

# ВЫЗОВЫ XXI ВЕКА И СТРАТЕГИЯ УСТОЙЧИВОГО РАЗВИТИЯ



**YULIA SHAVRUK,  
IRINA URISH**

---

## ***THE REPUBLIC OF BELARUS IN THE CONTEXT OF WORLD TRENDS IN DIGITAL ECONOMY DEVELOPMENT***

---

The article identifies global trends in the development of the digital economy, examines the main indicators of the information and communication technologies (ICT) sector of the Republic of Belarus, establishes the place of Belarus among the world leaders in the development of the digital economy, and identifies factors that ensure the compliance of Belarus' potential with the global trends in the area under study.

**Keywords:** the Republic of Belarus; digital economy; information and communication technologies; priorities; global trends.

UDC 338.004(476)

---

In modern conditions, the development of the information society is not only a priority, but also one of the main factors in ensuring the competitiveness and innovative development of the national economy of any country.

Considering the informatization of society on a global scale, it should be noted that the planet's population exceeded 8 billion by the beginning of 2023. At the same time, 63,3 % of the total world population (5,06 billion people) are Internet users.

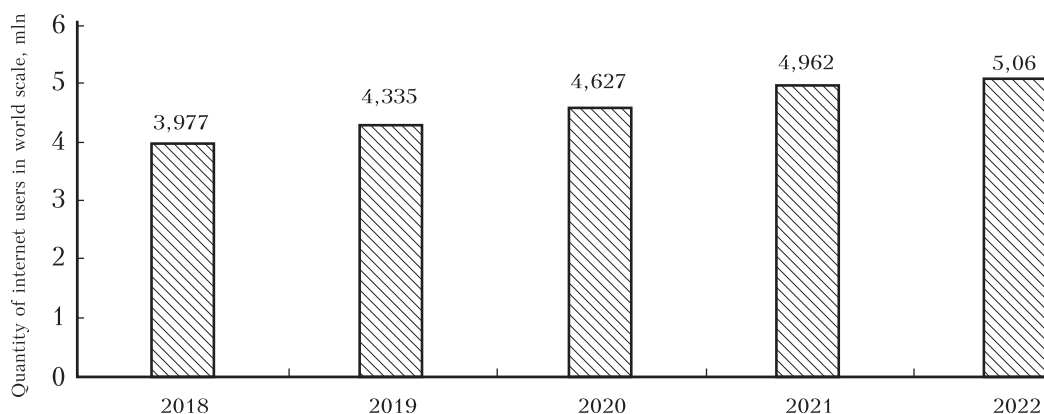
Dynamics of Internet users on a global scale for the period 2018–2022. presented in Figure 1.

Based on the presented figure, we can conclude that in 2022 the number of Internet users in the world was 5,06 billion people. The increase in this indicator is 1,9 % compared to the same period in 2021 and 27,2 % compared to 2018.

---

*Yulia SHAVRUK (yshavruk@mail.ru), Candidate of Economics, Associate Professor, Dean of the Faculty of International Business Communications Belarusian State Economic University (Minsk, Belarus);*

