

THE IMPACT OF THE DIGITAL ECONOMY ON IMPROVING A COUNTRY'S COMPETITIVENESS IN THE CONTEXT OF GLOBALISATION

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Abstract. The article examines the impact of the digital economy on the formation of competitive advantages of states in a globalised environment and identifies key factors that ensure economic growth in the context of digital transformation. The present study conducts an analysis of contemporary scientific approaches to the interpretation of the digital economy, its structure and components, including digital infrastructure, digital platforms, and digital competencies. This study places particular emphasis on the research conducted by prominent international organisations, namely the OECD, World Bank, UNCTAD and WEF. The outcomes of these research endeavours have substantiated a direct and positive correlation between a nation's digital maturity level, its labour productivity dynamics and its competitiveness in global markets. The key areas of influence of the digital economy on macroeconomic development are revealed: increasing productivity and innovation, expanding opportunities for small and medium-sized businesses, developing digital government services, transforming the labour market, and strengthening the role of intellectual capital. The evidence presented indicates that digitalisation fosters the active inclusion of countries in international value chains, accelerates the diffusion of technologies, increases the attractiveness of economies for investors, and stimulates the development of innovative entrepreneurship. The primary challenges associated with digital transformation have been delineated, namely digital inequality, cyber risks, staff shortages, and the mounting necessity for digital skills within the population. It has been established that successful states overcome these limitations by implementing comprehensive digital strategies, modernising education, investing in infrastructure and forming innovative ecosystems. Particular attention is paid to Ukraine's opportunities within the context of the global digital economy. Thanks to its developed IT sector, the high level of digital competence among young people, active state digital reforms, and European integration processes, it has been determined that the country has significant potential for digital development. According to forecasts, systematic digitalisation could ensure GDP growth of 10–12%, increase IT service exports to 15 billion USD by 2030, deliver annual productivity growth of 1.5–2%, and expand the presence of SMEs in international markets by 20–25%. These results emphasise that the digital economy is becoming a fundamental element of modern competitiveness and a strategic tool for long-term development in the global economy. The article may be of use to researchers and specialists in the fields of economic policy, public administration, digital transformation, and innovative development.

Keywords: digital economy, globalisation, competitiveness, digital transformation, digital technologies, innovation, labour productivity, labour market, digitisation.

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1. Introduction

The digital economy has become a pivotal element in the economic development of the 21st century, as it has given rise to novel approaches to the organisation of production and interaction between business and the state, and has significantly transformed global markets. In contradistinction to conventional models of economic activity, which were predicated on physical resources and industrial technologies, the digital economy is characterised by the utilisation of data, digital platforms, artificial intelligence, and innovative information and communication technologies. In the context of rapid technological progress, digitalisation is not merely an additional element of the economic system; rather, it is a determining factor in the competitiveness of countries integrating into the global economic space (Tapscott, 2015).

As modern national economies become increasingly interconnected through digital channels, a country's ability to use digital tools effectively determines its capacity to participate in global value chains. Access to high-speed internet, digital platforms, cloud infrastructure and big data analytics enables countries to speed up the exchange of information, modernise production processes and improve the quality of management decisions. Accordingly, the digital economy provides a fundamental platform for innovation, offering opportunities to develop new business models, high-tech sectors and increased labour productivity, as well as stimulating entrepreneurial activity.

In a globalised environment, digital technologies help to reduce transaction costs, simplify international trade and create electronic ecosystems, while also increasing competition. Countries that actively invest in digital infrastructure, human capital and digital competencies reap obvious benefits, including the ability to adapt quickly to global shocks and the potential for innovation to ensure long-term economic growth. This is why digitalisation is becoming a key part of public policy, creating a new model of economic relations based on efficiency, transparency, interactivity and global integration.

2. Analysis of Recent Studies and Publications

The impact of the digital economy on the competitiveness of countries and enterprises is a topic of active discussion in the works of foreign and Ukrainian researchers. One of the first in-depth studies in this area is D. Tapscott's work, which emphasises that the digital economy is changing not only technological processes, but also the way institutions, businesses and society as a whole function. In his view, digital technologies are establishing new rules for global economic interactions and creating

a network infrastructure that accelerates innovation and competition (Tapscott, 2015). The OECD also emphasises that digitalisation increases productivity at macro and micro levels by enabling countries to adapt more quickly to crises and technological transformations (OECD, 2020).

