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TRENDS IN DIGITAL ECONOMIC DEVELOPMENT AND VIRTUAL BUSINESS MOBILITY

Transformation in economic relations is marked by innovation, digitalization, knowledge orientation, environmental friendliness, and networks of communications. In order to identify and evaluate the level of influence of digital changes on the socio-economic aspects of society and business mobility, the article describes the degree of spread of advanced technologies on a global scale. This analyzes the dynamics of changes in individual socio-demographic indicators in the world from the standpoint of accessibility and prevalence of the use of modern ICTs, devices, and networks in 2014, 2017, 2021, and 2024. It has been found that digital transformation manifests not only in increasing the number of active Internet users, but also in changing their behavior in the virtual world. A retrospective overview of the state of individual socio-demographic indicators worldwide under the influence of the use of modern ICTs, devices, and networks in the last decade has shown that the number of mobile subscribers and registered users of social networks is increasing rapidly. It is revealed that such trends facilitate communication between relatives, cooperation with colleagues and partners, interaction with public authorities, etc. The link between the level of digital changes in the country and the economic well-being of its society members has been revealed. For this purpose, the dynamics of GDP changes per capita in individual countries with the highest level and in Ukraine in 2021 and 2024 were monitored. The leaders in the mentioned indicator in 2024 are countries that demonstrate compliance with the principles of sustainable development, digital transformation, innovative activity, institutional change, human capital development, and business mobility. Modern technologies are able to ensure the strengthening of the competitive capacity of the country's economy and its individual business structures, the formation of a digital society, expanding citizens' access to digital services and services, and creating an inclusive and multifunctional digital space for the rapid and easy interaction of all participants in economic relations.

Keywords: *digital transformation, economic relations, digitalization of business structures, business mobility, digital technologies, digital society, digital competitiveness, sustainable development*

JEL classification: *O10, O33, P13, O57*

Сучасні перетворення в економічних відносинах у світі відзначаються інноваційністю, цифровізацією, орієнтацією на знання та екологічність, мережевість зв'язків. З метою виявлення і оцінки рівня впливу цифрових змін на соціально-економічні сторони життя суспільства та мобільність бізнесу у статті охарактеризовано

ступінь поширення різноманітних передових технологій та мережі Інтернет у світових масштабах. Задля цього проаналізовано динаміку зміни окремих соціально-демографічних показників у світ з позиції доступності та поширеності використання сучасних інформаційно-комунікаційних технологій, пристроїв та мереж у 2014, 2017, 2021 і 2024 роках. Виявлено, що цифрова трансформація проявляється не тільки у нарощенні кількості активних користувачів Інтернету, але й зміні їх поведінки у віртуальному світі. Ретроспективний огляд стану окремих соціально-демографічних показників у світових масштабах під впливом використання сучасних ІКТ, пристроїв та мереж в останньому десятилітті засвідчив, що швидкими темпами зростає кількість абонентів мобільного зв'язку (у 2014 році їх було 3,63 млрд осіб, а у 2024 році вже 6,61 млрд осіб) та зареєстрованих користувачів соціальних мереж (5,04 млрд осіб на початку 2024 року проти 2,06 млрд осіб у грудні 2014 року). Це є свідченням того, що цифрова ера переносить життя і діяльність людини із реального у віртуальний світ. Виявлено, що такі тенденції полегшують комунікацію між рідними, співпрацю з колегами та партнерами, взаємодію з органами державної влади тощо. Разом з тим, віртуальний світ зменшує адаптивність людини до реального зовнішнього середовища та його викликів. Виявлено зв'язок між рівнем цифрових змін у країні та економічним добробутом членів її суспільства. Для цього здійснено моніторинг динаміки зміни ВВП на душу населення в окремих країнах світу із найвищим рівнем та в Україні у 2021 і 2024 роках. Лідерами за згаданим показником у 2024 році є Ірландія, Сінгапур, Швейцарія, ОАЕ та Норвегія, що демонструють дотримання принципів сталого розвитку, цифрової трансформації, інноваційної активності, інституційних змін, розвитку людського капіталу, екологічності, доступності та інклюзивності, віртуальної мобільності бізнесу. Зроблено висновок про те, що сучасні технології спроможні забезпечити зміцнення конкурентної спроможності економіки країни та окремих її бізнес-структур, формування цифрового суспільства, розширення доступу громадян до цифрових послуг і сервісів, створення інклюзивного і багатофункціонального цифрового простору для швидкої та легкої взаємодії всіх учасників економічних відносин.

