Research on Innovation of E-commerce Subject of Agricultural Products in Shaanxi County Based on Internet of Things

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Abstract: China is a big agricultural country, and the trade and circulation of agricultural products plays a very important role in the national economy and people's life. With the development of Internet, e-commerce of agricultural products is a revolution of traditional agricultural economy, but the result is not the expected ideal. Relying on e-commerce as a new trading platform, a series of rural characteristic economies such as rural characteristic tourism and characteristic agricultural products have gained new economic growth points. With the concept of the Internet of Things put forward and developed continuously, it has become a trend to apply the Internet of Things in the field of agricultural products e-commerce. Relying on the modern agricultural information technology environment, timely transmission and analysis of agricultural product information is of great significance to strengthen the safety management of agricultural products, the development of tourism added value and the stable development of agricultural products market. This paper starts from the strategic significance of the Internet of things in agricultural products e-commerce, mainly discusses the innovative development ideas of agricultural products e-commerce subject in Shaanxi county.

1. Introduction

China is a large agricultural country, and agricultural product trading and circulation links play a very important role in the national economy and people's lives. Diversified natural resources and rich farming experience have bred many distinctive and high-quality agricultural products in Shaanxi [1]. The mainstay of county economy is agriculture and rural economy. The degree of commercialization and value realization of agricultural products directly affects the level of county economic development [2]. The agricultural product e-commerce business has been initially developed, but compared with other fields of e-commerce business, the development of e-commerce in the field of farm product trade is still slower and the degree of development is not mature [3]. In the operation of the market economy, circulation affects production, and poor circulation of agricultural products will directly affect the process of agricultural modernization, and then affect the development of the county economy and even the development of the national economy [4]. The innovation and development of modern agriculture is one of the effective ways to solve the "three rural issues". Relying on the modern agricultural information technology environment to transmit and analyze agricultural product information in a timely manner is of great significance to strengthen the safety management of agricultural products, the development of tourism added value, and the stable development of the agricultural product market [5].

Since my country's reform and opening up, the pace of the urbanization strategy has been accelerating, and the urban-rural integration economy and the growth of urban population have been highly valued by the state. With the proposal and continuous development of the concept of the Internet of Things, the application of the Internet of Things in the field of agricultural product e-commerce has become a trend. Whether it can promote the development of agricultural product e-

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commerce has yet to be tested in practice [6]. The county economy has a large contribution rate to the gross national product, and the employees also occupy a large proportion. According to relevant policies, the integration of the advanced technology of the Internet with the county economy will surely promote the development of agriculture and facilitate the realization of agricultural modernization. The rapid development of e-commerce models has brought new business opportunities to rural areas in more and more provinces [7]. Relying on the new trading platform of e-commerce, a series of rural characteristic economy, such as characteristic rural tourism and characteristic agricultural products, have gained new economic growth points [8]. With the development of the Internet, agricultural product e-commerce is a revolution to the traditional agricultural economy, but the results have not achieved the expected results. This article starts from the strategic significance of the Internet of Things in agricultural product e-commerce, and mainly discusses the innovative development ideas of the main body of agricultural product e-commerce in Shaanxi county.

