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Accelerating the Development of the Digital Economy in Ukraine in the Framework of the Course of European Integration

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Abstract: *This article examines the problem of the accelerating the development of the digital economy in Ukraine in the framework of the course of European integration.*
In the conditions of unstable world economic situation, it is necessary for the economy of Ukraine to determine the determinants of economic development. Ukraine, which is geographically a European country, also seeks to integrate economically into the community of European developed countries which are an example of solidarity, cooperation and mutual assistance.
The defining characteristic of achieving sustainable development in the EU is the digitalization of the economy. Thanks to digitalization, there are positive changes in the efficiency of the use of factors and production time.
The state of digitalization of Ukraine's economy on the path to European integration is examined. Ukraine's integration into the European communication system must be accompanied and combined with the creation of Ukrainian content that will meet national economic and socio-cultural needs.

Keywords: *Digitalization; post-industrial society; technology; gig economy; knowledge; strategy.*

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Introduction

In the conditions of unstable world economic situation, it is necessary for the economy of Ukraine to determine the determinants of economic development. Creating basic preconditions for Ukraine's economic growth is one of the main goals of state economic policy, which necessitates the identification of basic, universal, comprehensive factors of economic development for the national economy.

Ukraine, which is geographically a European country, also seeks to integrate economically into the community of European developed countries. For many years, the union of highly developed countries of the European Union (EU) has been an example of solidarity, cooperation and mutual assistance, as well as a criterion for a high level of well-being. The need to establish relations with the EU of political and military partnership, mutually beneficial economic cooperation, broad cultural, scientific and humanitarian ties was enshrined in law in 1993. The course of European integration poses many social, economic and political challenges for Ukraine.

The defining characteristic of achieving sustainable development in the EU is the active and widespread introduction of innovations that have led to the digitalization of the economy (Szopik-Depczyńska et al., 2018). The rise of the digital economy is closely linked not only to the upgrade and technologicalization of manufacturing or services, but is an integral part of the evolution of contemporary postmodern society. Total digitalization has both advantages and disadvantages. Postmodern person in a rapidly changing reality must develop the ability to create adaptation strategies (Nerubasska et al., 2020). At the national level, macroeconomic strategies should be developed taking into account the microeconomic characteristics and economic entities`s interests (Heyets et al., 2019). The investigation of economy`s digitalization and macroeconomic indexes in both EU and non-EU countries, conducted by Y. Humenna, I. Tiutiunyk, & O. Tverezovska (2021), made it possible to compare their features and generate reasoning that showed a special role of digitalization in achieving economic development.

Thus, the issue of studying the state of digitalization of Ukraine's economy and its compliance with the objectives of the strategy of integration into the community of European highly developed countries is relevant. The existence of dangerous imbalances in the level of digitalization of key sectors of the economy can pose serious risks to long-term economic growth and hamper the country's ability to succeed in European integration.

Thus, the purpose of this article is to study the state and needs of the digital economy in Ukraine in the framework of the course of European integration.

What stimulates economic development in the era of post-industrial society?

The economy of the XXI century is characterized by significant changes in its properties, associated not only with purely economic but also with social factors. In the era of post-industrial society, human life is changing, high technology is becoming commonplace, knowledge is a major factor in production, and "virtual reality" is becoming the norm.

Khyzhniak et al. (2021) note that the postmodern generation sees the world differently than previous generations and constantly needs knowledge, and therefore requires new teaching methods. A positive consequence of the spread of technology and total digitalization is the rise of electronic forms of learning and electronic resources that open access to sources of knowledge and provide opportunities for intellectual growth. Distance learning is being integrated into the higher education system, and there are many and varied online courses. Improving the technical capabilities of post-industrial society is the basis for raising the level of education, which in turn encourages the development of human capital, increased productivity and contributes to the increasing society`s and the economy`s digitalization.

The post-industrial society era is characterized by the rise of the digital economy. Thanks to digitalization, there are positive changes in the efficiency of the use of factors and production time, competition among companies due to the openness and accessibility of markets, opportunities to find consumers and target audience.

Chen (2020) notes that the digital economy has significantly reduced market friction. The use of online platforms has enabled entrepreneurs to reduce the cost of entering new markets. Finding partners and suppliers has become more accessible through a variety of online resources and social networks. Chatbots have made collaboration more effective with customers, and a variety of online platforms and media have improved the way marketing strategies are implemented. Digitalization and the use of electronic channels provide an opportunity to reduce transportation costs through the introduction of optimal routes.

The development of the economy in the post-industrial era also stimulates the use of blockchain technology, which makes it possible to effectively apply the economy of cooperation (CE) or sharing. Reliable

digital infrastructure intensifies homogeneous trade processes, which opens new opportunities in the activities of enterprises.

