

# Research on Transformation and Upgrading Strategy of Agricultural Products Logistics and Marketing Mode based on "Internet Plus"

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**Abstract.** The advent of the Internet era, traditional forms of logistics and sales can no longer meet current needs, the network continues to penetrate the real economy, and changes in the market environment are forcing companies to reconfigure their Internet marketing. The "Internet plus" provides new opportunities for the development of agriculture and represents a new direction and trend of modern agricultural development. In the initial stage of China's special agricultural products logistics and marketing model, there are still some problems that need to be improved and solved. This paper discusses the current situation and problems of China's agricultural logistics and marketing development, researches on how to promote the transformation and upgrading of agricultural logistics and marketing mode and optimization strategies under the background of "Internet plus", and proposes some targeted development measures to promote China's rural economic development.

**Keywords:** Internet Plus; Logistics Services; Marketing Model; Agricultural Products E-Commerce.

## 1. Introduction

China has a large agricultural population, but the development of China's agricultural products market is slow, and there are generally problems in rural areas such as low level of informationization, scattered production and operation of farmers, insufficient marketing mode, and imperfect logistics system for agricultural products. The traditional distribution channels of agricultural products are relatively single, with multiple links such as self-production and self-marketing, traditional traders, wholesale and acquisition of agricultural products (as shown in Figure 1). With the continuous improvement of China's urbanization level, the distribution channel centered on the wholesale market of agricultural products and the cooperative channel of agriculture and super with supermarkets as the mainstay are gradually formed. The development of e-commerce for agricultural products helps promote the development of rural economy. Since 2006, every year, the No.1 document of the Central Government has given important instructions on the construction of agricultural products circulation; in 2011, the State issued the Notice on Issues Related to the Development of Modern Pilot Agricultural Products Circulation in 2011, which pointed out the direction for the diversified development of agricultural products circulation, and should effectively guarantee the marketing of agricultural products to achieve healthy and green development and promote the further development of local economy. However, the development of agricultural modernization has so far been constrained by the bottleneck of inefficient circulation of agricultural products. 2016 Central Rural Work Conference clearly instructed to accelerate the construction of agricultural products circulation and logistics system, requiring active cultivation of new circulation development models and activation of rural resources. 2022, the "14th Five-Year Plan" for the construction of modern circulation system The "14th Five-Year Plan" clearly states that all regions should create a favorable

environment for the construction of modern circulation system, and make the construction of modern circulation system an important task for the economic and social development of the region in the 14th Five-Year Plan period. For the circulation of agricultural products, how to combine their own development characteristics in the context of "Internet plus" to achieve diversified marketing strategies, has become an important issue in the field of agricultural circulation and even agricultural development.

Therefore, through the innovation of diversified marketing mode, accelerate the transformation and development of agricultural products circulation, accelerate the construction of agricultural products circulation system, provide the premise for modern agricultural products marketing to enhance agricultural benefits and realize farmers' income, reasonably optimize the allocation of resources, let China's agriculture develop in the direction of information technology, and accelerate the transformation of traditional economic model in rural areas. Promote the sustainable development of China's special agricultural products.

