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DIGITAL ECONOMY DEVELOPMENT: INNOVATIVE ASPECT

Abstract. *Approaches to defining the concepts of "digital economy" and "digital transformation" are considered. The regulatory framework for the digital economy in Ukraine is examined. The main goals of digital development are highlighted, and the components and innovative elements of digital economy development are identified. Digital transformation, digital security, digital technologies, data, the Internet of Things, artificial intelligence, and e-commerce are considered. The use of blockchain technology and its impact on business processes are characterised.*

Keywords*: economy, digital economy, innovation, digitalisation, digital technologies, artificial intelligence.*

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РОЗВИТОК ЦИФРОВОЇ ЕКОНОМІКИ: ІННОВАЦІЙНИЙ АСПЕКТ

Анотація. *Розглянуто підходи до визначення поняття «цифрова економіка», «цифрова трансформація». Досліджено нормативно правове регулювання цифрової економіки в Україні. Висвітлені основні цілі цифрового розвитку, зазначено компоненти і інноваційні складові розвитку цифрової економіки. Розглянуто цифрову трансформацію, цифрову безпеку, цифрові технології, дані, інтернет речей, штучний інтелект, електронну комерцію. Охарактеризовано використання Blockchain-технології та її вплив на бізнес-процеси*

Ключові слова: *економіка, цифрова економіка, інновації, цифровізація, цифрові технології, штучний інтелект*.

Introduction. Business is one of the key components of Ukraine's economic potential, whose influence extends to all spheres of society. Full-scale war has compelled Ukrainian entrepreneurs to adapt to complex and unpredictable economic conditions, which have significantly altered the country's economic landscape. In 2025, during the fourth year of the war, businesses continued to adapt to constantly changing conditions, seeking new opportunities for growth and development. Despite numerous challenges, the business optimism of Ukrainian entrepreneurs is growing compared to recent years, indicating a gradual recovery in economic activity.

In wartime, businesses need to adapt quickly, find innovative solutions, and get support from the government. The ability of companies to respond quickly to change, modernise their processes, and focus on innovation will shape the future development of Ukraine's digital economy.

The Law of Ukraine "On Stimulating the Development of the Digital Economy in Ukraine" defines the organisational, legal and financial basis for the functioning of the legal regime of Diya City, which is being introduced to stimulate the development of the digital economy in Ukraine by creating favourable conditions for innovative business, developing digital infrastructure, attracting investment and talented specialists [1].

In the Concept for the Development of the Digital Economy and Society of Ukraine, the "digital economy" is based on information and communication and digital technologies, the rapid development and spread of which are already influencing the traditional (physical-analogue) economy, transforming it from a resource-consuming economy to a resource-creating economy.

Data is the key resource of the digital economy; it is generated and provides electronic communication interaction through the functioning of electronic, digital devices, means, and systems [2].

The digital economy is an economy that functions primarily through the use of digital technologies, in particular cashless transactions via the Internet [3].

C. Dahlman, S. Mealy and M. Wermelinger note that the digital economy is a combination of general-purpose technologies and a range of economic and social activities carried out by Internet users using the relevant technologies. The digital economy thus includes the physical infrastructure that digital technologies use (networks, routers), access devices (computers, smartphones), and information systems [4].

N.O. Kravchuk, O.G. Rymar & N.V. Bortnik, note that the digital economy is a type of economic activity involving the production of goods, provision of services, or performance of work using information and communication networks [5].

S.A. Fayyaz points out that digital technology-based markets significantly facilitate the trade of goods and services through e-commerce [6].

Thus, the problem arises of forming effective, innovative strategies for business development in the digital economy. Solving this problem will allow enterprises to increase their competitiveness, apply innovations to management, decision-making, which will improve the efficiency of business processes in the long term.

Objective. Based on the above, the aim of the study is to analyse the development of the digital economy and digital technologies, and to identify the main components that influence the use of innovations in the digital economy.

Research results. The development of the digital economy is significantly transforming traditional business strategies in the economy. Traditional industries, enterprise structures, production and consumption are changing.

Research into the digital economy is important for developing new business models, improving production efficiency, increasing competitiveness, and ensuring sustainable development.

