

Development Mode of Automotive Logistics and Optimizing Countermeasure of China's Automotive Enterprises

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Abstract

With the rapid development of automotive industry and Logistics, automotive logistics which is the most complicated in logistics develops rapidly, but there is a wide gap in automotive logistics between China and foreign countries. In this paper, major logistics operation modes of domestic and foreign automotive industry are introduced, and many problems of Chinese automotive logistics are summarized on the basis of comparison and analysis. The optimizing countermeasure is brought forward to instruct China's automotive logistics to develop better and more rapidly.

Keywords: Automotive Logistics, Logistics Mode, Optimizing Countermeasure

With the development of China's economy and improvement of people's living condition, automotive consumption in China increases rapidly, the annual increase rate of automotive sales volume will reach 36%, which is the second largest in the world. Therefore, the supply of automotive components and vehicle logistics becomes larger. Upon entering the WTO, a plenty of foreign automotive enterprises swarm into China and join the competition of automotive market, bringing huge business opportunities to the automotive logistics market, and meanwhile it brings dramatic challenges to automotive enterprises and automotive logistics market as well, since the development of logistics in China starts late. As a result, in order to improve the logistics service level and reduce the logistics cost to take part into the fierce competition of automotive market in a better way, our automotive enterprises need to build a high-effective logistics mode urgently to confront with the fiercer competition. The optimizing countermeasure is brought forward to automotive enterprises on the basis of research on domestic and foreign automotive logistics mode in this paper, which provides a certain theory reference for our logistics operation of automotive enterprises.

1. Concept and Composition of Automotive Logistics

Automotive logistics is entity flow of automotive producer's raw materials, components, vehicle and spare parts on steps of automotive purchase, production, sales (Fig.1). Automotive logistics include inbound logistics of raw materials and components, garage logistics of production process, sales logistics of vehicle and spare parts logistics, that is including object purchasing, transportation, storage, loading and unloading, distribution processing delivery and information processing. In macro way, Logistics includes recycle of waste as well.

Insert Figure 1 Here

Automotive Logistics is an important composing part of automotive enterprises, and also is a logistic activity with highly complex degree in logistics industry. Comparing to other logistic activities, Automotive Logistics have characteristics of capital-intensive, technology intensive and knowledge intensive. With rapid development of our automotive industry and fierceness of competition of automotive market after entering WTO, Automotive Logistics must play a much more important role in automotive industry, and reduction of automotive cost.

2. Introduction of Typical Logistics Mode of Foreign Automotive Enterprises

Automotive had been invented in late 19th Century in abroad, and had been produced since early 20th Century. Each automotive group has formed each logistics mode, the main logistics modes are followings:

2.1 Vender Zone Mode

As Fig.2 shows, Vender zone mode is that, in order to reduce the transportation cost, the group of components vendors near the automotive plant establishes the large production and supply centre which is the vender zone. The main components vendors of automotive concentrate in the Zone, and they deliver the components to assembly line on time, and meet the requirements of quality and quantity according to the producing plan of automotive factory. Vender zone mode can lower the total cost and shortage risk, and improve utility rate of resource and logistics operation level. But the disadvantage of this kind of mode is that it cannot concentrate all

venders, so it has higher logistics risk and higher requirements for coordination.

Insert Figure 2 Here

Schenker Company built a venter zone in Hanoverian of Germany for VolksWagen Automotive Company, which concentrated main components venders in it and was in charge of the supply of VolksWagen components directly, managing completely on the procedure of venter zone by SAP system, which reduced the transportation cost and increased the operation efficiency.

2.2 Lean Logistics Mode Based on JIT

This mode applies thought of lean production to logistics industry, which can remove some unnecessary wastes and non-value added activities from logistics supply chain. It begins with customers' benefits, according to the whole value to confirm the logistics procedure of supply, production and sales, creates value added activities of nonstop, no detour, no waiting and no backflow, equip and utilize resource of enterprise reasonably, and get the profit at the max limitation. Adopting lean logistics mode can realize zero inventory management and reduce logistics cost, but it is hard to carry out and has higher requirements to information technology. Toyota, Honda, and Nissan have built the system of Lean Logistics Mode Based on JIT, utilized information technology of ITS, GPS, ID to realize lean logistics, and carried out the purchasing, producing and sales.

