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THEORETICAL AND METHODOLOGICAL BASES OF FORMATION OF THE CONCEPT OF ENSURING SOCIO-ECONOMIC SECURITY OF ENTERPRISES IN THE CONTEXT OF DIGITALISATION OF BUSINESS PROCESSES

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Abstract. It is established that the system of free enterprise in the form in which it is implemented does not ensure progressive changes and they do not occur. The authors believe that in order to ensure a high level of socio-economic security of Ukrainians, it is advisable to use methods, levers, information and legal support for socio-economic security based on the digitalisation of business processes at enterprises, organisations and institutions. The article substantiates the expediency of forming a structure and mechanism for ensuring socio-economic security, taking into account the determination of the values of the State, phenomena of public life and public consciousness, in order to solve the problems of ensuring the effective operation of enterprise through the use of digital innovative technologies. It proposes a structure of socio-economic security of enterprises in the context of digitalisation of business processes. In order to ensure the conditions for social protection of employees of enterprise, a mechanism for such protection is proposed, taking into account the economic component, which will largely depend on the introduction of digital technologies into the business processes of enterprise. The paper suggests the concept of digitalisation of business processes of enterprise with a view to forming and ensuring socio-economic security of enterprises in the context of digitalisation of business processes. It is proved that the digital society is a necessary progressive movement, which involves the intensive and productive use of digital technologies in all spheres of human life, the life of economic entities, regions and the State. The publication analyses the global volume of trade through e-commerce retail in 2016–2021 as a sign of the external environment of socio-economic security of enterprise. The emphasis is placed on the digital society as an external environment of socio-economic security of enterprise. It is determined that digital technologies have a significant impact on the socio-economic security of enterprises, as they allow increasing the profitability of production, reducing human labour costs, ensuring rhythmic operation at all stages of business processes, making it possible to implement the tasks set and achieve common economic, social and civic goals. It is determined that the digital economy covers not only the information and communication sector, but also all business sectors in all areas of economic activity, including the public and private sectors, non-financial and tertiary sectors, financial sector, extractive industry, manufacturing and services, agriculture and construction. The study analyses the system characteristics of functioning of the mechanisms for ensuring socio-economic security, taking into account the relationship between internal relations and the external environment. The article examines the assessment of digital quality of life according to the Digital Quality of Life Index 2023, and identifies factors and trends that affect such indicators. The factors influencing the socio-economic security of the 10 largest IT companies in Ukraine by the number of specialists as of July 2023 are identified. The prospects for the impact of digitalisation of business processes of enterprises on the socio-economic security of Ukraine are determined.

Keywords: digitalisation, business process, socio-economic security of an enterprise, concept, strategy, efficiency, mechanism.

JEL Classification: O14, O35, M15, M21, P21

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1. Introduction

In the context of globalisation and the transformation of Ukraine's economy, the concept of ensuring the socio-economic security of enterprises should be based on the digitalisation of their business processes. It is the digitalisation of the economy that is designed to improve the quality of life and ensure European social standards for Ukrainians. For enterprises, the digitalisation of business processes is aimed at solving problems related to ensuring the balance of lines, high product quality, and increasing labour productivity at all technological stages. Without the digitalisation of business processes, it is impossible to achieve solvency and financial stability. Digitalisation of business processes is a component of the mechanism for ensuring the social and economic security of an enterprise.

2. Analysis of Recent Research and Publications

The effective operation of an enterprise largely depends on the introduction of innovative technologies at all stages of business processes with the use of their digitalisation. It is the socio-economic mechanism that, through its economic levers and the digitalisation of business processes, affects the psychological climate in the team and the socio-economic development of the enterprise as a whole. These processes have been studied by the following domestic and foreign scholars, namely: David L. Rogers (2016), Florian Tursky (2016), Cherep A. (2024, 2022), Cherep O. (2024, 2022), Ohrenych Y. (2024, 2022), Helman V. (2022), Gorbunova A. (2022), Popkova E. G. (2019), Ragulina Yu. V. (2019), Bohoviz A. V. (2019), Ilyich L. M. (2017), Kirichenko O. V. (2020), Naumov O. B. (2011), Polenchuk V. M. (2011), Sardak S. E. (2010), Gudz P. V. (2021), Ileva-Naydenova Pavlinka (2021), Oleinikova L. H. (2021), Khapov D. V. (2015), Shaulska L. V. (2018).

Cherep A. V., Cherep O. H., Ohrenych Y. O., Helman V. M., Gorbunova A. V. in the article "Improvement of the Management Mechanism of the Strategy of Innovative Activities of Enterprises" (2024) note that any mechanism should be formed taking into account the management functions, namely: control, motivation, regulation, planning, forecasting, analysis, stimulation, evaluation, organisation and management. Thus, in the digital economy, the digitisation of business processes ensures the achievement of goals and expected results (Cherep, O., Cherep, A., Ohrenych, Y., et al., 2024).

