



## **ECONOMICS**

## **ЕКОНОМІКА**

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### **DIGITAL AND INSTITUTIONAL CHANGES IN ECONOMIC RELATIONS: COMPARATIVE ANALYSIS AND ASSESSMENT OF POSSIBLE STRUCTURAL SHIFTS**

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**Summary.** The article studies the scientific views on the impact of technological change and the rapid introduction of digital technologies into economic processes and social relations on the well-being of countries and the level of their competitiveness in the world. The main principles of the current EU Program «Digital Europe» for 2021–2027 are described and the key benefits of the state, business and society of participation in the Program of small and medium-sized enterprises, public organizations, educational institutions and state authorities are indicated. This made it possible to outline areas of priority support and funding within the framework of the implementation of the EU Program “Digital Europe” and identify Ukraine’s place in it as an outpost of Central Europe. The dynamics of changes in the ranking of individual countries of the world and Ukraine in terms of Internet quality within the DQL Index in 2021–2023 were analyzed, where Ukraine took 75<sup>th</sup> place in 2023 and demonstrated positive dynamics. A graphical interpretation of the rate of change in the rating of some countries of the world and Ukraine for the development of e-government in 2021–2023 is provided, which testifies to the real steps taken by Ukraine (from 2021 to 2023, the country improved its position in the global ranking by 10 points) in ensuring reliable, transparent and secure relationships between government institutions and citizens and businesses of the country. A special role in these positive developments belongs to digital transformations at the level of territorial communities of the country and the study of factors influencing them using the Digital Transformation Index of Territorial Communities of Ukraine. The dynamics of changes in the rating of individual countries of the world and Ukraine in terms of the development of e-infrastructure in 2021–2023 was visualized, where Ukraine in 2023 has a slight deterioration in its positions, taking into account the conditions of martial law, but in general, the country is distinguished by the presence of a powerful potential for the development of both electronic infrastructure and an innovative digital ecosystem, which is the basis of the ease of doing business, investment attractiveness, comfortable and safe life of members of society.

**Key words:** digital economy, e-infrastructure, e-governance, business, digital technologies, competitiveness, technological changes, digital society, digital quality of life.

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### **ЦИФРОВІ ТА ІНСТИТУЦІЙНІ ЗМІНИ В ЕКОНОМІЧНИХ ВІДНОСИНАХ: КОМПАРАТИВНИЙ АНАЛІЗ І ОЦІНЮВАННЯ МОЖЛИВИХ СТРУКТУРНИХ ЗРУШЕНЬ**

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**Резюме.** Досліджено наукових поглядів на вплив технологічних змін та швидкого впровадження цифрових технологій в економічні процеси і суспільні відносини на добробут у країнах та рівень їх

конкурентоспроможності у світі. Описано основні засади діючої Програми Європейського Союзу «Цифрова Європа» на 2021–2027 роки та зазначено ключові переваги для держави, бізнесу і суспільства участі у Програмі малих і середніх підприємств, громадських організацій, закладів освіти та державних органів влади. Це дає можливість окреслити сфери пріоритетної підтримки та фінансування в рамках реалізації Програми ЄС «Цифрова Європа» і виявити місце в ній України як форпосту Центральної Європи. Проаналізовано динаміку зміни рейтингу окремих країн світу і України за якістю Інтернету в рамках індексу Цифрової якості життя у 2021–2023 роках, де Україна у 2023 році зайняла 75 позицію й продемонструвала позитивну динаміку. Надано графічну інтерпретацію темпів зміни рейтингу деяких країн світу і України за розвитком електронного урядування у 2021–2023 роках, що засвідчила реальні кроки України (з 2021 по 2023 роки країна покращила свою позицію в світовому рейтингу на 10 пунктів) у забезпеченні надійних, прозорих та безпечних взаємовідносин між урядовими інституціями і громадянами та бізнесом країни. Особлива роль у цих позитивних зрушеннях належить цифровим перетворенням на рівні територіальних громад країни та вивченню факторів, що на них впливають із використанням Індексу цифрової трансформації територіальних громад України. Здійснено візуалізацію динаміки зміни рейтингу окремих країн світу і України за розвитком електронної інфраструктури в рамках індексу Цифрової якості життя у 2021–2023 роках, де Україна у 2023 році має незначне погіршення своїх позицій, зважаючи на умови воєнного стану, проте в цілому, країна відзначається наявністю потужного потенціалу до розвитку як електронної інфраструктури, так і інноваційної цифрової екосистеми, що є основою легкості ведення бізнесу, інвестиційної привабливості, комфортної та безпечної життєдіяльності членів суспільства.

**Ключові слова:** цифрова економіка, е-інфраструктура, е-урядування, бізнес, цифрові технології, конкурентоспроможність, технологічні зміни, цифрове суспільство, цифрова якість життя.

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**Introduction.** Digital transformations, deepening on the basis of the introduction of digital technologies into various sectors of the economy and spheres of social life, lead to changes in the institutional foundations of economic processes, the emergence of new business models, the transformation of traditional relationships in the chain «state – business – people» into digital network connections. Along with the emergence of new business practices and changes in consumer/buyer behavior in the market space under the influence of the spread of modern technologies, several potential opportunities for economic growth appear.