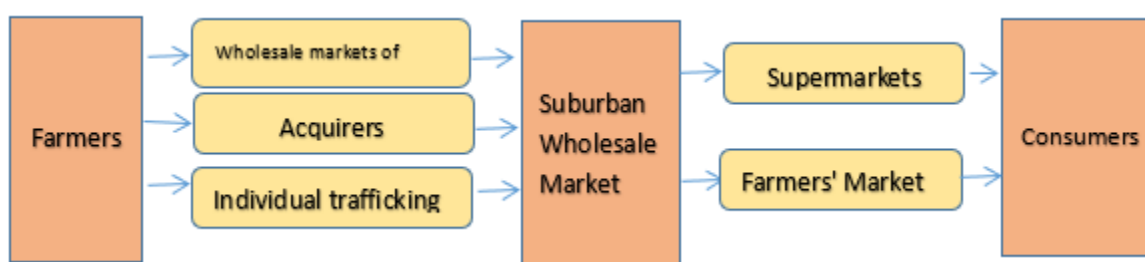


Figure 1. Traditional agricultural products distribution channels

## 2. The Current Situation of Agricultural Products Circulation in China under the Background of "Internet Plus"

### 2.1 The Characteristics of Agricultural Logistics Services in the Era of "Internet Plus"

The vast majority of China's agricultural producers are farmers, with small production scale and low commodity rate, and it is difficult to achieve integrated organization and collaboration in the agricultural supply chain. The agricultural products circulation system is obviously backward, with imperfect infrastructure, uneven network distribution, and poor freight carrying capacity. Data show that more than 80% of agricultural products are still traded through wholesale markets. Only by improving circulation efficiency, reducing circulation costs and innovating circulation organization and business model can we realize the efficient operation of agricultural industry chain and supply chain.

In recent years, China has encouraged e-commerce enterprises to weave a dense connection between urban and rural areas on and offline service network, to cost, efficiency and quality-oriented smooth supply and demand channels, strengthen the production and marketing of agricultural products, and create a circulation system and agricultural industry to promote each other's development ecology. Agricultural products logistics services have been developed. First, the distribution area is wider. Through the e-commerce platform, agricultural products can be sold to the whole country and even all over the world, accordingly, the logistics distribution of agricultural products has been transformed into the distribution within the whole country region and even transnational distribution. Second, the order-driven distribution mode is the main one. At present, more and more consumers tend to choose to place orders for agricultural products on e-commerce platforms, which will deliver products according to consumers' orders. However, consumers tend not to buy only one kind of agricultural products in large quantities, but hope that they can place orders for different kinds of agricultural products at one time and the quantity of each kind of agricultural products is small. In addition, at the end of logistics transportation, the staff needs to deliver the agricultural products to each consumer, which puts higher demands on the accuracy and timeliness of logistics delivery.

## 2.2 Marketing Model of Agricultural Products in the Era of "Internet Plus"

The sales model of agricultural products based on e-commerce platform brings diversified consumption convenience to consumers, greatly enhances the shopping experience of consumers, promotes the development of agricultural economy, changes the way of agricultural products trading, and finally realizes farmers' poverty alleviation and prosperity. There are five common agricultural marketing models in the context of "Internet plus".

First, the merchant-to-consumer model (Figure 2). Agricultural products dealers sell farmers' agricultural products to consumers through self-built websites such as I Buy, Shunfeng Yousei, Ben Life, Nongtao Yousei, or third-party platforms such as Taobao, Tmall, Jingdong, Suning Tesco, and Jingdong. Dealers publish information about agricultural products on the e-commerce platform, attract consumers to place orders, and are responsible for the sales and logistics of agricultural products, and bear the transportation costs and risks. The e-commerce platform does not participate in the actual transaction process, but only provides the platform and earns commissions.

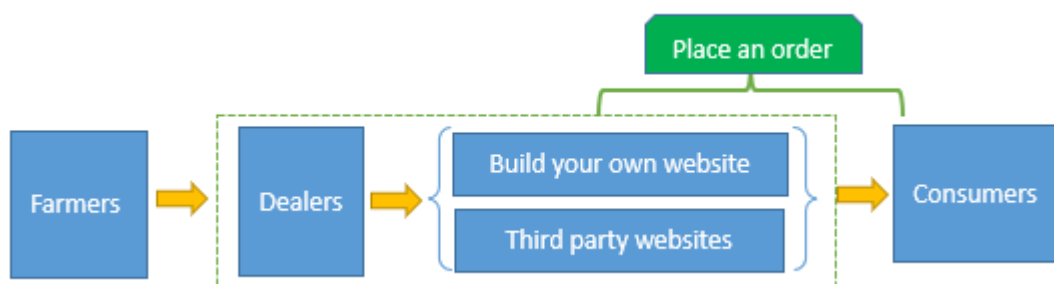


Figure 2. Merchant-to-consumer model

The second is the merchant-to-merchant model (Figure 3). It refers to the behavior of merchants purchasing agricultural products at farmers or primary wholesale markets, and then distributing them to small and medium-sized agricultural product distributors. Farmers do not need to bear logistics risks and costs, and agricultural products dealers are intermediaries who do not need to bear production and marketing risks. E-commerce sellers are responsible for the sales and transportation of agricultural products, facilitating the wholesale or retail of small and medium-sized agricultural products and saving their procurement and transportation costs.

