

# Analysis and Application of Programming Strategy for Agricultural E-Commerce Software

Daodong Xiang<sup>1, a</sup>

<sup>1</sup>Wenzhou Vocational & Technical College, Wenzhou 325035, China.

<sup>a</sup>Yuegde321@@yahoo.com

## Abstract

**Agricultural products e-commerce is the information technology, network technology and other modern advanced science and technology combined with traditional agriculture, using science and technology to guide the production, organization and processing of agricultural products, in order to improve the agricultural information, modernization, scale, standardization and intelligent level. At present, the application of electronic commerce of agricultural products in our country is basically in the initial stage of the beginning. Electronic commerce of agricultural products is the comprehensive use of electronic commerce technology before and after the production of agricultural products, sales, processing and transportation. Use information infrastructure to carry out activities related to pre-production, mid-production and post-production of agricultural products.**

## Keywords

**Agricultural products, E-Commerce Software, information technology.**

## 1. Project Content

This project mainly aims at the current situation of agricultural development in China, and USES the increasingly perfect e-commerce to establish network information service for the trading of agricultural products, aiming to solve the current situation of the backward information infrastructure of agricultural products industry in China, the low degree of network, and the lack of smooth communication and sharing of information, which leads to the difficulties in the trading of agricultural products. Through the network technology, let the sale of agricultural products from the problem of middlemen exploitation and market information is not smooth. E-commerce can well solve the contradiction between China's agriculture "small farmers and big market", and achieve the docking of agricultural production and market demand. Developing e-commerce of agricultural products can improve the circulation of agricultural products, promote the trade of agricultural products, increase farmers' income, accelerate the strategic adjustment of agricultural and rural economic structure, and improve the international competitiveness of China's agriculture. But at the present stage, our country agriculture and electronic commerce really have no good combination. Based on the above considerations, this project boldly applies e-commerce, which not only facilitates the purchase and payment of consumers, but also facilitates the efficiency of operation and management of farms.

## 2. Project Background

### 2.1. Development Status of Agricultural Products in China

The current situation of China's agricultural development in the agricultural production process of our country adopts a production mode of one family, the production scale of farmers

is small, the ability of individual farmers to capture and analyze information is poor, the response to market information is slow, the production and operation of farmers has a greater blindness and imitation. According to the survey results of economic daily, more than 70% of farmers in China have no idea about the way out of products and what crops to produce. Many farmers only make decisions based on their intuition and experience in production and operation, or make decisions based on the consciousness of "following the crowd".

On the whole, China has entered a critical period of promoting agriculture with industry, taking rural areas with cities, accelerating the transformation of traditional agriculture and taking the road of agricultural modernization with Chinese characteristics. China's agriculture is in the transition from traditional agriculture to modern agriculture and from planned economy to market economy.

First, from the point of view of the supply side, agricultural production and operation are dominated by scattered small farmers.

Second, from the demand side, the supply of agricultural products cannot meet the consumption demand of urban residents. With the improvement of people's living standards, the consumption demand of fresh agricultural products such as vegetables and fruits has changed from the growth of quantity to the pursuit of quality, taste, nutrition and safety. At present, the extensive production mode of small-scale production and decentralized management in rural areas cannot meet the demand for high-quality agricultural products in cities, resulting in serious contradiction between supply and demand. Thirdly, from the perspective of intermediaries, the circulation mode dominated by the wholesale market of agricultural products cannot effectively meet the demand of market circulation.

For a long time, China's agricultural products logistics mainly rely on the following systems to organize.

It's a supply and marketing system. The supply and marketing system belongs to the farmer cooperative economic organization. For decades, supply and marketing departments at all levels have been actively engaged in the acquisition and sales of agricultural products, mainly cotton, including agricultural and sideline products. In the past ten years, the position and function of the supply and marketing system in the purchasing and marketing logistics of cotton and other special agricultural products have been declining, but it still plays an important role.

(2) the food system. The grain system is always responsible for the purchase, storage, transportation, processing and sales of grain as well as the national grain strategic reserve tasks. Grain enterprises are the main body of grain and edible oil logistics. After joining WTO, our country begins to implement grain purchase and sale marketization reform, except the central reserve grain source controlled by the state and the local reserve grain source controlled by the local government, the ordered grain is gradually released, and will eventually go to the market completely. Market-oriented grain logistics is put on the agenda.

