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THE EFFECT OF THE DIGITAL ECONOMY ON ECONOMIC GROWTH IN OUR REPUBLIC (IN AGRICULTURE)

Submission Date: November 09, 2024, Accepted Date: November 14, 2024,

Published Date: November 19, 2024

Crossref doi: <https://doi.org/10.37547/ijmef/Volume04Issue11-10>

Karieva Gulnora Abdullayevna

Dosent, Tashkent State Agrarian University, TSAU, Uzbekistan

Normurodov Sarvar Norboy o'g'li

Assistant, Tashkent State Agrarian University, TSAU, Uzbekistan

ABSTRACT

Digitization of agriculture is one of the urgent tasks on the agenda, which will serve to ensure high economic growth in agriculture in the future. In general, the digital economy is the use of the results of analysis of processes and the processing of large volumes of data, which allows to significantly increase the efficiency of storage, sale and delivery of various productions, technologies, equipment, goods and services, information in digital form is the main A factor of production is a calculated activity.

KEYWORDS

Digitization, digital economy, information, innovative technology, innovation, communication, software, internet, owner, service, infrastructure.

INTRODUCTION

In the Address by the President of the Republic of Uzbekistan, Sh. Mirziyoyev, dedicated to the completion of the main works carried out in 2022 and

the most priority directions of socio-economic development of the Republic of Uzbekistan in 2023, "... creation of conditions for the rapid development of the

digital economy, further improvement of the state administration system, expansion of its use possibilities, use of modern infrastructure are of great importance"1. The Farb business was one of the first to actively adopt new means of communication, digitized everything possible, obtained the legalization of electronic digital signatures from the government, established digital communication not only within the business community, but also in the state, government agencies have gradually integrated their information systems.

Agriculture and food production are going digital, ubiquitous, mobile and mobile. For example, the spread of mobile technologies, remote sensing, and distributed computing in the agriculture and food industries will improve smallholders' access to information, inputs, and markets, thereby increasing production and productivity, optimizing supply chains, and reducing transaction costs.

There are a number of conditions that determine the format of digital transformation in agriculture, including:

- a minimum set of basic conditions enabling the use of technologies: connectivity to support digital strategies, financial literacy, computer literacy, skills in the field of ICT, as well as political measures and programs (e-government);
- factors that enable the assimilation of technologies: the use of the Internet, mobile phones and social networks, skills in the use of digital technologies,

supporting the culture of innovation and entrepreneurship in the agro-food sector (talent development, hackathons - acceleration of learning programs, business incubators, accelerator programs, etc.).

There are a number of basic conditions necessary for the implementation of digital transformations in the food sector, as well as the use of digital technologies. These are the availability of infrastructure and connectivity (mobile subscriber, network coverage, internet access and energy supply), financial capability, level of education (literacy, ICT education) and institutional support.

Access to digital technologies provides small farms and other rural enterprises with access to suppliers, access to information, recruitment of talented workers, formation of strategic cooperation mechanisms, access to markets and consumers, legal, financial and educational services. I can provide a significant advantage in disclosure. In this regard, the introduction of digitalization of rural areas may be accompanied by some problems. All over the world, the share of the rural population is decreasing, and their opportunities for employment and education are limited. Lack of infrastructure, as well as basic information technology infrastructure typical for communities with a large share of indigenous people and remote rural communities. The costs associated with the creation of information technology infrastructure pose a major barrier in rural areas, as

there are many financial challenges in areas that are typically very poor and mostly developing.

In the age of digitalization, ICT, including mobile phones and computers, have revolutionized the methods of access to knowledge and information, and fundamental changes have been achieved in the use of business activities and services. However, there are significant digital divides within and among countries' domestic economies.

In recent years, the number of smartphone owners and users of broadband mobile technologies in developing countries has grown much faster than in developed countries, but the number of subscribers using broadband Internet in developed countries is twice as much as in developing countries. Using digital technologies requires a basic level of literacy, numeracy, and some technical knowledge and skills. In societies where digitization is becoming the strongest driving force, people without these skills are at risk of being left out.

In human society, the agrarian sector is a source of resources for people's livelihood and industrial sectors. Digitization of the industry will significantly change the nature of work and the demand for specialists and their skills. The demand for computer literacy of specialists in the agro-food sector is increasing, which requires organizations to take a creative approach to organizing such training and retraining.

There are several important factors that contribute to the digitization of agriculture. The three main factors

are the use of agricultural social networks, mobile networks and Internet knowledge sharing services by farmers and workers; availability of skills to use digital technologies among villagers; an economic environment that encourages rural entrepreneurs to implement innovation and digital technologies.

The easiest path to digital transformation is in high-tech industries related to software development and distribution. In addition, the financial sector and the service sector are rapidly modernizing. Among the industrial enterprises, significant progress is being observed in the production of chemical industry and mechanical engineering. Almost all industries are inevitably involved in the global digitization process [2].

