The role of digital technologies in economic development

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Abstract. This work is focused on the main aspects of the development of the digital economy. The following work looks at the role of digital technologies in the economic development of modern society. The largest companies in the world influencing the development of the digital economy are considered and the influence of digital technologies on the attitude of society to the economy are also covered.

1. Introduction
This article details how digital and information technologies affect the economy of modern society. Today, with no doubts we entered an era of rapid change and, most likely, in the near future, the most significant areas of human activity (economic, managerial, scientific, security) will take on completely different formats and meaning. People are changing, and their views on social life too.

Computer technology has long been an integral part of everyday life. However, with the advent of smartphones and computer tablets, the impact of computer technology has dramatically increased. The most prominent feature of modern society is the growing influence of digital technology on the way people live and work. This is due to the rapid development of microelectronic, information and telecommunication technologies. Thus, one can conclude that the "digitization" of public life is an objective and inevitable movement forward [1].

2. Literature review
Digital technologies in the economy can be interpreted as information technologies that make possible to optimize the work of e-business structures in the current economic situation. The digital economy can be classified into three main elements: elements of infrastructure (equipment and programs, telecommunications devices and more), the direction of electronic business, the direction of electronic commerce (trade in goods online) [2].

A significant number of today's information and communication technologies are tools of the digital economy infrastructure. The introduction of digital forms of work in the economy (production, distribution, exchange, use and then utilization of commodity products and services) also benefits small and large firms, countries and every person. The widespread use of digital technology has been going on in all industrial areas past decades. Only earlier it was a spontaneous and uncontrolled process, but today large companies and countries have realized that a clear structural approach to this issue is needed.
The development and subsequent implementation of the strategic digitalization plan is currently a priority for almost all large firms in almost all sectors of the economy. The following key technologies define the digital economy today: cloud technology, technology of distributed computing, big data technology and technology "Internet of things" [3].

However, the most important technology can be considered a digital platform. A digital platform is understood as a system of mutual relations of a large number of market representatives [4]. Built according to a certain algorithm, and uniting them through a special information environment. Thus, leads to a reduction in transaction costs by using a set of digital technologies and transforming the conditions of the division of labor.

A specific digital platform is built on the basis of any large economic sphere, providing conditions for the exchange of information between sellers and buyers. For instance, the Uber platform provides a link between taxi workers and their passengers. Similarly, the CarSharing platform provides the relationship between car owners and those who want to rent a car [5].

A platform is a set of programs that incorporates all the other necessary technologies, giving a large number of people the opportunity to access data and various services.

The digital economy is based on innovative technologies created by the electronics industry. It is represented by two elements. Firstly, it is the electronic industry, the production of microchips, computers and telecommunication devices and household electronics. Secondly, these are companies that provide services in the field of digital technologies and use digital means of production, storage, and data management. The importance of developing the digital sector for national economies is confirmed by the fact that a number of countries are currently implementing comprehensive and fairly ambitious programs aimed at developing the digital sectors of their economies. Creating new jobs in these areas, and increasing the competitiveness of the electronic industry and IT technologies.

A feature of structural dependence is the impossibility of overcoming it, since progress in the field of digital technologies is proceeding at a fairly high speed, and new technologies can be reproduced only on the basis of previous results. If the country does not possess some technical and technological solutions are lost, then it is impossible to create something new and take the next step. For this reason, the state of the digital sector, in particular, its elemental base, special technological equipment that provides the necessary parameters for microcircuits, is a determining factor in the development prospects of the whole society.

Society develops progressively only when the old data processing capabilities are replaced by new ones. This circumstance should be able to handle the increasing volume of data, but also solve the problems associated with ensuring production with increasing returns while saving resources.

The concept of “globalization of the economy” implies a process of sharp intensification and libration of interstate (cross-border) flows of goods, capital, technology, services, information, people. The process of globalization of the economy has really accelerated sharply in recent decades under the influence of the activities of transnational corporations and banks, the capital of which is represented simultaneously by several countries. We are witnessing a rapid increase in the interdependence and interaction of national economies.

At the beginning of the 21st century, about 20 thousand large transnational corporations with their numerous subsidiaries, operating primarily in large markets in Europe, North America and East Asia, controlled more than half of world trade. The process of globalization of the economy is reflected, in particular, in the ever-increasing scale of world trade, but especially in the growing overflow of capital between leading industrial countries.

Scientific and technological progress accompanies the development of human civilization constantly. However, in the process of gradual progressive development of productive forces, qualitative leaps in the development of science and technology sometimes occur.