A significant contribution to the theoretical understanding of the digital economy was made by R. Buht and R. Hicks (2017), who proposed a clear conceptualisation of the structure of the digital economy as a multi-level system that includes digital infrastructure, digital platforms, and digital competencies of human capital. K. Schwab's (2018) works emphasise that digital transformation constitutes the basis of the Fourth Industrial Revolution, a process which determines the global competitive positions of countries, shapes a new economic paradigm, and promotes the growth of innovation.

Research by the European Commission and UNCTAD highlights the opportunities that the digital economy presents for the development of small and medium-sized enterprises (SMEs), including increasing trade efficiency, attracting investment and forming international value chains. These reports emphasise that countries which actively integrate digital technologies experience significant growth in SME exports, faster development of innovative sectors and increased competitiveness (OECD, 2019; UNCTAD, 2023; Cherep, 2024).

International organisations pay particular attention to the digitisation of public services. The World Bank's GovTech Maturity Index, for example, suggests that effective e-governance can reduce regulatory barriers, promote transparency and boost a country's attractiveness to investors (Cherep, 2025). According to reports from the Ministry of Digital Transformation, Ukraine is experiencing rapid development in the area of digital public services. This has a positive impact on the business climate and economic dynamics (Hurzhyi, 2021).

A study by Gurzhii, N., Mishustina, T., Kulich, T., Dashko, I. and other co-authors highlights the issue of enterprise competitiveness in the context of innovative development. The researchers posit that innovation is directly correlated with the level of digitalisation of enterprises, on the grounds that it is digital technologies that open up opportunities for creating new products, accelerating adaptation to market changes, and expanding participation in global markets (BRDO, 2024). The authors observe that digital transformation contributes to the enhancement of enterprises' competitive positions, thereby representing a pivotal factor in the competitiveness of the state in its entirety.

It is evident from the reports published by McKinsey and the WEF that the future development of the

global economy is contingent upon systematic investment in digital infrastructure, human capital, and innovation. The significance of automation, artificial intelligence, and data analytics as catalysts for productivity growth and competitive advantage at the national level has been acknowledged by several international organisations (OECD, 2019; European Commission, 2022; Ministry of Digital Transformation of Ukraine, 2024).

It is evident from an analysis of scientific sources that the digital economy is a multifaceted phenomenon which has an impact on all levels of the economic system, ranging from micro to macro. Researchers concur that digitalisation contributes to increasing the competitiveness of both individual enterprises and the country as a whole, ensuring the modernisation of business processes, the development of innovative potential, the strengthening of economic security, and integration into global value chains.

3. Theoretical Foundations of the Digital Economy

The concept of the digital economy is predicated on a complex system of economic relations in which data is a key strategic resource and modern digital technologies provide the bulk of the value created. In contradistinction to the traditional economy, which is predicated on the utilisation of physical assets and resources, the digital economy is predicated on information processing, the rapid exchange of data, the automation of routine processes, and the integration of intelligent systems into production, management, and social processes (Bukht, 2017). The foundational technologies of the digital economy encompass artificial intelligence, blockchain, cloud computing, the Internet of Things (IoT), 5G communications, cybersecurity

technologies, big data analytics, digital twins, and cognitive platform systems.

Broadly speaking, the digital economy is the latest stage in the evolution of the information society, where data is converted into a new form of capital. Modern enterprises and states view information as an asset that increases efficiency, reduces transaction costs, creates new markets and generates high-tech products. Consequently, the digital economy is altering the structure of economic relations at all levels: micro, meso and macro.

Traditionally, the structure of the digital economy involves three key, interrelated levels that determine how it functions (see Table 1).

These levels interact with one another: infrastructure is required for platforms to function, platforms are required for digital competencies to be developed, and digital tools cannot be used effectively without the relevant population competencies. This interdependence highlights the interconnected nature of the digital economy.