The modern economy is post-industrial, and it is often called the economy of new, innovative, knowledge, competence, network interaction. It should be noted that this series of definitions, on the one hand, have different meanings, but on the other hand, they describe the same period of economic activity. The combination of two sectors - agro-industrial complex (AIK) and software development (software) opens up great opportunities for Uzbekistan.

As we can see, agriculture is unattractive due to the long production cycle, natural hazards and large yield losses during cultivation, harvesting and storage, inability to automate biological processes and no advancement in productivity. and novelty. The use of information technology in agriculture was mainly

limited to the use of computers and software for financial management and business monitoring. Recently, farmers have started using digital technology to monitor crops, livestock and various elements of the agricultural process.

When technology companies focused on agriculture, technology developed and a sharp step was taken in the segment, they learned to manage the entire cycle of crops or livestock with the help of smart devices that transmit and process current parameters together with partners. From each of them, the object and its environment (instruments and sensors that measure soil parameters, vegetation, microclimate, animal characteristics, etc.), as well as unobstructed communication channels between them and external partners. It is possible to automate the maximum number of agricultural processes by connecting objects into a single network, sharing and managing data based on the Internet of Things, increasing computer performance, creating a virtual (digital) model through the development of software and cloud platforms. Idi Creation of the entire cycle of production and interrelated chain links, as well as with mathematical precision, planning the work schedule, taking emergency measures to prevent losses in case of identified risks, possible income, production costs and profit calculation.

"Goldman Sachs predicts that next-generation technology could increase global agricultural productivity by 70% by 2050" [3].

Agriculture is on the brink of the Second Green Revolution. According to expert accounts, thanks to Internet-based precision farming technologies, even with the advent of tractors, an increase in yields on a scale never before seen by mankind, the emergence of herbicides and genetically modified seeds.

The world population is growing. In 30 years, humanity will need 1.7 times more food than the current production. For this, serious modernization of agriculture is necessary.

According to United Nations projections, the world's population will reach 9.8 billion people by 2050, and food production will need to increase by 70% to feed it [4].

This means that farmers must change their production processes to make them as efficient as possible.

Technologies have developed, become cheaper and improved to such a level that for the first time in the history of the industry, it was possible to obtain information about each agricultural object and its surroundings, mathematically accurately calculate and predict the algorithm of actions. result.

The industry farthest from IT has begun to receive information. And with them, requests for vacancies for professionals in the field of Big Data, Data Science, mathematics, analytics, robotics.

Digitization and automation of the maximum number of agricultural processes is included as a conscious need in the development strategy of the world's largest agro-industry and engineering companies.

By 2010, there were no more than 20 high-tech agricultural companies in the world, and during 2013-2016. Investors have invested in more than 1,300 new technology startups with a total value of more than 11 billion dollars in 4 years. A new investment segment AgroTech (Agrotech) was formed, which surpassed FinTech (Fintech) in 2014. Canada, India, China and Israel are also active.

The long value chain of agricultural products and the many unsolved problems in the sector that can be solved with the help of IT and automation are among the main reasons for the investment attractiveness of the industry.

Currently, elements of agriculture and modern IT tools include: [6]

- SMT: GPS / Glonass trackers, fuel sensors;
- Animal activity sensor / bolus;
- Personal identifiers (RFID cards, IButton);
- parallel driving systems;
- precise farming systems;
- UAV / drones;
- Smart weather stations;
- Weighing instruments;
- IP cameras;
- Smartphones / Tablets;
- Animal milking systems;
- ERP systems.

The concept and essence of digital technologies in agriculture.

The standard processing schedule (continuous irrigation, fertilizers, chemicalization) does not take into account local characteristics and natural variability and leads to an ineffective result - overuse of resources or undetected problems. Drought or excess moisture, lack or abundance of fertilizer, weeds and insects require immediate intervention. An outbreak of the disease can occur unexpectedly, and it is not always easy to determine its cause; with late detection and improper treatment, the disease can destroy part of the crop.

During the season, the farmer has to make more than 40 different decisions: what seeds to plant, when to plant, how to treat, how to treat a sick plant, etc. field. Lack of information for decision-making leads to loss of up to 40% of the crop during planting, cultivation, care. Another 40% is lost during harvesting, storage and transportation. As scientists have found, except for the weather, 2/3 of the loss factors can be managed with the help of automated management systems (Hi-Tech Management) [5].

The task of IT is to maximize the automation of all stages of the production cycle in order to reduce losses, increase production efficiency and optimize resource management. But even in this case, the result is only for plants or animals that are ready for harvesting, but the profit is not guaranteed, because the harvest needs to be collected, stored, processed and transported to the buyer / consumer. Further automation shows a high level of digital integration,



which affects the most complex organizational changes in business, but their implementation can dramatically affect the profitability and competitiveness of the product and the company as a whole. Combining the received data with various smart IT applications, processing them in real time, will revolutionize decision-making for the farmer, which will provide the results of the analysis of many factors and the basis of further actions. In addition, the more sensors, sensors and field controllers are connected to a single network and exchange data, the more intelligent the information system will be and the more useful information it will provide to the user.