According to Ertz & Boily (2019) CE is committed to combine the technological breakthroughs. In addition to blockchain technology CE covers big data to analyze and forecast the state of the processes and uses artificial intelligence to maximize their efficiency. The application of CE leads to positive consequences in the organizational processes associated with the optimization of the management sphere. As the result of such synergetic use of technology advances there are revival in the consumer`s confidence and the reduction of costs of processing.

Contemporary digital tools facilitate the transition from a linear to a circular economy, providing comprehensive and useful data to improve repair, restoration, reuse and recycling (Talens Peiró et al., 2021). The postulation of a circular economy has been widely accepted by governments and industries. In Europe, the European Commission adopted the Circular Economy package in 2015 (Talens Peiró et al., 2020).

In the digital economy, automation and the use of AI are dominant, which contributes to efficiency and maximization with limited resources. In addition to human experience, intellectual and creative abilities, algorithmic logic plays an important role. The application of innovations allows to synthesize the complexity of human creativity and machine accuracy and linearity. Productivity increases due to the automation of repetitive and hard work, reliability and quality of work increases due to the introduction of artificial intelligence.

Holford (2019) focuses on modern organizational strategies that focus on machines, robots, and AI. The author notes the need for democratic participation of people in decision-making and technology development; recognized and introduced people as full-fledged legitimate partners with technology in their mutual opportunities for formation, which leads to the formation of human-oriented organizations.

A well-designed policy on digitalization of the economy, competition, regulation, protection of intellectual property rights and consumer privacy, can improve market performance in the realities of the digital economy.

Review of the state of digitalization of the EU economy and its role in the development of national economies

Digital restructuring of the economic environment is a modern reality and a process that corresponds to the general economic dynamics. The COVID-19 pandemic has accelerated these processes and brought them to the fore. An important issue is the study of the place of EU countries in the flow of this trend, because the state and role in achieving high rates of

economic growth of digitalization of the economy is an important reference point for Ukraine.

Using Data Coverage Analysis, Mitrović Đ. (2020) tracks the trends in the efficiency of the digital economy in European countries. Using the two-sided Malmquist index to compare production technologies in the two countries, the author shows that Central and Eastern European countries are characterized by compliance with the average level of development of the digital economy. The countries of the Western Balkans, in contrast, lag far behind the average level of digital economy development in the EU.

Investigating the expansion of the digital economy, it is important to establish its characteristics and components, which makes it possible to track which components of the economy it transforms (Fig. 1).

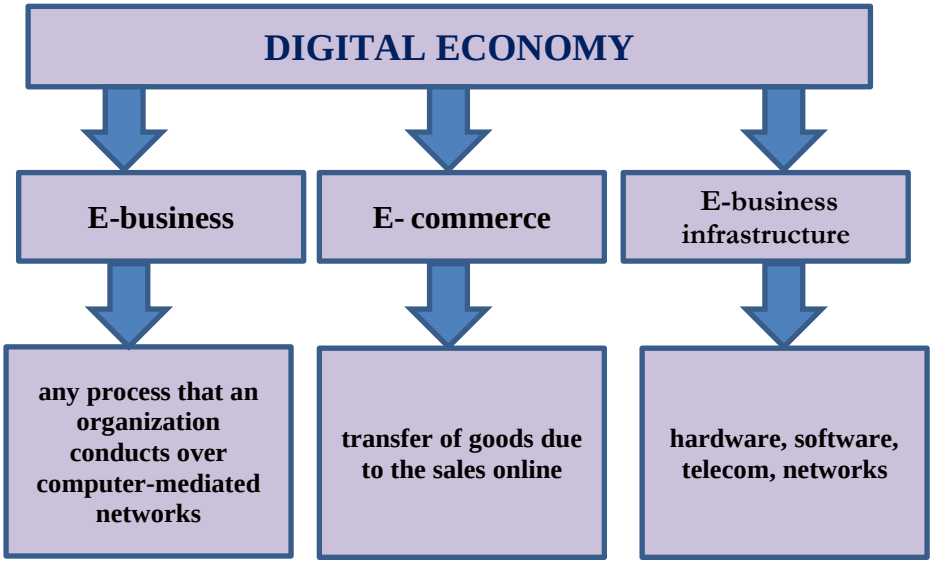


Fig. 1 Components of the digital economy
Source: Developed by author using Mesenbourg, T.L. (2000)

The emergence of the digital economy is changing the role of agility of firms, for which the introduction of technological progress and innovation becomes a condition for the possibility of functioning in the market. Škare & Soriano (2021) based on long-term statistics of fifteen EU countries established a statistically reliable and significant relationship between the level of digitalization of the industry or sector of the national economy and the agility of firms. Depending on the type of ownership of firms and the national level of digitalization of the relevant industry,

investment takes place in intangible assets in family businesses and human capital and the creation of new products in non-family firms. At the microeconomic level, the actions of managers aimed at investing in intangible assets increase the agility of companies, and at the macroeconomic level, policies aimed at increasing the level of digitalization of the national economy, promote economic growth.

