

The Use of Innovative Technologies to Ensure the Economic Security of Russia in the Context of Globalization

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Abstract.

Research background: Global competition constantly sets new goals for each state in the field of economic security. The globalization process covers all new areas of activity and technology. To ensure economic security, in addition to information and financial technologies, innovative technologies are joining. In order to manage innovative development, scientific and methodological approaches are necessary, which is the current background of this work.

Purpose of the article: The purpose of the study is to analyze and evaluate the use of innovative technologies to ensure the economic security of Russia in the context of globalization changes. The objective of the study is a comparative assessment of the dynamics of innovative development of Russia and the leading countries at the global level.

Methods: As a scientific and methodological approach to monitoring and analyzing the level of development of innovative processes to ensure economic security, based on a study of available statistical sources, it is proposed to use indicators - Global Innovation Index (GII) 2019.

Findings & Value added: Globalization and economic security affect all aspects of the economy. Economic security can be considered as a process of maintaining a state, the signs of which correspond to economic security in the context of globalization changes. Global indices of innovative development make it possible to assess the level of development of modern processes in the field of economic security and determine strategic priority development vectors in the future in order to strengthen the country's economic positions and competitiveness on a global level.

Keywords: *economic security; globalization; innovative technologies*

JEL Classification: *F52 ; F63; O320*

1 Introduction

In today's global economic activity, it is necessary to understand how to determine the world economy requirements, what impact can and should be expected if these requirements are met [1]. Innovative technologies are one of the key and most promising competition areas for economic influence between countries in the 21st century. The country's positioning as competitive ensures its economic security.

Global competition sets completely new goals at the state's level in the field of economic security assurance. National competitiveness, conditioned by socio-economic and political factors, ultimately determines the society well-being level that can be achieved by economic growth and investment in innovation, which are a strategic growth factor. "Based on historical experience, each state, under the influence of changing geo-informational factors, in order to accelerate socio-economic development, has to introduce new or change old society institutions" [2]. With exhaustion of growth opportunities for each technological wave and change in the

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structure of demand for scientific discoveries and inventions, there is a need for fundamentally new technologies, which competitive selection forms the basis of new technological trajectories [3].

Thus, competitiveness is now directly related to the introduction of innovations that ensure the ability to implement advanced technologies for maintaining a competitive advantage and move towards even higher added value. This means that maintaining global competitiveness requires constant investment in research institutions capable of generating the basic knowledge needed to enhance science, research and technological development [4].

Countries that are able to adapt innovative technologies to the new globalization demands will significantly strengthen their economic positions and thereby economic security, which is always relevant [5]. The most important component of adaptation is to achieve a balance between the strategic, tactical and operational goals of the system and its real capabilities, determined by forecasts of market situation and actions of competitors. Stable success can be achieved only by its planning and result predicting [6]. The main implementation form of innovative development management is strategic planning, which is becoming increasingly important due to changes in institutional framework after adoption of the Federal Law "On Strategic Planning in the Russian Federation" [7].

The purpose of this article is to assess the use of innovative technologies to ensure economic security, taking into account current global changes and their future forecasts.

2 Development level assessment methodology of innovative processes to ensure economic security

The economic security system effectiveness should be ensured using objective matrix of parameters and criteria for functioning of the state's economic system [8]. The use level measurement methodology of innovative technologies in order to ensure economic security is reflected in developing and using of system of indicators. The analysis of economic security in the context of globalization is based on the consideration of indicators - the indices of innovative development Global Innovation Index (GII) 2019 [9].