Digitalization creates the prerequisites for the formation of a digital economic order, which deeply transforms the sphere of production and leads to the emergence of Industry X.0, developed e-infrastructure expands the possibilities of obtaining quality services for the population, deepening e-governance and raises the interaction between the government and citizens of the country to a new level. In addition, digital solutions and innovative products are becoming valuable objects of competition between individual countries of the world, competing with their achievements in the field of science and technology.

Therefore, digitalization with all its manifestations can rightly be considered a phenomenon of the first quarter of the 21st century. It makes goods and services accessible, high-quality and cheap for people thanks to various electronic sites and platforms, and the interaction of the state with citizens becomes more reliable, stronger, safer and more open as a result of the use of state online services and applications. Given this, it is not surprising that among the strategic priorities of the economic development of many countries in the world today is the development of a digital economy and, on its basis, the development of a digital society with a high level of well-being and quality of digital life.

In confirmation of this, it is worth mentioning that to deepen the processes of digitalization and increase the digital competitiveness of European countries, the European Commission is actively implementing the concept of «Digital Europe» with a funding volume of 9.2 billion euros in the budget for 2021–2027, which is focused on increasing the competitiveness of the EU and providing citizens with all the skills and infrastructure necessary to use the latest technologies [13, p. 8].

**Review of the latest research and literature.** The issues of digital transformation of the socio-economic life of society are in the field of view of many parties interested in this process – researchers, specialists, business representatives, government bodies, the public. The

issues of digital changes in the economy and society and their impact on the competitiveness of countries are equally relevant, among foreign scientists and Ukrainian researchers.

For example, researcher S. Sahi, studying the place of modern digital technologies in the development of the economies of countries, notes that «different economies characterize the digital economy differently, where some act more as suppliers have added value to the economy, while others behave more as users... The almost zero marginal costs of new digital technologies, such as cloud, AI, Big Data, IoT, indicate the potential for exponential growth.... The speed of implementation may be limited not only by the scale of investment and organizational restructuring, but also by the social, and political resistance they pose» [17, p. 65].

Expanding on these research arguments, scholars A. Bris, Ch. Cabolis, and J. Caballero emphasize that «technological change leads to disruptions in government, business, and society as a whole. These disruptions are difficult to explain... but economies that demonstrate a high level of adaptability and flexibility are better able to adapt to change. The prerequisite for this is the stock of knowledge and technological competencies available in the country» [4]. As a result, there is a need to understand the impact of digitalization on the activities of the state government and its ability to perform tasks at the national level, on the efficiency of doing business and achieving its economic goals, as well as on the unity and well-being of society.

We agree with the scientific conclusions of J. Stankovic, I. Marjanovic, S. Drezgic, and Z. Popovic, who note that high-quality digital infrastructure is the basis of almost every sector of the innovation economy, and digital competitiveness is part of overall competitiveness. [19, p. 117]. At the same time, representatives of the Romanian scientific community (V. Grosu, I. Andrioaia, I.-M. Tiganas) to understand the scale of digital transformations in the world, analyze the impact of four dimensions of the Digital Economy and Society Index (DESI) on the Sustainable Competitiveness (SC) index. They focus on the following dimensions of digitalization: Connectivity (CNT – Take-up of fixed broadband, mobile telephony and their prices), Human capital (HC – Internet skills and advanced digital skills), Integration of digital technology (ITD – Digitization of business and e-commerce), Digital Public Services (DPS – e-Government) [8, p. 62].

The scientific opinion of researchers F. Santoso, P. Samputra, and E. Daryanto is interesting, who note that in times of rapid technological change, «competitive advantage remains the cornerstone for every country seeking to secure its position in the global economy. Traditionally, competitive advantage was shaped by factors such as natural resources, labor and geographical location. But the emergence of digital transformation has introduced a new paradigm – digital competitiveness – which now plays a crucial role in determining a country's economic prospects and sustainability» [18, p. 1536].

As part of the international project «Teaching Digital Entrepreneurship», researchers from several European countries (Spain, Italy, Austria, Poland, Ukraine), in particular A. Botti, R. Parente, R. Vesce [3], and P. Magliocca [12] outlined the development trends of Industry 4.0 and Society 5.0 under the influence of the spread of digital technologies, described digital changes in entrepreneurship, infrastructure and business ecosystem that shape a new landscape for doing business and stimulate the innovative development of modern economies.

In our previous scientific research, we have already made attempts to identify and substantiate how the implementation of digital technologies in business processes affects the quality of management [9], to clarify the trends in the digital quality of life of members of society during institutional and structural transformations of the economy [10], to investigate the digital transformation of business processes of modern business entities as a result of technical and technological changes [11]. However, these developments require deepening and expansion in terms of identifying strategic priorities for the digitalization of economic relations, as well as identifying and assessing Ukraine's place in the global economic space.

**Main purpose of the article.** The purpose of the article is to outline the consequences of the impact of digital changes in state, public and commercial organizations and institutions on the activities of the state, business and social life, as well as to study the trends, problems and prospects for the development of e-infrastructure and e-governance in Ukraine.

