

GCPMED 2020

Global Challenges and Prospects of the Modern Economic Development

STIMULATING HIGH-TECH INDUSTRIES AS IMPERATIVE FOR ECONOMIC DEVELOPMENT

A. Kornilova (a)*, D. Grigor (b), A. Smetanko (c)

*Corresponding author

(a) Samara State University of Economics, Soviet Army Str., 141, Samara, Russia, adkornilova@yandex.ru

(b) ANO EOHE "University of Economics and Management", Krymskaya Pravda Str., 4, Simferopol, Russia,
545114@mail.ru

(c) V.I. Vernadsky Crimean Federal University, Sevastopolskaya Str., 21/4, Simferopol, Russia, smetanko@mail.ru

Abstract

The gap between the Russian economy and the leading countries in technological development necessitates the effective measures implementation and rapid response to changes. In the context of ongoing structural industry shifts and fierce competition in world markets, high-tech production is becoming a factor of strategic development for the Russian economy. The paper investigates problems and prospects of technological development of the Russian economy, possible characteristics and factors of technological growth. The authors analyze the most important conceptual foundations of the technological development in the context of stimulating high-tech industries, present their view on the ways to solve modern problems of the Russian technological development. The research purpose is to analyze the current state of high-tech industries and determine the main directions of their modernization. A necessary condition for the creation and development of innovative companies in Russia is elimination of restrictions on the output of Russian high-tech products to foreign markets, the active participation of Russian companies in global competition, including those that hinder the introduction of innovations and high technologies, as well as the creation of high-tech products. The study substantiates the need to activate intergovernmental initiatives with key countries in terms of technological cooperation for the implementation of business projects. High-tech companies are part of the Russian economy, which does not depend on fluctuations in prices for basic commodities. At the same time, these organizations have the potential to become fast-growing technology companies.

2357-1330 © 2021 Published by European Publisher.

Keywords: High-tech production, innovation, investment, state assessment



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1. Introduction

The system of the world economy determines the need to find points of technological growth. At present, technological development means not only economic stability, but also national security. The current development stage of the world market is characterized by high knowledge intensity of all production processes, as well as the use of the latest achievements of the IT industry. This fact only partly determines challenges of our time. However, non-compliance with the latest requirements of the VUCA-world means a hopeless lag behind the world's technological and, consequently, economic leaders.

The technological development of the Russian industry is a primary task that can ensure a rapid and effective transition from resource-processing industries to the development of high-tech ones, from an export-oriented model to a model of an innovative economy (Edler & Fagerberg, 2017). The modern industrial development and providing the society needs with own capabilities are aspects of the national security. In the context of geopolitical wars and the implementation of a sanctions policy against the Russian Federation, maintaining a position of dependence on the country's imports of strategically important goods is very dangerous.

2. Problem Statement

A lot of factors affect functioning of production companies. The most priority business development strategy for representatives of the manufacturing sector is to enter new markets. For effective functioning of high-tech companies, priority strategies are technical re-equipment and modernization of production, application of advanced technologies and innovations, as well as introduction of new capacities and increase in production volumes. The most significant foreign policy factor is sanctions imposed by the United States and other countries against Russia, which have negatively affected the manufacturing sector. Russian manufacturing companies are also negatively influenced by counter-sanctions from Russia, the termination of the free trade agreement between the Russian Federation and the Ukraine, and the trade war between the United States and China (INFRAONE, 2019). In this study, it is important to identify the most significant mechanisms for stimulating high-tech industries to achieve economic and technological growth.

3. Research Questions

To develop and implement a mechanism for stimulating high-tech industries, it is necessary to solve a set of tasks:

1. Describe the role of high-tech industries in the development of the national economy.
2. Research problems and prospects of technological development of the Russian economy.
3. Analyze the present status of high-tech industries.
4. Identify essential characteristics of points and functions of technological growth.
5. Study the most important conceptual foundations of the technological development of the economy in the context of stimulating high-tech industries.
6. Suggest ways to solve modern problems of technological development in Russia.

4. Purpose of the Study

The purpose of this work is to analyze problems and prospects, as well as the current state of high-tech industries in the Russian economy. The formation of a modern competitive industry can ensure economic and technological growth and improve the quality of life of the population. At the same time, opportunities for technological development are determined by the specific features of the respective regions. Some regions have both national features of the country's socio-economic development determined by external and internal threats, individual features caused, first of all, by their raw material orientation. We emphasize that the creation and development of industrial centers take place in the regions that can become technological leaders through the production of high-quality high-tech products.

5. Research Methods

The methodological basis of the research is formed by fundamental provisions of the economic theory, scientific works of Russian and foreign scientists in the field of industrial economics, and the results of statistical research in the field of industrial complexes functioning in Russia and foreign countries. To date, certain methods and trends of innovative development have been formed in the economic science. However, a comprehensive approach is needed to identify modernization areas of the country's industrial complex.

