

Analysis on Influencing Factors of Cold Chain Logistics of Fresh E-commerce under the New Retail Model

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Abstract: With the development of social economy and the wide application of information technology, online e-commerce and physical retailers have certain limitations in the distribution process, and retail mode faces huge challenges and opportunities under the concept of diversified consumption. The new retail model of "online+offline+logistics", which is based on the Internet, the Internet of Things, intelligent logistics and artificial intelligence advanced technologies, emerged at the historic moment to promote the reform of people's shopping methods, which improve shopping experience. The diversification of shopping forms and channels will certainly force fresh e-commerce enterprises to upgrade their comprehensive cold chain logistics service capabilities to a higher level. Taking the cold chain logistics development direction of fresh food e-commerce under the new retail model as the subject, explore the collaborative development direction of fresh food e-commerce and cold chain logistics, and solve the urgent needs of new retail fresh food e-commerce enterprises.

1. Introduction

Since the concept of new retail model was put forward late in China, there are few models and experiences for fresh e-commerce under the new retail model to learn from. The exploration of the logistics direction of fresh e-commerce is not comprehensive and systematic enough, and it is still in its infancy. Combined with the operation mode and characteristics of fresh food e-commerce under the current new retail mode in China. We should analyze the factors that affect the development of fresh e-commerce and cold chain logistics from the five aspects of warehousing, distribution, logistics information, cold chain equipment and customer service, further explore the construction of a systematic and perfect cold chain logistics operation system for fresh e-commerce, and summarize the cold chain logistics management theory suitable for the development characteristics of fresh e-commerce in China, so as to provide some suggestions for the development of the retail industry in the new era[1].

2. "Bottleneck" of cold chain logistics development of fresh e-commerce under the new retail model

2.1. High operating costs

The efficiency of fresh food logistics reflects the development level of cold chain logistics in China. Fresh food products have relatively high logistics requirements and high operating costs, which are particularly important for the market economy where customers first and services foremost[2]. A large number of cold stores and distribution centers can cooperate to ensure the high-quality development of fresh food cold chain logistics. However, China's cold storages are low in concentration and scattered. Only in East China, North China and South China have large cold storages built, which directly leads to the limited trading and distribution process of fresh products in China. If cold storages are widely built in various regions, the construction costs and operating costs will be "red line warning".

2.2. Shortage of transportation branch lines

Although the development of China's logistics network in the trunk line has tended to be perfect, many branch lines are still in the exploratory stage. The third-party cold chain logistics enterprises have been established for a short time, and the operation is still in the initial stage. In addition, the attention and investment of all sectors of society to the branch lines are too low, resulting in a shortage of transport branch lines. Most fresh products come from rural areas or industrial clusters. There are many logistics links that need to be connected to deliver fresh products to consumers as soon as possible. The network branches in rural and remote areas are underdeveloped, products cannot be transported, and consumers cannot buy them, which leads to unbalanced supply and demand, and products are unsalable, consume too much and waste resources.

2.3. Short delivery time

For many years, China's logistics distribution has basically followed the process of product → manufacturer → distribution center → distributor → distributor → consumer. With many transfer links and long delivery time, it is not suitable for the customer-centric market environment. The consumer market has driven the passive upgrading of the industrial chain. The existing distribution center's working mode has been far from meeting the distribution needs. With the continuous availability of new products, consumers have compared with the past shopping situation, The number of purchases is increasing, the frequency is accelerating, the delivery time is required to be high, and the delivery quality is strict.[3]

3. Innovative points of cold chain logistics of fresh e-commerce under the new retail model

The traditional cold chain logistics of fresh food e-commerce focuses most of its work on the circulation process. Due to many transport links and complex transportation, the products are distributed layer by layer and distributed to consumers, causing serious resource waste. Under the new retail model, the cold chain logistics of fresh e-commerce places more emphasis on taking consumers as the center, approaching consumer demand, meeting consumer demand from the aspects of system innovation and process reform, while ensuring the standardization and scientificity of distribution services, reducing the cost and resources wasted in the logistics link, improving service quality, and clarifying the direction and focus of logistics change under the new retail model. The transmission link of cold chain logistics of fresh e-commerce under the new retail model is mainly

divided into three aspects, namely, cloud warehouse, trunk logistics, and the last kilometer logistics.