Ilyich L. M. in her paper "Socio-Economic Mechanism of Interaction Between Labour and Education Markets" (2017) reveals the essential characteristics, features, functions and management mechanism of the social and economic system. However, she makes suggestions on how to adapt the internal environment of an enterprise to strategic challenges in the context of free enterprise and progressive changes (Ilyich, 2017).

Kirichenko O.V. in her research "Socio-economic Mechanism of Increasing the Competitiveness of Human Resources: Areas for Improvement Under the Conditions of Information and Network Economy Formation" (2020) suggests ways to improve the socio-economic mechanisms of increasing the competitiveness of human resources within the framework of information and network economy, including through the inclusion of countermeasures related to risks and threats in the field of formation of competitive advantages of human resources (Kirichenko, 2020). The article also offers a complex of diagnostics of competitiveness of human resources in the conditions of the information-network economy, adapting them to market relations, which are adequate and develop due to socio-economic mechanisms of enterprise management.

Polenchuk V. M., Naumov O. B. in the article "Economic Mechanism of Enterprise Development in the Historical Experience of Market Transformations" (2011) considered different approaches of economists to the definition of the concept of "economic mechanism" and it was proposed to consider it as a set of economic methods, ways, forms, tools, levers and resources influencing economic relations and processes taking place in the enterprise (Polenchuk, Naumov, 2011).

Sardak S. E. in the research "Mechanism of Management of the Socio-economic System" (2010) defined the essence of the term "mechanism of management of the socio-economic system" and it is proposed to consider it as a set of measures of managerial influence on its state, i.e., choice of functional environment, determination of strategic landmarks in terms of managing life philosophy and concept, adaptation of internal environment to the axioms and laws of management, making effective management decisions, obtaining positive economic results and implementation of development measures (Sardak, 2010).

Therefore, the topic of concept formation is relevant and timely and requires the development of a mechanism for ensuring the socio-economic security of enterprises in the context of digitalisation of business processes.

3. Theoretical and Methodological Approaches to the Formation of the Structure and Mechanism of Socio-Economic Security of an Enterprise

Scientific research makes it possible to identify the specific functional role of the structure of social and economic security of the enterprise, which plays an important role in society and involves the regulation of social processes in accordance with the public need for security, namely: creation of working conditions that do not differ from "normal" conditions; maintenance of the desired level of protection against the threat of a decrease in production volume, non-availability of staff reduction, innovative development of employees of structural divisions and the enterprise itself, payment of a decent salary that is adjusted to indicators of labour productivity, ensuring a high level of earning power ratio and profitability of activity (Figure 1).

The authors believe that the structure of socio-economic security of an enterprise is a dynamic, flexible organism that acquires new accents when the internal and external environment changes.

In the conditions of the Russian-Ukrainian war, the ensuing emigration of Ukrainians, the intensification of globalisation processes, it is important to take into account the social component when creating such a structure as the basis for the viability of the enterprise, while with the outflow of labour from Ukraine there will be a shortage of labour and, as a result, a decrease in competitiveness, business activity and viability of the enterprise. It has been established that in the conditions of the Russian-Ukrainian war and the post-war period it is the digitalisation of business processes that will allow solving the complex problems of labour shortage.

It has been established that the subjects of the mechanism for ensuring the social and economic