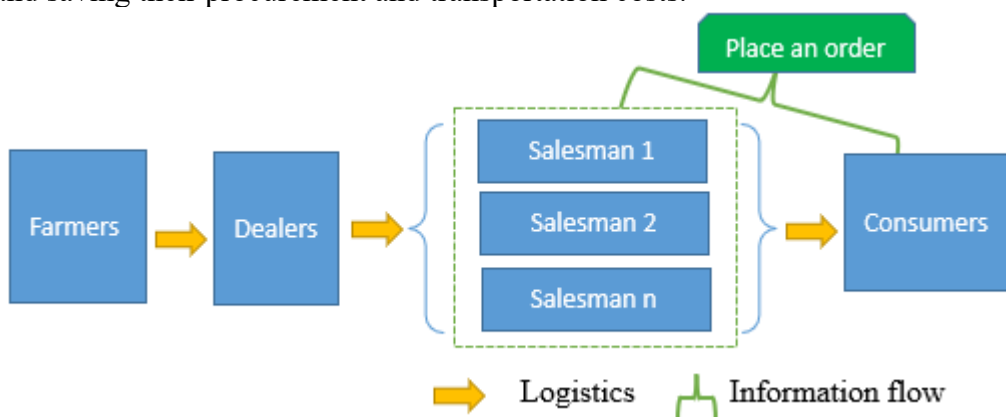
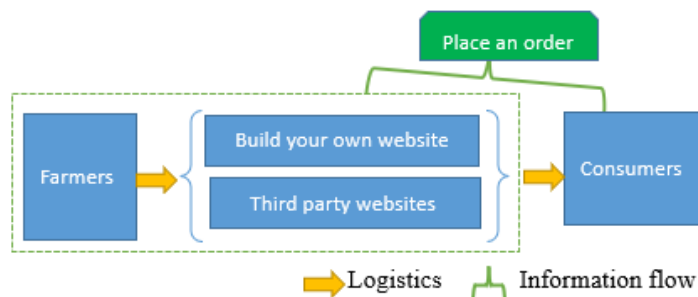


Figure 3. Merchant to Merchant Model

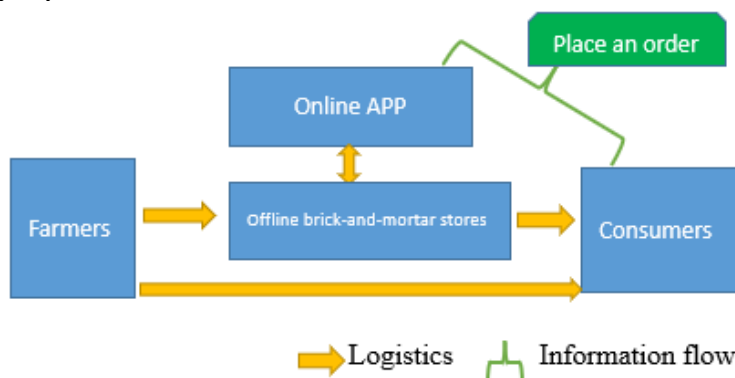
Third is the consumer customization model. It refers to farmers producing agricultural products according to members' order requirements, and then distributing products from their own farms to members through home home delivery. Pre-customized production and operation is less risky, but the market development space is limited due to the impact of site and non-standardized production.

Fourth, the farm direct supply model (Figure 4). Farmers or farms sell agricultural products directly to consumers through online platforms. This model ensures the quality of agricultural products while reducing the profit dividends of middlemen, and provides consumers Consumers are provided with high-quality and inexpensive agricultural products.



**Figure 4.** Farm direct sales model

Fifth, the online and offline integration model (Figure 5), which means that consumers pay online and pick up offline, bridging the boundary between online and offline, allowing consumers to place orders anytime and anywhere. The community-based model makes logistics and delivery convenient and fast, making full use of the convenience of online ordering and purchasing, and enhancing consumers' shopping experience.