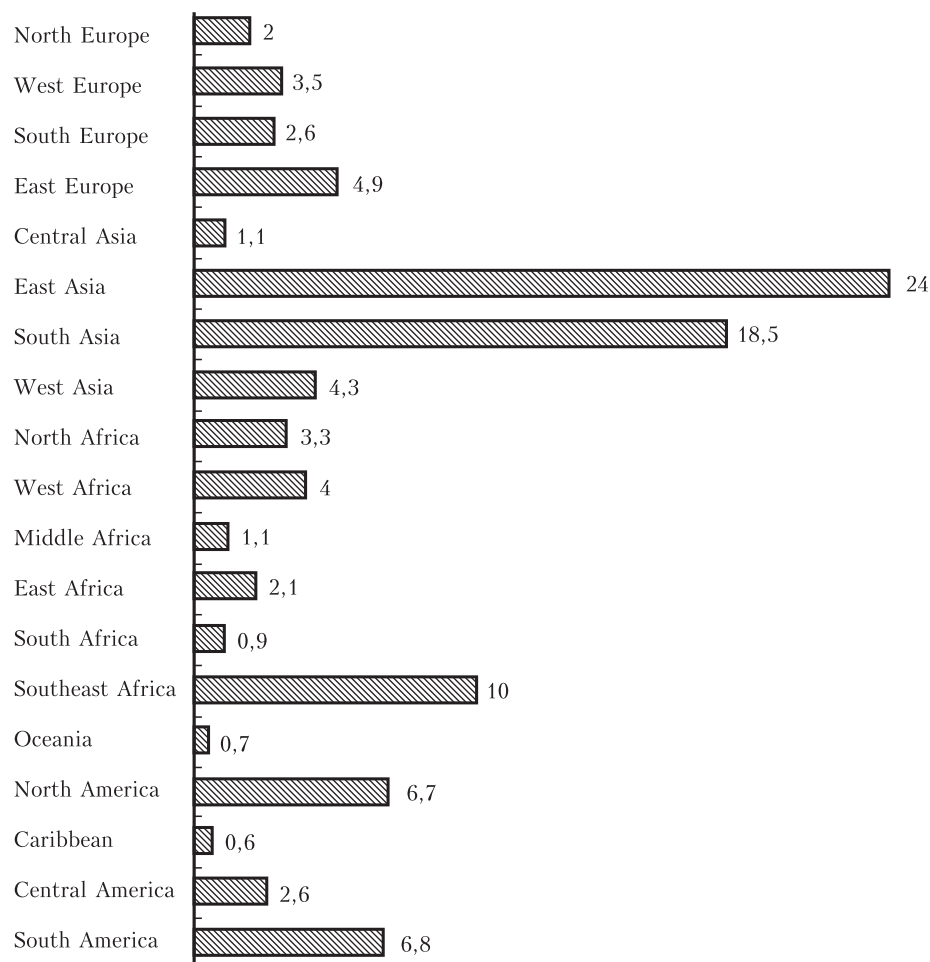
*Irina URISH (i.urish@inbox.ru), Candidate of Economics, Associate Professor, Associate Professor of the Department of Commercial Activities and Real Estate Market Belarusian State Economic University (Minsk, Belarus).*



*Fig. 1.* Dynamics of Internet users on a global scale for the period 2018–2022

*Note:* our development is based on [1].

It should be noted that the use of information and communication technologies has significant differences in different countries, which is confirmed by the data presented in Figure 2.



*Fig. 2.* Structure of ICT use on a global scale by individual countries in 2023

*Note:* our development based on [1].

The data presented in Figure 2 indicate that the largest share on a global scale in the use of ICT is occupied by East Asia — 24,0 %, South Asia — 18,5 %, Southeast Asia — 10 %. This is followed by the countries of South America (6,8 %), North America (6,7 %), Eastern Europe (4,9 %), Western Asia (4,3 %), Western Africa (4,0 %), Western Europe (3,5 %), North Africa (3,3 %) and Central America (2,6 %). An insignificant share in the total volume of ICT use on a global scale is occupied by the countries of South Africa (0,9 %), Oceania (0,7 %) and the Caribbean (0,6 %).

One of the priorities of the socio-economic development of the Republic of Belarus is the digital transformation of the economy [2]. The ranking of countries by the level of digitalization of the economy is presented in Figure 3.