In addition to markets for goods and services not only from an economic but also from social position, it is necessary to identify the labor market, the effectiveness of which is reflected in the level of productivity and affects the living standards of the population. Under today's socio-economic conditions of development, the problem of young specialists'employment has become particularly relevant (Gerasymova et al., 2020) consider creativity, talent and genius in human beings, identify their grounds for subordination and manifestation and justify the content of their demarcation in a systemic aspect.

Yashchyk et al. (2021) emphasize that the foundations of the digital economy are knowledge, talents and intellectual abilities of man, and therefore human capital is crucial for innovation and development. Among the metamorphoses of the modern labor market is the spread of remote work and various forms of freelance work, which led to the uprising of the gig economy.

Tan et al. (2021) review the expansion of the gig economy in the EU due to avalanche-like changes in the nature of work organization. The authors note that this extension is not without problems and highlight the ethical issues associated with the main categories of the gig economy.

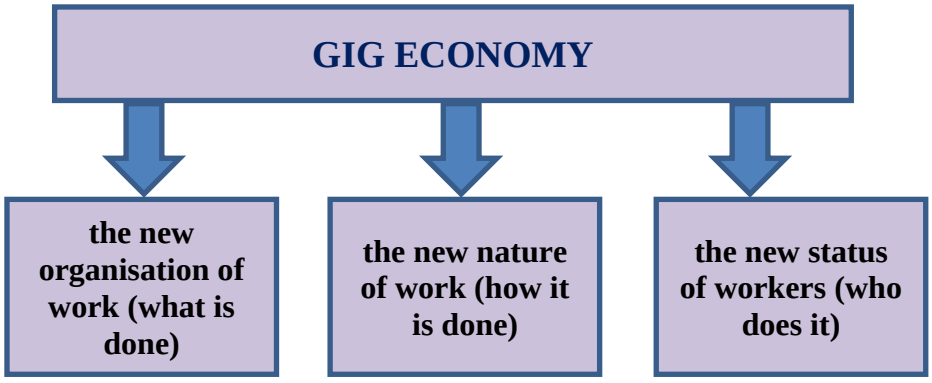


Fig. 2 The main categories of gig economy
Source: Developed by author by Tan et al. (2021)

According to the EU initiative to address the problems posed by the proliferation of the gig economy under the influence of digital transformation in the labor market, there is a positive trend. The experience of EU countries shows that the digitalization of the labor market is a step in the right direction that meets current requirements and needs. The introduction of technology is the basis for the future development of the labor market by increasing productivity and creating comfortable conditions for employers and employees.

The state of digitalization of Ukraine's economy on the path to European integration

While Campos et al. (2020) consider the following issues:

(a) Has European integration hindered the implementation of structural reforms in the labor market, finance and products?

(b) Do the results of these reforms differ more between sectors than between countries?

Ukraine has chosen the path to European integration as the direction of its national policy, including economic.

Campos et al. (2019) note significant positive effects from EU membership. In defiance of significant differences between countries, in general, European integration has brought them high economic results, which are reflected in the growth of per capita income by at least 10%.

The results of the study by Arribas et al. (2020) show that the process of trade integration has intensified among the members of the European Union, while integration with non-members is progressing slowly. Therefore, from the perspective of promoting the national product on the EU markets, the approach of the European integration course is appropriate and expedient.

In order to implement this strategy, it is necessary not only to meet the convergence criteria, but also to try to meet European standards of digitalization. Therefore, the priority for Ukraine should be the formation of mechanisms that will allow it to join the Single Digital Single Market (SDM) of the European Union, the creation of which began in 2015 at the initiative of the European Commission (2015). For Ukraine, the creation of such mechanisms means the need for investment projects in the field of digital technologies and infrastructure in three key areas of this strategy (Fig. 3).

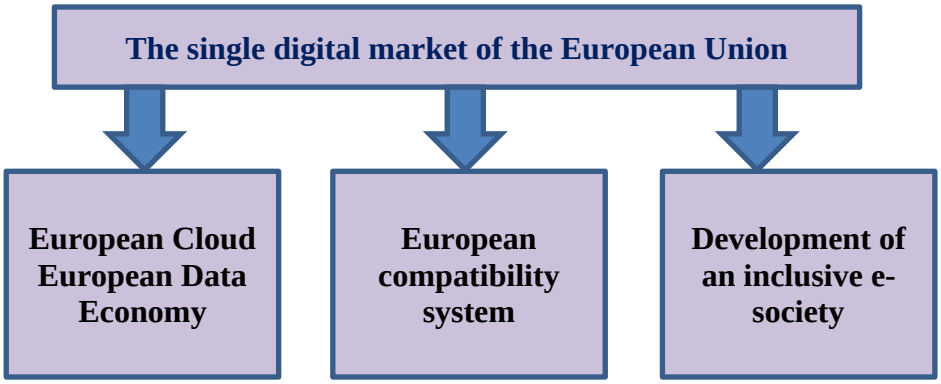


Fig.3 Key areas of investment for the formation of mechanisms for joining the single digital market of the European Union
Source: Developed by author by European Commission (2015)

