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IMPROVING THE VALUE CHAIN IN AGRICULTURE THROUGH THE USE OF DIGITAL TECHNOLOGIES

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Annotation. The article examines the issues of improving digital economic relations in agriculture based on the concepts of IFarming, Agriculture 4.0, Farming 4.0 va Smart Farming related to the digitalization of the value chain, suggests directions and a model for improving the efficiency of the value chain based on digital transformation and digital technologies.
Keywords: *digitalization, value chain, Farming, Agriculture 4.0, Farming 4.0, Smart Farming, stratagems.*

Enter. The strengthening of digital economic relations requires a radical change of the competitive environment not only in management activities, but also in agriculture, and the use of new principles and methods of creating economic value. Because digitization processes are large-scale, and changes do not occur only within the enterprise or the entire agro-industrial complex, but also cover all links of the value creation chain. The use of digital technologies in agriculture began in the 1990s (sensory analysis, machine programs, etc.) and was widely used in the efficient allocation of land resources, placement of crops, and modeling of the placement of agricultural production forces. enabled to increase efficiency and productivity based on new approaches. At the same time, modern science and technology achievements (drones, robots, agro-meteo, farm management software and electronic platforms, electronic trading platforms) have created the concept of "smart agriculture".

Analysis of literature on the subject. M. Porter's scientific research aimed at researching the value creation chain from foreign scientists, highlighting the importance of the value chain in achieving competitive advantage, as well as the digital transformation processes in agriculture and increasing the efficiency of the value chain, land resource management, agricultural commodity producers issues of improving economic relations between Farming 4.0, IFarming, Agriculture 4.0 and Smart Farming related to digitization of the value chain in agriculture are reflected in the concepts.

In the researches of S.R. Topildiyev from Uzbek scientists, "...the ways of consistent development of agricultural production, further strengthening of the country's food security, reduction of cotton cultivation areas, establishment of intensive gardens and improvement of the melorative condition of the land", in the researches of Z.T. Teshaboyeva "...the use of digital technologies in ensuring the sustainable development of agriculture, the ways of effective use of digital technologies in the formation of "smart agriculture" were studied." At the same time, the urgent tasks of forming a continuous chain of value creation in agriculture create the need to improve the efficiency of the value creation chain in cotton-textile clusters based on the use of digital technologies.

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Analyzes and results. Consumer value or value means the level of value and value given by the consumer to a product or service based on the perception of its usefulness and usefulness. Value creation, on the other hand, refers to the process of creating and applying products, services and/or rationalization solutions that are highly valued by consumers. A value chain is also a network's own barriers to entry, preventing other participants from freely entering and securing more value. Barriers to entry into the market are unique stratagems, allowing to maintain a strong position, to create and maintain a competitive advantage, and to create a mechanism for the effective use of unique resources and opportunities.

Also, the value chain in agriculture includes all subjects and processes from suppliers of agro-resources, chemical fertilizers and tools, agricultural machinery and technologies to final consumers. Especially today, as a new link in the value creation chain, the chemical industry, machinery and food industry, wholesale and retail intermediaries, commercial banks, entities providing transportation, loading/unloading and storage services of agricultural products the fact that it has also entered creates the need to use digital technologies in this regard.

Modern approaches to increasing the efficiency of the value chain promote the need to achieve a high degree of consumer orientation, the idea of offering products and services that can satisfy the need at a high level. However, the fact that the production of products in agriculture depends on many factors (type of crop, variety, climate, soil fertility, weather, placement of crops, agromelioration measures), on the other hand, the implementation of specific measures with each type of crop, requires the delivery of necessary agricultural resources, chemical fertilizers and tools, agricultural machinery and technologies to the right place, at the right time, in the right quantity, with the right quality and at the lowest cost. Both approaches can be integrated using digital technologies that enable the collection, transmission, processing and application of industry information. This is primarily the concept of "smart agriculture" and refers to the digital transformation of the field based on the use of touch analysis (TouchMe), wireless communication (WiFi), big data analysis (Big Data), drones and robotic technologies.