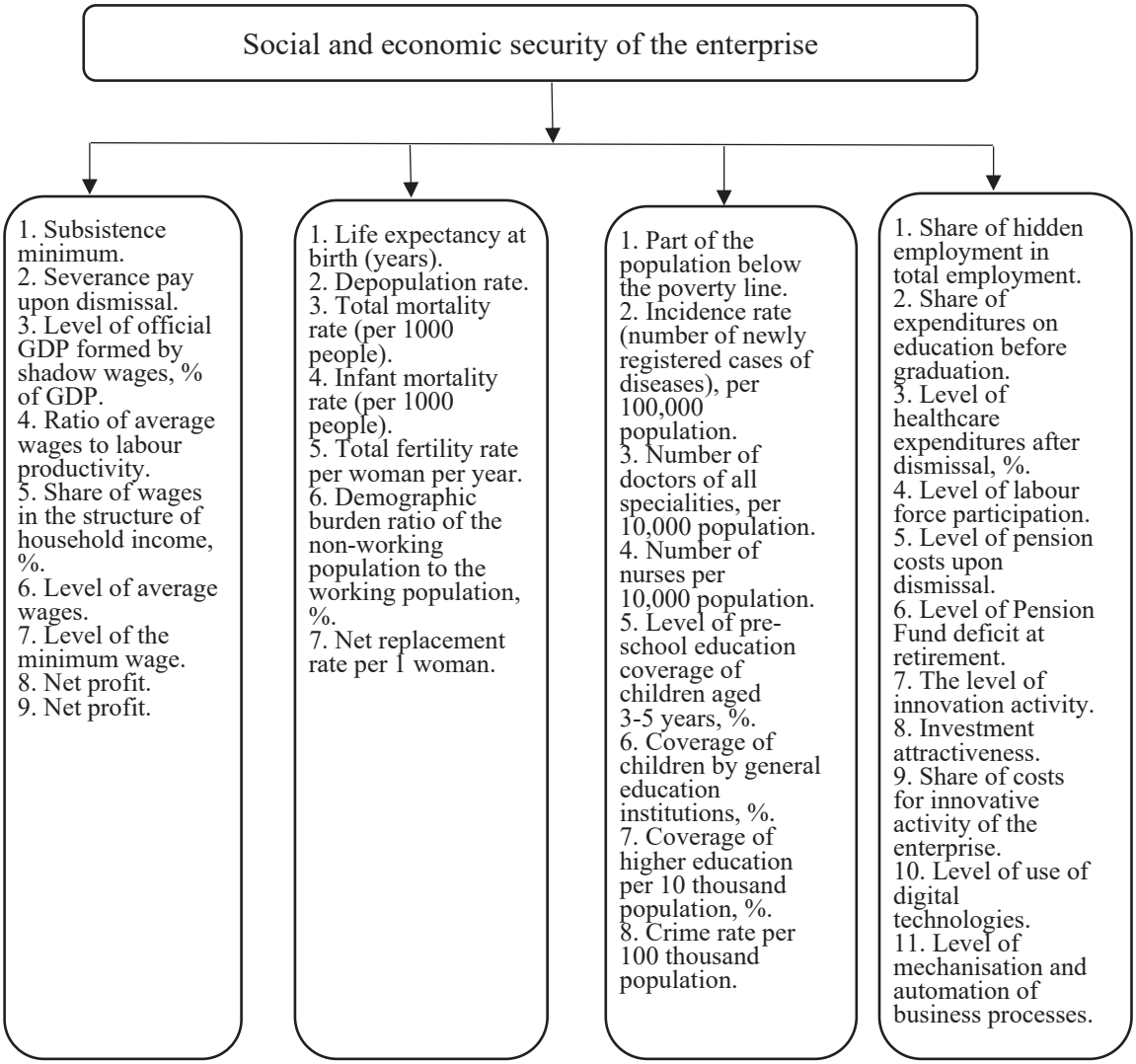

Figure 1. Structure of social and economic security of the enterprise

Source: compiled by the authors

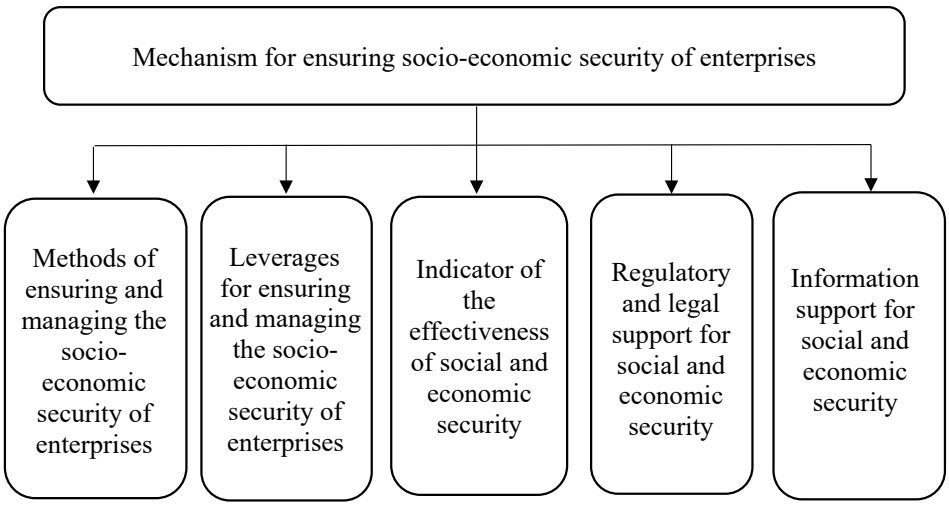

Figure 2. Mechanism for ensuring social and economic security of the enterprise

Source: compiled by the authors

security of the company are its employees, who, using management methods and levers, ensure positive performance results in response to the digitalisation of business processes, taking into account the creation of a specific system of interaction based on the sharing of information at all hierarchical levels within the framework of the current legislation (Figure 2).

The possibility of digitalisation of business processes, their mechanisation and automation, the use of innovative technologies, which guarantees the company a high level of competitiveness on both domestic and foreign markets, depends on the level of qualification of the company's employees.

