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DEVELOPMENT OF THE DIGITAL ECONOMY IN THE ACCOUNTING AND MANAGEMENT SYSTEM OF AGRICULTURAL ENTERPRISES IN UKRAINE AND THE WORLD

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Abstract: The article examines the problems of the transition of agriculture to digital technologies, potential directions for the digitalization of agricultural production, the role of digitalization in the agro-industrial complex, the benefits from the use of innovative digital technologies, the pros and risks of the digital economy in the agro-industrial complex. As part of the study of the object of study, the advantages and disadvantages of introducing digital technologies in the tax sphere are analyzed.

Key words: digital economy, digital agriculture, risks of the digital economy, digitalization of the tax system, digital accounting and information ecosystem.

The main text of the article. The active penetration of digital technologies into various areas has necessitated the introduction of digital transformation

processes in them and adaptation of all sectors of the economy to it. An analysis of foreign experience shows that such a transformation is carried out on the basis of digital platforms that integrate production, infrastructure and social processes and form digital service ecosystems on this basis. Moreover, a number of authors consider the development of such digital ecosystems to be one of the main conditions for the formation of the sixth technological order. At the same time, the formation of such digital platforms is unthinkable without taking into account the features and problems of traditional businesses, which, of course, are regional agro-industrial clusters. These features include, first of all, sectoral features of the central sphere of these clusters – agriculture. These most important features of agribusiness include: its biological basis; seasonality of production and sales, use of resources; the need to preserve fertility, as the most important factor in the main means of production – land [1, p. 87-89]. The term ecosystem, which came to the economy from biology, defines it as a community of living organisms (biocenosis), as well as their habitat and a system of connections that allows them to exchange matter and energy with each other [2, p. 83-88]. The most important condition for the formation of an effective digital innovation ecosystem is the creation of an information environment and information environment. Their main elements are digital technologies, institutions and institutions, culture, markets and innovation infrastructure. For the effective functioning of such an environment, it is necessary to observe a number of systemic principles, which include: the presence of effectively functioning basic institutions; availability of developed financial markets; the level of trust in members of the business community, etc. It is the observance of these and a number of other conditions that should be ensured by the innovation ecosystem, which is understood as a community of economic agents interested in the effective creation, promotion and use of an innovative product by all community members. An analysis of domestic experience and foreign countries shows that the digital transformation of business systems is carried out on the basis of digital platforms, which in turn form digital service ecosystems. The use of digital information ecosystems in regional clusters provides a number of new opportunities, which include:

a) increasing the synergy effect through optimization at all levels of the regional cluster;

b) the possibility of reducing the investment and production cycles of all sectors of the regional cluster;

c) strengthening the flexibility of structures that enable accelerated restructuring, which is necessary when reducing the life cycle of products of the processing industry of the agro-industrial complex;

d) the possibility of improving the institutional, legislative and regulatory framework, strengthening the guarantees of business partners;

e) ensuring a reduction in the costs of all types of resources and transaction costs per unit of production.

Over the last period, national programs of the transition to the digital economy have been adopted by many foreign countries of the world. Scientists even talk about the emergence of a new type of national strategic document, as well as a new process of national strategizing. At the same time, the analysis and comparison of currently existing program documents (digital development programs and strategies) shows, on the one hand, a certain commonality of approaches to the formation of such documents, and on the other hand, significant heterogeneity in the format and content of key initiatives. Thus, according to UNCTAD (United nations conference on trade and development), in 2012-2017, 102 digital strategies were developed in various countries of the world (table 1).

Table 1

Digital development strategies in foreign countries

Region	All strategies	Infrastructure	Digital business
Developed countries	32	27	21
Джерело Countries with transition economies	11	10	6
Developing countries	59	54	40

Source: [3].

The G20 countries have developed strategies for the development of the digital economy for the medium and long term. Each of the adopted programs has its own

specifics, but all of them are aimed at solving national tasks and rely primarily on national innovation systems, since the digital economy will become an important driving force of the world economy in the coming years (table 2).