3.1. Cloud warehouse

Cloud warehouse is a cloud warehouse. As a new model of third-party logistics services, it provides resource warehousing and distribution services to the social level. The concept of cloud warehouse has promoted the innovation of major e-commerce platforms and logistics enterprises, such as Suning Cloud Warehouse, Postal Cloud Warehouse and other self-built cloud warehouses. The influx of many platforms has lifted the volume of the product market, increased the repurchase rate of fast and high-quality products, and improved consumer support. After signing the cooperation agreement with the cloud warehouse, the fresh food e-commerce will sort out the product inventory according to the market data, use the information processing technology to plan the warehouse construction layout, and use the best cost performance method to deliver to consumers. At the same time, the automation and intelligence of cloud warehouse sorting, packaging, outbound, etc. will be improved to reduce the labor cost and improve the logistics efficiency.

3.2. Trunk logistics

Cold chain trunk logistics mainly refers to the cold chain logistics distribution services that are completed in cities based on cold storage technology and equipment. At this stage, most fresh e-commerce enterprises choose the half way cold chain logistics distribution mode in the logistics distribution link. For the community's retail consumers, the half way cold chain logistics distribution costs are high, but they only enjoy the same distribution services as bulk group purchase. Therefore, under the new retail mode, a new distribution mode that combines online information, offline logistics and physical stores came into being. By expanding the number of stores and regional location distribution, we expanded the scope of distribution, radiating three kilometers from the store as the center, reducing the distribution time. Due to the saving of distance and time, we can effectively reduce the distribution cost by using the distribution packaging form of incubator+ice bag.

3.3. Last kilometer

The last kilometer distribution problem in the logistics industry has always been a problem in the industry, and has been in a fragile balance between distribution efficiency and operating costs. The "last kilometer logistics" is also known as local delivery and local "light logistics". What we seek is to maximize the efficiency and speed. The trunk logistics of fresh products has become more perfect. The last kilometer problem under the new retail model needs to be solved more. We should strengthen the storage conditions and environment of trunk terminals in the system, advocate the service awareness of "door-to-door delivery", and improve the consumer experience.

4. Remodeling the cold chain logistics of fresh e-commerce under the new retail model

4.1. Relying on information technology to drive connectivity

In the new retail mode, the application of advanced technologies such as blockchain and big data in the operation of fresh food e-commerce supply chain can improve the operation efficiency of fresh food logistics. At the level of information collection, establish and improve hardware and software facilities such as the integration of modern agricultural Internet of Things, blockchain technology, RFID, location tracking, and comprehensively and completely track and collect information on all aspects of fresh commodities from source procurement to cold chain transportation to terminal sales

in real time; we should deeply explore the application of cloud computing technology and big data, further integrate and process the massive data information of fresh commodities, and use the information results as a reference basis in the top-level design of agricultural product production, cold chain logistics and transportation, information traceability query, procurement and stocking, marketing and other modules, so as to promote the interconnection of fresh e-commerce supply chain information.

4.2. Strengthening channel cooperation and integrating and complement advantages

Under the new retail mode, fresh products have been distributed in the online and offline sales paths. At the same time, offline experience platforms for catering, shopping and entertainment have been merged, and fresh sales scenarios and marketing forms have been diversified to counter the war, to achieve a channel matrix, and to promote cross selling and integration and drainage. Consumers are seamlessly connected in all aspects of search, purchase, payment, receipt and after-sales. Cold chain logistics is the link connecting all links, and also an important factor determining consumer experience. We should integrate and optimize all links, promote the development trend of mutual cooperation and integration of online and offline dual channels independently, and form an organic cold chain logistics transportation integration.

