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# ENHANCING TECHNOLOGICAL MODERNIZATION OF RUSSIAN ECONOMY: ECONOMIC AND LEGAL ASPECT

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## *Abstract*

The Russian government has designated the transition to a digital scenario for the development of the country as one of the priority areas for the development of the state. With the technological modernization of the Russian economy, it is useful to consider the current conditions of social development including the policy of import substitution. The authors highlighted the priority areas of technological modernization, which will open up opportunities for the further progressive development of the country. The methodological basis of the study was the general scientific principles of a systems approach, comparative analysis, factual analysis and statistical methods. The results of the study showed that the areas of technological modernization of the economy of the Russian Federation, selected in 2009, did not yield the desired success. It resulted in the need to form a unified national strategy aimed at bringing the economy to a higher technological level and new areas of this process considering its complex nature and new external conditions.



**Keywords:** Digital scenario, legal aspects, priority areas, Russian economy, technological modernization.

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## 1. Introduction

The scientific literature does not have an unambiguous interpretation of the modernization process and often has such significant differences in approaches to determining the key parameters of the modernization stage of social development that it is advisable to state the individual stages of modernization processes in the analysis process. The founders of the classical ideas of modernization are Comte (1910), Spencer (1998), Marx (1984), Weber (1990), Durkheim (1991) and Tönnies (1959). They characterize modernization as a process accompanied the transition from an agrarian society to industrial society; in this case, the main objects of the modernization process are the systems of economy and labour organization as well as technical weapons. By the middle of the twentieth century, scientists formulated a modern concept of modernization. It implies a transition from the traditional and inhibiting social progress of society to the modern one and suggests the existence of universal stages and patterns for all areas of development within its framework.

In the late 60-70s, scientists criticized and rethought the key parameters of modernization, formed at the first stage of development of the theory, and strengthened the traditional concept by elements of scientific and technological progress (Bauman, 1992; Bauman, 1993; Hantington, 1969), which is the second stage of development of the modernization theory.

In the third stage of development of modernization theory beginning in the late 80s, its representatives depart from the idea of universalism, recognize the existence of national scenarios for the development of the modernization process based on accumulated advanced technologies and social innovations integrated into traditional models of society (Eisenstadt, 1966; Touraine, 1997).

## 2. Problem Statement

The indicated methodological approach to the concept of modernization has changed the attitude to the process itself departing from linearity and determinism. Under the influence of national traditions that determine the nature and stabilize the modernization process, it becomes both complex and variable.

The scientific literature does not currently formulate a clear procedure for the implementation of technological re-equipment of the economy.

## 3. Research Questions

For a long time, the modernization processes in the economy require the involvement of new, previously unused internal or external resources for increasing the production of goods and services. Different scenarios imply specific approaches to the process of technological re-equipment:

- comprehensive or complete attitude requires the acquisition of the latest high-tech equipment, the introduction of innovative developments and production technologies. It brings individual industries and, as a result, the entire economy to a new level of development and allows them to take a market position high above competitors;
- imitation requires the acquisition of such equipment and the introduction of such technologies to copy the positions of competitive industries and compare with them in terms of development;

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- the economical option is only interested in the cost of re-equipment, so the main goal is to save on this process;
- the fastest option acquires only what is available and considers the shortest possible terms.

## 4. Purpose of the Study

To understand the main activities and directions, we should turn to some engineering and technical recommendations that describe the process of technological re-equipment. The procedure for technological re-equipment includes the following activities (Kochetov & Shapurov, 2016):

1. The development of a feasibility study that comprehensively evaluates the cost-effectiveness of technical re-equipment costs. A feasibility study is necessary to predict the results of the technical re-equipment project, the goals achieved and the payback periods of the invested money.
2. Various kinds of scientific, research, experimental design and engineering work necessary for the implementation of the process of technological re-equipment.
3. Preparation of estimated documentation of the work.
4. Development of design documentation for technical re-equipment which provides organizational and technical measures to ensure the safety and efficiency of the re-equipment process.
5. The introduction of new equipment and/or technologies in the production process.

