

# O2O - Based Agricultural Products Supply Chain Process Integration Optimization Based on Internet +

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**Abstract.** Traditional wholesale and retail, electricity supplier of agricultural products supply chain have many difficulties. The O2O supply chain of agricultural products of "Internet+", committed to the integration of online and offline advantage process, has become the main direction of the agricultural products supply chain transformation. Practice operation results show that O2O supply chain can effectively play the advantages of online and offline process integration, but its further development is still subject to the logistics, information flow of the dispersion, fracture and high cost. The integrated optimization of various regions and various enterprises and all sectors of the supply chain process is the key to optimize the process Internet plus era of agricultural products supply chain.

## 1 Introduction

In recent years, too many links in the agricultural supply chain, the lagging of network construction, the high operation costs, these problems and related strategies arouse much the concerns of all sectors of society. community. In promoting of Internet + boom, local governments and companies in the "Internet +" help, accelerate the transformation in the mode of production, the characteristics of agricultural products marketing and service mode. The "O2O" mode of the agricultural product supply chain is constructed through the models of "Internet + Production", "Internet + Logistics", "Internet + Information" and "Internet + Sales".

"O2O" model in "The Internet" environment, is committed to the integration of online and offline advantage process, has become the main direction of the agricultural products supply chain transformation. The actual operating results of the "O2O" model show that compared to the traditional model, a single production entity, a single flow-led "O2O" supply chain, although can effectively combine online, offline advantage process, but its further development depends on the dispersion, fracture, high cost of logistics and information flow. Integrated optimization of the various regions, the enterprises, the link of agricultural supply chain process, is the key of "O2O" type of agricultural products supply chain sustainable development in "Internet +" era.

## 2 Literature review and problems

### 2.1 Literature review

For the integration process research:

Bo Meilan [1](2011) believed that agricultural supply chain integration can affect the value chain of agricultural products, and promote the value-added agricultural products and value. The other part of the research on agribusiness

supply chain integration is focused on the integration model. Li Jifang [2] (2007) argues that wholesale market-oriented circulation of agricultural products is not conducive to the value-added of agricultural products, should focus on the cultivation of core enterprises, through e-commerce means to achieve fresh agricultural product supply chain integration. Wang Puqing, Zhou Deyi etc. [3](2009) studied the organizational model of supply chain through field investigation, and concluded that the degree of agricultural product supply chain integration was directly proportional to the quality and safety level of agricultural products. Liu Chang [4](2011) studied the supply chain model of agricultural product supply chain in Japan, and proposed the supply chain model of "fresh produce-house-sale". Wang Ying [5](2013) through the study that the characteristics of agricultural products can be used as an important indicator of the choice of supply chain model. But in general, the re-use of "Internet +" advantage of "O2O" type of agricultural supply chain integration optimization research is still very small.

From the literature research, the domestic research started late, in recent years, agricultural supply chain research gradually increased, has become a research focus in the field of supply chain. Therefore, the supply chain optimization of agricultural products can not be ignored, the important problem to be solved, which is one of the main object of agricultural logistics research.

## **2.2 Statement of problem**

By analyzing the supply chain optimization of agricultural products, it is found that the current scholars from different angles on China's agricultural supply chain and optimization of the parties to study and propose different solutions ideas and methods.

However, few scholars had put forward improvement in the supply chain of "O2O" type agricultural products. This paper analyzes the supply chain process of "O2O" type agricultural products under the background of "Internet +", and discusses the bottleneck problem of "O2O" type agricultural product supply chain optimization in order to solve the problem of "O2O" supply chain integration optimization.

## **3 "O2O" type agricultural product supply chain process**

### **3.1 Agricultural production and processing enterprise-led supply chain process**

Agricultural production and processing enterprises build and maintain their traditional channels, at the same time, actively through a variety of network platforms to sell their products and services and carry out a variety of marketing activities in the use of websites, microblogging and other platforms. They build the supply chain includes not only the traditional offline business processes, but also by the online transactions, online promotion business to promote the process.

