Impact of Cloud Computing on Agricultural Product E-commerce

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Abstract. With the development of technology, all parts of the world have gradually entered the 5G era. The advent of the 5G era enables "cloud computing" to complete the processing of tens of thousands of data in a short period of time, helping users to perform data mining and achieve powerful network services. In order to solve the current problems of agricultural product supply, marketing and logistics in China. This paper uses the literature survey method and data analysis to analyze the role of cloud computing technology in data mining. And apply this technology to e-commerce platforms. The application of this technology to e-commerce platforms can promote the development of agricultural e-commerce. It can be seen that under the influence of cloud computing technology, agricultural e-commerce is about to enter a new era.

Keywords: Cloud computing technology, Data mining, 5G era, Agricultural e-commerce

1. Introduction

Traditional e-commerce agricultural product sales have been unable to meet the increasingly fierce market competition needs of the agricultural product market. Our country is a large agricultural country with abundant products. Agricultural products occupy an important position in social and economic development. Agricultural e-commerce has important strategic value in implementing the rural revitalization strategy, deepening agricultural supply-side structural reforms, building a modern agricultural supply chain, and implementing precision poverty alleviation. As far as China is concerned, at the closing ceremony of the 18th China Internet Conference on July 11, 2019, the China Internet Association released the "China Internet Development Report (2019)". It can be seen that the number of netizens in countries around the world has increased significantly. Therefore, we should pay more attention to the development of agricultural e-commerce, rather than satisfy the current situation of agricultural e-commerce. Our eyes should not be limited to our own country. If our agricultural e-commerce is not able to progress, it will inevitably have an impact on China's economic development.

Fengying Zhong (2019) said that China's major e-commerce platforms attach great importance to the Internet marketing of agricultural products. However, there are still many problems in China's agricultural product e-commerce marketing market [1]. Yuli Song (2019) proposed to use "mobile
cloud" technology to improve the e-commerce platform for agricultural products. This will increase customer loyalty and create profits for the business [2]. Franck.Galtier (2014) proposed to support the construction of agricultural e-commerce platforms through market transparency. Consumers can rest assured only if the e-commerce platform has perfect agricultural market information [3]. W. Wen (2007) proposed building an intelligent e-commerce system for agricultural product sales to improve consumer satisfaction [4]. This shows that since the development of computers, researchers have attached great importance to agricultural electronic commerce. The current agricultural e-commerce platforms are more personalized and random. They are less used in cloud computing and data mining.

Use cloud computing technology to build a global integrated agricultural product sales platform. The imbalance between supply and demand of products can be solved. Use cloud computing technology to establish a high-quality data mining monitoring platform and improve the logistics infrastructure service facilities for agricultural e-commerce. Use cloud computing technology to dig deeper into information and establish a sales information sharing center. This can help marketers of agricultural products determine market demand at any time.

2. Cloud Computing Overview
Cloudd computing is a method of selling or leasing computing services and data storage as a commodity, and providing services in the cloud after purchase. Cloud computing technology focuses on how to provide services to different users in a set of software and hardware environments [5].

2.1. Advantages of Cloud Computing Technology
All computing in cloud computing is performed in the cloud. With its automated management and centralized management, it eliminates the need for companies to pay for data center management costs. Therefore, it is cheap for enterprises to use cloud computing technology. Cloud computing technology has unlimited storage space, and the data it stores is more secure. Compared with traditional data storage methods such as USB flash drives, there is no need to worry about data loss and damage when stored in cloud space. All computing in cloud computing is performed in the cloud, so the data storage is even greater. Cloud computing is independent of devices and locations, and users can access the system using a web browser and connect to it from anywhere. And cloud computing realizes shared resources. Any individual server can use the resources stored by cloud computing technology, which increases the utilization of resources. Cloud computing also has measurement services. Cloud computing also has measurement services and monitoring functions [6].

![Figure 1. Advantages of cloud computing technology](image)
2.2. Four Development Stages of Cloud Computing Technology
The first phase of cloud computing is based on virtualization, and more emphasis is placed on the efficient use of resources. The second phase is based on the service of infrastructure resources. Relevant technologies such as software-defined networking and software-defined storage are introduced. The third stage is the integration of infrastructure services, platform services and data services, combining public and private clouds to form hybrid cloud capabilities. We are currently entering the fourth stage of a comprehensive multi-cloud phase.

The multi-cloud phase is based on a hybrid and heterogeneous public cloud and private cloud, forming a comprehensive IT architecture for the cloud. And with the help of the capabilities of Cloud Management Platform (CMP), it can realize the full distribution of business systems, and use cloud capabilities for cross-cloud analysis [7].

![Figure 2. Development stages of cloud computing technology](image)

3. Problems in Agricultural E-Commerce
We have already entered the computer age. With the development of the times, the sales methods of agricultural products have changed [8]. The e-commerce sales platform has become a new battlefield for agricultural product sales. The agricultural product e-commerce sales model promotes China's agricultural product economy. It is an indispensable part of our agricultural product economy. However, there are still many problems in agricultural e-commerce, which hinder the progress of agricultural e-commerce.

