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ASSESSMENT OF UKRAINE INNOVATION DEVELOPMENT THROUGH INTERNATIONAL INDICES

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Abstract

The problem of innovative state of enterprises in Ukraine is investigated in the article. The basic principles and characteristics of the Global Innovation Index and Ukraine's place in the ranking of innovative development of the economy are analyzed. The study reveals the position of the country, the dynamics of its innovative potential. It determines the essence of the index of global competitiveness. The estimation of Ukraine on the main components of the index is conducted. The article provides detailed analysis of changes in key components of global competitiveness index. The index of the global competitiveness of subscript "innovation" is investigated and some positive dynamics of Ukraine's innovation potential are revealed. It analyzes components changes of capacity for innovation, quality of scientific research institutions, companies' expenditure on research and development, the level of cooperation of universities and industry in scientific and technical development and research, state procurement of high-tech products, the availability of scientists and engineers. This article determines the reasons for the absence of positive dynamics in interaction between education and industry and characterizes the role of state regulation of innovation policy. It states the necessity of the reformation of the innovation policy through the existing imbalance between the pace of scientific and technological developments and the real state of fixed assets in the industry. Modification of the current innovation policy taking into account the factor of adaptability to external and internal conditions of the country's economy is proposed.

Keywords: *innovative potential; International Innovation Index; index of global competitiveness; sub-indexes of "innovation"; innovation policy; state regulation.*

JEL classification: O31, O32, C43, H83

Introduction. Development of innovative potential of Ukraine today is quite a serious problem because of the difficult political and economic situation. Companies that introduce innovative products are often facing with the problem of under-investment, as a result the full

development of innovative potential becomes impossible. Evaluation of innovation development is an integral part of determining the efficiency of the economy, which is carried out by independent rating of innovative and relevant indicators. The Global Innovation Index is one of the most important indicators for assessing the innovative potential of the country, which reflects the real state investment and innovation development in the context of the economies of several countries, allowing for the systematic monitoring of the studying country, to identify the dynamics of its development, if necessary, adjust the appropriate actions of the executed body authorities responsible for the development of innovation and track the innovative potential of Ukraine in the international arena.

Analysis of recent research and publications. The problems are involved in innovative development of well-known domestic and foreign scientists. For instance, Santo B. A. considered innovation as a factor of economic growth [1], Illyashenko S. M. investigated the problem of innovative development [2] J. Schumpeter studied the theory of innovative development [3] P. P. Mykytyuk examined the issue of innovative enterprises development, taking into account internal and external environmental factors [4] and others.

The aim of the paer is to study the nature of Global Innovation Index, to assess the innovative potential of Ukraine and to find ways to improve innovation and investment climate of the country.

Presentation of the main material. The innovative development of the country is one of the most important performance indicators of innovation policy. Formation of the basic rules for the direction of economic development depends on many factors. Thus, due to the dynamic environment of the enterprise, which, provides innovative products systematically adjust domestic innovation policy, which has usually a negative impact on the process of implementing the chosen strategy of innovation, causing inhibition of the innovation potential of the company. Estimation of innovative potential can detect the level of innovative activity that affects the process of capitalization. To measure the level of innovation of enterprises it is required the constant monitoring of the implementation of selected innovative strategy adapted to the operating conditions and the potential of the company. Industrial enterprises and service industries have polar requirements and power that affect the choice of different types of strategies. Formation of performance innovation strategy at the micro level allows businesses to use resources more efficiently and to assess the impact of selected areas. To analyze the innovative capacity of company on international level it is used a number of indicators, one of which is a global innovation index.

The Global Innovation Index (Global Innovation Index, GII) – is the research of innovative climate, which is conducted from 2007 by business school INSEAD, the World Intellectual Property Organization and Cornell University. Because innovation is an important stimulus for economic growth and prosperity, GII aims to improve the evaluation system of innovation and improve understanding of the role of innovation [5]. The Global Innovation Index is a generalized indicator of innovation and innovative capacity of the economy. During the research of innovative development INSEAD Business School focuses on sustainable economic development as the main direction of the global economy. In this context, the innovative development is the most decisive factor of economic growth. Thus, the International Innovation Index regulates the directions of the economies of the world community. A systematic and continuous evaluation of innovative potential becomes possible timely and prompt correction of innovation policy, because keeping track of the position and state of others in terms of technological development is a specific control measure.