Ключові слова: *цифрова трансформація, економічні відносини, цифровізація бізнес-структур, мобільність бізнесу, цифрові технології, цифрове суспільство, цифрова конкурентоспроможність, сталий розвиток*

JEL classification: *O10, O33, P13, O57*

Statement of the problem. Modern economic relations are characterized by a high level of instability, turbulence and variability. At the same time, they are distinguished by innovation, digitalization, orientation towards knowledge and environmental friendliness, and networked relations. Each of these aspects transforms the traditional idea of the functioning of the economic system, changes the usual models of markets and business processes, and shifts the emphasis on maintaining a high level of competitiveness of both individual economic agents and the country.

Given this, institutional transformation is needed today, equally for both the economy and society. This, in turn, requires deepening the digital transformation of economic relations, the formation of a digital culture of society, and the digitalization of business structures. It is undeniable that all these digital changes are part of a consistent policy of sustainable development of countries.

The targeted implementation of digital technologies, tools, and solutions into the strategy for achieving sustainable development goals will lay the foundations for sustainable economic development and long-term prosperity, institutional transformations at all levels of economic aggregation, reducing digital inequality

and overcoming digital divides, and deepening partnerships and cooperation between scientists, researchers, business representatives, and government institutions from different countries around the world.

Analysis of recent research and publications. The issue of institutional changes and digital transformations and increasing the digital competitiveness of countries under the influence of the active implementation of advanced technologies is in the field of view of both scientists and practitioners. Such interest is caused, in particular, by the fact that the latest digital and information and communication technologies deeply penetrate people's everyday lives, their professional activities, and leisure, they change the balance of productive forces in production and business processes, shift emphasis, deepen robotization and automation, and modify the relationship between members of society and government bodies.

Researchers A. Bris, Ch. Cabolis, J. Caballero, in their work "The IMD World Digital Competitiveness Ranking. How does your country rank?" note that "governments around the world are investing in scientific and technological infrastructure to keep up with the opportunities of the digital economy and increase the well-being of their citizens" [1]. In addition, the Spaniards L. Marti and R. Puertas are convinced that in the current conditions of digital change, "digital technologies have a strong impact on people's lives when it comes to means of communication, lifestyle, and work formats. They offer solutions for the growth of countries, promoting job creation, deepening educational progress, and increasing competitiveness" [2, p. 8].

In an in-depth analysis of digital competitiveness indicators, a team of researchers including J. Stankovic, I. Marjanovic, S. Drezgic and Z. Popovic concluded that groups of countries with low and medium digital competitiveness have lower levels of most economic indicators, while economically developed countries can be found in groups of countries with high digital competitiveness. Such results may have implications for policymakers and serve as a guide for making strategic decisions aimed at planning a country's digital future [3, p. 129].

Valuable for science and practice is the research of scientist I. Martincevic, who emphasizes that digital technologies and innovative solutions are becoming an integral part of the organization's business processes, and their main task is to improve business and increase efficiency and effectiveness. "New business models, which are the result of new digital technologies, create new directions, methods, and techniques for doing business and creating a better position in the market. Competition in the market is unthinkable and impossible without new digital technologies... Digital business transformation changes the way all organizations in all industries compete and operate in the global market" [4, p. 541].

As part of an international grant project of five European countries (Austria, Italy, Spain, Ukraine, Poland) entitled "Teaching Digital Entrepreneurship", researchers A. Botti, R. Parente, R. Vesci [5] and P. Magliocca [6] studied the specifics of digital entrepreneurship in different countries and in different sectors of the economy, and identified potential growth points for the future economic prosperity of European countries using advanced digital and innovative solutions.

Scientist D. Sagarik notes that "the global economy and society are now entering the so-called era of the "fourth industrialization", as many new technologies

such as IoT, 3D printing technology and AI are rapidly and continuously emerging, largely initiated by the complexity of digital platforms and digital ecosystems” [7, p. 1]. Researcher S. Sahi draws attention to the fact that digital technologies are the drivers of the future industrial revolution and have an impact on all socio-economic aspects of society, and only those countries that can create a favorable atmosphere for the growth of the digital economy will be able to become leaders in the global market [8, p. 57].

We have also previously investigated some issues of digital changes in the economy and society under the influence of the creation and spread of advanced technologies. In particular, we studied the trends of digital transformation of business processes of modern enterprises on the path to the emergence of Industry 5.0 [9], and also made an attempt to predict the potential of Ukraine for innovative and digital transformations in the future [10].