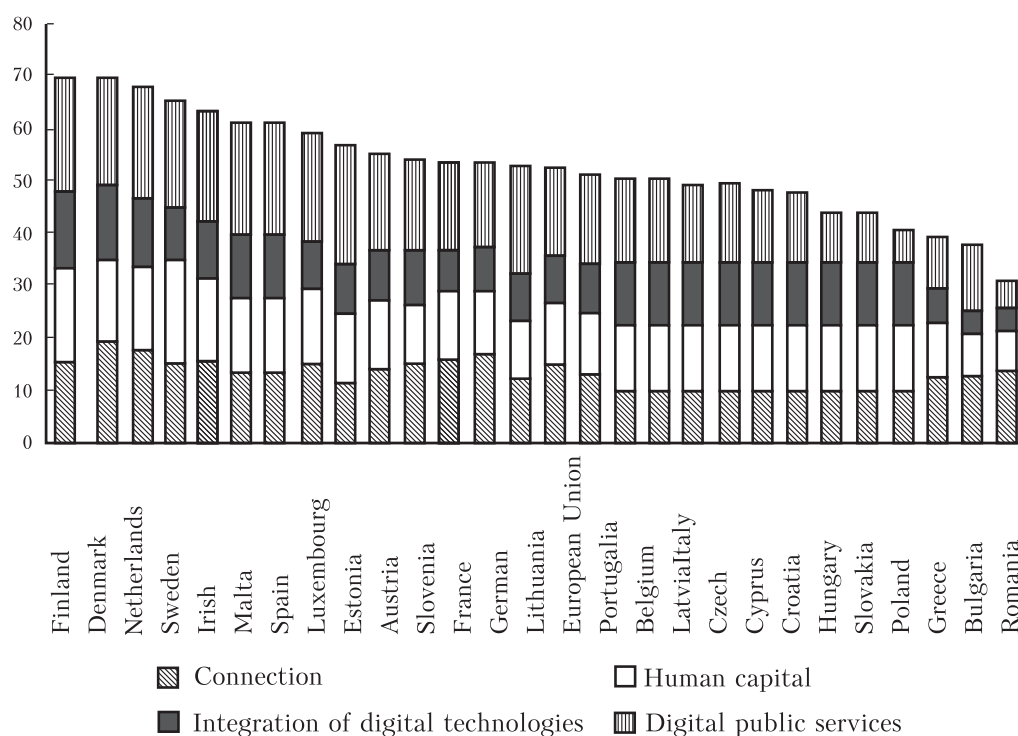


Fig. 3. Level of digitalization of the European Union countries in 2022

Note: our development based on [3].

As can be seen from the presented figure, the level of digitalization of the countries of the European Union was assessed according to 4 components, which included «digital public services», «integration of digital technologies», «human capital» and «communications».

Finland occupied the leading position in the 2022 Digital Economy and Society Index (DESI) due to the «human capital» component, which was confirmed by the advanced digital skills of its citizens. Denmark is also among the leaders, but in the «communications» component. Estonia dominated the field of «digital public services». Greece, Bulgaria and Romania were the Member States with the lowest rates of digitalization of their economies and societies.

The development of information and communication technologies in the Republic of Belarus is certainly influenced by the level of digitalization of the population.

Dynamics of Internet use by the population and organizations of the Republic of Belarus for the period 2018–2022 presented in Table 1.

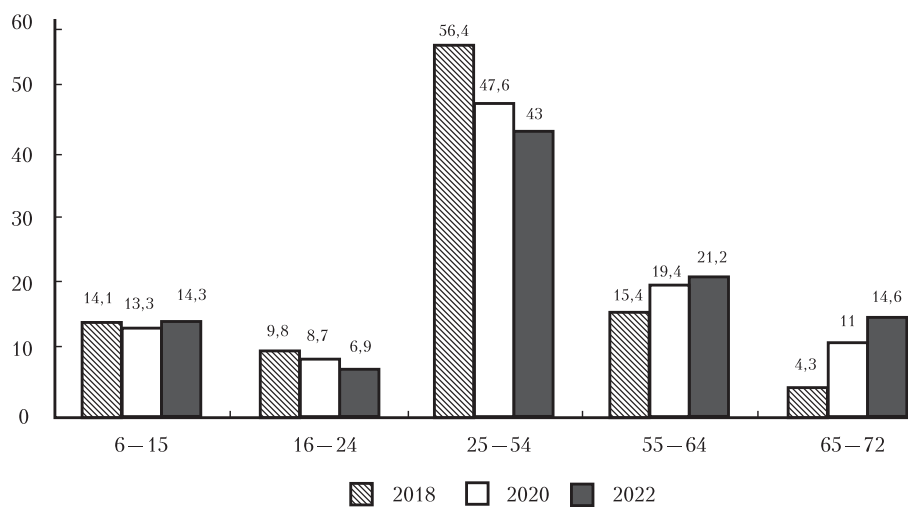
**Table 1. Dynamics of Internet use by the population and organizations of the Republic of Belarus for the period 2018–2022, %**