We believe that it is appropriate to improve the value creation chain based on the use of digital technologies in the following directions:

Digitization of activities. The value chain should be implemented first by digitizing ITTKI, production, logistics, marketing, sales promotion and after-sales service. In this case, the fields of agricultural and animal husbandry activities of farms, necessary agro-resources, chemical fertilizers and tools, modeling of delivery of agricultural machinery and technologies, development of software, value in all links of the chain of processes more use and digitization of information related to creation.

Digitization of logistic information flows. First of all, special attention should be paid to digitalization of tangible and intangible flows. Information about land resources, climate, soil fertility, seed production, breeding is recorded with the help of various machines and equipment with the help of modern equipment and technologies as intangible flows. Today, it is possible to collect more than 10 GB of data during the season on one crop. With the increase in the flow of information in the field, continuous information exchange is necessary for the price and consumer characteristics of agricultural products, ordering, selling them, quality control, processing various suggestions and objections of consumers.

Digitization of relations. Today, various Internet and mobile applications should be developed in order to expand inter-farm economic relations, create value in cooperation, and

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create an agricultural ecosystem based on the concept of "smart agriculture". Today, companies that produce modern digital technologies, consulting firms and agricultural commodity producers to participate in the digitization of relations, for example Weather Company offers weather information, Alphabet Company offers investments in the use of artificial intelligence. are doing Agriculture 4.0 has established continuous retraining of agricultural personnel, training in modern knowledge, skills and training.

Digitization of management process. As we mentioned above, due to digitization, it is recommended to establish "digital management centers" in order to develop various start-up projects in agriculture, to create an architecture of relations, to simplify contractual relations, in the processes of value creation in cooperation between enterprises. ripening (Table 1).

Table 1

The main directions of digitization in agriculture

Digital service of agro-meteorological information	with the help of digital meteorological devices, it is possible to conduct field work based on the analysis of data on air and soil moisture, weather, soil temperature, wind speed, etc., and optimize agricultural production costs
Smart farming	Effective placement of agricultural crops are technologies, technical tools and management decision-making systems aimed at managing productivity parameters affecting plant growth. An important aspect of digitization in this direction is planning of crop placement, fertilization based on soil fertility, unbiased calculation of land tax rates, application of plant protection tools.
Smart Animal Husbandry	With the help of new digital devices, it is possible to study the feeding system of animals, to continuously monitor their physiological state, feeding and fattening, pregnancy. As a result, it will be possible to monitor the health of animals, develop individual rations for their effective treatment and feeding.
Big Data	agricultural forecasting allows to process a large amount of various information in making management decisions
Agrarian management	is an integrated management system for agricultural producers, which involves the use of satellite images, video analysis, sensor analysis data, weather stations, etc.
Global tracking systems of agricultural machinery (agrotracking)	It allows continuous monitoring of the movement of agricultural machines and optimization of routes. With the help of tracking technologies, it is possible to prevent negative situations such as the location of vehicles, their movement across the territory, and unauthorized exit from the field.
Unmanned aerial vehicle technology	Used by farmers for crop planning, harvesting, field mapping, and land inventory, it enables regional and national productivity modeling and forecasting.

Source: Developed by the author.

In our opinion, improving the efficiency of the value creation chain based on the use of digital technologies serves to improve its effectiveness based on the improvement of the

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traditional value creation chain, the formation of a database in agriculture, and the formation of the digital value creation chain (Figure 1).