3) agricultural products market. Agricultural products market is the product of reform and opening up and the development of market economy, including agricultural products market and wholesale market. In the 1980s, the market began to take off. It took vegetables, livestock and poultry products, aquatic products and other agricultural products as the main logistics objects, and its operators were mainly farmers directly engaged in agricultural production. In the 1990s, the wholesale market developed rapidly, and the logistics objects were not only vegetables, livestock and poultry products, aquatic products, but also grain and oil products and processed products, fruits, tea, Chinese medicinal herbs and flowers and other special products. All kinds of operators are the logistics subjects of different products on the agricultural products market.

(4) it is the main body of other agricultural products logistics. Other main bodies of agricultural products logistics include agricultural products processing enterprises, foreign trade import

and export enterprises, transportation and storage enterprises related to road, railway, water transportation and materials, etc. They are the main bodies of agricultural products export and export logistics. Its logistics objects are agricultural products and processed products, and most of its logistics facilities and equipment are highly specialized. Compared with developed countries, China's agricultural products logistics is still in a backward state. Without a unified information network platform, the information of the whole agricultural products logistics process is blocked, and the upstream and downstream information of the supply chain cannot reach each other smoothly. Producers can not fully grasp the information in the circulation of agricultural products, can not arrange production according to this, resulting in disjointed production and marketing. Agricultural products logistics main body lacks the effective coordination cooperation mechanism, the management way and the method is backward, the efficiency is low.

## 2.2. Basic Element Analysis

The feasibility of establishing an online trading platform for agricultural products has two basic elements: infrastructure and market.

A. In terms of infrastructure, A nationwide agricultural products network information system has been preliminarily established. After searching "wholesale market of agricultural products", we got information of hundreds of wholesale websites of agricultural products. After browsing the contents, we found that although the construction of these websites did not meet the requirements of e-commerce online trading, the prototype of its commercial website had already appeared. In 2004, the national development and reform commission allocated 400 million yuan of Treasury bond funds to support the construction of information system and inspection and testing system of agricultural wholesale markets, and in 2005 it allocated 400 million yuan of Treasury bond funds to support the construction of 119 agricultural wholesale markets. Thus it can be seen that the environment and atmosphere for the establishment of agricultural products trading platform have been mature.

B. Judging from the market situation, people's understanding of e-commerce has been greatly improved in recent years. Both suppliers and purchasers have accepted this business model, which can be confirmed by online research. In addition, the success or failure experience of e-commerce in other industries can also provide reference for the implementation of e-commerce in agricultural products. In China, both B2B and B2C operation modes have been relatively mature.

## 3. Factors Restricting the Development of E-Commerce of Agricultural Products in China

Although our country produce electronic commerce gets certain development. But the overall level of development is low, not only much lower than Europe and the United States and other developed countries, China's agricultural e-commerce penetration rate is far lower than clothing, electronic products. This is because the development of e-commerce of agricultural products in China is restricted by many factors.

Rural e-commerce infrastructure is backward. In China's rural areas, especially in remote mountainous areas, the construction of network infrastructure is slow, and the rural area has become a weak area covered by the network. Some rural areas have not yet been connected to fiber optics. The backward network construction leads to the lagging construction of e-commerce platform related to agricultural products in China, with fewer rural Internet users and low penetration rate of farmers' computers, which affects the development of e-commerce in the front end of the supply chain of agricultural products. According to the statistics of China Internet network information center, in 2011, the scale of rural Internet users was 136 million,

accounting for 26.5% of the total Internet users. In 2012, the number of rural Internet users was 156 million, accounting for 27.6 percent of the total. In 2013, the number of rural Internet users reached 177 million, accounting for 28.6 percent of the total.

