industrial enterprises (including enterprises engaged in mining and processing industries) is quite low. That only at enterprises of transport production, other finished metal products, as well as at enterprises engaged in the production of computers, electronic and optical products, the share of innovation goods, works, services in the total volume of goods shipped, work performed, and services rendered amounted to more than 10%. Therefore, the incitement of innovation by the state will increase the standard of living of the population.

When comparing the share of organizations that carried out innovations, the total number of organizations and

the share of innovation goods, works, and services in the total volume of goods shipped, works performed, and services rendered, it is necessary to single out several features. The large gap between the indicators in the field of tobacco production can be explained by the conservatism of finished products that do not need innovation; at the same time, a small amount of organizations leads to a high proportion of organizations that have implemented innovations not related to the production of finished products. It can also be noticed that innovation performance is declining in the areas of production of small goods and personal use products.

The low level of innovation activity of enterprises engaged in mining is also worth mentioning. Despite the fact that the organization of the extraction of natural resources due to compliance with environmental requirements should be constantly improved, the innovation performance in this industry is about 6%. At the same time, the processes in mineral mining enterprises can be organized to process the obtained resources into raw materials suitable for final processing into a personal consumption product. However, the share of innovation goods and services is at a low level, and minerals obtained after initial processing to a usable state are shipped to customers. As for innovation goods, the enterprises manufacturing vehicles, machinery and equipment, other metal products, as well as those engaged in the production of computer, electronic and optical products, the share of innovation products of these enterprises is comparatively higher than that in other manufacturing sectors: this can be explained by high standards for finished products of this type to ensure competitiveness in these areas of production. At the same time, the share of innovation products in other manufacturing sectors is extremely low. At the same time, the last place of enterprises engaged in the manufacture of leather products can be explained by the conservatism of production methods and simultaneously increased environmental safety requirements (this can be added to the low level of innovation activity of enterprises involved in the processing of wood and the manufacture of wood products). At the same time, it is difficult to explain the low level of innovation activity in other areas of production, in particular, in the areas of production of clothes, wood products, including furniture, as well as enterprises engaged in the repair of machinery and equipment.

4. Conclusions

From the beginning, logistics has been developed through the years and supply chain management has emerged compared to back when logistic developments were the preliminary area to work with. The study conducted by the authors makes it possible to draw the following conclusions:

- Technological development does not proceed uniformly throughout the world: in addition to scientific and economic conditions, it is influenced by political and social spheres, which can differ significantly depending on location. Moreover, the leading countries in high-tech industries are the most financially sustainable, as they are able to dictate their own conditions in the course of innovations expansion.
- The economic and technological development of Russia is at a rather low level due to special historical events that have affected the social development of the country, together with the cultural and historical characteristics of the population.

Nevertheless, the country has enormous potential in the field of innovative development, it can reach a leading position in the global market for innovative products, and innovation can significantly improve the quality of life of the population. All the resources for this are available but they require quality use.

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