**Figure 5.** Online and offline integration model

### 2.3 Status of Development of Agricultural Logistics Services and Marketing Model

In the past 20 years, the application of agricultural information technology in China has made great progress. Agricultural e-commerce has developed rapidly, with tens of thousands of comprehensive e-commerce platforms, forming a multi-level market system and network system, mainly including agricultural commodity e-commerce model, agricultural B2B e-commerce model, futures trading model, and agricultural online retail e-commerce model, etc. (As shown in Figure 6).

The agricultural business industry has become an important growth point of the rural economy, logistics services and agricultural products circulation methods have created a good e-commerce environment for agricultural products. In 2019, for example, rural internet users reached 220 million, shopping reached 639 million, takeaway reached 421 million, with 4,310 Taobao villages and 1,118 Taobao cities. In 2019, the output of agricultural products remained at 2.3 billion tons, and the output of fresh agricultural products exceeded 1.3 billion tons. Grain production reached 663.84 million tons in 2019, up 0.9% compared with 2018. But China's agricultural products logistics services and marketing model is far from meeting such a huge market for the circulation of agricultural products, railroad refrigerated transport is mostly based on quick-frozen wagons, the lack of advanced insulation refrigerated frozen transport cars, road refrigerated frozen transport, although it is developing rapidly, but its capacity can only meet 20% of the demand, the other 80% of poultry,

animals and aquatic products, etc. can only be transported by ordinary means, which is compared with the developed countries refrigerated fresh Transport capacity of more than 80%, obviously in the hardware construction and transport capacity needs to increase investment.



**Figure 6.** Agricultural products e-commerce

In the background of the Internet era, the marketing of agricultural products in China is growing and the market of agricultural products is expanding, but the circulation of agricultural products in China is still at a lower level, the efficiency of the whole industry chain is low, and the internet has not yet played the advantage of gathering resources and real-time docking market in the production, circulation and marketing of agricultural products. At the same time, we should also wake up to see that in the background of the Internet era, there are still logistics information asymmetry in the circulation of agricultural products, huge fluctuations in the market of fresh and live agricultural products, low degree of organization of production and marketing, relatively weak infrastructure, etc. Fundamentally, it is that China has not yet established a market circulation system for agricultural products, and has not yet built up a diversified channel for the circulation of agricultural products.

### **3. Problems in the Logistics and Marketing Model of Agricultural Products in the Internet Era**

#### **3.1 The Marketing Concept of Agricultural Product Distribution is Backward**

Most farmers in rural areas are still stuck in the traditional concept of agricultural products production, only responsible for the cultivation of agricultural products, as for sales, they are mostly passively waiting for merchants to come to their homes to buy, not to mention the active sale of information through the Internet, or through network sales. Farmers are rough in marketing their agricultural products, and farmers are more willing to sell their agricultural products immediately after receiving them. As a large number of homogeneous agricultural products are listed in the same area, it is easy to cause the problem of difficult sales in the peak season of agricultural production. At the same time, at the level of production and processing, the awareness of deep processing is not strong, and agricultural products are more often packaged in the form of simple raw materials directly into the next link, and the output value of agricultural products processing and agricultural production value is far behind that of developed countries.

#### **3.2 Backward Construction of Storage and Cold Chain and Other Infrastructure Settings**

China's agricultural products have a wide geographical distribution and large production volume, and have obvious characteristics in terms of production seasonality and locality. It is easy for a certain agricultural product to be listed in large quantities, but the whole market cannot immediately digest

these agricultural products, which can easily cause a large number of agricultural products to be sold late. In particular, fresh agricultural products are perishable, perishable and easily polluted, which requires high logistics and transportation capacity. In order to meet the high requirements of consumers for fresh agricultural products freshness, many fresh e-commerce platforms have to spend huge amounts of money to build storage and distribution systems, using cold chain logistics, but at present, China's agricultural products cold chain transport capacity is still insufficient, transport equipment technology is backward, high energy consumption, low environmental protection, fresh agricultural products in the transport link loss is very high, the quality is difficult to ensure. In particular, the shortage of cold storage in the central and western agricultural production areas is still more serious, farmers not only can not get income, but also cause certain losses, greatly dampening the enthusiasm of farmers in production.