Indicator	2018	2019	2020	2021	2022
Share of the population using the Internet in the total population	79,1	82,8	85,1	86,9	89,5
Including by age groups, years:					
6–15	85,8	86,0	90,8	91,4	91,8
16–24	98,1	98,6	98,7	99,1	97,7
25–54	83,3	87,3	90,4	93,3	94,4
55–64	44,7	52,3	60,0	67,8	72,6
65–72	22,6	27,9	33,4	39,3	48,5
Share of the population using the Internet to carry out financial transactions (to pay for goods, services, transfer money, etc.) in the total population	32,2	37,8	42,2	46,3	49,8
The share of organizations using the Internet to interact with suppliers in the total number of surveyed organizations	86,4	–	88,3	–	86,6
The share of organizations using the Internet to interact with consumers in the total number of organizations surveyed	76,3	–	78,6	–	76,7

*Note:* our survey based on [4].

Based on the data presented in Table 2, it can be argued that the share of the population of the Republic of Belarus using the Internet (in the total population) shows an upward trend for the study period 2018–2022 the increase was 10,4 %. At the same time, the age group of the population in the range of 16–24 years is the most active in using the Internet, which on average for the study period amounted to 98,4 %. Also, the dominant positions in the use of the Internet are occupied by the age groups «25–54 years» and «6–15 years», which on average amounts to 89,7 % and 89,2 %, respectively.

Detailed age structure of Internet users in the Republic of Belarus for the period 2018–2022 presented in Figure 4.



**Fig. 4.** Age structure of Internet users in the Republic of Belarus, %

*Note:* our development based on [4].

The data presented in Figure 4 indicate that, despite the largest share among Internet users, the group «25–54 years old» shows a downward trend. During the study period, the decrease occurred by 13,4 %. A decrease is also observed in the «16–24 years old» group by 2,9 %. There were no significant changes in the «6–15 years old» group. Growth trends are evident in the categories «55–64 years old» and «66–72 years old» by 5,8 % and 10,3 % respectively, indicating an increase in digital literacy among these age groups.

Next, we will analyze the dynamics of the main socio-economic indicators of organizations in the ICT sector in the Republic of Belarus for 2018–2022, which will be reflected in Table 2.

**Table 2. Dynamics of the main socio-economic indicators of organizations in the ICT sector in the Republic of Belarus for 2018–2022**

Indicators	2018	2019	2020	2021	2022	Rate of increase 2022 to 2018, %
Number of organizations in the ICT sector, units	4 996	5 202	5 341	5 412	5 437	108,8
Gross value added of the ICT sector (at current prices), million rubles	6 792,6	8 725,3	10 930,5	13 258,8	12 586,3	185,3
Share of gross value added of the ICT sector in gross domestic product (gross regional product), %	5,6	6,5	7,3	7,5	6,6	—
Share of gross added value of the ICT sector in the gross added value of the economy of the republic (region), %	6,5	7,4	8,3	8,6	7,4	—
Revenue from sales of products, goods, works, services of organizations in the ICT sector, million rubles	11 315,9	14 778,8	16 704,9	19 616,5	20 331,8	179,7
Cost of products sold, goods, works, services of organizations in the ICT sector, million rubles	7 975,6	10 642,2	12 088,9	14 453,8	15 173,7	190,7
Net profit, loss (–) of ICT sector organizations, million rubles	1 451,2	1 956,7	2 666,7	2 550,3	2 265,1	156,1
Profitability of sales of organizations in the ICT sector, %	18,7	18,1	18,7	17,9	16,7	—
Nominal accrued average monthly wages of employees of organizations, rub.	2 804,4	3 144,1	4 119,9	4 709,4	5 042,5	179,8
List of employees of ICT sector organizations, people	100 655	111 316	118 778	125 279	119 779	118,9

*Note:* our development based on [4].

