

Research on the Optimization Strategy of Last-Mile Distribution under the E-Commerce Logistics Model

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Abstract: With the rapid development of e-commerce, last-mile delivery, as a key link in e-commerce logistics, is essential to provide efficient and punctual delivery services. This study aims to explore the optimization strategy of last-mile delivery under the e-commerce logistics model to improve delivery efficiency, reduce costs, and provide a better user experience. This study adopts the method of literature review and case analysis, combined with the actual e-commerce logistics operation, to conduct an in-depth study on the problem of last-mile delivery.

Keywords: E-commerce logistics, Last-mile delivery, Optimize your strategy.

1. Introduction

With the rapid development of the Internet and e-commerce, e-commerce logistics has become an important part of the modern logistics field. In e-commerce logistics, the last-mile delivery link is a key link connecting e-commerce enterprises and consumers, which directly affects distribution efficiency, cost and user experience. However, due to factors such as rapid urbanization, diversification of consumer demand, and traffic congestion, last-mile delivery faces many challenges and problems. The traditional last-mile delivery model often faces problems such as traffic congestion, limited delivery time windows, and delivery staff management, resulting in low distribution efficiency, high costs, and difficulty in meeting consumers' needs for fast and on-time delivery. Therefore, how to optimize the last-mile delivery under the e-commerce logistics model, improve distribution efficiency, reduce costs, and provide a better user experience has become an important problem to be solved in the current logistics field. This study aims to explore the optimization strategy of last-mile delivery under the e-commerce logistics model to improve delivery efficiency, reduce costs, and provide a better user experience. Through in-depth research and analysis of the problems in last-mile delivery, combined with the research results and practical cases of scholars at home and abroad, we will propose a series of practical optimization strategies to provide useful reference and guidance for e-commerce enterprises and logistics service providers.

2. Overview of the development of e-commerce logistics at home and abroad

In recent years, China's e-commerce logistics industry has developed rapidly. Driven by policy support and market demand, the scale of the e-commerce logistics market continues to expand, and the level of logistics services continues to improve. With the vigorous development of the e-commerce industry, the scale of China's e-commerce logistics market continues to expand. According to statistics, the average annual growth rate of China's e-commerce logistics market has remained at a high level in recent years,

and it is expected to maintain rapid growth in the future. In the fierce market competition, e-commerce logistics companies continue to explore and innovate logistics service models. For example, new technologies and new models such as intelligent warehousing, unmanned distribution, and shared logistics are adopted to improve logistics efficiency and service quality. The Chinese government attaches great importance to the construction of e-commerce logistics infrastructure and has increased investment in infrastructure such as logistics parks, distribution centers, and transportation hubs. The improvement of these infrastructures provides a strong guarantee for the rapid development of e-commerce logistics. With the rapid development of the e-commerce logistics industry, the demand for logistics talents is also increasing. China's government and enterprises have strengthened the training and introduction of logistics talents, and improved the professional quality and service level of logistics practitioners.

The foreign e-commerce logistics industry started earlier, and after years of development, it has formed a relatively mature development model and characteristics. Foreign e-commerce logistics enterprises pay attention to improving the level of logistics services, and achieve fast, accurate and safe logistics and distribution services through the use of advanced logistics technology and management models. Foreign e-commerce logistics companies have a relatively complete logistics network, which can cover many countries and regions around the world. This enables foreign e-commerce companies to better serve global consumers and promote the development of international trade. Foreign e-commerce logistics enterprises pay attention to technological innovation and application, and actively adopt advanced technologies such as the Internet of Things, big data, and artificial intelligence to improve logistics efficiency and service quality. For example, e-commerce companies such as Amazon have adopted new technologies such as unmanned delivery vehicles and drones for delivery services, which has improved the efficiency and accuracy of delivery. The regulatory system of the foreign e-commerce logistics industry is relatively perfect, which provides a strong guarantee for the standardized development of e-commerce logistics. The government has strengthened the supervision and management of the e-commerce logistics industry, and

standardized the market order and competitive behavior.

3. Analysis of the current situation of last-mile delivery under the e-commerce logistics model

3.1. Distribution Models Are Diverse, but Efficiency Varies

At present, there are several modes of last-mile delivery under the e-commerce logistics model: self-operated distribution, third-party distribution, crowdsourcing distribution and community group purchase distribution. Each of these models has its own advantages and disadvantages, but overall efficiency is uneven. Self-operated distribution usually has high service quality and timeliness, but the cost is also relatively high; Third-party distribution can reduce costs, but it is difficult to ensure service quality and timeliness; Crowdsourcing and community group purchase distribution solve the problem of labor costs to a certain extent, but they are difficult to manage.

3.2. Fulfillment Costs Are High and Fluctuate

The cost of last-mile delivery mainly includes labor costs, vehicle costs, fuel costs, insurance premiums, etc. Due to factors such as scattered distribution areas and uncertain delivery times, the distribution cost fluctuates greatly. At the same time, due to the fierce competition of e-commerce platforms, it is often necessary to attract consumers by reducing the price of goods, which makes it difficult for e-commerce platforms to bear excessive distribution costs.