**Task setting.** To achieve the goal, the following tasks have been identified: to identify the benefits of participation of SMEs, public organizations, academic communities and government authorities in existing programs for the digital development of the country's economy; to consider priority areas of government and international support within the framework of digital transformation; to analyze trends in the development of e-government and e-infrastructure in Ukraine to assess changes in the digital quality of life of society.

**Statements of main issues of the study.** Although the technical and technological achievements of recent years create a powerful impetus for innovative economic development, at the same time, they provoke several negative effects (increased energy consumption, environmental pollution, etc.), the emergence of risks (replacement of human labor with robotic labor, and therefore job losses; reduction of human potential for the ability to think and create intellectual products, as more and more operations are being performed by AI and robots), imbalances and disparities (between individual sectors of the economy, territories, regions, and countries), which ultimately leads to digital divides. The impact of digitalization is felt to varying degrees in different countries around the world. Those that are economically developed benefit from digital transformations by improving the well-being of their citizens and improving their quality of life. Developing countries, on the other hand, are more likely to experience income disparities, low levels of e-infrastructure and e-governance, lack of proper access to digital services and the Internet, low digital literacy, and social tensions.

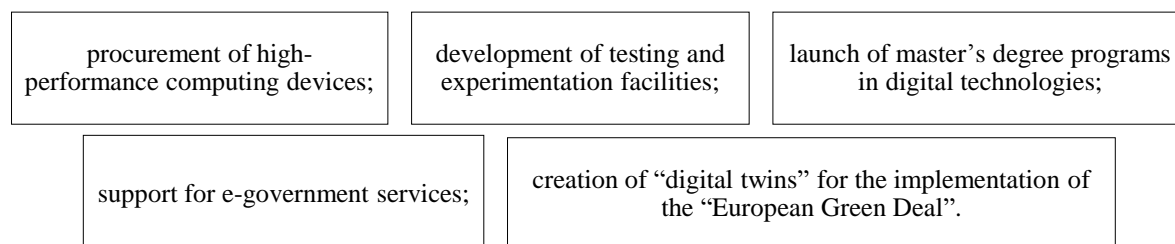
In order to minimize and avoid negative manifestations of digital changes in the economy and society, both individual countries and their associations are working to create effective programs, projects and instruments of a long-term nature. For example, the EU countries launched the Program «Digital Europe» for 2021–2027, which is focused on promoting the implementation of digital technologies and innovative developments, ensuring reliable and easy access to digital infrastructure, services and services, creating favorable conditions for the formation of sustainable competitive positions of participants in economic relations in the digital market, stimulating the development of digital business, creating conditions for achieving a high digital quality of life for members of society, strengthening security in cyberspace, ensuring institutional foundations for the creation and development of scientific, technical and production clusters and associations to achieve a synergistic effect from the activities of business entities in various fields and industries, which lay the foundation for the digital economic order. The main benefits of participating in the EU Programme «Digital Europe» (2021–2027) are presented in Fig. 1.

State	Business	Society
<ul style="list-style-type: none"> <li>•ensuring the efficiency and transparency of public and administrative services through the active use of digital technologies;</li> <li>•strengthening international cooperation in the implementation of digital and innovative practices;</li> <li>•the ability to implement social initiatives and promote digitalization from the perspective of its inclusiveness and accessibility.</li> </ul>	<ul style="list-style-type: none"> <li>•access to sources of resources that stimulate the creation of innovations and the introduction of advanced technologies;</li> <li>•financing the implementation of innovative projects, building a digital ecosystem and developing digital infrastructure.</li> </ul>	<ul style="list-style-type: none"> <li>•improving the digital quality of life of members of society;</li> <li>•the opportunity to improve the quality of education and scientific research and development, and to form digital literacy in the public.</li> </ul>

**Figure 1.** Key benefits of participation of small and medium-sized enterprises, civil society organizations, educational institutions and public authorities in the EU Programme «Digital Europe» (2021–2027)

Source: summarized based on source [1] and the author's own work.

The Programme «Digital Europe» is expected to contribute to the achievement of two strategic objectives of the EU – the «green transition» and the digital transformation, and to strengthen its resilience and strategic autonomy. During 2021–2027, the funding of projects within the framework of the European Programme will be carried out in five main areas: high-performance computing; AI, data and cloud services; advanced digital skills; ensuring the widespread use of digital technologies in the economy and society; cybersecurity (only for EU Member States) [2]. The Programme is also expected to use the results of advanced scientific and innovative research (Fig. 2).



