

## INNOVATION AS A NECESSARY CONDITION FOR THE FORMATION OF THE KNOWLEDGE ECONOMY: A VIEW FROM RUSSIA

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### ABSTRACT

**Objective:** The main purpose of this study is to determine the role of innovation in modern socioeconomic development both on a global scale (world economy) and at the level of economic development of an individual state. The current directions of development and characteristics of the Russian economy are considered. **Methods:** The authors conducted a comparative analysis of the most relevant and popular scientific theories and practical approaches to innovation currently available. **Results:** The main trends in the development and implementation of key significant socioeconomic processes are continuous and dynamic technological changes in all spheres of life of a modern person and society. This entails a change in the life cycle of goods and services in the direction of reducing its duration, an increase in the risks of entrepreneurial activity carried out in a turbulent environment, and high unpredictability of the results of adoption and implementation management decisions caused by the lability of social needs and competition. In the current situation, innovation becomes a key component at all stages of social reproduction, as well as all socially significant social processes. On the one hand, innovation contributes to evolutionary development and scientific and technological progress, which defines it as a necessary condition for development. On the other hand, it is a source of new threats to humanity and society. **Conclusions:** The welfare of society and the observance of national interests, such as technological and intellectual independence, depend on the effectiveness of ensuring and implementing this condition, which determines the development of not only the economy but also the possibility of achieving technological security. Innovation is a key condition for economic and social development both at the macro level (state) and at the level of an enterprise (micro level), determining its competitiveness, development prospects, and financial stability.

**Keywords:** Innovation; Innovation infrastructure; Knowledge economy; Innovative



knowledge; Transformation of socially significant processes; Development.



## A INOVAÇÃO COMO CONDIÇÃO NECESSÁRIA PARA A FORMAÇÃO DA ECONOMIA DO CONHECIMENTO: UMA VISÃO DA RÚSSIA

### RESUMO

**Objetivo:** O principal objetivo deste estudo é determinar o papel da inovação no desenvolvimento socioeconômico moderno, tanto em escala global (economia mundial) quanto no nível de desenvolvimento econômico de um estado individual. São consideradas as atuais direções de desenvolvimento e as características da economia russa. **Métodos:** Os autores realizaram uma análise comparativa das teorias científicas mais relevantes e populares e das abordagens práticas à inovação atualmente disponíveis. **Resultados:** As principais tendências no desenvolvimento e implementação dos principais processos socioeconômicos significativos são as mudanças tecnológicas contínuas e dinâmicas em todas as esferas da vida de uma pessoa e sociedade modernas. Isso implica uma mudança no ciclo de vida de bens e serviços no sentido de reduzir sua duração, um aumento nos riscos da atividade empresarial realizada em um ambiente turbulento e uma alta imprevisibilidade dos resultados das decisões de gerenciamento de adoção e implementação causada pela labilidade das necessidades sociais e da concorrência. Na situação atual, a inovação se torna um componente essencial em todos os estágios da reprodução social, bem como em todos os processos sociais socialmente significativos. Por um lado, a inovação contribui para o desenvolvimento evolutivo e o progresso científico e tecnológico, o que a define como uma condição necessária para o desenvolvimento. Por outro lado, ela é uma fonte de novas ameaças à humanidade e à sociedade. **Conclusões:** O bem-estar da sociedade e a observância dos interesses nacionais, como a independência tecnológica e intelectual, dependem da eficácia da garantia e da implementação dessa condição, que determina o desenvolvimento não apenas da economia, mas também a possibilidade de alcançar a segurança tecnológica. A inovação é uma condição essencial para o desenvolvimento econômico e social tanto no nível macro (estado) quanto no nível de uma empresa (nível micro), determinando sua competitividade, perspectivas de desenvolvimento e estabilidade financeira.

**Palavras-chave:** Inovação; Infraestrutura de inovação; Economia do conhecimento; Conhecimento inovador; Transformação de processos socialmente significativos; Desenvolvimento.

### 1 INTRODUCTION

According to one definition,

Scientific and technological progress is the process of interaction of society with nature and the technical environment, as well as the organic unity of scientific, technical, and social aspects. This demonstrates the ability of society not only to understand nature and its laws more deeply but also to use the results of this knowledge to develop production and change social relations. (Lomov, 1974, p. 47).

Consequently, social development is determined by the production and use of new knowledge (innovation) in the interests of society, which at this stage of human development takes on strategic importance.



