



Development of Digital Economy as an Element of the Social Development Strategy in Ukraine

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ABSTRACT

The article deals with the basic concepts and basic tendencies of the digital economy. The state and prospects of the development of the digital economy in Ukraine are analyzed. These processes contain both risks and prospects. Therefore, the development of the digital economy should be seen as an element of a social development strategy that needs due attention from academics and experts. In January 2018, the Cabinet of Ministers of Ukraine approved the Concept of Development of the Digital Economy and Society of Ukraine for 2018-2020 and approved a plan of measures for its implementation. The document emphasizes that the path to the digital economy and digital society of Ukraine lies through the domestic market for the production, use, and consumption of information and communication technologies and digital technologies. Currently, in Ukraine, the market of information products and services is at the stage of formation. At the same time, the tasks of identifying specific practical legal, regulatory (organizational), economic and financial infrastructural mechanisms for the development of the «digital society» that would facilitate the rapid development of the digital economy remain unresolved.

Keywords: Digital Economy, Digital Society, Information Economy, State Administration, Ukraine

JEL Classifications: P21, L86, L88

1. INTRODUCTION

In January 2018, the Cabinet of Ministers of Ukraine approved the Concept of Development of the Digital Economy and Society of Ukraine for 2018-2020 and approved a plan of measures for its implementation. The document emphasizes that the path to the digital economy and digital society of Ukraine lies through the domestic market for the production, use and consumption of information and communication technologies (ICTs) and digital technologies. The development of the digital economy entails dramatic changes in social relations. The market is being restructured in a new way, leading to challenges related to jobs, skills, security, and privacy. These processes contain both risks and prospects. If societies are properly prepared for them. Therefore, the development of the digital economy should be seen as an element of a social development strategy that needs due attention from academics and experts.

Today, the digital economy has unconditional advantages over material commodity-cash exchanges, such as speed of delivery of goods or virtually instantaneous delivery of services. Another benefit of the digital economy is the lower cost. For example, an e-book is usually 25-55% cheaper than the printed version. But what else do we know about the digital economy - what are its drivers? What are its structural components? What are its features? Considering that the digital economy in the world is gaining momentum and is not happening in Ukraine, identifying features of government mechanisms and proposals for government support and development of the information economy in Ukraine is becoming increasingly relevant. The primary tasks are to identify practical legal, regulatory (organizational), economic and financial infrastructural mechanisms, methods of development of the digital economy and «digital society», to define its goals and objectives, its specific indicative indicators, priority areas of development.

2. RESEARCH RESULTS

Thanks to technological advances, the development of ICTs and the Internet, the concept of «digital economy» first emerged, in 1995, at the suggestion of an American scholar from the University of Massachusetts - Nicholas Negroponte (Negroponte, 1995). The benefits of the digital economy, in Nicholas Negroponte's view, could be: Lack of physical dimensions of products (in particular, weight, size) that are replaced by information volume, as well as lower resource costs for the production of electronic goods. Smaller area occupied by products, as well as virtually instantaneous movement of goods through the Internet (Yumaev, 2017).

The Digital Agenda for Europe (2010) was developed and adopted in 2010. Most EU countries see it as a framework and adopt relevant National Information Society Development Programs for 1-3 years, setting out medium-term and short-term priorities and indicators for achieving those goals. Yes, Germany has already adopted the second program for 2017-2022. As part of the implementation of the Digital Agenda for Europe, the European Union has adopted the Digital Single Market strategy. The program is planned to invest € 300 billion over 7 years. Thanks to the work of the Parliamentary Committee, Ukraine is able to join this strategy and in this case to expect 6-10 billion euro's in investments in digital infrastructure» (On approval of the Concept., 2018).

The processes of digital transformation of the economy and society have many prospects for stimulating innovation, efficiency, improving service delivery and thus can contribute to inclusive and sustainable economic growth and increased well-being. However, the development of the digital economy entails dramatic changes in social relations, the structure of the organization of markets, which leads to the emergence of challenges related to jobs, skills, security and privacy (Dzhusov and Apalkov, 2017). In this context, Lipsey exploring the link between technological change and economic development, noted that «the introduction of digital technology will have a significant impact on society, characterized by an initial decline in productivity and a delay in productivity gains from the introduction of new technologies and staff cuts (since many old skills will no longer be needed), technological unemployment, growing income-sharing disparities that are temporary before OIG jobs are created, significant changes in the composition of productive forces, staff education and skills required, infrastructure, rules and regulations (intellectual property, antitrust, etc.), lifestyle» (Lipsey, 2002). Among the benefits for society from developing the digital economy, he calls «providing better and cheaper access to knowledge and information, which accelerates the implementation of operations and business processes, lowers their value, which in turn increases the benefit of citizens and consumers» (Lipsey, 2002). Therefore, today the main task of political figures is to identify a set of measures that would increase society's benefits from the development of the digital economy. Only a comprehensive and systematic policy approach will benefit from digital transformation for more inclusive growth. Despite the alleged remoteness of the prospects for the digital revolution, experts from the Organization for Economic Co-operation and Development (OECD - an international organization with 34 countries and 70 partner