**Figure 2.** Areas of priority support and funding within the framework of the implementation of the EU Programme «Digital Europe» (2021–2027)

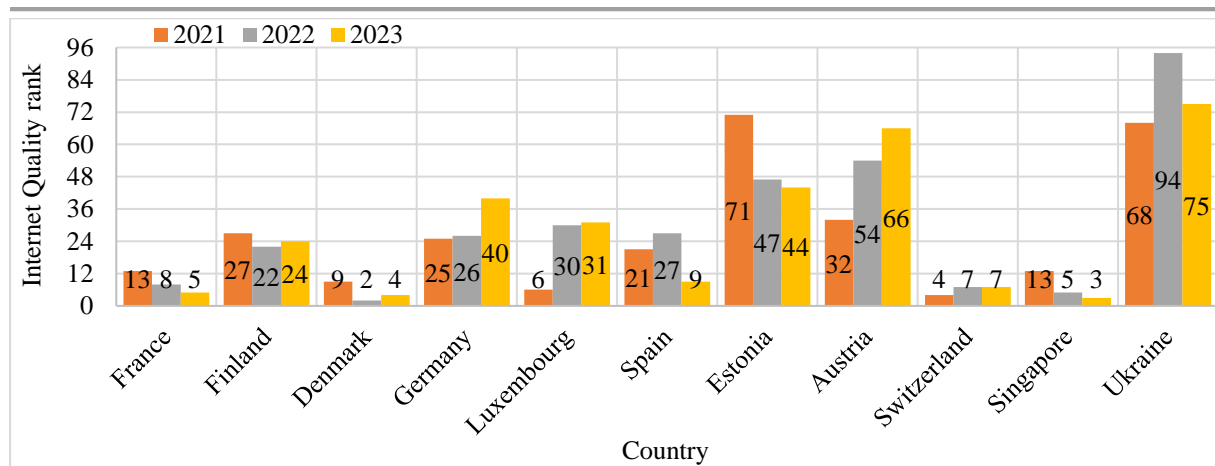
Source: compiled based on source [2].

In 2024, the European Commission published a document entitled «The future of European competitiveness» [20, p. 1], which outlines the potential opportunities for European countries identified during the digital revolution in the world, and also indicates the key challenges facing countries in connection with the emergence of digital technologies, which change not only the quality and way of life of society, its well-being, but also form a new view of the priorities of economic development.

Unfortunately, the European community is concerned about the feasibility of achieving the plans outlined for 2021–2027, as globalization, geopolitical instability, and global economic turbulence have intensified against the backdrop of the Covid-19 pandemic and a number of military conflicts in the world, and have changed the focus of priorities of the countries of the European continent. As a result, such trends have somewhat reduced both the overall level of digital competitiveness of European countries and in terms of individual criteria.

Comparing the level of digital competitiveness of the EU and the US is increasingly becoming the focus of scientific research, especially in the context of improving and transforming the economic system, taking into account digitalization and globalization. The relevance of these issues «is related, on the one hand, to the differences between the EU and the US in the amount of investment in ICT, and, on the other hand, to different systemic solutions that shape labor market flexibility, technology diffusion, organization of work and business systems, investment in human capital or the institutional environment for innovation and entrepreneurship» [14, p. 378].

Increasingly, research into the digital competitiveness of countries around the world is being conducted with the aim of identifying the impact of the spread and implementation of digital technologies on the formation of an information society. And not the least role here is played by access to the Internet, its quality and speed (Fig. 3).



**Figure 3.** Dynamics of changes in the ranking of individual countries of the world (TOP-10) and Ukraine by Internet quality within the DQL Index in 2021–2023

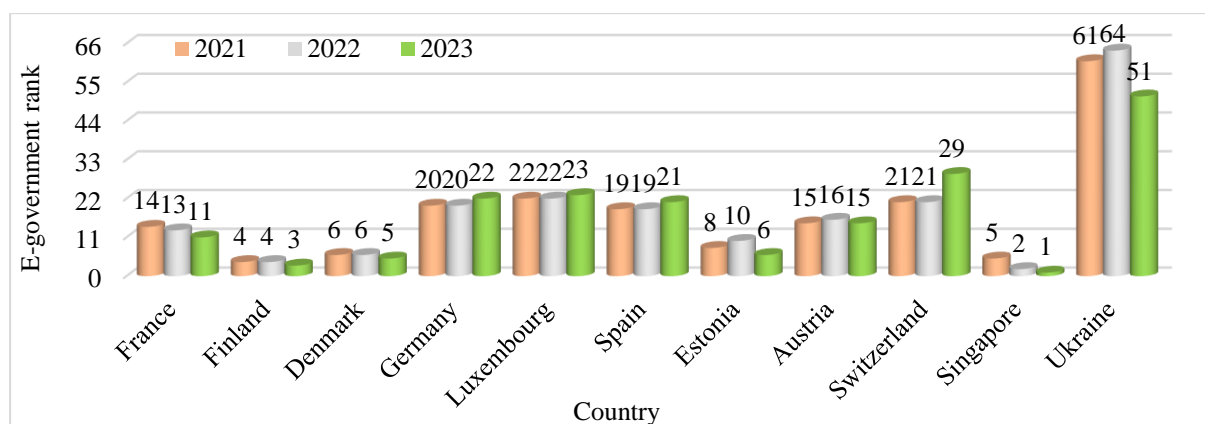
Source: based on source [7].

In 2021–2023, European countries lost leadership in the Digital Quality of Life (DQL) Index ranking of Internet quality, and therefore in 2023 the UAE took 1st place, and Canada took 2nd. Ukraine's place in the world ranking has been marked by significant fluctuations in recent years – in 2022, the country moved from 68th position to 94th, which was the result of a full-scale military invasion of its territory by a neighboring state and, as a result, the destruction and damage to e-infrastructure, and already in 2023, with the support of international partners and the accumulation of its reserves, Ukraine managed to rise to 75th position in the DQL ranking by Internet quality.