### **3.2 Wholesale market-led supply chain processes**

Since the new agricultural products wholesale market in Beijing in 2010 12 start the first electronic trading center - Beijing Xinfadi agricultural products electronic trading center, agricultural products wholesale markets across the country have self-built electronic trading center. In addition to self-built electronic trading center, the Beijing Xinfadi wholesale market also formed a strategic partnership with Jingdong Mall, and opened a new official flagship store in the Jingdong Mall. Its supply chain processes are mainly three types, the first category is the Beijing Xinfadi electronic trading center as the core of the cash transaction process. The second category is the Jingdong new flagship store to the core of the process. The third category is the production process, logistics, wholesale, retail and other traditional processes.

### **3.3 "O2O" E-commerce-led agricultural supply chain process**

3.3.1. Fresh "O2O" leading agricultural supply chain process

On the basis of summarizing the experience of the early online market failure, the fresh "O2O" continue to innovative business model, strengthen the characteristics of the trading network, and restructure supply chain processes. On the one hand, according to the development of the market constantly adjust their product supply process, on the other hand continue to expand its distribution system under the line, increase network publicity and promotion efforts.

3.3.2. Integrated electronic business platform-led supply chain processes

With the further development of the fresh "O2O", the local agricultural products online mall which has a wide range of services, large scale, many kinds of products, and various characteristics of "online and offline". Its operation mode mainly has two kinds of B2C and B2B2C.

COFCO I buy net is a typical representative of B2C in the food network. The website has made several changes to its supply chain for the past too narrow supply of goods is difficult to effectively meet the diverse needs of users, the third-party logistics with high logistics costs, long logistics, logistics, low quality of service, customer satisfaction and other issues.

The first is to reform the product supply process, changing the suppliers from the group production enterprises into all the quality of food suppliers. The second is to strengthen the procurement management, food quality management and logistics service management. The third is actively implement the "localization strategy" and "concentration strategy" to reduce logistics costs. The fourth is to combine self-logistics and outsourcing logistics to reduce the logistics cost. The fifth is to expand the marketing promotion, advertising, event organization, social media marketing and other promotional methods organic integration. The sixth is to increase advertising, sales agents and other processes to broaden the income channels. Specifically shown in Figure 1.

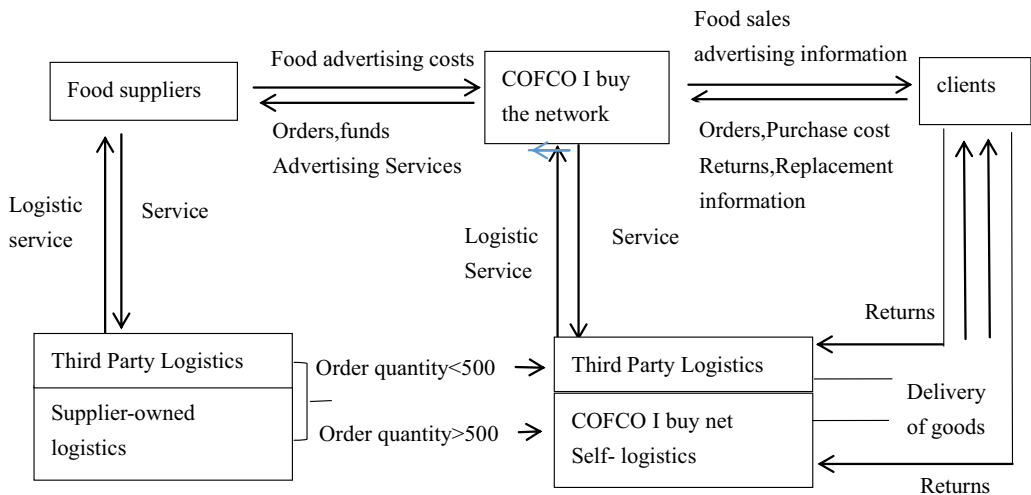


Fig. 1. Supply chain relationship and related processes of COFCO I buy the network.

China's geographical indications product store B2B2C model is a typical representative. Mall for geographical indications products production operators and terminal consumers, provide online trading services. In 2014, The operator of the mall ---Beijing Dadi Bo Electronic Commerce Co., Ltd. ("Lida") has intensified its construction in China Geographical Indications Industrial Park, Agricultural Production Base, High-end Community Store, PC Platform and Mobile Terminal Mall. Mall operators build a supply chain of agricultural products, which is a geographical indication products in China Mall as the core, into the geographical indication products manufacturers (suppliers),

self-production base (park), third-party logistics service providers, self-line terminal service shops, advertising service providers, China Geographical Indications Culture Museum, customers (consumers).

