

Study on Optimization of Recycling Mode of Shared Express Box

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Abstract: In recent years, China's logistics industry market has been booming. The problems of express packaging exaggeration, low recycling rate and waste of paper materials are becoming increasingly prominent. Therefore, major e-commerce companies have begun research and development of express package, and Suning has launched a "Shared express box" for the recyclable express packaging mode. The article discusses the development status of the recycling mode of Shared express box in Suning, analyzes the problems existing in the operation of Shared express boxes in Suning, and proposes an optimized scheme of the recycling mode of Shared express box.

Keywords Shared express box; Recycling; Reward and punishment system; Cyclic utilization

INTRODUCTION

Suning Shared express box development status

The Shared express box is a recyclable express package. The "Shared express box" launched by Suning uses environmentally friendly high-tech materials, which is characterized by light weight, ruggedness, non-toxicity and harmlessness. It has the unit price of 25 yuan, the service life for 1000 times, and the single cost of only 0.25 yuan, which is 0.6 yuan lower than the corrugated carton in the same specification. As of October 2017, Suning Shared express box has been promoted and used in 13 cities including Beijing, Shanghai, Chongqing, Shenzhen, Hangzhou, Zhengzhou and Jinan.

According to relevant information, the main recycling work of Suning Shared express box is undertaken by Suning Logistics Company. Its operation process is shown in Figure 1:

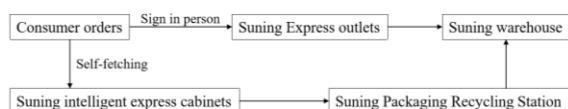


Figure 1. The operation process of Suning.

The recycling system is divided into two ways: one is that after the consumer have signed and unpacked the package in person, the courier delivered Shared express box directly to the Suning warehouse; the second is for consumers to sign for the package at Suning's self-collecting counter [Chen, et. al., 2019]. After obtaining the package, folding the Shared express box and putting it into the Suning Packaging Recycling Station, the courier will recycle it to the Suning warehouse [Zhang et. al., 2018].

SUNING SHARED EXPRESS BOX DEVELOPMENT STATUS

Unable to accurately track the location of the Shared express box after signing

In recent years, the logistics tracking system has been gradually improved. Although the logistics tracking systems of various logistics companies are not the same, they are relatively complete on the whole, and people can understand the logistics information of express delivery anytime, anywhere. During the circulation of the Shared express box, the logistics company shall accurately track the location of the express box after signing for it [Zhu, et. al., 2018]. And recycle this box in time after the customer signs, otherwise the recycling will not continue.

Difficulties in Shared express box recycling

To fully promote shared express box, a recycling system that can be operated systematically is required. In the recycling process, face-to-face recycling of the Shared express box not only increases the workload of the courier, but also increases the extra work of the consumer: When consumers are inconvenient to take out the contents of the express box and want to take it away, consumers need to return the Shared express box to the Suning Packaging Recycling Station, which conflicts with the autonomous attributes advocated by "smart express" [Liu et al., 2019].

Cleaning problem of shared express box

The Shared express box that has been circulating many times in the market has certain security risks: if the Shared express box has been filled with pesticides, chemical reagents and other goods, how to ensure that there are no residues of harmful substances in the box? In the process of recycling, the Shared express box needs to be fully cleaned and disinfected to ensure consumer safety.

The lack of a reasonable reward and punishment system to urge consumers to return the shared express box

At the beginning of the sharing economy, the deposit mode played a role in the system. Using deposit mode was beneficial to the merchants but left the risk to the users [Zhai *et al.*, 2017]. With the collapse of many companies in the sharing economy, the difficulty of returning the deposit has become a concern of users. After the brutal growth in the early stage, the sharing economy has gradually entered the stage of refined operation, and it has begun to try to get rid of deposit dependence and return to a healthy mode of relying on rent. Eliminating the deposit and implementing credit exemption are the only cures to solve the fundamental problem. At the same time, the user's loan credit is also an unpredictable part of the business, and the improvement of the reward and punishment system is very important.

OPTIMIZED SCHEME OF SHARED EXPRESS BOX RECYCLING MODE

Design the tracking code to locate the shared express box

The popularization and application of QR code technology is becoming more and more common. At present, the QR code scanning technology can successfully decode the QR code on the smartphone to realize the understanding of the logistics delivery status and locate the detailed location of the shared express box. Based on the existing logistics tracking system, when the goods are placed in the shared express box, a QR code is generated. The QR code information includes the logistics number, customer's name, phone number and address, and the logistics information and location of the shared express box. Both logistics companies and consumers can decode this QR code to learn the transportation status of the goods and the specific location of the goods on the way of delivery. When the Shared express box arrives, the customer scans the QR code through the QR code scanning software in the smartphone, and confirms that the information is correct before signing. The customer can choose whether to return the Shared express box immediately when signing or not. When the customer signs the sign and chooses to return the Shared express box immediately, the courier will take the Shared express box back to the logistics company. When the customer is inconvenient to return the Shared express box immediately or inconvenient to sign in person, its QR code will continue to locate the Shared express box until the customer returns the Shared express box to the logistics company. Last the Shared express box complete one shipment, and its QR code will no longer update the location but retain the original information.