countries today) are convinced that action is needed now, as new technologies such as The Internet of Things (IoT) is gaining ground in the modern world, and current government practices are becoming less and less relevant in this environment of change. Therefore, in 2017 the OECD has identified 4 key technologies for the development of digital transformation, namely: The IoT, Big Data Analysis Technology (BD), Artificial intelligence (AI) and Blockchain technology (OECD, 2019).

The (IoT) includes devices and objects that can be changed via the Internet. So far, we can see unsystematic development in this direction in Ukraine. In particular, by 2016, the number of Internet users in Ukraine was growing rapidly and exceeded 60% - in early 2016, almost two-thirds (62%) of Ukrainian adults were using the Internet. The share of users among 18-39 year olds in Ukraine reached 91%, according to KIIS survey data (Dynamics of Internet usage in Ukraine, 2017) (Table 1). In the spring of 2017, 63% of the adult population of Ukraine were Internet users (Dynamics of Internet usage in Ukraine, 2017) (Table 1). Compared to most developed countries in Western Europe and North America, Internet penetration in Ukraine is somewhat slower (Dynamics of Internet usage in Ukraine, 2017). A survey by the Internet Association of Ukraine (Internet penetration in Ukraine..., 2017) confirms that in 2017 and 2018 for the first time since 2004, when Internet surveys began, the number of users decreased. However, the penetration of regular Internet users in Ukraine as to the end of the third quarter of 2018 decreased to 20.8 million (63%) from 21.35 million in the 2nd quarter.

Among Ukrainian Internet users, 40% have an average income level, 40% have below average. 38% of internet users have a secondary education, 32% have a university degree.

According to the sources cited above, the development of the Internet generates this kind of social differentiation (and possibly information discrimination) in Ukraine as the rural population, low-income people and older age groups use the Internet much less than others.

But despite the fact that Ukraine is not at the forefront of countries such as Estonia, Ireland, Sweden, Israel, the United Kingdom, Australia, where ROI investments in digital transformation reach 500%, the Government of Ukraine also demonstrates its ability and willingness to develop the digital economy (Draft Law on the Digital Agenda of Ukraine, 2017). In January 2018, the Concept of Development of the Digital Economy and Society of Ukraine for 2018-2020 was approved, underlining that Ukraine also has certain opportunities in extending services, modern products to improve the quality and competitiveness of the economy (On approval of the Concept..., 2018).

To analyze these opportunities, let us turn to the criteria by which experts determine the state of development of the digital economy. By organizing these criteria, we get two blocks of criteria. The first is the quantitative indicators and indices that characterize the degree of penetration of ICT into the economy and social life. The second is the indicators that in 2017 the OECD identified as key technologies for the development of digitalization and digital

Table 1: Internet users share among the adult population of Ukraine (Dynamics of Internet usage in Ukraine, 2017; Internet penetration in Ukraine..., 2017)

Data source/Number of users (penetration depth)/Years	1997	2001	2004	2006	2008	2010	2012	2014	2016	2017
KIIS, December 2017, %	1	5	15	19	24	29	43	54	62	63
InAU, December 2017, %			12	18	22	33	50	57	63	64

transformation - the IoT, Big Data Analysis Technology, AI and Blockchain Technology (OECD, 2019).

