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SHARED LOGISTICS INNOVATION SOLUTIONS

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Summary

Due to the unpredictability or low accuracy of market demand nowadays, the shared logistics sector will inevitably experience operating losses caused by oversupply or oversupply of logistics service capacity. Currently, China is deepening the supply-side structural reform. In the face of the growing demand for commercial logistics, it is very important and realistic to study how to carry out logistics distribution scientifically. This paper examines different research literature and summarizes the main findings in this research area, focusing on the innovation development process of the shared logistics model. The purpose of this paper is to examine the approach to the innovative development of shared logistics and to describe the process of shared logistics service development from the perspective of logistics service providers. With the application of information technologies such as the Internet, mobile Internet, cloud computing and big data, shared logistics will certainly develop comprehensively in the direction of intelligent sharing, comprehensive innovation, efficiency enhancement and value creation, and numerous disruptive innovations will emerge to drive the transformation of modern logistics.

***Keywords**: Logistics Innovation, Shared Logistics,Sharing Economy, Freight Transportation shared.*

Introduction

In the market atmosphere of mass entrepreneurship and innovation, the sharing economy is considered another "wind vane" for China's economic development. As a new business model, the sharing economy advocates maximizing people's needs by aligning society's existing resources, such as goods, services, data, information and wisdom. Logistics should be an industry with natural characteristics of sharing economy, but in the past, due to information asymmetry, resources were not shared, systems were not collaborative, systems were not interoperable and brought serious waste of resources (Lin, 2020). The essence of shared logistics is to share social logistics resources, which include not only personal logistics resources, but also corporate logistics resources and social public logistics resources. With the development of information technology, promoting shared logistics can bring many disruptive innovations and significantly reduce logistics costs. At present, the comprehensive integration of individual logistics resources, the open use of corporate logistics resources and the in-depth development of social logistics resources are the directions of innovation and development of shared logistics models, driving the changes of shared logistics. With the development of shared logistics, there are many logistics resources that can be shared through sharing. Through the comprehensive and in-depth development of social logistics resources, numerous new models of shared logistics can be innovated, thus improving the efficiency of logistics system, reducing logistics costs and promoting the logistics model of logistics system change.

Research aim: Exploring new shared logistics solutions in the context of commercial logistics

The following **objectives** have been set to achieve the aim:

1. Assessing the current state of business logistics
2. Evaluate the sharing model of existing shared logistics
3. Propose some solutions for shared logistics

Research object and methods

The research object of the article is shared logistics in China, and based on the literature and combined with the current situation, some innovative solutions of shared logistics model are proposed. In the article, a review of the current state of shared logistics was first conducted, mainly limited to academic articles and recent research results. First, a search was made for articles dealing with innovation in general. Considering that the goal of this article is the development of logistics innovation, the research focused on types of logistics innovation. The final search area concerns innovation strategies, again using the general literature, followed by a survey of key factors that promote and inhibit innovation, where both the general literature and literature related to logistics innovation are used.

Literature and development status

Logistics is an important area of the sharing economy (Guasoni, 2018; Ito, 2004). Shared logistics refers to the logistics mode that realizes the optimal allocation of logistics resources through sharing logistics resources, thus improving the efficiency of logistics system, reducing logistics costs and promoting the change of logistics system（Kim, 2021.）. Logistics resources are mainly: logistics information resources, technology and product resources, handling equipment resources, storage facility resources, cargo transportation resources, terminal distribution resources, logistics human resources and cross-border related resources（Korczak, Kijewska, 2019）.

In terms of resource attributes, it includes both personal logistics resources and corporate logistics resources and institutional logistics resources. Among them, corporate logistics resources include logistics enterprises, manufacturing enterprises, trade and circulation enterprises and Internet platform enterprises（Lin, 2007）. The logistics industry has a natural sharing factor, and the phenomenon of sharing logistics resources has existed for a long time. At present, information technology changes such as Internet+, Internet of Things, big data and cloud computing have activated shared logistics innovation, which is the focus of shared logistics development(Tian, 2021).

In recent years, the rapid development of modern information technology such as the Internet, mobile Internet, big data, cloud computing and Internet of Things has promoted the change of the sharing economy model, showing the development trend of private resources development and reuse, industry resources sharing across borders, enterprise resources opening and exporting, and social resources deep development, triggering the sharing economy boom.

Model innovation and development trend of shared logistics

With the development of shared logistics, there are many logistics resources that can be realized through sharing. Through the comprehensive and in-depth development of social logistics resources, numerous new modes of shared logistics can be innovated. The development of shared logistics does not only stop at the level of sharing logistics resources and improving the utilization rate of logistics resources, but furthermore, the sharing of resources will bring about an overall improvement of the operation efficiency of logistics system, which will eventually bring about a change of logistics operation mode and create logistics value. According to this idea, the article will analyze the innovation and development trend of the current shared logistics model.

