Feasibility Analysis of Joint Transportation between Express Enterprises and China Railway Express Company

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How to cite this paper: Xu Jiang. (2023) Feasibility Analysis of Joint Transportation between Express Enterprises and China Railway Express Company. Engineering Advances, 3(3), 191-194. DOI: 10.26855/ea.2023.06.007
Received: May 30, 2023
Accepted: June 28, 2023
Published: July 26, 2023

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Abstract
The volume and income of postal express industry are increasing year by year. It is imperative for express enterprises and railway enterprises to cooperate in combined transport. This paper firstly analyzes the reasons for the increase in demand for high-speed rail capacity of express delivery enterprises. With the booming development of express delivery industry, the express delivery industry increasingly hopes to combine with the railway sector for transportation, so as to reduce the cost of enterprises and continuously improve the competitiveness of express delivery enterprises. Secondly, the paper analyzes three advantages of high-speed railway to deliver express parcels, namely sufficient capacity of high-speed railway, railway enterprises with express handling equipment and enough operators; Finally, it is clarified that the cooperation between express enterprises and express companies to transport goods includes urgent goods, e-commerce goods, time-bound goods, high value-added goods, which lays a foundation for further deepening the cooperation between enterprises.

Keywords
Express delivery enterprise, high-speed rail express, joint transportation, feasibility

1. Demand analysis of express enterprises and China Railway Express Company to carry out combined transport

1.1 The traffic volume of China Post express delivery industry is constantly increasing

Express delivery infrastructure is not perfect, and the service level is constantly improved. In the past decade, China's express delivery industry has developed very rapidly, mainly due to the rapid development of China's online retail industry. By 2022, China's express delivery industry will have 343,000 service outlets, including 287,000 rural administrative villages, and nearly one million express delivery vehicles, with a growth rate of 9.1 percent.

1.2 Characteristics of the express delivery industry

For the express service industry, because of the provision of the required delivery time, it must be delivered within the specified time period. Once the specified time period is missed, the value of the express delivered will be greatly reduced. For example, fresh express, such as express with high requirements of total transportation time requirements, also requires that the overall transportation time can not be too much deviation from his expected transportation time, and this deviation can be expressed by the delay rate. The delay rate of express service is closely related to the reliability of express service. Therefore, express enterprises will consider a variety of transportation modes for different timeliness requirements. Express enterprises choose express transportation routes based on the timeliness and safety of different express service products, as well as the availability of different modes of transportation in space and region [1].
The cooperation between express delivery enterprises and different transportation enterprises should consider the stability and timeliness of the transportation enterprises. Generally speaking, the timeliness of high-speed rail and air transport is the strongest, but air transport is greatly affected by uncertain factors such as weather and climate, and the stability of transport is not as strong as that of high-speed rail. Therefore, express enterprises and high-speed rail express enterprises to carry out joint transport willingness is very strong.

1.3 Need to enhance the green competitiveness of express delivery enterprises

In the development of enterprises, both the economic benefits and social benefits should be taken into account. More and more enterprises realize the important role of social responsibility in the development. How to build enterprises into sustainable and environment-friendly enterprises has also become an important indicator for enterprises to enhance their competitiveness. Therefore, put forward the definition of enterprise green competitiveness: enterprise to protect the environment, realize the human society, nature society sustainable development as the goal, to meet the market demand, improve the economic benefit of enterprise in the process, through the input and management of green resources, pollution control, save resources, the combination of governance and source control form the core competitive advantage. Whether or whether this competitive advantage directly acts on the economic performance of enterprises, it will help to realize the sustainable development of enterprises.

Express enterprises in the process of promoting green competitiveness should invest green resources (including equipment, capital, talent, technology), strengthen the green management and a series of green practice, actively cooperate with China railway express company to carry out the transport business, using the high iron strong transport capacity, reduce express carbon emissions, gradually enhance the green competitiveness of the enterprise, so as to improve enterprise revenue and market share, improve customer relations and business reputation at the same time effectively control pollution, save resources, realize the sustainable development of the enterprise.