The supply chain process centered by Chinese Geographical Indication Products Mall and the supply chain centered by I buy the network are differences. Chinese Geographical Indication Products Mall increase the business shop process, business certification process, business service processes and business shop management process. China's geographical indications product store to increase the business shop process, business certification process, business service processes and business shop management process; In addition, the two logistics service flow, and cash flow service process are different.

## **4 Bottleneck analysis on the optimization of supply chain process of "O2O" - type agricultural products**

### **4.1 Production and processing enterprise-led "O2O" supply chain process integration is too low**

Most of the production and processing enterprises dominated the "O2O" supply chain is still showing the logistics dispersion, fracture, high cost characteristics. Its online transactions need to pay high courier logistics costs, and even after several courier logistics to complete the product from the origin to the final consumer of the entire logistics process, resulting in express logistics costs are too high. In addition, the online model can not keep abreast of offline consumer demand, resulting in procurement, production, sales and logistics plan is still a great blindness. It is difficult to realize the reasonable transformation of the relationship and position of the online and offline.

### **4.2 Wholesale market - led "O2O" supply chain logistics is dispersed and its process integration is difficult**

The integration of supply chain processes in this model is limited by many practical factors. First, the existing wholesale market facade is a private ownership, wholesale market management side only assume the responsibility and power of property management. Second, the wholesale market management side to establish online trading system is motivated by local, short-term interests. It is difficult to truly "online" servicing for the "offline". Third, the "online" and "offline" wholesale operations are decentralized operations. Integration gap of online transactions and offline transactions is the wholesale market-led "O2O" type of supply chain's common problem. More importantly, The independent wholesalers to carry out online and offline transactions simply can not explore the common distribution, the value of co-marketing. Fourth, the electronic trading center emphasizes online transactions, ignore the integration of associated logistics and information flow and other service processes. Therefore, the bottlenecks of the "O2O" model of the wholesale market development and optimization of the supply chain process are that the centralized, synchronous and coordinated integration of logistics and information flows before, during and after the wholesale transaction.

### **4.3 "O2O" -based supply chain-driven process lacks dynamic integration and dynamic adaptation**

The development of small-scale "O2O" -based supply chain appears to be constrained by the lack of funds and technical and managerial capacity of core entities. In fact, it is constrained by the scale of logistics, information flow and business flow, high cost and consumer demand of the timely response.

The agricultural supply chain operations by the core of "I buy the network" show that the fast-growing B2C e-commerce's scale and all aspects of service capabilities can not quickly adjust and optimize its supply chain processes and supply chain capabilities with changes in consumer demand and competitor competition strategies. This is the main bottleneck in the development of the "O2O" supply chain, which is dominated by the B2C electricity supplier.

B2B2C model can not adjust its supply network, logistics network, offline transaction and service network according to the rapidly changing market. So adjustment and optimization of its supply chain process is its supply chain

process is the bottleneck problem of the development of Direct store in B2B2C model. For the B2B2C electronic trading platform, the integration services of the flagship store, direct sales of the product supply, logistics and distribution and terminal, providing services of low cost, high response, integrated logistics, business flow and information flow for consumers are the key to development.

## **5 Integrated optimization of "O2O" agricultural product supply chain**

By analyzing the bottleneck of "O2O" supply chain optimization process, it is found that all kinds of main supply chains are faced with the problem of high cost and low response speed caused by the decentralized operation of the logistics, faced the problem of information flow breakage, poor sharing and high sharing cost. These problems not only need to integrate online and offline Business flow, more importantly, need to integrate product supply, consumer demand, product supply and consumer demand for coordinated development to achieve product supply and consumer demand for collaborative development. Therefore, the integration optimization is the key to solve the "O2O" type of agricultural product supply chain process optimization bottleneck.

Integrated optimization of "O2O" type of agricultural products supply chain processes

Refers to the integration of local characteristics of agricultural production resources, agricultural logistics resources, agricultural information resources and agricultural products sales resources through the "Internet + production", "Internet + logistics", "Internet + information flow", "Internet + sales" mode and achieving "Online and offline" procurement process, "online and offline" promotion process, "online and offline" transactions (business flow), "online and offline" logistics and "online and offline" information flow and related after- Vertical integration, in order to reduce the supply chain operating costs, speed up the supply chain response speed, increase the dynamic adaptability of the supply chain. As the "O2O" model continues to evolve, the agri-food supply chain process will undergo the following integration optimization phases.

