A Brief Analysis of the Problems and Countermeasures of Agricultural Financial Management under the Digital Era

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Abstract: As the primary industry, agriculture has a very important strategic position. Today, in the digital information age driven by digital technology, the development of digital agriculture is the general trend. However, in the process of digital transformation, agricultural financial management faces many challenges, such as the problem of data integration and standardization, the lag and inadequacy of technology application, the gap of talent and capacity, and the lag of regulations and standards. In view of these problems, this paper puts forward countermeasures such as strengthening the construction of data infrastructure, promoting technology integration and innovation, training and introducing digital talents, and improving laws and regulations and industry standards. Through the implementation of these measures, we can effectively promote the digital transformation of agricultural financial management, improve the efficiency and accuracy of financial management, and provide a strong guarantee for the sustainable development of agriculture.

***Keywords*:** digital era; agricultural financial management; problems; countermeasures

1. Introduction

In recent years, with the rapid development of science and information technology, various digital technologies have been integrated into the economy and society, marking the arrival of the digital era. The new wave of science and technology has improved the production mode of human beings, and also enhanced the productivity of all walks of life. Agriculture is not only a basic industry, but also a weak industry. Agricultural financial management has always been one of the shortcomings of the development of new quality productivity, digital transformation is imperative. In the digital era, agricultural financial management should not only adapt to the new technological environment, but also solve a series of problems caused by it, so as to ensure the sustainable, stable and efficient development of agricultural production.

2. Analysis of problems existing in agricultural financial management in the digital era

2.1 Incompatibility of financial information system

In the process of digital transformation of agricultural financial management, the incompatibility of financial information systems has become a major obstacle. This problem is mainly reflected in the difficulty of integrating agricultural data from different sources and formats into a unified financial management system, resulting in serious data island phenomenon. For example, farms use a variety of equipment and software, and each system may have its own data storage format, making data exchange and analysis across systems extremely complicated[1]. Due to the lack of a unified industry standard for agricultural financial management, which leads to low efficiency of financial transmission and sharing, there are still many difficulties to overcome in the digital upgrading of agricultural enterprises.

2.2 Limitations of traditional financial management tools

In the context of the digital era, the limitations of traditional agricultural financial management tools have become increasingly apparent. These tools are often based on static data and linear analysis, which is difficult to cope with the dynamic and complex nature of agricultural data. For example, traditional financial budgeting systems may not be able to effectively integrate real-time information from multiple sources such as farm sensors, meteorological data, supply chains, etc., leading to inflexible and inaccurate decision-making. In addition, these tools may not have sufficient computing power and algorithmic support to perform advanced predictive analytics, such as predicting crop yield fluctuations or market price changes, which are essential for risk management in agricultural enterprises.

2.3 Lack of digital skills

In the context of the current digital era, agricultural financial management is facing severe challenges, among which, the

lack of digital skills has become a key factor hindering the transformation. The diversity and fragmentation of agricultural data lead to the problems of data integration and standardization. For example, the production data, meteorological information, soil quality and other data formats of small farmers are different, and the lack of unified standards makes data analysis and decision support difficult[2]. In addition, financial managers may lack the necessary knowledge of programming, data analysis and artificial intelligence technology to make full use of modern technology tools to improve management efficiency. On the other hand, the limitations of traditional financial management tools are particularly evident in the agricultural sector. Many agricultural enterprises still rely on manual bookkeeping or simple financial software, and these tools often do not have data mining and predictive analysis functions, which are difficult to meet the needs of modern agriculture for accurate prediction and risk control.

3. Discussion on countermeasures

3.1 Application of cloud computing and big data in agricultural finance

With the digital transformation of agriculture, the application of cloud computing and big data in agricultural finance has increasingly highlighted its value. On one hand, cloud computing provides powerful computing power and storage resources, enabling agricultural enterprises to process massive data such as farmland monitoring, production and sales. For example, through the cloud platform, agricultural enterprises can integrate real-time soil moisture, light intensity and other information from IoT devices to optimize planting strategies and reduce production costs. On the other hand, big data technology integrates the agricultural industry chain and provides data analysis services to help business leaders make better decisions. For example, by applying big data analysis, agricultural enterprises can forecast output more accurately, so as to adjust sales strategies and inventory management and reduce financial risks. In addition, cloud computing technology breaks the information island, realizes data sharing across departments and enterprises, thus improving the efficiency of financial management.

3.2 Application of fintech in agricultural financial management

With the rapid development of digital technology, the application of fintech in agricultural financial management has become increasingly important. The amount of data in the agricultural field is huge and complex, including soil data, climate data, crop growth data, etc. The integration and analysis of these data is very important for optimizing financial decisions. For example, through in-depth mining of historical agricultural data, crop yields can be predicted, market supply and demand changes can be predicted. Therefore, agricultural financial institutions assess credit risks more accurately. In addition, financial management systems based on cloud computing and big data can realize real-time update of financial data and automatic report generation, improving financial transparency and decision-making efficiency. For example, through the integrated financial cloud system, agricultural enterprises are able to monitor cash flow in real time and quickly identify potential financial risks, so as to take timely countermeasures[3].

3.3 Cooperate with technology enterprises to introduce advanced solutions

In the digital transformation of agricultural financial management, cooperation with technology enterprises is crucial. Technology companies possess advanced data analysis tools, cloud computing platforms and mature solutions that can help agricultural enterprises effectively cope with the challenges of data integration and standardization. For example, by cooperating with tech giants such as Alibaba and Tencent, agricultural enterprises can leverage their big data processing capabilities to integrate dispersed farmland data, production data and market data into a unified platform to achieve data standardization and value mining. This cooperation model not only improves the efficiency of agricultural financial management, but also provides strong support for advanced applications such as precision agriculture and predictive analysis. In addition, bringing in fintech solutions from technology enterprises, such as blockchain technology, enhances the transparency and security[4] of agricultural finance. For example, IBM's blockchain platform has been used in the food supply chain to track the whole process of agricultural products from the field to the table, ensuring traceability and authenticity of financial transactions.

3.4 Digital training of agricultural finance talents

In the digital transformation of agricultural financial management, talent is a crucial driving force. Faced with the diversity and fragmentation of data, financial managers need to master the skills of data integration and analysis in order to extract valuable information from massive agricultural data. Therefore, the digital training of agricultural financial talents should become a strategic focus, and the data literacy and analysis ability of talents should be improved through customized education programs. The training content may includes basic data science courses, such as statistics, data visualization and

predictive models, to enable finance personnel to effectively integrate and interpret agricultural data[5]. At the same time, the government is supposed to cooperate with technology enterprises, bring in the latest digital tools and platforms for practical operation training, such as the financial application of cloud computing platform and the application of blockchain technology in agricultural supply chain finance. This cooperation mode is able to ensure the cutting-edge and practical training content, and help agricultural finance talents quickly adapt to the ever-changing technology environment.

4. Concluding remarks

China is a big agricultural country with a long history. Promoting high-quality agricultural development is an important topic. In the digital era, the development of agriculture not only requires advanced production factors, but also needs to apply scientific and technological means to improve the level of financial management and promote the digital upgrading of agricultural enterprises. Based on this, the current challenges can be effectively solved through the application of cloud computing and big data in agricultural finance, the application of fintech in agricultural financial management, cooperation with science and technology enterprises, and the introduction of advanced solutions. In the future, the application of cloud computing, big data, blockchain and artificial intelligence technology in agricultural financial management should be further deepened, so as to comprehensively enhance the competitiveness of agricultural enterprises and accelerate the high-level development of agricultural financial management.

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