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Research Article

THE ROLE AND IMPORTANCE OF MODERN TECHNOLOGIES IN THE DIGITAL ECONOMY

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ABSTRACT

Today, the development of the digital economy has become one of the urgent issues in the development of the financial sector. In the conditions of the digital economy, advanced technologies, digital transformation, artificial intelligence, blockchain and virtual reality are of great importance. The technologies considered in this article are the latest technologies of the digital economy, the emergence and development of which have a strong impact on all sectors of the economy and social activities, including production, health, education, financial services, transportation and other areas. showed a secret.

KEYWORDS

Information and communication technologies, telecommunications, digital economy, LTE, 4G communication, 5G communication, digital transformation, strategic document, mobile traffic, frequency spectrum, artificial intelligence, blockchain, virtual reality, cryptocurrency.

INTRODUCTION

According to the report of the International Telecommunication Union (ITU), the most developed countries in the field of information and communication technologies (ICT) are:

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- Republic of Korea;
- Iceland;
- Denmark
- Switzerland;
- Great Britain;
- China;
- Sweden;
- Netherlands;
- Norway;
- Japan.

According to the Digital Economy and Society Index (DESI), the most developed digital economies are the Scandinavian countries, Benelux, Great Britain and Ireland. 98% of the EU population has access to the Internet, 84% to 4G, and 44% lack basic digital skills. The share of the digital economy in the GDP of developed countries increased from 4.3% to 5.5% from 2010 to 2016, and from 3.6% to 4.9% in the GDP of developing countries.

In the "Big 20" countries, this indicator increased from 4.1% to 5.3% in five years. Great Britain is the world leader in terms of the share of the digital economy in the GDP - 12.4%. According to a study by analysts of the International Data Corporation published in 2016, the global spending of digital transformation technologies will grow by 16.8% annually and reach 2.1 trillion by 2019. is USD. According to the forecasts of the Accenture consulting company, the use of digital technologies in 2020 will be 1.36 trillion. US dollars or 2.3% of GDP in the gross domestic product of dozens of the world's leading world economies. The GDP of developed countries will grow by 1.8% due to the "digital economy", while the GDP of developing countries will grow by 3.4%. The future development of the digital economy will depend on the success of a number of advanced technologies. Five such technologies can be distinguished:

- 5G - communication;
- 3D - printing;
- blockchain;
- artificial intelligence (AI);
- virtual reality.

The listed technologies are one of the most important directions of development defined in the strategic documents of developed countries. The indicated technologies are at the stage of rapid development, they are improving year by year. Each technology can have a fundamental impact on a number of traditional industries of the economy and business in general. Let's consider the perspectives of selected advanced technologies. 5G - communication - the fifth-generation mobile communication standard (5G) is a new stage in the development of technology, which is designed to expand Internet access through radio access networks. 5G technology is designed to solve the following tasks:

- increase in mobile traffic;
- increase in the number of devices connected to the network;
- reduce delays in introducing new services;
- lack of frequency spectrum.

Widespread mobile communication systems in large cities operate at speeds of up to 100 Mbit /

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s on LTE 4G - 2665 MHz networks. Further growth is associated with the use of millimeter waves - 1 - 100 GHz, for example, the military has unique properties and is widely used. New networks can provide speeds up to 10 Gbit / s. This is an opportunity to increase the speed of data transfer tenfold and make a huge difference in the world. Conducted tests show that the era of 5G is near and will come in 2020 after the introduction of a new unified communication standard - IEEE 5G. Next-generation networks will pave the way for real breakthroughs in widespread industrial automation - Machine-to-Machine (M2M), unmanned transportation and the Internet. Initially, the technology will be used in large megacities and can significantly change their economy.

In recent years, innovative designs and modern equipment have been used more and more to create models that achieve the desired results in the shortest time and with the highest accuracy in the field of industry, jewelry and modeling. To obtain a complex high-precision model that cannot be done by hand, or to produce a different number (from two thousand to several thousand) of the same models, equipment is used that allows you to obtain a ready-made object from a three-dimensional virtual model. Today, there are many 3D printing technologies, but all of them are based on the principle of layer-by-layer creation of solid geometry from electronic data. The use of 3D technologies is expected to reduce production costs and provide new, highly qualified jobs.

Blockchain is a continuous sequential chain of blocks (linked list) containing information built according to certain rules. Often, copies of blockchains are stored on different computers independently of each other. Blockchain technology makes it possible to carry out transactions - a method of distributing valuable information, for example, currency or contractual obligations, without copying and comparing copies - among many independent and anonymous users - nodes. It should be noted that, first of all, blockchain is relevant for countries and industries with low trust levels for established organizations - banks, governments, counterparties, etc., because the technology involves transparency and security. Blockchain technology is a way to transfer and distribute valuable information, such as money or contractual obligations, between independent and large numbers of anonymous users, comparing copies and subsequent copies. First of all, blockchain is important for countries and industries with a low level of trust in established organizations - banks, governments, contractors, etc. - because the technology attracts attention with its transparency and security. Blockchain technology enables the creation of cryptocurrencies. Cryptocurrency is a computer network-based digital currency. Today, visa - VISA B2B Connect, Disney, IBM, Dubai, China, Korean government are actively working in the block-transaction project.

A block is a chain of continuous consecutive blocks (linked list) containing information, structured according to certain rules. Often, copies of blockchains are stored on different computers independently of each other.

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Artificial intelligence (AI) technologies include developments such as machine learning, image recognition, and speech. It is used in AI, ICT, media industry, retail trade, healthcare and other fields. AI is best implemented in three industries: telecommunications, automotive, and financial services. Virtual reality is a world created by technical means, transmitted to a person through his senses: sight, hearing, touch, etc. Virtual reality simulates effects and reactions to effects. In order to create a reliable set of real emotions, computer synthesis of the features and reactions of virtual reality is carried out in real time. Virtual reality technology allows using computer capabilities to transfer the user to an artificially created similar (simulated) environment. Instead of looking at the screen in front of you, you can immerse yourself in a three-dimensional world in virtual reality and interact with it, different sensations are transferred to the simulation, you can even smell the aroma in it. For now, this is limited only by the capabilities of computer hardware and components. Objects of virtual reality usually approximate the behavior of similar objects of physical reality. The user can act on these objects according to the real laws of physics (gravity, water properties, collision with objects, mirrors, etc.). Virtual reality should not be confused with augmented reality. Their fundamental difference is that virtual reality builds a new artificial world, augmented reality only brings individual artificial elements to the perception of the real world. The considered technologies are the newest technologies of the digital economy, the emergence and development of which have a strong impact on all sectors of the economy and social activities, including production, healthcare, education, financial services, transportation and other areas showed.

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