4. The Role of Digital Maturity in Shaping the Adaptability and Resilience of the National Economy

Recent studies show that the level of development of the digital economy can be determined by digital maturity indicators, including infrastructure readiness, the digital skills of the population, platform development and the extent to which technologies are integrated into business processes and public administration. Analytics from the World Economic Forum and the OECD reveal a consistent trend: countries with a higher level of digital maturity are better equipped to adapt to external crises, restore economic activity, restructure production and attract strategic investments more quickly (see Table 2).

Table 1
Structure of the digital economy

No.	Level	Description	Examples of Components / Applications
1	Digital Infrastructure	Basic technical conditions ensuring the functioning of the digital economy.	<ul style="list-style-type: none"> - High-speed data transmission networks (4G/5G/6G); - data centers and cloud storage; - server complexes and computing power; - cybersecurity systems; - IoT infrastructure.
2	Digital Platforms and Services	Applied systems that ensure commercial, managerial and social interaction.	<ul style="list-style-type: none"> - E-commerce platforms; - fintech solutions; - digital logistics systems; - e-government; - online education platforms.
3	Digital Competencies of Population and Business	Ability to effectively use digital solutions and technologies.	<ul style="list-style-type: none"> - Digital literacy of the population; - employees' IT competencies; - cybersecurity skills; - use of CRM/ERP systems.

Source: developed by the authors based on (Ministry of Digital Transformation of Ukraine, 2024; World Economic Forum, 2023; BRDO, 2024)

Table 2

Examples of contemporary research on the digital economy

No.	Source	The essence of the study	Key findings
1	OECD Digital Economy Outlook 2024	Global analysis of trends in the digital economy, technology, infrastructure and public policy.	Digital technologies form the basis of competitiveness; ICT sector is the most resilient; 5G, AI and data determine the development of innovation.
2	UNCTAD Digital Economy Report 2024	Research on the impact of digitalisation on sustainable development and inclusion.	The digital economy has environmental implications; it is important to ensure inclusivity and equal access to digital resources.
3	IMD World Digital Competitiveness Ranking 2024	Assessing the digital competitiveness of countries around the world.	Leading countries have strong infrastructure, human capital, and innovation ecosystems; digital maturity is directly linked to economic competitiveness.
4	Analysis of DESI 2024 (Obielovska et al.)	Analysis of digital skills and infrastructure of EU countries according to the DESI index.	There are significant disparities between countries; the level of digital skills and high-speed internet coverage affect the ability to compete.
5	Deconstructing the Digital Economy (Yuan, 2025)	Research on methods for measuring the digital economy.	There are methodological problems in the statistical definition of the digital economy, which affects the evaluation of policies.

Source: developed by the authors based on (Schwab, 2018; Tapscott, 2015; Bukht R., Heeks R. *Defining*, 2017; European Commission, 2022; World Bank, 2021–2022; World Economic Forum, 2023; McKinsey Global Institute, 2023)

Countries that have developed a robust digital infrastructure and provide strong support for digital business transformation tend to experience higher rates of GDP growth, demonstrate greater resilience to economic shocks and integrate more quickly into global markets.

Digital technologies are now a key driver of labour productivity growth and the development of innovative economic models. Automating production and management processes, using machine learning and big data analytics, and creating digital twins can significantly reduce time costs, decrease the amount of manual labour required, and improve the accuracy of management decisions. According to OECD data, countries with well-developed digital infrastructure demonstrate 20–25% higher levels of innovation, greater dynamism in R&D investment, and a faster rate of high-tech

product creation (OECD, 2019; World Economic Forum, 2023; World Bank, 2021; Cherep, 2024).

According to EU data, the development of digital platforms has led to a 30–40% increase in exports by small and medium-sized enterprises (SMEs) in recent years. This demonstrates the key role of digitalisation in the global integration of SMEs (see Table 3).

