

# Research on the Present Situation, Problems and Countermeasures Under the Integration of Digital Economy and Agricultural Economy

Zhuowen Shan, Fei Wang, Yang Tao and Yuan Feng

Anhui University of Finance and Economics, Bengbu, 233030, China

---

**Abstract:** Based on the actual situation of economic development in rural areas of China, this paper explains the practice of the integration of rural economy and digital economy. At present, with the development of digital economy, the integration of digital economy and agricultural economy has become the basic way to improve the development level of agricultural modernization, and it is also an important means to promote the high-quality development of rural economy, the structural reform of agricultural supply side and the rural revitalization strategy. However, as far as the current development stage is concerned, there are still problems in digital infrastructure, digital sharing, personnel training and related laws and regulations. According to the related problems, this paper puts forward corresponding solutions, and strives to provide more theoretical and guiding experience for the realization of China's agricultural modernization development and rural revitalization strategy.

**Keywords:** Digital economy, Rural economy, Development, Agricultural modernization, Rural vitalization.

---

## 1. Introduction

Digital economy uses digital technology and related digital knowledge as an important production role, and Internet information technology and Internet as the cornerstone of development, thus reinvigorating the development of the whole social economy. China is a populous country in the world, and agriculture, as the primary industry, is the most important thing. Agricultural economy is the general name of economic relations and activities in agriculture. Agricultural economic development has the advantages of land and labor force, but it lacks information support and relevant personnel support in the process of development. Therefore, it is necessary to change the present situation through the integration of digital economy and agricultural economy[1]. The integration of agriculture and digital economy can solve the information asymmetry, improve the quality and efficiency of agriculture, increase farmers' income, improve rural conditions and build new towns. However, there are still many problems in the mode of integrated development of digital economy and agricultural economy, and the basic construction of data and information, the popularization of science in digital economy, the reserve of talents, salary treatment, the formulation of relevant laws and regulations, etc., need to be constantly improved. At present, according to China's development trend, the mode of integrated development of digital economy and rural economy is still in the initial stage, but it has been strongly supported by the state. In 2020, the Digital Agriculture Rural Development Plan (2019—2025) issued by the Ministry of Agriculture and Rural Affairs pointed out that digital agriculture rural economy will provide a blueprint for the construction of modern countryside in the next few years[2]. Therefore, by analyzing the problems and obstacles of the integration of digital economy and agricultural economy, this paper summarizes relevant experiences, further puts forward suggestions for the integration of agricultural economy and digital economy, and provides more theories and experiences for realizing agricultural economic modernization and implementing rural

revitalization strategy.

## 2. The Background of the Integration and Development of Agricultural Economy and Digital Economy

At present, promoting the integration of digital economy and agricultural economy is the key to the transformation of agricultural economy to modernization. With the rapid development of modern information technology, digitalization has been quietly integrated into various fields and industries. As of December 2020, the number of Internet users in China has reached 989 million, and the number of mobile Internet users has reached 986 million. The Internet penetration rate in China has reached 70.4%, basically realizing that everyone has a network, and rural Internet users account for about 30%, and the number of Internet users continues to grow[3]. With the popularity of the Internet, rural farmers can enjoy the convenience and benefits brought by the Internet from agricultural products sales, education, medical care and other aspects. As a new product of the integration of agricultural economy and digital economy, rural e-commerce[4], live broadcast+selling goods and other new online trading industries have begun to flourish, and mobile phones have become new "farm tools". Being an e-commerce live broadcast seller has also become a new occupation for farmers. This form is a new product in the development mode of the integration of agricultural economy and digital economy, and it is also a successful measure. In addition, digital technology also plays a vital role in rural medical insurance, old-age service, rural agricultural environmental protection and new rural education. With the all-round popularization of the Internet, the transformation of the whole people towards the digital age will become an important goal of the development of digital economy at present and in the future. The "14th Five-Year Plan" puts forward: "Develop digital economy, promote digital industrialization and industrial digitalization[5], promote the deep integration of digital economy and real economy, and

build a digital industrial cluster with international competitiveness." All these provide policy opportunities for the integration and development of agricultural economy and digital economy. The integrated development of digital economy and agricultural economy is a new model of agricultural economy in the digital era, and it is an important guarantee for promoting the modernization of rural agriculture, rural revitalization, building digital China and further realizing the grand goal of a modern agricultural power.

