Digital economy as a highest stage development of info communication technologies

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Abstract: The article examines the concept of “digital economy” and its relationship with information and communication technologies of the 21st century, from the standpoint of economic theory and practice of public administration. Also, the article reveals the implementation of the digital economy and using prospects in industry, public and social services, household management in the life. The content and structural composition of the digital economy, instrumental base and information content are detailed. The experience of advanced countries in using the achievements of the digital economy in industrial and social spheres of activity is analyzed.

Keywords: digital economy, information and communication technologies, digital company, ecosystem, social life, digitalization strategy.

Today, the term "digital economy" is commonly used, including in the field of public administration. Understanding the goals, objectives and content of the new direction in the development of the domestic economy, we will consider the essence of the main concepts. As defined by the World bank, in the most general sense, digital economy is a system of economic, social and cultural relations with digital information and communication technologies (ICT) [1]. In the scientific literature at the moment there is no single definitions of the concept of "digital economy". According to Gartner analysts, digital economy is about creation, consumption and management of value associated with digital products, services and assets in organizations [10]. Consultants of Boston Consulting Group believe that the digital economy is the use of opportunities for online communication and

innovative digital technologies for all participants in the economic system - from individuals to large companies and states [10]. Experts of the Organization for Economic Co-operation and Development (OECD) emphasizes on trade: “the digital economy is markets based on digital technologies that facilitate the trade of goods and services through e-commerce” [10].

At present, digital technologies act as a high-tech means of communication, a tool for the development of digital education space, contribute to the support of cooperation and creativity, learning the skills needed to live in a digital world. Digital Media-platforms, texts and technologies are gaining popularity in education, as facilitate and support modern flexible educational options for students, allow the use of pedagogical methods that put students and teachers to the center of the network social world [1]. “The digital literature” is in the condition of positioning the Internet not just by technology, but by the habitat, the source development, culture, giving rise to new forms of activity, cultural practices, phenomena, knowledge and meanings, critical and indisputable necessary-stew. [2]. With the adoption of the program “Digital economy”, the concept of “digital literacy” is introduced especially active. However, the pace of computerization and digitalization are quite ahead of the “digital skills” of the bulk of today, the question of increasing digital literacy population. This is especially true for schoolchildren, as the most intensive Internet users. In terms of skills for safe Internet use and non-reduction of responsibility for committed actions [4] should be recognized as sufficient large “digital divide” between learners and adults. It is observed the mismatch between “young people's perceptions of their digital skills and their ability to navigate this complex network landscape in a secure and a meaningful way” [5].

The whole world is embraced by the idea of digital transformation. Services are more amenable to digitalization, and its influence is more noticeable in trade, financial sector, government, education, however, it is beneficial for business. Digital economy has many advantages. It reduces the cost of payments and opens

new sources of income. Online service costs are lower than in the traditional economy (primarily for by reducing the cost of promotion). In addition, goods and services in the digital world can quickly go to the global market, to become accessible to people in any

point of the world. The proposed product can be almost instantly modified to meet new expectations or needs of consumer. The digital economy provides much more diversified content to consumers: informational, educational, scientific, entertainment. An important component of digitalization is ensuring information security of innovative technology that builds public confidence in the digital economy.

The backbone of the digital economy, its foundation is a grassroots economic link - a digital company that seeks to move most of the business processes online. This management, control and analysis of all the main business processes of the company in online mode: negotiating contracts, accounting, logistics processes, registration of transactions, purchases, personnel training, monitoring of relationships with partners and clients, technical support for solutions, etc. In addition to information systems, it is necessary to introduce an appropriate “digital” culture in the company. All this in complex makes the company "digital",

ensures its efficiency, productivity, business growth potential, then there are competitive advantages.

TOOLBASE, TECHNOLOGIES, INFRASTRUCTURE - The main content of the functioning of the digital economy is a global network of economic and social

activities implemented through such platforms like the internet, as well as mobile and sensor networks. For the successful functioning of a business in the digital economy, three elements or components are required parts: infrastructure (Internet access, software, telecommunications), e-business (conducting business through computer networks), e-commerce (trade, distribution of goods through the Internet). We can say that it is electronic business technologies, internal driving forces. But development of digital economy directly depends from the introduction of such "external", advanced science-intensive technologies as nanotechnology, biotechnology, technology energy systems, quantum technologies, etc. Conversely, the further development of ICT, including: cloud computing technologies, processing technologies big data, mobile technologies, internet of things technologies, geolocation technologies, technologies of distributed communication networks, gives impetus development of high technologies in the real "traditional" economy. Let us explain these new concepts.

CLOUD TECHNOLOGIES, CALCULATION - provision of services: resource and infrastructure; application development platforms; using the software for specific customer requests. The development of cloud services is driven by the One Digital market, that is, the "European cloud", which should unite the entire digitized information that is stored in European databases for the purpose of ensuring access to it for all interested parties. Cloud creation secured by public and private investments, which are estimated at 6.7 billion euros over 5 years.