This research was based on the use of the methodology of predictive and analytical activities in conjunction with the study, analysis and generalization of results obtained in the scientific works on the topic by the Russian and foreign classical and contemporary scientists. As methodological research tools, we used such general scientific methods of cognition as the analogy method, method of generalization and comparison, analysis and synthesis, deduction and induction, and applied principles of systemic and integrated approaches.

6. Findings

The development of Russian industries, such as pharmaceutical production, metallurgy, machinery and equipment production, chemical industry, light industry and other industries will help to increase the efficiency of the country's economy as a whole, since the investment attractiveness of high-tech industries is largely determined by the state of the market for high-tech industries. The main methodological aspects and provisions of the technological development of the economy were considered by domestic and foreign scientists (Schumpeter, 1982).

The most important prerequisites, regularities and trends of innovative and investment development of high-tech economic entities are reflected in the works by domestic scientists (Chirkunova et al., 2016; Doroshenko et al., 2018; Demidova & Oleinikova, 2017; Kireeva et al., 2017). Modern economic science tries to determine the most effective mechanisms for achieving technological development, and is also in search of momentum or points of economic and technological growth. A lot of Russian and foreign scientists justify in their works that individual regions, being economic territorial units and constituent elements of the national economy, have a necessary set of internal resources and factors that can be considered as an impulse or a growth point. It should be noted that industrial centers are formed and

developed in regional economic systems, which can currently be represented as clusters or technological industrial groups. The only goal of these structures is to develop high-tech industries to achieve technological leadership through the production of high-quality high-tech goods. A growth point is defined as a certain subject of economic relations, industry or activity type that contributes to processes of diversification and rationalization of the regional economic structure, its improvement and renewal, achieving not only economic, but also social effect (Kornilova et al., 2021).

Let's consider the main characteristics of high-tech industries that are considered as points of technological growth (Doroshenko et al., 2018):

- updating and optimizing the regional economy;
- ensuring the investment attractiveness of high-tech industries, branches and the region as a whole;
- stimulation of production processes;
- increase in replenishment of federal and regional budgets in the form of tax payments;
- growth of economic activity of the working-age part of the population;
- development of foreign economic activity and strengthening of foreign economic relations;
- reduction of social tension in the society;
- stimulating the development of related industries and economic branches.

The principal difference between high-tech industries is the focus on innovation management during the entire life cycle of products. This orientation is created when the entire set of necessary factors is formed: the availability of technology and innovation, highly qualified personnel, its intellectual activity, the necessary amount of investment and specialized equipment. At the same time, at all production stages, the created products are the integration result of science and production, which leads to the elimination of links and bottlenecks that hinder the effective implementation of the production process (Kornilova et al., 2021).

The most important principles of high-tech production activities include:

- use of innovative solutions and technologies in the production process;
- coverage of all stages of the innovation process in the production of high-tech products;
- implementation of the adaptability principle of the high-tech production system integrated into the macroeconomic space;
- high technological efficiency in the organization of the management system;
- maximum efficiency of material and non-material resources use and implementation of resource saving;
- intensification of intellectual potential;
- capital intensity and material intensity of operations.

Thus, stimulating the development of high-tech industries is a major imperative of technological development at all levels of the Russian economy. Currently, the task of forming not only an organizational and economic, but also a system mechanism for supporting high-tech companies-drivers for innovation, investment and technological development is urgent. Let's present the volume of domestic production, exports and imports in Russia for 8 months of 2019 (Figure 1).

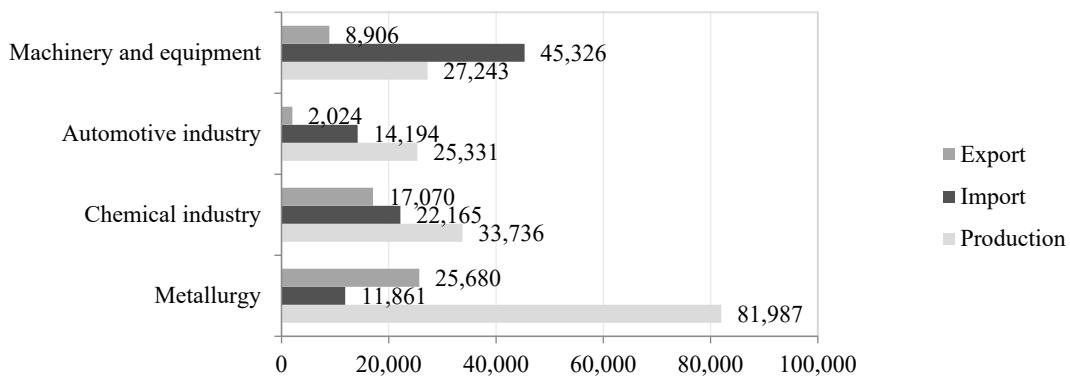


Figure 1. The volume of own production and export / import in Russia for 8 months of 2019, million us dollars Source: authors based on (Deloitte, 2019).