Table 2

Digital strategies of the G20 countries

Country	Strategy	Main accents
USA	National Broadband Plan [4] Digital Economy Agenda [5]	Ability to access broadband; high-speed Internet. Creating an enabling environment for digitization «making America the first in the digital economy».
EU	The digital divide in Europe [6] Digital Agenda for Europe [7]	An open and competitive digital economy. Development of a single digital market.
United Kingdom	Digital Economy Act 2010 [8] Digital economy strategy 2015-2018 [9]	Digital Media Policy – Copyright, Internet Domain Names, Local Radio, Video Games. Encouraging digital innovators; focus on the user; equipment of digital innovators; development of infrastructure, platforms and ecosystems; ensuring sustainability.
Germany	Germany: Industrie 4.0 [10] Digital Strategy 2025 [11]	Cyber-physical systems, Internet of things, cloud computing. Digital independence, digital infrastructure, data security.
France	Digital 2020: France [12]	Development of fixed and mobile broadband. Promotion of digital applications and services, especially e-government or e-commerce.

Source: [4-12].

Even a superficial analysis of existing programs, strategies and plans for the development of the digital economy, as well as a review of the achievements within the G20, testify to the significant attention paid to this issue in the leading countries of the world.

The advantages of the digital economy for enterprises of the agro-industrial complex of Ukraine include (fig. 1).

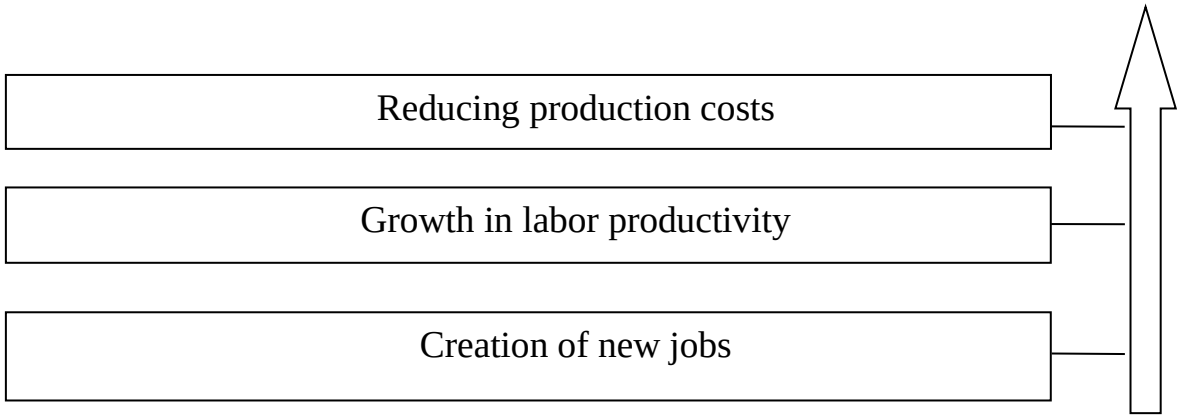

Figure 1. Positive aspects of the digital economy (compiled by the authors)

One of the aspects of the digital economy is the conduct of business activities with the storage of data in electronic form and the processing of information in large volumes, this makes it possible to obtain accurate analytical reports that form the basis for optimizing accounting and other business processes. The ways of informatization of the agricultural industry are shown in figure 2.

