

# The Technical Conditions of Modern Logistics

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Modern logistics is an important link of the modern commodity economy and it is also an important pillar in the development of modern economy. What things are needed in the establishment and development of modern logistics industry are not just the funds, equipments and management. And it is not based on the imitation and transplantation simply. The formation and development of modern logistics industry is the objective requirements of the advanced enterprise management technology. Advanced information technology and standardized management are the technical foundation of modern logistics industry established.

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## Introduction

Modern logistics is an important link of the modern commodity economy and it is also an important pillar in the development of modern economy. As one of the advanced organization and management concepts, modern logistics has a very important role in improving the overall competitiveness of enterprises and the national economy, optimizing the industrial structure, ameliorating the investment environment and promoting the social informatization. Therefore, modern logistics has been valued by enterprises, governments and research institutes in the world and has developed rapidly (Yi, J., 2004). So, vigorously developing modern logistics has an important and far-reaching significance to promote the rapidly development of the market economy. However, what things are needed in the establishment and development of modern logistics industry are not just the funds, equipments and management. And it is not based on the imitation and transplantation simply. The formation and development of modern logistics industry is the objective requirements of the advanced enterprise management technology. Advanced information technology and standardized management are the technical foundation of modern logistics industry established.

## The Definition of Modern Logistics

When social economy develops to a certain stage and the movements of physical goods are guided by a new management style and mode of operation, the concept of "logistics" is put forward. It has specific economic background and social significance (Cai, N., 2004). In the self-contained non-commodity economy age, producer is the consumer. There are no movements of goods, and so, logistics does not exist. In the commercial society, the activities of commodity economy are composed of production, distribution and consumption. Besides, distribution is the necessary part to link production with consumption.

Logistics involves a series of activities, such as storage, transportation, handling, packaging, distribution processing and information. And there have different means and methods of

logistics in the different historical period of development of the commodity economy. The development of the logistics industry has gone through three stages, which are traditional logistics of production for sale, traditional storage and transportation, and the modern logistics.

The traditional storage and transportation mainly offers services like warehousing, transportation, handling, loading and unloading, and packaging. It is consisted of two kinds of organizations. One is the professional storage and transportation companies, and the other one is the storage and transportation department which is inside the producers, wholesalers and retailers. The early logistics was just a means of transport which offered goods to producers. The goods which were needed to transport were stored in the producers' warehouses. Now, many transport companies in our country are still operating in this manner. Later, some of the large logistics enterprises established their own storage base, but, generally, there were no business contacts in different logistics enterprises, and the transfer of materials was the only link between logistics companies and manufacturers.

Modern logistics is based on the traditional storage and transportation. Although modern logistics is accomplished through the third-party logistics, there are essential differences between modern logistics and traditional logistics in the mode of operation. The services which are provided by traditional warehousing companies, such as shipping companies, transportation companies, warehousing companies and freight forwarder companies, belong to the category of ordinary logistics services. With the accelerating pace of global economic integration, the shortening of product life cycles and the more intense competition among enterprises, modern logistics which has characteristics of the era has been came into being.

Modern logistics has four outstanding features. The first one is unified collaboration. The traditional logistics mainly offers warehouse-to-warehouse services, and the modern logistics places great emphasis on the workshop-to-workshop services. Besides, modern logistics has put forward higher requirements with respect to the accuracy of time, standardization of services and normalization of procedures. The second one is systemati-

zation. Modern logistics combines the various elements of logistics like transportation, warehousing, handling, loading and unloading, distribution, processing, packaging and information processing, enables subsystems work in coordination with the logistics facilities, technology and information of the third party, achieves the requirements of customers which involve delivering the goods with low cost, rapidity, and security. Besides, modern logistics should offer some extended services, such as logistics system designing, operation, logistics plan, logistics management and consulting, to reach their goals of helping customers, making their own logistics elements tend to complete and systematization (He, R., 2011). The third feature is informatization. Modern logistics makes the whole materials circulation process informatized and manages it dynamically with the advanced network technology. In addition, modern logistics links every party closely to improve the speed of materials circulation greatly through the network platform of information sharing. The last one is standardization. Logistics standardization formulates the technical standards of various subsystems of internal system facilities, mechanical equipments and the special tools which is based on logistics system, and achieves the results of matching up technical standards with working standards through researching the various sub-systems. Logistics standards are divided into logistics software standards and logistics hardware standards. The software standards include the uniformity of logistics language, the standardization of unit, the receipt, the application of bar code and the package size. And the hardware standards include the pallet standardization, container, forklift standardization, trailer load standardization, standardized custody facility and other logistics equipments standardization.