The standardization construction of agricultural products is backward. At present, fresh e-commerce platform has yi guo, sf preferred, original life, zhengda world, tian tian orchard and so on. According to statistics, the categories of imported food on these platforms are all over 40%. One of the reasons is that China's agricultural products are not standardized. E-commerce transactions require sellers to display unified and standardized commodity information. As China's agricultural production is mainly based on small-scale production of one household, it is difficult to form a strict quality standard system, and the differences between products are obvious. Due to the lack of a sound quality standard system, China's agricultural products can not be in line with the international standards, which directly affects the international trade of agricultural products, can not give play to the advantages of agricultural e-commerce in international trade. The backward standardization construction of agricultural products in China leads to high return rate in e-commerce activities. Huang gang, the author of the certification of tiger smell net, said that many agricultural products returned by e-commerce reached 10 percent.

Low level of modern logistics. Logistics is a bottleneck restricting the development of e-commerce of agricultural products in China. Our country logistics technology is backward, the countryside logistics facility construction is insufficient, causes our country agricultural product logistics cost to be high. In the online retail of agricultural products, the logistics cost will reach 25% to 40% if the customer unit price (that is, the single transaction volume) is 100 yuan. Similarly, the logistics cost of clothing or electronic products will be less than 5%. Industry data calculation: the unit price of customers is less than 200 yuan, and the e-commerce of agricultural products is in the loss state. The development of fresh agricultural products e-commerce cannot be separated from cold chain logistics. Data show that the circulation rate of cold chain of fruits and vegetables, meat and aquatic products in China is 5%, 15% and 23% respectively, and most fresh agricultural products are circulated at room temperature. The circulation rate of cold chain of meat and poultry in developed countries in Europe and America has reached 100%, and that of vegetables and fruits is above 95%. Obviously, China's cold chain logistics is very backward. The imperfection of cold chain logistics results in the loss rate of agricultural products in circulation of China as high as 25% to 30%. Therefore, it can be seen that cold chain logistics has also become a major challenge to the development of e-commerce of agricultural products in China.

Agricultural products e-commerce talent shortage. At present, the lack of ability to use the network to collect all kinds of agricultural production and marketing information, such as climate data, agricultural production technology and management knowledge and market consumption trends, real-time market, etc.), and analysis of information, production and marketing of agricultural products and quickly respond to market changes, adjust the production and marketing decision-making professionals, it seriously affected the development of agricultural e-commerce in China. It has to be mentioned that farmers, as the main participants in agricultural products trading, have low cultural level, poor computer operation ability and weak awareness of participating in agricultural products e-commerce.

#### **4. China's Agricultural Products E-Commerce Development Strategy**

We will strengthen rural e-commerce infrastructure. Network is the necessary condition to develop e-commerce, rural areas are agricultural products planting center, however, at present, China's rural e-commerce infrastructure is generally weak, therefore, the development of agricultural products e-commerce must pay attention to the construction of rural e-commerce

infrastructure. First, the coverage of the Internet should be expanded to ensure rural coverage. Secondly, it is necessary to integrate the existing rural information facilities, such as radio and television facilities, mobile communication facilities. In addition, it is necessary to promote the construction of China's agricultural products network information system, accelerate the construction of agricultural products e-commerce website, and promote the construction of agricultural products public network information platform.

Establish agricultural products standardization system. In the e-commerce operation, the standardization requirements for commodities are relatively high, while the standardization degree of agricultural products in China is relatively low. Obviously, it is very necessary to strengthen the standardization construction of agricultural products in China. Standardization of agricultural products includes standardization of quality, process and specification. Quality standardization is quality standardization; Process standardization is the standardization of production and processing process; Standardization of specifications involves weight, volume, size and model. In recent years, "clenbuterol", "poisonous rice" and "poisonous leek" have aroused wide attention in the society. Visible, the quality standardization of agricultural products is an important component of agricultural products standardization. And agricultural products quality is under production, such as water, soil, atmosphere, also affected by the technical regulations in the process of production, also by all kinds of processing (such as picking, preservation, storage, etc.), as a result, only the agricultural production and processing of each link into the standardized management system, to better achieve the standardization of agricultural products.

In view of the current situation in China, the standardization construction of agricultural products needs to focus on three aspects: first, the relevant departments of the state must strengthen communication and coordination, build a set of perfect agricultural products standard system, the system should involve the whole process of agricultural production, processing operating procedures and indicators system. Second, pay attention to our agricultural products standards and international standards. Third, ensure that standards are enforced.

