Application of Computer Technology in Supply Chain Management of Electronic Logistics

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Abstract. The 21st century is the information age, computer technology (hereinafter referred to as CT) has been applied to many fields, especially logistics. With the rise of e-commerce, China’s logistics industry has developed rapidly, which has been extended to supply chain management (hereinafter referred to as SCM). With the maturity of e-Logistics industry, e-logistics has developed to the direction of network, which also extends to the SCM. Through SCM, enterprises can better reduce the cost of supply chain, which will increase the competitiveness of enterprises. With the integration of information industry and supply chain, enterprises can guarantee information transmission, which will better realize the sharing and sharing of resources and information. Through SCM, e-logistics can provide integrated comprehensive services, which will better improve the profitability of enterprises. Therefore, CT has become an important way to enhance the core competitiveness. First of all, this paper analyzes the importance of CT to electronic logistics (hereinafter referred to as EL). Then, this paper analyzes the application of CT in SCM.

Keywords: Computer Technology, Electronic Logistics, Supply Chain Management

1. Introduction

SCM is mainly divided into three aspects, namely information flow, logistics and capital flow, which will involve multiple links, such as procurement, production, distribution, capital operation, etc [1]. With the sharing of information resources, the competition of modern enterprises is gradually intensified, which requires enterprises to continuously improve the efficiency of various links, including logistics, which will avoid production stagnation caused by problems in the supply chain [2]. Logistics and distribution are the direct way to face customers, which will better improve customer satisfaction. Therefore, enterprises must strengthen e-logistics management, which will better improve the efficiency of capital flow [3]. SCM can be analyzed from procurement, logistics, warehousing, distribution, traceability and other aspects, which will accurately predict the whole life cycle of goods. Therefore, e-logistics has become the future development direction, which needs the support of CT [4-5].
2. The importance of CT to EL

With the development of CT, the entity transfer mode of logistics commodities has been transformed into a modern logistics (hereinafter referred to as ML) information management (hereinafter referred to as IM) system, which is of great importance to e-logistics, as shown in Figure 1.

![Diagram of the importance of CT to EL](image)

**Figure 1.** The importance of CT to EL.

2.1. *Realization of network distribution logistics system*

According to the agreement between the two parties, e-logistics will be implemented in strict accordance with the transaction process, which can continuously expand the scope of application of logistics. By increasing the scale of logistics management mode, we can promote the economic development of the cities along the logistics chain, which plays the industry characteristics of stable investment in logistics transportation [6]. Through the overall calculation method, we can design the accurate positioning of the transferred commodity entity. Through CT, we can scientifically use the space effective position of logistics container truck. Through the integrated management mode of logistics network, we can drive the development of the national economy level of the cities we pass by. Therefore, CT to achieve network distribution logistics system, which improves the core competitiveness of logistics enterprise (hereinafter referred to as LE) [7-8].

2.2. *Provide technical basis for ML*

ML management mode is a management mode based on computer information, which is a method based on integrating management software through network platform. By equipped with scientific and accurate management system, ML enterprises will have a logistics distribution mechanism with high executive power. At the same time, LE can have professional facilities, professional ethics, professional skills and so on, which can ensure the development of ML management [9]. IT provides the basis for the upgrading of logistics system, including logistics distribution process, goods storage, loading and unloading, delivery process, etc. Based on the support of CT, ML can advance to the direction of network [10].

2.3. *Break the traditional logistics form*
CT has broken the traditional logistics form. Through CT, we can improve the social demand of ML management industry. With the continuous development and progress of society, enterprises need to transfer the initial raw materials and other semi-finished products to the designated sales point through logistics [11]. Therefore, the whole process of integrated transshipment of goods in demand is the key work flow of ML IM construction, which involves acceptance, placement according to the shipping order number, loading, transit, inventory and inspection, unloading, warehouse sign in and delivery waybill, and a series of according to the rules process, the logistics process needs to be careful and efficient to transfer goods quickly and safely to the designated area or place. Therefore, CT has broken the traditional form of logistics [12].

3. Application of CT in SCM of EL

3.1. Fundamentals of SCM

Supply chain is the objective existence of business activities, which is a functional network structure. Through information flow, enterprises can manage the whole process of commodities. Through e-logistics, enterprises can reduce logistics costs. The structure of supply chain network is shown in Figure 2.

![Figure 2. Supply chain network structure.](image)

3.2. Supply chain logistics model of manufacturing enterprises

In the supply chain logistics system of production enterprises, small and medium-sized enterprises are often in a weak position, which are mostly small and micro production workshops. Therefore, the production enterprise must optimize the supply chain logistics link, which will better control the production cost. This paper constructs the logistics operation mode of production enterprises, as shown in Figure 3.
4. The concrete technology of CT in ML

4.1. ED interchange technology

The commonly used technology in ML is electronic data interchange (hereinafter referred to as EDI), which is a high-tech IT field. EDI has been transformed into ML network integrated management mode, which does not need the original paper records. EDI improves the emergency situation of LE management, but there are also many factors found in practice. On the one hand, it is the network security problem of data information transaction. With the opening of Internet technology, the information of many enterprises are centralized transferred in the data cloud, which will cause the risk of information leakage in the process of enterprise information exchange. If the network security identification is not perfect, it will seriously lead to the loss of personal or enterprise information. Therefore, we must configure data information and other related information exchange security mechanisms for logistics, which will provide long-term and sustainable supervision. On the other hand, it is the issue of legal rights protection. ML is in a steady rising stage, which is difficult to formulate a unified process specification. Therefore, the modern enterprise logistics often only has the waybill, which lacks the detailed written proof during the transportation period.

4.2. RFID technology

RFID technology is the use of RF signals to obtain product information. RFID technology does not need the participation of people, which can adapt to a variety of special environments. At present, ML can use bar code scanning gun. Through the process of building software, we can build the relevant original record framework, which will better create each mode. Then, by manually filling in the relevant new data, we can accurately identify. At present, RFID technology is scientific and reasonable use in the actual work of ML, which plays a qualitative mutation to the ML entry work. RFID technology eliminates the manual registration means, which speeds up the progress of logistics.

4.3. Comparative analysis of RFID technology and barcode technology

According to the characteristics of RFID and barcode technology, this paper makes a comparative analysis, as shown in Table 1
Table 1. Comparative analysis of barcode and RFID technical parameters

| Parameter            | Bar code                                      | RFID                                      |
|----------------------|-----------------------------------------------|-------------------------------------------|
| Read volume          | One-on-one                                    | One to many                               |
| Read length          | Generally up to 10-20 cm (in cm)              | Up to 10 meters in length (in meters)     |
| Information          | Low storage                                   | High storage capacity                      |
| Reusability          | Non reusable, disposable                      | Non reusable                              |
| Reading convenience  | The barcode needs to be aligned when reading   | The label is hidden in non-metallic and non-transparent material. |
| Accuracy             | Not High accuracy                             | High accuracy                             |
| Environmental        | Poor environmental adaptability               | Strong adaptability to environment        |
| Read rate            | The read rate depends on the manual rate and the moving range is limited | Fast and high speed reading               |

5. Conclusion

CT promotes the development of EL, which promotes the innovation and upgrading of logistics industry. Through CT, e-logistics will change to the direction of information and flexibility, which will promote the SCM.

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