Digitalization of education and information technologies as a factor of agribusiness development

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Abstract. Digitalization of education is a necessary condition for sustainable development of agribusiness. The article is devoted to analyzing the factors of digitalization of education, among which information technologies are the main ones. For the analysis, the authors used a model for the development of the digital economy in agribusiness, which was also developed in the training of a specialist in the agro-industrial complex. Education is viewed as a subsystem of the digital economy. It is shown that the digitalization of education has both positive and negative consequences not so much for the development of industry as for human development. As conclusions, the article presents forecasts for the development of digitalization of education, which include the improvement of the development and methods of introducing information and communication technologies in education, a constant change in the forms of knowledge assessment, the successful use of information technologies in the training of a specialist.

1 Introduction

At the moment, sustainable development is a prerequisite for agribusiness development. This applies to all areas of human activity, including the agricultural industry. Sustainable development in industry is a systemic whole, for the formation of which all areas are needed: economics, politics and education. Education is the leading factor in sustainable development today. The main trend in the development of education is its digitalization, therefore our study is relevant, since consideration of the digitalization of education and the role of information technologies in education will provide high- quality training of a specialist in all areas of industry, including in the field of soft-skills [1].

One of the main strategies of the agribusiness development of the modern education system is digitalization. The digitalization of education is the translation of education into digital, that is, the process of transforming education into a global (affecting all participants) digital learning environment. This digital environment is a qualitatively new educational and management structure aimed at developing digital technologies and skills. We can say that the digital economy forms a special educational management. Educational management today is a multi-vector process that encompasses vectors of economic, social,

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political and high-tech growth. High technology is gaining more and more importance in digital education [2]. The digitalization of education is part of a broader process - the development of the digital economy, which can be defined as the economy of digital goods and services.

To determine the specifics of the modern digital model of education, let us consider in more detail the structure of the digital economy, of which it is a part. According to a number of American researchers [3]. The digital economy is formed by the following technological components:

Big data;

Creation of information and communication infrastructure supporting the development of big data;

Digital processing and storage of big data.

The development of information and communication technologies, since the middle of the last century, has become the basis for the development of digital technologies in the economy and in agribusiness. An essential factor in the digital economy is that it is based on digital services. In other words, digitalization in society includes everyone who produces and consumer goods and services, as well as these services themselves. The most important technology that has shaped the digital economy and is still shaping it is the Internet. The Internet is still the driving force behind the digital economy and agribusiness today. Building models of the digital economy is problematic due to the significant number of elements interacting in it. The elements themselves are also difficult to analyze. For example, digital services use business models that describe their business operations. There are several popular business models in the digital economy, including subscription-based business models, free advertising, and multilateral platforms. Digital Economy focuses on the quantitative modeling of digital technologies: markets, valuation and market evolution. Despite the fact that creating such models is problematic, nevertheless, an attempt to build and analyze them can provide valuable information about how the digital economy works.

Due to the development of the Internet, the main elements of the digital economy have been formed. At the moment, the main elements of the digital economy are digital services (various digital platforms for the sale of goods and services, including payment systems), digital goods and services, providers that provide access to these services, as well as consumers of these services.

In its most general form, the structure of the development of the digital economy can be represented as follows:
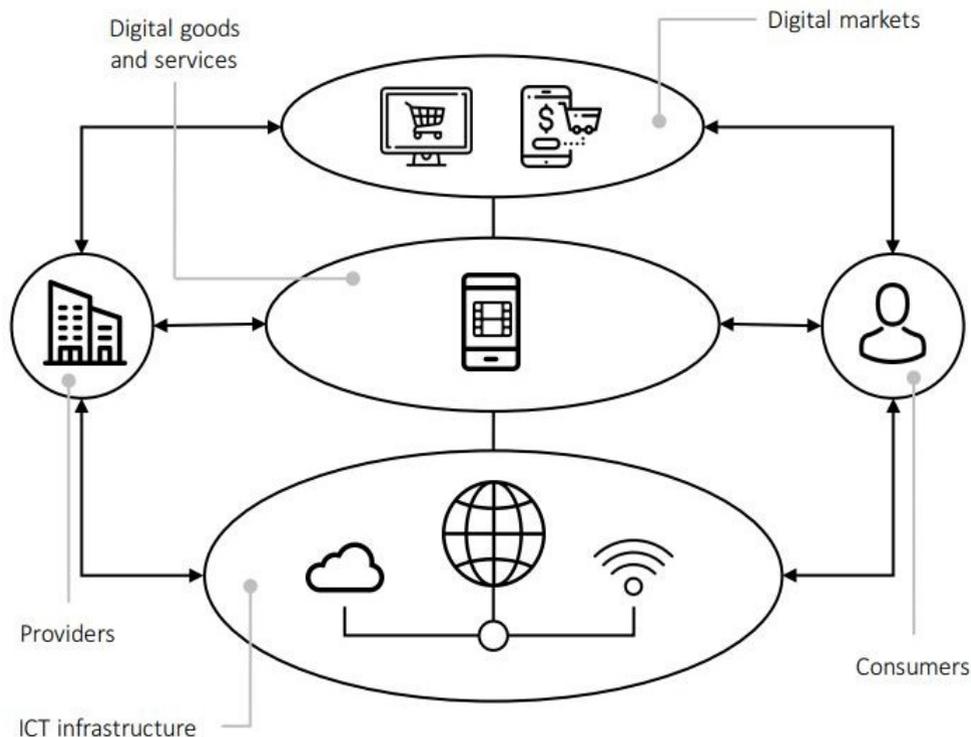
Fig. 1. Elements of the digital economy in agribusiness [11].