The Russian economy, and many significant social processes, are undergoing significant changes, which are not always caused by constructive changes in the world community. The sanctions restrictions that have affected most of the production and economic spheres of activity, including strategically important ones, are a negative deterrent to the development of socially significant processes in Russian society. However, the critical need for the development of national technological and intellectual sovereignty has become obvious, one of the priority conditions for the formation of which is innovation (technological, intellectual). In the modern conditions of the development of the Russian economy, the main support and resource of which is the internal national potential, technological innovation becomes a key condition for national socioeconomic development and the achievement of technological sovereignty. Innovation becomes a strategic condition for achieving national security, as it determines the prospects for the development and sustainability of the economic and social environment, thereby affecting well-being and quality of life.

## 2 METHODS

The research involved a comparative analysis of the most relevant and popular scientific theories and practical approaches to innovation currently available, identifying the significance and role of innovation in evolutionary, scientific, and technological development at this stage. We compared different points of view on the issues of modern development based on innovation and associated with the technological transformation of almost all significant socioeconomic processes, which is the cause of increased competition in all spheres of human activity and a source of new opportunities for choosing the direction of development of human civilization.

In terms of the analysis of current development trends, innovation is a key condition for development, which determines the level, direction, priorities, and prospects of development. It is also the main reason for the dynamic transformation of all socially significant processes of functioning of modern society at all levels of the social organizational hierarchy (world economy, national economy, industry, enterprise).

Innovation is innovative knowledge that can materialize in new technological solutions, new types of products or services, as well as the transformation of knowledge into innovative technologies and products, which confirms that innovation is a key condition for the formation of the knowledge economy. The development of



the knowledge economy for the state contributes to its competitiveness, increases the level of well-being, and, most importantly, ensures technological sovereignty and, in turn, national security.

### 3 RESULTS

Scholars whose economic theories are considered classical believe that innovation is the basis of economic development. For example, J. Schumpeter in his work "The Theory of Economic Development" (1911) defined innovation as "the use of existing sources in new ways" (Schumpeter, 1934, p. 62). In other words, innovation includes concepts, ranging from the emergence of new scientific knowledge (innovative knowledge), through the materialization of this knowledge in the form of innovative technology or product and the transformation of the organization of production to the opening of new (innovative) markets offering not only new (innovative) products but also innovative ways to meet growing needs.

However, there are cases in practice and scientific research when the concept of innovation becomes synonymous with the concept of novelty. It is worth paying attention to this fact and clarifying it. From our point of view, novelty is a process of creating and introducing new knowledge as a result of scientific and project activities, technologies, products, developments, etc. While innovation is a novelty that brings a positive economic effect in the form of profit. J. Schumpeter (1934) considered innovation to be the main source of profit: "Profit is the result of the implementation of new combinations <...> without development there is no profit, without profit there is no development" (p. 75).

Thus, conducting a comparative analysis of these two concepts, it can be concluded that any innovation is a novelty, but not every novelty has all the necessary characteristics to become an innovation. Thus, it is possible to formulate the following definition of innovation: innovation is a novelty that can bring economic profit, thereby realizing economic development.

The key factor determining the global development of humanity at present is knowledge, the use of which contributes to the emergence of an innovative product. Knowledge itself can be considered an innovative product (innovative knowledge). An innovative product, in turn, must have demand and the ability to meet the urgent needs of society more rationally, diversely, and efficiently than its predecessor. Thus,



scientific and technological progress (STP) is taking place, ensuring the development of society.

Since the development process is continuous, the need for innovation in society is also continuous. Satisfaction with the need for an innovative product affects many significant socioeconomic processes, causing their transformation and provoking the emergence of processes leading to the formation of a new type of economy – the knowledge economy.

The term "knowledge economy" is attributed to the American scholar of Austrian origin F. Machlup. He used the term in his book "Production and Dissemination of Knowledge in the USA" (1962) to describe strategic trends in the development of the economy, which, in his opinion, are associated with the development and dissemination of knowledge (education) (Machlup, 1962). P. Drucker further popularized it, using it in the 12th chapter of his book "The Age of Discontinuity" (1968). According to Drucker, innovations based on new knowledge are the superstars of entrepreneurship. Such innovations become the object of attention and generate large revenues; innovations should be aimed at the market and guided by market considerations (Drucker, 1986).

Advanced economies have been forming knowledge, or knowledge-based, economies since the end of the last century. Since the product result of knowledge in the economy is innovation, we consider the terms "knowledge economy", "knowledge-based economy", and "innovation economy" synonymous.

Since the construction of a modern economy is based on the production of new knowledge (innovation), it is often possible to encounter the terms "new economy" or "economy of a new type", where it is implied that the basis of economic development is the profit obtained through the sale of the intellectual labor of innovators. This fact also confirms the emphasis on knowledge, since the new type of economy is based on the production and economic use of new (innovative) knowledge, which can take various forms, becoming the subject of purchase and sale, even at the stages of the origin of an innovative idea (innovative "semi-finished product"). An example of such use of innovations can be the sale of startups, idea fairs, etc. (Danko et al., 2017). Thus, the basis of socioeconomic development, growth, and stability of the new type of economy or knowledge economy are the achievements of STP.

