Research on Terminal Distribution Model of Urban Logistics

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Abstract: Aiming at improving the efficiency of express terminal distribution, this paper analyses two modes of domestic terminal distribution and establishes a new mode of terminal distribution based on resource integration and redistribution; The problems of terminal distribution are analyzed from six aspects, the process of terminal distribution is simplified, reengineered to improve the quality of service and reduce the cost of express delivery industry. Finally, the Countermeasures of terminal distribution are put forward, which can help express industry to produce intensively, run efficiently and provide high-quality services, and realize the sustainable operation of logistics industry.

1. Introduction

With the rapid development of modern logistics, strong demand for e-commerce and policies, express delivery industry has been actively adapted to the new economic norm, maintained a steady and healthy development trend. In all links of express delivery service, terminal distribution is the final step of distribution, which is the link of facing the final consumers and developing services. Its service quality and efficiency often affect consumers' impression of express companies. At present, there are always high delivery cost, low service quality and low efficiency of delivery at the end of express delivery, which seriously restrain the process of efficient operation and intensive production of express delivery industry. At the same time, the low efficiency of delivery at the end of express delivery directly affects the transportation, economic benefits and resource waste of the society. China's huge freight demand makes the domestic logistics industry rise rapidly, but the terminal distribution is always a difficulty. Under such circumstances, China needs to speed up the reform and innovation of the terminal distribution mode.

2. Analysis of domestic terminal distribution mode

2.1 Parcel collection service (CaiNiao station)

CaiNiao station is a network platform for community and campus logistics service led by CaiNiao network. Provide parcel collection service for online shopping users, the company is committed to providing diversified last-mile services for consumers. For users with inconvenience in receiving goods and need to protect privacy, when you fill in the address after placing an order on Tmall and TaoBao platform, you can use the parcel collection service for free by selecting "CaiNiao station" launched by CaiNiao network from the page. In addition to the continuous development of Cainiao Courier station's free parcel collection service, CaiNiao network will also cooperate with its partners in the delivery; Reduce the logistics cost of the last kilometer by integrating the bulk user delivery demand, optimize timeliness and improve user experience.
2.2 Self-established logistics distribution mode (JingDong)

It is that each link of logistics distribution is managed and operated by themselves, Through the establishment of a complete and advanced distribution system to complete each distribution task, including the enterprise's internal logistics and external logistics. This mode of operation is conducive to jd's own management also in Beijing, Guangzhou, Shanghai, the establishment of a number of self - pick point. After receiving the arrival information, the customer goes to the pick-up point to pick up the goods. Jd's choice of such self-run logistics makes it more convenient to supervise and control every link of logistics, and can guarantee the high quality of services. improving customer satisfaction and loyalty and making the company more competitive.

3. The Analysis of the Problem of the End-distribution

3.1 Imperfect distribution facilities

Now Shunfeng, JingDong and other express delivery companies are facing the end of the distribution of vehicles, unreasonable personnel allocation problems in addition, that express clerk often face the situation that it is not possible to enter a cell, a unit or a school, and only the package is registered in a cell property or a unit, a school, a transceiver room, or a customer can call himself to the door pick-up, and in the case of a multi-express part in the same area, The courier will regularly inform the consumer that the express is put in place, the delivery efficiency is reduced, and the customer satisfaction is affected.

3.2 Imperfect distribution system, Lack of supervision in enterprises

The institutional environment required for the development of distribution mainly refers to the talent management system, market access and introduction system, etc. In particular, problems that are not easy to solve are mostly caused by imperfect systems, The most typical is that each express branch, point department and district department are not in close link with each other, and the whole-in-one and overall planning is not perfect. In addition, the operation of the enterprise lacks supervision: Express delivery industry specification is weak, many links lack of measures and methods, such as delayed lost parts processing, delayed delivery, time-out delivery and other issues.

3.3 The speed can't meet the demand for freight

Many express delivery companies have carried out services such as "the next day" in order to meet the needs of consumers, but also ask the consumer to pay more of the express cost to make up for the delivery cost of the express delivery. Even so, the express company cannot guarantee the arrival of the goods on time. JingDong Mall's logistics development speed obviously lags behind its huge sales volume, and Yuantong, Yunda and other express delivery due to the huge volume of cargo resulting in end-to-end distribution congestion and speed decline problems frequent.

3.4 Distribution peak problem

As the domestic logistics distribution started late, its shortcomings and loopholes will be highlighted when encountered with the peak of e-commerce transactions, this often occurs on holidays, double Eleventh Day and other large-scale promotional activities. E-commerce war brings amazing sales performance, but also for the downstream of the express delivery industry has brought huge workload pressure. The number of deliveries has doubled, parcels have been damaged and the number of lost packages has increased dramatically.

3.5 Environmental problems are serious

In 2016, more than 30 billion couriers in China were used, with 12 billion plastic bags, 14. 4 billion packing boxes and 24. 7 billion meters of sealing tape. The massive amount of express waste is becoming a nuisance. Among them, the main material of tape is PVC, which takes nearly a hundred years to dissolve. And the express industry uses the non-natural degradable plastic bag and the
adhesive tape every year, and the carbon dioxide discharged by the delivery industry can reach 2000 million to 30 million tons. This has caused the environment of our country to have no influence on the economy, and also caused the waste of the resources and restricted the development of the economy.