Highlighting previously unresolved parts of the overall problem. Our present is marked by the frantic dynamics of change, high rates of variability and mobility, digital transformations in all spheres of social manifestation and economic relations, and the deep penetration of advanced digital technologies into human life. All this indicates the beginning of the digital era.

Such changes actualize a number of tasks and issues that require immediate resolution and priority. This is due, firstly, to the need to realize the scale of the transformations that digitalization brings, to understand its impact on human behavior and changes in their lifestyle; to identify the place of modern technologies in the socio-economic life of society, as well as their contribution to the growth of the general well-being of the nation. Given the above, we believe that these issues should form the basis of our scientific research.

Formulation of the article’s goals (task statement). The purpose of the study is to analyze the dynamics of changes in some socio-demographic indicators from the perspective of the availability and prevalence of the use of modern ICT, devices and networks, as well as to conduct a retrospective review of them in 2014, 2017, 2021, 2024; to investigate the impact of digital technologies on the growth of the economic well-being of the population of countries in terms of studying the dynamics of changes in their GDP per capita in 2021 and 2024; to identify Ukraine’s potential in restoring economic growth based on the active implementation of advanced digital technologies in business, production, and public governance.

Presentation of the main research material. The level of a country’s digital competitiveness and the pace of its digital transformation depend on the purposefulness implementing the principles of the digital economy, the implementation of digital technologies in society, business processes and production, and the success of involving citizens in the formation and development of a digital society.

Simon Kemp, CEO of Singapore-based consultancy Kepios and chief analyst at DataReportal, notes in the Digital 2024 Global Overview Report that one of the current trends is the continued growth of social media users, which have already exceeded 5 billion people on the planet, and their annual growth is on average more than 5%. And this is despite the fact that digital growth has slowed down in recent years, as humanity reaches the status of a “supermajority”. But still almost

3 billion people don't have access to the global Internet as of the beginning of 2024 [11, p. 4].

The growth of humanity's interest in the global Internet, various social media, and digital devices in recent years is evidenced by the data in Table 1. They give us an idea of the trends in changes in individual socio-demographic indicators in the world from the standpoint of the availability and prevalence of the use of modern ICT, devices, and networks in 2014, 2017, 2021, and 2024. As we can see, from December 2014 to January 2024, the population of the planet increased by 880 million people, which is 12.22%. In less than 10 years, this is fairly rapid positive population growth. At the same time, the number of those living in cities is also constantly growing; only during the period under study, their number increased by 4.8%. People's desire to "stay connected" led to the fact that in January 2024, 81.8% of the world's population (or 6.61 billion people) became mobile phone subscribers, in particular, 69.4% of them lived in cities. Unfortunately, Internet access is not growing at a rapid pace. The number of Internet users as of January 2024 was 5.35 billion people, which is 77.15% more than in December 2014. Positive dynamics are also observed among social media users; their number in the world increased by 2.98 billion people over the studied years, which is equivalent to 144.66%. From the data in Table 1, we clearly see the deepening of the digital divide between rural and urban residents in the world in terms of their access to the Internet and the ability to own modern digital devices. Such differentiation largely depends on differences in their purchasing power and well-being.

Table 1

Dynamics of changes in individual socio-demographic indicators on a global scale from the perspective of accessibility and prevalence of ICT, devices and networks in 2014, 2017, 2021, and 2024

Some indicators of the prevalence of the use of modern ICT	As of				Change in the indicator 2024 vs. 2014 (+;-)	
	December 2014	April 2017	January 2021	January 2024.	Absolute	Relative, %
<i>1</i>	<i>2</i>	<i>3</i>	<i>5</i>	<i>8</i>	<i>9</i>	<i>10</i>
1. World population, billion people	7,20	7,49	7,83	8,08	0,88	12,22
of them live in cities, %	53,00	54,00	56,40	57,80	4,80	9,06
2. Mobile phone subscribers, billion people	3,63	4,96	5,22	6,61	2,98	82,09
of them live in cities, %	50,00	66,00	66,60	69,40	19,40	38,80
3. Internet users, billion people	3,02	3,81	4,66	5,35	2,33	77,15
of them live in cities, %	42,00	51,00	59,50	66,20	24,20	57,62
4. Social media users, billion people	2,06	2,91	4,20	5,04	2,98	144,66
of them live in cities, %	28,00	39,00	53,60	62,30	34,30	122,50

Source: Compiled based on sources [11, p. 10; 12, p. 8; 13, p. 4; 14, p. 2].

