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Digital Integration as a Factor in the Sustainable Development of the EAEU Member States

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***Abstract*—The article shows that digital integration is becoming a driver of social, economic, and environmental integration and a factor in the sustainable development of the member states of the Eurasian Economic Union (EAEU). At the same time, sustainable development is interpreted as the coordinated development of economic, environmental, social, and digital aspects of development. It is shown that the formation of a single digital space of the EAEU member states is necessary for effective participation in the global digital competition, to which economies of scale are very important. The analysis of the level of digitalization of the Eurasian economies was carried out on the basis of the system of national and international indicators of digitalization, and a significant digital divide between the EAEU member states was revealed. It has been determined that the digital divide is a consequence of the socio-economic inequality between the integrating countries. It is shown that the digital infrastructures of the EAEU member states are at different levels of maturity, making it difficult for them to develop in concert. One of the reasons why the EAEU member states lag behind developed countries in the development of the digital economy is an insufficiently favorable environment for innovation implementation, the poor effectiveness of legal regulation, low investment in research and development, and a low level of the use of digital technologies in business. The analysis of the Concept for the Development of Digital Economies and the Digital Agenda of the Eurasian Economic Union until 2025 adopted by the EAEU member states is given.**

Keywords*—*digitalization, digital integration, the Eurasian Economic Union (EAEU), global digital competition, digital divide, sustainable development.

I. INTRODUCTION

The study of various aspects of the integration process of the member states of the Eurasian Economic Union (EAEU) attracts the attention of many Russian and foreign scientists, such as S. Roberts, A. Moshes [1], D. Tarr [2], D. Lane [3], L. B. Vardomsky [4], T. D. Valovaya [5], T. A. Mansurov [6], G. I. Osadchaya [7], E. I. Pivovar [8], and others. However, in the scientific literature, not enough attention is paid to the study of issues of the digital transformation of Eurasian countries. Common digitalization challenges of the Russian economy are studied by Russian economists Zh. A. Ermakova [9]; I. V. Naumov [10], A. Volkova [11], T. A. Selishcheva [12], A. A. Zvereva [13], and others. The challenge of the digital transformation of Eurasian countries is considered by Russian scientists V. F. Baynev [14], A. Domracheev [15], S. A. Dyatlov [16], S. R. Medynsky [17], and others in their publications. In 2017, the EAEU member states legislatively approved the Main Directions for the Implementation of the EAEU Digital Agenda until 2025 [18]. The implementation of digitalization strategies of economies will allow the EAEU member states to reach a new integration level. Digital integration is becoming a driver of economic integration and one of the factors in the sustainable development of the EAEU member states.

II. STATEMENT OF THE PROBLEM

The authors are of the opinion that sustainable development is the coordinated development of economic,

environmental, social, and digital aspects of development. Digitalization permeates all spheres of economy and society, therefore, contributes to the strengthening of digital integration of the EAEU member states and their sustainable development. The study of the level of digitalization of theEAEU member states allows us to identify existing problems and determine measures to improve digital integration which enhances the integration of the five countries as a whole.

III. Research Questions

- To determine the essence of digital integration and demonstrate that it allows reaching a new level of unification of the EAEU member states;
- To analyze the level of digitalization of the EAEU member states, to identify the digital divide between the countries and its causes;
- To propose a system of measures to strengthen the digital integration of the EAEU member states and to form a single digital space.

IV. The Purpose of the Study

The purpose of the study is to identify the reasons for the digital divide between the EAEU member states, based on the analysis of the level of digitalization of the countries; to prove that digital integration is an important factor in the sustainable development; to propose a system of measures to form a single digital space of the Eurasian countries.

V. Research Methods

The study is based on data from the official statistics of the Russian Federation and the EAEU member states; on international statistical data and reports from the UN, the Eurasian Economic Commission, the Eurasian Development Bank; on Internet resources of domestic and foreign analytical agencies. The methods of systemic, comparative, evolutionary, and structural analysis were used.

VI. Results of the Study

A. The essence of digital integration

The development of integration processes of the EAEU member states means not only strengthening economic interaction between the five countries by eliminating existing cross-border barriers, but also strengthening the integration of the countries in the digital economy. Art. 23 of the Treaty on the Eurasian Economic Union provides for "information interaction within the Union". The legislative basis for the digital integration of the EAEU member states is the Main Directions for the Implementation of the EAEU Digital Agenda until 2025 approved by the Supreme Eurasian Economic Council of the EAEU in 2017.

The integration model is being transformed under the influence of digital economy development. Currently, a single digital space of the five EAEU member states is being formed, to which other countries will be able to connect in the future. Digital transformation involves the digitalization of production process, markets for goods and services, labor market, financial and information markets; economy structure transformation; the formation of digital business environment and digital government; the possibility of introducing a single supranational cryptocurrency. It will strengthen the positions of the EAEU member states in the global digital competition and will allow them to reach a new level of integration. The unified digital ecosystem of the EAEU member states has a fundamentally new design that is based on equality and mutual benefit for all the states. A key condition for digital integration is interoperability of digital standards, principles and rules [19].