The proposed steps for the digital transformation of SMEs – simplification of administrative procedures, expansion of financial support, development of national export platforms, and strengthening of cybersecurity – form a comprehensive framework for enhancing their competitiveness. Their coordinated implementation can significantly strengthen the export potential of small and medium-sized enterprises. The forecast suggests that the introduction of digital services could increase SME participation in international markets

Table 3

Steps in the digital transformation of SMEs and forecast of their impact

No.	Area	Description of measures	Projected impact (20–25% increase in participation in international markets)
1	Digitalisation of administrative procedures	Simplifying business registration, customs operations and tax reporting through digital services.	Reducing barriers to entry into foreign markets; expected growth in SME exports by 20–25%.
2	Credit support for SME digitalisation	Expansion of lending programmes for the purchase of digital equipment and software.	Increase in the number of enterprises ready for international trade; increase in SME activity by 20–25%.
3	Development of national export platforms	Creating platforms for logistics, online payments, marketing and intellectual property rights protection.	Expanding the geography of exports; accelerating the growth of SME participation in international markets by 20–25%.
4	Supporting SME Cybersecurity	Providing access to cybersecurity solutions, training programmes, and data protection tools.	Increasing the trust of international partners; strengthening the position of SMEs with +20–25% participation in global markets.

Source: formed by the authors

by 20–25% over the next five years. This would be a significant factor in Ukraine's integration into the global economy.

5. Digital Transformation of SMEs as a Driver of Their Global Competitiveness

The digital economy opens up new opportunities for SMEs by reducing barriers to market entry and improving access to international trade. Using e-commerce platforms, marketplaces, online banking, CRM systems, electronic document management and digital marketing tools enables small businesses to compete on a global scale without making significant investments in physical infrastructure (UNCTAD, 2023).

According to EU data, the development of digital platforms has led to a 30–40% increase in exports by small and medium-sized enterprises (SMEs) in recent years. This demonstrates the key role of digitalisation in the global integration of SMEs (Cherep, 2024).

The following steps are necessary to make the digital transformation of SMEs more effective (see Table 4).

Forecast: The active introduction of digital services has the potential to increase the level of SME participation in international markets by a further 20–25% over the next five years.

Over a period of five years, the level of SME participation in international markets may increase from 100 to 120.0–125.0 units. This finding suggests a substantial enhancement in the export potential and integration of SMEs in the context of the active digitalisation of business processes, the emergence of e-commerce platforms, logistics services, and electronic trading tools.

The digitalisation of public administration is essential for improving the competitiveness of the national economy. E-governance reduces regulatory barriers, increases transparency, streamlines administrative procedures, minimises corruption risks, and fosters an environment conducive to business (Cherep, 2025).

Ukraine has achieved significant success thanks to the development of the Diya ecosystem, which has

set an example for the digital transformation of public services. The introduction of digital documents, online registration, digital trust services, automated permits and open data has greatly enhanced the country's investment climate and facilitated its integration into the international digital landscape (Hurzhyi, 2021).

Ways to improve efficiency include:

- Introducing unified data platforms for interaction between business and the state;
- developing digital identity and trust services;
- introducing a completely paperless regime for key administrative procedures;
- expanding the use of data analytics and AI in public administration.

According to World Bank estimates based on forecast data, the digitisation of the public sector could accelerate Ukraine's GDP growth by 1–1.5% annually until 2030.

Globalisation has significantly accelerated the spread of digital technologies, promoted capital mobility and united national markets into global networks, forming a single digital space. In the context of global competition, the digital economy is becoming a key tool for:

1) Global integration, as digital technologies enable countries to join international value chains;

2) competitive struggle, as digital transformation accelerates the creation of added value, reduces costs, and ensures innovation European (Commission, 2022).

According to World Bank analytics, digitalisation is one of the three main drivers of a country's competitive advantage, alongside human capital and innovative infrastructure (World Bank, 2022).

Forecast: Over the next decade, integration into the global digital economy could enable countries to increase their exports of high-tech products by 15–20%.

This figure illustrates the projected growth in the export of high-tech products over the next decade, based on the assumption of active digitalisation and integration into the global digital landscape.

