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# Based on “Internet +” Warehousing Logistics Management Exploration

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**Abstract:** The deep integration of the Internet and warehousing logistics not only promotes the transformation and upgrading of the industry, but also brings the innovation of management mode and service concept for enterprises. This paper analyzes the development status of warehousing logistics industry, analyzes the problems faced by warehousing logistics management in the Internet environment, and puts forward a series of optimization countermeasures and suggestions. Through the introduction of cloud computing, big data, Internet of Things and other advanced technologies, the establishment of intelligent storage management system, optimize the business process, improve the service level, promote warehousing and logistics enterprises to achieve cost reduction and efficiency, and enhance the core competitiveness. At the same time, it is also necessary to improve industry standards and norms, strengthen the construction of talent teams, build an “Internet + warehousing and logistics” ecosystem, and help build a strong logistics country.

**Keywords:** Internet +; Warehousing logistics; Intelligent warehousing; Supply chain management; Informationization

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## Introduction

In recent years, the rapid development of information technology represented by the Internet, the Internet of Things and cloud computing has triggered a wave of change in all walks of life. The traditional warehousing and logistics industry is facing the urgent demand of transformation and upgrading. On the one hand, the rise of e-commerce has brought massive decentralized and small batch orders, raising higher requirements for warehousing network and distribution services; on the other hand, the demand for outsourcing services in manufacturing and trade circulation industry is expanding, requiring specialized third-party logistics services. Warehousing and logistics enterprises must take the initiative to embrace the Internet, drive management innovation with new technologies, and build a logistics service system compatible with the “Internet +”, so as to occupy a favorable position in the fierce market competition.

## 1. Development status of warehousing and logistics industry

### 1.1 The scale continues to expand, and the structure needs to be optimized urgently

In recent years, the total amount and added value of social logistics in China continued to grow. In 2019, the total amount of social logistics reached 283.1 trillion yuan, up 5.9% year on year; the ratio of total social logistics expenses to GDP was 14.7%, down 0.1 percentage points compared with the previous year. As the foundation and support of the logistics industry, the warehousing industry has a good development trend, but the structural contradictions are still prominent. A large number of small and medium-sized storage enterprises have simple facilities and backward management, which is difficult to meet the needs of modern logistics development; the supply of high standard storage facilities is insufficient, and the level of automation and information technology needs to be improved; the lack of effective connection between different regions and different industries, the resource utilization efficiency is low, and the development level of coordination and supply chain is insufficient<sup>[1]</sup>.

### 1.2 Innovation of service mode and increasingly diversified functions of functions

With the refinement of social division of labor and the extension of industrial value chain, the content of warehousing services is constantly enriched and the functions are increasingly diversified. In addition to the basic storage and distribution, extended services such as packaging processing, circulation processing, quality testing, reverse logistics and so on have become more and more common business forms. Warehousing and logistics enterprises have changed from a single function to a comprehensive service provider, and they are more closely connected with manufacturing enterprises and commercial enterprises, and their position and role in the supply chain system have become increasingly prominent. At the same time, with the rapid growth of personalized and customized demand, customers expect to obtain more flexible, convenient and fast response of warehouse distribution integration solutions, which puts forward higher requirements for the service

ability and innovation level of storage enterprises.

### **1.3 The level of informatization is improved, and the intelligent application starts**

Accelerating the integration of information technology and warehousing and logistics, it has become an important force leading the industry reform. Large storage enterprises have generally established WMS, TMS and other information management systems, which realize the visual control of orders, inventory, transportation and other links, and improve the operation efficiency and service quality. However, due to the capital and technical restrictions of small and medium-sized enterprises, the information level is generally low. At the same time, the automatic three-dimensional library, AGV car, UAV and other intelligent equipment began to be applied in the industry, forming an impact on the traditional operation mode, but the overall penetration rate is still relatively low. RFID, sensors and other Internet of Things technologies have brought new solutions for real-time inventory management and whole-process traceability, etc. However, the industry lacks unified standards, and enterprises are still in the stage of independent exploration.

## **2. Challenges facing warehousing and logistics management in the Internet environment**

### **2.1 Personalized and fragmented needs put forward higher requirements for flexible management**

In the Internet era, new business models such as B2C, C2B, O2O and so on are constantly emerging, with small-batch, multi-batch and high-frequency orders increasing greatly, and consumers expect to obtain more efficient and flexible logistics and distribution services. This requires warehousing and logistics enterprises to have a stronger flexible management ability, through fine operation, intelligent scheduling, to meet customers' increasingly personalized, fragmented logistics needs. The traditional large-scale centralized inventory management mode has not adapt, must change to the small warehouse network, pre-direction. Multi-category, small-batch and high-frequency operations bring new challenges to storage site management, personnel deployment, loading, unloading and handling, etc., which require enterprises to constantly innovate and optimize business processes<sup>[2]</sup>.