3.6 The end point is difficult to install and the profitability is difficult
One of the reasons why it is difficult to install a dot at home is that the common people do not like it in front of their own home, The residents feel too noisy, in addition, it is difficult to make a profit recent years, continuous low-cost competition and rising costs, especially the cost of land, housing, facilities and equipment, and manpower costs have continued to rise, resulting in continued compression and even loss of profits at the end of the network. This has a great negative impact on the quality of end-to-end delivery service.

4. A Comparative study of the original urban terminal distribution Mode and the existing Model

4.1 Analysis of the Distribution process at the end of the original City
There is a waste of many-to-one resources in the original urban distribution. Each distribution brand runs in its own system, which leads to traffic congestion, low distribution efficiency, repeated waste of resources, demanding customer requirements and other problems to be solved urgently at the end of the distribution. In order to solve this series of problems, logistics and distribution companies need to increase the cost of vehicles, personnel and so on to reduce the delivery range of couriers and speed up the efficiency of distribution. As a result, many small express companies go bankrupt. The integration and redistribution of terminal distribution resources can integrate these scattered resources, enlarge the industrial chain, form a new mode of operation, and reduce the cost of logistics and transportation. In the multiple integration and redistribution of unified standards, can achieve cost reduction and efficiency. The existing urban end distribution is shown in Figure 1.

![Figure 1 Existing city end delivery schematic](image1)

4.2 New Model of Terminal delivery
The problem of Convective repetitive Transportation in the New Terminal delivery Model of "resource integration and re-allocation", The rational differentiation of the logistics distribution area is carried out by using the idea that the block chain is de-centralized, and the cooperative co-win is the integral and re-allocation of the resources and the rational use of the resources to form the scale of the industry, strictly control the transportation cost and reduce the transportation cost of the social logistics. Take "Internet + information" as the main line, constitute the information flow first, In the distribution and recovery of goods can be done in advance planning, to achieve the precise use of logistics facilities and equipment. Let each transport link seamlessly, achieve reduce the social cost of logistics, improve the quality of logistics services.

The existing end-of-city distribution is shown in Figure 2.
4.3 Terminal Distribution process Reengineering Design

End-to-end distribution process reengineering can integrate resources, Resource integration. We need to analyze the rational use of resources, so that the least resources can create the greatest value. In the process of integration and redistribution, we can reduce capital input, personnel management, convective transportation and empty load rate, environmental pollution, sustainable development, promote the socialization of logistics and create social welfare. The end-to-end distribution process reengineering design is shown in Figure 3.

5. Countermeasures to solve terminal distribution

5.1 Set up collection service outlets and solve the problem of repeated distribution by self-pick-up counters

Third-party platforms with certain qualifications and abilities are responsible for collecting parcels from users and providing other related services Typical enterprises such as CaiNiao post, Panda station platform. Intelligent express self-pick-up cabinet, in this way can achieve the delivery personnel can not wait for the user to pick up, also do not need to send the second, thus saving time, effectively improve the efficiency of distribution. At the same time, the intelligent express cabinet can also operate around the clock, and users can send and receive express at any time, which is conducive to improving consumers' satisfaction with logistics services. Typical enterprises such as FengChao technology, Express delivery

5.2 Apply co-distribution

For goods with special requirements, such as high value, fresh and other goods, the delivery service quality and timeliness have higher requirements. This led to a co-distribution model for the "last mile".
Such as city 100 joint distribution. City 100 takes open stores as the platform, C2C express and B2C distribution as the basis, integrates upstream and downstream suppliers and service providers, and builds a terminal logistics distribution and social service platform for the public.

5.3 Application of community convenience store model
Make convenience stores become self-pick-up points and improve the network coverage of express delivery. This will not only socialize the distribution at the end of the city and allow consumers to choose their own pick-up time gradually, but also transform the chain outlets from shopping convenience to service convenience. For convenience stores, the cooperation with express delivery companies can not only bring extra income to the stores by collecting relevant fees, but also attract customers for them through self-collection, increase the customer flow of the stores For customers, they can choose the convenience store to pick up by themselves, which provides convenience for them to pick up and shopping and saves time.

5.4 Carry out uav distribution mode
The bottleneck of "the last mile" of logistics distribution is a problem faced by many logistics enterprises. One of the main reasons for this problem is road congestion. Introduce drones into logistics and distribution, and develop low economic value. The expansion of the spatial scope of logistics activities and reduce the time lag in the delivery process.

5.5 Develop unmanned distribution vehicle model
Unmanned delivery vehicles can realize mass delivery for office buildings, neighborhood convenience stores and other places where orders are concentrated under the urban environment. Their excellent flexibility and unmanned application will greatly improve the delivery efficiency, unmanned vehicle distribution will become an effective solution of "the last mile" intelligent logistics.

6. Conclusion
Win-win cooperation, information sharing, specialization, standardization, intelligence, supply chain system is the development trend. Only cooperation can develop, cooperation can win-win, cooperation can improve. In this era of market economy and the Internet, where competition is very cruel and fierce, win-win cooperation is the choice of the times. The success of many things lies in cooperation, cooperation can also highlight win-win results, work hand in hand, and win-win cooperation is 11, But it is not equal to 2, but more than 2, cooperation can make both sides difficult, win-win business opportunities, boost confidence, common development.

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