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Concept Digitalization Apparatus: Interaction of Real and Virtual Sectors of Economy

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***Abstract*- The present paper studies the insufficiently studied problem of creating a conceptual apparatus for the practice of interaction between enterprises of the real and virtual sectors of the economy. The author sets a goal to analyze various aspects of this problem and formulate a number of concepts expanding and clarifying the system of ideas about the interaction of the real and virtual sectors of the economy. The aim of the study is to develop and practice the basic concepts and clarify the foundations of interaction between the real and virtual sectors of the economy, which will expand, introduce and more fundamentally understand the essence of this phenomenon and reduce the risks of making many management decisions. The study used the methods of situational, structural and dynamic analysis contributed to the study of the current ideas about the interaction of enterprises of the real and virtual sectors of the economy, including government regulation of emerging problems. A systematic approach was used when assessing the state of adaptation of digital enterprises. Research has revealed the systemic nature of the influence of a combination of various factors affecting the interaction of economies, all aspects of the life of enterprises in the real sector of economy, their internal and external functioning environment that need to be considered when describing interaction phenomena and the concepts arisen from their essence. The practical significance of the study materials: The materials of the paper are of practical value for business structures, public administration and the public sector. The formulated concepts are used in practice in the transition of enterprises in the real sector of the economy to digitalization and management of processes of interaction between the real and virtual sectors of the economy. Their use contributes to the formation of the most complete picture of the management object as well as the adoption of adequate management decisions about its change in a given direction, increasing their competitiveness and profitability.**

***Keywords*-** *Digitalization, Concept System, Legal Regulation, Electronic Money, Interpenetration of Economies, Interaction Design.*

1. Introduction

The need for this study is due to the transfer to the virtual, electronic environment of economic and managerial relations based on digital technologies to get the business fast and high-income. Along with the positive aspects, the practice of developing these relations is ahead of their theoretical understanding, poorly manageable, and accompanied by a variety of different risks, adversely affecting the balance of interests of business, society and the state and it is perceived ambiguously, requiring scientific evaluation. This paper is aimed at comparing the basic, theoretical foundations of virtual economic relations, formalized in concepts, based on constantly evolving digital technologies, with the processes and results of their implementation in practice. Currently, on the key issues of the development of the virtual sector of the economy, the electronic environment of interaction of economic entities; there is no consensus of scientists, specialists in the field of government and many creative people working in it.

2. Materials and Methods

The leading method for studying this problem is to consider the concepts used in the interaction of the virtual and real sectors of the economy in dynamics, space and in close relationship, given the impact of globalization and local characteristics. This method allows comprehensively considering the features of the interaction of the real and virtual sectors of the economy, highlighting their inherent processes and phenomena, and formulating concepts and definitions reflecting them. At the same time, the paper presents, compares, and analyzes various concepts and definitions characterizing the same phenomena in different ways, an attempt is made to clarify and generalize them.

3. Results

A specialist, being in the real world, consciously constructs the virtual economic world, transferring it to the concepts traditionally used in the real world. New phenomena of the virtual world are characterized by new concepts. The most difficult issue is the construction of concepts integrating real and virtual phenomena in a generalized form. The generation of new forms of interaction between the two economic sectors acts as a driver of changes requiring understanding their essence and interpretation in the form of adequate definitions. Based on the interaction of real and virtual economies, specific products are formed and produced in society, with their inherent properties affecting the livelihoods of the population, its structure, and require clear definitions revealing their properties. Virtual technologies demonstrate the intellectual and innovative power of the countries of their producers, influence a person's consciousness, worldview, behavior in society, attitude to the institutions of power and they can influence national values and traditions. Based on the virtual technologies, new products are created in the form of information, services, or other products with both intangible and tangible incarnation. These technologies should have clear definitions describing their essence, content, purpose, and the various effects of application for government, business and the public. The interaction of the real and virtual sectors of the economy requires institutional, informational and technological concepts, the infrastructure of which must be disclosed and presented in the form of semantic terms and definitions. The interaction of the real and virtual sectors of the economy should be governed by international law, enshrining the definitions associated with practical regulation and contain principles of behavior created on their basis and the basic rules of the activity of all of its participants. However, the basic definitions and concepts of new key processes and components of the digital economy have not yet been formed.

4. Discussion

The virtual, digital sector of the economy is represented in the electronic environment as a set of socio-economic relations in accordance with the use of intelligence, digital platforms and technologies, with the aim of producing a product and generating income. It is actively functioning despite the fact that some authors believe that this sector "cannot exist in the real economy" [1], while others hold the opinion that it can, explaining that virtual and real economy "mutually complement each other, accelerating the processes of interaction between people and the state" [2] and therefore the components of the virtual economy; for example, in the form of electronic money, they are contained in the real, while the real economy is intertwined with the virtual system of financial and economic relations. Similar and other problems, such as the formation of trends within each of these sectors of the economy and their interaction, attract the interest of scientists from various states [3] trying to understand their essence and meaning for society, expressing their opinions in various scientific publications [4]. According to the experienced experts, the number of similar problems will increase, and the relevance of their solutions will increase, since the competitiveness of companies will be largely determined by their digitalization level [5]. Understanding this, the leaders of various spheres of the national economy are actively developing digitalization. Research shows that enterprises are actively investing in digital transformation programs, and in Russia, telecommunication, metallurgy and banks are leading in terms of investment [6]. It is already obvious that the assumption that the integrated (virtually real) market subjects will dominate in the economic relations of the near future, with an approximately equal degree of importance of their virtual and real components in obtaining high profits and other results. This is largely because the rapidly developing Internet information is being actively integrated into material production and the sphere of commodity-money relations, since it becomes the most productive there. A scientific and theoretical understanding of the changing nature of the real and virtual sectors of the economy, the interests of their penetration into the electronic environment, motives, financial mechanisms and results of interaction is needed in order to summarize the obtained achievements in this area besides expanding the scope of ideas about it and using them in practice. Improving the processes of interaction between the real and virtual sectors of the economy in the electronic environment is essential, the solution of which is devoted to the materials of the present paper. Speaking about the process of "digitalization" (in the English version) of the economy and society, it is first necessary to introduce certainty into the terminology. In a broad sense, the process of "digitalization" is usually understood as a socio-economic transformation initiated by the mass introduction and assimilation of digital technologies, i.e. technologies of creation, processing, exchange and information transfer [7].