Operation process scheme of shared express box

In order to expand the range of application of Shared express boxes and promote Shared express boxes, the article puts forward one flow of the operation mode of Shared express boxes applicable to major e-commerce companies, as shown in Figure 2: after the consumer places an order on the e-commerce platform, the merchant places an order to deliver the express service to the logistics company. Merchants can rent Shared express boxes from surrounding Shared express outlets or Shared express recycling rental cabinets, which will be served by staff. Merchants will package the goods reasonably according to the regulations and hand it over to the logistics company for transportation. Each Shared express box has an independent electronic tracking code. Consumers can track the location of the Shared express box at any time online. After completing a shipment, the previous electronic tracking code will be invalidated to ensure user privacy. In the process of dispatching express delivery, it is divided into two ways: first, the Courier can deliver the goods home and the consumer directly returns the Shared express box to the courier after obtaining the goods. If it is inconvenient, consumers can return the Shared express box to the surrounding Shared express outlets or Shared express recycling rental cabinets later; The second is to place the Shared express box in the Suning intelligent express cabinet. After getting the goods, consumers need to return the Shared express box to the surrounding Shared express outlets or Shared express recycling rental cabinet. Couriers of the logistics company will collect the Shared express box from these places Shared express outlets and the Shared express recycling rental cabinet, and send it to a specific department for disinfection and cleaning. After the Shared express box is cleaned, it will be put into the next round [Zhu *et al.*, 2017].

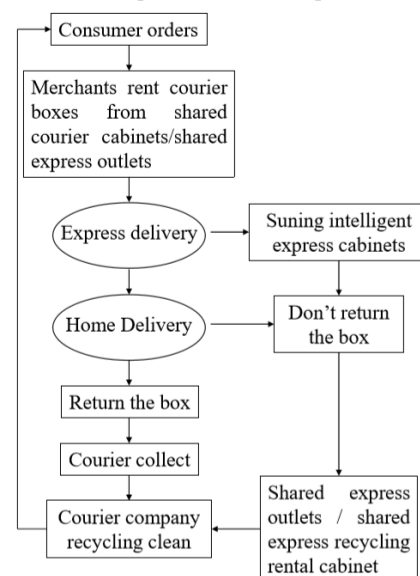


Figure 2. The new operation process.

Reward and punishment mechanism of Shared express box recycling process

The Shared express boxes logistics company signed pre-authorized products with Alipay and configuring credit services. It is mainly divided into two parts: one is the user credit evaluation and guarantee system built by the platform. The details mainly include: ensuring the real name and information transparency of both parties of the transaction through ID card verification, binding real-name mobile phone numbers and bank cards, etc. Improving the user experience of the transaction process through mutual comments and scoring functions of the both parties. At the same time, merchants can pursue information of non-credit users at any time, deduct credit value or pursue compensation from them, and even investigate their legal responsibility; second, the platform companies cooperate with credit reference agencies to strengthen the identification and management of users' credit. At present, in most cases, the cooperation mode of the two parties is mainly based on the output of information from third-party credit reference agencies to merchants. In fact, most of the credit data of credit reference agencies come from banks, insurance, investment and other fields. After cooperation between credit reference agencies and sharing economy companies, Internet-based user credit data may also be included in the personal credit reference system of credit reference agencies. Therefore, similar cooperation will also help to break the invisible barriers in online and offline credit reporting, and continuously improve China's personal credit reporting system [Liu *et al.*, 2018].

At the same time, based on the consumer-side "terminal distribution + green recycling" integrated model, the express company establishes a green recycling reward and punishment system for couriers and consumers. During the terminal delivery process, the courier will give corresponding points rewards according to the size, material and integrity of the recovered Shared express box; consumer who return the box to the Shared express outlets or Shared express recycling rental cabinets in time will be given certain points rewards can be exchanged for gifts when accumulated to a certain point [Chen *et al.*,

2019]. If the customer does not return the box within the prescribed time limit, his/her credit value will be deducted, and the severely untrustworthy person will be compensated, or even be held accountable.

CONCLUSION

In summary, through the industry background and investigation and analysis, this article puts forward targeted solutions to the problems encountered in the current Shared express box operation process, hoping to provide theoretical support and help for the development of the express logistics industry.

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