

# ***Research on the Management Mode of Enterprise Warehouse Operation***

## ***--Taking JD Logistics as an Example***

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**Abstract:** Logistics enterprises in China have been promoting the digital economy in recent years. Warehouse management, as a vital part of logistics, has been enjoying a multitude of benefits brought by the Digital Age. However, challenges and interests coexist. This research adopts a case study approach. By analyzing the warehouse management mode of JD Logistics, this research identifies the potential application weaknesses of digital tech, including high costs, rapidly evolving technology and logistics systems, and the introduction of high-end talents. In light of these potential problems, this research suggests a myriad number of solutions. As an illustration, strengthening cooperation with relevant enterprises, enhancing the establishment of a platform for sharing resources within enterprises, appropriately adopting the Gig Economy, and cooperating with universities to carry out talent training programs are highly recommended. Through the above initiatives, this paper hopes to assist JD logistics in grappling with the high O&M costs, rapid technology iteration, and difficulty in recruiting professional talents. These findings hope to optimize management methods and enhance the efficiency of warehouse management, which will improve the service quality of JD logistics and help it achieve further breakthroughs in digital transformation. Furthermore, this paper also wishes to facilitate the digital transformation of logistics enterprises in China, in order to fuel the growth of the logistics industry.

**Keywords:** Warehouse Operations, Warehouse Management, JD Logistics

## **1. Introduction**

In the context of today's booming digital economy, the criticality of warehouse management is becoming more and more apparent. Warehouse management, playing a significant role in Supply Chain Management, is related to the supply of raw materials, logistics scheduling, product distribution, and many other links. With the digital economy now in its prime, the application of new tech undoubtedly brings enterprises a favorable solution to improve management efficiency.

It has become an increasingly critical step for enterprises to improve their supply chain management efficiency by grasping the technological opportunities of digital transformation and applying digital means to reinforce warehousing management. The research to date has focused on

intuitive benefits rather than the mechanisms of digital technology and the obstacles in applying them [1].

This paper takes JD Logistics as an example and analyzes and researches the warehouse operation mode of JD Logistics. On certain foundations, this paper provides countermeasures for the existing deficiencies. In addition to this, it furnishes theoretical ideas and inspiration for enterprises to step up warehouse management as well as promote digital transformation in an in-depth manner.

## 2. Analysis of the Current State of the Logistics Industry

The continuous innovation of logistics technology and the rise of e-commerce have made logistics enterprises witness a period of rapid development. As an industry pioneer, JD Logistics has developed into China's leading logistics service provider through the construction of large-scale warehousing centers and the application of advanced technologies. According to the Q3 2023 results report of JD, in terms of revenue, JD Logistics ranked second only to SF, while concerning net profit, JD Logistics ranked third. JD currently operates 37 Asia One Smart Industrial Parks in 27 cities across China. JD serves customers in different fields, including FMCG, home appliances and furniture, 3C, apparel, automotive, fresh produce, and many other industries [2]. During the 2023 618 promotion, JD Logistics Kunshan Yayi Sorting Center operated 24 hours a day, sorting more than 4.5 million parcels per day on average, representing the world's leadership level [2].

However, as the company further pushes forward with digital transformation, JD Logistics will confront many challenges including high-cost investment, high-speed technology renewal, and talent introduction. According to the CCTV report and JD's financial reports [3], since the comprehensive transition to technology in early 2017, JD's system has invested nearly 80 billion yuan in technology. Furthermore, based on JD 2023's Q3 financial announcement, the total HR expenses for the quarter were nearly 80 billion yuan.

With the advancement of digital transformation, to enhance the efficiency and accuracy of warehouse management, JD Logistics needs to keep investing a substantial amount of money in purchasing and maintaining warehouse equipment, such as shelves, forklifts, and scanning equipment.

At the same time, a substantial amount of funding is required to develop and maintain warehouse management systems to increase the level of automation in warehouse management. It is also noted that JD Logistics has more than 1,600 warehouses, with more than 32 million square meters of warehouse management area including cloud warehouses [3]. However, as the business expands, more warehouse space will have to be leased in the future, which places higher demands on the resilience of the capital chain.

The further advancement of digital transformation would imply an accelerated rate of technological renewal. By June 30, 2023, JD Logistics has been granted more than 3,500 patents and software licenses, among which more than 2,000 patents are related to automation and unmanned technologies [2]. In the face of emerging new warehouse management technologies and systems, enterprises need to choose the digital technology that suits their business needs [4]. Given that different technologies are looked to be integrated in order to interconnect systems and flow data, the following problems will be shed light on whether the internal organizational structure and capital budget can be upgraded and adjusted at the same time, whether the employees can learn and master the new technology quickly, and apply the new technology to their own business [5].