## 5. Research Methods

The theoretical and methodological basis of the study was the methodological approaches and conceptual provisions of economic theory, the theory of strategic economic management and modernization theory.

The toolkit and methodological apparatus of the study compiled the general scientific principles of a systematic approach, comparative analysis, strategic planning methods, network planning and management technologies and a targeted program approach.

The informational and empirical basis of the research is foreign and domestic studies on the problems of technological modernization and the main solutions for overcoming the difficulties of the modernization process in the current conditions of the Russian economic development; materials of scientific conferences in the field of modernization process planning, import substitution policies and the digital development of the economy, publications in national and foreign periodicals as well as information collected by the authors when studying this issue.

## 6. Findings

### 6.1. Starting position

The meeting of the Commission on Modernization and Technological Development of the Russian Economy in 2009 formulated the priority areas for modernization of the Russian economy:

- Energy efficiency and energy saving, including the development of new types of fuel.

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- Nuclear technology.
- Space technologies related to telecommunications, including GLONASS and the ground infrastructure development program.
- Medical technology, primarily diagnostic equipment, as well as medicines.
- Strategic information technology, including the creation of supercomputers and software development.

All selected areas of modernization relate to high-tech and knowledge-intensive sectors of the economy. However, if we analyze such an indicator of technological development of the Russian economy as the share of high-tech and knowledge-intensive industries in the gross domestic product, we can see that according to the Federal State Statistics Service (The official portal of the Federal State Statistics Service, 2019) in 2011 this indicator amounted to 19.7% of the total, and by 2018 it reached 21.3%, i.e. there is an increase of 1.6 percentage points for almost 10 years of the modernization process which we do not consider as successful result.

Successful global examples of modernization processes are Korea, Malaysia, Japan, China. They have chosen the way from simple to complex as the main direction, which resulted in new skills gradually adopted in the initial units of technological processes: workers and engineers, thereby entrepreneurs get the possibility to introduce into new markets. In Russia, they went the other way adopting complex industries as their main areas of technological breakthrough which, in turn, have little dependence on the free market (energy, nuclear, space, medical, and information technologies) and initially complicated the achievement of large-scale economic growth.

Since the modernization process is a complex phenomenon, it is influenced by several factors, which, in turn, form the starting position of the Russian economy in this process.

Historical position. Russia was already a powerful industrial power. Modernization, especially accelerated modernization, is a repeating process associated with some social constraints and ultimately often leads to political instability. The unsuccessful experience of previous attempts at modernization during periods of a planned economy subconsciously suggests the possible failure of new undertakings.

Economic position. The wave of privatization that swept through the Russian economy in the 1990s provided a deliberately insurmountable head start to owners who received their assets on very favourable terms and made it economically impractical to invest in the development of new industries. The absence at the initial stage of a strategic program for modernizing the Russian economy led to the fact that the modernization processes were based on not relatively cheap skilled workers and natural resources but the redistribution of income from the extraction and export of raw materials.

Foreign policy position. One of the keys to the successful process of modernization of the country's economy is the state partner, which, on the one hand, will act as a market for industrial products, and, on the other, a supplier of new technologies and foreign investments necessary for the further development of modernization processes. China, the main partner of Russia and the largest industrial power, is not interested in the strong competitive Russian Federation.

The financial crises that have been shaking the world economy since 2008, as well as the policy of sanction containment of Russia that has been formed since 2014, negatively affect the influx of foreign investment and certainly complicate the modernization processes in the country's economy.

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Domestic political position. The close connection of state power with the raw material elite, mostly working on the basic assets of the USSR, makes modernization not the main direction of economic development but only a tool for the power promotion. A high level of corruption allows only highly monopolized industries to keep the power which directly contradicts the ideas of technological modernization of the economy. Successful technological modernization strengthens the position of highly organized masses of society and reduces the possibility of manipulation by political power.