Researchers J. Stankovic, I. Marjanovic, S. Drezgic, and Z. Popovic note that «the overall development of the information society should be aimed at using the potential of ICT to increase efficiency, economic growth and employment levels, improve the quality of life of citizens of countries, ... and digital transformation is an opportunity for European countries to solve a number of their structural, economic, political and social challenges» [19, p. 129].

Ukraine has recently made significant efforts in the field of digital innovation policy. The role of digitalization in the effective functioning of the state, as exemplified by Ukraine's innovative approaches to countering multilateral attacks and attempting to ensure uninterrupted service to citizens, is of interest to the whole world. Of course, there are still many unresolved issues, and the main ones are «institutional, infrastructure, ecosystem, e-governance issues, which have led to a weak digital ecosystem and a lack of measures to encourage digital and entrepreneurial education and the development of digital skills» [15, p. 43, 45].

Fast and secure interaction of citizens of the country with state and local government bodies, and government institutions has always been relevant, but for Ukraine, it has gained particular importance since February 2022, when martial law conditions made it impossible for citizens to directly receive several administrative services and consultations «on the spot». The Unified State Web Portal of Electronic Services «Portal Diia» and the mobile application «Diia», developed and launched the day before by the Ministry of Digital Transformation of Ukraine, have become real «saviors» for Ukrainians. From Fig. 4, it becomes clear that Ukraine even strengthened its position in the ranking of countries in the world according to the DQL Index by the criterion of e-government development for 2021–2023 – it rose from 61st place in 2021 to 51st place in 2023. Of course, Ukraine's position in this ranking is not as strong as in Singapore, Finland, and Denmark (Fig. 4), but the course taken by the Ukrainian government to build a «State in a Smartphone» is already having positive results.



**Figure 4.** Dynamics of changes in the ranking of individual countries of the world (TOP-10) and Ukraine in terms of e-governance development within the DQL Index in 2021–2023

Source: based on source [7].

A special place in the course of Ukraine's digital transformation belongs to supporting digital changes in the country's territorial communities. The Digital Power Summit 2024 was held in May 2024, where communities that have demonstrated significant digital successes were recognized. Deputy Minister of Digital Transformation for European Integration Valeria Ionan noted that «in Ukraine, decentralization reform is a component of public governance. This can't be achieved without communities that are actively involved in the transformation processes and implement the initiatives of the Ministry of Digital Affairs on the ground. To assess the level of digitalization of communities, together with partners, we developed the first pilot Index of Digital Transformation of Territorial Communities of Ukraine» [6].

Such initiatives not only help to clearly outline the horizons of the future development of Ukraine as a whole and its individual communities, in particular, but also lay the foundations for the formation of a digital culture in society, expanding the involvement of the country's citizens in the implementation of digital technologies in business processes and various spheres of life. Thus, to gain leadership in digitalization and innovation tomorrow, it is necessary to act today. It is expected that the developed pilot Index of Digital Transformation of Territorial Communities of Ukraine will ensure the implementation of the principle of «individual digital leadership of communities – the digital success of the country».

The main goal of calculating the Digital Transformation Index of Territorial Communities of Ukraine is to track the level of digitalization of communities, and the results obtained will help their leaders identify strengths and weaknesses, and outline the prospects for implementing the necessary digital initiatives. The following indicators are used to measure the Index: digital economy in territorial communities, development of digital skills of the population, digital infrastructure, digitalization of public services, digital transformation of local governments. It is expected that the Index will not only provide opportunities for self-assessment by territorial communities regarding the digitalization, but will also allow identifying success factors and potential in the digital development of the community [6].

Of course, high indicators of digital development of territorial communities of Ukraine depend largely on their external environment, the innovativeness of their ecosystem, and the development of infrastructure. Along with this, a significant role in the digitalization of territorial communities is played by their production and personnel; the state of entrepreneurship, especially its creative and innovative types; the presence within the communities of «economic development centers», innovation hubs, industrial parks; high-quality institutional support; a favorable investment climate to attract additional investments and a business landscape to encourage partnership and cooperation, etc.