### **5.1 Decentralized independent optimization stage**

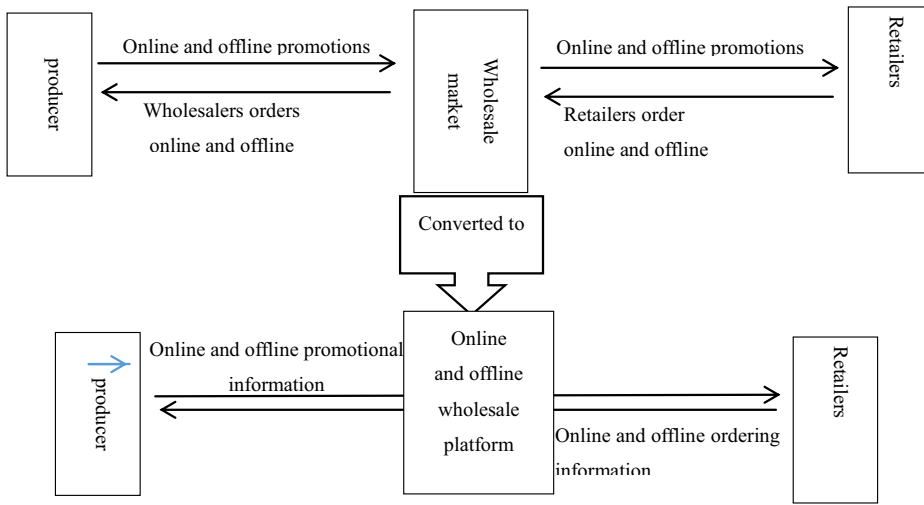
In the initial stage of development, production, processing, wholesale, retail and other entities in the local link leveraging "Internet +" achieve business flow and information flow integration.

### **5.2 Each stage "O2O" collaborative optimization stage**

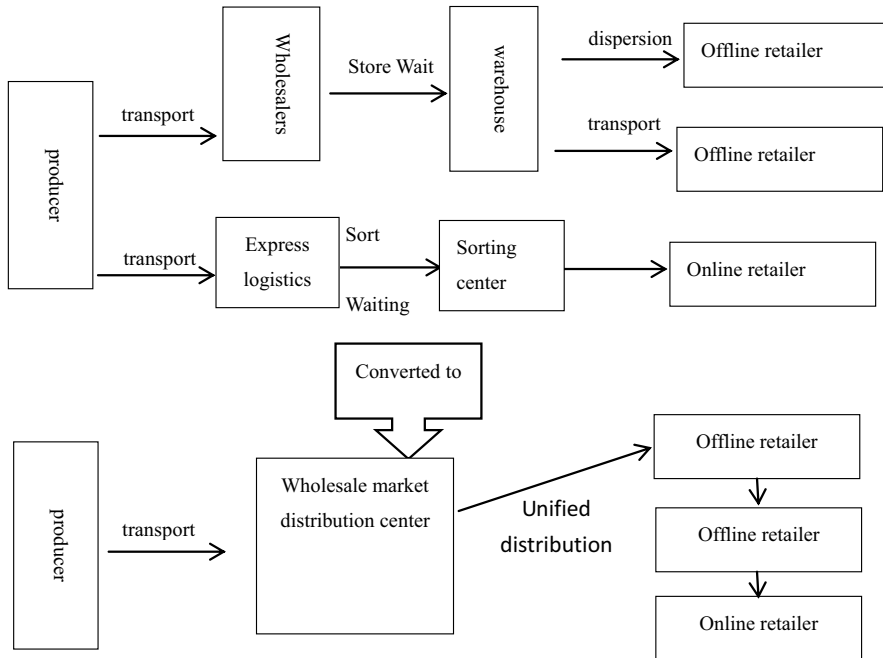
In order to solve the problem of vertical coordination and integration of logistics and information flow, the production, processing, wholesale, retail and other main body come together to discuss the "O2O" mode of vertical integration of the whole supply chain, to realize the different online- , Information flow of collaborative integration.