Social position. The reluctance of political elites to realize the need to depart from their glorious past and the lack of understanding of the need to limit current needs for future successes in the modernization process reinforced the unpreparedness of Russian society.

### 6.2. New condition

In modern conditions of economic development of the Russian Federation, the established areas of technological modernization do not bring success, and the traditional procedure for its implementation does not work in practice.

In 2014, in his annual message to the Federation Council, President of Russia V.V. Putin outlined the need to overcome dependence on a high level of imports of finished products and the development of import-substituting industries. However, such a policy only leads to the fact that the Russian economy is becoming even more closed, and modernization is seen only as a means of reducing exports and meeting the needs of the domestic market. This situation suppresses competition, but the modernization of the economy involves increasing its competitiveness and integration into the global economy as noted by the American economist Bhagwati (2005).

Decree of the Government of the Russian Federation of 10.09.2018 N 1078 formed the Government Commission on the modernization of the economy and innovative development of Russia which acts as a coordinating body to ensure the coherence of the actions of federal, regional and municipal authorities to develop state policy in the field of economic modernization. The main tasks of the Commission include identification of key areas and mechanisms of modernization of the economy and determination of forms and methods of state regulation to modernize the economy.

October 22, 2018, at a meeting of the Commission, Chairman of the Government of the Russian Federation D.A. Medvedev identified the following priorities in the field of economic modernization:

1. Scaling up support for effective high-tech business models and support for venture financing.
2. Designing mechanisms to reduce risks through the development of engineering companies' network.
3. Modernizing the system of technical regulation and removal of administrative barriers for innovative companies.
4. Stimulating the demand for innovation from large companies with state participation.

At present, the domestic market of the Russian Federation does not allow achieving sufficient savings on the scale of industrial production to ensure its competitiveness due to low cost. Exporting products under well-known foreign brands produced in the territory of the Russian Federation could be one of the solutions to this problem. However, the current foreign policy situation does not allow the Russian economy to attract successful foreign manufacturers of high-tech products.

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In 2017 the President of the Russian Federation initiated a plan to implement the national project Digital Economy of the Russian Federation (Order of July 28, 2017, No. 1632-r, On approval of the program "Digital Economy of the Russian Federation", 2017), adopted in 2018, as one of the most effective tools for modernizing the country's economy until 2024. This document identifies the structural elements of the project, the timing of implementation and other indicators. The directions of digital development of the country's economy are as follows (Table 1):

**Table 01.** Directions of digital development of the Russian Federation economy

| № | Name | Terms of implementation |
|---|---|---|
| 1 | Normative regulation | 01.10.2018 – 31.12.2024 |
| 2 | Information infrastructure | 01.10.2018 – 31.12.2024 |
| 3 | Staff for the digital economy | 01.10.2018 – 31.12.2024 |
| 4 | Information Security | 01.10.2018 – 31.12.2024 |
| 5 | Digital technology | 01.10.2018 – 31.12.2024 |
| 6 | Digital Government | 01.10.2018 – 31.12.2024 |

To evaluate the starting position for the process of technological modernization of the economy, we considered several statistical indicators that directly or indirectly characterize the process (Table 2).

**Table 02.** Indicators of modernization processes in the Russian economy

| Indicator | Unit | 2010 | 2017 |
|---|---|---|---|
| Domestic research costs (% of GDP) | percent | 1.13 | 1.11 |
| Costs of innovation in the volume of work and services in the industrial sector | percent | 1.6 | 2.4 |
| Research and development costs (specific gravity), in the total volume of internal research costs | percent | 35.0 | 39.8 |
| The share of industry organizations and services involved in technological innovation, in the total number of organizations in this sector | percent | 7.9 | 7.5 |
| The share of innovative goods in the total volume of goods, works, services of industry organizations | percent | 4.8 | 7.2 |
| The share of exported goods, works and services with signs of innovation, in the total number of organizations in the industrial sector | percent | 4.6 | 7.5 |
| Patents granted for inventions and utility models per 1 million people of the population | units | 151.4 | 143.2 |
| The proportion of new technologies, in the total number of innovative production technologies | percent | 11.8 | 13.6 |

According to the "Monitoring of the Development of the Information Society in the Russian Federation" (as of 10/03/2018) of the Federal State Statistics Service of the Russian Federation (Monitoring the development of the information society in the Russian Federation, 2018).

