Process Analysis of Warehouse Logistics Information System

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Abstract. This article takes a typical warehouse logistics company as the research background. Combined with the situation of this enterprise, it describes the requirements analysis of the warehouse logistics managements system in detail and analyzes the business and data processes of the warehouse logistics information system in detail. The operation of the system enables the comprehensive network, information and automation of the warehouse logistics management process and it achieves the purpose of improving work efficiency and quality and it achieves the goal of providing better services to customers. It has certain practical significance for the construction of warehouse logistics management information system of logistics enterprises.

1. Introduction

As a key link of third-party logistics, warehousing management has also been highly valued by entrepreneurs. With the vigorous development of modern logistics management science, the role of warehousing management has also changed in quality and quantity, although its regulation of production volume the original function of demand has not changed, due to the high development of information technology and the widespread application of computer knowledge in business, the warehousing industry has become more and more information-based and automated. The warehouse inventory management system is an indispensable part of an enterprise. The content is important for decision-makers and managers of the enterprise, so the warehouse inventory management system should be able to provide users with sufficient information and fast query methods.

2. Analysis of warehouse logistics information system

2.1. Types of warehouse logistics information system

Modern warehousing is the node and control center in logistics and supply chain system. WMS is a specific form of warehousing management informatization.[1] China's WMS is divided into three types: the first type is the logistics distribution center business system, such as the distribution center of a supermarket china and in the supply logistics and manufacturing enterprise parts distribution center. The second type is the integrated storage operation information system,which coordinates and integrates the information system of various automated equipment. For example, various specialized equipment of the enterprises has its own information system. The third category is the application system which focuses on the management decision of warehousing industry. Such as general logistics companies that use the WMS system for enterprises that provide warehousing services.[2]

2.2. Problem with warehouse logistics information system

Only a small part of logistics supply enterprises in China have a logistics information system. In the existing logistics information system, the functional structure is single, the analysis of logistics costs is too little, the remote communication capability is low and the lack of DSS(Decision Support System)Functional modules. In addition, China's logistics supply market has a low level of informatization and can not meet customer needs. From the perspective of the scope of services and functions provided, China's third-party logistics companies are still mainly engaged in basic logistics operation such as transportation and warehousing, Value-added services function such as processing, distribution and customized services are in the development and perfection stage. There are few third-party logistics companies with comprehensive functions such as Baogong and China Shipping, their scale is not large. COSCO Group, Sinotrans Group, China Storage and Transportation Corporation Although such large-scale transportation and storage companies have been transformed into third-party logistics companies, their traditional transportation and warehousing businesses still account for the main part, so the functions of third-party logistics are still incomplete and they lack the full-featured large-scale logistics information platforms.

2.3. Contents of warehouse logistics information system

A logistics company has multiple warehousing and transportation cargo services to multiple customers and the purchasing department has business relationships with multiple supplies. The company's main business is to provide warehousing services and transportation services, which is very promising. The management hopes to improve the management level and production efficiency of the enterprise by realizing the information of warehouse logistics.The main tasks of researching the warehouse logistics information system are:

- Carry out a demand survey of the warehouse logistics management system. Complete the system requirement analysis and the writing of the system requirement specification, analyze the system functions and performance.
- The business process analysis and data flow analysis of the logistics information system designed by the warehouse logistics management system. Describe the whole network structure and function module of logistics information system

3. Enterprise system objective analysis

3.1. Analysis of enterprise status

The industrial scale of a certain city port area is expanding continuously, more and more enterprises are engaged in international import and export business. In view of the complex international and domestic import and export goods business process, set up the International Warehouse Logistics Co Ltd and recruited a large number of talents. At present, the company has more than 580 people in business department, operation department, finance department and general management department, including about 460 business people and about 10 managers, Their main work is responsible for the company's import and export goods in and out of storage, warehouse inventory management and related expenses settlement. As China's economy and foreign trade develop rapidly in recent years, the average daily throughput and logistics of ports are increasing and the business volume of Hong Kong, Eurasian companies has increased more than H times in the last five years. With the expansion of business scale. Traditional manual recording of information and billing methods have been difficult to adapt to the rapid growth of enterprise warehousing business needs.How to use computer information technology and network interconnection technology to rebuild a new set of warehouse logistics management information system is an urgent problem that the enterprise needs to solve.[3]

3.2. System objective analysis

When analyzing the requirement of warehouse logistics management information system, We need to start from two aspects. On the one hand, questionnaire or direct access to obtain the company staff

requirements for the system. On the other hand, studying systems of the same type. To extract features that enhance the ease of use of the system. Through the research of related users of warehouse logistics enterprises, the system objectives are defined:

- To solve the problem of isolated information islands and realize transparent management of storage process.

Storage information and data are stored centrally on the database server and user access is unified. The system centrally stores and manages the data. All employees of the company can only be obtained through a unified entrance. The personnel of all departments of the enterprise can access all kinds of information at any time and realize the informationization and automation of warehouse logistics management.

- Departments are able to work together to improve staff efficiency and enterprise management.