Digital integration of the economies of the EAEU member states entails new risks and challenges: the possibility of violating the digital sovereignty of an individual country, a re-evaluation of its place in the digital cross-border space of the EAEU; violation of citizens' right to privacy; a decrease in the overall level of data security; lowering of the degree of information security; increasing complexity of business models and systems of interaction within a single digital space; increasing competition both in all sectors of the national economies of the Union member states and in the EAEU intercountry markets; the need to revise administrative and tax legislation [20]. The EAEU member states need to maintain their sovereignty and independence; it is impossible to allow their complete dependence on the use of technical and technological products of others.

In order to prevent and reduce risks and challenges, it is necessary to harmonize existing national legislations and programs for the development of the digital economy in the EAEU. Certain institutional transformations in the development of the digital economy and the single digital space of the EAEU are needed [16].

B. The digitalization level of the EAEU countries and the digital divide between them

The digital space of the EAEU, as defined in the Main Directions for the Implementation of the EAEU Digital Agenda until 2025, is “a space that integrates digital processes, means of digital interaction, information resources, as well as a set of digital infrastructures based on regulations, mechanisms of organization, management and use” [18].

There are a number of objective reasons holding back the formation of a single digital space of the EAEU. In particular, the presence of a digital divide, i.e. inequality of access to digital technologies, between the EAEU member states. It is closely related to socio-economic inequalities between the EAEU member states. The level of digitalization of the EAEU member states can be determined by a number of indicators: (Tab. 1).

As shown in Tab. 1, in 2015-2019, the EAEU member states have a positive trend in terms of the number of Internet users per 100 people but, in 2019, the highest rate was in Russia – 81, in Belarus – 79, and in Kazakhstan – 79 people. The gap in this indicator between Russia and Kyrgyzstan was more than 2 times.

Regarding the number of subscribers of cellular communication networks per 100 people, there is also a digital divide between the EAEU member states. In 2019, in Russia, the number of subscribers of cellular communication networks per 100 people was 157.43, which is higher than in one of the leading countries of the rating – Singapore (148.82); in Kazakhstan, this indicator is also high – 141.97, higher than in the USA (129.01). In Armenia, Belarus and Kyrgyzstan, this indicator is approximately the same – slightly above 120. The digital divide between Russia and Kyrgyzstan was 1.3 times in 2019.

The IMD World Digital Competitiveness Ranking is also used to assess the level of digitalization. This index is developed by the Swiss business school IMD (International Institute for Management Development) for 63 countries. The IMD ranking is compiled in three areas: "Knowledge", "Technologies", "Future readiness". Unfortunately, this indicator has not been calculated for Armenia, Belarus, and Kyrgyzstan. Russia ranked 38th in 2019, and Kazakhstan ranked 35th; while the countries are in the middle of this ranking.

TABLE I. INDICATORS OF THE LEVEL OF DIGITALIZATION OF THE EAEU MEMBER STATES IN 2015-2019 [22, 23, 24, 25]

States	2015	2019
Internet users per 100 people		
Armenia	55	67
Belarus	59	79
Kazakhstan	66	79
Kyrgyzstan	28	40
Russia	71	81
The number of subscribers of cellular communication networks per 100 people		
Armenia	118.77	121.26
Belarus	120.89	122.93
Kazakhstan	165.27	141.97
Kyrgyzstan	129.41	122.57
Russia	152.79	157.43
IMD World Digital Competitiveness Ranking		
Armenia	-	-
Belarus	-	-
Kazakhstan	35	35
Kyrgyzstan	-	-
Russia	41	38
(GII) The Global Innovation Index Ranking		
Armenia	61	64
Belarus	53	72
Kazakhstan	82	79
Kyrgyzstan	109	90
Russia	48	46
(EGDI) E-Government Development Index Ranking		
	2016	2020
Armenia	87	68
Belarus	49	40
Kazakhstan	33	29
Kyrgyzstan	97	83
Russia	35	36

The Global Innovation Index Ranking reflects a country's innovative potential. The EAEU member states, with the exception of Russia, occupied positions in the second half of the ranking out of 139 countries included in 2019; at the same time, the absolute values of the index were almost 2 times less than those of the leading countries. In 2015-2019, two EAEU member states worsened their positions in the ranking: Armenia (dropped from 61st to 64th place) and Belarus (dropped from 53rd to 72nd place). Kazakhstan, Kyrgyzstan, and Russia improved their positions, but still occupy low positions in the ranking. The digital divide between Russia and Kyrgyzstan was almost 2 times in 2019. These are alarming trends since one of the reasons for the lag of the EAEU member states from developed countries in the development of the digital economy is an insufficiently favorable environment for the introduction of innovations, low efficiency of legal regulation, insufficient investment in R&D and science, and a low level of application of digital technologies in business.

