Innovation and Realization of Rural Express Operation Mode----Based On the Perspective of Resource Sharing

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Abstract. with the gradual promotion of Rural Revitalization Strategy in China, the rural economy has developed rapidly, and the rural express business has increased sharply. Facing the strong development potential of the rural express market, the existing rural express operation mode has gradually failed to cope with the booming rural express market, and the operation mode of rural express needs to be improved. At the same time, the rapid development of information technology makes the concept of sharing economy into people's life, and the mode of sharing economy is introduced to solve social problems.
Based on the perspective of resource sharing, this paper analyzes the current situation and existing problems of the operation mode of rural express, and puts forward a new distribution mode—Resource Sharing Distribution Mode, based on information data sharing, facilities and equipment sharing, human resource sharing and other resource sharing. In order to realize the smooth operation of the innovation mode, this paper discusses the feasibility of the innovation mode from three aspects: the establishment of sharing mechanism, the construction of information platform and the design of business process. Finally, we put forward two safeguard measures of benefit distribution and incentive mechanism, and puts forward opinions for the operation of rural express.

Keywords: Resource Sharing, Rural Express, Joint Distribution

1. Introduction
With the continuous development of China's rural Internet economy and emerging information technology, rural express business has shown a spurt of growth. However, the existing rural express infrastructure and operation mode cannot match the increasing volume of rural express. Looking at the existing operation mode of rural express, we find out most rural express operate their own business. The phenomenon of scattered express business in massive rural land results in the waste of infrastructure, information resources, human resources, etc., which means high cost. However, the development potential of the rural market makes the express enterprises have to continue to invest, resulting in the increasingly fierce competition in the rural market and the low efficiency of the express enterprises. How to solve the problems of high cost and low efficiency of rural express operation has been an urgent problem faced by express enterprises in recent years.
At present, the research on the operation mode of rural express mainly focuses on the innovation of the operation mode of "rural logistics" and "last mile", and there are many research results. Most scholars put forward the innovation of rural logistics operation mode from the perspective of sharing economy, including Xinhua [1] and Goldman Sachs [2]. According to the Long Tail Theory, they constructed the Four-in-One rural e-commerce alliance operation mode, the Four are separately Third Party Logistics, Postal Logistics, Passenger Logistics and Grassroots Logistics. At the same time, some scholars have studied and analyzed the mechanism of rural logistics operation under the background of resource sharing. For example, Zhong Yan [3] believes that the innovation of rural e-commerce logistics service mode requires enterprises to optimize supply chain management, integrate rural logistics resources, and attach importance to the development and utilization of logistics technology and equipment and logistics information system, and build an integrated rural distribution operation service organization by means of joint venture, joint construction and equity participation among enterprises. Xing Huiru [4] proposed to establish rural logistics distribution alliance with interests as the link, strengthen the cooperative operation among enterprises, and improve the utilization efficiency of logistics system resources.

However, because of the difference among enterprises, including types, main business, levels of participating enthusiasm, ideas of joint distribution, attitudes to interests’ distribution and value concept, it is difficult for the shared logistics and innovated rural logistics operation mode proposed by previous scholars to be practically operated. This paper argues that sharing logistics based on resource sharing must be carried out step by step, layer by layer and sorted by category. As Zhong Yaoguang and Tang Yuansong [5] think, the construction of ecological model of common distribution system must be based on five aspects: common distribution concept value, core theme, Two-way Market, Flow-Source innovation and positive network effect. Therefore, the research scope of this paper is limited to the field of express, and discusses the optimization and implementation path of the operation mode of rural express under the background of resource sharing.