2. Strategic Significance of Developing E-commerce of Characteristic Agricultural Products in Shaanxi

2.1. Improve the Standardized Production System of Agricultural Products

The resources and industrial advantages of Shaanxi characteristic agricultural products have not been effectively transformed into commodity advantages and market advantages, and have failed to play its due role in regional economic development and farmers' income increase. E-commerce logistics demand of characteristic agricultural products in Shaanxi county refers to the requirements of time, work volume, space and quality of related items needed for agricultural products production in various links and fields in rural areas. The powerful network marketing function of e-commerce can effectively enhance the brand of Shaanxi characteristic agricultural products, improve the market competitiveness and reputation of products, and has positive significance for making Shaanxi characteristic agricultural products industry bigger and stronger. Giving full play to the advantages of e-commerce and solving the problems in the development of Shaanxi characteristic agricultural products industry are of great strategic significance for adjusting Shaanxi agricultural industrial structure, promoting the upgrading and development of characteristic agricultural products industry, improving the market competitiveness of characteristic agricultural products and increasing farmers' income. Regardless of the upward logistics formed by the online exchange of agricultural products, or the downward logistics formed by farmers' networked consumption and agricultural materials going to the countryside, their common basic demand is speed. E-commerce logistics distribution system of characteristic agricultural products in Shaanxi county should be able to provide its users with the function of tracking and inquiring in the whole process of logistics, so that all participants in agricultural product supply chain can grasp the situation of goods transportation, taking and dispatching in real time. Merchants can also set special two-dimensional codes on the outer packaging of products, and consumers can directly obtain product-related information through mobile phone scanning.

2.2. Realize the Full Monitoring of Logistics Links

Since most agricultural products are fresh products, once there is a problem in a certain part of the logistics, the product cannot be delivered as scheduled, and its impact on product quality is often irreparable. Merchants and logistics companies can use the Internet of Things to uniformly encode agricultural products, embed electronic tags on the outer packaging of agricultural products, and use radio frequency technology to scan electronic tags and enter relevant information at various logistics transfer stations. In different seasons, regional environments and other conditions, different types of agricultural products require different logistics conditions. These demands directly affect the choice of agricultural product logistics demand mode to respond to changes in the logistics environment. Each county has high-quality agricultural products with obvious regional characteristics, which are formed by relying on local unique geography, climate, resource

advantages and industrial foundation and conditions, and are directly related to the specific local resource endowment [9]. The e-commerce of agricultural products in Shaanxi counties can highlight the uniqueness of natural resources to the greatest extent, and at the same time, it can form a certain production scale, give full play to the overall advantages of the regional characteristics of the industry, and make it difficult for the characteristics of local agricultural products to be copied or imitated, forming the core of the agricultural product e-commerce market Competitiveness.

3. Innovation of Main Body of Agricultural Products E-commerce in Shaanxi County

3.1. Accelerate the Construction of Agricultural Product Standardization System

Today, e-commerce has been completely different from the business activities we used to know. It allows consumers to fully understand commodity information through the network. The Internet of Things platform needs to separate the information and transmit it to the e-commerce platform. E-commerce obtains the information transmitted by the Internet of Things platform, and forms the online marketing information of orchards or agricultural products. Through the e-commerce platform, the integration of agricultural product marketing, logistics and payment information is implemented to improve the management efficiency of orchards. Considering that agricultural products are non-standard products and their growing environment is changing rapidly, it is impossible for the network to change its information at any time, that is to say, even if there are standards and specifications, it is difficult to guarantee its quality. Then these problems will be effectively solved in the Internet of Things.

Fresh agricultural products have high requirements for product preservation and logistics distribution. Under the current logistics conditions in China, they are usually sold on a small scale. For a product, it is necessary to locate the pattern of the product. The positioning of the product model is shown in Figure 1.

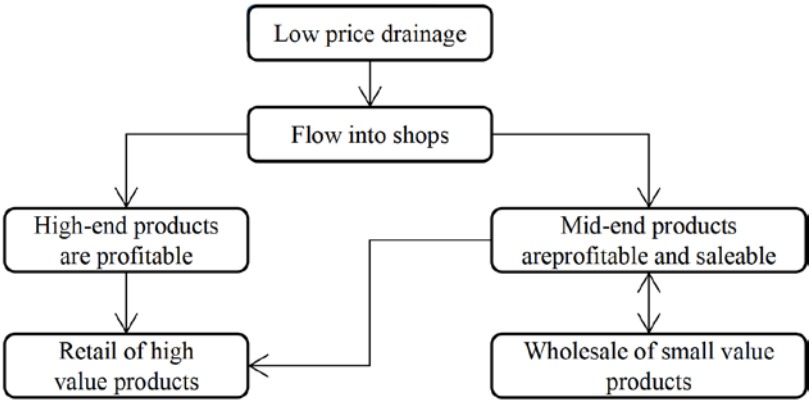

Figure 1 Product model positioning

Through the Internet of Things, we can not only track the distribution process of agricultural products in the supply chain and share information, but also analyze the current situation of agricultural products, predict the probability of accidents that may occur in the future, and accelerate the ability of enterprises to respond to market regulation. The Internet of Things technology can uniformly encode the outer packaging of agricultural products, and embed a thing called electronic tag in it, so that it can use radio frequency technology to read the tag information in the logistics process, thus transmitting the distribution and product data to the information center, and realizing the whole process tracking of the whole logistics distribution process.