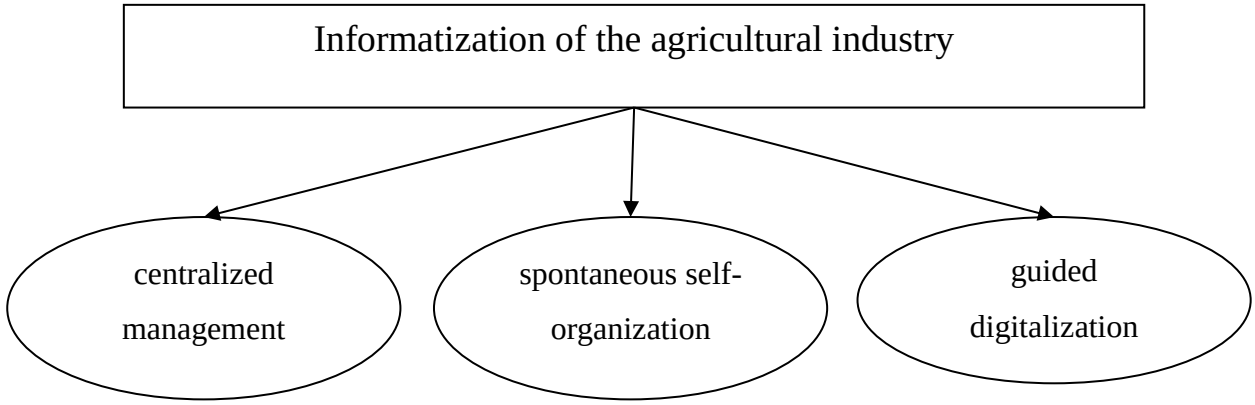

Figure 2. Ways of informatization of the agricultural industry (compiled by the authors)

The essence of centralized management is that all stages of digitalization are regulated by legal acts. The implementation of the norms, which are approved at the legislative level, is controlled by state structures. Spontaneous self-organization is characterized by a change in the social component in order to adapt the population to modern business conditions. For the development of the digital technology segment, it is necessary to prepare a developed information and communication infrastructure. To solve the tasks set before the digital economy, we need appropriate knowledge

bases, interactive communities, a wide network of business integration platforms, and personnel that can work in new conditions. Such an integrated approach will create a digital ecosystem in which each participant will play a dual role – a client and a data server. This will form the basis for subject-oriented clusters within which agrarian digital ecosystems function.

We have identified the following factors that have a direct impact on the digitalization of agriculture in Ukraine: 1) features of rural entities (territory size, economic potential, production capabilities of the region); 2) organization of labor; 3) management technologies used; 4) the degree of automation of the control system; 5) professional qualities of agricultural workers; 6) the level of staff interest in the results of the farm.

It is impossible not to take into account the risks of the digital economy: 1) the risk of cyber threats associated with the problem of protecting personal data; 2) the growth of unemployment in the labor market, the risk of the disappearance of some professions will increase. This will happen due to the further spread of information technology; 3) «digital divide» (a gap in digital education, in terms of access to digital services, and, as a result, a gap in the level of well-being of people in the same country or in different countries).

At the present stage, digital technologies are used only by individual business entities. This follows from the fact that developers of software for the needs of the agro-industrial complex do not have complete databases that are necessary for the creation and operation of specific technologies. The efficiency of digitalization of the agricultural industry can be increased by creating an electronic platform for the sale of agricultural products. Transactions on this platform will be concluded not only with intermediaries, but also with consumers, which will reduce the margin of intermediaries.

It should be noted that the digital platform will allow each participant to receive reliable, up-to-date information on the promotion of goods from the manufacturer to the consumer. This will increase the time for the return of funds and reduce bank rates, since banks will receive additional guarantees of return, receiving

information about the goods pledged. The role of technological digital platforms in the agro-industrial complex is contained in ensuring effective communication, stimulating direct interaction between farmers and stakeholders, such as scientific institutions, public structures.

In the Ukrainian agro-industrial complex, digitalization is at an early stage. Its introduction will reduce production costs and contribute to the growth of financial affordability of food, as well as ensure the rational use of the potential of natural resources.

Computer technologies are increasingly filling the tax system. Tax flows are becoming more difficult to track, transnational value chains create risks of shortfalls in tax payments to the budget. All these aspects also lead to the need to transform the tax system to an adaptive digital platform. However, many scientists still argue how effective this transformation is in the tax accounting of Ukraine (table 3).

Table 3

Advantages and disadvantages of digitalization of the Ukrainian tax system

Advantages	Flaws
Timely payment of taxes and contributions by legal entities and individuals	Low level of provision of the population with electronic means of data transmission
Simplification of the procedure for acceptance and processing of documents by tax authorities	High load on the official website of the tax service
Significant reduction in costs associated with paying taxes and contributions, filing applications and declarations, etc.	Low level of digital literacy of people
Promptly informing citizens about the presence of tax debts	The presence of a threat to national cybersecurity

Source: Compiled by the authors.

So, thanks to the introduction of remote services for legal entities and individuals, the amount of costs that accompany tax processes will be significantly reduced. For example, the need to stay in long queues is eliminated, since now you can get the service of the tax service remotely.