These elements are in constant interconnection and form a network system with feedbacks and complex dependencies. We can say that as a result of the interaction of these elements, a complex super system of the digital economy is formed, which is formed by complex interdependencies and the interaction of the elements included in it. Since such a system is constantly changing, it is impossible to display all dependencies. Moreover, the system is open in nature and has a constant impact on the life of society and individuals. Thus, the digital economy model is a complex super-system of interaction of digital services, information and communication technologies infrastructure and digital services that affect the consumer of this system - a person.

2 Materials and methods

The digital economy in agro-industrial complex as a super system consists of systems embedded in it, which include information technologies, education and industry. Information technologies have an active impact on all spheres of human being, a qualitative transformation of human activity is taking place, primarily in the scientific and educational spheres. Complex relations between the components point to the need for further investigation of the constructs involved in various models [4].

Based on the model we have adopted, education also acts as a digital subsystem of the digital economy or an environment that provides the consumer with educational services. However, in this model itself, if you look at it more closely, the consumer of services is not the central link. The central link of this subsystem is digital services, around which a kind of digital environment is created in which a person is. In these conditions, the digital environment becomes an autonomous carrier of goods and services alienated from the

consumer, and the person himself as a real subject of consumption and interaction is eliminated.

However, such a procedure eliminates the subject only nominally: here we are not talking about the exclusion of an element of the subsystem, but only the redistribution of the carrier of the digital system. But, in accordance with the principle of identifying the non-identical, changing the form does not change anything. Accordingly, in isolated systems it is possible to measure the parameters not of the process itself, but of the rest of the system, that is, to measure one instead of the other and even predict the behavior of those parameters that are not directly measured. This, in essence, is what the concept of the equation allows to do [5].

A person as a real subject ceases to be an active subject of not only real, but also digital influence, since digital services and relations in the provision of digital services become the main ones. With regard to education, this means that the main thing becomes the provision of the educational process. The formal line of the education process, not learning in the digitalization system, comes to the fore: an approach to education and training is being formalized, which is expressed in the improvement of educational technologies, and not the content of the educational process and educational material. In Russia, the digitalization program for education began to actively develop in 2016, long before the pandemic appeared.

The start of this program began with such a project as "Digital educational environment", which was approved by the project committee of the national project "Education". Of course, the pandemic has accelerated the implementation of the project to digitalize education, both at the school level and at the university level. The result of this acceleration was the technical implementation and improvement of the distance learning system through the development of a digital educational environment at the university. In 2019, the National Education Project 2019-2024 was launched, which aims to improve the quality and competitiveness of Russian education [6].

The pandemic, having accelerated the digitalization of education, showed the rapid adaptation of teachers and students to distance learning, the flexibility of acquired digital skills and competencies. However, she showed psychological unpreparedness for this model of education both on the part of students and on the part of teachers; lack of motivational mechanisms for distance learning among young people; lack of understanding of the specifics of digitalization of education on the part of teachers. Against the background of the pandemic, the above problems have become clearly visible. It became quite obvious that the introduction of electronic educational resources, the development of online courses and digital educational platforms represent a "formal package", based on real life tasks and problems of real people who provide education and training, but the system itself is eliminated from this process.

A striking example of this process is the development of an electronic educational environment, which, on the one hand, opens up various learning opportunities, makes education accessible to everyone. On the other hand, it is overloaded with formal requirements, for example, the need to be constantly in this system and leaving the so-called "digital traces". The technical side of the distance learning process (maintaining servers, ensuring the stability of wireless communication) turns out to be a more important component of this process than the content side.

The technical capabilities showed, on the one hand, the readiness of the transition of educational platforms to the virtual space, but, on the other hand, it turned out that the information load in the conditions of rapid and total digitalization on teachers and students has increased significantly. The level of stress has sharply increased due to the rapid (rather quantitative, but not qualitative) change from full-time education to distance education, and the lack of mechanisms for adaptation to the new information educational environment. As

a result of such information overload, a person is "lost" who remain a real participant and consumer of digital services, dissolving, nevertheless, in the flow of total digitalization.