The minimum scenario (15% growth per year) shows moderate but stable growth, while the maximum scenario (20% growth per year) indicates accelerated

Table 4

Key steps to increase the effectiveness of the digital transformation of SMEs

No	Direction	Description of activities
1	Digitalisation of administrative procedures	Simplifying business registration, customs operations and tax reporting through digital services
2	Credit support for SME digitalisation	Expansion of lending programmes for the purchase of digital equipment, software and IT solutions
3	Development of national export platforms	Creating platforms for logistics, online payments, marketing and intellectual property rights protection
4	Supporting SME cybersecurity	Providing small businesses with access to cybersecurity solutions, training programmes, and data protection tools

Source: formed by the authors

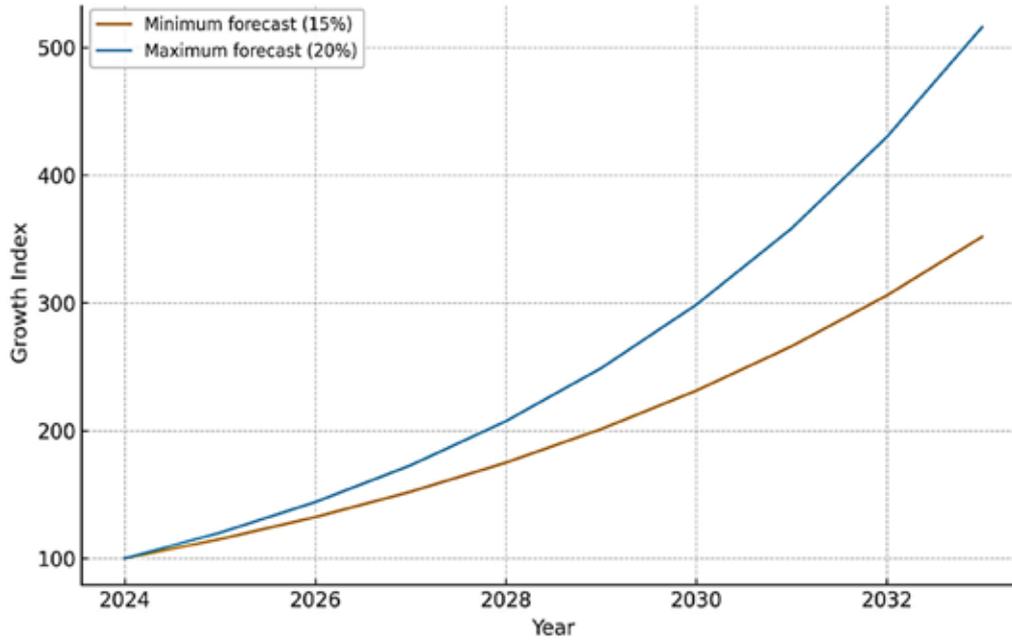


Figure 1. Forecast of high-tech product export dynamics

Source: formed by the authors

development, suggesting the significant potential of the digital economy to influence national economies' competitive advantages.

Digital technologies are transforming the labour market, giving rise to new professions such as data analysts, DevOps engineers and cybersecurity specialists, while reducing or transforming traditional roles. McKinsey predicts that 25% of work processes will be automated by 2030. According to estimates by the World Economic Forum (WEF), 85 million jobs will disappear due to automation, but 97 million new ones will emerge in the digital and technology sectors. The OECD states that 14% of jobs are at high risk of automation and a further 32% are at risk of partial transformation (Ministry of Digital Transformation of Ukraine, 2024).

Ways to adapt: helping the country, the labour market, and workers adapt to digital transformation and automation (Table 5).

Thus, digital technologies are not just changing the labour market; they are transforming the structure of employment by creating millions of new opportunities for specialists who can work with data, artificial intelligence, cloud platforms and automated systems.

Automation replaces routine work, but at the same time increases the need for human intellectual and creative capital.

Ukraine has significant potential for digital growth, thanks to several strategic factors: a developed IT sector; high digital literacy among the population; the active digitalisation of public administration; and gradual integration into the European digital market. As of 2024, the IT industry accounted for around 4.5% of Ukraine's GDP, with the volume of IT services exports exceeding 7.3 billion USD despite the challenges posed by the war. According to the Ministry of Digital Transformation, Ukraine is among the top five countries in Europe in terms of the number of certified IT specialists, with

Table 5

Ways to adapt the labour market to the digital economy

No.	The path of adaptation	The essence and content of the event
1	Introduction of national digital competence programmes	Increasing the digital literacy of the population: working with data, online services, electronic documents, cyber hygiene. Examples – state educational platforms.
2	Development of STEM education	Modernising school and university curricula in science, technology, engineering and mathematics. Preparing specialists for the digital economy.
3	Creation of up-skilling and re-skilling centers	Upskilling and reskilling employees for new digital professions. Ensuring transition to in-demand specialties.
4	Adapting educational programmes to the needs of the digital economy	Updating university programmes, integrating courses in IT, analytics, artificial intelligence; partnerships with business, development of dual education.