3.2. Improve the Ability and Speed of Agricultural Product Information Processing

When entering the information of agricultural products, we need a lot of manpower and material resources. Although we can use barcode technology before, the defect of barcode technology is easy to make mistakes. Therefore, automatic identification technology can help us solve this problem. The information security policy is to access and control the information system in different roles.

Once the instruction to change the data or the operation instruction of production control is found, the identity information will be subjected to multiple authentication such as electronic signature or administrator cross authentication [10]. The Internet of Things provides an efficient and fast network platform for sharing and exchanging agricultural products information. Radio frequency technology and reader-writer can be used not only in statistics of agricultural products, but also in logistics, that is, exchanging information of agricultural products in the process of logistics distribution at any time mentioned above, so as to find product information and location.

In the conceptual model of cloud platform model, cloud platform model entities represent target entities that can participate in the cloud platform model. Figure 2 is a conceptual model of cloud platform mode and urban logistics system.

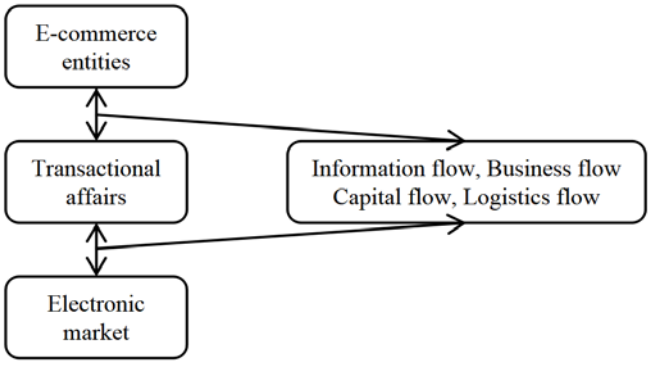

Figure 2 Cloud platform mode and conceptual model of urban logistics system

In order to improve the information security of the information system, when the information is transmitted between different platforms, a dedicated channel is established for access through the designated port, which prevents users from the Internet from directly accessing the Internet of Things database or all operations outside the dedicated channel. Rural economic development must conform to the operating rules of its economic system, so as to maximize the energy efficiency of various resources in the rural logistics system, pave the way for the scheduling and planning of e-commerce of agricultural products with county characteristics in Shaanxi and grasp the development direction.

4. Conclusions

In recent years, China's e-commerce market has developed rapidly, and the transaction scale has gradually expanded. However, compared with cities, China's rural logistics is still relatively backward, and its development is also very slow, so it is difficult to meet the urgent needs of the current new rural construction. Traditional technology has brought bottlenecks to the development of e-commerce trade. The sensing technology and radio frequency identification technology of the Internet of Things are just what the e-commerce of agricultural products needs now. Applying the concepts and technologies related to the Internet of Things to the e-commerce trade of agricultural products, reforming and innovating it can promote the further development of agricultural products trade. Through the Internet of Things, we can not only track the distribution process of agricultural products in the supply chain and share information, but also analyze the current situation of agricultural products and predict the probability of accidents that may occur in the future. In order to fundamentally change the e-commerce of agricultural products in China, it is necessary not only to improve this technology, but also to improve people's understanding of the Internet of Things, so that it can form a scale in the e-commerce of agricultural products. The development of county economy in Shaanxi Province must conform to the operating rules of its economic system, so as to maximize the energy efficiency of various resources in the rural logistics system.

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