According to the IMD World Digital Competitiveness Ranking 2021 (2021), Ukraine ranks 54th. Table 1 presents data on Ukraine's place in the ranking for 5 years.

Tab. 1. The place of Ukraine in the IMD World Digital competitiveness Ranking. Overall and factors

Year	2017	2018	2019	2020	2021
OVERALL	60	58	60	58	54
Knowledge	45	39	40	38	37
Technology	62	61	61	59	58
Future readiness	61	61	62	61	58

Source: IMD (2021)

Table 2 presents data on the place of some EU countries in the rankings for 2020 and 2021.

Tab. 2. The place of some EU countries in the IMD World Digital competitiveness Ranking. Overall.

Country	2020	2021	Country	2020	2021
Sweden	4	3	*France*	24	24
Denmark	3	4	*Spain*	33	31
Netherlands	7	7	*Czech Republic*	35	33
Finland	10	11	*Portugal*	37	34
Austria	17	16	*Poland*	32	41
Germany	18	18	*Romania*	49	50

Source: IMD (2021)

According to the IMD World Digital Competitiveness Ranking 2021, Ukraine lags far behind many EU countries, but the gap with Romania is not so great. Therefore, Ukraine needs to accelerate the development of the digital economy and support its strengths and strengthen its weaknesses by implementing numerous digital transformation projects.

Yanovska et al. (2019) note that the main initiatives and priority areas of Ukraine's development should include the digitalization of society and the economy. Digital technologies as a tool to achieve the goals of development of various sectors of the national economy should be a direction of additional investment.

Ukraine's integration into the European communication system must be accompanied and combined with the creation of Ukrainian content that will meet national economic and socio-cultural needs. It is important that all members of society are open and accessible to digital technologies, the Internet and electronic resources. An important condition in the course of European integration is the creation of digitization standards in line with international standards, including in the financial sphere, in the field of protection of Internet users' rights and cybersecurity.

Conclusions

Creating basic preconditions for Ukraine's economic growth is one of the main goals of state economic policy, which necessitates the identification of basic, universal, comprehensive factors of economic development for the national economy. Ukraine, which is geographically a European country, also seeks to integrate economically into the community of European developed countries.

In contrast to the common notion of the need to meet the convergence criteria for joining the euro area, the need to develop the digital economy and

technologies, which are the most important source of economic development in the EU, was also considered.

In the era of post-industrial society, human life is changing, high technology is becoming commonplace, knowledge is a major factor in production, and "virtual reality" is becoming the norm. A positive consequence of the spread of technology and total digitalization is the rise of electronic forms of learning and electronic resources that open access to sources of knowledge and provide opportunities for intellectual growth, which in turn encourages the development of human capital and increased productivity.

The use of online platforms has enabled entrepreneurs to reduce the cost of entering new markets. Finding partners and suppliers has become more accessible through a variety of online resources and social networks. Chatbots have made collaboration more effective with customers, and a variety of online platforms and media have improved the way marketing strategies are implemented. Digitalization and the use of electronic channels provide an opportunity to reduce transportation costs through the introduction of optimal routes. In the digital economy, automation and the use of AI are dominant, which contributes to efficiency and maximization with limited resources.

Numerous studies and IMD World Digital Competitiveness Ranking show that European standards of digitalization are high. The relationship between the level of digitalization of the industry or sector of the national economy and the agility of firms in EU countries is significant. There is a positive trend of spread of the gig economy under the influence of digital transformation in the labor market. The experience of EU countries shows that the digitalization of the labor market is a step in the right direction that meets current requirements and needs.

According to the IMD World Digital Competitiveness Ranking 2021, Ukraine lags far behind many EU countries. Therefore, Ukraine needs to accelerate the development of the digital economy and support its strengths and strengthen its weaknesses by implementing numerous digital transformation projects.

Ukraine's integration into the European communication system must be accompanied and combined with the creation of Ukrainian content that will meet national economic and socio-cultural needs. It is important that all members of society are open and accessible to digital technologies, the Internet and electronic resources. An important condition in the course of European integration is the creation of digitization standards in line with international standards, including in the financial sphere, in the field of protection of Internet users' rights and cybersecurity.

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