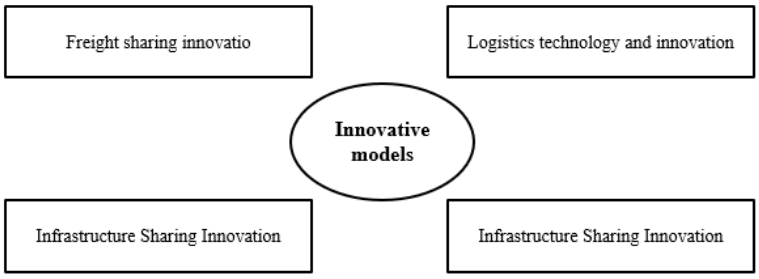

Fig 1. Main innovation models
Source: according to author

I. Innovative mode of freight resource sharing

The biggest problems of the vehicle-cargo matching sharing model are focused on two aspects: standardization and informatization. With the development of the Internet, facing a large amount of freight information and vehicle source information, how to select and match information, how to screen false information and how to use information reasonably has become a hot topic of concern. The standardization and standardization of freight service is another important issue. Passive matching of car to find goods or goods to find car will bring the extension of waiting time for allocation and cannot meet the service demand; if we want timely distribution and often cannot effectively use the transportation resources. The freight resource sharing model is facing the development opportunities and challenges of comprehensively deepening and promoting disruptive innovation.

Logistics first, planning to allocate goods

The key grip for the success of freight sharing mode is "goods", that is, to seize from the source of goods and start matching and sharing vehicle resources according to the source of goods; secondly, "money", the value attribute of goods is "money", the combination of physical flow of goods, virtual flow of money, logistics and capital flow will explode many innovative modes.

From the perspective of cargo source, the optimal model is to integrate the scattered goods and random orders from the source place, and allocate the goods according to the plan based on vehicle resources. Planned economy is theoretically the optimal economic development model, and the biggest problem of planned economy is that market demand is difficult to predict, but with the development of information technology, big data, cloud computing, and the

popularity of the Internet, we can make big data integration and relatively scientific prediction of the most fragmented freight market demand, so that we can realize logistics first and allocate goods according to the plan to a certain extent.

Big data integration, cross-border sharing

Many truck-cargo matching freight Internet companies, in actual operation, found that through the sharing platform can obtain big data information on goods and vehicles, use this information for cross-border sharing, match cargo information with capital flow information, and with the help of real-time supervision and transparent management, can provide information support for logistics finance and supply chain finance, carry out supply chain financing, cargo insurance and other services to achieve huge economic benefits.

Shared truck after-market services

Truck after-market refers to all the services that owners need after the truck sales land, and is an important part of the truck industry chain. At present, many freight enterprises have put forward many service demands to truck market, such as active safety solutions, path optimization solutions, freight platform solutions, energy saving and consumption reduction solutions, loading and unloading solutions, etc. These are all market demands of truck after-market.

2. The mode innovation of logistics technology and equipment resources sharing

Logistics technology and equipment are classified into many categories and are also important logistics resources. Traditionally, logistics technology and equipment are generally shared through leasing mode, such as pallet leasing, forklift leasing and so on. However, in China, most logistics technology and equipment resources are often owned by enterprises independently, and are generally not shared as shared logistics resources. In recent years, with the development of information technology and the change of people's ideology and consciousness, the sharing of logistics technology and equipment began to be recognized by users, and innovative models have emerged.

Automatic logistics system service sharing

In the past, automated logistics systems, such as automated three-dimensional warehouse and conveyor sorting system, were often developed according to customers' needs and handed over to enterprises for operation and management after construction was completed. According to the market demand, with the help of capital operation mode, we can build shared automated logistics systems and use our own technical advantages to carry out shared services, and charge logistics fees according to the stored volume of goods and the frequency of incoming and outgoing logistics. Of course, this innovative idea and direction need to be improved and developed in practice.

Sharing of logistics technology and products

The most prominent mode of sharing logistics technology and products is in the field of logistics packaging, including: logistics crates, pallets and other unitary apparatus, especially the recycling of pallets, not only to achieve the effective use of pallet resources, but also significantly improve logistics efficiency, reduce logistics costs and create logistics value. Another revolution brought by the innovation model of logistics packaging products recycling sharing is the application of logistics packaging boxes in the fresh food logistics system. Fresh food products bring a lot of loss in traditional logistics operations.

