

READINESS OF THE EURASIAN ECONOMIC UNION MEMBER COUNTRIES FOR THE DIGITAL TRANSFORMATION OF THE ECONOMY

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Abstract: *The establishment of the Eurasian Economic Union (EEU) in 2015 contributed to stronger intraregional economic ties in the post-Soviet space. The evolution of the world economy has always been synchronized with the introduction of new technological innovations into the economic turnover. Science has become one of the most important factors in the location of production. Therefore, the search for the relationship between scientific and technological progress and economic growth has become one of the central issues of scientific research. The rapid growth in production and export / import of high-tech products is a key trend in the development of modern manufacturing industry. In the context of the digitalization of the economy, we are talking about the development of the industrialization process at the stage of implementation of Industry 4.0, the Internet of Things, and the Internet of Everything. The purpose of the research is to characterize the positions of the EEU countries in the international rating tables on the Human Development Index (HDI), The ICT Development Index (IDI) and the indices of the society's information in dynamics over a number of years.*

The article is devoted to the analysis of the current situation in the innovative and industrial development of states in the post-Soviet space, and the assessment of the readiness of the states that are members of the Eurasian Economic Union (EAEU) for the digital transformation of the economy. It is necessary to adjust the direction of further development. The EEU countries should occupy a worthy place in the modern information world.

Key words: *Eurasian Economic Union (EEU), CIS, human development, innovation development, digital economy, digital transformation*

JEL codes: *O14, O33, O52, P21*

1. Introduction

Innovative development is always associated with the introduction of scientific research into practice, with the withdrawal of innovations and latest technologies to the domestic and world market (Gierańczyk, 2010; Bharadwaj et al., 2013; Teece, 2018; Industrial .., 2020). Recently, the problems of financial support for patenting processes and the impact of the digital economy on all spheres of the population's life have been analyzed. Features, problems and prospects of development of national innovation systems are revealed (Rodionova, 2013; Dominiak, Rachwał, 2016; Rodionova et al., 2016; UNIDO Industrial.., 2018; Watanabe et al., 2018). Authors of scientific papers and UNIDO experts show that in an innovative economy, the creation and trade of high-tech goods and services leads to an increase in the world's GDP (UNIDO Industrial.., 2018; Watanabe et al., 2018; Teece, 2018; Industrial.., 2020).

In the countries with economies in transition (which include the CIS countries), the economic and political situation has fundamentally changed over the past 30 years. It should be noted that the CIS countries now occupy not very high positions in the ratings (Human Development Indicators.., 2018; Rodionova, Gordeeva, 2010; Rodionova, 2013; Dominiak, Rachwał, 2016).

In the post-Soviet space, which includes the states that are members of the EEU (Russia, Kazakhstan, Belarus, Armenia, Kyrgyzstan), processes are currently being recorded associated with varying degrees of structural changes in the economy. All EEU member countries are now automatically included in the Customs Union. It functions to strengthen economic ties between the five countries (formerly part of the USSR) by restoring previously existing interregional economic and technological chains taking into account modern conditions. When crossing the borders of the Common Economic Space, customs duties are paid (Russia accounts for 85% of the total). The Customs Union has a mechanism for coordinated collection and distribution of indirect taxes. In other words, the Customs Union promotes the economic integration of the states that are members of the EEU.

Recall that in the CIS space at one pole are located - more industrially developed countries. These are Russia, Kazakhstan, Belarus, Azerbaijan, and Ukraine. They already use the achievements of the knowledge economy, apply innovations for their development, and

introduce the digitalization of the economy. At the other extreme are the less developed CIS countries (Moldova, Tajikistan, Turkmenistan, Kyrgyzstan, and Armenia). They lag behind not only in industrial development, but actually do not yet have the ability to effectively develop the process of digitalization of their economy. They are often referred to in the group of "developing" in international statistics. Moreover, we know that it is technological superiority in the conditions of digitalization of society that will determine the position of the state among the leaders of the world economy (UNIDO Industrial., 2018; Industrial., 2020).

The purpose of this article is to analyze the current situation in the innovative and industrial development of the EEU states, and make an attempt to assess the readiness of the EEU countries for the digital transformation of the economy.