2.3 Meeting and Parting Mode of High Coordination in Supply Chain

This mode refers to that automotive manufacture enterprises build public data platform, which concentrate information of components vender, third party logistics company, fourth party logistics, automotive distributors and other relative vendors. These enterprises gain each data and information needed by public data platform, highly share information mutually, and make sure supply chain highly public. For example, Volvo Group invested positively on telecommunication infrastructures, and built a highly effective website of AD4 export logistics information system to manage the logistics operation, which collected manufacturer, clients and market seller organically to realize high efficient operation of logistics service. Each enterprise and department on export chain can visit this website's electronic data platform freely, so that cooperation between enterprises and relationship between clients and enterprises will be much closer. The advantage of this mode is that can improve logistics operation efficiency to realize the win-win situation of two parties, and form strategy alliance. But the logistics risk increases because cooperated enterprises are more, and this mode needs the enterprises own higher management ability and information technology level.

Automotive manufacturers, which regard Benz, VolksWagen BMW as representatives, have built their own public platform of data, and realized logistics mode of Meeting and Parting Mode of High Coordination in Supply Chain.

2.4 Fourth Party Logistics Mode

Anderson (altered its name as Accenture in 2001) Consultant Company brought forward the concept about fourth party logistics which is: fourth party logistics vender is a compound vender of a supply chain, which will integrate and manage the resources of company and cooperation enterprises in supply chain, and provide a set of solution of improving the supply chain, including analysis, optimizing and design of logistics system. Such a mode can take advantages of resources effectively, reduce logistics cost, and improve customer service level and logistics operation rate, but the enterprise is bad at self-control and might be at risk. For example, Shanghai General Motors has built fourth party logistics mode with Vector and succeed.

3. Typical Logistics Mode Analysis of Chinese Automotive enterprises

Our automotive logistics develops gradually along with the rapid development of automotive industry, but our logistics industry started in a later time and it is not complete and doesn't form a high-effective logistics mode. Currently, the main logistics modes of automotive enterprises in China are the followings:

3.1 Logistics Integrity Operation Mode Based on self-management (Fig.3)

The automotive enterprises take over all the logistics business, establish their own logistics company or logistics department, set up the warehouse and delivery centre or goods collection centre, and assume the delivery of all raw materials, components and vehicles. This mode is helpful to manage, with strong self-control and less risk; but it increases the investment and cost for enterprises, and has high requirements for logistics management ability, which is not good for the development of enterprise's core business. At present, many our automotive enterprises adopt this mode.

Insert Figure 3 Here

3.2 Third Party Logistics Mode (TPL Mode, Fig.4)

TPL mode is that automotive manufacturer will entrust part of or all the logistics business to third party company for operation, and enterprises are responsible for part of logistics business by themselves or concentrate on their business development completely. And two parties of enterprises highly coordinate and become steady strategy alliance for long term, make logistics solution together, realize highly effective logistics operation, and reach the win-win situation. Such mode has been adopted by more and more automotive enterprises.

Third party automotive logistics enterprises have rich logistics resources, professional logistics management talents and rich logistics operation experience, which can take full advantages of industry distribution. Automotive enterprises can improve logistics operation efficiency by helping from third party logistics enterprises, and implementing the integrity operation of outsourcing to third party logistics company completely has improved logistics service level dramatically, and is helpful for automotive enterprises to concentrate energy to utilize the core advantage. But this mode's enterprise self-control is not strong relatively, and is lacking of client response in time, and has the risk of cooperation with third party logistics enterprise.

Shanghai General Motors has gave third party logistics enterprise the whole supply chain business, it's third party logistics company to manage the whole supply chain procedure directly by dashboard. Faw-volkswagen has outsourced the inbound logistics of import components to third party, while Shanghai-VolksWagen has fully outsourced the supply logistics of components to third party.

Insert Figure 4 Here

3.3 Co-delivery Mode(Fig.5)

Co-delivery mode has two kinds of mode, one is that many enterprises make contributions together to build delivery centre in order to reduce cost and realize the reasonability of logistics delivery, and run the centre together, providing the enterprises with unite, highly efficient logistics service; the other one is that one enterprise takes into consideration of logistics business requirements of many enterprises in a certain area, arranges delivery time, route, and amount of goods reasonably, and delivers them reasonably. This mode is beneficial for utilizing resource advantage, saving investment, decreasing cost, but it's deeply limited by channels.

