Challenges Of Digitalization Of Economy

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Abstract: The article substantiates the challenges of digitalization of the economy in current conditions. The term “digital economy” is determined and distinguished from the term “digital economics”. The features of the digital economy have described. As well as the process of the digital transformation of all spheres of the economy. It has shown that in conditions of the digital economy, the primary resource of development is intellectual capital. The new personality formed in the digital society possesses new skills but has got higher requirements to the level and quality of life. In the process of constructing the digital economy, there are some threats. One of them is rising in structural unemployment. It should not prevent from undertaking the course for digitalization, and this can easily overcome when the new working places have created in the new conditions. The scenario for constructing the digital economy should be the target scenario with attending fast digital transformations at all levels.

Keywords: Information Technologies, Digitization, Digital Economics, Development and Constructing of the Digital Economy

1 INTRODUCTION

In the digital époque, the success of countries depends a lot on the ability to build a knowledge society and to provide digital development. These are two crucial factors in accelerating economic and social development of the country as a whole. The information sphere of some countries directs its economic and innovative potential and thus significantly affects other areas of people’s life. Competitiveness of countries in the world depends on the scope of digital technologies implemented in public administration process, different branches of economy, casual activities. Quality of life of citizens of developed countries becomes improved from day to day, in particular, thanks to its digitalization, and the gap among the countries ready to provide digitalization and the countries not ready to do that continues growing. The digital economy becomes a productive basis for the development of society on the platform of information and communication technologies. It can see as a background for forming a digital market of separate countries with its further integration into the world market. That is why the topic of the current research connected with the challenges of building a digital economy is relevant and requires studying.

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II. LITERATURE REVIEW

Problems of digitalization of economy are always in the field of view of theorists, politicians and public persons. In Ukraine, the word digitalization has considered being the most used in word in online content in 2019 [11], and the interest to digitalization goes on growing. American scientist Negroponte, N. (1995) was the first to use the word “digitalization” and to give definition to it. He fundamentally explore various aspects of the general process of digitalization in his works. [5] A lot of Ukrainian researchers have been recently trying to research the problems of digitalization in different branches and sectors of the domestic economy. Matveychuk, L. (2018) studies the theoretical aspects of the digital economy [4]. Digitalization of economic relations has considered being a factor of improving the business processes by L. Lazebnyk(2018), [2] Kozhemiakina S., Cherkasov A., Reznik N., Zhuravka O., Mazurov S. (2018) undertake an attempt to forecast the new workplaces in the industrial sector of the Ukrainian economy. [1] The attention of the Ukrainian researchers has also kept by digitalization problems within branches and sectors of the Ukrainian economy. For instance, in the work of Ostapchuk A., Aleksieieva K., Artiukh T., Zorgach A., Zaburanna L. (2019) problems of digitalization of the agrarian sector connected with human development are studied. [6] There are also interesting analytical data provided by different analytical and research institutes of Ukraine which demonstrate the real figures of the process of digitalization of economy of Ukraine. [7] Despite the value of the studies that have already been carried out by scholars. There are some important methodological aspects of digitalization of economy left without attention. That is why the topic of the current research has considered being relevant and actual. Moreover, the challenges of digitalization of economy have considered in the article. The most important tasks of the article are to determine the “digital economy” as a scientific term and to distinguish it from “digital economics”, to describe the main features of the digital economy, to carry out SWOT-analysis of constructing digital economy in the current condition and to show the possible scenarios of it.

III. METHODOLOGY

To reach the stated goals of the current research. Well-known scientific methods have used. The method of induction and deduction has used to give the definition of the term “digital economy” and to distinguish it from the term “digital economics”. The method of analysis and
synthesize to do the SWOT analysis of the perspectives of digitalization of the economy of Ukraine. The method of constructing schemes has made it possible to present structural-logic scheme of possible scenarios of development of the digital economy. The statistical method as implemented to analyze the figures indicating the current state of digitalization of the economy of Ukraine. It has allowed using the method of comparison in order to compare some prominent figures of digitalization in Ukraine and to use the method of logical conclusions in order to work out the solutions to the current problems.