### **3. Practice under the Development Mode of Agricultural Economy and Digital Economy Integration**

Driven by the new digital technology, the concept of digital development has moved towards agriculture. With the support of big data, it is inevitable to make better use of big data information to develop agricultural economy, innovate the way of developing agriculture and realize the integration of agricultural economy and digital economy[6]. The integrated development of the two should proceed from theory and practice, pay attention to the pilot of new industrial economy, sum up relevant experiences and shortcomings, and then carry out comprehensive reform. The No.1 Document of the Central Committee in 2018 proposed to strengthen the integration of digital economy and agricultural economy to better promote the digitalization of rural agriculture. Local governments also promulgated relevant policies to support the integration and development of agricultural economy and digital economy. From the central government to the local government, and then to the grass-roots level, there are relevant and powerful policies to support the integration and development of agricultural economy and digital economy. Internet, big data and other related digital technologies have been applied to agricultural economy. For example, China Academy of Agricultural Sciences began to use unmanned aerial vehicle remote sensing to irrigate crops accurately[7], which effectively solved the water shortage judgment of crops and the amount of water needed for irrigation, and better saved water resources and realized accurate utilization.

The application of digital technology has greatly changed the traditional agricultural form. In the face of the current epidemic situation, the sales and processing of offline agricultural products can't be carried out normally, so e-commerce agriculture is booming during the epidemic prevention period. "Live broadcast with goods" has also become a new trading mode[8], which is increasingly favored by young people. It has also solved the backlog and unsalable situation of some agricultural products, better promoted the transformation of consumption patterns, increased the income of farmers, improved the living environment and quality of rural areas, injected new vitality into the development of new digital economy in China, and became a new engine of modern agricultural transformation[9].

In addition, the integrated development mode of agricultural economy and digital economy can not only bring new benefits, but also carry out more reasonable scale production through new data calculation, improve the production efficiency of rural agriculture, and provide more high-quality schemes for agricultural production. Through the matching calculation of big data, a complete new model of digital agriculture development is established, the communication and sharing of agricultural information are

realized in real time, and the agricultural economy under the traditional model is gradually changed to achieve sustainable development[10].

According to the above examples, it shows that the new model of the integration of agricultural economy and digital economy has been implemented, and it has brought benefits to the development of agricultural economy. The integration of agriculture and digital economy can promote the development of rural agricultural economy, reduce labor costs, increase crop output, form a brand-new industrial sales chain, and promote the development of new industries. Driven by the digital economy, it has also activated the idle production resources in rural areas, promoted new-style farmhouse music, experienced life in rural tourism, built an innovative rural industry integrating ecology, production, creation and sales, and better promoted the implementation of rural revitalization strategy[11]. The integration of digital economy and agricultural economy has also improved the financial system in rural areas, making traditional rural cooperatives online, and the integration of traditional financial institutions and digital technology has improved the rural financial service system. Innovate the new form of rural agricultural insurance, make use of digital technology big data information, better disclose relevant data and form a transparent and healthy insurance system. Spread relevant agricultural and rural insurance knowledge in WeChat WeChat official account to improve farmers' safety awareness. The new insurance form can reduce farmers' losses, promote the development of rural insurance, and better protect farmers' own interests.

### **4. Problems Existing in The Integration of Agricultural Economy and Digital Economy**

Although some achievements have been made in the integration of agricultural economy and digital economy, there are still many problems and obstacles from the current development situation.

#### **4.1. Digital technology has not been popularized, and the construction of information infrastructure is not perfect**

At present, the country's rural Internet penetration rate has not reached the level of full popularization. The development of digital economy needs to rely on the network as a bridge for communication and development. The infrastructure such as the signal station in rural areas and the construction of 5G network are still imperfect, and the digital facilities in rural areas of China are relatively lacking, which have brought challenges to the integration and development of agricultural economy and digital economy. Although there have been many improvements in infrastructure construction in recent years, the popularization and dissemination of digital technology is still a big problem. The lack of relevant knowledge is the biggest problem in the implementation of the integrated development model of agricultural economy and digital economy.

#### **4.2. Lack of digital talents and preferential treatment in rural areas**

Professional digital talents are an essential condition for the integration and development of agricultural economy and digital economy. However, due to the low academic qualifications of rural labor force, the aging of rural

population, the shortage of college students, and the imperfect facilities of education, medical care, health care, housing and transportation, relevant talents cannot be retained. Grass-roots cadres in rural areas also lack digital knowledge, and there is no relevant treatment and reward to attract digital technical talents to station in rural areas to develop rural economy. The shortage of digital technical talents in rural areas will cause the integration and development of agricultural economy and digital economy to fail to operate normally. Recently, the adjustment of relevant policies, the influx of college student village officials and cadres in rural areas have slightly eased the problem of the lack of professional talents in rural areas, but it still cannot fundamentally solve the actual demand.