Warehouse logistics management information system can meet the needs of different departments. It is based on the cross-platform design of the web version of the information system. It is convenient for departments to work together, improve the work efficiency of staff and workers. Reduction of traditional cumbersome manual recording and manual calculation of various data reports. Electronic office through information technology.

- To further optimize warehousing business processes and reduce the operating costs of enterprises.

To integrate and optimize the business process of the system through the investigation and analysis of the actual user needs of the enterprise. The development of out-of-stock logistics management information system put into use online, so that business processes and various inquiries, reports issued faster and more convenient. The system can provide timely and accurate storage information. It gives managers access to inventory and storage. It is helpful to make scientific decisions. Through standardized process management, It can improve the efficiency and quality of work, save the cost and enhance the competitiveness of enterprises.

4. Process analysis and system design

4.1. Business process analysis

In the process of analyzing the logistics management information system, a large number of reports, bills, documents and other materials are usually collected. It is necessary to express each step in the business processing process with a complete graph according to the business function. And in the process of drawing business flow chart to find the existing problems in the system, analyze and correct the problems and optimize the business processing process.

The business process analyzes that there are two parts for the goods to be put into the warehouse and the goods to be put out of the warehouse. The goods are put into the warehouse by the purchasing department to place an order to the supplier. The supplier transports the goods to the warehouse and the storage department stores them for storage. Then carry on the warehousing link, update the inventory detail, generate the inventory schedule, and finally end the warehousing link. As shown in Figure 1.[4]

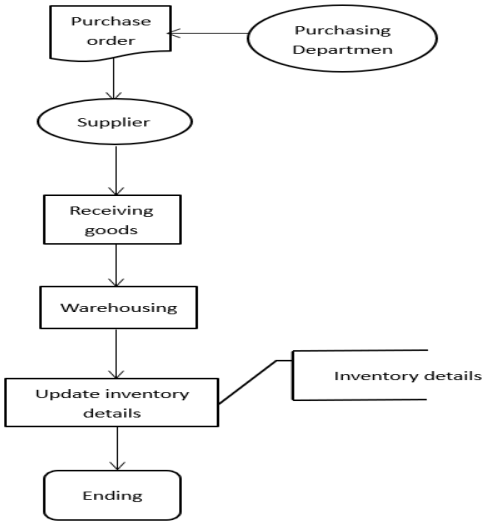

Figure 1. Flow chart of goods storage

In the delivery of goods, the customer submits an order to the warehousing department. The warehousing department prepares the goods to be out of the warehouse, updates the inventory details, generates an inventory detail table and counts out of stock information. If the goods are out of stock, the procurement department submits the purchase order to the supplier. When the goods are sufficient, the outbound process is completed. As shown in Figure2.

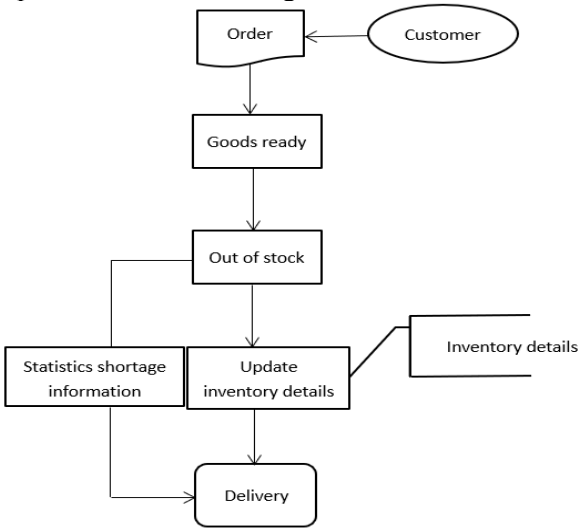

Figure 2. Flow chart of goods out of warehouse

4.2. Data flow analysis

Data flow analysis is the main content for detailed system analysis and is the basis for establishing a database system and designing functional modules. It is based on business flowcharts and is implemented through data flowcharts. Data flow diagram is a tool for data flow analysis and abstraction of the original system. It is also the main tool for describing the logical model of the system.

Orders are submitted by customers, purchase orders are submitted by warehouse management, suppliers deliver goods and submit delivery orders to warehouse department. The top-level data flow chart is shown in Figure 3.

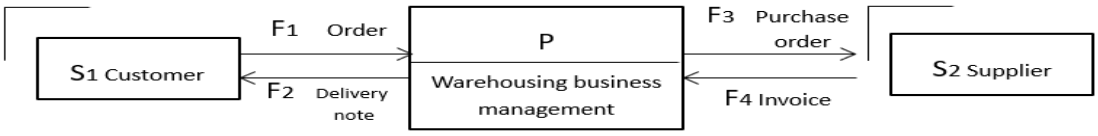

Figure 3. Flow chart of top-level warehouse data

The warehousing management data flow chart describes the various processes in the warehousing process in detail. After the customer submits the order, the outbound management system processes the order, processes the order against the goods schedule and issues a delivery note to the customer. If out of stock, the supplier is sent to the supplier. After the purchase order is issued, the supplier submits the invoice to the warehouse management information system, processes the invoice and compares the goods with the goods inquiries for goods inquiries. Then the warehouse processing is completed, the goods are counted and the delivery is issued to the customer. As shown in Figure 4.