### **3.3 Agricultural Products Logistics Information Network Construction Lags Behind**

Although China's Internet has been rapidly popularized in recent years, but because China's use of the Internet is still relatively short, late start, Internet applications and updates are still mainly concentrated in the eastern coastal areas, for the western and the old, young and poor areas, the Internet has always been slow to develop, and these areas are the main production areas of agricultural products. At present, China's agricultural market management lacks effectiveness, there are more trading and logistics links, information on production, sales, trading and transportation is more closed, the cost of information acquisition in rural areas is higher than that in cities, the information among participating subjects cannot be effectively transmitted and integrated, and the logistics system is not sound. At the same time, agricultural products have high requirements for transportation, storage, environmental temperature, humidity and transportation methods and time. In order to achieve rapid circulation in the Internet era, a breakthrough in diversified marketing is needed. The Internet plays an important role in this, and the key to the construction of agricultural products circulation information network is to enhance the rural Internet penetration rate and strengthen the reform of agricultural industry at the same time. However, due to the strong territoriality of agricultural products, the traditional agricultural products circulation industry can easily lead to the circulation of information is limited to a small range, and it is difficult to develop the market, but in the local area, it is easy to form the "market saturation" illusion, once these agricultural products are not accepted by the market or enterprise acquisition is easy to stagnant sales, supply and demand information is not symmetrical, resulting in an imbalance between supply and demand. The information of supply and demand is not symmetrical, leading to unbalanced supply and demand, and strengthening the network construction is the key to solve this problem.

### **3.4 Shortage of Modern Logistics and Marketing Complex Talents**

Under the mode of "Internet plus Agriculture", a large number of technical talents are inevitably needed, but there is a shortage of professional technical talents, and it is difficult for ordinary staff to perform such tasks as software development and maintenance, and offline professional logistics cooperation. In China's rural areas, the lack of young people is a common phenomenon. A large number of young people who are capable of accepting new technologies have left the countryside and agriculture and are unable to provide technical services for professional agricultural products' e-commerce, which also limits the expansion of logistics services and marketing channels for agricultural products.

## **4. The Transformation and Upgrading Strategy of Agricultural Products Logistics and Marketing Mode based on "Internet Plus" Background**

### **4.1 Layout of Cold Chain Logistics Base to Make up for the Short Board of Temperature Control of Agricultural Logistics**

Agricultural products have a short shelf life, require closed packaging or low-temperature preservation, and large-scale, cross-regional circulation has high requirements for storage and logistics transportation, while China's emergency, cold chain and other logistics services are weak links. At present, we need to strengthen the infrastructure construction of production and planting pre-cooling, sorting and packaging mobile cold storage, high-standard cold storage and terminal cold chain distribution, improve the logistics service network of agricultural products, reduce the regional and seasonal restrictions of agricultural products, enhance the support role of cold chain logistics on the circulation of agricultural products, and better drive the development of modern agricultural scale and industrialization. Establish a diversified transportation system of water, land and air including different modes of transportation such as highway, waterway, railroad and air, or transportation modes that are connected by water, road and air. Logistics enterprises need to carry out scientific classification management of agricultural products, introduce barcode technology and real-time monitoring technology, realize one-stop monitoring and management from production, packaging, sorting, storage and transportation, reduce the loss and deterioration of agricultural products in the transportation process, and effectively guarantee the quality of agricultural products.