The data presented in Table 2 indicate that in 2022 the number of organizations in the ICT sector was 5,437, which is 8,8 % more than the same figure in 2018. The share of the ICT sector in the GDP structure decreased in 2022 compared to 2021 by 0,9 %. Compared to 2018, this figure increased in 2022 by 1,0 %.

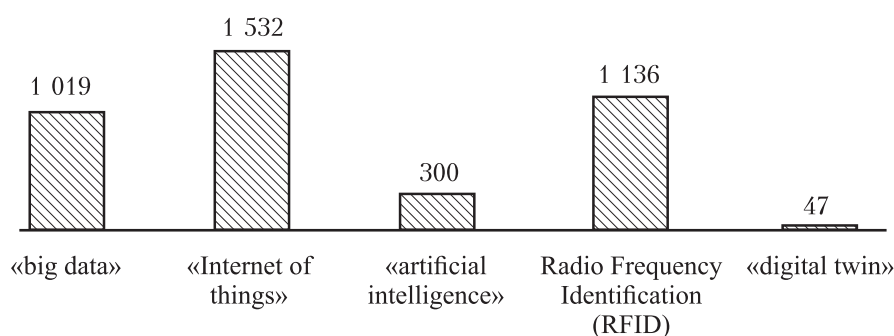
Share of gross added value of the ICT sector in the gross added value of the economy of the republic (region) during 2018–2021 showed an upward trend. In 2022, there is a decrease in this indicator (7,4 %) by 1,2 % compared to 2021 (8,6 %). Compared to 2018, the value of this indicator (6,5 %) increased by 0,9 %.

Revenue from sales of products, goods, works, services of organizations in the ICT sector, million rubles. 2018–2022 during the study period increased significantly, reaching 20 331,8 million rubles in 2022, which is 79,7 % compared to the same period in 2018. At the same time, there is an increase in the cost of sales of products, goods, works, services of organizations in the ICT sector by 90,7 % in 2022 compared to 2018.

The net profit of organizations in the ICT sector shows permanent growth throughout the period under study. In 2022, this figure amounted to 2 265 million rubles, which is 813,9 million rubles (or 56,1 %) more than the same period in 2018. The profitability of sales of organizations in the ICT sector decreased in 2018–2022 by 2,0 %.

The number of employees of ICT sector organizations during the study period increased by 19 124 people or 18,9 %. At the same time, the growth of the nominal accrued average monthly wages of employees of organizations amounted to 179,8 % in 2022 compared to the same period in 2018.

The use of digital technologies in organizations of the Republic of Belarus by type of economic activity in 2022 is presented in Figure 5.



■ The number of organizations that have used digital technologies, units

*Fig. 5.* Use of digital technologies in organizations of the Republic of Belarus by type of economic activity in 2022, units

*Note:* our development based on [4].