1.4 The proportion of long-distance business volume and income in the express delivery industry has increased year by year

Economic and social development is inseparable from the development of logistics industry, and logistics is mainly in the express business of less than 30 kg. The express industry is divided into three sectors: same city, remote, international / Hong Kong, Macao and Taiwan. At present, China's express delivery industry is dominated by long-distance express delivery. In 2020, the volume of long-distance express delivery in 31 provinces and cities in mainland China was 69.36 billion, accounting for 83.2%, and the volume of international express delivery in Hong Kong, Macao and Taiwan was 1.84 billion, accounting for 2.2%. While the competition of the traditional e-commerce express business intensifies, a new retail model has emerged to reshape the commodity supply chain to meet consumers' diversified demands for logistics scenarios. Especially for clothing, FMCG, agricultural products, fresh products and other daily goods, express enterprises can create better and more convenient user experience for consumers by means direct production, store direct sales, route optimization, digital platform and supply chain optimization. The comprehensive service ability of various express delivery enterprises in the market competition is constantly improved, which will create more value for customers. High-speed railway can use the remaining capacity of passenger transport and cooperate with express enterprises for express transport, which ensures timeliness and safety and meets people's high standard demand for express service.

To sum up, relying on the great advantages of high-speed rail network, it is very necessary for express enterprises to realize convenient and safe express transportation in different places. Railway express enterprises also have long-distance and high-speed operation capacity, which lays a solid foundation for future cooperation.

2. The favorable conditions for railway enterprises to develop high-speed rail express delivery

The decision-making leading enterprise of high-speed railway Express is China Railway Express Co., Ltd. (hereinafter referred to as China Railway Express), with 18 regional branches, 13 provincial and municipal branches (central business departments) and 8 subsidiaries in the mainland region, and nearly 2,000 business organizations across the country. China Railway Express is the same foreign business entity of China's railway high-speed rail express, package express, cold chain transportation and international express business, and is the backbone of the national railway freight receiving and delivery.

2.1 Make full use of the remaining capacity of high-speed train passenger transport for long-distance express delivery business

There are four main ways to carry out express delivery business using the EMU: train inspection and confirmation of train delivery, passenger EMU delivery and high-speed train reservation mode, and the operation of high-speed rail freight trains [2].
The moving inspection confirms that the train belt is carried by the moving inspection car operated before the high-speed railway operation every morning. The operation inspection confirmation mode does not need carriage transformation, operation map adjustment, platform transformation, additional equipment, etc., and only runs once a day. Use the space of this train confirmation mode to load goods as much as possible, which has little impact on the station and requires not a large amount of cost input, so the mode is highly practical. It has little impact on passenger transport. The dynamic inspection confirms that the car only runs at the daily skylight time. Due to the early driving time, it basically does not affect the normal passenger transportation.

Passenger EMU carrying is the use of normal operation of passenger train EMU to make full use of transport capacity. The passenger and cargo co-transport mode can be delivered frequently according to the train number of the same day, providing a variety of business types. This mode can make use of the free space of each train, such as the gap in the last row of seats, the corridor and other space. There is no special storage and transportation site, and the waybill can be received immediately, and the transportation rhythm is fast.

In volume is larger, can consider in the demand of large demand priority operation bullet freight trains, passenger seats on the passenger seat equipment all dismantled into freight car or rely on new research and development of high-speed rail freight transport, open freight train can meet the large volume, centralization, scale of goods, can directly between important cities or the beginning, end to station "point to point" transportation, need not stop intermediate station, more save transportation time, can be large volume, high speed of goods customized personalized demand and transportation route. These four ways can transport parcels without affecting the premise of passenger transportation, to increase income for railway enterprises.

2.2 Carrying capacity of the EMU carriages

China passenger EMU includes Harmony series CRH EMU and Fuxing series, including CRH 1 series, CRH 2 series, CRH 3 series, CRH 5 series and CRH 6 series; CRH380A, CRH380B, CRH380C, CRH380D and Fuxing standard EMU series [4].

Take CRH380 series EMU as an example, it is composed of 8 fixed groups, with a total number of 480 people. The EMU is in the form of 6 powered vehicles and 2 unpowered vehicles, namely 6 moving and 2 towing. After consulting the information, the EMU is equipped with 400L net water tank 7,700L net water tank 1 (in 5 cars), for the train washing, water dispenser, bus, toilet washing water supply. If the weight of each passenger and luggage is 80kg, excluding the water tank of a total volume of 3500L, the mass of a single seat is 41kg, the mass of double seats is 40kg, and the weight of three seats is 56kg. After changing the internal structure of the EMU, the weight of the whole train of the EMU is not more than 53405kg, as shown in Table 1.