The situation with the definitions of "digital technology" and "digital solutions" is somewhat different. There is an active theoretical discussion on these topics in the research environment: as an illustrative example, we can refer to the online survey "Digital Economy - Towards a Long-term Strategy", held in January 2017 by the Analytical Center under the supervision of Government of the Russian Federation. The survey participants were offered a choice of seven alternative definitions of the basic term "digital economy" from the World Bank, the OECD, and the governments of Australia, the United Kingdom, and other online survey participants, the wording of which is presented below [8]:

• "The global network of economic and social activities supported by platforms such as the Internet, as well as mobile and sensor networks" (Australian Government);
• "The system of economic, social and cultural relations based on the use of digital information and communication technologies (World Bank);
• "Economy, mainly functioning at the expense of digital technologies, especially electronic transactions, carried out using the Internet" (Oxford Dictionary);
• "Doing business in the markets based on the Internet and / or the World Wide Web" (BCS, United Kingdom);
• "Markets based on digital technologies facilitating the trade of goods and services through e-commerce on the Internet" (OECD);
• "An economy capable of providing high-quality ICT infrastructure and mobilizing ICT opportunities for the benefit of consumers, business and the State" (The Economist Research Center and IBM); and
• "Production of digital equipment, publishing, media production and programming" (UK Government).

As observed, it is common for all definitions that they represent an economy based on a technical-technological basis (on digital technologies, the global Internet, on information and communication technologies, digital equipment). The second common principle uniting these definitions is the presence in each of such components as a system of economic, social and cultural relations arising from doing business, trading in goods and services for the benefit of consumers and the state. At the same time, nowhere in the definitions of the digital economy, the relations between people, society and the authorities appear regarding the production, distribution and consumption of goods, carried out with the aim of obtaining profit, improving the quality of life of the population and developing the state. We believe that without these essential components of the economy, these definitions are inaccurate. Thus, the unified concept of the digital economy, both in Russia and abroad, is absent. You can cite the so-called key wording as:

• Economics of a new generation of technology [9];
• Economic activity, in which the key factor of production is digital data; processing large volumes of these data and using the results of their analysis compared to the traditional forms of management can significantly improve the efficiency of various types of production, equipment, storage, sale, delivery of goods and services [10].More complete, in our opinion, there will be the definition of a digital economy, as a system of economic and socio-cultural relations between people, built based on the use of digital information and communication technologies, technological platforms, the global Internet, arisen from the production, distribution and consumption of goods, with the aim of obtaining profit, improving the quality of life of the population and the development of the state. In the digital economy, as a rule, electronic money is the main means of payment [11], and relations should be built legally and regulated by the state. To consolidate the proposed definition, its recognition and use by interested parties and subsequent approval are necessary. Along with this definition, it is also necessary to develop a system of key concepts, required statistical classifications of digital technologies and products and services based on them. This will allow correctly describing the limits of the functioning of the digital economy, to build criteria and indicators of its statistical measurement for making various kinds of management decisions. Through the above concepts of the digital economy, it is easy to see that the digitization of the real and virtual sectors essentially depends on the IT industry. At the same time, according to leading analysts of Microsoft, the decisive importance in its development is devoted to the massive introduction of "technological platforms" in the form of a set of compatible technologies, products and channels for their distribution, as well as the use and distribution of ecosystems. The basic elements of modern technology platforms include cloud computing, mobility, the Internet of things, big data technology, business intelligence and machine learning [12]. Advanced platform

technologies contribute to the transformation of products into services, the expansion of value chains, and the supply of goods and services [13]. This significantly reduces transaction costs and creates new technological opportunities for interaction between the real and virtual sectors of the economy. It is worth noting that the conceptual apparatus of the digital economy and the system of interaction between the real and virtual sectors of the economy directly depend on the nature and content of the processes occurring in these areas in various countries of the global community. It is important to study the experience of digitalization, the interaction of the real and virtual sectors of the economy of technologically developed countries - their positive results and miscalculations identified in the process of implementing various initiatives and programs, as well as governmental regulation of related processes. Special attention should be paid to the emerging practice of regulation due to the growing fears of the growth of the negative effects of digitalization. Today, there are signs of the disappearance of traditional markets and facts of job cuts as a result of the replacement of a number of professions with robotic systems, an increase in cybercrime, violation of human rights in the virtual space, leakage of personal data, ignoring cultural values and centuries-old traditions, causing the need to regulate the digital economy and processing interaction of real and virtual space [14-16].

5. Conclusion

The conceptual apparatus of the digital economy is a set of concepts, categories and classifications reflecting the content of digitalization, an idea of the features of its implementation and development. The development of the conceptual apparatus is based on the understanding of the deep essence of digitalization, the interaction of the real and virtual sectors of the economy. It is associated with the structuring and the establishment of relationships between the processes and the constituent elements of this phenomenon, as well as the external environment governing its changing. The establishment of connections between concepts occurs in the process of comprehensive knowledge of digitalization.

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