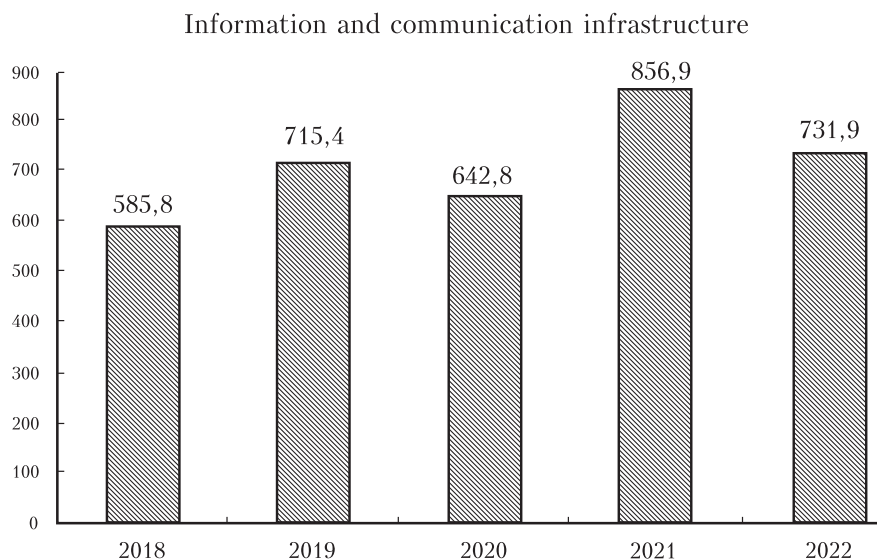
The data presented in Figure 5 show that digital technologies such as the Internet of Things (1 532 organizations) have the largest share of 37,9 %, followed by radio frequency identification (RFID) – 1 136 organizations (28,2 %), «big data» – 1 019 organizations (25,3 %), artificial intelligence – 300 organizations (7,4 %) and digital twin – 47 organizations (1,4 %).

Investments have a significant impact on the development of the ICT sector.

The dynamics of foreign investments in the ICT sector organizations of the Republic of Belarus is shown in Figure 6.

Based on the presented Figure 6, we can conclude that during the period under study, the increase in foreign investment in the organizations of the ICT

sector of the Republic of Belarus was 24,5 % and amounted to USD 731,9 million in 2022, which is USD 146,1 million more than in the same period of 2018. At the same time, there was a decrease in the volume of investments by USD 125,0 million or by 14,6 % in 2022 as compared with 2021.



*Fig. 6.* Dynamics of foreign investments received by organizations in the ICT sector of the Republic of Belarus for the period 2018–2022, million US dollars

*Note:* our development based on [4].

Despite the decrease in the volume of foreign investment in organizations in the ICT sector that occurred in 2022, the main socio-economic indicators of organizations over the period under study show a steady upward trend. The digital economy is closely related to the development of digital computer technologies [5].

In 2022, in the World Bank GovTech Maturity Index 2022, the leaders in digitalization were such countries as South Korea, Brazil, and Saudi Arabia. Russia took the 10th place. The assessment was carried out according to the following indicators:

- level of development of basic government systems, such as state cloud and other platforms,
- development of government services, availability of electronic services for citizens,
- development of state digitalization institutions, innovation policy, strategies and laws,
- level of citizen involvement, government openness and feedback [6].

According to the GSMA Mobile Index (a trade organization that represents the interests of mobile operators around the world), Belarus scored an average of 66,8 points (out of a possible 100) in mobile internet adoption in 2022. That is, the «consumer readiness» component, which shows the proportion of the country's population who can use the Internet, received the highest score among the key performance categories [7]. Among other countries, Australia (90,6 points), the USA (88,6 points), Germany (86,0 points), China (80,7 points), Russia (79,0 points) are the highest in this indicator.

One of the priority areas for the use of ICT in the Republic of Belarus is e-government. In accordance with the ranking of countries in the world



by the level of e-government development provided by the United Nations Department of Economic and Social Affairs (UN), the Republic of Belarus in 2022 occupied 58th position (with an index of 0,7580) out of 193 countries. This indicator assesses the readiness and capabilities of national government agencies to use information and communication technologies to provide public services to citizens [8].

Among the leading countries in terms of e-government development are: Denmark (index 0,9717), Finland (index 0,9533) and other countries.

Russia, in accordance with the same ranking of countries around the world in terms of the level of development of e-government, took 42nd position in 2022 (the index was 0,8162). At the same time, the World Bank recognized Russia as one of the leaders in the field of digitalization of public administration.

It is noteworthy that the Russian Agency for the Development of Skills and Professions (ARNP), within the framework of joint cooperation with Iran, has set guidelines for the establishment of an international association for the development of skills and professions. This cooperation involves the development of skills related to cybersecurity, the Internet of Things, the digitalization of the economy and the transformation of various industries.

