

# Enhancing Logistics Efficiency through Computer and Network Technologies: A Pathway to Industry Informatization

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**Abstract:** The rapid development of computer and network technology provides a solid foundation for the informatization of logistics industry. Through INTERNET, logistics branches, suppliers, customers, etc. scattered in different geographical locations are connected to form an information network for information transmission and sharing, so that all parties can understand the operation of businesses in different places in real time and improve the operation efficiency of logistics activities. Based on the broad prospects of computers in the logistics industry, this paper conducts in-depth research on logistics modernization and logistics informatization, the impact of computer technology on the logistics industry, and the countermeasures to accelerate logistics industry informatization.

**Keywords:** Computer technology; logistics industry; informatization; application.

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## 1. Logistics Modernization and Logistics Informatization

Nowadays, information and information based knowledge become the most valuable thing [1]. As long as a thing is connected with "informatization", "digitalization" and "networking", its identity will be multiplied. Since the 1960s, the progress and development of computer technology, data communication technology and digital identification technology have provided a solid material and technical basis for the development of informatization in the logistics industry. Logistics generates information flow, and information flow controls logistics[2].

Informatization is an important symbol of modernization, and the key to the development of logistics industry is to realize logistics informatization [3]. Bar code technology, electronic data interchange (EDI) technology and database technology based on the standardized coding of commodities have finally broken this bottleneck, thus enabling just in time (JIT), quick response (QR) Continuous Replenishment (CR), Automatic Replenishment (AR) and other modern logistics strategies become possible, making the logistics industry a real third profit source and a sunrise industry in the tertiary industry[4].

## 2. Analyzing the Impact of Computer Technology on Logistics Management

### 2.1. The concept of logistics informationization.

People's traditional logistics management for the enterprise itself as the center, the rapid development of computer and network technology, logistics management has had a profound impact on the logistics management, so that the logistics management model has undergone a fundamental transformation [5].

The core management of modern logistics is the application

of computer technology and management, evaluation of the strength of logistics enterprises and transportation efficiency and information sharing, the key indicator is computer technology, in the core of modern management, refinement and efficiency is the core requirements of management, which is the advantage of computer and network technology in the management. In the core of modern management, refinement and efficiency are the core requirements of management, which is the advantage of computer and network technology in management[6].

### 2.2. Impact of computer technology on port and warehouse management.

The advantage and feature of computer technology is to realize the automatic process of operation. Modern ports, especially large hub ports, have important requirements for computer technology. The operation and management of ports and terminals have been able to integrate with the transportation network and the logistics chain of warehousing and distribution. And port services are complex, including port functions, inter modal functions, distribution functions, warehousing functions, container business and other information management functions.

At this time through artificial and traditional management is difficult to perform. Therefore, computer technology, network technology and automation technology has become the port to realize the automatic management of technical points. From the perspective of logistics, port logistics management includes two levels of logistics operations and logistics information, including operations such as transportation, warehousing, loading and unloading. The information runs through the whole process of logistics management, including the collection, processing and analysis of information[7].

### **2.3. The influence of computer technology on logistics operation mode. The modern logistics management information system is generally through LE (Logistic Execution System)**

To complete the automation process of logistics management. LES runs through the whole process of logistics management. LES frees the operation mode of logistics from the traditional tedious manual management mode, and realizes the full automation of the whole process with the help of computer technology. LES is mainly composed of three functional systems: cross enterprise document flow processing system, warehouse operating system, and distribution execution system. The whole system is based on the Internet, and the data information exchange and resource sharing are completed through the Internet[8].

### **2.4. The impact of computer technology on container scheduling.**

In the container stacking work is completed, the computer will form the relevant information record and save. Container scheduling is the stacking process of the reverse operation. According to the actual needs of customers, the program from the computer to retrieve the basic information of the container, and according to the operator's instructions, according to the principle of the optimal path to call the designated containers, but also the use of empty containers on the rational allocation of resources to improve the efficiency of the use of containers.