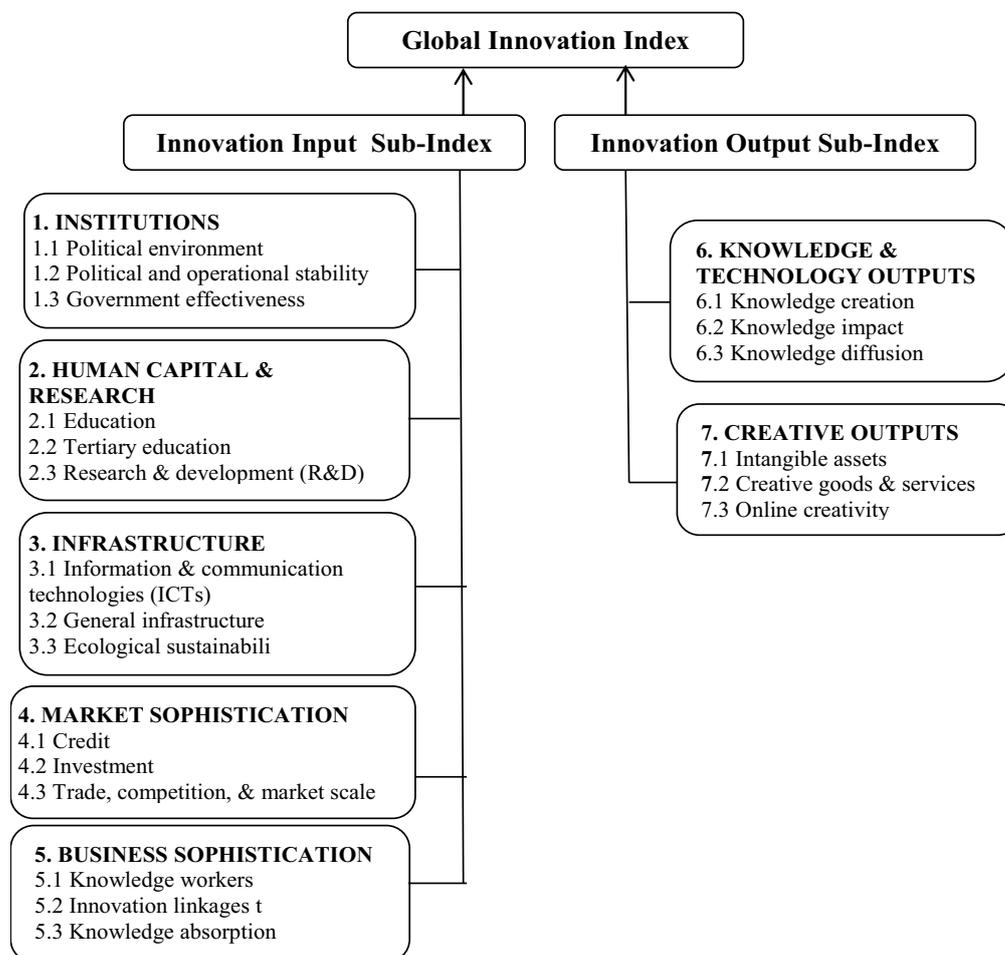


Fig. 1. Framework of the Global Innovation Index 2019.

The GII rating has been compiled by Consortium of Cornell University (USA), INSEAD Business School (France) and the World Intellectual Property Organization since 2007. On behalf of Russia, the GII Advisory Council includes and participates in the methodological support of the research, HSE Professor Leonid Gokhberg [10]. The GII-2019 ranking covers 129 countries, which together generate 96.8% of global GDP. These countries are home to 91.8% of the world's population. GII-2019 includes indicators of innovation activity, which are grouped into seven main areas, covering elements of the national economy: institutions, human capital, infrastructure, market development, business development, technology and economy and knowledge economy development, development of creative activities [11]. Each direction (pillar) is divided into three sub-pillars, each of which consists of separate indicators, totaled up of 80 indicators (Fig. 1).

The sub-index of innovation resources is formed from totality of variables of the first five directions; the sub-index of innovation results is formed based on indicators of sixth and seventh directions. The final GII rating is calculated as the average of the two sub-indices [12].