2. Methodology and Data

Initially, one should consider the positions of the EEU countries in terms of human development. Since 1990 the Human Development Report (HDR) has played an important role in broadening the debate on development, exploring themes such as gender equality, democracy, human rights, and cultural diversity. In HDR reports, countries and territories are ranked according to the Human Development Index (HDI). HDI is a composite index measuring average achievement in three basic dimensions of human development – a long and healthy life, knowledge and a decent standard of living (Human Development., 2018).

The level of development of the ICT sphere in modern conditions is the most important indicator of the economic well-being and competitiveness of the state. Therefore, to identify the positions of the EEU countries in the ranking table by the level of innovative development in the context of the digitalization of the economy, the rating The ICT Development Index was chosen (Measuring .., 2017). In this ranking, 176 countries are compared by 11 indicators. ICT Development Index (IDI) is calculated according to the International Telecommunication Union. This specialized UN unit defines global ICT standards. The index can be used as a tool for benchmarking at global, regional and national levels. All indicators measure access to ICT, the use of ICT in business and society. It also assesses the practical knowledge of these technologies by the population.

To achieve the goal of research and evaluation of the positions of the EAEU countries, the ranking of countries' competitiveness in the use of digital technologies was also analyzed (IDM World Digital .., 2019). A distinctive feature of this rating is the assessment of the state's readiness to adopt digital technologies, as the most important factor in the transformation

processes in business, management and society as a whole (but only in 63 countries). Indicators are evaluated in three blocks - Knowledge; Technology Future Readiness. The influence of technologies on the efficiency of production and business, on the functioning of all sectors of the economy is revealed. It is well known that in order to increase their competitiveness, states must invest very significant funds in the development of the digital economy.

In order to characterize the level of industrial development in 130 countries of the world (including five EEU member countries), we analyzed data on the level of industry competitiveness of countries based on the data from the Competitive Industrial Performance (CIP) Index table. The positions of the EEU countries in the ranking were identified (Competitive .., 2018; UNIDO Industrial .., 2018).

Calculated correlation between the indicators of innovative and industrial development in 130 countries around the world for all several indicators. Correlation was calculated in the Excel program (calculation formula is standard). The determination coefficients were also calculated, reflecting the close relationship of the indicators (taking into account the share of unexplained variance - the variance of the random error of the model). The indicators of the leaders and member countries of the EAEU were analyzed for each of the criteria for innovation and industrial development selected for comparison.

3. Results and Discussion

In recent decades, the economic conditions in the republics of the USSR have changed. The economic and political situation has fundamentally changed. In the early 1990s, in the post-Soviet countries, such negative phenomena as deep social inequality, unemployment, poverty, low salaries appeared in the CIS. There was also a lack of state custody, which was in a planned economy of the USSR. Many enterprises were closed. Although they were often city-forming, that is, the only ones in cities and towns (for example, in single-industry towns). All this significantly worsened the material and moral basis of people's lives.

At the same time, in 2015, countries very different in terms of their socio-economic development came together in the EAEU (Tab. 1). EEU member states also differ in the level of education and innovative development. All the CIS republics (including countries included in the EEU) in international rankings do not currently occupy high positions.

Tab. 1 Some indicators of the level of economic development of the EAEU member countries, 2018

Country	GDP (PPP) per capita, \$	Population, million	Share in CIS, %	GDP (PPP), \$ billion	Share in CIS, %	Export, \$ billion	Share in CIS, %	Import, \$ billion	Share in CIS, %
Russia	27 900	142.1	50.6	4 016.0	72.2	353	69.9	238	61.0
Kazakhstan	26 300	18.7	6.6	478.6	8.6	49	9.7	32	8.2
Belarus	18 900	9.5	3.3	79.4	1.4	29	5.7	32	8.2
Armenia	9 500	3.0	1.1	28.3	0.5	2	0.4	3.8	1.0
Kyrgyzstan	3 700	58.5	2.1	23,1	0.4	2	0.4	4.2	1.1

Source: compiled by the author (The World Facebook, 2019. www.cia.gov)

In some of them, the level of education of the population and the level of human potential decreased. For example, the indicators of the Human Development Index (HDI) for the EEU countries are significantly lower than for the leading countries of the rating tables. In recent years, these states have actually only slightly improved their ranking positions. But earlier in all republics of the USSR there were very high levels of education and health care. Now these indicators have changed and not for the better, especially for Armenia and Kyrgyzstan (Tab. 2).