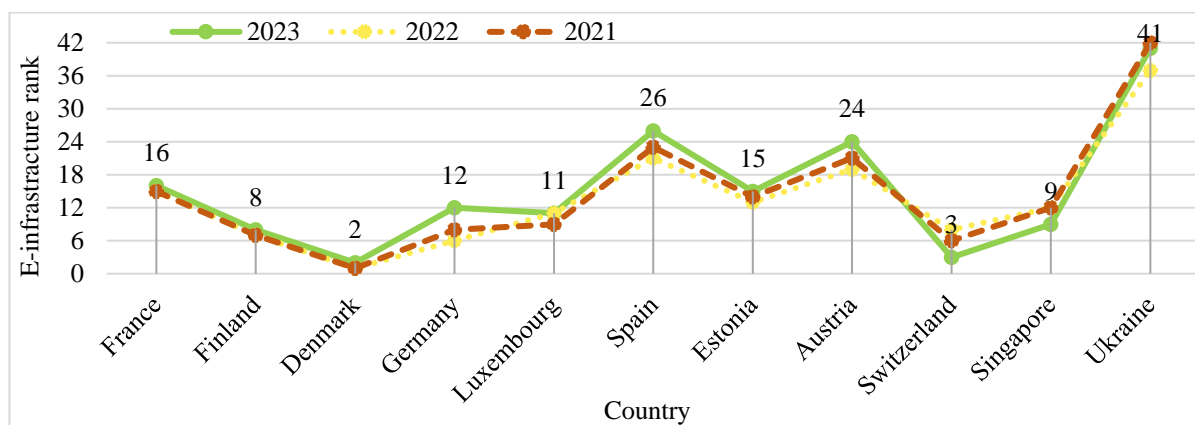


Moreover, in today's dynamically changing business landscape, digital competitiveness is becoming a component of digital transformation. «This dynamic paradigm not only refers to a business's ability to skillfully engage in digital transactions, but also encompasses its ability to optimize this engagement for sustainable growth and value creation» [5].

This confirms that today a developed e-infrastructure is not only an incentive for deepening digital transformations in the country's economy, but also an indicator of the digital quality of life of society. Thus, Fig. 5 shows the dynamics of changes in the rating of Ukraine and some countries of the world in terms of e-infrastructure development in 2021–2023. Ukraine in 2023 took 41st place in this rating, which can be considered quite positive, given that in 2021 the country was in 68th place. Stable leadership in the years under study is maintained by Sweden, Denmark, Switzerland and the Netherlands.

It is becoming obvious that world leadership in digitalization and innovation requires countries to be purposeful and decisive in their actions, implement long-term development strategies, consolidate internal potential and resources to achieve a high level of competitiveness. If we talk about Ukraine, then large-scale digital transformations in it require, first of all, long-term peace and the restoration of its territorial integrity, and only then the accumulation of efforts of Ukrainian society to direct the technical and technological achievements of modernity to increase the well-being of the nation and ensure a high level of digital quality of life for Ukrainians.

It is no coincidence that scholar D. Sagarik concludes that «insufficient government support hinders entrepreneurial innovation in developing countries, undermining their digital competitiveness. To address this problem, the government should introduce clear administrative guidelines and policies for each sector to support the digital industry and a long-term training program aimed at creating a digitally skilled workforce» [16, p. 10].



**Figure 5.** Dynamics of changes in the ranking of individual countries of the world (TOP-10) and Ukraine in terms of e-infrastructure development within the DQL Index in 2021–2023

Source: based on source [7].

The digitalization of the economy is taking place at an accelerated pace today, which is accompanied by the growth of people's needs and the increase in their consumption levels, the increase in the volume of production of economic goods and the deepening of competition between producers. To maintain highly competitive positions in the market, it is no longer enough for producers to only increase the volume of produced goods, they need to take care of improving their quality, review and change approaches to the organizational structure and culture, relationships with consumers, partners and government institutions, strengthen innovation and technological capabilities, flexibility and adaptability.



**Conclusions.** The digital transformation of economic relations significantly affects the change in the behavior of all economic agents in the market, who are forced to adapt to new realities. The convenience and safety of their functioning in the digital market space are extremely important to identify and assess today, despite the variety of scientific approaches and methodological developments. However, the undeniable fact remains that the degree of implementation of various digital technologies and solutions by participants in economic relations shapes their digital environment, determines the level of development of electronic infrastructure and the innovativeness of their ecosystem, and affects the reliability and safety of relations with state authorities and international institutions.

The penetration of advanced technologies into people's everyday lives changes the nature of social relations and gives rise to several contradictions. On the one hand, new opportunities for scaling production appear, and on the other hand, digital technologies increase the emphasis on individuality and personalization of services provided and goods produced. Alongside the usual reality, virtual and augmented reality appear, which are characteristic of the digital world, and so far, they are difficult to reconcile, the boundaries between them are extremely blurred. The expansion of people's access to the Internet, the emergence of social networks and various digital platforms and programs for communication, have made the issue of protecting human uniqueness and identity, preserving their personal data and private life from external interference, protecting their inner freedom and spirituality from the «opinions of the masses» even more obvious. Further digitalization makes the polarization of incomes of members of society even more obvious – the wealthy are getting richer, and the poor are getting poorer. We believe that the search for ways and means to reduce the aforementioned imbalances and gaps that arise in the course of digital transformations in the economy and society will be appropriate and relevant in future scientific research.