### 6.3. Priority directions of the Russian economy technological modernization

There are no ready-made models for modernizing the economy in the world. Any innovation processes require an analysis of the country's historical development, local characteristics, the specifics of

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the political system and the available financial instruments. It is also obvious that the large-scale development of the entire economy of the Russian Federation in a revolutionary breakthrough way is not possible, it is necessary to direct efforts to the growth points. By growth points, we mean not only popular nanotechnologies and bioengineering but also traditional sectors of the economy and infrastructure which at all times have been the basis for the country's development (Dzhikiya et al., 2018). We believe that the first task of the state on the path of modernization is to determine the directions of modernization i.e. growth points of the economy.

As points of economic growth, we propose to highlight the following areas: competitiveness, infrastructure, smart economy.

1. Competitiveness implies supporting the production and export of domestic products that are already valued and in demand on world markets: oil and gas, metallurgy, nuclear energy, weapons. The purpose of this kind of support is to eliminate possible imbalances in supporting exclusively innovative sectors of the economy, to maintain its position in the world market, as well as in filling the federal budget.
2. Infrastructure implies the intensification of the development of the transport system of the largest country in the world. The development of global trade markets and globalization requires the active development of land, sea and air transport routes. The purpose of investments in infrastructure is to become one of the leading transit countries and receive significant external investments as resources for modernization development.
3. Creation and development of the smart economy sectors: maintaining production in the field of nanoindustry, artificial intelligence, bioengineering by creating mechanisms to stimulate private capital in high-tech areas and remove administrative and legal barriers to modernization (Frolov & Lavrentyeva, 2019).

The technological development program, in turn, most comprehensively covers all stages of the indicated process of technological re-equipment, and increasing the efficiency of the practical use of existing financial sources with the involvement of both federal and private financing will make it possible to fully utilize the new opportunities of society in the transition to a digital scenario economic development.

An important area of technological modernization of the Russian economy is the creation of legal mechanisms for solving the problems of modernization of all social spheres. Improving regulatory mechanisms for economic modernization involves working in the following areas:

- elimination of legal restrictions for economic modernization;
- study of the possibility of creating new legal sectors and institutions;
- the formation of regulatory procedures to create a digital environment;
- operational analysis of the effectiveness of law enforcement.

The indicated directions for improving legal regulation should create conditions for controlled changes in the field of integration regulation of Legal Tech, development of electronic civil circulation, financial technologies, antitrust regulation, intellectual property, standardization and labour legislation (Ergunova et al., 2017; Suzdalova et al., 2017).

Using a system of experimental legal regimes through the creation of regulatory sandboxes should allow authorities to assess the risks that modernization processes carry for the rights and legitimate interests of a person and citizen in the Russian Federation, as well as their proportionality to the usefulness of introducing certain innovations. In our opinion, the institution of legal modelling in the future will allow us to choose the best option for the balance of public and private interests in the process of technological modernization of the economy.

## 7. Conclusion

The authors attempted to analyze the possible reasons for the lack of effectiveness of technological modernization process of the Russian economy initiated in 2009. The article describes the new conditions for the implementation of the further process of modernization in terms of their influence on the selection of the main directions of technological modernization of the Russian economy. The authors revealed that modernization processes in the economy require analysis of the country's historical development, local characteristics, the specifics of the political system and the available financial instruments. In this regard, the following points of economic growth come to the fore: competitiveness, infrastructure, smart economy. For the successful implementation of modernization processes, the state needs to develop a comprehensive program of technological development covering all stages of the process of technological re-equipment and including legal mechanisms aimed at solving the problems of modernization of all social spheres.

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