4. Formation of the Concept of Ensuring Socio-Economic Security of Enterprises in the Context of Digitalisation of Business Processes

Scientific studies have shown that the mechanism is based on social institutions linked to a regulatory framework that defines and supports the necessary social methods of action (there is always a law that defines the regulatory framework to ensure the social and economic security of the company).

By transforming information into a digital representation, digitisation significantly improves the ability of businesses to process information. To take full advantage of these benefits, companies rely on the use of IT and the implementation of IT strategies through information systems to increase the flexibility and coherence of business processes. At the same time, digitisation has triggered a large-scale digital transformation process that is changing today's industries and society. This transformation is being driven by the convergence of social, mobile, cloud and smart technologies, as well as the growing need for big data, automation and integration. The Internet also provides the means for instant sharing of user experiences, opinions and preferences, and creates new opportunities for customer-business interaction.

To solve the problems associated with digitalisation, companies need to embark on a complex process of socio-technical transformation. This requires the implementation of a comprehensive digital strategy that considers the opportunities and risks associated with digital technologies and promotes value and profit engineering based on digital assets. It also involves building the right capabilities in areas such as digital leadership and empowerment, data-driven agility, customer and partner engagement, digital platform management, business model innovation, IT architecture transformation, process digitisation and automation, digital security and compliance requirements. It helps improve business performance by continuously integrating technological advances in social media, mobile access or embedded systems into business operations. Despite the fact that they describe different areas of research, it seems fair to say that automation, the use of computer-integrated technologies and digitalisation share fundamental assumptions and characteristics. Automation and the Process Management Programme (PMP) offer the opportunity to improve the results of business activities by optimising efficiency, increasing labour productivity while reducing production costs and contributing to the digitalisation of business processes.

However, both concepts require companies to consider cross-functional interdependencies and therefore rely on process-oriented approaches. Simplified automation and integration, process

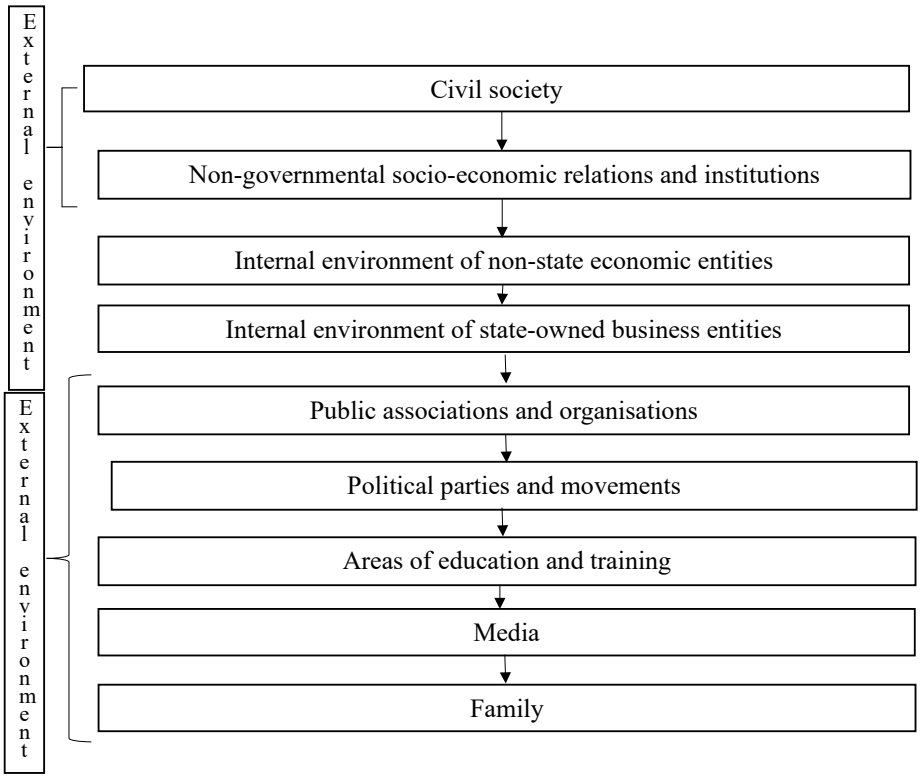

Figure 3. Systemic nature of the functioning of the mechanism for ensuring socio-economic security, taking into account internal relations and relations with the external environment

Source: compiled by the authors

management software and digitisation of business processes provide opportunities for information management, information processing and communication. The implementation of IT in the company can also initiate the process-oriented approach initiative, as the company must align its organisational structure with the characteristics of the system in order to fully implement the perceived self-interest. While technology is a core enabler of the system (PMP), it is also at the heart of digitalisation as it drives the main transformation processes.

The systemic nature of the functioning of the mechanism for ensuring social and economic security is evident, particularly in the principles of the internal links between its elements and their functional relationship with the external environment (Figure 3).