According to Uzbek experts, the general level of automation and informatization of agricultural enterprises has not developed satisfactorily. Even providing farms with the simplest information technology - a computer connected to the global information network "Internet" - is the biggest problem for Uzbek farms. At the moment, based on statistical data, we can observe the following picture

of the use of information technologies in agriculture around the world (Table 1).

The table shows that the most intensive use of information technology is found in the European Union. At the same time, the use of computers to communicate with the global Internet rarely exceeds 50%. Most farmers work to provide food for themselves and their families and do not consider it necessary to increase the informatization and automation of farms. But recently, a lot of work has been done to introduce information technologies in the agro-industrial complex. This applies primarily to programs for optimizing the placement of agricultural crops in zonal crop rotation systems and animal feeding rations. Practical computer programs have been developed for calculating the doses of fertilizers, regulating the nutrition regime of plants in greenhouses, as well as managing technological processes in the processing and storage of meat and meat products. There are land development and land complex programs.

Table 1
Farmers using information technology (2024 data)

| Country | Number of farmers | Number of personal computers | Share of farmers | Number of Internet users | Share of user farmers |
|---------|-------------------|------------------------------|------------------|--------------------------|-----------------------|
| | | person | % | person | % |
| Norway | 70 000 | 52 000 | 74.3 | 40 000 | 57.1 |
| Denmark | 60 000 | 48 000 | 80 | 30 000 | 50 |
| Finland | 80 000 | 50 000 | 62.5 | 40 000 | 50 |



| | | | | | |
|---------------|---------|---------|------|--------|------|
| Netherlands | 100 000 | 60 000 | 60 | 50 000 | 50 |
| Switzerland | 30 000 | 24 000 | 80 | 14 000 | 46.7 |
| Great Britain | 80 000 | 60 000 | 75 | 30 000 | 37.5 |
| Germany | 170 000 | 75 000 | 44.1 | 55 000 | 32.4 |
| Japan | 426 000 | 144 000 | 33.8 | 52 000 | 12.2 |
| Spain | 100 000 | 45 000 | 45 | 10 000 | 10 |
| France | 330 000 | 110 000 | 33.3 | 25 000 | 7.5 |
| Italy | 260 000 | 80 000 | 30.8 | 10 000 | 3.8 |
| Poland | 200 000 | 100 000 | 50 | 5 000 | 2.5 |
| Czech | 175 000 | 30 000 | 17.1 | 4 000 | 2.3 |
| Russia | 275 000 | 9 000 | 3.3 | 3 000 | 1.1 |

Currently, the Republic of Uzbekistan ranks 76th in the world according to the BCG rating for the development of the digital economy. Calculation of the BCG digitization index is based on the growth dynamics of online spending and user activity. However, like most indexes, the BCG digitization index is a statistical indicator with a percentage of conventionality [8].

Agro-industrial complex (AIC) is the most important inter-sectoral complex. It was created to provide the population with food and is one of the main priorities of the economy. AIC is a complex bioeconomic production system. Its central link is agricultural production, its main resources are land, climate, weather, along with tools and labor resources, which together constitute bioclimatic potential.

In the world of digital technologies, innovative technologies must be introduced for effective management in all areas of life. New tasks in agriculture: feeding the growing world population, meeting the need for high-quality food products and services, increasing the profitability of the agricultural

enterprise, and increasing labor productivity are the problems.

1. The digital economy has enormous potential to stimulate economic development in all sectors, including agriculture.
2. The Internet significantly activates existing markets for goods, services and labor, as well as the principles of operation of the agricultural sector.
3. The directions of further research can be seen in the development of proposals for solving the problems of digital transformation of agro-industry, in the development of a system for ensuring digital economic security.
4. For these purposes, the republic should work on the creation of technological parks, research and production clusters and other innovative projects, extensive and convenient training of farmers in digital literacy, introduction of digital technologies, coverage of rural areas of the country. Implementation of e-governance in the area and farm activities with 5G or higher Internet.

5. All these measures require large financial investments from the state, the training of farm workers and specialists to train the population in the basics of the digital economy. put in public service.

Thus, the "Digital Uzbekistan-2030" program is not the next major state project of the country, it is an important aspect of the innovative activity of the Republic of Uzbekistan, and its main goal is not only to reach a high level. development, but also integration and interaction with the developed countries of the world.

CONCLUSION

In conclusion, it should be said that the qualitative development of economic sectors, social sphere and state management system in the current period of human development and in the near future is directly related to the widespread introduction of digital technologies. The prospect of our country's development depends on the development of the digital economy and the level of coverage of digital technologies.

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