3 Results: assessment and analysis of innovative development in Russia

The Russia is ranked 46th in the overall GII-2019 ranking. The ranking results according to the general index of innovative activity of the ten leading countries and Russia are clearly shown in Figure 2.

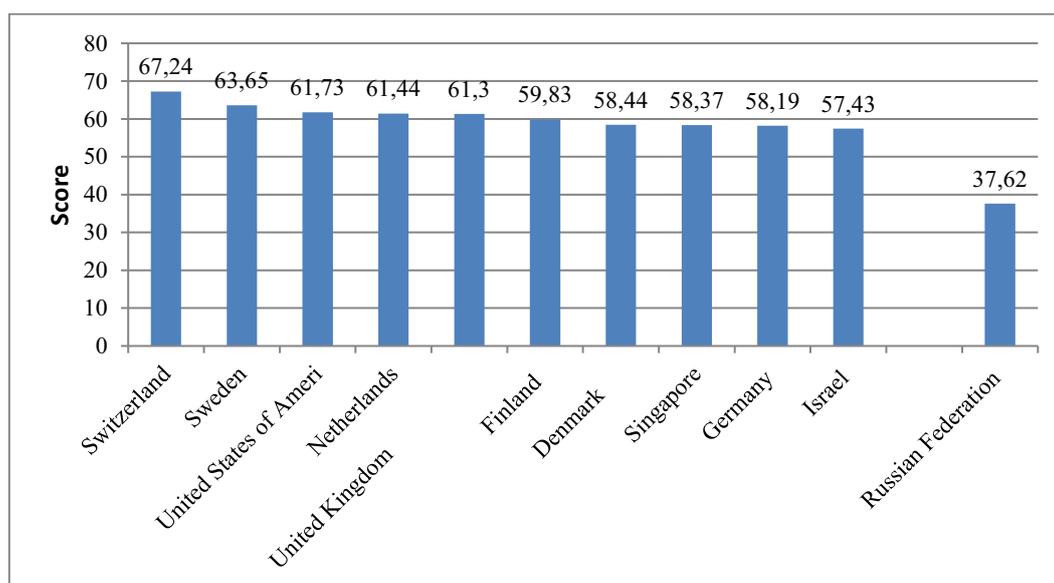


Fig. 2. Indicators of level of innovative development of countries in the GII 2019 system. Source: author according to the Global Innovation Index (GII) 2019 [9].

In 2019, the Russia falls into the group of countries "with level of GDP per capita above the average", ranking 6th among them among 34 countries, and among European countries 31st out of 39 countries. From 2015 to 2019, the Russian Federation improves its position on the Input rank sub-index, but the position on the Output rank sub-index has deteriorated (Table 1).

Table 1. Dynamics of the Russian Federation positions in the GII 2015-2019.

Years	GII	Input rank	Output rank
2015	48	52	49
2016	43	44	47
2017	46	43	51
2018	46	42	58
2019	46	41	59

Based on globalization prerequisites and modernization opportunities, according to Western experts, the Russian economy can be attributed to the catching up model [13]. The Russia's lag behind the leading countries in the Global Innovation Index ratings is associated with the emergence of whole range of risks that must be overcome. All this causes the need to create the risk management system with engaging of specialists for risk management [14]. The improvement of innovative indicators is influenced by set of methods of analysis and elimination of risk factors, combined into the system of strategic planning, monitoring and corrective actions [15]. The main provisions of implementation of the strategic national priorities of the Russian Federation in the field of economic security assurance are reflected in the Strategy of Economic Security of the Russian Federation for the period up to 2030 [16]. It assumes orientation to the main provisions of innovation strategy, which highlights the implementation goals, objectives and stages.

According to the GII-2019 rating, it may be assessed strengths and weaknesses of the Russia's innovation sphere (Table 2).