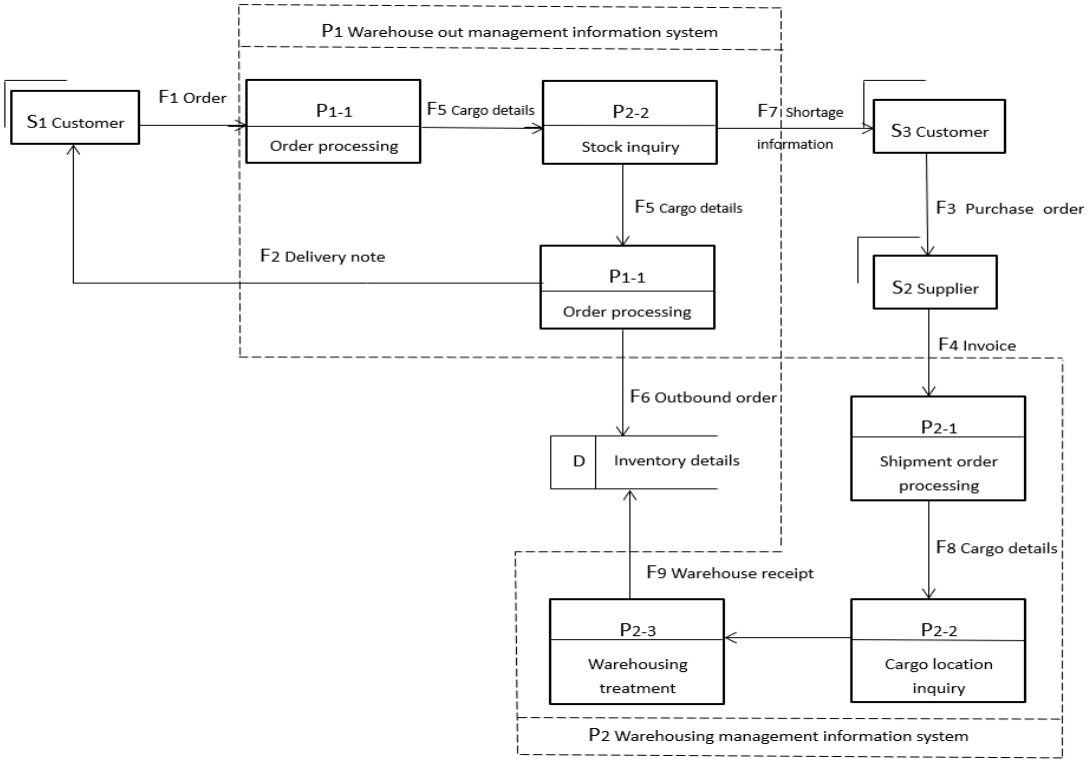

Figure 4. Warehouse management data process

4.3. Design of warehousing logistics information system

Database design is a key step in the implementation of the system to development. A good database design can achieve a good development model. which is conducive to the performance of the system and further business expansion.

According to the four modules of system functional requirements, the overall functional framework of the system in this project is obtained. The warehousing logistics management system is divided into four parts: basic information management, storage management, storage management and system management. As shown in Figure 5.[5]

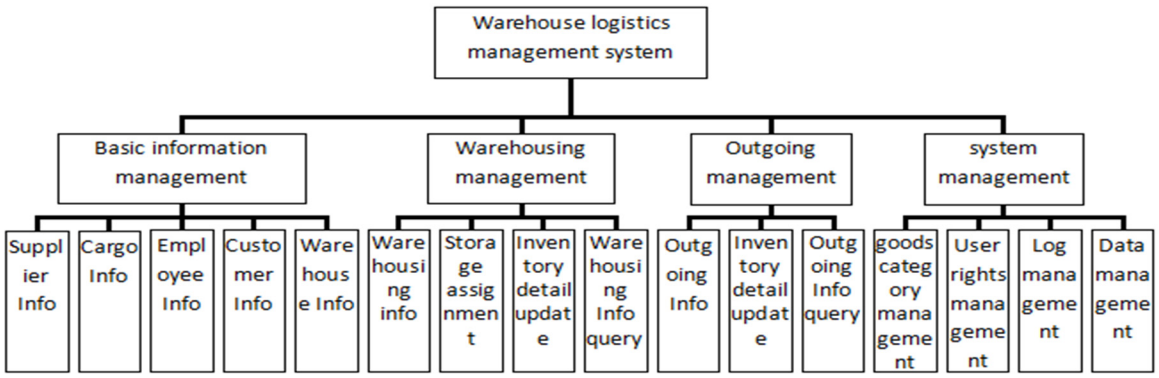

Figure 5. Warehousing logistics management system

5. Conclusion

Logistics information system process analysis and information system design can better handle warehousing links. In today's booming logistics environment, the warehousing link is particularly important in the logistics process. The analysis of the warehousing process is of great significance for optimizing the warehousing link and improving the work efficiency.

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