### **2.2 Demand for high-end services is growing, and the supply capacity needs to be improved**

The transformation and upgrading of the manufacturing industry and the development of supply chain management have put forward higher requirements for warehousing and logistics services. The promotion and application of advanced manufacturing modes, such as flexible manufacturing, intelligent manufacturing, service manufacturing and so on, requires matching agile, intelligent and integrated logistics services. The requirements of linkage and cooperation between all links of supply chain are getting higher and higher, and warehousing has become a key node to realize the visualization of supply chain and improve operational efficiency. However, at present, the service capacity of domestic warehousing enterprises is generally insufficient, especially small and medium-sized enterprises are limited to sites, facilities, talents, capital and other factors, lack of high-level supply chain logistics service ability, there is still a large gap in the whole logistics control, value-added service extension and other aspects, it is difficult to meet the personalized needs of high-end customers.

## **3. Countermeasures and suggestions to optimize warehousing and logistics management**

### **3.1 Accelerate the construction of smart storage and improve operational efficiency and service quality**

Smart warehousing is the product of the deep integration of traditional warehousing and modern information technology, representing the development direction of warehousing and logistics. We should make full use of new technologies such as the Internet of Things and big data to transform and upgrade traditional storage, promote human-computer interaction and intelligent scheduling, and realize the automation and fine control of storage operations. Establish an intelligent logistics information platform integrating warehouse management, order processing, inventory control, transportation and distribution, to open up all links of the business chain and realize end-to-end transparent management. Use big data to analyze and mine customer needs, optimize the inventory structure, and improve the turnover efficiency. Innovate and apply artificial intelligence, AR / VR and other technologies to enable business operation, promote service mode and management process reengineering, and build a flexible and efficient intelligent supply chain<sup>[3]</sup>.

### **3.2 Innovate the business operation mode and develop the value-added services such as supply chain finance**

In the Internet era, warehousing services have changed from a single space rental to a comprehensive solution. Warehousing and logistics enterprises should base on the overall industrial chain and supply chain, innovate business operation mode, extend service boundaries, and provide one-stop outsourcing services from procurement to distribution. For example, on the basis of the traditional warehouse distribution business, the development of VMI inventory management, collection and distribution, cross-border logistics and other new formats, to provide customers with personalized value-added services. Actively explore the deep integration of warehouse management with business flow, information flow and capital flow, rely on logistics big data to provide supply chain financial services, and solve the problem of "financing difficulties" for small and medium-sized enterprises. Introduce the crowdsourcing mechanism, integrate the socialized logistics resources, and improve the efficiency of resource use. Innovate business models, develop storage crowdsourcing, and improve the utilization rate of storage facilities.

### 3.3 Strengthen the collaborative management of supply chain and promote the construction of the "Internet + warehousing and logistics" ecosystem

In the era of "Internet +", the competition between enterprises has evolved into the competition between supply chains. As a link connecting the upstream and downstream of the supply chain, warehousing logistics plays an important role in the supply chain coordination. Internet thinking and big data technology should be used to break the enterprise boundaries and realize the interconnection and business collaboration of all nodes in the supply chain. Strengthen cooperation with manufacturers and distributors, and jointly build a smart supply chain platform for resource sharing and information exchange. We will actively introduce new business forms and new models such as logistics finance and cloud warehouse distribution, innovate the business ecology, and build an open, collaborative and win-win modern logistics service network. At the same time, strengthen the business connection with e-commerce platforms and express delivery companies, integrate into the e-commerce logistics ecosystem, and optimize the socialized logistics pattern.

## 4. Conclusion

In the Internet age, warehousing logistics enterprises only comply with the digital, networked, intelligent development trend, speed up and the depth of the "Internet +" fusion, with new technology to promote management change, innovative business model, optimize the allocation of resources, improve the service system, to ahead in a new round of industrial change, win the development initiative. It is believed that through the joint efforts of all parties in the industrial chain, "Internet + warehousing and logistics" will usher in a broader space for development, and make greater contribution to the modernization of circulation and the construction of a modern economic system.

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