

INNOVATIVE ACTIVITIES OF UKRAINE IN WORLD RATINGS

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Abstract: A study of Ukraine's place in global innovation ratings, such as the Global Innovation Index, European Innovation, European Innovation Scoreboard, and The Bloomberg innovation index, was conducted. The shortcomings and prospects of innovative development are determined, taking into account the current state of the Ukrainian economy.

Key words: innovative development, indicators, ratings, European perspectives

The active activity of the domestic economy in the field of innovation urgently requires a comprehensive study of the current state and prospects for improving the main indicators (indicators), which largely characterize the current state of the country's activity in the field of innovation and its development prospects [1-3]. In our opinion, in this regard, it is appropriate to use foreign practice in monitoring basic innovation indicators. Such indicators should include, first of all, those that characterize the processes of integration, globalization, the introduction of intellectual and innovative technologies, and the formation of a knowledge-based economy.

At this time, the world community forms numerous indexes and ratings regarding the most objective characteristics of the state of innovative activity in the country. One of the most important of them is the Global Innovation Index [1]. This index consists of 82 different variables that reproduce the detailed characteristics of the innovative development of countries of the world at different levels of economic development. The authors of the methodology for evaluating the value of the global innovation index believe that the success of the economy is related to both the availability of innovative potential and the conditions for its implementation. In this regard, the Index is calculated as a weighted sum of the scores of two groups of indicators: Innovation Input (a group of indicators of the sub-index of innovation costs) and Innovation Output (a group of indicators of the sub-index of innovative results). This allows us to state that the Global Innovation Index is based on the ratio of costs and effects, which allows us to objectively assess the effectiveness of innovation development efforts in one or another country (see Table 1).

Table 1 - Ukraine in the world rankings, which reproduce the innovative development of its economy

Indicators of world ratings	2015	2016	2017	2018	2019	2020	2021
Global Innovation Index	64	56	50	43	47	45	49
Subindex of innovation costs	84	76	77	75	82	71	76
Human capital and research	98	101	101	107	96	93	91
Infrastructure	36	40	41	43	51	39	44
Level of market development	112	99	90	89	97	94	94
Level of development of business activity (business activity)	89	75	81	89	90	99	88
Human capital and research	78	73	51	46	47	54	53
Subindex of innovative results	64	40	40	35	36	37	37
Results in the field of knowledge and technology	34	33	32	27	28	25	33
Results in the field of creative activity	75	58	49	45	42	44	48
The Bloomberg innovation index	33	41	42	46	53	56	58
Productivity	48	50	50	50	60	57	55
Patent activity	25	28	27	27	35	36	36
Efficiency of higher education	5	5	4	21	28	48	57
Value-added production	40	46	47	48	58	57	57
Research and development intensity	39	45	44	47	54	57	59
Concentration of researchers	39	42	44	46	48	49	52
Penetration of high technologies	31	36	34	32	35	35	39
European Innovation Scoreboard	35	35	35	36	36	33	34

Source: [1, 2, 3, 9, 14]

A detailed analysis of the world innovation ratings and the place occupied by our country in them [4-18], the following conclusions can be drawn.

1. Ukraine has the most positive achievements in the field of knowledge and technologies, and the most unacceptable - in the field of market innovation infrastructure development.

2. The Bloomberg innovation index provides a description of the innovative development of countries and regions and reproduces the corresponding rating over the past eight years. The innovative nature of national economies is determined by this agency using the indicator of R&D expenditures, which is related to the value of national GDP, as well as productivity indicators, the share of innovative enterprises in the total national number of them, the number of researchers (scientists) per 1 million inhabitants, the amount of added value production in relation to the national GDP, the share of university graduates in the total number of graduates of educational institutions and the value of patent activity.

The Bloomberg agency uses the following as the basic factors used to analyze the innovativeness of the economy of different countries [3]:

a) the level of intensity of innovative activity in the field of research and development - calculated as the ratio of R&D expenditures to the size of GDP (specific weight of the indicator - 20%);

b) labor productivity – calculated as the ratio of GDP to the number of workers per hour of work (specific weight of the indicator - 20%);

c) the level of density of the High-tech sphere (aerospace, defense, biotechnology, manufacturers of equipment, software, Internet programs and services, renewable energy sources) - is defined as their share in the total number of state-owned enterprises (specific weight of the indicator - 20 %);

d) the level of concentration of research scientists, defined as their number per 1 million citizens of the country (specific weight of the indicator - 20%);

e) the level of technological capabilities of the country, determined by the share of high-tech products in the GDP and the percentage in the national export of products (specific weight of the indicator - 10%);

f) the level of tertiary efficiency (5%), determined taking into account the indicator of coverage of all disciplines by graduates of universities of the 2nd, 3rd, 4th level of state accreditation; shares of students studying in high-tech specialties; the share of university graduates from high-tech specialties (specific weight of the indicator - 5%);

g) the level of patent activity - is defined as the percentage of patent applications per 1 million population and \$1 million in the field of R&D (specific weight of the indicator - 5%).

In recent years, according to the Bloomberg innovation index, the economies of Germany, South Korea, Singapore, Switzerland and Sweden have taken the leading positions. According to this rating, our country ranks in the sixth place among the 60 countries on which the study was conducted. In particular, the Ukrainian economy ranks 60th according to the "labor productivity" indicator. This shows that our country produces products with a low level of added value and has a very low level of intellectual and innovative technologies that find their use in real-world production. According to the indicator of technological capabilities, our country ranks 58th. The share of GDP spent on research and development is so small that Ukraine is clearly outsiders in the ranking. The 28th and 35th places of our country in terms of the effectiveness of higher education and the patent activity index should be noted as positive.