One of the key tasks of the state in the field of tax control is to ensure the timely payment of assessed taxes and contributions, which can also be successfully implemented through the digitalization of the tax system.

This advantage is associated with time savings, which is formed due to the

absence of the need to visit the territorial tax authority to submit documents and make all relevant payments. Thus, the formation of a remote system determines the accelerated service of taxpayers.

Another advantage of the digitalization of the Ukrainian tax system is the simplification of the procedure for accepting and processing documents by tax authorities. In tax practice, there are often cases of loss of documents by specialists of the tax inspectorate. However, the use of remote methods for obtaining documents greatly facilitates the work of tax services.

Among the positive effects of the use of electronic services in the field of taxation, one can also highlight the prompt notification of taxpayers about the presence of arrears in payment. Today, on the official portal of the tax service in personal accounts, taxpayers are given the opportunity to receive detailed information on current tax liabilities.

A significant drawback of the digitalization of the tax system of Ukraine is the low level of digital literacy of the country's population, which includes computer and information components.

According to the analytical center «The Village», as of 2019, only 53.5 % of the population have a sufficient level of literacy in the field of computer and information technology [13]. Young people aged 10-17 have the best digital skills, they received a share of 61.6 % in the «above average» category. In general, 15.1 % of Ukrainians do not have such skills, and 37.9 % of citizens have a low level.

During the period of forced self-isolation introduced due to the spread of coronavirus infection in 2019-2021, many taxpayers and payers of contributions were not ready for remote work due to the low level of digital literacy. To ensure the growth of this indicator in Ukraine, it is recommended to carry out a number of activities presented in figure 3.

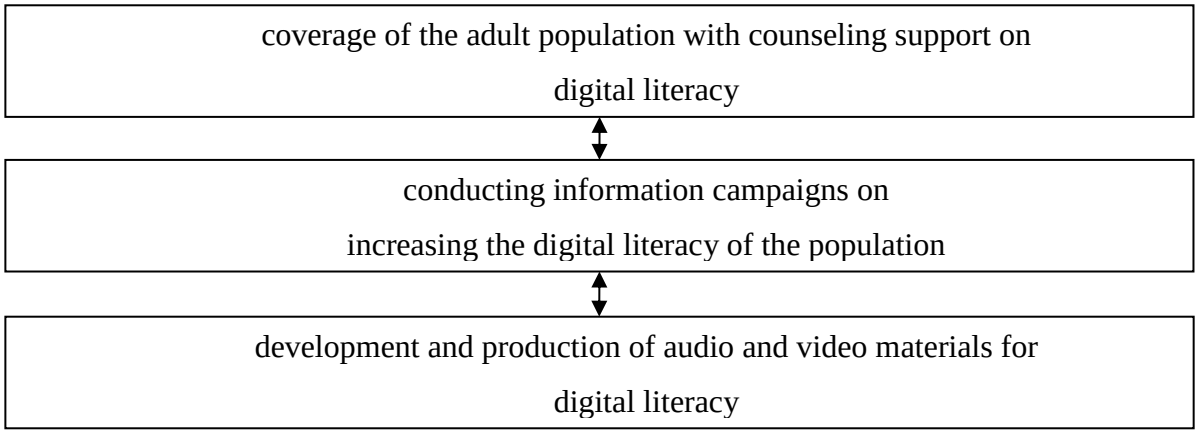

Figure 3. Measures to improve the level of digital literacy of citizens of Ukraine (compiled by the authors)

Among the shortcomings of the digitalization of the tax system of Ukraine is the occurrence of interruptions in the operation of the site when a large number of applications (documents) are received. The solution to the problem can be the creation of separate Internet resources aimed at servicing payers for specific types of taxes. The disadvantage of using remote services in any area (including tax administration) is the possibility of a cyber attack on the server. The state needs to take care of the protection of citizens' data by creating and implementing special systems for encrypting transactions.

So, the assessment of the digitalization of the Ukrainian system showed that along with the benefits of introducing computer (information) technologies into the accounting and management system, there are factors that hinder its development. During the study, various measures were proposed to overcome the conditions that limit the process of digitalization of the Ukrainian tax system.

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