Source: formed by the authors

more than 53% of the population having a level of digital literacy above the baseline.

The public sector's digitisation is one of the most dynamic in Europe. With over 130 digital services covering more than 19 million users, the Diia platform is one of the largest e-services in Europe. Over the past 5 years, the level of digitalisation of public services has increased 3.5-fold, significantly simplifying access to administrative services for citizens and businesses alike.

According to expert forecasts, systematic digitalisation could boost Ukraine's GDP by 10–12% over the next 5–7 years, provided digital infrastructure is developed, human capital is strengthened and innovative entrepreneurship is supported (McKinsey Global Institute, 2023). The Kyiv School of Economics has calculated that every 1% of digitalisation in the public and private sectors could generate an additional 0.4–0.6% of economic growth.

Key ways to strengthen Ukraine's digital potential:

1. Scaling up Diia as an exportable digital product.

Ukraine has already begun exporting government digital solutions through the Diia.OpenSource project.

Potential results:

- Selling Diia technologies to other countries could bring in 50–100 million USD annually;
- international recognition could attract additional grant and investment projects worth 200–300 million USD;
- integrating Diia into partners' digital systems will help strengthen Ukraine's image as a technology hub.

2. Development of IT clusters and R&D centers.

As of 2024, there are more than 25 IT clusters operating in Ukraine. The largest ones are in Lviv, Kyiv, Kharkiv, and Dnipro.

Development potential:

- Increase in the number of R&D centers from 200 to 350 within 5 years;
- creation of an additional 40,000–50,000 high-paying jobs;
- increase in exports of technology products to 15 billion USD annually by 2030.

3. Attracting investment in digital startups:

Ukraine is among the top 30 global ecosystems in the startup industry (StartupBlink):

- In 2021, Ukrainian startups attracted 832 million USD in venture capital investment;
- despite the war, investments in certain areas (AI, defense tech, fintech) grew by 18–25%;
- the creation of a state fund to support startups with a volume of 50–100 million USD could stimulate additional investments 3–4 times greater.

4. Modernising education in the direction of digital competencies.

The Ukrainian education system is already integrating digital disciplines:

- More than 350,000 students are enrolled in IT and engineering programmes;
- 62% of universities have updated their curricula in line with the requirements of the digital economy;
- potential to increase the number of IT graduates from 28,000 to 45–50,000 per year.

This will help address the labour shortage, which currently stands at 40% in key technology areas.

5. Integration into the European e-services market—within the framework of the digital “visa-free” regime with the EU, Ukraine is already adapting its legislation to the standards of the Digital Single Market.

Expected effects:

- Access to the European e-commerce market worth 700 billion EUR;
- attracting new companies to the Ukrainian market with a potential investment of 2–3 billion EUR over 5 years;
- improving the quality of digital services and cyber security in line with EU standards (Table 6).

Table 6 and Figure 2 summarise Ukraine's key digital development forecast indicators and demonstrate the significant potential of digital transformation for the national economy. Calculations show that, if the strategic directions for the development of the IT sector, the modernisation of education, the development of innovative infrastructure and integration into the European digital market are implemented comprehensively, the country will be capable of doubling the volume of IT services exports, increasing GDP by 10–12%, ensuring economic productivity growth and significantly increasing the

Table 6

Forecast indicators of Ukraine's digital development

No.	Indicator	Calculation	Result / Expected effect
1	Doubling IT services exports	2024: 7.3 billion USD → 2030: 15 billion USD	Growth of 7.7 billion USD (+105%)
2	GDP growth through digitalisation	GDP 2024: 160 billion USD × 1.10–1.12	176–179.2 billion USD (+16–19.2 billion)
3	Increasing economic productivity	$100 \times (1,015-1,02)^{6}$	109.3–112.6 (increase 9.3–12.6%)
4	The growth of the number of high-tech companies	$2000 \times 1,35-1,40$	2700–2800 companies (+700–800)
5	Regional digital leader status	Comparison with Eastern European countries	TOP-3 e-government, TOP-5 IT exports, TOP-5 digital competitiveness
6	Indicator	Calculation	Result / Expected effect