Establish a modern agricultural products logistics system. The regional and seasonal production of agricultural products, coupled with the characteristics of fresh agricultural products, such as perishable, perishable and inconvenient storage, put forward higher requirements for logistics distribution. China's traditional agricultural products circulation mode has many links, low efficiency and high logistics costs, which cannot meet the requirements of agricultural products e-commerce development. Modern logistics is a powerful guarantee to realize e-commerce. Modern agricultural products logistics is based on modern information technology, which organically combines the functions of transportation, storage, loading, unloading, handling, packaging, circulation, processing, distribution, information processing and so on.

Fresh agricultural products e-commerce in recent years quietly emerged. Cold chain logistics is an unavoidable problem in the development of fresh agricultural products e-commerce. The development of cold chain logistics needs a large capital investment, but its investment return cycle is long, which is the dilemma faced by e-commerce sellers of fresh agricultural products. Even if a single seller has enough funds to build its own cold chain logistics system, it is faced with the risk of unstable fresh agricultural products e-commerce orders, strong seasonality and high operating costs. In fact, the socialized and mature cold chain logistics system has become an urgent resource for the development of fresh agricultural products e-commerce. The system shall have professional practitioners; Intensive and professional management level.

Cultivate modern farmers and agricultural products e-commerce talents. Talent is the key to the development of agricultural products e-commerce. At present our country agricultural product electronic commerce talented person lack, in order to change this situation, first of all

should have a plan to the training of farmers, strengthen their information consciousness, brand consciousness, the modern business consciousness, improve their computer skills, that they use the web to collect information, release information, online trading, risk prevention capabilities. At the same time, it is also necessary to focus on cultivating a group of interdisciplinary talents in the field of agricultural products e-commerce, give play to their leading role, and form a team of agricultural products e-commerce professionals with good quality and reasonable structure, so as to provide talent support for the development of agricultural products e-commerce in China.

## 5. The Significance of E-Commerce in Agricultural Products Trade

Agricultural internationalization calls for a new agricultural trade mode. If China's agricultural products want to enter the international market, we must deepen the reform of our agricultural products trade mode and establish the agricultural products e-commerce trade platform to meet the requirements of international agricultural products trade.

It is conducive to improving the conversion rate of agricultural scientific and technological achievements. Through e-commerce platform, farmers can continuously benefit from new technologies and new achievements, reduce agricultural production costs, improve the conversion rate of agricultural scientific and technological achievements, and thereby improve the international competitiveness of agricultural products.

## 6. Conclusion

Conducive to the formation of agricultural production, supply, marketing integration. The construction of e-commerce platform provides real-time information and technical services for production, procurement, sales and other links in the supply chain. Through the electronic commerce platform, the farmers can be used scientifically in the process of agricultural production inputs such as fertilizers and pesticides, can also according to the market demand for agricultural products, to carry on the reasonable production, actively respond to market changes and transform from extensive to intensive agricultural production, effectively realize the market information, technical information and product information sharing.

## References

- [1] Open Text SA ULC; "Web Application Open Platform Interface (Wopi) Server Architecture And Applications For Distributed Network Computing Environments" in Patent Application Approval Process (USPTO 20180218006)[J]. Computers, Networks & Communications,2018.
- [2] Information Technology - Data Analytics; Study Findings from University of Ottawa Provide New Insights into Data Analytics (iMetaLab 1.0: A web platform for metaproteomics data analysis)[J]. Biotech Week,2018.
- [3] Yuan Jiang,Likai Liang,Qiang Tong,Ruitong Yuan,Ruilin Li. Design and Implementation of Wind Resources Web Platform[J]. IOP Conference Series: Materials Science and Engineering,2018,435(1).
- [4] Kuntal Bhusan K,Gadgil Chetan,Mande Sharmila S. Web-gLV: A Web Based Platform for Lotka-Volterra Based Modeling and Simulation of Microbial Populations.[J]. Frontiers in microbiology,2019,10.
- [5] Andreas Aeberhard, Leo Gschwind,Joe Kossowsky,Gediminas Luksys,Andreas Papassotiropoulos, Dominique Quervain,Christian Vogler. Introducing COSMOS: a Web Platform for Multimodal Game-Based Psychological Assessment Geared Towards Open Science Practice[J]. Journal of Technology in Behavioral Science,2019,4(3).