2. Problems and Innovation of Rural Express Operation Mode

2.1. Problems in the Operation Mode of Rural Express
The most remarkable feature of rural areas is its massive land and population dispersion. Facing the rural market with great potential, in addition of referred features, various mainstream express companies carry out business activities according to their respective development strategies. The traditional way is to spread network extensively, from the franchisee mode to the combination of Cainiao Yizhan and delivery lockers. The modes can meet the certain volume of pickup and delivery business. The specific method is that e-commerce platforms sign cooperation agreements with mainstream express companies in advance, and the express company deliver goods to county-level agencies of the company. Below the county level, delivery is contracted by an individual, the contractors will transport the goods from county-level agencies to village-level agencies, and then the village-level agencies will contact villagers to pick up goods by phone or text message. The traditional operation mode of rural express is shown in Figure 1.

At present, although the existing mode of rural express can meet the needs of rural express market in a certain level, there are obvious problems in cost, resources and efficiency.
First of all, from the perspective of rural consumers, rural express takes too long, the consumption experience is not good, and there is a phenomenon of secondary charging. The process of express from the consignor through the transfer station and distribution point of the express company to the county-level distribution stations basically belongs to the urban distribution system whose relatively complete infrastructure and technology can still meet the requirements of express delivery. However, when goods arrive at county-level distribution stations, on the massive land with sparse population, express companies often fail to deliver or pick up items in time. Consumers need to pick up or send items themselves. In addition, mainstream express companies build their own stations for their own express business, refusing other express companies’. Therefore, if villagers have multiple packages, they have to go to multiple express stations to collect them, which is very inconvenient.

Secondly, from the perspective of express enterprises, large quantity and dispersion of express stations cause huge waste of resources, while the management efficiency is not high. Rural express points are set by residence, characterized by dispersion in no order, bringing huge costs to express enterprises. At the same time, the dispersion causes great troubles to management, especially to picking-up and delivery. Because express stations are far away from home or several packages are distributed in different stations, villagers may not pick up items on the same day, leading to daily backlog of express stations, increased express volume, difficult operation management, and huge cost. Moreover, rural express stations are all privately operated, and the operating time is determined by the villagers themselves. If opening hours change, the villagers cannot be informed in time and effectively. Tracking and information updating can’t be realized due to lack of technology, that makes information sharing unable to be timely and effective.

To sum up, the traditional operation mode of the rural market of express business has gradually failed to adapt to the increasingly vigorous rural market. The phenomenon of each express enterprise operating its own business has not only caused great waste of resources, but also failed to meet the rapid development needs of the rural market under the rural revitalization strategy. Therefore, the innovation of the operation mode of rural express has become a common problem faced by all enterprises.

2.2. Research on Innovation of Rural Express Operation Mode
The innovation of rural express operation mode must be conducive to the allocation and utilization of resources and the improvement of management efficiency. In 1970s, American scholars Marcos Felson and Joan Spence put forward the concept of Sharing Economy, advocating the cooperative consumption mode of sharing the right of use social resources with others, to optimize the allocation
of social resources, improve the utilization rate of resources and reduce the use of resources in consumption cost through Internet and new media.

Rural market has the characteristics of vast land with sparse population and stations dispersion, etc. Facing the rural market, each express enterprise benefits from cooperation. To achieve a "win-win" situation, the primary goal of each express enterprise is to share resources among each other to achieve scale effect. For these problems existing in the current operation mode of rural express logistics, this paper attempts to innovate the operation mode of rural express logistics. So this paper puts forward the idea of resource sharing within express enterprises called express resource sharing mode. As shown in Figure 2.

![Figure 2. Innovation of rural express operation mode](image)

The mode of express resource sharing aims at realizing the strategic objectives of each express enterprise in the rural express market through information resource sharing and distribution resource sharing with the support of emerging information technology. By strengthening the resource coordination and sharing of logistics express resources in a region, planning the whole logistics distribution process, optimizing distribution paths, and planning logistics resources as a whole, we can better solve the problems of unbalanced logistics capacity, uneven logistics resources, complicated logistics mode and so on, quickly forming strong competitiveness, then responding to customer needs quickly and efficiently.

The first is information resource sharing. In the mode of express resource sharing, the effective information is centralized, and an information sharing platform is established to make the new resources run cooperatively and effectively.

