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INNOVATIVE AND DIGITAL APPROACHES TO DEVELOPMENT OF THE AGRO-INDUSTRIAL COMPLEX

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Abstract: *The development of information technologies has a significant impact on almost all sectors of the agro-industrial complex: production, trade, finance, etc. According to the analysis conducted by FAO, agriculture and food production are undergoing transformations under the influence of digital technologies, their ubiquity, portability and mobility. In the agricultural and food sectors, the spread of mobile technologies improves access to information for small farms, which allows increasing production and productivity, optimizing the supply chain and reducing transaction costs.*

• Introduction

Today, many countries around the world are introducing the possibilities of using digital technologies to accelerate and multiply innovative ideas with a high potential impact on food and agriculture, turning digital solutions and services into global public goods.



Picture 1. The agritech industry is using data, AI and other emerging technologies to solve problems that plague the agriculture sector. Much attention is paid to the introduction of existing and advanced technologies, the development and expansion of new services, tools and approaches to empower rural households and stimulate youth entrepreneurship in the field of food and agriculture. High-tech production and modernization of the agro industrial complex with the help of information, communication and digital technologies, the scale and rate of digital transformations should become a priority of the economic development of the agricultural sector.

• Material and method

The theoretical, methodological and informational basis of the study was made up of scientific works of Tajikistan and foreign scientists, recommendations on digitalization of the UN, FAO, OECD, the World Economic Forum and the international consulting company PwC, as well as regulatory planning documents and digitalization strategies in countries.

The study is based on the application of scientific methods of analysis, synthesis and generalization, statistical analysis.

• Results and discussions

Digital agriculture is an industry based on modern methods of production of agricultural products and food using digital technologies (Internet of Things, robotics, artificial intelligence, big data analysis, e-commerce, etc.), which provide an increase in labor productivity and reduce production costs. Agriculture in modern conditions should become consistently efficient and environmentally friendly, i.e. help to purposefully use production resources with minimal waste to produce food with high quality and minimal impact on the environment.

Digitalization strategy involves analyzing the existing business model and identifying digital solutions that accelerate transformation. Consider key technologies and their role in improving the sustainability and efficiency of agriculture. These technologies will largely determine the competitiveness and adaptability of the enterprise.



Picture 2. Innovation can have a game-changing impact on those involved in the agriculture sector, but change doesn't come easy, or without challenges.

Agricultural production, whether it is a livestock farm, a field with sown crops or a greenhouse, uses all kinds of sensors, drones and unmanned aerial vehicles (UAVs), robotic equipment, unmanned tractors and other technologies that are digitalization hardware. The software allows you to "revive" technical devices, update and adjust their efficiency.

• Conclusions

Thus, e-agriculture is a powerful tool to stimulate food production and income growth for agricultural producers by increasing agricultural efficiency, improving living conditions and developing the value chain. It can also play an important role in addressing some of the most pressing agricultural problems, including climate change, biodiversity loss, drought, desertification, etc.