Tab. 2 Dynamics of indicators and positions of the EEU countries in the ranking of the Human Development Index (HDI), 1995-2018

Country	1995 Index	2000 Index	2005 Index	2010 Index	2010 Rank	2018 Index	2018 Rank
Russia	0.664	0.662	0.693	0.719	65	0.816	49
Kazakhstan	0.620	0.614	0.696	0.714	66	0.808	58
Belarus	0.706	0.732	61	0.808	53
Armenia	0.571	0.620	0.669	0.695	76	0.755	83
Kyrgyzstan	0.515	0.550	0.572	0.508	109	0.672	122

Source: compiled by the author: (Human Development..., 2018)

The situation in 189 countries was analyzed (Human Development..., 2018). From the CIS countries, only Russia is in the group with a very high HDI (49th position in 2018). At the same time, Russia is located in the ranking table between Oman and Montenegro, quite slightly ahead of Bulgaria and Romania. All other EEU states are even lower in the ranking. And Kyrgyzstan in the ranking takes the 122nd position between El Salvador and Morocco.

Next, the positions of the EEU member countries in the ratings of innovative development were analyzed. It also allows you to assess the degree of separation of outsiders from leaders. Among the leaders are often represented by the small population of Western Europe (Switzerland, the Netherlands, Sweden, Finland, Norway), as well as Singapore, the Republic of Korea, Germany, and the USA. Russia and other EEU countries are usually not in the list of leaders in innovation ratings. For example, in the ranking of countries in terms of

competitiveness in the digital economy among the 63s, only 3 CIS countries are represented (IDM World Digital Competitiveness Rankings, 2019). Kazakhstan is ranked 35th. Russia occupies 38th position out of 63th in it (and the United States, Singapore, Sweden, Denmark, Switzerland lead). Ukraine is in the 60th place in the ranking.

In the ranking table “The Global Innovation Index, 2019”, Russia occupies only 46th position (out of 129) and is in the group of countries (“Upper middle-income economies”). Armenia - occupies the 64th position, Belarus - 72nd, Kazakhstan - 79th, Kyrgyzstan - 90th position (between Namibia and Egypt). At the same time, the leading positions are held by: Switzerland, Sweden, USA, Netherlands, Great Britain, Finland (The Global Innovation ..., 2019).

In the ranking of “The Networked Readiness Index, 2016”) from the EEU countries, Kazakhstan has a higher position (39th). Russia occupied 41st place (out of 167), Armenia - 56th, Kyrgyzstan - 95th (between Egypt and Honduras). And the leaders were Singapore, Finland, Sweden, Norway, and the USA (The Networked .., 2016).

Belarus ranks 32nd in the ranking table “The ICT Development Index, 2017” (IDI). Russia is at 45th position (out of 176), Kazakhstan is at 53rd, Armenia is at 75th, and Kyrgyzstan is at 109th (between Vietnam and Indonesia). The leaders of the 2017 rating were: Iceland, Republic of Korea, Switzerland, Denmark, United Kingdom) (Measuring ..., 2017). According to experts, the lack of data was a significant reason why the IDI rating for 2018 could not be published. This is bad, as many countries use an IDI rating to track their progress.

In the Bloomberg Innovation Index, 2019 table from the EAEU countries, only Russia is represented, which is in 27th place (out of 50). When compiling this rating, the concentration of high-tech companies in the country, production capacities, research and development costs are taken into account. The leaders of the ranking are the Republic of Korea, Germany, Finland, Switzerland, Israel (Bloomberg Innovation Index, 2019).

In other words, the not too high positions of Russia and other EEU countries in the analyzed ratings indicate the presence of serious problems in the development of national innovation systems of these states and the low efficiency of their innovation development strategies. At the same time, outsiders in the ratings (along with many underdeveloped African and Asian countries) are often also individual republics of the EEU (for example, Kyrgyzstan).

At the next stage of our study, we compare the positions of the countries of the world in terms of individual indicators of innovative and industrial development. The highest correlation (0.7-0.8) was found between the data of innovation development ratings and indicators: the

volume of manufacturing products per capita, GDP per capita and calculated data on the "relative level of industrialization" of the countries of the world. Slightly lower (0.54) is the relationship between the CIP Index table data and the IDI rating table data reflecting the level of their innovative development.