All components of the functioning of the mechanism for ensuring socio-economic security, including internal links and links with the external environment, are very closely interconnected.

The components of the internal environment are adapted to the implementation of digital innovation technologies, which focus on efficiency, purposefulness, consistency, systematicity, priority, continuity and result orientation.

The current stage of management of economic development in Ukraine is self-regulation of the market and state regulation of market relations, which is achieved by their combination. The market contributes to the regulation of the development of state and non-state economic entities and the production of goods, works and services based on the interaction of highly qualified personnel using innovative digital technologies.

The system of state regulation, which is related to the external environment, complements market self-regulation and leads to the achievement of goals and objectives set by the national economic policy. These tasks should be solved by adapting market mechanisms to proven methods of ensuring the socio-economic security of enterprises in the context of the digitalisation of society.

5. Formation of a Digital Society as an External Environment for the Socio-Economic Security of an Enterprise

Ensuring the social and economic security of companies is also important for the economy as a whole. This scientific and economic category has become an integral part of the economic life and activity of every

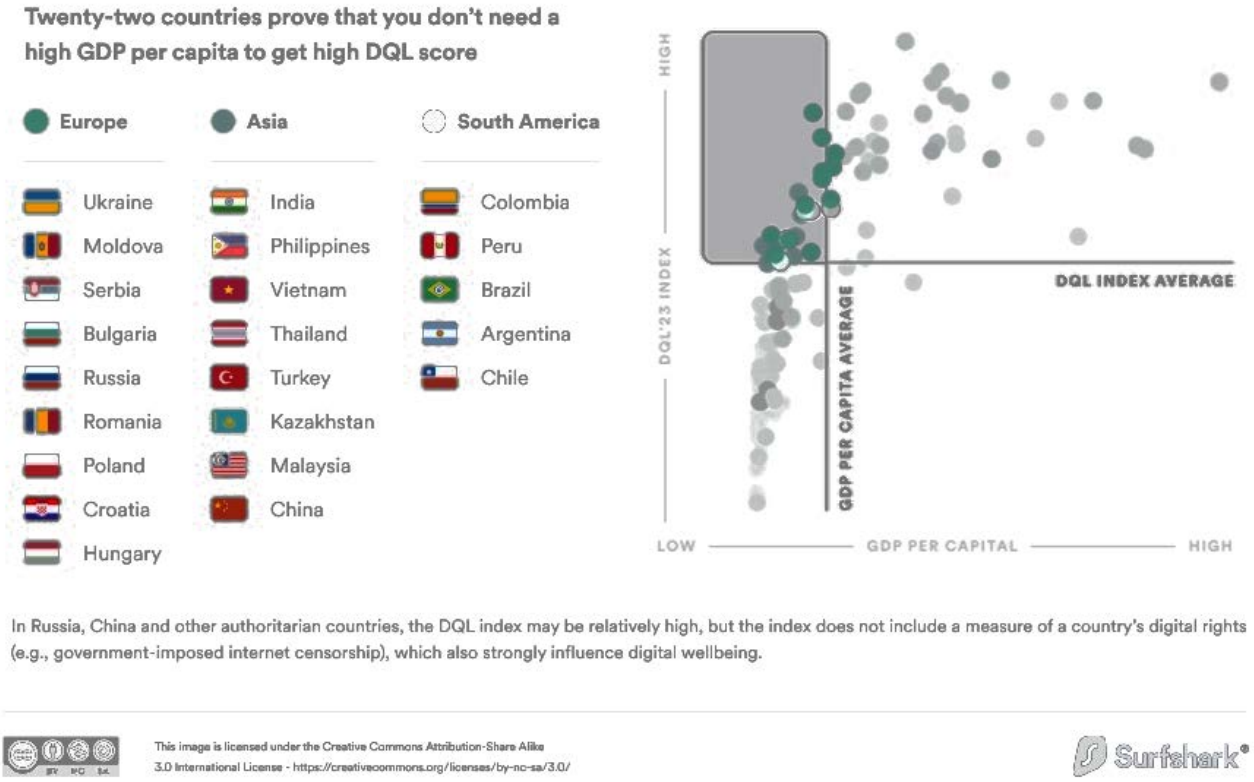

Figure 4. Digital quality of life leaders among European countries with the lowest GDP

Source: (Ukraine Ranks the First in the Digital Quality)

company and has a significant impact on the quality of life of the population.

The Dutch company Surfshark has conducted a study on digital quality of life and presented the data of the Digital Quality of Life Index 2023. According to the study, 121 countries in the world were evaluated, covering 92% of the world's population. The research was conducted on the basis of five core indicators, namely (Ukraine Ranks the First in the Digital Quality):

– Conditions that affect the overall Internet experience in a country include Internet availability, which is defined by the time it takes to establish a stable connection;
– internet quality, which is measured by the speed and stability of the connection;
– electronic infrastructure, which is assessed by the level of development and completeness of the existing electronic infrastructure;
– cybersecurity, which means the ability to fight cybercrime and protect privacy;
– e-government, which involves digitising public services, reducing bureaucracy and corruption, and increasing transparency.