Furthermore, a new challenge has emerged as to whether to use new technologies to optimize the current business. It's also important to note that JD is presently implementing a variety of cloud technologies and warehousing systems in various locations. Managing the enterprise's warehousing will become more challenging when transferring between various platforms and systems.

Besides, to move forward in furthering the digital transformation of the enterprise is to be supported by talented people with relevant technical and managerial literacy. Digital transformation

is not only a breakthrough on the technology front. It requires the enterprise to undertake a structural and cultural change in the organization, which needs the active participation of both managerial and technical staff.

This work includes but is not limited to, the following points: redistributing job responsibilities, fostering digital skills, and facilitating innovative thoughts. In the context of the digital economy, the talent demand barrier for logistics companies has significantly elevated. To satisfy the needs of the logistics enterprises, employees are asked to equip themselves with the capability to well perform traditional logistics tasks. Furthermore, a thorough knowledge of the logistics industry and proficiency in cutting-edge digital logistics systems are also of prime concern [6].

Currently, the warehousing staff of JD Logistics still lacks professionalism [7]. In other words, they are not ready for the challenges posed by digital transformation. Therefore, based on the above discussion, there is an urgent need for companies to introduce and develop a group of talented people with knowledge of warehouse management and digital technology to respond to the tasks presented by the challenges of digital transformation. There is a limited supply of one such talent in today's labor market [8]. The mobility of today's talent is so great, and the cost and duration of developing the required talent from scratch is so high that it takes a long time to get there. Hence, building a professional talent team for warehouse management has become the key for enterprises to realize further breakthroughs.

### 3. Results and Discussion

JD Logistics is in the process of digital transformation and needs to effectively respond to the challenge of high-cost inputs in order to promote the enterprise to achieve further cost reduction and improve efficiency. To be specific, enterprises need to strengthen the synergy between suppliers and partners. It is suggested that the enterprise ensure the sustainability and long-term benefits of their investments by formulating long-term digital transformation plans with relative cooperating companies [9]. Besides, allocating funds on a rational basis and avoiding over-investment also play a vital role.

Secondly, in response to the challenges posed by frequently updated warehouse management systems and technologies, it is proposed that enterprises make use of the latest technological developments and training support by strengthening the construction of technology R&D teams and establishing close partnerships with technology suppliers [10]. Another reasonable approach to tackle this issue could be to strengthen the establishment of a cross-sector platform for information and technology sharing within the enterprise. It is a widely held view that the above strategies will expedite the synchronization of the upgrading of the in-house organizational structure with the new system and technology so as to help enhance the efficiency of the in-house management organization during the transition phase of updating the system.

Thirdly, it is thought that JD Logistics will also face a formidable problem, which is the scarcity of professional warehouse management labor. Strategies to enhance the talent introduction process might involve cooperating with universities and research institutes, appropriately adopting the Gig Economy, and building a platform for cross-enterprise exchanges and learning for employees. By collaborating with universities and research institutes on talent development programs, companies will train more people with knowledge of warehouse management and digital technology. Appropriate adoption of the Gig Economy will enable enterprises to acquire talents with relevant experience and expertise while reducing labor costs.

Last but not least, the enterprise ought to establish a favorable talent introduction mechanism. By making full use of the company resources for the staff to build a platform for communication and learning, it is believed that the staff will be motivated to learn and grow. Provided with good training

and development opportunities, the enterprise staff's professional ability and technical level are also believed to be improved [11].

#### 4. Conclusion

This paper has argued that with the logistics enterprises in China further advancing the digital transformation, warehouse management, as a strategic link in logistics, while enjoying the dividends brought by the digital economy, the relevant challenges should be prepared to cope with. This study takes JD Logistics, a leading logistics enterprise in China, for instance.

By analyzing the current situation of its warehouse management and based on the development trend of the logistics industry, the study identifies the problems that the enterprise may face in furthering the process of digital transformation. High-cost investment, high-speed iteration of the warehouse management system and logistics technology, and the high difficulty of importing high-end talent emerged as reliable predictors.

These findings have significant implications for the understanding of how to further reduce costs and increase efficiency. Given the above problems, this paper puts forward the following targeted solutions based on the findings of the empirical research method: strengthening cooperation with relevant enterprises, strengthening the establishment of an internal information-sharing platform, rationally utilizing the Gig Economy, and collaborating with universities to carry out talent cultivation programs.

The purpose of this paper is to provide reference opinions for JD Logistics to further lower costs, boost efficiency, improve quality, and comprehensively upgrade the level of warehousing management, as well as to provide ideas for China's logistics industry to actively promote digital transformation. One source of weakness in this study that could have affected the measurements was the lack of horizontal comparisons with foreign logistics enterprises as well as the summary and reference of relevant practical experience. More information on successful and effective initiatives of leading foreign logistics companies in digital transformation would help this research to establish a greater degree of accuracy on this matter.

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