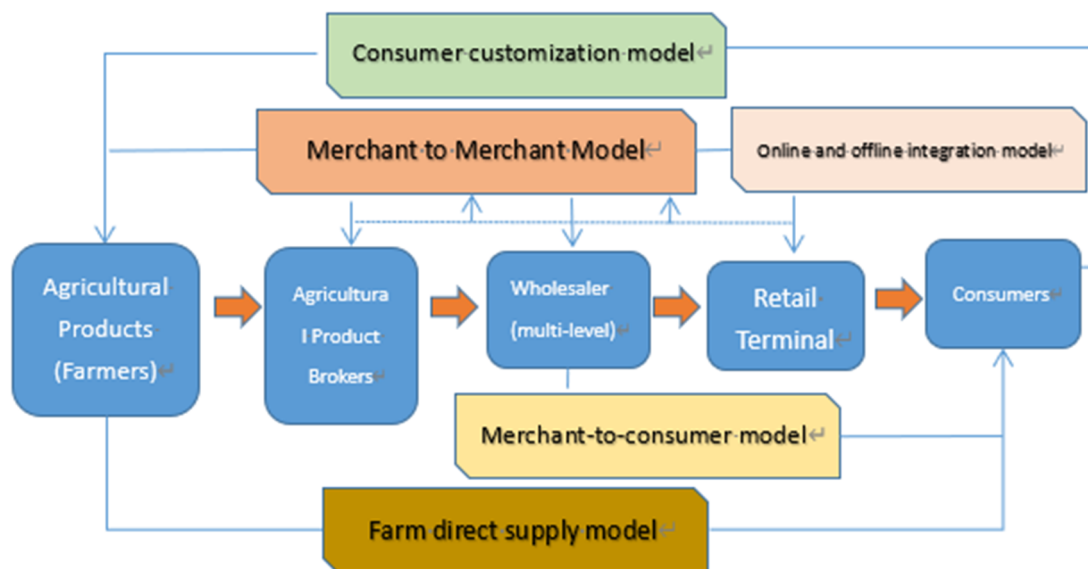
### **4.2 Make Full Use of the Advantages of the Digital Economy to Build a New Mode of Operation for the Supply Chain of Agricultural Products**

The digital economy, with the help of emerging technologies such as cloud computing, big data and blockchain technology to mine and analyze massive amounts of data, effectively guarantees real-time information sharing among all links of the supply chain, more specialized production and more efficient circulation of agricultural products. At the same time, the collaborative and integrated development of the whole industry chain must also be planned to improve, optimize and enhance the efficiency of resource allocation, and provide soil and nutrients for the transformation and upgrading of the production, processing, circulation, trading and traceability links with minimal collaboration costs. We should build a standardized quality system with the help of digital technology, realize the intelligent management of the whole process of agricultural products from farm to table, and promote the whole supply chain to network, integration, platform and intelligence. It should also further strengthen the construction of core capacity of agricultural products supply chain with the help of two major driving forces, namely digital information sharing platform and database, to guarantee the good operation of the whole industrial mechanism.

### **4.3 Build a Diversified Marketing Model with a Deep Docking of Consumption to Production**

Change the previous single sales business model to achieve a diversified network marketing model and e-commerce marketing model, so that consumers have more choices of shopping models, one is the network marketing model. Enterprises use the Internet to carry out a variety of marketing activities to achieve marketing objectives of business marketing model, mainly online stores, business-to-business network marketing, neutral trading platform, online bidding, auction and other modes. Second, the green marketing model. Highlighting the green theme, from production green, to processing green, to transportation and sales green, the whole process of green marketing, not only need the government's policy support and research institutes to ensure the technology, but also need the Internet's big data analysis and green marketing. Third, the experience marketing model. Give consumers a strong visual and sensory impact, at the same time can bring rapid sales feedback to the enterprise, product awareness in the experience marketing can also be rapidly enhanced. Through the word-of-mouth effect, the product quality and product information will be passed to more consumers, thus expanding the scale of enterprise sales. Fourth, the precise marketing model. With the Internet