The European Innovation Scoreboard (innovation scoreboard of the European Union) includes our country in the group of countries named "Emerging Innovator" [2, 13]. Next to Ukraine in this group are Bulgaria, Macedonia and Romania. It should be noted that Ukraine has significant opportunities in the field of innovative development, which have not yet been fully realized. In particular, this largely refers to the commercialization of innovative technologies and the legal protection of exclusive rights. The main advantages of our country in the world rankings include a favorable geographical location, the capacity of the domestic market, an effective free trade zone between our country and the countries of the European Union, as well as the level of intellectual (human) potential with a fairly high level of development. At the same time, it should be noted that the indicators of the innovative level of the Ukrainian economy relative to the countries of the European Union have a certain tendency to deteriorate, the main reason for this situation should be called the consequences of the full-scale military invasion of our country by the Russian Federation.

The study of the methods of establishing and using ratings of innovative development of countries shows that each rating contains a large number of indicators that sufficiently characterize the innovative development of countries, taking into account the influence of various factors (including the infrastructure of innovation support, the development of science, education, technology, human capital, development of business and economy of the country in general, etc.). Despite the use of similar indicators, each rating has peculiarities in the focus, goals and research methods. The Global Innovation Index, which is published annually and contains reports on all indicators for each country, can be called the most complete, logical, well-argued, and such that,

taking into account various factors, the innovative development of countries can be assessed, which allows for an in-depth comparative analysis in terms of the use of resources and achieving innovative results. It should be noted that this is the only one of the ratings under consideration that includes the direction of creative activity development. Thus, the developers associate the development of innovations in the country with the education of creative thinking, which is quite justified.

The value of the component indices should determine specific priorities and tasks of innovative development of Ukraine, make adjustments to innovative strategies and programs. State administration bodies must carry out constant evaluation, control over the components of innovative development, development of measures for financing and state support of priority areas of innovative development, taking into account international indices. State innovation policy should take into account international evaluations, dynamics of changes in national innovation components, forecasts and trends in global innovation development.

REFERENCES

1. Compliance program of an industrial enterprise. Tutorial. (2019) / [P.G Pererva et al.] // Edited by prof. P.G.Pererva, prof. Gy.Kocziszky, prof. M.Somosi Veres. Kharkov-Miskolc: NTU "KhPI". 689 p.
2. Tkachev M.M., Kobieliava T.O., Pererva P.G. (2016) Evaluation of holder profits violation of their exclusive rights // *Scientific bulletin of Polissia*. № 4 (8), ч. 2. С. 240-246.
3. Pererva P.G., Kocziszky G., Szakaly D., Veres Somosi M. (2012) Technology transfer. Kharkiv-Miskolc: NTU «KhPI». 668 p.
4. Kobieliava T.O., Tkachov M.M., Tkachova N.P., Pererva P.G. (2017) Modeling the marketing characteristics of market capacity for electrical automation // *Marketing and Management of Innovations*. №4. С.67-74.
5. Pererva P.G., Kosenko A.P., Kobieliava T.A., Tkachev M.M., Tkacheva N.P. (2017) Financial and technological leverage in the system of economic evaluation of innovative technologies // *Financial and Credit Activity Problems of Theory and Practice* 2(23). 405-413.
6. Kobieliava T.O., Tkachov M.M., Tkachova N.P., Pererva P.G. (2017) Determination of marketing characteristics of market capacity for electrical automation. // *Менеджмент і маркетинг інновацій*. №3. С.79-86.
7. Tkachov M.M., Kobieliava T.O., Pererva P.G. (2016) Evaluation of holder profits violation of their exclusive rights // *Scientific bulletin of Polissia*. № 4 (8). P. 27-35.
8. Tovazhnyanskiy V., Kobeleva T., Gladenko I., Pererva P. (2010) Antikrizisnyy monitoring of finansovoeconomicheskikh indexes of work of enterprise // *Business Studies*. Volume 7.- Numer 2. Miskolc Press. S. 171-183
9. Kobieliava T., Kocziszky G., Veres Somosi M. (2018) Compliance-technologies in marketing // *MIND Journal*. № 5. 10 p. URI: https://mindjournal.wseh.pl/sites/default/files/article/09-18/compliance-technologies_in_marketing.pdf.
10. Pererva P., Kuchynskiy V. (2021) Digitization of personnel management processes // *Actual problems of modern science : monograph / ed.: S. Matiukh [et al.]*. Bydgoszcz : Bydgoszcz University of Science and Technology, 2021. Pt. 1.29. P. 275-285.
11. Pererva P., Kuchynskiy V., Kobieliava T., Kosenko A., Maslak O. Economic substantiation of outsourcing the information technologies and logistic services in the intellectual and innovative activities of an enterprise // *Eastern-European Journal of Enterprise Technologies*. 4 (13), 112
12. Pererva P., Nagy S., Maslak M. (2018) Organization of marketing activities on the intrapreneurship // *MIND Journal*. №5. 10p. URI: https://mindjournal.wseh.pl/sites/default/files/article/09-18/organization_of_marketing_activities_on_the_intrapreneurship.pdf
13. Pererva P., Kosenko O., Tkachov M. Compliance program of an industrial enterprise: the essence and content // *Mérleg és Kihívások = Balance and Challenges : 10 nemzetközi tudományos konferencia, 2017, október 17-18, Miskolc-Lillafüred*. Miskolc : Miskolci Egyetem Gazdaságtudományi Kar, 2017. O. 87-93.
14. Pererva P., Gutsan O., Diachenko T. (2017) Motivation of personnel on machine-building enterprise // *Balance and Challenges, Miskolc-Lillafüred*. – Miskolc : Miskolci Egyetem Gazdaságtudományi Kar. O. 100-106

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