The "O2O" supply chain, which cooperates with each link, can overcome the dilemma of logistics and information flow faced by scattered "O2O" type supply chain effectively.

As shown in Figure 2, the collaborative "O2O" model can achieve the initial supply of information and information on the final demand in the supply chain to deliver the seamless, integrated target. This model can shorten the information delivery time in the supply chain, eliminating the transmission of the "bullwhip effect."



**Fig.2.** The supply chain information flow changes in the dispersion model.



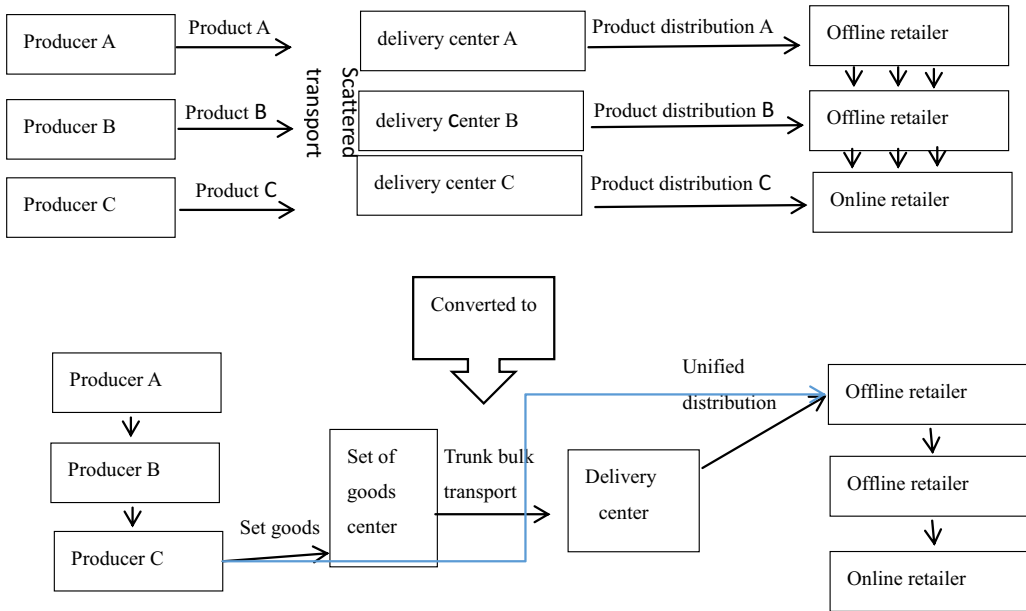
**Fig.3.** Supply chain logistics changes in collaborative model.

As shown in Figure 3, the collaborative "O2O" model can coordinate the logistics of the whole supply chain, carry out unified distribution, centralized storage, effectively alleviate the "O2O" mode of logistics small volume, high logistics costs, logistics and other issues.

**5.3 Based on the "O2P" of localization, regional collaborative optimization stage**

The "O2O" mode of coordinated optimization of the vertical flow of a single product will eventually develop into the stage of coordinated development of localized online and offline regional line on-line, that is, through the "O2P" model, the agricultural producers in the same area, Online and offline retailer collaboration phase.

As shown in Figure 4, the O2P model of ocalization and regional integration led by fourth-party logistics service providers will further achieve the transport and distribution of large-scale and intensive. Supply chain process integration capabilities will be further improved .



**Fig.4.** The logistics service chain changes in regional collaborative model.

The "O2P" model, which is led by 4PL, is expected to realize the diversification of the supply of the supply chain, the synergism of supply chain behavior, the synchronization of online and offline transactions, the scale and agility of logistics and distribution. As "O2O" type of agricultural products supply chain crack process optimization bottlenecks effective measures.

## 6 Concluding remarks

This paper through analysis the process of "O2O" agricultural supply chain and optimization bottlenecks in the context of "Internet +" ,comes to conclusion that integrated optimization of supply chain processes is the key of agricultural supply chain process optimization in "Internet +" era. The "O2P" model of Regional synergies led by 4PL is a effective model to crack "O2O" type of agricultural products supply chain optimization process bottlenecks ,also the "O2O" type of agricultural supply chain optimization process of the main direction.

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