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## THE DEVELOPMENT OF THE DIGITAL ECONOMY IS A SIGN OF PROGRESS

*Do'stmurodova Sarvinoz Habib qizi*

*Assistant of TDIUSF.*

*e-mail: [sarvinozdustmurodova4@gmail.com](mailto:sarvinozdustmurodova4@gmail.com)*

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**Abstract:** In this study, the emergence, formation, development and transformation of the digital economy into the main direction of the economy in the countries of the world today, as well as its connection with global Internet networks, as a result of interactive and innovative information technologies, related electronic search systems, Aspects such as communication on the Internet are briefly analyzed. As the world economic development progresses, it is necessary to create facilities in the processes of mutual exchange, sale, and purchase in unilateral and multilateral economic relations. This requires active Internet services in the digital economy, i.e., advertising presentation, quality product storage, and its suitable delivery to the consumer. Therefore, this process requires special research. The above points are analyzed in detail in this small research paper.

**Key words:** digital economy, digital economy and Internet networks, digitization, e-mail, Internet sites, digitization of education, services provided via the Internet, search systems, innovative information technologies, exchange, sale, purchase.

### INTRODUCTION

The emergence of the digital economy cannot be imagined without modern information and communication technologies and the Global Internet network. The concepts of "digital economy" and the Internet are closely related to each other. The Internet, as we know it today, emerged in 1995. Since then, various services provided over the Internet, such as file sharing, remote access, email, search engines, forums, social networks, and others, have contributed to the creation of a "virtual world." Nowadays, the Internet plays a significant role in entertainment, education, commerce, finance, and politics.

The term "digital economy" is associated with the names of two scholars - Canadian economist Don Tapscott and American information technology specialist Nicholas Negroponte. In 1995, Nicholas Negroponte coined the term "digital economy" in his book "Being Digital." In his scholarly work, he proposed a convergence model based on three intersecting media networks (mass media, communication tools, and computers). As a result of this convergence, new (digital) media emerged.

**Material and methods.** The use of approved literature by authoritative bodies in the research process enhances the credibility of the ideas presented in the study, thereby increasing the level of trustworthiness of the findings.

**Main Part.** In 1995, Canadian economist Don Tapscott published "The Digital Economy." In this

book, Tapscott revealed the results of analyzing the evolutionary trends of society in developed countries. He identified 12 important indicators that would transition society into the new economy, namely the digital economy

**1. Education:** In the business and economic realm, primary attention is given to human capital - the utilization of knowledge. In the digital economy, knowledge becomes an empowering force, surpassing traditional resources. Through knowledge, new opportunities arise, leading to empowerment and improvement of life. Organizations are compelled to alter their employees' perspectives and work towards preserving and enhancing their intellectual capabilities.

**2. Digitization:** Knowledge can now be stored digitally. In previous economies, information was analog or physical, and its exchange was conducted only through direct human interaction. In the digital economy, information is expressed in digital form through information processing systems. This enables rapid and free movement of vast amounts of data among individuals across the globe.

**3. Virtualization:** In the digital economy, physical and material transactions can be transformed into virtual forms. This means redefining previously accepted rules and the essence of economic activity related to various relationships (industrial, social, etc.).

**4. Dynamism:** Traditional organizational structures lead to a more dynamic work environment. Collaborative projects carried out by people from various parts of the world are more effective. In the digital economy, they are referred to as "agile organizations". They adapt to new conditions, while "heavy organizations" become obsolete due to their inability to adapt to the dynamic conditions of the digital economy.

**5. Integration:** At the micro level, individual companies gain access to the benefits of new information and communication technologies. At the macro level, the economy operates continuously, as all stakeholders - suppliers, consumers, competitors, etc. - are interconnected.

**6. Disintermediation:** There is no longer a need for intermediaries. Many organizations directly connect with their clients through information and communication technologies, simplifying information exchange between suppliers and clients.

**7. Convergence:** The leading aspect of the economy is considered to be convergence, created as a result of the convergence of communication and Internet technologies. Together, they create interactive multimedia platforms related to the digital economy.

**8. Innovation:** The digital economy relies on innovation using information technologies to develop new products and services. Human imagination and creativity are the main sources of value in the innovative economy. Creating a complex environment that encourages and supports innovation is a fundamental challenge in the digital economy.

**9. Producer-Consumer Relationship Change:** A significant aspect of industrialized society is considered to be public production. In the digital economy era, the main direction is the creation of products (goods or services). At the same time, consumers express their opinions about the product they buy, make suggestions, and contribute changes and additions.

**10. Efficiency:** Consumers have more information and demand quality service. Information and communication technologies reduce the average time between ordering, manufacturing, and delivery of products.