The development of the knowledge economy requires the continuous production of new knowledge (innovation), thereby setting a high dynamic pace of STP. In the



modern context of high and aggressive competition for economic and technological leadership, innovation, as a result of STP, can not only maximize the possibilities of achieving it then and there but also the possibility of retaining it in the future. This suggests that innovation is a necessary condition for economic development and the formation of the knowledge economy (Figure 1).

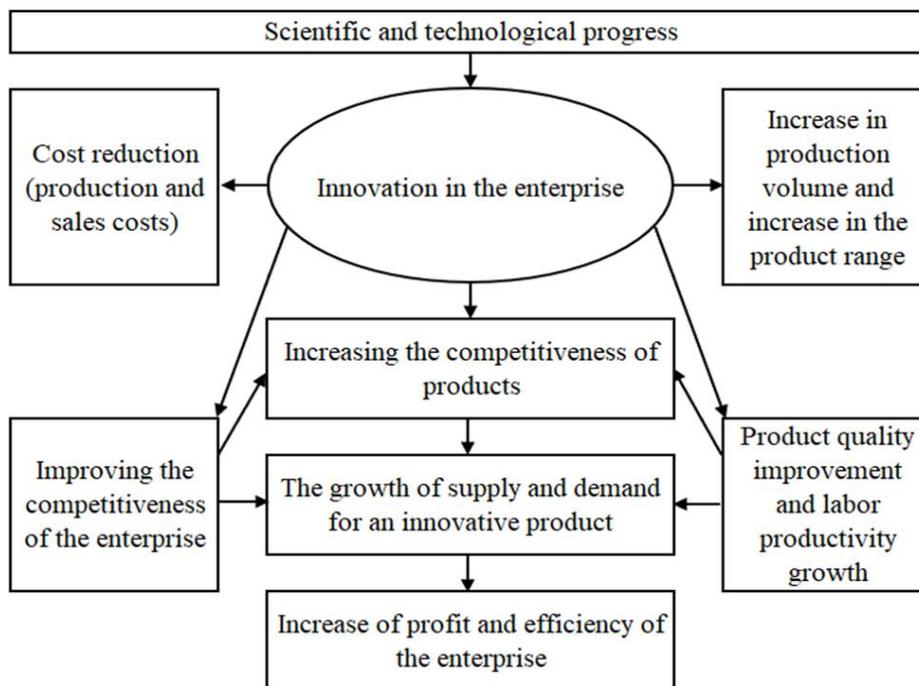


Figure 1. NTP and innovation (compiled by the authors)

A key requirement imposed on every innovation is competitiveness. Competitiveness is a strategic economic characteristic that can determine not only the level of economic development but also more strategically important parameters, such as technological and intellectual sovereignty. Since innovation is the basis of competitiveness in today's unstable world; ensuring technological and intellectual sovereignty also depends on innovation and innovative development (Bruskin et al., 2017; Sekerin et al., 2015). This allows us to consider innovation as a necessary condition for state development, sovereignty, and security at the macro level (Figure 2).

The acquisition of strategic characteristics by innovations provokes the transformation of socially significant processes in society, which allows us to consider the impact of innovative technologies not only in individual industries (hi-tech) but also in the economy. This, in turn, is the basis for the possibility to consider the term

"knowledge economy" more broadly and transform it into the term "knowledge society". The term "knowledge society" positions that knowledge not only causes changes in the economy and contributes to economic growth but also is a source of transformation of structural changes in society and people's lives (Kuznetsova, 2013).

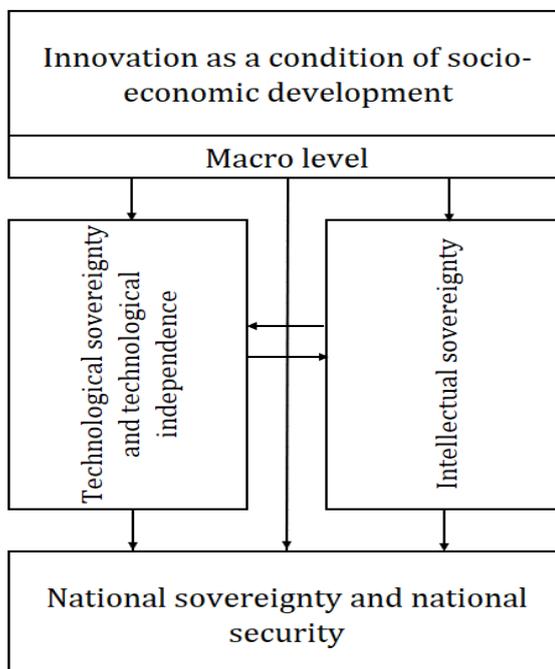


Figure 2. Innovation: macro level (compiled by the authors)

International sanctions pressure on Russia is aimed at reducing the quality of life and the level of technological development in the country, which is a strategic condition determining the evolution of development at this stage. However, Russia, despite the prevailing unfavorable conditions, is a significant member of the world's economic and social system, which has enough necessary resources and opportunities to respect its national interests.