Digital transformations are now manifested not only in the increase in the number of active Internet users, but also in changing their behavior in the virtual world and transforming views on the place of digital technologies in human life, the development of civilization with a new philosophy and values.

The amount of time people spend online is constantly increasing year by year. Changes in user tastes and global behavior on social networks are also becoming more noticeable: TikTok continues to rapidly increase the number of active users, Instagram becomes the most popular social platform in the world, overtaking WhatsApp, Facebook continues to develop, new interesting players appear in the online space (LinkedIn, Snapchat, Weibo, Kuaishou, Discord, etc.) with a slightly different view on the format of social communication [11, p. 4].

A retrospective analysis of individual socio-demographic indicators in the world in 2014, 2017, 2021, and 2024 (Fig. 1) once again showed that humanity's interest in modern ICT, digital devices, and social networks is constantly growing, which transfers human life and activities from the real to the virtual world.

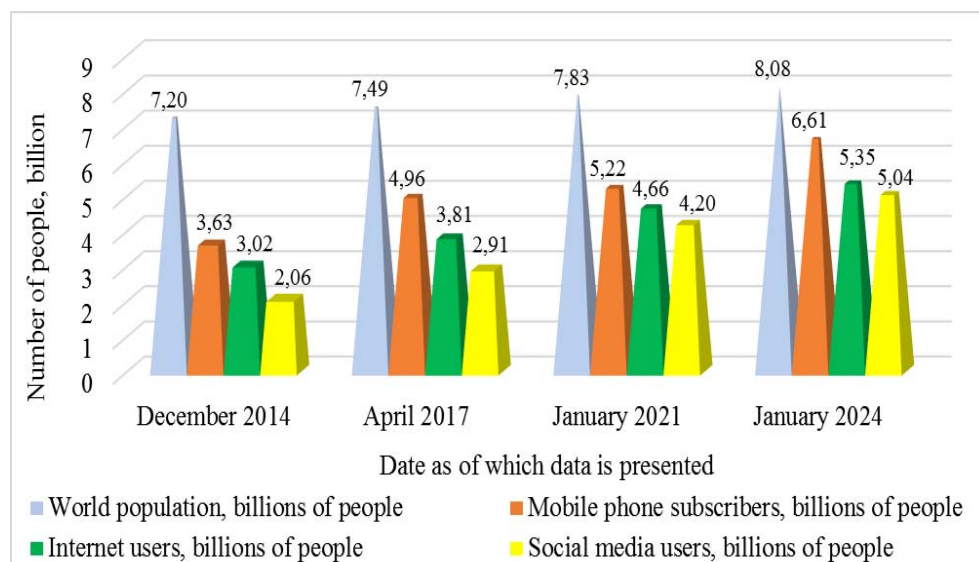


Fig. 1. A retrospective look at the state of individual socio-demographic indicators in the world from the perspective of the availability and prevalence of ICT, devices and networks in 2014, 2017, 2021, and 2024

Source: Based on sources [11, p. 10; 12, p. 8; 13, p. 4; 14, p. 2].

On the one hand, new methods and means of communication make it instantaneous to communicate with family, friends, and colleagues; to cooperate in business with various counterparties; to interact with government agencies; to resolve a number of issues of a domestic, educational, medical,

logistical, etc. nature. Of course, this has a number of advantages, as it will significantly save time on everyday matters, reduce costs, speed up the search for necessary information, simplify the possibilities of making new acquaintances, balance time for education, work, leisure, family, etc. On the other hand, the virtual world reduces a person's adaptability to the real external environment and its challenges, which lowers the threshold of their social adaptability and makes them withdrawn, uncommunicative, and unstable. And this not only has negative consequences of the individual level, but also affects the development of the entire society, its ability to increase the economic power of a certain territory or country as a whole, to ensure its development and competitiveness.

In order to put the issue of digital competitiveness at the center of discussion between political leaders of the world, owners of powerful companies in the global market, representatives of public organizations and academics, the European Center for Digital Competitiveness was created at the ESCP Business School in Berlin (Germany), which is designed to create a digital foundation for the future of Europe. It aims to analyze trends in digital transformation in European countries, develop strategies for a smooth transition to a digital future and strengthen interaction between leaders of advanced industries, politicians, and representatives of the scientific community to discuss current societal issues, exchange ideas and develop solutions to current problems. The mission of the European Digital Competitiveness Centre "is to help bring Europe to the forefront of digital competitiveness and inspire the responsible use of technologies that serve society" [15].