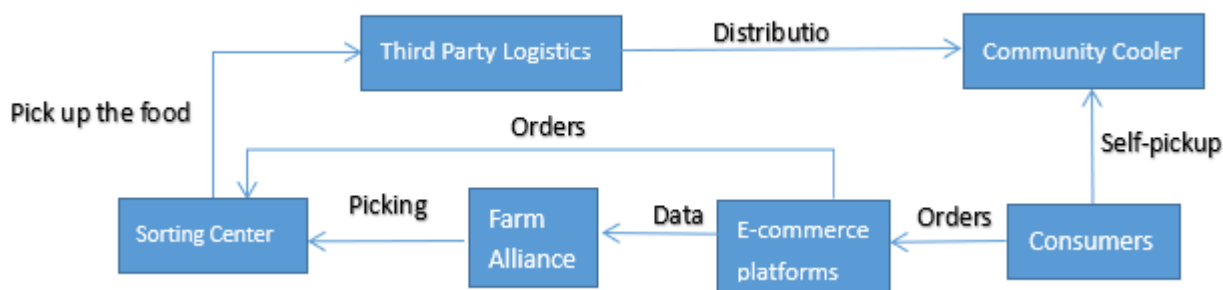
as the support platform, agricultural products are promoted through the network platform, and with the Internet information feedback function, the target needs of consumers are more accurately positioned. And the Internet platform to obtain information to the production end of feedback, the implementation of order agriculture, the real realization of agricultural production to consumption, consumption to production of deep docking (such as Figure 7).



**Figure 7.** Improvement of distribution channels and diversified marketing by agricultural products e-commerce

In addition, consumers can go directly to the physical store to scan the code to buy, you can choose to pick up or delivery; consumers through the App online order, you can choose to pick up or delivery; consumers can also buy in the online store, express delivery to home. At the same time, consumers can pay with their bank cards, as well as with apps such as Alipay, WeChat and Cloud Flash Pay, and they can choose to use overdraft spending and installment repayments such as the Flower Chant and Jingdong White Stripe. Diversified business and payment modes can make the purchase process more convenient and enhance consumers' shopping experience.

#### 4.4 The Integration of Online and Offline, to Open up the Logistics and Sales of Dual Channels



**Figure 8.** Online and offline integration model improvement

Although e-commerce has become the main commodity transaction mode, both online and offline have their own advantages, and e-commerce platforms cannot completely replace offline brick-and-mortar retailers. In the new retail environment, the integration of agricultural e-commerce platforms, offline retailers and logistics companies is accelerating. E-commerce platforms and logistics companies can cooperate with existing offline physical distributors to achieve integration of online and offline resources, improve the efficiency of logistics services, and enhance the service capacity

of distribution outlets and inventory. Take the fresh produce App mobile trading platform set up by the Shanghai Agricultural Products Center wholesale market as an example, the platform relies on large physical wholesale markets and integrates agricultural products trading, logistics, agricultural finance and mobile payment, etc. It adopts online order mode to realize wholesale procurement, which effectively reduces wholesale procurement costs. (As shown in Figure 8).

#### 4.5 Training Professionals in Agricultural Logistics Services and Marketing

To solve the problem of lack of professionals in agricultural logistics services and marketing, the following two measures can be taken. One is to cultivate young adults in rural areas who are better educated and have active minds to be proficient in using the Internet and have the relevant knowledge and operational skills of e-commerce. In terms of information technology application, young people in rural areas have more advantages than older people. Therefore, the government should do a good job of ideological propaganda to strengthen young people's awareness of the development of e-commerce for agricultural products and raise young people's awareness of the prospects of e-commerce for agricultural products. Second, the government and enterprises should strengthen the introduction of foreign professionals, implement active policies to attract knowledgeable and skilled talents to work at the grassroots level in rural areas, implement "science and technology for poverty alleviation" and help rural areas build e-commerce platforms. Third, farmers themselves need to learn modern e-commerce techniques to promote the development of logistics services and marketing of agricultural products.

### 5. Concluding Remarks

In short, in the background of the Internet, the diversified channels of agricultural products circulation, not only need to make full use of the advantages of the network, innovative network marketing channels, change the traditional ideology, improve and innovate the marketing model, at the same time need the government's policy support and legal protection, only the joint efforts of many parties to build up the agricultural products circulation industry chain in line with the laws of market development, the establishment of agricultural products industry big data, can form agricultural products Only through the joint efforts of many parties to build an agricultural products circulation industry chain in line with the laws of market development and establish the big data of the agricultural products industry can we form a situation where multiple channels of agricultural products circulation compete with each other and complement each other.

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