### **The Advanced Management Techniques as the Motivation of Formation and Development of the Modern Logistics Industry**

- The economics studies three basic questions: the products or services that society should produce, how to produce and who could get the products. These three questions correspond to the demand, supply and distribution problems. The formation and development of logistics industry heads from the demand of logistics market. And then someone will provide the related services under this demand. The fundamental driving force of the development of modern logistics industry heads from the modern companies' advanced management techniques. In other words, more and more modern companies prefer to transport goods through the third party in the fierce competition now. This development power can be summed up in three aspects.
- First of all, the modern companies have paid more attention to the cultivation and development of core competences. The increasing competitiveness in the markets and the more specialized division of labor in enterprises make companies focus on growing their core business. Organizations take the model of outsourcing and outsource their logistics outsourcing to the third-party logistics company which is more professional. So, they can pay their attention to the core business and improve their service levels (Sun, L., 2011). Moreover, companies regard the available profits as return. And these available profits include reducing costs, improving service levels and professional standards, increasing the business flexibility, bettering production efficiency and

making the main industry more concentrated. So that the manufacturers could focus on developing their core business.

- Secondly, according to the development of technology, the life cycle of products has become shorter and shorter. This requires companies to offer the demanded products or services with the faster and more efficient management and production technology. The activities of producing and manufacturing are all based on the plans in most of the traditional companies. And they don't attach importance to the role of the order management. These will lead to some unexpected results. First, materials can not enter the production line immediately. And the finished products can't be circulated in time. Then, the logistics cost of enterprises will be increasing and the overall profitability will be reducing. Above all, the traditional logistics services have already been unable to adapt to the production operation mode of modern companies. Unlike the traditional enterprises, the manufactory in modern enterprises is based on orders. In order to improve the efficiency of the whole materials circulation, companies adopt the fast and efficient logistics system, use the standardized design, just in time, full-service and other advanced management techniques, bring purchase, production and sales into line, and finally form a horizontal win-win logistics strategic alliance between supplies and down-stream firms.
- Thirdly, companies must allocate resources and exploit markets on a global scale with economic globalization and market integration speeding up. So do multinationals. Besides, they purchase supplies and allocate resources by means of the third party. In the meantime, enterprises should expand the global market and promote the circulation of commodities with the aid of a third party.
- All in all, economic globalization and the trend of e-commerce network decide that it is a flourish of the logistics agency industry in the 21st century. So, it is an inevitable choice to establish a worldwide fast, excellent customer service system, select the appropriate suppliers and distributors for international purchasing and international marketing with a purpose of accomplishing optimum allocation of global resources and setting up the corresponding modern logistics system (Zhang, L. & Shi, L., 2011).

### **Information Technology as the Technology Platform of Modern Logistics Developing**

Logistics is inseparable from warehousing, transportation, handling, loading and unloading, packaging and other facilities and services. However, modern logistics is a professional, informational, normalized and open logistics management system whose establishment is based on modern electronic information technology with the development of modern technology information and management theory and practice. Logistics information technology is an important symbol of modern logistics system.

In terms of information technology, this system is made of three parts.

One is the information recognition system. It includes EDI and automatic equipment identification technology. EDI is short for electronic data interchange and it is generally defined that, based on the prior agreement, business partners format the economic information according to certain standards, and then

exchange and deal with data which are formatted among their computer systems through the computer communication network. As an outcome of the combination of modern high-tech and trade, EDI changes the traditional logistics management greatly. It makes the whole process of logistics information handled by a computer automatic processing and need not to use the traditional paper-based documents any more. From this, EDI is also called paperless trading. Through some advanced technological means, the automatic equipment identification technology could realize the automatic identification and management of all kinds of objects or facilities (people, materials) under the different status (dynamic, static or severe environment). The automatic equipment identification technology covers the technologies of commodity code, the application of bar code, radio frequency and so on. Bar code technology is a significant means and method of entering data into computer automatically. The economic benefit of the whole logistics system will be improved by collecting, transmitting logistics bar code information and feedback (Hu, L., 2011).