The European Commission is concerned about the slowdown in European growth in the 21st century, and that the development and implementation of various strategies to stimulate growth are not yielding the expected results. The gap in GDP between the EU and the US is quite significant and is further deepened by the decline in labor productivity in Europe, which leads to a decline in living standards, while GDP per capita in the US has shown an increase of twice that of the EU since 2000 [16, p. 1].

Figure 2 clearly demonstrates the gap in GDP per capita between individual countries of the world in 2021 and 2024. It is worth noting that among the leaders in terms of GDP per capita in 2024 are Ireland, Singapore, Switzerland, the UAE, and Norway, that is, countries that demonstrate consistent adherence to the principles of sustainable development, digital transformation, innovative activity, institutional changes, human capital development, environmental friendliness, accessibility, equality, and inclusion.

We see in Figure 2 that Ukraine in 2024, unfortunately, is far behind in terms of GDP per capita – its value is \$5.07 thousand, which is many times less than the European average. Ukraine's GDP growth is being held back by many reasons, the main one being the full-scale war in the country since February 2022. European countries, in order to give a positive impetus to economic growth, innovation and digital changes on the continent, launched the EU program "Digital Europe" (2021–2027). Ukraine also joined the implementation of this Program.

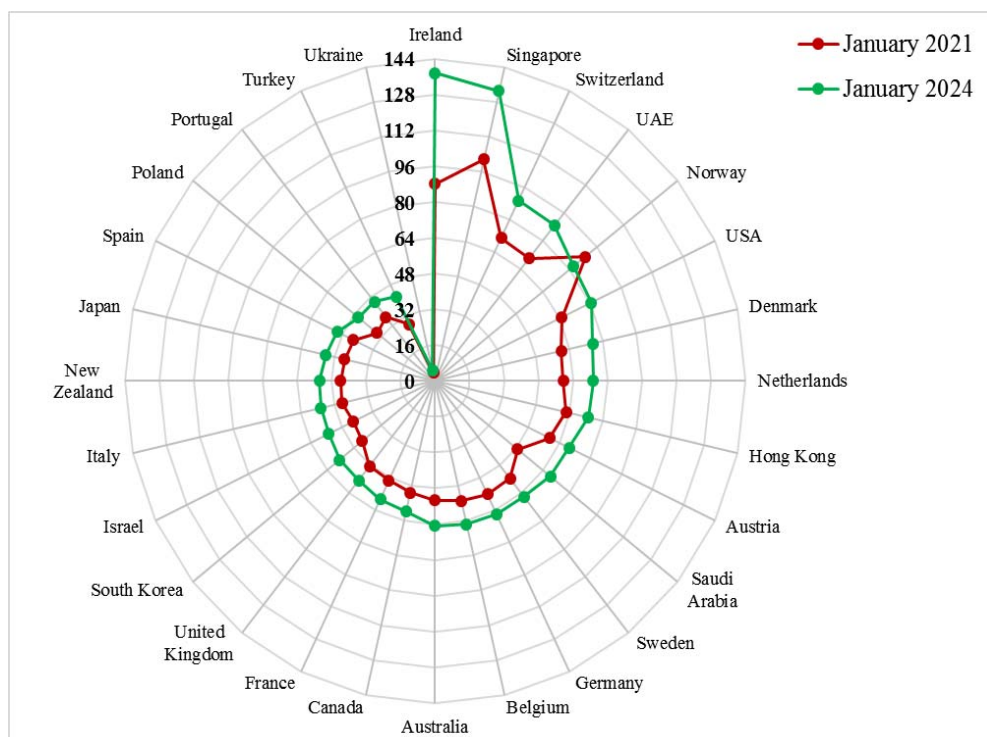


Fig. 2. Dynamics of changes in GDP per capita in selected countries of the world with the highest level and in Ukraine in 2021 and 2024, thousand dollars

Source: Based on sources [11, p. 24; 12, p. 19].

The EU Digital Europe Programme is primarily aimed at business entities in various fields of activity, including the implementation of effective digital solutions and support for innovation; educational institutions at various levels; public associations; state authorities and local governments [17].

Ukraine's digital competitiveness directly depends on the competitiveness of its business entities, and they currently face a number of problems "related to the war (physical damage to assets, loss of personnel, disruption of supply chains, reduced consumer demand, suppression of business activity, and economic growth). Digitalization can help companies overcome the obstacles caused by the crisis and become more resilient to shocks" [18, p. 98].