Source: formed by the authors

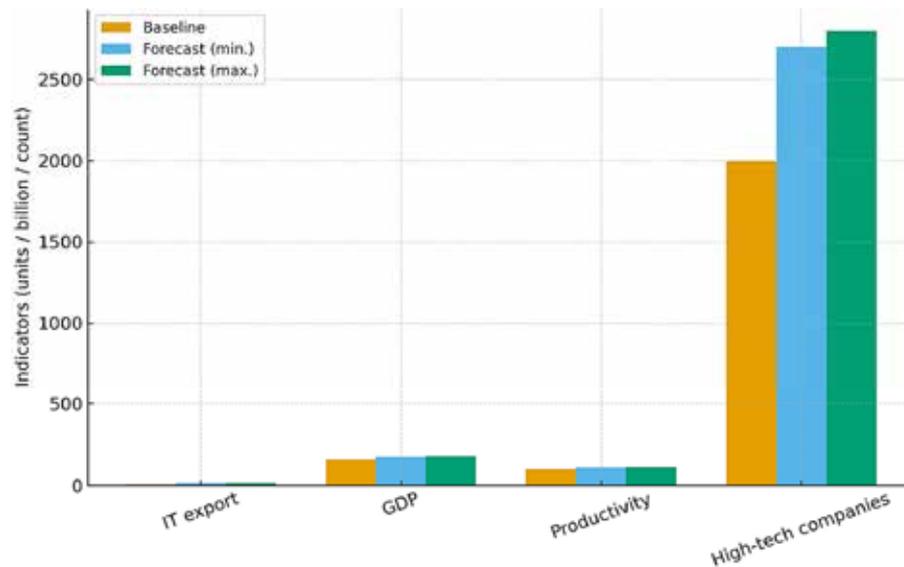


Figure 2. Comparison of baseline and projected indicators of Ukraine's digital development

Source: developed by the authors

number of high-tech companies. These results suggest that Ukraine could become a regional leader in digital transformation in Eastern Europe. This would have a positive long-term impact on the country's economic dynamics and competitiveness.

6. Conclusions and Suggestions

The digital economy is becoming a key driver of national economies in the 21st century, shaping a new type of competitive environment where data, technology, and innovation are crucial. In a globalised world, digitalisation is becoming a fundamental tool for creating added value, optimising production processes, and ensuring sustainable economic growth. The systematic introduction of digital technologies has been demonstrated to contribute to increased labour productivity, accelerated innovation cycles, expanded opportunities for small and medium-sized businesses, minimised transaction costs, and ensured transparent and efficient public services.

Global practice convincingly demonstrates that countries with a high level of digital maturity recover faster from crises, attract more investment, integrate more actively into international value chains and secure competitive positions for their businesses in global markets. Analytical data from the OECD, the World Bank and the World Economic Forum confirm the direct correlation between economic innovation, the

development of digital infrastructure, and growth in national competitiveness.

For Ukraine, digitalisation is not just a tool for modernisation; it is a strategic condition for economic survival and development during highly turbulent times. Its strong domestic IT sector, human capital and unique government digital solutions, such as Diya, are creating the foundation for a modern, innovative economy. Gradual integration into the European digital market, development of clusters, scaling of digital services and investment in STEM education and retraining programmes are enabling Ukraine to move towards becoming a regional digital leader.

According to experts, Ukraine could achieve GDP growth of 10–12% in the medium term if it implements a comprehensive digital strategy. This would also enable it to double the volume of IT services exports, increase economic productivity by 1.5–2% annually and boost the number of high-tech companies by 35–40%. These figures demonstrate the potential of the digital economy to underpin long-term economic growth, structural modernisation and the strengthening of Ukraine's position in the global economic landscape.

Therefore, digital transformation is not only an urgent necessity, but also a unique opportunity for Ukraine to transition to an innovative development model, ensure the sustainability of its national economy and establish new competitive advantages in a world where speed, technological capability and adaptability are paramount.

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