**11. Globalization:** In the digital economy, when knowledge becomes the main resource, organizational structures operate not only within their borders but also in a single world economy. Globalization promotes and implements new information and communication technologies. Thus, organizations become global rather than multinational.

**12. Inclusivity:** Each new development leads to progress. Different countries have four models for developing the digital economy.

1. The model that embraces digital economy leaders: Developed countries such as the United

States and the European Union countries.

2. The "attainment of progress" model: The second model is being formed by newly industrialized countries. In recent years, Singapore and Taiwan have been particularly important in developing the digital economy, even surpassing Japan in some respects. These countries are considered leaders in developing the digital economy. However, they lag behind in terms of the standard of living and the level of social capital.

3. The model that encompasses the external means of producing information: The third model, which internalizes the external manifestations of the information economy, is characterized by very low levels of education, low standards of living, lack of digital infrastructure, or insignificant development. Moreover, this model is described as a low level of business process management, both at the level of the firm and at the level of the state. These countries include African countries and some Asian countries. Their specialization is the delivery of basic commodities to international markets. These countries need significant investments aimed at improving economic development, increasing the level of education and living standards of the population.

4. The model of importing foreign technologies: The third model describes the external manifestations of the development of the information economy, where education is very low, and in general, the standard of living of the population is low, digital infrastructure is lacking or not developing. Moreover, this model is described as a low level of business process management, both at the level of the firm and at the level of the state. These countries include African countries and some Asian countries. Their specialization is the delivery of basic commodities to international markets. These countries need significant investments aimed at improving economic development, increasing the level of education and living standards of the population.

In terms of the total internal product of developed countries, the advantages of the digital economy amounted to 4.3% to 5.5% from 2010 to 2016. In developing countries, total internal product increased from 3.6% to 4.9%. For "big twenty" countries, this indicator increased from 4.1% to 5.3% within five years. The United Kingdom is the world leader in terms of the digital economy share of total internal product at 12.4%. According to a 2016 report by the International Information Corporation, the annual global cost of digital transformation technologies will increase by 16.8% each year, reaching \$2.1 trillion by 2019. According to Accenture's forecasts, the use of digital technologies will account for \$1.36 trillion in 2020, or 2.3% of the total internal product of the world's top twenty leading economies. Developed countries will account for 1.8% of the digital economy in the total internal product, while developing countries will account for 3.4%. The future development of the digital economy depends on several advanced technologies. It is possible to highlight the following five technologies:

5G - Communication;

3D - printing;

Blockchain;

Artificial intelligence (AI);

Virtual reality.

These mentioned technologies are one of the most important trends in the strategic development of developed countries. Highlighting selected advanced technologies. 5G - communication - Fifth-generation mobile communication standard (5G) - this technology is a new stage in the development of technology, it aims to expand Internet access through radio access networks. The 5G technology is designed to accomplish the following tasks:

Increase in mobile traffic;

Increase in the number of connected devices to the network;

Reducing delays in the introduction of new services;

Unsatisfactory frequency spectrum.

**Discussion.** It should be noted that, first of all, blockchain technology is essential for countries and regions with low levels of trust due to its transparency and security. Blockchain technology provides an independent and anonymous method for distributing valuable information, such as money or contract obligations, by replicating and subsequently verifying copies of it - blocks - among a large number of independent and anonymous users. It must be emphasized that blockchain is important for countries and regions with low levels of trust for installed organizations - banks, governments, contractors, and others, because the technology ensures attention with its transparency and security. The blockchain technology allows creating cryptocurrencies. Cryptocurrency is digital currency addressed to the computer network. In the blockchain transactions project, VISA - VISA B2B Connect, Disney, IBM, Dubai, China, and the government of Korea are actively working. Blockchain is a chain of blocks, organized according to specific rules, containing information within itself. Copies of blockchain chains are stored independently on various computers. Artificial intelligence (AI). Artificial intelligence technologies encompass machine learning, image recognition, and speech recognition capabilities. AI is used in three main areas: telecommunications, automotive, and financial services. Virtual reality is a digitally created world that is presented to a person through its sensory perceptions: sight, hearing, touch, and others. Virtual reality mimics the effects and reactions to create a believable collection of real sensory perceptions. The characteristics of virtual reality and the re-synthesis (reaction) are applied in real-time through computer synthesis to create a similar environment for the user to navigate through computer capabilities. In front of you, instead of looking at the screen, you can immerse yourself in a three-dimensional world of virtual reality and interact with it.

**Conclusion.** Simulation involves various sensations, and you might even find enjoyment in it. In recent years, a wide range of innovative designs and modern tools are being increasingly used to create models that achieve the necessary results in the shortest time and with the highest accuracy in the fields of industry, jewelry, and modeling.

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