K.M. Kraus, N.M. Kraus and O. Manzhura emphasize the comprehensive nature of technological progress, emphasizing how digital technologies contribute to increased efficiency, innovation, and market expansion, and pointing out how they contribute to increased efficiency, innovation, and market expansion [7, p. 69].

L.S. Lyubokhynets and E.M. Shpulyaryk point out that digitalization is changing the way business is conducted and information technology is used in various spheres of life. The key technologies of digital transformation of the economy include the development and use of digital design and modelling of technological processes, adaptive 3D technologies, electronic document management and governance (Gov Tech), and mathematical modelling [8, p. 215].

M. Dubyna, O. Popelo and O. Tarasenko point out that the importance of the digital economy is growing, as it establishes itself as a key element of the global economy. Technological progress and the digitization of activities have significantly transformed how goods are produced, distributed, and consumed. This transformation is reflected in the emergence of new business models, the creation of virtual markets, and the acceleration of international trade. At the same time, the development of the digital economy also poses significant challenges, particularly in terms of regulation and taxation. In the digital space, traditional boundaries are becoming increasingly blurred, making it difficult to apply existing tax and legal rules. In addition, the protection of personal data and privacy is a key issue in today's world, where information spreads quickly and massively [9, p. 103].

O. Trokhymets, V. Tomareva-Patlakhova and A. Semenov note that digital transformation requires long-term strategic thinking, based on the existence of a specific strategic plan and a clearly defined action program. Companies need to anticipate new trends, invest in the latest technologies, and establish strategic partnerships to remain at the forefront of innovation. An iterative and adaptive approach is important because it allows companies to quickly adapt to market changes and take advantage of new opportunities for growth [10, p. 4].

Davidson Rose writes that digital transformation refers to the integration of digital technologies into all areas of a business, fundamentally changing how the business operates and delivers value to its customers' [11].

M. Resler, I. Lintur and O. Tsigak note that, in the digital economy, the competitiveness of a business is determined by its ability to quickly master and implement information technologies in its activities, develop new digital products, and respond quickly to consumer demands [12, p. 2].

According to the Law of Ukraine "On the National Informatisation Programme", digitalization is "the process of introducing digital technologies into all spheres of public life" [13].

The digitalization of economic processes is causing radical changes in all areas of business [14, p. 67].

A. Anopa and S. Ilyashenko point out that the digitalization of business processes, automation of production, development of artificial intelligence, the Internet of Things, cloud technologies, and blockchain are shaping new conditions for the functioning of enterprises. This leads to the emergence of new business models, changes in competitive strategies, and the need for companies to adapt to the new economic reality [15, p. 2].

The Resolution of the Cabinet of Ministers of Ukraine 'On the Approval of the Strategy for Digital Development, digital transformation and digitalisation of the public finance management system for the period up to 2030 and approval of the action plan for its implementation' states that the digitalisation and automation of the activities of the Ministry of Finance and central executive bodies, whose activities are directed and coordinated by the Cabinet of Ministers of Ukraine through the Minister of Finance, shall be ensured on an ongoing basis [16].

The Concept of Developing Ukraine's Digital Economy and Society outlines the main goals of digital development:

- accelerating economic growth and attracting investment;
- transforming economic sectors into competitive and efficient ones;
- technological and digital modernisation of industry and creation of high-tech production facilities;
- accessibility of the benefits and opportunities of the digital world for citizens;
- realisation of human resources, development of digital industries and digital entrepreneurship [2].

Accenture uses big data analytics to improve business process forecasting. Analytics allows the company to improve the accuracy of forecasts by 30%, which contributes to making more informed decisions.

However, analysing large volumes of complex data requires the involvement of qualified specialists, which creates additional challenges for the company in finding and training personnel [17, p. 9].

Components of effective digital economy development: information and telecommunication technologies, human capital, a favourable business climate, and effective management [18, p. 15].