The second is distribution resource sharing. On the basis of sharing information resources, all express enterprises will concentrate rural express business and enlarge the scale of rural express business, achieving business scale effect. At the same time, resources such as distribution routes, distribution personnel, and distribution vehicles originally serving own companies will be shared. Unified sorting and distribution will be carried out. Thus, the economic benefit problems caused by small quantity of packages and large distribution range would be solved. For express information resources, express information of various express enterprises in a certain village or town is centralized and shared. Joint distribution is carried according to regions, types and timeliness requirements. At the same time, each express stations classify the returned packages according to different express enterprises. Then returned packages will be concentrated in a distribution center, back to corresponding companies. In the whole process, distribution personnel, distribution lines, distribution vehicles and even stations will be shared. Finally, all-round collaborative sharing of software and hardware resources, human resources and customer resources among express enterprises will be shared.

3. Realization of Innovation Mode If Rural Express Operation

3.1. Establishment of Sharing Mechanism
The above-mentioned innovative mode of rural express operation is based on resource sharing, but the first problem to be solved is the establishment of sharing mechanism if all express enterprises want to share information and resources and achieve common distribution. Gulati [6], an authoritative scholar of American strategic alliance, pointed out, when complementary resources cannot be obtained in factor market, alliance will become the main channel for obtaining. By giving full play to the heterogeneous advantages of alliance members and making full use of the advantages of shared resources, we can effectively overcome the obstacle of insufficient resources of a single enterprise, thus forming a new profit source. Therefore, this paper holds the opinion proposed by Zhao Guanghua [7], that all logistics enterprises can cooperate by establishing virtual alliance through outsourcing, merger, equity participation, joint venture and joint construction, he also believes that forming common distribution alliance is the best way to realize resource sharing of express enterprises and achieve "win-win".

At present, most express enterprises have invested resources in different degrees in rural express market, including customer resources, site resources, human resources, and some other hardware resources for pick-up and delivery. In order to achieve resource sharing, express enterprises together build a Sharing Distribution Center through equity participation and joint venture. Then, the original stations of each express enterprise can be optimized and integrated according to business volume in each administrative region and other factors to form a new network of stations.

In the mode of express resource sharing, member enterprises are discrete. The enterprises with resources and functions involved in the mode are scattered regionally. As a bridge between the shared distribution center and customers, the information sharing platform integrates express logistics resources from a macro perspective and provides related services for the logistics distribution center and customers. Establishing a sound information sharing system can gather kinds of resources, geographical locations and other related information owned by various logistics enterprises, provide candidate partners for the construction of express resource sharing mode, help member enterprises to share information, help users or shared distribution centers to monitor the implementation process of logistics tasks in real time, improve the level of logistics services and better complete distribution tasks.

3.2. Application of Information Technology
In the formation and operation of alliance, the premise of trust is the exchange of information. The construction and use of information platform is the basis of information sharing. The platform serves as the information link for all participating express enterprises to cooperate and make decisions. By sharing logistics express resources, the information platform can logically integrate express orders and make overall allocation of express enterprise resources. It is a platform integrating information inquiry, order management, express tracking, distribution route planning, customer feedback and other functions. Its purpose is to simplify distribution steps, make the distribution process transparent, integrate and arrange logistics express resources as a whole. Finally, the platform will achieve that greatly improving the utilization rate of logistics resources, optimizing the current express logistics operation mode and reducing logistics costs. The main functions of the platform include the aggregation of delivery information, the distribution module of sorting machine, apportion of pickup information, business decision, cost analysis, etc.

In addition, in order to quickly aggregate and sort the express packages of express companies, the platform will adopt the original express bar code of each express company. The automatic sorting technology will be used to improve the sorting efficiency. At the same time, the platform can digitize the express information from sending out to the last mile for the visual effect of the whole transportation.