Therefore, it is expected that stakeholders who will join the competitions of the EU Digital Europe Program will be able to increase their digital literacy and acquire new digital knowledge and skills, actively and easily implement modern technologies and digital tools in the business activities of economic agents, develop a digital ecosystem and build a digital infrastructure architecture, expand barrier-free and inclusive access to digital services, and join the development of institutional foundations for the digital transformation of economic relations in the country in accordance with the standards of EU countries.

Researchers from Ukraine O. Kruhlova, K. Tverdokhlib in their work “Ukraine Global and Digital Competitiveness Index” note that “digital transformation of business is one of the ways to develop business and strengthen its competitive advantages, and its effectiveness is determined by the general macroeconomic trends of digitalization of economic relations” [19, p. 23].

We agree with the limitations noted by researcher D. Sagarik – insufficient budget funding, lack of experience in implementing such projects, lack of inclusiveness and gaps in infrastructure. But here, “collaboration with industry stakeholders and continuous investment in the development of digital skills...; overcoming the digital divide, promoting digital literacy programs and using new technologies for transformative public services” [7, p. 10] can help, which, in the end, will ensure transparency, citizen engagement, economic development and improvement of public services, and will also help governments of countries to use the potential of the digital era to ensure the well-being of the population.

The shift in the “center of gravity” on the Internet in 2024, driven by the digital development of individual countries around the world, in particular Asia, and the relentless growth of India’s population, which has an impact on global digital trends [11, p. 4], also contributes to the dynamics of digital change. We should not forget about the challenges that accompany this process – growing geopolitical tensions, military conflicts in different parts of the world, economic shocks resulting from the global Covid-19 pandemic, global transformation of human values (from “living well” to “surviving”), intolerance of something new and different, a tendency towards isolation and isolation due to pandemic restrictions, and expanding the possibilities of using digital technologies to gain access to information, education, and community.

Conclusions. The creation, dissemination and active use of advanced technologies allows to significantly improve the business and investment climate in the country, which will make it an attractive space for doing business, implementing innovative projects and initiatives, implementing creative ideas, and bold decisions. Ultimately, this will ensure the strengthening of the competitiveness of the country’s economy and its individual business structures; help form a digital society with a high level of digital literacy of citizens; expand citizens’ access to services and services of private and public institutions and organizations; create an inclusive, open and multifunctional digital space for quick and easy interaction of all participants in economic relations; build a modern architecture of economic relations with digital infrastructure and an innovation ecosystem; improve the well-being of the nation.

New opportunities opened up by the world of digital technologies are transforming traditional ideas about the trajectory of socio-economic development. Therefore, along with the usual and understandable strategy for many of achieving sustainable competitive advantages and rationalizing the use of economic resources, strengthening the country’s innovative potential and supporting digital transformation by the state, business, and society are becoming priorities. We consider it necessary to conduct further scientific research in the area of studying the correlation between the sustainable development goals of countries around the world and innovative and digital vectors of economic development at the institutional and corporate levels.

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TRENDS IN DIGITAL ECONOMIC DEVELOPMENT AND VIRTUAL BUSINESS MOBILITY

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Transformation in economic relations is marked by innovation, digitalization, knowledge orientation, environmental friendliness, and networks of communications. In order to identify and evaluate the level of influence of digital changes on the socio-economic aspects of society and business mobility, the article describes the degree of spread of advanced technologies on a global scale. This analyzes the dynamics of changes in individual socio-demographic indicators in the world from the standpoint of accessibility and prevalence of the use of modern ICTs, devices, and networks in 2014, 2017, 2021, and 2024. It has been found that

digital transformation manifests not only in increasing the number of active Internet users, but also in changing their behavior in the virtual world. A retrospective overview of the state of individual socio-demographic indicators worldwide under the influence of the use of modern ICTs, devices, and networks in the last decade has shown that the number of mobile subscribers and registered users of social networks is increasing rapidly. It is revealed that such trends facilitate communication between relatives, cooperation with colleagues and partners, interaction with public authorities, etc. The link between the level of digital changes in the country and the economic well-being of its society members has been revealed. For this purpose, the dynamics of GDP changes per capita in individual countries with the highest level and in Ukraine in 2021 and 2024 were monitored. The leaders in the mentioned indicator in 2024 are countries that demonstrate compliance with the principles of sustainable development, digital transformation, innovative activity, institutional change, human capital development, and business mobility. Modern technologies are able to ensure the strengthening of the competitive capacity of the country's economy and its individual business structures, the formation of a digital society, expanding citizens' access to digital services and services, and creating an inclusive and multifunctional digital space for the rapid and easy interaction of all participants in economic relations.

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