The E-Government Development Index Ranking (EGDI) is an indicator of a government's readiness and ability to use information and communication technologies (ICT) in providing services to the population. EGDI does not assess the absolute extent of the development of an e-government but assesses the effectiveness of governments of different countries in relation to each other. As shown in Table 1, in 2020, the EGDI for the EAEU member states was as follows: Kazakhstan – 29th, Russia – 36th, Belarus – 40th, Armenia – 68th, Kyrgyzstan – 83rd place (out of 190 countries). Kazakhstan was ahead of Kyrgyzstan by 54 positions. At the same time, Russia, Kazakhstan, and Belarus have a very high e-government development index according to the UN Classification, while Armenia and Kyrgyzstan have a high one.

According to the ICT Development Index (IDI), which was last calculated by the International Telecommunication Union in 2017 for 176 countries, the EAEU member states took the following places: Belarus – 32nd, Russia – 45th, Kazakhstan – 52nd, Kyrgyzstan – 109th. Belarus was ahead of Kyrgyzstan on the IDI by 77 positions.

There is a digital divide between countries also according to the Network Readiness Index (NRI) (Table 2). In 2019, this index was calculated for 121 countries of the world. As can be seen, a large gap in the NDI index is between Russia and Kyrgyzstan (43 positions).

TABLE II. DIFFERENCES BETWEEN THE EAEU COUNTRIES ACCORDING TO THE NETWORK READINESS INDEX (NRI) IN 2019 [26]

State	NRI	Place in the ranking
Armenia	49.84	62
Belarus	50.34	61
Kazakhstan	50.68	60
Kyrgyzstan	39.72	91
Russia	54.98	48

The digital divide between the EAEU countries is also observed when considering the E-commerce B2C Index 2019. This index was calculated for 151 countries. The EAEU member states took the following places: Belarus – 37th, Russia – 40th, Kazakhstan – 57th, Armenia – 78th, Kyrgyzstan – 111th [27]. The gap in the ranking between Belarus and Kyrgyzstan was 64 positions..

The analysis allows us to conclude that the digital infrastructures of the EAEU member states are at different levels of maturity. It is holding back their digital integration. There is a digital divide between the EAEU member states. It is based primarily on socio-economic inequality. Thus, for example, in 2019, Russia's GDP was 9.2 times more than the GDP of Kazakhstan, 28.5 times more than the GDP of Belarus, 138 times more than the GDP of Armenia, and 219 times more than the GDP of Kyrgyzstan. At the same time, Russia accounts for 86.5% of the total GDP of the EAEU member states. GDP per capita in purchasing power parity terms in Russia was almost 8 times higher than in Kyrgyzstan in 2019 [28].

C. Measures to improve the digital integration of the EAEU member states

Bridging the digital divide is related to the need for the harmonization of the legislation of the EAEU member states in taxation and information security. There are challenges in the digital trade of the EAEU member states both in a domestic market and in the markets of third countries. It necessitates coordinated regulation, lowering barriers, simplifying

administrative procedures, solving problems of global competitiveness in the EAEU space.

To reduce existing risks, it is required to create a competitive Eurasian digital trading ecosystem. It is necessary to actively develop digital cross-border services, maintain a balance in the regulation of the market for digital services and related goods. The time has come to form digital assets and digitize goods and services in the EAEU, where its digital images and digital models are becoming a special product.

Improving the digital trading infrastructure, developing their own ICT technologies will increase the competitiveness of the EAEU among global digital trading ecosystems. Increasing the maturity of their own digital trading ecosystem, the growth of trade in goods and services both between the EAEU member states and with third countries will attract and retain consumers and producers in their ecosystems.

In the digital integration of the EAEU member states, a significant role belongs to state regulation through legislation on digitalization of business and society, through ICT infrastructure financing, through stimulating the introduction of new technologies, etc. The governments of the EAEU member states should create an enabling environment for digital integration. The EAEU member states have adopted long-term state Concepts, Programs, and Strategies for the development of the digital economy and information society.

In 2017, the Digital Agenda of the Eurasian Economic Union until 2025 was adopted in order to create the foundation of the Eurasian digital economy, to strengthen the digital Eurasian space and digital transformation of the EAEU in such key areas as:

- digital transformation of economic sectors;
- digital transformation of markets for services, capital, and labor;
- digital transformation of integration management processes;
- development of digital infrastructure and ensuring the security of digital processes [21].

In January 2020, the Digital Initiatives Fund, which is part of the Eurasian Development Bank, was created to facilitate the digitalization of the economies of the EAEU member states. It is planned to transfer the entire electronic circulation in the EAEU member states to common standards and common digital platforms. It will enhance the quality of the integration processes. The policy of creating platforms within the EAEU contributes to the formation of the single digital space and encourages the development of business contacts and interaction between the populations of the countries.

Only a coordinated policy of the EAEU member states in the digital sphere will enable them to expand and strengthen the digital space of the Union and achieve greater synergies in the development of the digital economy and strengthening economic integration.

VII. CONCLUSION

Therefore, the digital integration of the EAEU member states acts as a driver of economic and social integration. An analysis of the level of digitalization of the EAEU member states showed the presence of the digital divide between countries. The digital divide is based on socio-economic heterogeneity in the development of the Eurasian countries. In order to close the digital divide, it is necessary to strengthen the effectiveness of economic and social integration. Legislation and strategies for the development of digital economies should be harmonized.

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