3. Innovative mode of logistics infrastructure resource sharing

Traditional logistics infrastructure includes storage facilities, logistics parks, public loading and unloading area facilities, etc. With the development of the Internet, China has vigorously promoted Internet+logistics, and the Internet system based on cloud, end and network has also become a modern logistics infrastructure. At present, the development of logistics infrastructure sharing mode is developing toward deep development, comprehensive opening and extensive sharing.

Construction and sharing of logistics public information platform

Logistics public information platform is a public system project to realize logistics rationalization, logistics network access, logistics operation integration, logistics information electronization and logistics system efficiency, which is a social system project with huge investment, complex technology, wide coverage and long period. The public information platform of logistics mainly includes: highway freight-oriented information platform, logistics park node oriented information platform, city logistics node oriented information platform, public-railway intermodal transportation oriented information platform, maritime customs clearance oriented information platform, e-commerce oriented information platform, warehousing and distribution center oriented information platform, regional comprehensive logistics information platform, etc.

Open sharing of integrated logistics system

In China, both AliExpress and JD are committed to the open sharing of logistics system and to become the infrastructure service provider of trade circulation.

JD is committed to building the infrastructure of trade circulation through the sharing of wisdom logistics + e-commerce platform, and the opening is not only limited to logistics, but also the whole supply chain packaged services, mainly including three levels: one is the sharing of warehouse and distribution supply chain services; the second is the opening and sharing of end distribution services; and the third is logistics cloud services.

More importantly, JD integrates the supply system of traditional stores with the help of open and shared logistics system, builds new channels for traditional stores, subverts the layers of traditional wholesale channels from brand owners to small and medium-sized stores, and can bring changes to traditional retail channels.

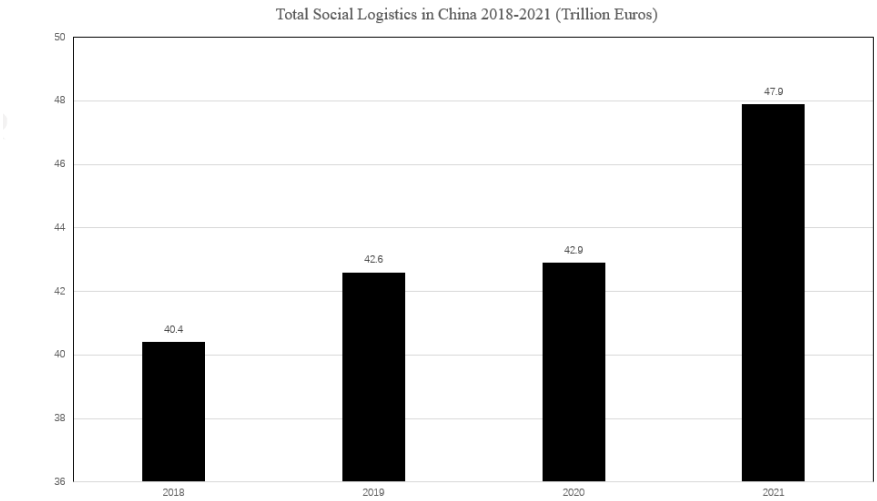

Fig.1 Total social logistics in China (trillions of Euros)
Source: according to China Federation of Logistics & Purchasing (2022)

4. Innovative mode of logistics and distribution resource sharing

Distribution is a common service mode, which includes common use of logistics resources, common use of logistics facilities and equipment, common use of logistics management, etc. It is a natural shared logistics mode.

There are more than ten innovative modes of common distribution, such as: direct distribution mode of circular pickup, common distribution mode of circular pickup, unified distribution mode of collection + collection warehouse, community collection + sub-regional circular distribution mode, common distribution mode of multi-factory collection and so on. Theoretically speaking, common distribution can reduce more than 90% of vehicles entering the city. With the development of Internet technology, around channel co-distribution and product co-distribution, the innovation of urban common distribution develops in the direction of intelligent co-distribution. Through the combination of big data, Internet and GPS, it can instantly integrate the order demand in the region, wisely generate the optimal distribution path, achieve real-time co-distribution and random co-distribution, and fully share urban logistics and distribution resources.

Conclusion

Business logistics is a complex system with numerous links. Shared logistics is an important concept for the development of modern business logistics. With the application of information technology such as the Internet, mobile Internet, cloud computing and big data, and with the Ministry of business comprehensive promotion of logistics standardization, a solid foundation has been laid for the development of shared logistics. It is believed that with the popular application of information technology and the rapid advancement of logistics standardization, shared logistics will certainly develop comprehensively in the direction of wisdom sharing, comprehensive innovation, efficiency enhancement and value creation, and numerous disruptive innovations will emerge to promote the change of modern business logistics.

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