The first block is quantitative indicators, in particular, the number of subscribers of wireless Internet access. These are active subscribers to mobile, satellite, wireless landline fixed and mobile Internet and broadband Internet services - individuals/entities that have concluded contracts/contracts for the use of data transmission network services at the end of the reporting period. Indicators of the number of state and local government bodies provided electronically. Indicator of innovation is the number of goods, works, services that are new or that have undergone various technological changes over the last 3 years. The following rating indicators of Ukraine (based on global development indices) were determined: "(1) In 2020 Ukraine - No. 40 in the Networked Readiness Index (WEF) rating (64th place in 2016); (2) in 2020, Ukraine - No. 40 in the Global Innovation Index (INSEAD, WIPO) ranking (56th place in 2016); (3) in 2020, Ukraine - No. 50 in the Global Competitiveness Index (WEF) ranking (85th place in 2016, cumulative index) (Digital Agenda of Ukraine 2020 (Digital Agenda 2020; 2016). Consider what they mean. The Global Innovation Index is formed on the basis of 81 indicators that reflect the key factors of innovative development of countries (The Global Innovation Index, 2017). The WEF Networked Readiness Index is a prerequisite for the spread of ICT for socio-economic development (The Global Information Technology, 2016). The ICT Development Index (ITU) is the degree of development of the ICT infrastructure and the demand for ICT by the population. It shows the scale of the «digital divide» between developed and developing countries (Measuring the Information Society Report, 2017). The E-government Development Index - demonstrates the degree of readiness of countries to implement and use e-government services (Measuring the Information Society Report, 2017). Global Cybersecurity Index - the calculation uses data on the development of legal, technical and organizational measures in the field of cybersecurity, the availability of state educational and scientific institutions, partnerships, cooperation mechanisms and information exchange systems (Global Cybersecurity Index, 2017).

The second block of criteria is the OECD-defined digital economy (IoT, Big Data, AI, and Blockchain). The first problem for Ukraine is that there are no standards when using the IoT. At the national level, they are accepted in Germany, the Netherlands, Japan and Spain. The OECD has announced that it will continue to work to develop standards for the IoT within the framework of the 2017-2018 horizontal Going Digital project (OECD, 2019). It is a multidisciplinary, integrated initiative by OECD member countries to help policy figures better understand the digital changes taking place in various sectors of the economy and society at large. This implies the development of policy instruments that will contribute to the prosperity of the economy and society in the context of universal digitization. The result of the project is

to formulate recommendations for a proactive rather than passive policy that will drive economic growth and social well-being and help address the slowdown in growth, unemployment and growing inequality in many countries. As part of this project (2017 - 2018), OECD experts are exploring the opportunities and prospects for further deployment of digital technologies, including in the fields of science, financial markets, education and skills, public administration and commerce. The project brings together the experience and practice of OECD member countries in the digital economy and supports discussions at the international level to address the challenges posed by digital transformation. The Going Digital project was officially launched on January 12, 2017 at a conference jointly organized by the OECD and the German Ministry of Economy and Energy in Berlin. Key issues of the project: The need to increase investment in digital infrastructure; the need to stimulate competition in the information and communication sector, international cooperation and cooperation between antitrust authorities; the need for cooperation between stakeholders to improve the reliability and security of digital networks, respect for personal freedoms and consumer rights, and the compatibility of digital standards; the need to guarantee the benefits of digital transformation for countries of all levels of economic development, for businesses of all sizes, people of all ages and educational backgrounds; the need to improve the measurement of digital transformation, its implications, including data flows and macroeconomic statistics; the need to adapt the public sector and services to change. The project should be implemented within 2 years (2017-2018). This should also be a top priority for Ukraine, which works closely with the OECD. In addition, the OECD conducts regular peer reviews in the Member States and, in exceptional cases, non-member countries. Conducting every such OECD survey in Ukraine contributes to deepening cooperation. Surveys are of great practical importance as they provide specific recommendations for improving public policy in a particular area. In 2014, the OECD Council decided to deepen cooperation with Ukraine by providing the Organization with experience to address existing public administration issues and carry out the necessary reforms.

Another one technology, as defined by the OECD, is Big Data technology, which is a set of methods and tools used to process and interpret large amounts of data. They are widely used for establishing relationships and dependencies, preparing forecasts (public sector data, health care, education).

AI is a technology that performs human-like cognitive functions. Experts believe that the use of AI will help to solve complex of problems, increase productivity, competitiveness.