IV. RESULTS
Over the last twenty years, the world has changed significantly. Digital transformation is a global trend that is steadily penetrating all industries. Online retailing and online banking, airline and tour booking through aggregators or taxi calls through mobile applications have become a daily reality. We live in an era of accelerating driven by the rapid development of high technology. Traditional tools and methods used by employees of different branches of the economy over the years are out of date or completely gone. There can be observed the disappearance of branches of economy and industries due to the change of all technological processes. Many classical business models prove to be inferior to technological innovation. The main message for businesses: "Upgrade or disappear". For example; the taxi services of modern mobile transport platforms are going down in the past. The number of bookstores is shrinking due to the conversion of literature into digital format, and so on. Changes in production provoke changes in people who are the customers, i.e. there are changes in expectations, preferences and requirements of clients. From the economic point of view, this means that the supply for digital technologies produces the demand for digital technologies and vice versa, the demand requires the corresponding supply. In such conditions, digital modifications of all spheres of life of people cannot leave without proper attention of scientists, politicians, public persons and business representatives all over the world. The term "digital economy" is comparatively new. According to the stock point of view, it was introduced by a scientist from Massachusetts technological University N. Negroponte in 1995. However, the world recognition of the term "digital economy" obtained in 2016 after the issuing of the World report "Digital dividends". Before that time, it has accustomed to using other scientific terms to determine the accelerating process of penetrating the information technologies in all spheres. Among such terms, there was "information economy", "electronic economy". There are two main directions of research in the area of the digital economy. The scientists structure it into "digital economics" and "digital economy" itself. Analogically to distinguishing the difference between economy and economics, it can admit that "digital economics" is a science that studies digital economies and develops different models for their functioning. "Digital economy" can be described as relations between production, disposal, exchange and consuming in conditions of digitalization of all spheres of life. Digital economics has based on the digital economy, but the development of the digital economy has directed by the research done in the frames of digital economics. There are many definitions of digital economy used by scientists. However, they are all common in conclusion that the digital economy is a type of economy where the key factors and means of production are digital data (binary, information) and network transactions, as well as their use as a resource, which can significantly increase the efficiency and productivity of activities and value for products and services received. [12] So that digital transformation (digitalization) can be seen as the transformation of existing analogue (sometimes electronic) products, processes and business models of an organization that underlies the effective use of digital technologies. In particular digital technologies are Internet of Things, Robotics and Cybersystems, Artificial Intelligence, Big Data, Paperless Technologies, Additive Technologies (3D Printing), Cloud and Fog, Unmanned and Mobile Technologies, Biometric Technologies, identification technologies, blockchain. Thanks to digital transformation, digital technologies integrate into all areas of business. This integration leads to fundamental changes in the way citizens, businesses and organizations act, how they deliver value to themselves, their employees, customers, partners, achieving their own and standard, economic and social goals faster, cheaper and with new quality. There are two main simultaneous directions of digitalization. The first one is more social and can observe as forming of a new social environment at the expense of the development of new means of communication and constructions of the virtual world, i.e. so-called Internet of People (IoP). This process includes the digitalization of scientific and cultural sphere (for example, creating electronic libraries, museums), organizing of public events online and creating of e-Government. It is possible to study online, to get in touch with business partners, to obtain information as quickly as it has never been before. These changes stimulate psychological changes in people, create a new personality. The process can even see as a process of artificial creating noosphere firstly determined by V. Vernadsky. The second direction of digitalization is connected with the development of economy and includes the creation of new kinds of activities, new branches of economy as well as digitalization of the existing. In such an economy, the added value has created by digital technologies and the economic development id determined by highly technological production. Digitalization should see as a tool but not a target. It should become an effective mechanism of stimulating job creation, increasing productivity, economic growth and quality of life for citizens. Thanks to digitalization it is possible to correct the defects of market mechanisms, overcome institutional and legislative barriers, launch digital transformation projects at the national level and attract appropriate investments, stimulate the development of digital infrastructures. The Digital "Agenda of Ukraine 2020" sets out the basic principles of digitalization.[9] They are:

Principle 1. Digitization should ensure equal access for all citizens to the services, information and knowledge provided based on information and communication technologies and digital technologies.

Principle 2. Digitization should aim to create benefits in different areas of daily life. This principle has intended to improve the quality of health and education services, job creation,
entrepreneurship, agriculture, transport, environmental protection, poverty alleviation, disaster prevention, and public safety, and so on.

Principle 3. Digitalization is a tool for economic growth through the enhancement of efficiency, productivity and competitiveness through the use of digital technologies.