3.1. Limitation on the Sales Area
The establishment of an e-commerce platform has allowed some agricultural products to expand their sales areas under the improvement of logistics technology and transportation infrastructure, but their influence is limited. The e-commerce sales channel of agricultural products in China is still not high. Most agricultural product sellers are based on the domestic market and do not have an accurate and clear understanding of foreign markets.

3.2. Insufficient Logistics Infrastructure Service Facilities for Agricultural E-Commerce
At present, the rural express delivery market in rural areas and remote areas in China suffers from chaos, monopoly operation, artificial market division, and incomplete logistics networks, which have led to excessive logistics and distribution costs. In addition, because of the irregular operation of some logistics personnel in rural areas, express delivery is often lost. As a result, the consumer experience is poor. Various reasons prevent rural logistics organizations from keeping up with the rapid development of e-commerce. Therefore, it is imminent to realize the informatization of logistics in all rural areas.

3.3. Frequent Changes in Agricultural Market Information
Agricultural products are obviously affected by the local climate in the production and planting links. It has obvious seasonal and regional characteristics. At the same time, agricultural products have a long planting cycle and large output fluctuations. It is difficult to make flexible adjustments to changes
in agricultural product market information. This has brought huge challenges to agricultural product e-commerce marketing, increased sales risks, and affected the enthusiasm of agricultural product production and sales. Seasonal changes lead to changes in agricultural products, so the customer base on the agricultural product e-commerce platform must change. If the operator is unable to quickly grasp the information of the customer group, this will cause problems in the marketing of agricultural products.

3.4. Online Marketing Channels for Agricultural Products are Costly and Inefficient
Although large-scale agricultural products are now grown in many regions, corresponding agricultural organizations have also been established. However, the costs of negotiating agricultural product circulation, logistics costs, storage costs have not been shortened, and the efficiency is low. In addition, there is no quality guarantee for agricultural products sold in e-commerce platforms, there is no uniform standard for product inspection, and the quality is uneven. The maturity and harvest time of agricultural products varies from household to household, and there is no exact shelf life. This enables companies to spend more on marketing and greatly increases the marketing costs of agricultural product sales.

4. Application of Cloud Computing Technology in Agricultural E-Commerce
To achieve the rapid development of agricultural product e-commerce platforms, we must solve the problems existing in agricultural product e-commerce platforms. However, with the use of cloud computing technology, we have new solutions to these problems.

4.1. Establish a Global Integrated Agricultural Product Sales Platform Through Cloud Computing Technology
Use cloud computing technology for data mining and analysis of consumer information in various countries [9]. This can further expand the coverage of agricultural e-commerce platforms. Due to the combination of cloud computing technology and data mining, it has strong information integration capabilities. After analysis and integration, we can build globally integrated agricultural product sales platform. We will sell agricultural products with excess output and greater supply to China to regions or countries that have demand for this agricultural product.

4.2. Building a High-Quality Cloud Computing Technology Monitoring Platform
To realize the informatization of rural e-commerce logistics, it must rely on accurate link control, intelligent decision support and real-time information sharing of the rural electronic logistics public information platform. This requires us to use cloud computing and big data technology to monitor data, build a high-quality monitoring platform, improve the efficiency of various logistics links, and the environment, and thereby generate an efficient logistics network [10]. Using the monitoring platform can track product logistics distribution, storage, distribution and other information. It enables agricultural product operators and consumers to grasp logistics information at any time, and alleviates the problem of lagging logistics information. The establishment of a monitoring platform can enable rural e-commerce logistics distribution services to share information in time and reduce the risk of information asymmetry.

4.3. Use Cloud Computing Technology for Data Mining to Determine Market Demand at Any Time
The demand for product consumer markets brought by the impact of climate on agricultural products cannot be met in real time. Cloud computing and big data can also be used to achieve global agricultural product integration. Their strong information integration capabilities can achieve global agricultural product integration, thereby breaking seasonal restrictions on product production and sales. Using cloud computing technology for data mining, agricultural e-commerce operators can grasp consumer information at any time. Even if the production of agricultural products cannot be sold locally due to market changes, farmers’ products can meet other market needs.
4.4. Using Cloud Computing Technology can Reduce Costs and Improve Efficiency

The powerful information integration capability of cloud computing technology forms an orderly and effective agricultural product classification. This makes it clear at a glance the type, quantity, and supply and demand of agricultural products. It can also display the quality inspection status and harvest date of various agricultural products in real time. This allows consumers to purchase agricultural products online with confidence and achieve high growth in e-commerce for agricultural products. It can be seen that the use of cloud computing technology not only broadens the marketing channels for agricultural products, but also improves marketing efficiency and reduces marketing costs.

5. Conclusion

By applying cloud computing technology to agricultural e-commerce, the rural trade circulation system will become increasingly complete and the circulation structure will become increasingly complete. Using "cloud computing" technology to mine information resources, you can quickly find target customers and meet the individual needs of customers. Cloud computing technology accelerates the construction of agricultural e-commerce platforms and realizes the steady growth of agricultural e-commerce economy.

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