5. Innovative ideas on cold chain logistics of fresh e-commerce under the new retail model

Under the new retail mode, the basis and premise of participating in decision-making is to conduct in-depth mining and real-time sharing of all kinds of information in the fresh food supply chain. Through the organic integration of fresh product supply, online and offline sales, and cold chain logistics services, the overall profit of the fresh e-commerce supply chain system is maximized, and the efficient and coordinated operation of the fresh e-commerce supply chain is promoted.

5.1. Coordination of supply chain information

Fresh food e-commerce is the key to promoting the coordination of supply chain information. It plays an irreplaceable role in China's important task of collecting, analyzing, sorting, processing and transmitting system information. The fresh e-commerce as the organizer will conduct interaction and communication among fresh suppliers, e-commerce, cold chain logistics and consumers, promote the establishment of a sharing platform, and promote a win-win situation under the new retail model.

The main work is carried out from these three aspects: first, fresh food e-commerce relies on the information collection system to collect data from consumers, forming a portrait with high personal attributes and consumption habits. The key information includes age, gender, occupation, region, etc., highlighting the buying habits of different groups in different consumption scenarios, and providing consumers with more desirable fresh products through the precise promotion of big data integration. The second is to strengthen the transmission and sharing of information. Fresh e-commerce will share the key information in the collected consumer portraits to fresh agricultural product suppliers through the sharing platform. Suppliers receiving effective information will organize production planning according to consumer demand, adjust the production structure of fresh agricultural products, and promote the harmony between supply and demand of fresh products to improve the transparency of information. The third cold chain logistics selectively plans and builds storage platforms and distribution centers through consumer regional information, improves the timeliness of road transportation, and reduces resource waste, shortens distribution distance, in order to improve service quality, and optimize consumer experience. Timely sharing of information coordinates the interaction between various subjects can break through upstream and downstream barriers, and provide basic

guarantee for the circulation of fresh food under the new retail model.

5.2. Coordination of supply chain channels

The main elements and key features of the new retail model are the deep integration of "online+offline+logistics". In order to ensure the stable operation of the new retail model, it is necessary to coordinate the supply chain channels.

The main work is carried out from the following three aspects: First, innovate the business form on the basis of scientific and reasonable planning and controlling the proportion of channels. Fresh food e-commerce can speed up the laying of offline channels by establishing their own warehouses or establishing cooperation with retail distributors in early exploration according to their own realities, determine the categories and quantities of fresh food sold according to the characteristics of different channels, and improve the overlap rate of hot selling products in different channels. At the same time, we should focus on the form of business to provide consumers with a more comprehensive range of services. Second, close interaction between online and offline channels forms a closed loop. We can use earth, check and order fresh products offline through online APP to obtain product information through scanning code to promote traffic integration. In addition to supporting offline self-collection, the online platform strengthens customer retention by pushing coupons, membership coupons and other marketing methods. The third is to use the construction of front warehouse to realize the integrated distribution of online orders, optimize the distribution path, reduce the distribution pressure, adapt to the characteristics of short cycle, many varieties, small batches and frequent batches in the cold chain logistics of fresh products, and jointly solve the high transaction costs and the waste of warehousing resources.

6. Conclusion

To sum up, under the innovation and reform of the retail model, fresh e-commerce and cold chain logistics should actively seek a breakthrough, use the existing resource innovation business model, establish an information sharing platform, and break through the barriers between agricultural product manufacturers, fresh e-commerce and cold chain logistics, combine cold chain logistics with online and offline channels, in order to establish a mutually beneficial and win-win cooperation relationship, and effectively coordinate production, transportation, sales, distribution after sales and other links to achieve the coordinated development of the fresh e-commerce supply chain under the new retail model.

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