The dynamics of innovation development of Ukraine is presented in Figure 1.

As it is depicted in Figure 1, it follows that the overall dynamics of the global innovation index in the study period is negative. Thus, this index decreased for 6.6% in 2015 compared to

the index in 2011, which indicates the complications of conditions for innovative development of Ukraine, among the other countries. In 2014 Ukraine ranked 63 place, and in 2015 - 64 place.

Global Innovation Index indication improved despite the difficult political and economic situation in the country, showing a significant innovation potential of Ukraine.

One of the main indicators of the international economic situation is the index of global competitiveness. Global Competitiveness Index – is a global study that shows the status of economic competitiveness among the studied countries, prepared by the World Economic Forum.

Dynamics of the Global Innovation Index of Ukraine in 2011 - 2015 years

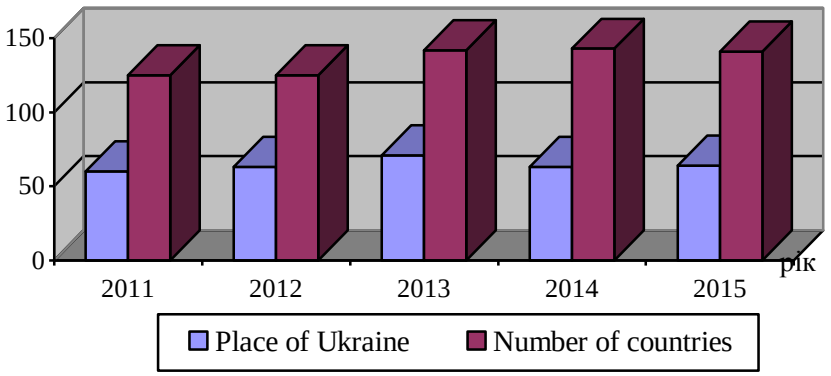

Fig.1. Dynamics of the Global Innovation Index of Ukraine in 2011 - 2015 years [6]

Competitiveness Index consists of 113 components that determine competitiveness of countries at different levels of economic development. One of the components consists of the results of a global survey of CEOs, the other – consists of statistical studies, carried out systematically by international organizations.

All variables are combined in the 12 benchmarks that determine national competitiveness:

1. The quality of institutions;
2. Infrastructure;
3. Macroeconomic stability;
4. Health and primary education;
5. Higher education and training;
6. The efficiency of the goods and services market;
7. Labor market efficiency;
8. The financial market development;
9. Technological development;
10. The size of the domestic market;
11. The competitiveness of companies;
12. Innovative potential. [7].

Thereby, the assessment of Ukraine on the Global Competitiveness Index is presented in Table 1.

Thus, the overall change in the index in Ukraine in 2015 compared to the rate in 2014 is a negative trend, namely, a shift took place from the previous position by 3 points, which indicates a problem of competitive advantages on the set of components of the index of global competitiveness.

Dynamics of the Global Competitiveness Index is presented in Figure 2.

Fig. 2. The dynamics of the index of global competitiveness of Ukraine in 2010-2015. [8].

Table 1. Global Competitiveness Index for Ukraine's main components 2014-2015 [8]

№	Components of the index of global competitiveness	2014 (among 144 countries)	2015 (among 140 countries)
1.	Institutions	130	130
2.	Infrastructure	68	69
3.	Macroeconomic environment	105	134
4.	Health and primary education	43	45
5.	Higher education and training	40	34
6.	Goods market efficiency	112	106
7.	Labor market efficiency	80	56
8.	The development of the financial market	107	121
9.	Technological readiness	85	86
10.	Market size	38	45
11.	The business under modern conditions	99	91
12.	Innovations	81	54
The overall index of global competitiveness		76	79

On the basis of these data (Figure 2) the following conclusion can be made: the overall dynamics of the global competitiveness index is positive, as in 2015 (79 seats) compared to 2010 (80 seats) Ukraine position raised by 1 position.

However, in 5 years the economy has improved the competitiveness of only 1 position, which indicates the low efficiency of economic policy that requires its review and optimization.

Regarding the subscript "innovation" it should be noted a significant shift positions in 2015 (54 seats) compared with the rate in 2014 (81 seats). This indicator shows the effectiveness of innovation policy and high efficiency of state regulation of innovative development of Ukraine.

Changes in the main components of the subscript "Innovation" are presented in Table 2.