According to this study, Ukraine ranked first in terms of digital quality of life among the European countries with the lowest GDP (Figure 4). Internationally, it ranks 46th.

France leads Europe in terms of Internet access, ranking first in this category. In addition, France ranks fifth in terms of internet quality and is among the top 20 in terms of e-infrastructure, security and governance. Finland, Denmark, Germany and Luxembourg join France in the top five.

According to the DOU survey, during the Russian-Ukrainian war in the first half of 2023, the 50 largest IT companies lost 5% of their workforce, mostly technical specialists. The main reasons for this were relocation to foreign offices and legalisation.

DOU presented the 50 largest IT companies in Ukraine as of January 2023 by number of employees. The company counts IT workers who stay in Ukraine and pay taxes in Ukraine if they go abroad. In fact, Ukrainian IT companies are growing rapidly, but most of them are not located in Ukraine, analysts say.

The total number of specialists in the 50 largest companies in Ukraine continues to decrease: in the first half of this year it decreased by 5.3%, or by 5,200 specialists. Currently, the 50 largest IT companies in Ukraine employ 92,400 people, which is less than 100,000 in January 2022 (50 Largest IT Companies of Ukraine by the Number of Specialists as of July 2023).

The companies explain that this drop does not mean a reduction in the number of specialists, with few exceptions: IT specialists go abroad to work

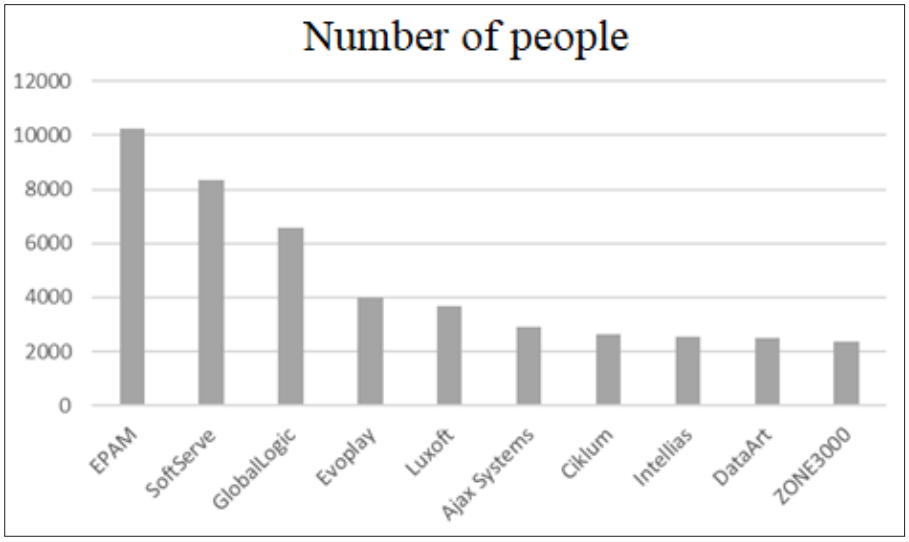

Figure 5. 10 largest IT companies in Ukraine by number of employees as of July 2023

Source: compiled by the authors on the basis of (Tarasovskyi)

in other company offices, where they are legalised and stop paying taxes in Ukraine.

The number of specialists in the 25 largest companies decreased by 4,200 people. There are currently 73,000 specialists working in the sector. The number of technical specialists in the first half of the year was at the same level, but in the second half of the year there was a clear downward trend: -4,600 specialists, according to the DOU. It is obvious that companies have actively started to legalise their foreign technical staff.

The leader is EPAM, which is represented in such cities as Kyiv, Kharkiv, Lviv, Dnipro, Odesa, Vinnytsia, Ivano-Frankivsk, Poltava, Ternopil, Uzhhorod, Kherson, Khmelnytskyi, Chernivtsi with a number of IT specialists of 10,230 people.

The second place was taken by SoftServe, which is represented in such cities as Kyiv, Kharkiv, Lviv, Dnipro, Odesa, Vinnytsia, Ivano-Frankivsk, Lutsk, Poltava, Rivne, Ternopil, Uzhhorod, Khmelnytskyi, Chernivtsi, with 8,326 employees. The leaders by number of employees are shown in Figure 5 (Tarasivskyi).