As the analysis showed, a high direct correlation was found between the criteria for the level of innovative and industrial development. However, each of the rating tables for all indicators selected by us needs to be analyzed more deeply. As noted above (Tab. 1), the EEU countries are very different from each other both in the number of inhabitants and in the level of socio-economic and industrial development. The data in Table 3 reflects some indicators of the economic development of the EAEU member countries (Tab. 3).

Tab. 3 Some indicators of economic and industrial development of EEU member countries, 2017

	GDP*, Billion US\$	MVA *, million US\$	MVA per capita*, \$	Share of MVA in GDP, %	CIP Index - rank (2019)
Russia	1 597.6	202 188.2	1 409.6	13	32
Kazakhstan	185.0	182 94.3	1 024.6	10	69
Belarus	56.7	13 837.5	1 459.4	24	47
Armenia	11.8	1 281.0	423.3	11	99
Kyrgyzstan	6.1	887.1	147.0	14	121

*(at constant 2010 prices in US\$)

Source: compiled by the author: (Competitive Industrial..., 2018; UNIDO Industrial..., 2018)

There is a digital divide between the states that are members of the EAEU and in the field of ICT development. At the same time, between the values of countries on the IDM The World Digital Competitiveness Index and data on value added in manufacturing industry in the EEU countries, a high positive relationship is also recorded (the correlation coefficient is almost 0.8). This is evidence that digital technologies currently play an increasingly important role in the development of industry, providing the opportunity to increase labor productivity, reduce the time taken to introduce scientific and technological developments into production, etc.

At the same time, a correlation analysis, on the one hand, of the values of countries in the rating tables of innovative indices (Digital Competitiveness Index, etc.), and, on the other hand, of the corresponding values in the Global Industry Competitiveness Index, "relative industrialization coefficient", and per capita GDP, confirmed the hypothesis that digital technologies, penetrating into all spheres of human life, are one of the determining factors in the development of the state economy as a whole. So, in the ranking table of the Competitive Industrial Performance Index (CIP Index), 2018 - Germany, Japan, China, the USA, and the

Republic of Korea are the leaders. EAEU countries occupy the following positions in the rating table. Russia is at 32nd place (out of 150), Belarus is at 47th, Kazakhstan is at 69th, Armenia is at 99th, Kyrgyzstan is at 121st (between Papua New Guinea and Montenegro) (Competitive Industrial ..., 2018).

In order to integrate into the community of economically developed countries that highly use the advantages of innovative development, the EEU countries (like all CIS countries) need to move faster in this direction. And there is potential for this.

Smart ICT machines, systems and networks will collect information, exchange information and respond to it. They will manage industrial and production processes. These are completely new living conditions for all of humanity. And you need to be prepared for this. Therefore, the level of development of human potential, the level of development of national innovation systems should correspond to this stage of development. The purpose of the unification of the five states of CIS in the EEU is the strengthening of economic ties through the restoration of pre-existing interregional economic and technological chains, taking into account modern conditions.

4. Conclusions

The analysis confirmed a direct relationship between the level of innovative and industrial development. But it is noted that the digital divide between countries is still very significant. Leading positions in all innovation development ratings are held by states with a high level of readiness to use the digital transformation of the economy. Innovation lags behind in countries where society focuses on risk avoidance and where R&D is perceived solely as an expense, not an investment.

Russia and other CIS countries need to adapt to the complex process of integration into the global economy through ICT. The level of informatization is now the most important indicator of a country's competitiveness. The level of education of the population and qualifications, that is, the general level of human development (HDI) determines the possibility of using all electronic communications, ICT in all spheres of the population's life.

As the analysis showed, the EAEU states have varying degrees of readiness for the digital transformation of the economy. Moreover, the EAEU member countries in international rankings (especially Armenia and Kyrgyzstan) continue to be significantly inferior to the leading world leaders in terms of innovation activity and economic development. In the light of the economic sanctions of developed Western countries against Russia, this gap may even

widen. It is necessary to deeply study the identified imbalances in development and the experience of more developed countries in order for the EAEU countries to take higher positions in international rankings.

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