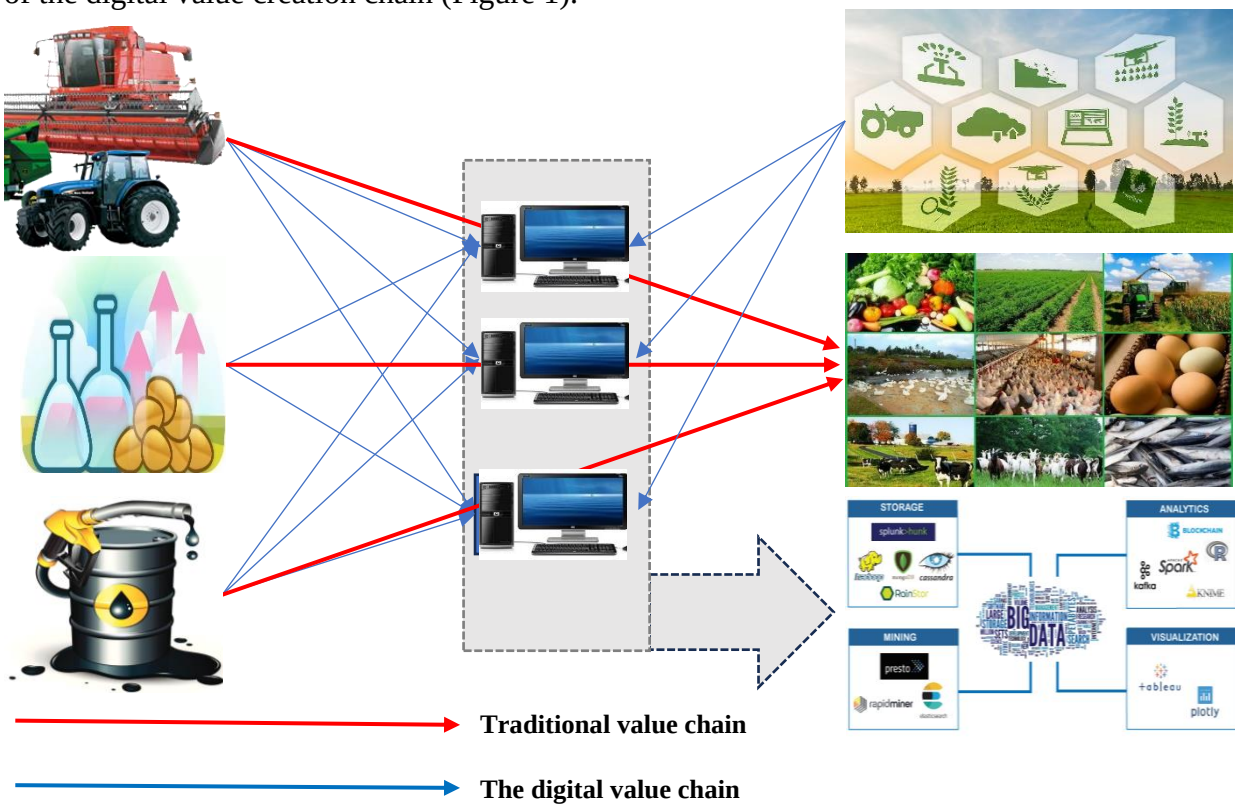

Figure 1. A model for improving the efficiency of the value creation chain in agriculture based on the use of digital technologies

Source: Developed by the author.

Conclusions and suggestions. The efficiency of the value creation chain in agriculture remains complicated by the lack of effective economic relations between the links in the value chain.

In this regard, we believe that the following suggestions should be put into practice:

- in order to aggregate economic entities in agriculture with the help of a digital coordinator, it is necessary to implement intensive and extensive measures to combine information from various digital platforms;

- it is necessary to effectively solve the issue of developing the principles of data use by the participants of the value chain and ensuring its cyber security.

- development and implementation of the national platform "digital agriculture" in the direction of digitization of agriculture.

- development and assessment of the ranking of the digitization level of economic entities in agriculture. Based on this rating, it is possible to assess the level of digitalization in the republic and to reach such ratings as the ICT Development Index (ICT Development Index), the Global Connectivity Index (GCI) and the e-Government Development Index (EGDI).

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