### **2.5. The impact of computer technology on harbor warehouse management.**

Computer technology has been popularized in the field of warehouse management. Realize the real-time control and management of warehouse information management, coupled with the effective integration of digital identification technology and computer technology, making the degree of automation and digitalization of warehouse management greatly improved. With the help of local area network can be warehousing data and information transfer to the office terminal and processing and summarization can also be accomplished through the use of computer technology on the organization and monitoring of warehousing resources[9].

With the help of computer systems to achieve effective mastery of warehousing space and storage of goods. At the same time, the organic combination of bar code technology and computer technology is also coupled with financial systems, management systems, distribution systems, the effective integration, the formation of a complete and detailed automation process.

## **3. Countermeasures Analysis of The Application of Computer Technology in The Logistics Industry**

### **3.1. The use of computers for data processing and monitoring of port storage.**

In the management of mechanized equipment, first of all, if the computer system to collect the digital information processing, information collection range including operating signals, fault signals, power supply signals, working condition signals and so on. These signals need the

comprehensive processing of the computer system. In addition, the use of computers to realize the automation of mechanical operations. The core of automation is a micro controller.

Through the preparation of the corresponding program, so that the micro controller in the storage operation of the distribution system, distribution system, packaging system, etc. to achieve process control, information processing, interlock control. Can also be completed according to the corresponding authority to the actual control of the system [10].

That is, the completion of the operation mode of switching, routine operations, system management operations can be utilized to achieve the login control. Therefore, it is necessary to increase the use of computers in port warehousing efforts to achieve accurate processing of data and real-time monitoring of the process.

### **3.2. The use of computers to realize the management and control of containers.**

Computerized management and control in the management of containers in port warehousing to realize the control process. The automated processing of the process. By utilizing the advancement of computer in data processing and process control, computer technology can be applied to the process of image acquisition, image processing templates to realize the control of the sensor.

According to the program to automatically determine whether the container to enter, if it enters the corresponding identification system is activated, and access to the corresponding container's basic information, including the number, category, location and so on. At the same time can also increase the degree of automation in the control process, according to the characteristics of the container to achieve the precise operation of the data processing process.

### **3.3. Accelerate the construction of WBM network management mode.**

The implementation strategy of WBM is currently the embedded proxy scheme. The way is to embed the WEB server into an existing network device, which communicates with each endpoint device in turn and acts as a proxy server. The browser user communicates with the proxy device through HTTP protocol, and each endpoint device communicates with it through SNMP protocol to achieve the purpose of balancing multi-level database access, 5NMP polling, etc.

Due to the introduction of the function system and management architecture of INTERNET in the network management mode, it provides a powerful function system for the system, effectively realizes the informatization of management, and also provides a new technical solution for the standardization, automation and scientization of the entire logistics management process.

### **3.4. Consider an artificial intelligence/expert system setup.**

Artificial intelligence and expert systems are another information-based technology that contributes to logistics management. Artificial Intelligence is a solution that integrates data structure technology and intelligent analysis technology to simulate human thought patterns through the flexible use of computer technology, network technology, and other technologies. Artificial intelligence focuses on symbolic

reasoning rather than numerical processing. The field of artificial intelligence management involves technologies such as expert analysis technology, the Art, neural networks, neurons, speech recognition, visual sensing and so on.

The expert system belongs to the field of artificial intelligence management, through the structured language planning and design, to summarize the problem and solve the common problems in the real logistics operations. In addition, the application of the system can provide the overall operational efficiency and increase the profitability of intellectual property. The whole process involves areas such as interface system design, port storage management, and so on.

## 4. Conclusion

The application of computers in the logistics industry is the logistics industry to change the mode of development, improve operational efficiency, to achieve the inevitable requirements of refined management. The most important feature of modern logistics is logistics informationization. Computer and network technology has always been throughout the whole process of logistics management, but also to speed up the realization of logistics enterprises to build the foundation of information technology. Vigorous development of computer technology in the logistics industry will inevitably bring about profound changes to the industry as a whole.

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