Table 2. Analysis of Russia's Strengths and Weaknesses in GII-2019

Strengths		Weaknesses	
Index	Rank	Index	Rank
2. HUMAN CAPITAL & RESEARCH	23	1.1.1 Political and operational stability	91

2.1.4 PISA scales in reading, maths, & science	26	1.2 Regulatory environment	95
2.1.5 Pupil-teacher ratio, secondary	15	1.2.1 Regulatory quality	103
2.2 Tertiary education	14	1.2.2 Rule of law	111
2.2.1 Tertiary enrolment, % gross	17	3.3 Ecological sustainability	101
2.2.2 Graduates in science & engineering	10	3.3.1 GDP/unit of energy use	113
2.3 Research & development (R&D)	30	3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP	112
2.3.1 Researchers, FTE/mn pop	33	4.1.3 Microfinance gross loans, % GDP	73
2.3.2 Gross expenditure on R&D, % GDP	33	4.2 Investment	102
2.3.3 Global R&D companies, avg. exp. top 3, mn US\$	40		
2.3.4. QS university ranking, average score top 3*	24		
3.1 Information & communication technologies(ICTs)	29		
3.1.1 ICT access	51		
3.1.2 ICT use	45		
3.1.3 Government's online service	25		
3.2.1 Electricity output, GWh/mn pop	28		
3.1.4 E-participation	23		
4.3 Trade, competition, & market scale	11		
4.3.3 Domestic market scale, bn PPP\$	6		
5. BUSINESS SOPHISTICATION	35		
5.1 Knowledge workers	25		
5.1.1 Knowledge-intensive employment, %	18		
5.1.3 GERD performed by business, % GDP	31		
5.1.5 Females employed w/advanced degrees, %	7		
5.3 Knowledge absorption	32		
5.3.1 Intellectual property payments, % total trade	18		
5.3.5 Research talent, % in business enterprise	27		
6.1 Knowledge creation	30		
6.1.1 Patents by origin/bn PPP\$ GDP	20		
6.1.3 Utility models by origin/bn PPP\$ GDP	8		
6.1.5 Citable documents H-index	22		
6.3.1 Intellectual property receipts, % total trade	39		

As can be seen from this Table, the country's competitive advantages include: "Domestic market scale, bn PPP \$" - 6th place, "Females employed w/advanced degrees" - 7th place, "Utility models by origin/bn PPP \$"

GDP" - 8th place. The top ten includes the indicator "Graduates in science & engineering". Among the weaknesses of the Russia's innovation system, it should be noted: "GDP/unit of energy use" - 113th place, "ISO 14001 environmental certificates/bn PPP\$ GDP" - 112th place, "Rule of law", "ISO 9001 quality certificates/bn PPP\$ GDP" - 111th place.

4 Discussions

Development and sustainability are important components of economic security. Increasing competitiveness, introducing innovative technologies are necessary parts of development, the formation of economic security of enterprises, industries, states. The competitiveness management, carried out by increasing the innovative potential, is reduced to assessing and analyzing the indicators of innovative activity that increase or decrease competitiveness for selection and implementation of the appropriate strategy. The Global Innovation Index (GII) is widely recognized as driver of economic growth and development. Its goal is to provide insightful data about innovation and to help countries assess innovation performance and make informed innovation policy decisions to improve competitiveness and economic security in a global world. The global competition places higher demands for the development of country's innovation strategy than it does for domestic innovation strategy.

5 Conclusion

Thus, by the main direction of development of national economy the competitive production based on of modern innovative technologies has to be developed. It is necessary to adapt the domestic competitive strategy to situation at international scale, as preferences and purchasing behavior in different countries differ from each other. The countries of the world differ in the intensity of competition, factors influencing the development of industry and other features. Thus, the need to adapt to the market conditions of different countries is one of the most important factors that complicate competition and ensure economic security in the world market. The main task is to find an optimal balance between adaptation to the market situation of each country and ensuring competitive prices and costs through the implementation of innovative technologies.

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