TECHNOLOGIES OF LARGE DATA is not a very accurate name, is used to indicate ways processing of "hypervolumes" of information, characteristic of the digital economy. Expected growth in the digital economy volumes of digitized information, development of cloud technologies requires availability of modern Data Processing Centers (DPC), providing reliable storage of big data and the implementation of various clouds, including public, hybrid and private [2]. Data center is a key component of a unified technological infrastructure of e-government [9].

MOBILE TECHNOLOGIES is a segment of the digital economy based on the creation of cellular networks, meeting the needs of the cloud calculations for indicators such as data transfer rate, traffic volume, client network capacity, power consumption.

INTERNET TECHNOLOGIES allow learner to collect and process information (in a single data center) both for controlling household appliances and individual production’s facilities and entire enterprises. As a tool base, the Internet can use adapted or universal software and hardware complexes: for the automation of production processes in industry, agricultural production, telecommunications, in household sphere of households [10].

GEOLOCATION TECHNOLOGIES open up new opportunities for the provision of information services, with taking into account the location of the client (user), for example, satellite tracking services for transport and people:

DISTRIBUTED COMMUNICATION NETWORKS TECHNOLOGIES - the basis of the data center business model: enlargement of capacity and creation of mega data centers, uniting in a distributed network connected by channels with a large bandwidth. Due to economies of scale, maximum reliability is ensured, information safety, fault tolerance, high standards of service agreements and attractive cost of services. High-precision mapping software products are used for indoor use: airports, stadiums, train stations, etc. [2].

At the beginning of the XXI century, with the development of the Internet by foreign scientists (P.Gilster, G.Jenkins, M.Varshaver, T.Matuchnyak, A. Martin, E. Hargitai and others) formulated the concept of "digital literacy" as a system of cognitive, social and technical skills that guarantee a high-quality human existence in the information environment. Subsequently, digital literacy began to be considered as a more complex concept, which is characterized by a complex of components, including:

• computer literacy as an effective use of electronic devices and software;

• information literacy - skills of independent search, analysis, critical understanding of information data;

• competent use of social media;

• use of network technologies with an understanding of the basics of network security and netiquette standards.

Let us dwell on the interpretation of digital literacy by D. Belshaw in the book "The Basic Elements of Digital Literacy" [3], which indicates the presence of various models of this phenomenon and identifies eight key components as the basis for human interaction with "digital" (cultural, cognitive, constructive, communicative, critical, civic, as well as confident use and creativity). The components are visualized by the author in the form Table 1.

Table 1.

Components of digital literacy by D. Belshaw

Cultural Component	Cognitive Component	Constructive Component	Communicative Component
Components of digital literacy (by D. Belshaw)			
Confident using	Creativity	Using analytical skills and assessment skills digital content	Civil Component

We detail each of the presented components.

1. The cultural component, according to D. Belshaw, presupposes observance of netiquette (netiquette) - the rules of behavior on the Internet, the culture of Internet communication, understanding of specific internet artifacts (internet meme, animated gifs, etc.); understanding the history, language, customs and values of digital environments, respect for the principles of confidentiality and information protection; confession differences between personal and professional digital use, etc.

2. The cognitive component, according to D. Belshaw, is an understanding of key concepts of computer literacy, IT skills, awareness of common functions (navigation settings menus, profiles), tags, hash tags in digital media, in general provides the ability to use digital devices, software platforms and interfaces.

3. Constructive component - knowledge of the conditions for correct use content during the "construction" in the digital environment, copyright compliance.

4. The communicative component involves knowledge of the possibilities of communication in digital environments, understanding the specifics of the concepts of “identity”, “trust”, “exchange”, “influence” in the digital space.

5. The component “Confident use” is highlighted by D. Belshaw which provide for feeling of being a part of the online community, understanding and using the of the online space versus the offline world, and also reflects learning in a digital environment.

6. Creativity as part of digital literacy indicates the value of creativity in the digital space, mastering new ways of using online tools and environments, creates new knowledge using digital technologies.

7. The use of analytical skills and skills for evaluating digital content, tools and programs, the allocation of reliable sources characterizes a critical component of digital literacy according to D. Belshaw.

In conclusion, digital economy - interaction (relationship) of all participants in economic processes based on using modern channels electronic document management. Digitalization of production as a basis digital economy, it is a set of

work optimization tools through software and hardware solutions. This process implies not only the replacement of production tools, but also the introduction of analytical systems that make production as profitable as possible. Key indicators of good level of digitalization - making decisions based on objective data of business analysis and using technological tools to increase labor productivity.

The digital economy in our country is possible only after the fourth industrial revolution. Digital competence includes not only knowledge and skills, but also one more an important component: motivation of a person for development and his responsibility as a citizen of the digital world. In this regard, the task of a computer science teacher is to create all conditions for the successful development of this quality in students which is confirmed both by the recommendations of Education system and by international practice. This is new stage in the development of society, with the widespread use of such technologies such as artificial intelligence, internet things, machine learning ... [5,6,7].

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