Let us consider the main innovative components of the digital economy:

- Digital transformation – The process of transitioning from traditional business models to digital ones, including the use of digital technologies and changing the culture of the organization;
- Digital security – Measures to protect digital systems, networks, and data from unauthorized access, cyberattacks, and other threats;
- Digital technologies – The use of modern technologies to increase efficiency and innovation in the economy;

- Data – Collection, analysis, and use of large amounts of data for decision-making, personalization of services, and increasing competitiveness;
- Internet of Things – Connecting physical devices to the internet to collect, share, and analyze data in real time;
- Artificial intelligence – Using algorithms and computer systems to perform tasks that normally require human intellectual activity;
- E-commerce – Buying and selling goods and services via the internet and other electronic means, promoting global trade and the availability of goods [19; 20, p. 5].

According to World Bank estimates, the introduction of digital technologies is blurring geographical and physical boundaries and opening up new prospects for the economic, social, and cultural development of countries, as well as for the growth of regional and global competitiveness. Considering the impact of digital technologies on the growth of the gross domestic product of EU countries until 2025, the World Bank Group notes that the penetration of fixed broadband Internet access adds +1.7% to GDP, an increase in international bandwidth (+0.66% to GDP), and the spread of e-commerce (+0.88% to GDP) [5, p. 160].

Regulatory and legal regulation of the use of digital technologies is important for ensuring a transparent and secure business environment.

However, the cross-border and paperless nature of the digital economy complicates the application of traditional regulations.

Authorities around the world are faced with the challenge of developing a flexible and adaptive regulatory framework that promotes innovation, while protecting consumers and businesses.

Issues such as the taxation of international digital companies, the responsibility of online platforms for the content they host, and the regulation of digital currencies are problems that require special attention.

Data protection and privacy have become major concerns in the context of digital transformation. With the increase in the amount of personal data exchanged and stored on the Internet, the risks associated with privacy breaches and cybercrime have grown significantly.

Regulations are needed to strengthen the protection of individuals' data, but the effective implementation of such measures remains a challenge.

Companies need to strike a balance between using data to innovate and provide personalised services, and respecting fundamental rights to privacy and data protection [10, p. 5].

Among the key technological trends that contribute to the successful operation of innovative businesses, the following can be highlighted:

1. Artificial intelligence (AI) and machine learning (ML). Intelligent algorithms enable businesses to automate processes, analyse large amounts of data, and predict market trends. From personalized recommendations to analytical solutions for risk management, AI and ML significantly improve the effectiveness of management decisions.

2. Internet of Things (IoT). Interconnected devices equipped with sensors and analytical modules create opportunities for real-time monitoring and optimization of business processes. Thanks to IoT, companies can predict maintenance needs, improve logistics processes, and personalize customer interactions.

3. Blockchain technology. The use of blockchain increases transaction transparency, ensures the security of financial transactions, and creates new approaches to data management.Innovative business models in finance, supply chain management and healthcare are actively implementing blockchain to improve the reliability and efficiency of operations.

4. Sharing Economy. Platforms based on the principles of shared resource consumption open up new business opportunities. Peer-to-peer (P2P) models allow companies to optimise asset utilisation, increase service availability, and expand market opportunities.

5. Growth of FinTech solutions. Financial technologies have significantly changed the approach to financial management by offering digital platforms for mobile payments, online banking, alternative lending and automated financial services. The use of FinTech increases the financial accessibility and efficiency of business operations [15, p. 5].

Blockchain technology provides storage of data on financial transactions, legal obligations, property rights and ensures complete transparency and universal accessibility to this data for review, while at the same time reliably protecting it from falsification. Currently, some elements of blockchain technology are used both at the state level and in individual corporations [21, p. 172].

Conclusions. Thus, digital innovations have opened up new horizons for business development and expanded access to global markets. Thanks to e-commerce platforms and online marketplaces, companies are able to sell their goods and services worldwide.

The use of big data and predictive analytics helps businesses gain a deeper understanding of market trends, anticipate demand, and make more informed decisions about investing in new products and market segments.

Organizations that maximize the potential of digital technologies gain significant competitive advantages.

The application of innovations such as artificial intelligence, the Internet of Things, and blockchain helps to increase the efficiency of production processes, improve the quality of products and services, and create a more personalized and attractive customer experience.

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