3 Results and Discussion

Total digitalization not only eliminates a person, creating a lifeless digital reality that exists according to its own logic. Digitalization creates a reality that, ignoring the real interests of a person and replacing them with digital needs, forms a qualitatively different vision of reality in him. Under these conditions, real values and needs are replaced with virtual ones, which threaten a qualitative restructuring of the personality's worldview, affect the psychological state and behavior of a person. In these conditions, digitalization is becoming a threat to human existence.

In conditions of substitution, a person tries to comply with the forms of behavior and social rules that are developing in a digital society. However, in conditions of divergence of the real and the virtual, a person does not receive proper satisfaction of his needs, does not realize his own values and meanings. This situation turns into psychological maladjustment, loss of worldview guidelines and values, and can lead, in terms of E. Fromm and V. Frankl, to collective and individual neuroses.

The result of total digitalization is a socio-anthropological crisis, which is expressed in the inability of a person not only to manage the digital environments in which he exists, but also to manage his own life values and tasks. Moreover, these spiritual possibilities in a total digital environment are suppressed in every possible way, giving way to instinctive and biological needs. Thus, digitalization is aimed at such a substitution of reality in which only the illusion of knowledge, spirituality, self- importance and uniqueness is created in a person. At its core, the digital environment turns out to be a system that generates biological instincts and needs. Thus, the person himself finds himself in a closed and total system that imposes on him a kind of artificial social order.

4 Conclusion

To overcome the socio-anthropological crisis, in our opinion, the following basic principles are necessary, which should be taken into account in the context of the total digitalization of education:

Appeal to the basic spiritual values of a person, which will become a response to the deterministic challenges of digital reality. Creativity, new innovative approaches, ways of developing a person's thinking (flexibility of thinking, acquisition and development of so-called soft skills) can act as forms of such a response. "Social skills are needed more than you think!" - this is the motto of the book of the well-known American programmer and business consultant John Sonmez: He wrote, that the fact is that most of the time in software development is spent on interacting with people, and not with computers. Even the code we write is primarily for human perception; understanding it by a computer is only a minor task. If this were not the case, we would be writing code exclusively in machine language - using ones and zeros. If you want to be a good developer, you have to learn how to effectively interact with people, even if you enjoy writing code the most [7].

Teaching problem thinking, that is, thinking aimed at solving problems and contradictions (the famous Socratic dialogue). The change from binary thinking to dialectical becomes necessary for effective social interaction and cooperation, understanding

Acceptance of personal responsibility by a person. It is extremely important for the spiritual world of a person that he should support what he is doing inside himself. It is just

as important that he does what he has chosen to do. Thus, he must support what he decides for. Decide, act and support is practically a "stability trilogy". If it is not observed, an internal discord arises, which is dangerous mentally and physiologically [8].

Any formalization, from filling the electronic environment with information resources to posting on-line lectures on these resources without feedback from students, is doomed to failure in advance. In the modern world, it is necessary to change the position of public opinion and education. Excessive dominance over technological and production priorities created a dangerous imbalance in education, which led to the technocratization of society and did not contribute to humanitarian development. In this regard, let us recall the idea of the American scientist M. Polani, who rightly pointed out that knowledge always has a personal character and cannot exist in a full-fledged form if it is not transmitted by a person "from hand to hand" [9].

Based on our research, we can make the following forecasts for the development of digitalization of education in agro-industrial complex as a factor of sustainable development:

Improving the development and methods of introducing information and communication technologies into education. Information technologies will lead to a deepening of the formal, and not the content line of the learning process. The result of this may be a decrease in the motivation of teachers not only for educational, but also for research activities [10];

Constant change in the forms of knowledge assessment, the use of various measuring procedures and testing for the examination of the quality of the educational process, which, in fact, also shows the formal side of the digitalization of the educational process;

The successful application of Information technologies will become the main indicator of the effectiveness of the educational environment and the competence of students and teachers. In these conditions, competition among the teaching staff will increase, the important factors of which will be successful and quick adaptation to information and communication technologies and the development of author's online courses and educational resources.

It is easy to see that these forecasts look rather pessimistic. However, it should be said that the formalization of the process of digitalization of education will never exclude personal communication and full-time education, since it is indispensable in terms of transferring and shaping life values and guidelines, and educating a person. It is this aspect, paradoxically, that makes the digitalization of education possible in agro-industrial complex as a factor of sustainable development.

We are convinced that distance education will be of value only for a modern person when it is focused on the person himself: when education becomes not what a person receives as a service, but what he lives on his own real experience and how he, based on from this experience, forms basic values and guidelines. Taking into account the socio-anthropological aspect, the implementation of a digital education project will have a high social significance, increase motivation, and the quality of life for the most important participant in the modern educational process of economic industry- a person.

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