CITROEN automotive company has adopted co-delivery mode based on JIT, which makes logistics operation highly effective, and reduces logistics cost.

Insert Figure 5 Here

3.4 VMI Logistics Mode (Fig.6)

VMI is vendor managed inventory. Vender manages inventory of automotive company, mastering its inventory information, and carries out JIT delivery according to the company's requirement, as a result, which can decrease the inventory risk of automotive company, and improve its market responsibility. This mode can save inventory cost, increase speed of market responsibility and low down company's risk, but it has a higher requirement for vendor, and vendor has a larger inventory risk, and should deliver goods in small amounts, which may increase cost.

DONGFENG automotive company has adopted this logistics mode. For the local vendor, it's the vendor to monitor in real time the inventory of DONGFENG automotive company, and deliver the goods to a specific correct address on time, by meeting the requirement of quality and quantity; For non-local vendor, DONGFENG automotive company encourages the manufacturers of raw materials and components build warehouse in supplying place and send professionals manage it.

Insert Figure 6 Here

4. Problems existing in our development of automotive logistics

Our automotive logistics industry develops rapidly, compare with that in abroad, our automotive logistics enterprises fall behind in service concept, service quality, service cost, service efficiency, service reputation, service brand and information convey. As the development of globalization and E-business, the logistics modes cannot meet the requirements of logistics business. Main problems existing in our automotive logistics modes are the followings:

4.1 Monotonous and out-fashion Logistics Mode

Our automotive industry and logistics industry develop at a late time, and enterprises fail to be aware of importance if logistics, so they don't form a complete logistics mode. Most of the enterprises adopt self logistics

of unity of manufacture, supply and sales, which is a monotonous logistics mode. As the rapid development of automotive industry, the current logistics modes cannot meet logistics requirements of high efficiency.

4.2 High operation cost

Our automotive logistics lacks of unite plan, barriers of region and system are serious, each automotive group has its own policy, lacking of unite logistics standard and reasonable equipment of resource. Therefore, current automotive logistics modes fail to integrate resource, which repeat building logistics facilities and keep the high cost.

4.3 Low level of operation efficiency and service for clients

Currently, we lack of complete logistics infra-construction and logistics delivery network in domestic, and comprehensive automotive logistics service company. What's more, logistics resource isn't concentrated, and has been wasted seriously. As a result, the efficiency of automotive logistics operation is low, as well as the service level, which can't satisfy the increasing requirements of automotive logistics gradually.

4.4 Deficiency of Top Management Talents

Automotive logistics management people need understand not only logistics knowledge but also logistics technology and business procedure such as automotive manufacture, so comprehensive quality requirements for the logistics management people are very high. Since our automotive industry develop at a late time and lacks of full knowledge of logistics, and we fail to pay enough attention to the training of logistics talents, therefore, the Top Management Talents are lacked of.

4.5 Deficiency of Advanced IT Technology

Internet and information technology develop rapidly these years in China, but the foundation of them is weak, especially in automotive industry with complicated supply chain, they don't penetrate fully, the information technology and information system which are suitable for automotive industry are not complete yet. Automotive logistics fail to implement complete informatization, which makes low efficiency and high cost of automotive logistics management.

5. Optimizing Countermeasure of China's Automotive Enterprises

In view of the problems existing in our automotive logistics, in order to accelerate the development of automotive logistics industry and meet the requirements of logistics service well, the automotive industry has to break current mode and build a new comprehensive logistics mode as the development of time, realizing the manufacture and logistics mainly based on customers-oriented, which refers to build JIT co-delivery and Lean logistics mode based on E-business platform. (See fig.7)

Insert Figure 7 Here

This mode is following the fashion of E-business development, automotive enterprises use advanced information technology to build E-business platform, realizing sharing information with third party Logistics Company, cooperation enterprises and clients, coordinate logistics operation. What's more, in order to increase the logistics operation rate and implement automotive lean manufacture, the enterprises need reduce the cost by carrying out JIT coordinate delivery and lean logistics, and realize logistics operation on time, by meeting the requirement of quality and quantity. To connect each step in logistics into a organic integrity and carry it on, which makes the whole logistics operation process become a value chain of non value added activity, and realize highly effective logistics operation.