3.3. Design of Business Process
3.3.1. Delivery business. In the delivery process, each express enterprise aggregates the packages of towns and villages to the shared county-level distribution center, and at the same time, the bar code carrying the express information is summarized to the shared distribution center through the platform. The distribution center carries out unified sorting according to the express information, and designs the distribution route according to intraday express quantity and the final destination. As shown in Figure 3

![Figure 3. Business process of rural express delivery](image)

3.3.2. Pickup business. Under the resource sharing mode, the rural express business of each express enterprise will not change because of the innovation of distribution mode. Each express enterprise will promote according to the own established promotion plan. On the basis of fully respecting customers' wishes, rural express stations will collect packages and make records based on the principle of fairness and justice, and return packages to customers' favorite companies through the shared distribution center. As shown in Figure 4

![Figure 4. Business process of rural express pickup](image)

4. Safeguard Measures

4.1. Establishment of Information Protection Mechanism

Ensure the security of information sharing and avoid unnecessary danger and trouble caused by information leakage. When a user logs in the platform page, the platform provides the corresponding graphic verification code as an authentication measure, so that the user can log in safely after recognition. Information security can be protected by increasing the strength of verification code generation. For mobile intelligent operating system, data encryption is the best way to protect private data. Only the information owner owns the key. Even if the private data is stolen, the security of personal information can still be guaranteed. The management of the platform is also very important. The enterprises should formulate some norms to regulate the collection, storage and use of personal information. Severe punishment measures should be taken for the disclosure of personal information. At the same time, the platform should strengthen the monitoring and management of personal information contact interface and information circulation channels, and encourage the establishment of third-party for security assessment and monitoring.

4.2. Establishment of Fair Distribution Mechanism
The most fundamental purpose among member enterprises is to obtain more economic benefits, so the rational distribution of benefits is the most important aspect. The original intention of each member enterprise is to benefit from the resource sharing distribution mode, and the benefit should be greater than benefit from original mode. Otherwise the enthusiasm of members and the normal operation of the mode will be both affected. In order to ensure the fairness and justice of benefit distribution, the benefit distribution in resource sharing distribution mode should be fully negotiated within members. The interests should be divided according to the number of distribution tasks undertaken and the degree of logistics resources invested. The resources invested by each member and the degree of resource consumption should also be fully considered with all else being equal. More resources are invested and the greater degree of resources is consumed, the greater benefit is apportioned. Benefit distribution is also linked with risks, and members are encouraged to take certain risks. Generally speaking, the greater risk is taken, the greater benefit is achieved.

4.3. Optimization of Performance Incentive Mechanism

By setting up a standardized reward and punishment mechanism, the internal member enterprises are encouraged, so that the members can not only gain their own interests, but also make choices go to development of the model. Then all the members will complete distribution tasks better and improve the performance level. Of course, the incentive mechanism should reflect fairness and justice, reflect members' contribution to joint distribution tasks, and share and interconnect with risks.

5. Summary

This article analyzes the current situation and problems of rural express logistics operation mode, and finds that there are some problems in the current operation mode, such as too scattered rural logistics sites, too long delivery duration, poor consumption experience, lack of information platform, large volume, and inability to achieve large-scale development of rural logistics management. For these problems, we try to develop a new operation mode-express resource sharing mode, including integrating logistics express resources, reducing transportation nodes as many as possible, reducing storage costs, transportation costs, saving transportation time, finally greatly reducing the total logistics costs. Establishing a shared distribution center is beneficial to resource integration of major express logistics companies in a region, promote the re-optimization and combination of logistics resources, promote the sharing of logistics resources, improve the overall distribution efficiency, make the express logistics distribution process open and transparent, track the express and update the express information in a timely and effective manner, and facilitate users to view it in real time. To a certain extent, optimizing the existing rural express logistics operation mode can objectively improve rural express distribution efficiency and users’ satisfaction. Rapid response to user needs can be realized by integrating logistics resources, reducing circulation costs, improving logistics value and improving logistics resource use efficiency. Finally, this mode will promote the healthy and stable development of rural logistics, thus promoting the further development of rural economy to a certain extent.

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