The large volume of import indicates that the capacity of the Russian industrial enterprises and the product line do not meet domestic demand in the considered branches. That is why import substitution remains one of the priority areas of the industrial development. At the same time, a significant share of domestic production is exported, especially in the metallurgical and chemical industries, so the situation on foreign markets has a significant impact on the state of affairs of these enterprises. Let's analyze a number of competitiveness factors and incentives for the development of the high-tech production market (Figure 2).

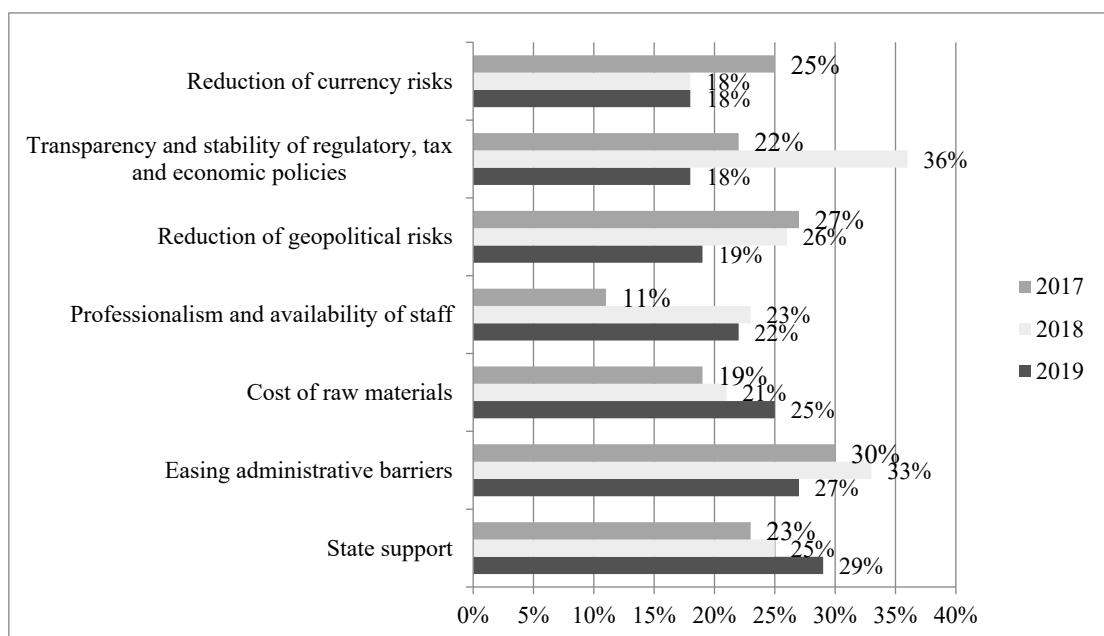


Figure 2. Assessment of competitiveness factors (market development incentives) for high-tech industries

Source: authors based on (Deloitte, 2019).

It should be noted that the state is taking measures to support industries, but the effectiveness of these measures is still insufficient for their significant growth. Commercial success and achievement of

technological leadership by high-tech companies is possible if they are as flexible as possible and adapt to the dynamic market of modern technologies, including digital ones. Accordingly, the greatest investment interest is represented by those Russian high-tech companies that are able not only to apply technologies, but also to create them, i.e. to meet modern technological trends.

It should be noted that the existing problems of technological development have solutions, but it is necessary to increase the focus of owners of high-tech industries on results by activating innovation and investment activities, intensifying the development of production processes by stimulating human capital, ensuring continuous technology transfer, expanding scientific and technological cooperation both on the interregional (inter-industry) and international levels.

7. Conclusion

High-tech Russian production is currently the driver of technological development of the economy, while the speed and pace of their operation should not lag behind the world level. A national task is to reduce, and in the future, completely eliminate the heterogenic development of high-tech companies and industries. This can be achieved by improving the quality and operational characteristics of products, increasing the importance and image of the Russian high-tech industries, and focusing on fully meeting the country's internal needs on its own. It requires a set of supportive measures, but the importance of modernizing and further developing high-tech industries in such strategically important sectors as pharmaceutical production, medicine, energy, aviation and automotive, the military-industrial complex, space production, and others is obvious. At the same time, the technological capabilities of the high-tech production determine the presence of competitive advantages of the national economy and the possibility of effective functioning of the state as a whole.

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