Through this operation mode, automotive enterprises, third party logistics company and clients can do the logistics information inquiry and communication by E-business platform, which realize follow-up service of logistics operation. And the enterprises carry out JIT manufacture and purchase by customer-oriented, realize zero inventory operation, remove non value added activity in logistics operation, which reduce logistics operation cost dramatically and improve logistics operation efficiency.

To make this logistics mode carry out smoothly, we need to take logistics measurements which come with the mode:

5.1 Build a strategic alliance relationship

Automotive manufacture enterprises select appropriate third party logistics enterprise by calling for bid publicly, and two parties sign a contract to confirm their rights and obligation, the stronger enterprises could build logistics company by themselves to do the logistics operation of the whole enterprise. Two parties of cooperation become the strategic alliance with mutual win-win situation and moving on the same step, and they won't be not

only a relationship by contract, but take over the logistics risks and develop together.

5.2 Foster and introduce advanced management talents

Enterprises should pay highly attention of introduction and foster of logistics management talents, enhance the training energy for talents, which make enterprises have a group of high quality comprehensive logistics operation talents who know not only management but technology and manufacture procedure, and improve the logistics operation efficiency.

5.3 Improve logistics information level

Enterprises need to introduce advanced logistics technology, and build suitable E-business platform to conduct the full information management on the all logistics procedures, realizing integrity of logistics, information flow and capital flow, and share information with cooperation enterprises to do follow-up service of all logistics procedures.

5.4 Build standardized, professional and normalized automotive logistics companies

To improve logistics standardization and establishment of automotive components standardization, integrate optimization arrangement logistics resource in whole society, further build professional, comprehensive automotive logistics enterprises, forming complete logistics network, as a result, it can provide professional logistics service for automotive enterprises, and realize regional economic effect and improve logistics service level.

5.5 Accelerate the development of third party and fourth party

The enterprises outsource logistics business completely to third party logistics enterprise, and concentrate all energy on core business, which realize the advantage of distribution and promote competitive and core capability of enterprise. Meanwhile, since our third party logistics develops in a late time, so we need to develop fourth party logistics positively, which is that integrate resource in society, relying on excellent 3PL vendor, technology vendor, management consultant and other value added service vendor, and providing unique and extensive logistics solutions for automotive enterprises.

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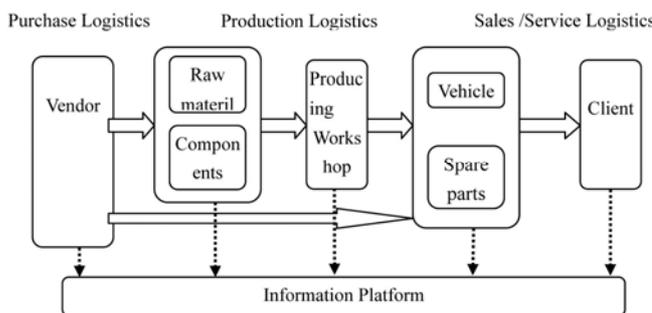