The composition of the Big Five has not changed, but Evoplay has pushed Luxoft Ukraine to fourth place; Evoplay is the only one of the Big Five that

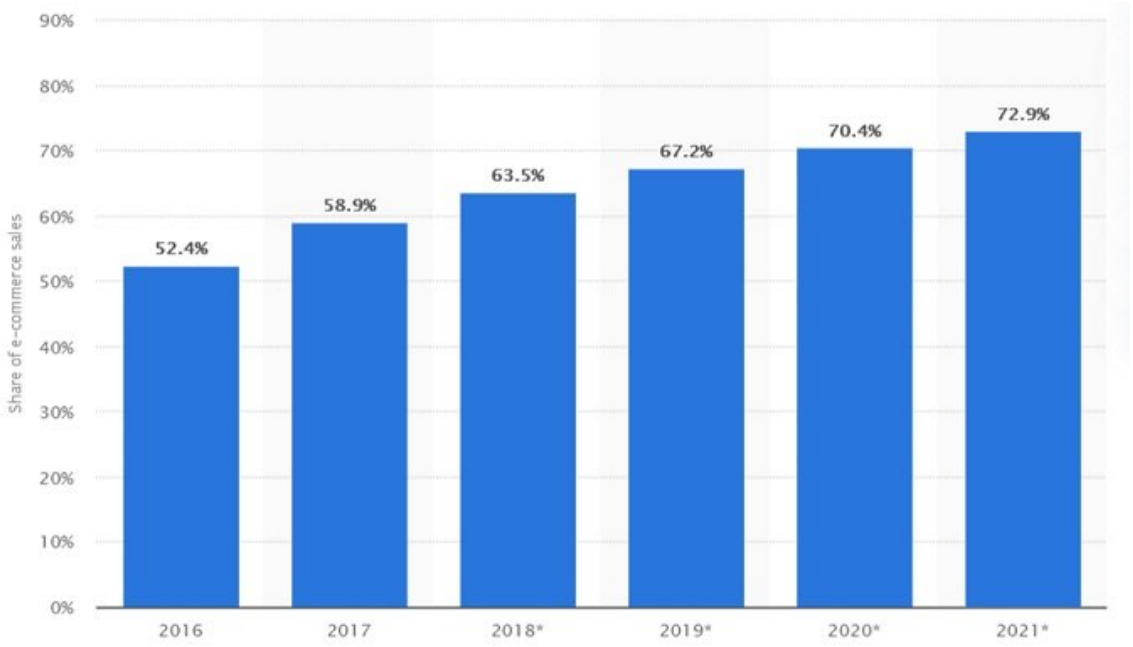

Figure 6. Global e-commerce retail sales in 2016–2021

has maintained a positive indicator (+253 over six months). In total, the number of specialists in the Big Five decreased by 3,300 people.

According to statistics, in 2019, 67.2% of global e-commerce retail sales were made through digital mobile channels, and in 2021, such sales increased to 73% (Figure 6) (Statistics of the Development of E-commerce in the Largest Regions of the World).

In Ukraine, customers are less willing to order new projects because of security risks. Some specialists continue to go abroad to legalise their work. Due to these factors, the number of specialists in the 50 largest companies decreased by 6,100 people over six months. The situation is slightly better in the food industry, with eight companies maintaining positive dynamics. The food industry also accounted for half of the new hires in the 50 largest companies over the past six months. When it comes to orders that would convince clients to come to Ukraine, the results are disappointing: only about 1.4% of the top 50 specialists are booked. Both Ukrainian IT specialists and IT specialists who have moved abroad and pay taxes in Ukraine (outsourcers and Ajax and Genesis product stars) are taken into account.

6. Prospects for the Impact of Digitalisation of Business Processes of Enterprises on Ensuring the Socio-Economic Security of Ukraine

Despite the challenging environment, businesses are adapting, gradually resuming production and foreign trade operations in response to the digitalisation of business processes, relying on their own strength and government support (various loan and grant programmes have been launched to help businesses), which gives rise to optimistic expectations for the future.

The prospects also include the positive effects of the implementation of the already adopted economic policy aimed at digitalising business processes. These include the restoration of destroyed energy and social infrastructure, demining, returning some land to agricultural use, expanding logistics capacities, and increasing government support for businesses and citizens (the 5-7-9, eRobota, eOselia, and Army Restoration programmes), which are being implemented with the support of partners.

In summary, 2024 will be a phase of strengthening the economic recovery that has already begun this year after a significant downturn in 2022.

The main drivers of economic recovery in the forecast period will be security factors and the irreversibility of Ukraine's accession to the EU, which will lead to an increase in investment activity, especially related to the urgent need to implement the digitalisation of business processes and to restore production capacities and infrastructure lost during the war. These processes will be supported by continued effective cooperation with international partners and international financial institutions, in particular, the continuation of the IMF programme, the implementation of reforms in accordance with the Ukraine Plan for 2024–2027, and the implementation of the Regulation of the European Parliament and of the Council of the European Union on the establishment of a Fund for Ukraine proposed by the European Commission.

