

ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN THE AGROINDUSTRIAL COMPLEX

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ABSTRACT

The article examines the role of information and communication technologies in the agro-industrial complex. The world and Uzbek experience of using ICT in the agro-industrial complex is presented, the main problems of introducing ICT are stated.

Keywords: information and communication technologies, agro-industrial complex, "electronic agriculture".

INTRODUCTION

Information and communication technologies (ICT) continue to transform the way we live, work, communicate and increasingly play an integral role in supporting sustainable development. New technologies change not only the way products and services are produced, but also create new opportunities for the realization of civil rights, self-realization of the individual, gaining knowledge, educating a new generation and spending leisure time.

In the information society, distances are shrinking, globalization is taking place, and unprecedented opportunities are created for the regions. At present, one of the main tasks of the development of the agro-industrial complex of the region remains the intensification of agro-industrial production, namely, the automation and complex mechanization of agricultural production. In this regard, for a more efficient and sustainable functioning of economic entities in the region in market conditions, it is necessary to use advanced information and communication technologies [1].

As studies by the Higher School of Economics show, there are significant differences in the level of demand for technologies among agricultural producers of different types in Uzbekistan. Insufficient potential for the introduction of modern technologies in small and medium-sized farms is a significant barrier to the modernization of the agro-industrial complex.

In world practice and European practice, the experience of agricultural work directly depends on information and communication technologies. Particular attention is paid to the construction of telecommunication networks, which allows local farmers to integrate into the common information space. In particular, the technologies of remote e-learning of specialists employed in the agro-industrial complex are very promising, minimizing the costs of training and advanced training. The development of information and communication technologies contributes to the generation of electricity and the expansion of transmission lines in agricultural regions.

Distributed information processing technologies and cloud storage technologies may have high potential. An obvious advantage is the ability to combine computing power to solve the most

complex problems and implement modern highly efficient information systems in the agro-industrial complex, depending on current needs. The efficiency of collection, storage and processing of empirical data significantly increases when conducting research and analyzing the effectiveness of the use of certain agro-industrial technologies [2].

Recently, another term has appeared in the world - "e-agriculture", which is a developing area aimed at increasing agricultural production through the improvement of information and communication processes.

To create electronic agriculture, unified electronic systems are being formed that allow for full monitoring and analysis of the effectiveness of agriculture in the country. This information system combines the subsystems used in the registration of agricultural producers (farmers), identification of land allotted for agricultural work, registration and identification of animals, their health and productivity. It also includes managing the application for financing for agricultural projects, the farmer lending system, as well as leasing operations and the registration of agricultural machinery. All these data will be sent online to a single processing center, which allows you to quickly identify problem areas in the agricultural sector and promptly make optimal decisions to improve the efficiency of the country's agriculture [5].

In agricultural production in Uzbekistan, three levels of computerization can be distinguished: development of automation systems for managerial and financial-departmental activities (ACS); computer-aided design (CAD) systems; process automation systems (APCS). The development of each level was carried out independently of each other, in accordance with the requirements of disparate divisions.

The Uzbek agro-industrial complex was also characterized to a greater extent by the automation of routine work, rather than the strengthening of the intellectual capabilities of managers. The most famous technologies are implemented in the framework of applied computer programs:

- Programs were developed to optimize the placement of crops in zonal systems of crop rotation and animal feeding rations;
- For calculating the doses of fertilizers;
- Carrying out a complex of land surveying and land management; maintenance of the state cadastre of the history of fields and the development of technological maps for the cultivation of agricultural crops;
- Regulation of plant nutrition and microclimate in greenhouses;
- Control over the storage process of potatoes and vegetables, the quality of cultivated products and feed, soil pollution;
- Assessment of the economic efficiency of production; management of technological processes in poultry houses, production processes in the processing of poultry meat and storage of products and much more [3].

The information and consulting services created in many regions of Uzbekistan help rural producers to make better decisions, however, for the development of production, it is necessary to make different decisions, taking into account external factors. Advance information on the occurrence of adverse factors (weather conditions, the spread of pests and disease outbreaks,

changes in the market situation) and possible risks must be carried out through developed information and communication technologies and automated information systems.

The use of geographic information systems in crop production makes it possible to obtain more accurate data on the soil, on the peculiarities of sowing certain seeds or on the required amount of fertilizers, which makes it possible to increase the yield. For example, in the process of growing some crops, it is extremely important to observe a certain amount of seeds that must be planted on the site. This process can be monitored using special equipment that has information about the yield levels in different parts of the field over the past years. At the end of the harvest period, the IT monitor records the performance of each area. This data is then automatically sent to the geographic information system for further analysis and planning of the next sowing work. GIS allows you to regulate almost any calculations in crop production: they update and build maps of land, control the movement of agricultural machinery, process data and calculate technological operations.

With the help of mobile information and communication technologies, information is transmitted about the current state of agricultural land, about the extent of drought or floods, about people in disaster areas. The proliferation of mobile technologies improves and simplifies direct dialogue between consumers and manufacturers. For example, in South Korea, the farmers' association has released its own mobile application K-Farmers, which provides all information about the origin of products, stages of production, information about the technologies used to buyers directly. The platform helps to build trust between farmers, processing companies and potential consumers. And farmers get the opportunity to sell their products on their own, without intermediaries. In this way, they can expand the sales market during the harvest season.

In Brazil, local farmers have started using an electronic monitoring system for animal movements. The innovative BovControl platform instantly provides ranchers with information on herd movements and cow health. The data is constantly updated, which allows not only to monitor the current situation, but also to predict processes for the future.

Thus, the use of modern information and communication technologies is one of the main conditions for the effective development of the agro-industrial complex. It is necessary to introduce and develop "e-agriculture", to train highly qualified IT specialists in the field of agriculture, to improve the knowledge and skills of small and medium-sized agricultural producers. In other words, information and telecommunication technologies in the agro-industrial complex of Uzbekistan should provide automated data exchange at the federal, district, regional and district levels.

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