<table>
<thead>
<tr>
<th>wagon number</th>
<th>1 Car</th>
<th>2 Car</th>
<th>3 Car</th>
<th>4 Car</th>
<th>5 Car</th>
<th>6 Car</th>
<th>7 Car</th>
<th>8 Car</th>
<th>amount to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of personnel</td>
<td>46</td>
<td>85</td>
<td>44</td>
<td>51</td>
<td>38</td>
<td>85</td>
<td>85</td>
<td>46</td>
<td>480</td>
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<tr>
<td>Total passenger mass is kg</td>
<td>3680</td>
<td>6800</td>
<td>3520</td>
<td>4080</td>
<td>3040</td>
<td>6800</td>
<td>6800</td>
<td>3680</td>
<td>38400</td>
</tr>
<tr>
<td>Water tank quality kg</td>
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<td>400</td>
<td>400</td>
<td>400</td>
<td>700</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td>3500</td>
</tr>
<tr>
<td>Seat quality kg</td>
<td>1014</td>
<td>1632</td>
<td>1804</td>
<td>2041</td>
<td>736</td>
<td>1632</td>
<td>1632</td>
<td>1014</td>
<td>11505</td>
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<tr>
<td>Total load kg</td>
<td>5094</td>
<td>8832</td>
<td>5724</td>
<td>6521</td>
<td>4476</td>
<td>8832</td>
<td>8832</td>
<td>5094</td>
<td>53405</td>
</tr>
</tbody>
</table>

2.3 There are sufficient operators in railway stations

The main personnel involved in the express work are the staff of China Railway Express Company, the local high-speed railway station contractors, passengers, passenger duty staff, temporary workers, etc. The main division of labor is as follows: China Railway Express staff is mainly responsible for goods handover and freight collection at local station; station staff are responsible for receiving and sending passenger trains, monitoring platform passengers and unloading, and dealing with unexpected problems at any time; temporary workers are responsible for handling goods.

First of all, there should be sufficient operators to ensure that the cargo handling operations can be completed within the specified time. Secondly, the operators should cooperate with the tacit understanding, excellent technology in the handling process to do safe operation.
3. Clarify the category of goods shipped jointly

The characteristics of the joint delivery of goods are mainly reflected in: small batch, multiple batches, and strong timeliness. By referring to the categories of express service goods, the scope of intermodal goods can be determined into four categories: emergency goods, e-commerce goods, time-limited goods, and high value-added goods [5].

Emergency goods are documents or articles needed by customers. The distance is remote and the timeliness requirements are very high, which are generally required on the same day. Such goods can be transported jointly by express delivery companies and high-speed trains.

E-commerce goods mainly come from Taobao and Vipshop and other e-commerce service platforms, with a wide variety of categories, involving clothing, luxury goods, electronic products, etc. As the competition among various e-commerce platforms becomes more and more fierce, the delivery time of the goods is becoming shorter and shorter. At this time, the high-speed rail can be used to transport the goods quickly and safely.

Time-limit goods are generally spot goods products, such as medicine, fresh goods, etc. This kind of goods have strict requirements on transportation environment and timeliness, and this kind of goods are perishable, afraid of wet and other characteristics, which need high quality transportation environment to ensure the quality of goods.

High value-added goods are generally more valuable, not only the high requirements for transportation timeliness, more importantly, to ensure the safety of goods, to ensure that there is no loss, loss, damage phenomenon. For individual goods with special nature, a special transportation environment should be provided to ensure the safe and rapid transportation and distribution of high value-added goods.

4. Summary

The express transportation industry needs the cooperation of various modes of transportation to develop better. The joint transportation not only meets the needs of consumers, but also improves the operating income of express delivery enterprises and railway transportation enterprises [6]. With the deepening of the cooperation, both parties will continue to propose corresponding solutions on the issues such as profit distribution to promote the sustainability of the cooperation.

References