It is believed that the last two hundred and more years have shown the world at least three industrial revolutions. The first industrial revolution was the advent of the J. Watt steam engine in England. The beginning of the second is associated with the widespread use of electricity, oil, the invention of the car etc. But the beginning of the third revolution (electronic, computer, informational) in the mid-20th
century is considered the emergence of computers. Some authors attribute information among the distinguishing features of the modern scientific and technological revolution, which means a transition to a society based on knowledge (post-industrial). In accordance with this, three historical waves in the development of society are distinguished: agrarian in the transition to agriculture; industrial during the industrial revolution; informational in the transition to a society based on knowledge (post-industrial).

In today's economy, digital sector companies come to the fore and become growth points that provide the economy with a digital resource. If at the beginning of the 20th century the main locomotives of the world economy were large oil, metallurgical, machine-building and mining enterprises, now the largest companies are representatives of the digital economy sector (table 1 and 2).

**Table 1.** Rating of the largest companies in the world, 2016.

| Company       | The main field of activity                  | Capitalization, $ billion |
|---------------|---------------------------------------------|---------------------------|
| Apple         | Electronics and Information Technology      | 577,4                     |
| Google        | Internet services, applications, YouTube video hosting | 547,9                     |
| Microsoft     | Software manufacturing                      | 443                       |
| Amazon        | Trade in the Internet                       | 360                       |
| Wells Fargo   | Banks                                       | 299                       |
| Samsung       | PC, mobile devices, household appliances and electronics | 254                       |
| China Mobile  | Telecommunications                           | 250                       |
| Verizon       | Telecommunications                           | 229,0                     |
| AT&T          | Telecommunications                           | 226,0                     |
| Walmart       | Retail                                      | 216,9                     |

**Table 2.** Rating of the largest companies in the world, 2019.

| Company                  | The main field of activity | Capitalization, $ billion |
|--------------------------|----------------------------|---------------------------|
| Microsoft                | Technology                 | 905                       |
| Apple                    | Technology                 | 896                       |
| Amazon.com               | Consumer Services          | 875                       |
| Alphabet                 | Technology                 | 817                       |
| Berkshire Hathaway       | Financials                | 494                       |
| Facebook                 | Technology                 | 476                       |
| Alibaba                  | Consumer Services          | 472                       |
| Tencent                  | Technology                 | 438                       |
| Johnson & Johnson        | Healthcare                 | 372                       |
| Exxon Mobil              | Oil & Gas                  | 342                       |
3. Discussion
First of all, when comparing data for 2016 and 2019, the fact that Apple (the leader of the last few years) for the first time gave way to Microsoft is striking. It is also impossible not to pay attention to the fact that Google has completely dropped out from top 10 list. Amazon.com moved up from rank 4 to rank 3 with a capitalization of $ 875 billion. Alphabet is now in fourth place with a capitalization of $ 817 billion. The 5th place in the ranking (which Wells Fargo held in 2016) is now occupied by Berkshire Hathaway with a capitalization of $ 494 billion.

It is also very interesting that Samsung also completely dropped out of top 10, and Facebook now occupies its place with a capitalization of $ 476 billion. Most likely this is due to the Galaxy Note 7 smartphone that was released at the end of 2016, which, due to a battery malfunction, a large number of users exploded or simply caught fire during charging. This incident greatly affected the company's reputation and, of course, the value of the shares.

China Mobile, Verizon, AT&T, Walmart also completely dropped out of the top ten. Alibaba ($ 472 billion), Tencent ($ 438 billion), Johnson & Johnson ($ 372 billion), Exxon Mobil ($ 342 billion) now occupy their places.

In addition, it can also be noted that if in 2016, out of 10 leading companies, 8 were associated with information technology, in 2019 this number decreased to 7. However, the total capitalization of companies related to information technology increased significantly. From the foregoing, we can conclude that in the near future the growth rate of the impact of information technology on the global economy will only grow.

4. Conclusion
Summing up, it should be noted that in spite of certain (frightening some people) disadvantages of digitalization of the economy of modern society, the advantages in this phenomenon are much greater and these advantages are much more significant.

As already mentioned, digital technologies are constantly expanding their areas of use, the cost of implementing the necessary toolkit is constantly decreasing, the level of digitalization of the economy is constantly increasing, similarly the degree of availability of digital devices. Based on the foregoing, we can conclude that the digitalization of the economy of modern society is an inevitable process leading to the development of society.

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