Blockchain is a decentralized and disintegrated technology that facilitates economic transactions and peer-to-peer interactions. Allows you to eliminate the need of use of trusted powers or

intermediary operator (in insurance, financial sphere, virtual currencies). Ukraine has already launched an electronic state auction based on cryptographic technology. Also, the organizational and economic structure of digital economy entities in the context of globalization and innovation development no longer meets the current objective needs of Ukrainian society - «only 17% of Ukrainian industries use innovation, while in the EU this figure reaches about 49%. We lose or waste our potential due to low production efficiency» (Kubiv, 2017). Therefore, there is a need to create effective information support for society in order to receive as many stakeholder benefits as possible from the development of the digital economy as part of a social development strategy. After all, «the digital economy is also the Digital Single Market. If Ukrainian IT companies can afford the most up-to-date equipment, then small and medium-sized businesses, potential buyers of their goods and services in Ukraine, are limited in both technology and finance. This also applies to the average consumer who, for the same reasons, does not have modern digital goods (such as «smart housing», automated mobile shops, or even the most primitive self-checkout offices). Here is a simple formula: More available functionality of goods and services - more money, more jobs» (Shcherbatenko, 2018). In the global economy, 20% of the digital economy was overcome in 2015. Today, the digital economy has an unconditional advantage over material commodity exchanges, such as speed of delivery of goods or virtually instant service delivery. Another benefit of the digital economy is the lower cost. For example, an e-book is usually 25-55% cheaper than the printed version. One of the key benefits of the digital economy over material exchanges is that electronic goods are virtually endless and exist in electronic form. Material - always limited in quantity. It is much more difficult to access them (Tyutyunin et al., 2015). Today, the e-economy has already gone beyond the commercial aspects. It is implemented in large companies and corporations, as well as in the social spheres of life of the population of the countries. In addition, there is a «digitalization» of governmental organizations and structures in the world, in particular, Ukraine's neighboring countries are introducing digital technologies in government at a rapid pace (Rybak and Lantratov, 2017; Abdrahmanova et al., 2018). In addition, the digital economy has a basic network structure at its core. Society received a new type of social structure, became a «network society».

In these new conditions, public administration is developing and transforming. Flexible management and new public management change centralized administrative control. From the policy of restriction of monopoly there is a transition to creation of conditions of free enterprise and investment, development of competitive environment, development of innovative activity. This is done through various organizational and economic methods and tools. The Cabinet of Ministers of Ukraine approved the above-mentioned Concept of Digital Economy Development and Society of Ukraine for 2018-2020 and approved the plan of measures for its implementation. This document was developed jointly by Hi Tech Office Ukraine, the Cabinet of Ministers of Ukraine, the Ministry of Economic Development and Trade of Ukraine, the Committee on Information and Communication and a group of leading experts. It emphasized that the path to the digital economy and digital society of Ukraine lies through the domestic market of production

and, most importantly, the use and consumption of ICTs and digital technologies. The concept of digital economy development is an important step towards stimulating the domestic consumption, adoption and production of digital technologies. The document identifies the first steps to implement appropriate incentives and create conditions for digitization in the real economy, society, education, medicine, ecology, etc., challenges and tools for digital infrastructure development, digital competencies for citizens, and identifies critical areas and projects for digitalization in the country.

3. CONCLUSIONS

The development of the digital economy is a set of mechanisms, motivations and incentives for the development of digital technologies, and therefore a branched digital infrastructure, in order to use the state's capabilities, enhance its competitiveness, and increase the well-being of citizens. Currently in Ukraine the market of information products and services is at the stage of formation. The main components of the information products market are the following: Technical and technological components (modern information equipment, powerful computers, advanced computer network and related information processing technologies, which enables to work on the global computer network Internet, search information, customers, goods, hypertext management technology, e-mail); regulatory and legal component (the legal basis for regulating the information market); organizational component (elements of state regulation of interaction between producers and distributors of information products and services).

The digital economy is a new kind of economic relationship that causes changes in social relations that have prospects and risks. Perspectives are stimulating innovation, increasing governance efficiency, improving service delivery, inclusion and sustainable economic growth, the well-being of citizens, countries and society. Risks - a new market is being structured, leading to job, skills, security and privacy challenges. The public and the state must be properly prepared for such changes. Therefore, the development of the digital economy in terms of public administration should be seen as an element of a social development strategy that needs proper scientific and expert substantiation. The concept of digital development from the Ukrainian government envisages the implementation of a series of measures aimed at closing the digital divide (from digital jobs to digital initiatives in the modern world, conducting digitalization of industry and business, defining basic digital services, preparing educational modernization measures, as well as Ukraine's digital development projections to 2020. At the same time, the tasks of identifying specific practical legal, regulatory (organizational), economic and financial infrastructural mechanisms for the development of the «digital society» that would facilitate the rapid development of the digital economy remain unresolved.

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