### **4.3. No relevant information sharing and reward system**

Effective information sharing can further promote the integration of agricultural economy and digital economy. There is no integration and sharing of agricultural data and information in rural areas, and the integration of agricultural information by local governments is also different. The lag and lack of information leads to the absence of an efficient information sharing system and low utilization rate of agricultural economy. Therefore, it is urgent to integrate agricultural information in rural areas and establish a perfect information sharing system. Secondly, there is a lack of reward system, attraction to related rural enterprises and investment in financial assets, and a good digital atmosphere, which also reduces farmers' enthusiasm and awareness of digital economy. Farmers' willingness to build digital agriculture is insufficient, and their willingness to participate in the integration and development of agricultural economy and digital economy is not strong.

### **4.4. The policies and regulations of the integrated development model of digital economy and agricultural economy are still imperfect**

The most important thing for the integration of agriculture and digital economy is the support of policies and regulations. At present, although a series of relevant laws and regulations have been issued, there are still data protection regulations. It is the most important part of the digital economy, and personal data is easy to be stolen. Telecom fraud and online fraud lead to the leakage of users' personal information. The laws and regulations of data protection are not perfect, the relevant data can't be fair and transparent, and it's difficult to realize its value. In the face of data disputes, there are still legal gaps, so it's urgent to improve the relevant laws and regulations. At the same time, there is a lack of relevant policies and laws on how to use the integration of rural economy and digital economy. Market management in the integration of digital economy and rural economy also needs to be strengthened and standardized, and a good and standardized development environment is urgently needed. The lack of relevant laws and policies is not conducive to the further optimization of the integrated development model of agricultural economy and digital economy.

## **5. Measures to Solve the Problem of Integration and Development of Agricultural Economy and Digital Economy**

### **5.1. Vigorously popularize digital and other related technologies and improve the construction of information infrastructure**

As mentioned above, at present, China's rural Internet penetration rate has not reached the level of full popularization, and the construction of base stations in rural areas is still very backward. This requires the three major operators of China to invest some manpower, material resources and financial resources, and divide the work according to the demand. Just like the State Grid Corporation of the early 21st century, it made up its mind to make every household have electricity. As far as the base station construction technology is concerned, its technical content and complexity are far lower than that of power grid construction, while some remote areas still have the reasons for the lack of base stations, which requires the three major operators not to pay too much attention to the immediate interests, but to take a long-term view. Although some areas already have base stations, the popularization of relevant knowledge has not entered the village. In the near future, when people are familiar with the knowledge of digital technology as well as the knowledge of electricity safety, China's digital economy and agricultural economy will be perfectly integrated.

### **5.2. Focus on cultivating relevant talents and encourage them to go to the countryside**

Development can't be separated from talents, and compound talents who know the digital economy and are familiar with the agricultural economy are just what is lacking today. China should vigorously cultivate such talents, for example, universities should set up related majors, and relevant units should organize personnel to attend regular training. At present, college students are encouraged to go to the countryside, but their majors are not classified too much. They should be trained by classification and arranged reasonably. The living conditions in rural areas are far worse than those in cities, and education, medical care, transportation and entertainment are not perfect enough. It is difficult to attract young people through our own efforts. At this time, the government or relevant departments need to introduce relevant policies to attract talents into rural areas. Only through such talents, training villagers and working step by step can the problem be completely solved.

### **5.3. Optimize information sharing in rural areas**

The present age is the information age. If we want mutual benefit and win-win, we need to unite all forces that can be united and share information, so as to win greater success. However, at present, in rural areas, some professional information, such as agricultural data information and economic data information, is relatively blocked, and the information acquisition is not perfect, so the utilization rate of information is also greatly reduced, which reduces the use efficiency of information. There is a lack of effective information integration platform in rural areas, so it is very

important to establish an information integration platform. Information is uploaded to the platform by different departments in the same area, and then the platform unifies the information, eliminates useless information, keeps effective information, and draws a conclusion after integration, and then pushes it to the platform. Officials and villagers in villages and towns can check it online by themselves.