The second part is material information control system. The advanced logistics information management system could monitor the spatial-time location of goods in real time. For example, it can query the geographic location (longitude, latitude and velocity) of transportation at any time through issuing instructions, and could be displayed intuitively on the electronic map. Besides, people could know and control the accuracy of transport operation via global positioning system (GPS). Dynamic scheduling function allows schedulers to send the dispatching instructions at any time through control center and then to get the confirmation messages. The function of storing and analyzing data will make a plan on the transport routes in advance and record the information in the database for reference and analysis in the future. So, it could achieve the route planning and optimization. Licensed users could access the information what they need in any other place easily. Modern information technology is the technological pillar of modern logistics system.

The third part is the network technique system. The speed-up, dynamic and interconnected information network is a necessary condition of guaranteeing the function of modern logistics enterprises coordinated, achieving the alliances with other companies and making the logistics service integrated. Many companies make use of the internet platform for dynamic monitoring and managing the logistics commodities. Reasonable integrated logistics network could not only supply the costs effectively which incurs in every logistics link, but also improve the information management level and customer service drastically.

By this taken, modern logistics is far from a simple combination of warehousing, transportation, handling, loading and unloading, packaging and other hardware facilities, but a professional management information system which is based on information technology. In our country, the hardware facilities of many logistics companies have reached a considerable level, but there is still a significant gap between our country and overseas in terms of software construction.

### **Standardization as the Permits of Modern Logistics Enterprises**

Standardization is an important component of modern economic, technical and scientific system. It is also an important technique of modern logistics management. Logistics standardizations are the momentous methods and necessary condi-

tions to achieve the modernization of logistics management. The modern logistics and its activities could not be organized and managed well without the standardization. And we could reach the highly harmonization of the whole logistics system and raise the system management level.

Scholars in logistics industry generally consider that the definition of logistics standardization is taking logistics for the system, setting the technical standards of various subsystems which include systematic internal facilities, mechanical equipments, special tools and so on, and reaching the results that the technical standards could match up with working standards through researching the various subsystems. However, the author thinks that the issue of logistics standardization is not only the standardization of internal logistics system, but the standardization of the whole materials circulation system which involves the circulation ranging from supplies, manufacturers, logistics providers, wholesales to retailers. And the essential question is the standardization of internal logistics system. Logistics standards are divided into software standards and hardware standards. The software standards include the uniformity of logistics language, the standardization of unit, receipt, the application of bar code and the package size. And the hardware standards include the pallet standardization, container, forklift standardization, trailer load standardization, standardized custody facility and other logistics equipments standardization.

The logistics industry is an integrated industry which involves various aspects, such as transportation, packaging, warehousing, handling, loading and unloading, distribution processing, delivery and information. The standardization of logistics is a key way to increase logistics efficiency. The development of modern logistics industry in our country is based on the traditional industry. The reasons why logistics is inefficient are that the traditional logistics is divided artificially into several stages which could not link and coordinate well, and the information is unable to be shared with each other. It's particularly apparent in many small logistics enterprises. Many logistics standard systems and important national standards have been established in our country, such as the Classification and Code of National Industrial and Agricultural Products (commodities, supplies), Bar Code in Dispatch Unit, Logistics Unit Bar Code and so on. But in general, the establishment of our country's logistics standardization has shown several lags. So, strengthening the establishment of logistics standardization has a great significance to standardize the management and improve the international competitiveness of logistics enterprises. However, we must realize that the establishment of logistics standard system should depend on the power of government. According to the standard formulation in our country, the National Professional Standardization Technical Committee is a technical working organization which is engaged in the national standardization working, responsible for the standard technical focal point work in professional technical areas, and authorize to be established by Standardization Administration of China (SAC). With the rapid growth of our logistics industry, it is imperative to set up a comprehensive national Logistics Standardization Technical Committee, designate the technology of logistics enterprises uniformly and promote the coordinated development of logistics standardization.

In conclusion, modern logistics synthesizes the technologies of information processing and management like the transportation, delivery, packaging and many other aspects of commo-

ties. These advanced technologies such as EDI, JIT, distribution plan and green package are the important guarantees for the healthy development of the modern logistics. Developing logistics industry must insist the guiding ideology that science and technology constitute a primary productive force. Modern logistics system could not be established without advanced technologies of management and information, and standardized management system.

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