One of the priorities of the digital economy of the Republic of Belarus is eHealth. The main element of eHealth in Belarus is the creation of a centralized health information system (CHIS), aimed at helping to improve accessibility and quality of medical care.

Considering Belarus in this category in the context of global trends, it should be noted that the leading countries with a high rating of digital maturity in healthcare include:

- Israel (actively applies innovative technologies such as artificial intelligence, machine learning and data analytics in healthcare, which allows to quickly process large volumes of medical data and identify patterns and trends in diseases);
- the United Kingdom: telemedicine is widely developed in the country, which allows patients to consult with specialists remotely using interactive online platforms, analysis of big data in healthcare, many mobile applications, electronic registration of patients and others [9].

Electronic employment and social protection of the population; mass communications system and electronic content have also been identified as priority areas of the digital economy of the Republic of Belarus. In our country, the Council of Ministers of the Republic of Belarus has approved and is implementing the State Program «Digital Development of Belarus» for 2021–2025 in order to ensure the introduction of information and communication technologies and advanced production technologies in the sectors of the national economy [10]. This program provides for the implementation of measures to create (develop) modern information and communication infrastructure, to introduce digital innovations in sectors of the economy and smart city technologies, as well as to ensure information security of such solutions.

Global trends in the development of the digital economy include the development of the space economy and Web 3.0 [11], artificial intelligence (AI), alternative energy, mobile networks, information security, robotics, unmanned vehicles, cloud technologies, satellite communications, etc.

A top priority for digitally competitive countries is cybersecurity measures to protect their digital infrastructure from cyberattacks.

In the Republic of Belarus, in order to develop the digital economy in line with global trends, there are quite significant prerequisites: a stable and



effective political system; a fairly high level of gross domestic product (GDP) per capita, as well as recognition of informatization as one of the national priorities for sustainable development and improvement of the legal regulation of its processes.

Thus, one of the priorities for the Republic of Belarus is further development of the digital economy. At present, the country has a developed data transmission network that meets international standards, reliable data storage and processing centers, modern electronic services, information security tools, etc. The country occupies quite a high position in the implementation of ICT according to the ratings of international organizations. Given the favorable factors and high potential, Belarus has all the prerequisites for the development of artificial intelligence, information security, robotics, self-driving vehicles and other global trends.

### References

1. Digital 2023: Global Overview Report [Electronic resource]. — Mode of access: [https://www.doctorateandpostdoctorate.com/?campaignid=11568596614&adgroup=112160347345&device=c&network=d&placement=dataportal.com&keyword=&gclid=EA1aIQobChMIwJOLvPHhgQMVSgYYCh0ulQXFEEYASAAEgLsC\\_D\\_BwE](https://www.doctorateandpostdoctorate.com/?campaignid=11568596614&adgroup=112160347345&device=c&network=d&placement=dataportal.com&keyword=&gclid=EA1aIQobChMIwJOLvPHhgQMVSgYYCh0ulQXFEEYASAAEgLsC_D_BwE). — Date of access: 28.09.2023.

2. Уриш, И. В. Опыт развития цифровой экономики АСЕАН и возможность адаптации его в условиях цифровой трансформации экономики Республики Беларусь / И. В. Уриш, А. А. Уриш // Социально-экономическое развитие организаций и регионов в условиях цифровизации экономики : материалы докл. Междунар. науч.-практ. конф., Витебск, 01–31 окт. 2020 г. / Витеб. гос. технол. ун-т. — Витебск, 2020. — С. 361–365.

Urish, I. V. Opyt razvitiya cifrovoj jekonomiki ASEAN i vozmozhnost' adaptacii ego v usloviyah cifrovoj transformacii jekonomiki Respubliki Belarus' [Experience in the development of the ASEAN digital economy and the possibility of adapting it in the conditions of digital transformation of the economy of the Republic of Belarus] / I. V. Urish, A. A. Urish // Social'no-jekonomicheskoe razvitie organizacij i regionov v usloviyah cifrovizacii jekonomiki : materialy dokl. Mezhdunar. nauch.-prakt. konf., Vitebsk, 01–31 okt. 2020 g. / Viteb. gos. tehnol. un-t. — Vitebsk, 2020. — P. 361–365.