## References

1. Prohrama YeS. "Tsyfrova Yevropa" (2021–2027) (2021) [The EU Program "Digital Europe" (2021–2027)]. *Diia. Business*: website. Available at: <https://griml.com/yFjFC> (accessed: 13 November 2024).
2. Fedorak V. (2023) Yak vziaty uchast u Prohrami "Tsyfrova Yevropa": pryklady proiektiv, vidkryti konkursy, pidhotovka proiektnoi zaiavky [How to participate in the Digital Europe Program: project examples, open competitions, preparation of a project application]. *U-LEARN*, January 17, 2023. Available at: <https://u-lead.org.ua/news/112> (accessed: 13 November 2024).
3. Botti A., Parente R., Vesci R. (Eds.) (2023) *How to do business in digital era? A casebook*. Second edition. Salerno-Cracow: Cracow University of Economics. 2023. Available at: <https://ted.uek.krakow.pl/output-2-the-casebook-how-to-do-business-in-digital-era/> (accessed: 31 October 2024).
4. Bris A., Cabolis Ch., Caballero J. (2017) The IMD World Digital Competitiveness Ranking. How does your country rank? *IMD. RESEARCH & KNOWLEDGE*, September, 2017. Available at: <https://imd.widen.net/view/pdf/vldyri8qcm/tc050-17.pdf> (accessed: 19 November 2024).
5. Digital Competitiveness. Lark Editorial Team (2024). *Lark*, April 17, 2024. Available at: <https://griml.com/F64ep> (accessed: 19 November 2024).
6. Digital Power Summit 2024 (2024) *EBA. European Business Association*, May 29, 2024. Available at: <https://eba.com.ua/digital-power-summit-2024/> (accessed: 13 November 2024).
7. Digital Quality of Life Index 2023 (2024) *Surfshark*. Amsterdam, the Netherlands. Available at: <https://surfshark.com/dql2023> (accessed: 06 November 2024).
8. Grosu V., Andrioaia I., Tiganas I.-M. (2023) The influence of the digital revolution on sustainable competitiveness. Case study for Eastern European countries. *European Journal of Accounting, Finance & Business*, vol. 11 (2), pp. 61–67. DOI: <https://doi.org/10.4316/EJA.FB.2023.1128>
9. Kraus K. (2020) New quality of entrepreneurship management as a result of application of digital technologies. *Collection of materials "Innovative educational technologies: European experience and its application in training in economics and management"*. Riga: Baltic Research Institute of Transformation Economic Area Problems, 2020, pp. 72–76.
10. Kraus K. (2024) Digital quality of society's life as a result of economic growth in the conditions of institutional and structural changes. *Modeling the Development of the Economic Systems*, no. 3, pp. 38–45. DOI: <https://doi.org/10.31891/mdes/2024-13-5>

11. Kraus K., Kraus N., Manzhura O., Ishchenko I., Radzikhovska Y. (2023) Digital Transformation of Business Processes of Enterprises on the Way to Becoming Industry 5.0 in the Gig Economy. *WSEAS Transactions on Business and Economics*, vol. 20, Art. 93, pp. 1008–1029. DOI: <https://doi.org/10.37394/23207.2023.20.93>
12. Magliocca P. (Eds.) (2023) *Doing business digitally. A textbook*. Second edition. Foggia-Cracow: Małopolska School of Public Administration, Cracow University of Economics. Available at: <https://ted.uek.krakow.pl/output-2-the-textbook-doing-business-digitally/> (accessed: 12 October 2024).
13. Marti L., Puertas R. (2023) Analysis of European competitiveness based on its innovative capacity and digitalization level. *Technology in Society*, no. 72, Art. 102206. DOI: <https://doi.org/10.1016/j.techsoc.2023.102206>
14. Młynarzewska-Borowiec I. (2022) Digital Competitiveness Gap between the US and EU Member States in the 21st Century. *European Research Studies Journal*, vol. XXV, Iss. 4, pp. 364–380. DOI: <https://doi.org/10.35808/ersj/3087>
15. OECD (2024). Pidvyshchennia stiikosti shliakhom pryskorennia tsyfrovoy transformatsii biznesu v Ukraini [Increasing resilience by accelerating the digital transformation of business in Ukraine]. OECD Publishing, Paris, 118 p. DOI: <https://doi.org/10.1787/5d9e86a7-uk>
16. Sagarik D. (2023) Enhancing Digital Competitiveness Through the Lens of Digital Government Among Asian Economies. *International Journal of Public Administration in the Digital Age (IJPADA)*, no. 10 (1), pp. 1–11. DOI: <https://doi.org/10.4018/IJPADA.326122>
17. Sahi S. M. (2022) Impact of the digital competitiveness on economic growth: evidence from global economy. *World Economics & Finance Bulletin*, no. 14, pp. 57–67. Available at: <https://griml.com/1vD8f> (accessed: 21 November 2024).
18. Santoso F. Y. E., Samputra P. L., Daryanto E. (2024) Digital Competitiveness and Economic Resilience. *Asian Journal of Engineering, Social and Health*, no. 3 (7), pp. 1536–1548. DOI: <https://doi.org/10.46799/ajesh.v3i7.353>
19. Stankovic J. J., Marjanovic I., Drezgic S., Popovic Z. (2021) The Digital Competitiveness of European Countries: A Multiple-Criteria Approach. *Journal of Competitiveness*, no. 13 (2), pp. 117–134. DOI: <https://doi.org/10.7441/joc.2021.02.07>
20. The future of European competitiveness. Part A. A competitiveness strategy for Europe (September 2024). *European commission*. 66 p. Available at: <https://griml.com/L9SjR> (accessed: 19 November 2024).