Constrained development conditions are a complex obstacle, limiting many of the opportunities and resources needed for innovative development. However, there are also positive results despite these negative factors. Thus, according to the Global Innovation Index (GII) 2022, "the following components are still the strengths of the Russian innovation system: human capital and science (27th place) and business development (44th)"; 132 countries participated in the 2022 ranking (Evans & Wurster, 2006). This suggests that Russia is ready to effectively develop its innovative infrastructure capable of competing with the infrastructure of countries that occupy leading positions in the GII. (Japan, Switzerland, the USA, Germany, etc.).

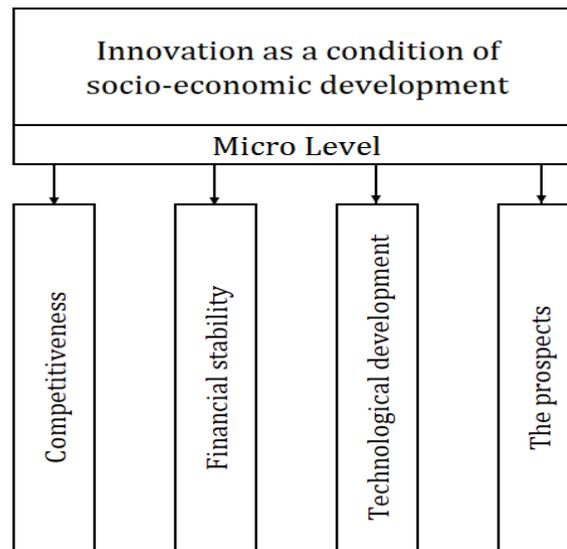
## 4 DISCUSSION

Despite the sanctions restrictions, the Russian Federation is part of the global economic system and follows the main modern trends of economic development, considering national interests. Therefore, the transformation of the Russian economy is taking place toward an innovative economy or a knowledge economy.

The decision to build an innovative economy in Russia – an economy of the type that, according to many scholars, is capable of ensuring the sustainable development of the national economy, accelerating STP, qualitative changes in the market, society, and their improvement. (Dutta et al., 2022).

A strategic task that the Russian economy and society need to solve is to show that sanctions do not necessarily lead to an increase in adverse socioeconomic phenomena but can also be a source of development (Silva & Janes, 2023), including the development of innovative activity and infrastructure since sanctions are a source of great prospects expressed through market demand and a source of serious threats creating difficulties in cooperation for Russian technologies. From this point of view, the formation of the knowledge economy contributes, first of all, to technological development and independence since "the national economy of Russia must fall into a common zone for concepts, i.e. become not only innovative but built on new knowledge created in the country" (Ivanov, 2011, p. 85). For innovation to become the basis of the Russian economy, it is necessary to invest in the development of innovation infrastructure and human capital, which can provide the economy with innovations with the desired characteristics: demanded by the market and society and competitive (Golubev et al., 2019; Korolev et al., 2017). Competitive innovations, in turn, will ensure financial stability, which is a prerequisite for sustainable national development and technological development (Ermakova, Finogenova & Subbota, 2022), which, in turn, forms constructive prospects for the future (Figure 3).





**Figure 3.** Innovation: micro-level (compiled by the authors)

## 5 CONCLUSION

Innovation at this stage, the development of human society is the main strategic condition that ensures the transformation of socially significant processes and economic development. Innovation is also the main incentive for the production of knowledge, which provides technological and social development (Guimarães, Severo & Dorion , 2022), causing the transformation of the image and way of life of modern man and society. The rapid formation of the knowledge economy, which has been observed in recent decades and is happening before our eyes, is based on the knowledge that can transform novelty into innovation that brings economic profit, which makes innovation the main condition necessary for the formation of the knowledge economy. Innovation becomes not only a condition determining the actual development witnessed by every person living at the moment but also a resource capable of ensuring the long-term development of both a single state and humanity as a whole, which allows us to talk about innovation as a strategic, global condition for development.

Innovations based on new knowledge created in the country are of strategic importance for achieving technological and intellectual sovereignty for the Russian economy and its development under the conditions of sanctions restrictions. The formation of the knowledge economy in Russia requires a complex transformation. It is necessary to turn the structural deformations of industry markets into structural

transformations. This task is complicated by sanctions restrictions but contributes to the emergence and development of its national model of the knowledge economy.

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