#### 5.4. Establish relevant encouragement policies to increase investment opportunities

The beginning of promoting the integration of agricultural economy and digital economy needs the participation of modern technology, and the subsequent development also needs the support of funds. It is difficult to do it all by government financial allocation and farmers themselves. Therefore, a series of preferential policies can be adopted to attract relevant enterprises to settle in, which can achieve better results in a shorter time, not only benefiting farmers themselves, but also enterprises. When enterprises reach a certain scale, they can also provide jobs for local villagers.

#### 5.5. Improve relevant policies, laws and regulations

As far as the current development situation is concerned, China's relevant policies are still imperfect, and there are many loopholes, such as the protection of personal information. Personal information leakage has even become a common occurrence. After the combination of agricultural economy and digital economy, every household will be connected in series, which involves specific personal information, such as name, telephone number, ID number, home address, etc. And in the subsequent development process, it is easy to have incomplete information or even errors caused by some reasons, which will cause artificial losses. Therefore, in order to prevent all kinds of data from being leaked and ensure the authenticity and integrity of the data, it is necessary to intervene the law, so as to better integrate the agricultural economy with the digital economy and make the development mode of the agricultural economy and the digital economy go better, faster and further on the right road.

### 6. Enlightenment

The integration of agriculture and digital economy is the general trend, and some foreign or domestic regions with rapid development are already enjoying the dividends brought by the integration of agricultural economy and digital economy. Facts have proved that if the combination of the two methods is proper, supported by policies, and the enthusiasm of farmers and enterprises is high, it will bring benefits without harm. It also makes outstanding contributions to China's agricultural development, improving land utilization rate, improving labor production efficiency, increasing

farmers' income and reducing agricultural cost. It also plays a positive role in China's rural revitalization strategy, accelerating farmers' poverty alleviation and prosperity, and accelerating rural revitalization and development. Agriculture should conform to the development of the times. Today, when science and technology are so developed, we should take the initiative to move closer to high technology, so that the primary industry can regain its vitality.

### References

- [1] Cui Xiaomei, Xu Minghua, Li Fuxia, Peng Jinhai. Innovation and practice of new agricultural economic management system in the context of digital agriculture [J]. Shanxi Agricultural Economy, 2022 (13): 79-81. DOI: 10.16675/j.cnki.cn14-1065/f.2022.13.026
- [2] Lian Junhua Digital financial development, rural inclusive finance and agricultural economic growth: empirical evidence from China's county data [J]. China Soft Science, 2022 (05): 134-146.
- [3] Du Yuanyang. Research on the Cultivation of Commercial Cultural Quality from the Perspective of Digital Agricultural Economy [J]. Agricultural Economics, 2022 (05): 142-144.
- [4] Wang Jingyuan, Duan Xinyu, Jiang Ying, Gu Yingnan Analysis on the Current Situation and Countermeasures of Digital Agriculture Driving Agricultural Economic Development in Heilongjiang Province against the Background of Rural Revitalization -- Take the Rice Industry in Tonghe County, Harbin City, Heilongjiang Province as an Example [J]. Modern Commerce, 2022 (13): 129-131. DOI: 10.14097/j.cnki.5392/2022.13.031
- [5] Li Jiaying Research on high-quality development of Sichuan citrus industry from the perspective of digital economy [D]. Sichuan Academy of Social Sciences, 2022. DOI: 10.27346/d.cnki.gssky.2022.000112
- [6] Cui Huixia. Demand, mechanism and path of integration of digital economy and agricultural economy [J]. Agricultural Economy, 2022 (04): 6-8.
- [7] Feng Qingjun. Analysis on the Effective Integration of China's Digital Economy and Agricultural Economy [J]. Southern Agriculture, 2022,16 (06): 115-117. DOI: 10.19415/j.cnki.1673-890x.2022.06.038
- [8] Hou Jinting. Research on the Path of E-commerce Direct Broadcasting Helping Agricultural Economic Development in the View of Digital Economy [J]. Shanxi Agricultural Economy, 2022 (04): 130-132. DOI: 10.16675/j.cnki.cn14-1065/f.2022.04.040
- [9] Xu Miao, Hao Rujie, Luo Yiping. High Quality Development of Digital Enabling Agricultural Economy [J]. Science and Technology China, 2021 (12): 46-50.
- [10] Ma Cuicui. Research on the Integration and Development of Digital Economy and Rudong's Agricultural and Rural Economy [J]. Investment and Entrepreneurship, 2021,32 (19): 75-77.
- [11] Cai Zhizhen, Su Xiaodong. Opportunities, obstacles and strategies of rural economy in the field of digital economy [J]. Agricultural Economy, 2021 (07): 35-37.