#### Список використаних джерел

1. Програма ЄС «Цифрова Європа» (2021–2027). *Дія. Бізнес* : вебсайт. URL: <https://griml.com/yFjFC> (дата звернення: 13.11.2024).
2. Федорак В. Як взяти участь у Програмі «Цифрова Європа»: приклади проєктів, відкриті конкурси, підготовка проєктної заявки. *U-LEARN*, 17 січня 2023. URL: <https://u-lead.org.ua/news/112> (дата звернення: 13.11.2024).
3. Botti A., Parente R., Vesci R. (Eds.). *How to do business in digital era? A casebook*. Second edition. Salerno-Cracow: Cracow University of Economics. 2023. URL: <https://ted.uek.krakow.pl/output-2-the-casebook-how-to-do-business-in-digital-era/> (accessed: 31.10.2024).
4. Bris A., Cabolis Ch., Caballero J. The IMD World Digital Competitiveness Ranking. How does your country rank? *IMD. RESEARCH & KNOWLEDGE*, September 2017. URL: <https://imd.widen.net/view/pdf/vldyri8qcm/tc050-17.pdf> (accessed: 19.11.2024).
5. Digital Competitiveness. Lark Editorial Team. *Lark*, April 17, 2024. URL: <https://griml.com/F64ep> (accessed: 19.11.2024).
6. Digital Power Summit 2024. *EBA. European Business Association*, May 29, 2024. URL: <https://eba.com.ua/digital-power-summit-2024/> (accessed: 13.11.2024).
7. Digital Quality of Life Index 2023. *Surfshark*, Amsterdam, the Netherlands, 2024. URL: <https://surfshark.com/dql2023> (accessed: 06.03.2024).
8. Grosu V., Andrioaia I., Tiganas I.-M. The influence of the digital revolution on sustainable competitiveness. Case study for Eastern European countries. *European Journal of Accounting, Finance & Business*. 2023. Vol. 11 (2). P. 61–67. DOI: <https://doi.org/10.4316/EJAFB.2023.1128>
9. Kraus K. New quality of entrepreneurship management as a result of application of digital technologies. *Collection of materials «Innovative educational technologies: European experience and its application in training in economics and management»*. Riga: Baltic Research Institute of Transformation Economic Area Problems, 2020. P. 72–76.
10. Kraus K. Digital quality of society's life as a result of economic growth in the conditions of institutional and structural changes. *Modeling the Development of the Economic Systems*. 2024. No. 3. P. 38–45. DOI: <https://doi.org/10.31891/mdes/2024-13-5>
11. Kraus K., Kraus N., Manzhura O., Ishchenko I., Radzikhovska Y. Digital Transformation of Business Processes of Enterprises on the Way to Becoming Industry 5.0 in the Gig Economy. *WSEAS Transactions on Business and Economics*. 2023. Vol. 20. Art. 93. P. 1008–1029. DOI: <https://doi.org/10.37394/23207.2023.20.93>

12. Magliocca P. (Eds.). *Doing business digitally. A textbook*. Second edition. Foggia-Cracow: Małopolska School of Public Administration, Cracow University of Economics. 2023. URL: <https://ted.uek.krakow.pl/output-2-the-textbook-doing-business-digitally/> (accessed: 12.10.2024).
13. Marti L., Puertas R. Analysis of European competitiveness based on its innovative capacity and digitalization level. *Technology in Society*. 2023. № 72. Art. 102206. DOI: <https://doi.org/10.1016/j.techsoc.2023.102206>
14. Młynarzewska-Borowiec I. Digital Competitiveness Gap between the US and EU Member States in the 21st Century. *European Research Studies Journal*. 2022. Vol. XXV. Iss. 4. P. 364–380. DOI: <https://doi.org/10.35808/ersj/3087>
15. OECD. *Підвищення стійкості шляхом прискорення цифрової трансформації бізнесу в Україні*. OECD Publishing, Paris, 2024. 118 с. DOI: <https://doi.org/10.1787/5d9e86a7-uk>
16. Sagarik D. Enhancing Digital Competitiveness Through the Lens of Digital Government Among Asian Economies. *International Journal of Public Administration in the Digital Age (IJPADA)*. 2023. No. 10 (1). P. 1–11. DOI: <https://doi.org/10.4018/IJPADA.326122>
17. Sahi S. M. Impact of the digital competitiveness on economic growth: evidence from global economy. *World Economics & Finance Bulletin*. 2022. No. 14. P. 57–67. URL: <https://griml.com/1vD8f> (accessed: 21.11.2024).
18. Santoso F. Y. E., Samputra P. L., Daryanto E. Digital Competitiveness and Economic Resilience. *Asian Journal of Engineering, Social and Health*. 2024. No. 3 (7). P. 1536–1548. DOI: <https://doi.org/10.46799/ajesh.v3i7.353>
19. Stankovic J. J., Marjanovic I., Drezgic S., Popovic Z. The Digital Competitiveness of European Countries: A Multiple-Criteria Approach. *Journal of Competitiveness*. 2021. No. 13 (2). P. 117–134. DOI: <https://doi.org/10.7441/joc.2021.02.07>
20. The future of European competitiveness. Part A. A competitiveness strategy for Europe (September 2024). *European commission*. 66 p. URL: <https://griml.com/L9SjR> (accessed: 19.11.2024).