In preparation for the second reading of the draft Law of Ukraine "On the State Budget of Ukraine for 2024", the macroeconomic indicators of economic and social development of Ukraine for 2024–2026 (Table 1) set out in the Resolution of the Cabinet of Ministers of Ukraine dated 15 December 2023 (No. 1315) were approved and carefully considered (Forecast of Economic and Social Development of Ukraine for 2024–2026).

The achievement of macroeconomic indicators will be facilitated by the programme "Ukraine 2030E is a Country with a Developed Digital Economy", which is a guide to the use of digital technologies, namely: the Internet of Things, robotics and cyber systems, artificial intelligence, big data, paperless technologies, additive technologies (3D printing), cloud and fog computing, unmanned and mobile technologies, biometrics, quantum technologies,

Table 1
Macroeconomic Indicators of Economic and Social Development of Ukraine for 2024–2026

Key figures	Year		
	2024	2025	2026
	Forecast		
Gross Domestic Product:			
nominal, billion UAH	7,643	8,980.6	10,421.8
percentage to the previous year	104.6	106.8	106.6
Consumer price index:			
December-to-December of the previous year, percentage	109.7	108.1	106.9
Unemployment rate of the population aged 15-70 according to the ILO methodology, as a percentage of the labour force of the corresponding age	18.7	17.7	15
Trade balance determined by the balance of payments methodology, million USD	-40,172	-27,044	-25,433

Table 2

Digitalisation's impact on Ukraine's economy and budget

Key figures	Year			
	2021 E	2025 E	2030 E	Total 2021–2030
Investments in digital infrastructure	0,7 billion USD	3 billion USD	6 billion USD	16 billion USD
Investments in the digitalisation of production, business and industry	1,5 billion USD	5 billion USD	14 billion USD	70 billion USD
Increasing productivity through digitisation	*+1,1%*	*+13%*	*+13%*	
Additional GDP generated by digitisation (only the effect of investment and productivity gains)	17 billion USD	93 billion USD	280 billion USD	1 260 billion USD
– additional GDP in %	*+11%*	*+44%*	*+95%*	
Additional budget revenues	3,2 billion USD	17 billion USD	50 billion USD	240 billion USD
Number of jobs created (excluding the export IT industry), people	150 000	300 000	700 000	
Share of the digital economy in Ukraine (in total GDP)	3%	15%	65%	

Source: (Ukraine 2030E is a Country with a Developed Digital Economy)

blockchain, etc. The digitisation of business processes and the formation of a digital society will provide additional budget revenues (Table 2).

According to the Ukrainian Institute of the Future, which developed the programme "Ukraine 2030E is a Country with a Developed Digital Economy" in Section 1 of this Strategy, the share of the digital economy in the GDP of the world's largest economies will be 50-60% in 2030. In Ukraine, this figure may be even higher – 65% of GDP (in the case of the accelerated development of the digital economy in Ukraine) (Ukraine 2030E is a Country with a Developed Digital Economy).

7. Conclusions

Thus, it can be concluded that the basis for the development of a modern enterprise, the implementation of business processes, the application of an innovative economic model, social interpersonal relations and the transformation of areas of activity is digitalisation, and the promotion of digitalisation is carried out through information.

Studies have shown that the digital economy is an economy in which digital data is the main factor (means) of production, the use of which makes it possible to significantly increase the efficiency of operations, labour productivity, the value of services and products, and the introduction of a digital society. This scientific economic category is firmly embedded in the economic life and business activities of every enterprise.

The consumers of digital technologies are governments, businesses and citizens. Digitalisation is one of the main drivers of global economic growth over the next 5-10 years. In addition to the direct productivity gains that businesses receive from digital technologies, digitalisation also brings a number of indirect benefits, such as time savings, new demand for new products and services, and new quality and value. Digitalisation is a key tool for achieving Ukraine's strategic goals of increasing GDP eightfold to 1 trillion USD by 2030 and improving the welfare, comfort and quality of life of Ukrainians, which should be equal to or higher than the European average.

The digitalisation of business processes of enterprises and the economy takes into account the impact of internal and external factors that are considered when forming the structure and mechanism for ensuring the socio-economic security of an enterprise. Thus, the following are taken into account: technological, technical and technological characteristics; economic and social factors; the level of development of the national economy; the strategic vector of the national innovation system; the level of technical and technological development of the production complex and infrastructure; the internal and external environment; market conditions; and the implementation of relevant state policy.

The formation of a socio-economic mechanism for ensuring enterprise security in each country is carried out in accordance with the socio-economic characteristics of the country's legal system. Given the importance of forming the socio-economic security of enterprise, the concept of digitalisation of business processes is proposed. Prospects for the digital society of Ukraine on the basis of organisation and development of the socio-economic security of enterprise are formed.

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