3. Digitalization level of the European Union in 2022, by country [Electronic resource]. — Mode of access: <https://www.statista.com/statistics/1245595/eu-digitalization-level/>. — Date of access: 28.09.2023.

4. Информационное общество в Республике Беларусь // Национальный стат. ком. Респ. Беларусь [Электронный ресурс]. — Режим доступа: <https://www.belstat.gov.by/upload/iblock/231/unbxahr475kxqxdfrzkiauewx5zv7gtv.pdf>. — Дата доступа: 28.09.2023.

5. Shavruk, Yu. A. Development of the digital economy of the Republic of Belarus in the conditions of Eurasian integration / Yu. A. Shavruk, I. V. Urish // Науч. тр. Белорус. гос. экон. ун-та. / Белорус. гос. экон. ун-т. — Минск, 2020. — Вып. 13. — С. 531–535.

6. Россия вошла в топ-10 стран по цифровизации государственного управления [Электронный ресурс] / Министерство цифрового развития, связи и массовых коммуникаций Российской Федерации. — Режим доступа: <https://digital.gov.ru/ru/events/42223/>. — Дата доступа: 30.09.2023.

7. Mobile connectivity index score in Belarus in 2022 [Electronic resource]. — Mode of access: <https://www.statista.com/statistics/1155748/belarus-mobile-connectivity-index/>. — Date of access: 30.09.2023.

8. Рейтинг стран мира по индексу развития электронного правительства [Электронный ресурс]. — Режим доступа: <https://gtmarket.ru/ratings/e-government-development-index>. — Дата доступа: 30.09.2023.

9. Рейтинг цифровой зрелости здравоохранения: ключевые показатели и развитие [Электронный ресурс]. — Режим доступа: <https://rybachusdetstva.ru/reiting-cifrovoi-zrelosti-zdravooxraneniya-klyucevye-pokazateli-i-razvitie/>. — Дата доступа: 30.09.2023.

10. Государственная программа «Цифровое развитие Беларуси» на 2021–2025 годы [Электронный ресурс] : постановление Совета Министров Респ. Беларусь, 2 февр. 2021 г., № 66 : в ред. постановления Совета Министров Респ. Беларусь от 14.09. 2023 г., № 599 // Национальный правовой Интернет-портал Респ. Беларусь. — Режим доступа: <https://pravo.by/document/?guid=12551&p0=C22100066&p1=1>. — Дата доступа: 28.09.2023.

11. Развитие космической экономики и Web 3.0: прогнозы аналитиков на 2023 год [Электронный ресурс]. — Режим доступа: <https://trends.rbc.ru/trends/futurology/63aa97289a79471e92e4ee23>. — Дата доступа: 28.09.2023.

---

**Ю. А. ШАВРУК,  
И. В. УРИШ**

---

**РЕСПУБЛИКА БЕЛАРУСЬ  
В КОНТЕКСТЕ МИРОВЫХ ТЕНДЕНЦИЙ  
РАЗВИТИЯ ЦИФРОВОЙ ЭКОНОМИКИ**

---

**Об авторах.** *Юлия Александровна ШАВРУК (yshavruk@mail.ru), Белорусский государственный экономический университет (г. Минск, Беларусь); Ирина Владимировна УРИШ (i.urish@inbox.ru), Белорусский государственный экономический университет (г. Минск, Беларусь).*

В статье определены мировые тенденции развития цифровой экономики, исследованы основные показатели сектора информационно-коммуникационных технологий Республики Беларусь, установлено место Беларуси среди мировых лидеров по развитию цифровой экономики, выявлены факторы, обеспечивающие соответствие потенциала Беларуси мировым трендам в исследуемой сфере.

**Ключевые слова:** Республика Беларусь; цифровая экономика; информационно-коммуникационные технологии; приоритеты; мировые тенденции.

**УДК** 338.004(476)

---

*Статья поступила  
в редакцию 02. 10. 2023 г.*