Figure 1. Procedure of Automotive Logistics

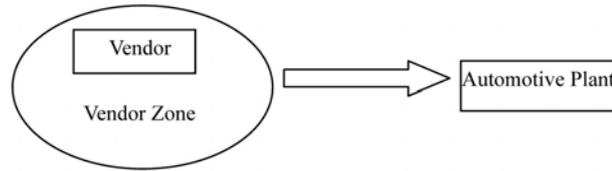


Figure 2. Vendor Zone Mode

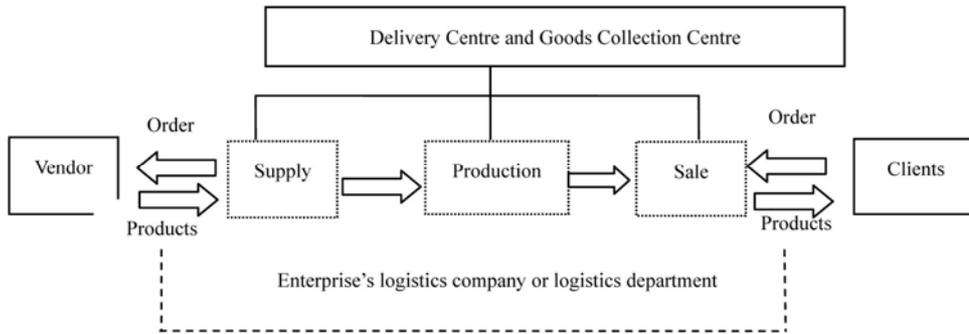


Figure 3. Self-management Delivery Logistics Mode

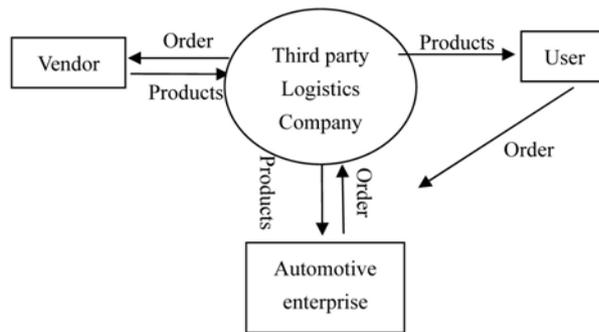


Figure 4. Third Party Logistics Mode

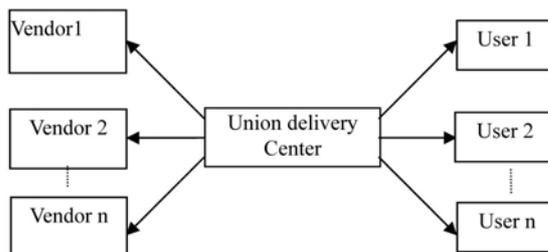


Figure 5. Co-delivery Mode

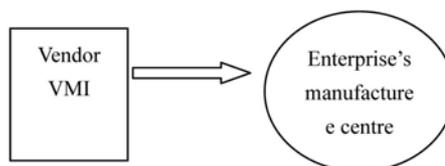


Figure 6. VMI Logistics Mode

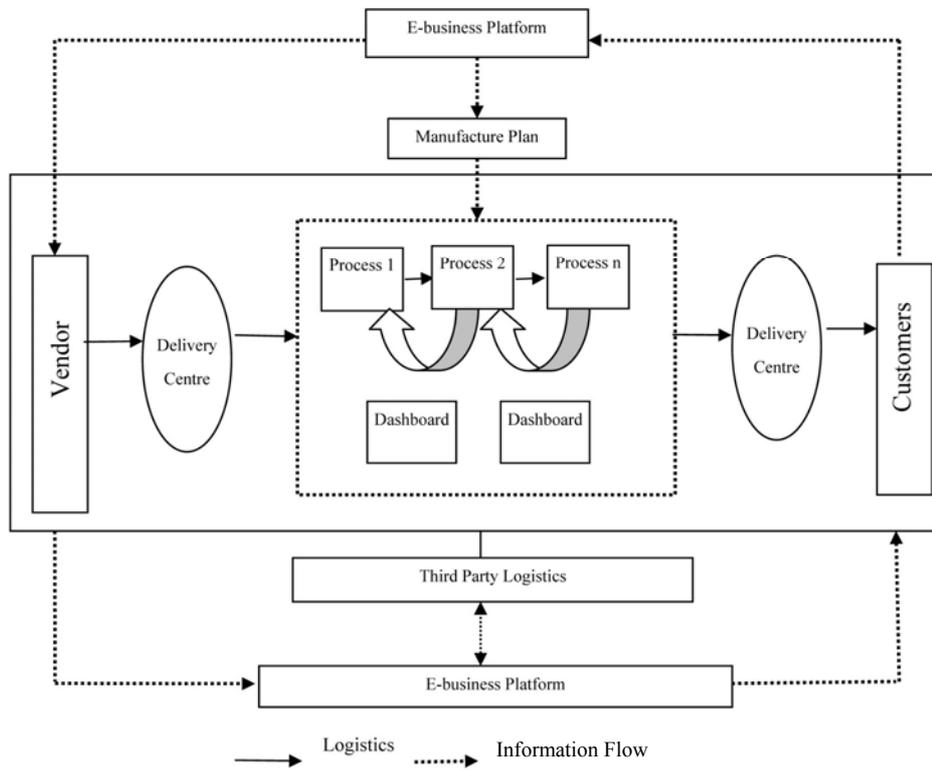


Figure 7. JIT co-delivery and Lean logistics mode based on E-business platform