Principle 4. Digitalization should promote the development of the information society and the media.

Principle 5. Digitalization should focus on international, European and regional cooperation to provide integration into world markets.

Principle 6. Standardization is the basis of digitalization, one of the main factors for its successful implementation.

Principle 7. Digitalization should accompany by increased confidence and security (information security, cybersecurity, and protection of personal data, privacy and rights of users of digital technologies, strengthening and safeguarding trust in cyberspace).

Principle 8. Digitalization is an object of public administration and state regulating.

As for Ukraine, it possesses a robust intellectual potential. The country is ranked number one in Europe by the number of IT professionals. The total number of IT professionals from Ukraine in various companies in the world is more than 100 thousand people, and the figure had expected to reach the point of 242 thousand people in 2025. Ukraine is in the Top-20 of the largest exporters of IT services in the world, and Ukraine’s IT industry took third place in terms of export capacity. More than 70% of the export of IT services in Ukraine includes the development of Program Software in order. The rise of the Ukrainian IT-sphere is about 26% per year. About 1600 IT companies are providing different kinds of IT services at the Ukrainian market.

Fig. 1 SWOT-analysis of the perspectives of digitalization of the economy of Ukraine

*Source: made up based on [12].

However, such substantial potential impacts on economic development poorly. The share of the digital economy in Ukraine is only 3% (only $ 2.6 billion). In the year 2019, Ukraine is ranked the 80th among 63 countries in the Digital Competitiveness Rating. Unfortunately, the domestic labour market in Ukraine has not been changed substantially under the influence of the widespread technologies. The gap between Ukraine and technological leaders in labour productivity, salary rates, working conditions and the level of life of the qualified specialists remains vast. In such conditions, the country is turning into one of the major exporters of the qualified labour force abroad. The developed countries demonstrate enormous demand for Ukrainian engineers. Of the 17,000 engineers who graduate today, nearly 10,000 are potential expatriates. About 100,000 engineers are needed each year only in Europe. [7] Besides, the ability of Ukraine to achieve a fundamental technological break even point in the coming years will limit by structural weaknesses in the digital transformation system, insufficient digital skills of people of Ukraine and absence of digital culture. The development of the digital economy in Ukraine depends not on the number of IT companies, but the number of consumers of their products and developments. The narrow of demand for IT-products can be considered the primary danger for digitalization of the economy. The problem is the presence of a large number of low-skilled office workers not possessing the necessary skills appropriate for the digital economy. As for the population overall in the city, it should mention that in cities, 95% of the population has covered by access to the world web, but not more than 20% in rural areas. Such a high level of digital inequality threatens to create balanced territorial development and leads to deepening the disproportions. Digitalization like any change has got drawbacks. Among the threats of digital transformation, the rise of unemployment in the economy is enormous. Each industrial revolution used to lead to unemployment. There were events in the history of the economy of the world when workers standing on the edge of poverty damaged the equipment designed to substitute their unqualified work. In current conditions, it is difficult to imagine such appearance of resistance to changes though hidden resistance is observed frequently by managers of the companies. It is worth saying that such structural unemployment (according to the classification of unemployment in economics) is not a threat for the economic development of some country (like the cycling unemployment caused by economic crises) but can easily overcome as soon as the market produces substantial demand for new products and changes the labour market. Now in the world economy, a large number of operations performed by employees can be substituted in the process of comprehensive digital technologies. About 60% of all professions have at least 30% of activities that can be automated using modern technology. According to McKinsey & Co, 400-800 million people (from 15% to 30% of the world workforce) will be unemployed through the development of artificial intelligence and process automation by the year 2030. [3] On a global level, experts warn that many occupations will suffer. By the year 2030, between 75 million and 375 million people may need to find other jobs and gain new skills. More than the others will be touched by unemployment such branches and spheres of the economy as trade (50% of jobs will digitalize), transport (57%), agrarian sector (60%), industrial production (60%), food industry (about 70%), [10] At the same time, digitalization does not only cause unemployment. There are branches and spheres of the economy to appear, and there
are new working places to be created. It means that instead of working places in traditional branches of economy, new occupations with new working places will appear and substitute them.

![Graph of possible scenarios of development of the digital economy](image)

*Source: made up based on [12].