Table 2. Changes in the main components of the subscript "Innovation" to global competitiveness index Ukraine in 2015 relative to 2014 [8]

№	Component subscript "Innovation"	2014 p. (among 144 countries)	2015 p. (among 140 contries)
1.	The ability to innovate	82	52
2.	The quality of the scientific research institutes	67	43
3.	Companies' expenditure for research and development	66	54
4.	Cooperation of universities and industry in research and development	74	74
5.	State procurement of high-tech products	123	98
6.	Availability of scientists and engineers	48	29
Total change of the subscript "Innovation"		81	54

Thus, innovative component of the Global Competitiveness Index has positive dynamics, which indicates considerable innovative potential. Thus, the component of "the ability to innovation" has risen by 30 positions, describing the high human potential of scientific and technical class; part of the "quality of the scientific research institutions" changed to 24 positions, indicating a high level of academic training and the efficiency of research institutes; component " companies' expenditure for research and development" is characterized by a change in position by 12 points, which means a willingness of enterprises to implement innovative products both in production and in the management of companies; component of the "cooperation of universities and industry in research and development" has not changed and remained at 74th place, indicating a constant level of cooperation of industries and education (the figure indicates insufficient interaction between industry and research institutions, due to an imbalance between pace of scientific development and actual production capacities of industrial enterprises through long-term operation of machines and equipment); position of the components of the "public procurement of high-tech products" characterized by positive dynamics, namely, a shift by 25 positions, which means more state support of innovative potential of the state; component state "availability of scientists and engineers" moved to 19th position, indicating the increase in the quantity and quality of scientific potential.

Thus, innovative component of the index of global competitiveness of Ukraine in 2015 has greatly improved, raising the position of the previous year by 12-30 points.

Changes in the number of enterprises that perform scientific research and development for their further implementation in Ukraine is shown in Figure 3.

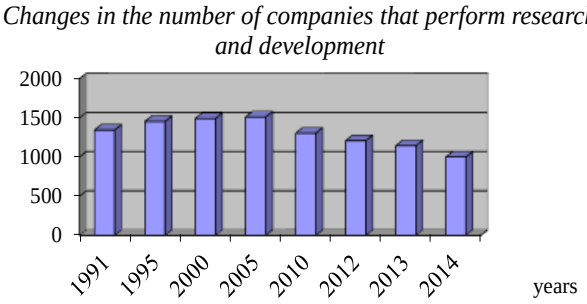

Figure 3. Changes in the number of companies that perform research and development [9]

From Figure 3 it follows that for 23 years period the dynamics of enterprises that implement innovations is negative. Thus, the number of such enterprises decreased by a quarter (-25.6%) from 1344 units in 1991 to 999 units in 2014. This is, above all, the problems of development financing and insufficient investment in the economy. When analyzing the sources of financing innovation enterprises, it should be noted that the largest share is occupied by own funds.

Significant role is played by underinvestment in the area of innovation. The investment component of the functioning of the state has a number of problems related to political, industrial, legal subsystems. This explains the need for a global transformation of the investment system as a whole, which is possible, provided a comprehensive business process optimization for the companies and the economy as a whole.

State regulatory policy of innovative development mode is characterized by increased support for innovation and scientific potential. The Law of Ukraine "On innovation activity" allows entities to introduce innovative products on preferential conditions and simplified to increase innovation in the enterprises. Necessary areas of regulation of innovation are:

1. Activation of innovation activity in Ukraine;
2. Difinition of national priorities of innovative development;
3. Ensuring interaction of manufacturing, science, education, banking system to improve the scientific and technical resources;
4. Effective use of market mechanisms to promote innovative development;
5. Implementation of favorable financial, credit, tax policy in the field of innovation;
6. Information support and infrastructure of innovation.

Conclusions and recommendations for further research. Development of innovative potential is a very important aspect of state regulation of this area of activity. The analysis revealed the position of innovation at the average level among the economies that make up the ranking of global innovation index and the index of global competitiveness. It should be noted that 2015 has become quite effective in the development of innovative potential, as evidenced by the previous shift position and release innovative development to a new level. Of course, Ukraine's innovation policy needs some modification and improvement in a dynamic environment with a focus on adaptation to external and internal factors. However, innovative potential and innovative capacity of the country are quite promising, as the

scientific component has significant impact on the strategy of sustainable economic growth of the state today.

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