

Theoretical Foundations of the Digital Economy and the Digitalization Process

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Abstract

this article deals with the theoretical foundations of the digital economy and the digitalization process and author provides several viewpoint from prominent scholars who contributed in the sphere of economy.

Keywords: *digital economy, IoT, socio-economic processes, flexible, embedded, socio-economic models.*

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The movement towards the digital economy is characterized by technological booms, which are understood as a combination of technologies that make it possible to create new products and services that, on the one hand, form new spheres of activity, and on the other hand, destroy or radically change existing sectors of the economy [1].

Revolutionary changes in many traditional industries and the simultaneous emergence of new spheres and opportunities for the development of human activity make it impossible to accurately predict the future, which depends not only on the level of radicality of technological changes, the speed of their improvement and dissemination, but also on the institutional support of these processes. At the same time, it is already possible to identify some significant characteristics of the digital economy:

- the transformation of information and communication technologies (ICT) into technologies of wide application;
- improving the information support of the decision-making process through remote access to information in real time and the creation of systems for processing large amounts of data, which changes the logic of the organization of the management process both at the enterprise level and at the state level;
- the transition of the population and economic complexes to online interaction and online service (the possibility and effectiveness of which has been proven by coronavirus infection) [2];
- the displacement of live labor by robotic labor and the transfer of a significant part digital production; distribution of additive technologies;
- reducing the asymmetry of information by increasing the possibilities of access to it and the development of technologies for its processing;
- the emergence of IoT (Internet of things) – objects with built-in electronic devices that exchange information about the state of the object of the outside world or the consumer himself without human intervention;
- the emergence of new electronic types of money;
- the increasing role of the sharing of goods (consumers acquire not the goods themselves, but the rights of access to goods and the rights to use them);
- reducing transaction costs by replacing intermediaries with automated network services;
- implementation of the e-government concept;
- the emergence of a new form of interaction between enterprises and end consumers through the creation of personalized production chains [3];
- the digital economy is growing faster than the economy as a whole, especially in the countries of the global South (countries of Asia, Africa and Latin America belonging to the “third world”) [4];

The digital economy contributes to a significant increase in employment [4]; labor productivity in the digital economy is usually higher than in the economy as a whole (even taking into account the research of R.M. Solow [5], productivity is growing, but at a slower pace than expected) [6]. The listed characteristics are not exhaustive and, moreover, do not give an exact

definition of the concept of “digital economy”. Pace the changes that are taking place are so great that it is difficult to make predictions and try to predict exactly which way the development of technology will go. At the same time, it is already obvious that these changes will have a huge impact on socio-economic processes.

Digitalization is the introduction of digital technologies into various spheres of human life to improve its quality and economic development. The essence of digitalization is the automation of processes – the transfer of information to a more accessible digital environment, where it is easier to process and analyze it, as well as to obtain an accurate solution. The task of digitalization is to make the process “flexible”, i.e., using data analysis to determine exactly what the market needs at a particular moment and adjust production to this [7].

Digitalization of the economy is understood as the introduction of a set of fundamentally new means and methods of data processing “embedded” in organizational management systems, combined into integral technological platforms for the purposeful creation, transmission, storage and display of an information product (data, ideas, knowledge) and ensuring maximum reduction of transaction costs in the interaction of economic agents.

The digitalization of the economy is carried out on the basis of modern information technologies and in accordance with real economic conditions. If earlier production, trade, and financial technologies were consistently developed, by now new economic technologies have appeared which the basis of the modern economy is.

The main conditions for digitalization are:

- the development of fundamentally new business models;
- optimal integration of various information technologies and methods of their use in organizational and technological processes of the real sector of the economy;
- minimization of transaction costs and material resources used in production;
- modern means of communication; channels of transmission, information processing; development of technology and technologies;
- the creation of a unit of value with the involvement of a significantly smaller workforce than ten or fifteen years ago is possible due to the minimal cost of a digital business, which tends to zero;
- “information goods” are provided with virtually zero costs for storage, transportation and replication;
- economic activity focuses on the platforms of the “digital” economy;
- personalized service models;
- Direct interaction between producers and consumers; the spread of the sharing economy; the significant role of the contribution of individual participants [8].

It is worth noting the principles of digitalization of economic activity. Thus, E.V. Popov divided the principles of differentiation of the subject of research into economic relations between agents of economic activity in the conditions of decentralization of the resources used and in the conditions of evolutionary development. In the first case, it is possible to distinguish the principles according to the criteria of expediency, usefulness and efficiency of digitalization of

economic activity. In the second case – according to the criteria of uncertainty, conditionality and irreversibility of digitalization of economic activity.

S. Gregor, B. Lee-Archer emphasize that the use of a digital “lever” provides an analytical technology of electronic management to support social investments, which fully corresponds to the concept of nudging within the framework of the theory of behavioral economics [9].

It was the introduction of digital technologies and the formation of new socio-economic models of behavior that ensured the choice of various strategies for the development of objects of economic activity in conditions of multiparametric decision-making [10]. In this case, there is a need to measure the digital economy. However, there are several obstacles here:

- Definitions of the digital economy are very diverse and do not coincide with each other. By itself, this does not make measuring the digital economy difficult, but it makes comparative analysis difficult. The same definitions that cannot draw a clear line between the traditional and digital economy complicate the initial measurements [11];
- Currently, especially in developing countries, there is a fundamental problem with the data collected – they are either missing or unreliable. This is compounded by the further development of innovation – data collection is always left behind by technological progress;

Moore's law and similar phenomena mean a constant drop in the cost of the same amount of ICT capacity, memory capacity, etc. Something similar can happen with types of ICT-related services that also experience qualitative transformations that do not always affect their cost; the emergence of free products (such as Wikipedia) matters, which, nevertheless, creates added value; many types of digital economic activity do not immediately create a finished product. Some services of this type may have an intermediate character at the level of business-to-business interaction or at the consumer level; difficulties may arise with calculating the added value; in addition, digital services are provided in virtual space, therefore, they may not be easy to track, especially if there is a cross-border electronic commerce or the digital phenomenon of “consumer as producer” [6].

Thus, based on the analysis of theoretical provisions, it should be noted that digitalization is not a goal, but a means, and the digital economy cannot be considered separately from the rest of the economy and should be interpreted as a segment of activity when the materialization of added value in the production of goods and services is carried out using digital technologies, especially for industries that are Internet-dependent. At the same time, it makes sense and value if digital technologies and infrastructure promote cooperation in all spheres of the economy and levels of management.

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