Development of the digital economy in Ukraine is not something that can escape. It is one of the challenges of the époque we are living in and the main requirement of time. However, there can be two main scenarios for constructing the digital economy. It is possible not to undertake any active measures. It means to use the inertial (evolutionary) scenario. The changes in the traditional branches of the economy will not be fast and substantial, and the development of the economy will be inertial. Intellectual capital will not consider the primary resource of development and the economic rise will depend on the export of products with low added value. Undertaking this scenario means remaining ineffective economically. Precisely speaking it will find its reflection in labour migration, losing potential, uncompetitive economy in the global market, the growth of the economy is possible, but the structure of GDP will be more and more dependent on the export of the natural resources and products with low added value. The level of life of people, as well as its quality, will be low in comparison with the developed digitalized countries. The second scenario is the target (forced) one. It involves the transformation of the Ukrainian economy into the developed in a short period (5-10 years). The structure of the economy should be changed, and the digital share of it should reach the figures of 65% of GDP. To implement such scenario, it is necessary to undertake several important steps such as ensuring the rule of law and removing institutional (legislative, tax) barriers that block the development of the digital and innovation economy; to provide government stimulation of digitalization processes in all branches of economy, in public institutions, in casual life of people at all levels; to stimulate development of modern forms of cooperation between the government and business in order to implement digitalization in different spheres of economy, in particular, such forms of cooperation as public-private partnerships. All together it will lead to penetrating of digital technologies everywhere. Such areas of the life of people as education, medicine, transport, the trade will be very quickly upgraded with digital technologies and become much more efficient in creating new values and qualities. In such conditions, the old economic system can completely transform.

V. DISCUSSION

In current conditions, digitalization becomes not only the trend of economic development, but it is a new political and economic course of many developed countries. It is quite understandable that the countries which ignore or avoid digital technologies and do not plan to modernize their economies will not be competitive in the global market. The gap among the countries implementing the new technologies in all the spheres of people’s life and the countries which do not do that will continue deepening. It should say that penetrating the digital technologies into the economy, all branches and spheres of it mean a total transformation of the traditional society into a new one with the simultaneous psychological transformation of humans. The economic rise has provided due to digital technologies and the new personality who operates these technologies. The mentality of such personality is different from the mentality of employees in the traditional economies with higher requirements to the level and quality of life. The intellectual capital becomes the primary resource of development in the new conditions. The traditional branches of economy are either modernized or can be even eliminated and substituted by the modern ones. One of the main threats of digitalization of the economy is rising of structural unemployment. Industrial and information revolutions have always been followed by such an unpleasant consequence as loosing of works by people. However, structural unemployment is a temporary occurrence and should not prevent from undertaking the course for digitalization. Very soon the employees will possess new necessary skills and will get their jobs at a new level. Structural unemployment is not dangerous for economic development as a whole, but it can be even useful in the development of the intellectual potential of some country. Digitalization of economy can be provided in an inertial (evolutionary) way or can be stated as a target and done approximately fast. To escape retardation of economic development. It is necessary to implement changes as quickly as possible.

VI. CONCLUSIONS

So that digitalization of the economy is the primary trend and course of development of the countries of the world. Digital transformations touch all spheres of life of people and all branches and sectors of the economy. Modernization of economy has accompanied by changes in the mentality of people, culture, and the way of life. The terms "digital economy" and "digital economics" are different in meaning and whereas the first one reflects the relations in the sphere of the economy the second is to provide the appropriate studying in the sphere. Both terms are comparatively new in science; however, the importance of the role of new technologies and knowledge in the development is not a fresh idea among scholars. Digital economy can describe as an economy where the digital technologies are critical factors of development and the digital transformation touches all the branches of the economy. In such conditions, a new personality has formed possessing digital skills but showing new requirements to the level and quality of life. Constructing a digital economy
brings new threats and opportunities for the future. On the one hand, these are real possibilities to provide long-term economic growth and new economic standards, to raise the efficiency of production, to become competitive in global measures and to overcome the gap in development with developed countries, to make progress in culture and education. On the other hand, this means to face at least temporary new threats, such as structural unemployment. Structural unemployment is not a new thing and used to occur before during industrial and information revolutions. It can quickly overcome the process of creation of new working places in the new digital society. There are two main scenarios of building the digital economy. They are the inertial scenario and the target scenario. To escape main scenarios of building the digital economy. They are working places in the new digital society. There are two can quickly overcome the process of creat


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