3.3. The Quality of Delivery Services Varies

The quality of service for last-mile delivery is directly related to the shopping experience of consumers. However, due to the uneven quality of delivery staff, uncertain delivery time, damaged or lost goods, etc., it is difficult to ensure the quality of delivery services. As a result, consumer satisfaction with delivery services has also suffered.

3.4. Delivery Workers Work Intensively and Are Paid Less

Last-mile delivery usually requires delivery staff to complete a large number of delivery tasks in a short period of time, and the work intensity is high. However, due to fierce competition and the need for cost control, the remuneration of delivery workers is often lower, which leads to the loss of motivation and stability of delivery personnel. At the same time, the working environment and safety of delivery workers also face certain challenges.

3.5. Inadequate Application of Technology Leads to Inefficiencies

Although technologies such as the Internet of Things, big data, and artificial intelligence have been widely used in the logistics industry, their application in the field of last-mile delivery is still insufficient. This makes it difficult to solve problems such as opaque information and inefficiency in the distribution process. For example, it is difficult for delivery staff to accurately grasp the location and quantity information of goods, resulting in low delivery efficiency; at the same time, it is difficult for consumers to understand the delivery progress and location information of products in real time.

To sum up, there are many problems in the last mile

distribution under the current e-commerce logistics model, including diverse but uneven distribution modes, high and fluctuating distribution costs, uneven distribution service quality, high work intensity and low remuneration of delivery personnel, and low efficiency due to insufficient application of technology. These problems not only affect the shopping experience of consumers, but also restrict the sustainable development of the e-commerce logistics industry. Therefore, it is necessary to formulate corresponding optimization strategies and improvement measures for these problems.

4. Research on optimization strategies for last-mile delivery

4.1. Unified and Standardized Distribution Model

In view of the problem of diverse distribution modes but uneven efficiency, it is recommended that e-commerce enterprises adopt a unified and standardized distribution model. This includes establishing uniform delivery standards, processes, and specifications to ensure consistency in efficiency and service quality across delivery models. At the same time, through data analysis and comparison, we can choose the most suitable distribution model for our own business characteristics, and continuously optimize and improve.

4.2. Cost Optimization and Dynamic Pricing Strategies

In order to reduce distribution costs and reduce volatility, the following strategies can be adopted: first, reduce operating costs by optimizing distribution routes, increasing distribution density, and reducing empty driving rates; Secondly, the dynamic pricing strategy is adopted to dynamically adjust the delivery price according to market demand, delivery distance, time and other factors to balance costs and profits; Finally, strengthen collaboration with all parties in the supply chain to achieve resource sharing and cost sharing.

4.3. Improve the Quality of Delivery Services

In view of the uneven quality of distribution services, the following measures can be taken: first, establish a sound distribution service standards and processes to ensure that the delivery staff complies with the regulations in the delivery process; Secondly, strengthen the training and management of distribution personnel, and improve their service awareness and professional quality; Finally, establish a customer feedback mechanism, collect and deal with customer complaints and suggestions in a timely manner, and continuously improve the quality of delivery services.

4.4. Improve the Treatment and Working Conditions of Delivery Workers

In view of the problem of high work intensity and low remuneration of delivery workers, it is recommended that e-commerce enterprises take the following measures: first, improve the salary and welfare level of delivery workers to enhance their work enthusiasm and stability; Secondly, optimize the distribution route and reduce the invalid delivery time, and reduce the work intensity of the delivery staff; Finally, strengthen the safety and health care of delivery workers to increase their job satisfaction and loyalty.

4.5. Strengthen Technology Application and Innovation

In view of the problem of low efficiency caused by insufficient application of technology, it is recommended that e-commerce enterprises strengthen technology application and innovation. This includes the introduction of advanced technologies such as the Internet of Things, big data, and artificial intelligence to realize real-time sharing and intelligent scheduling of distribution information; at the same time, the development and application of automated and intelligent distribution equipment and technology, such as unmanned delivery vehicles, intelligent express cabinets, etc., to improve distribution efficiency and accuracy. In addition, blockchain technology can also be used to achieve transparency and traceability of supply chain information, and improve the coordination and security of the supply chain.

Through the research on the optimization strategy of last-mile delivery under the e-commerce logistics model, this chapter proposes specific strategies for the current problems. The implementation of these strategies will help e-commerce companies improve the efficiency and service quality of last-mile delivery, improve the shopping experience of consumers and the market competitiveness of enterprises. At the same time, these strategies will also provide strong support for the sustainable development and transformation and upgrading of the e-commerce logistics industry.

5. Conclusion

In this article, we take a deep dive into optimization strategies for last-mile delivery in the e-commerce logistics model. Through a comprehensive analysis of the current challenges faced by e-commerce logistics last-mile distribution, such as diverse but uneven distribution modes, high and fluctuating distribution costs, uneven quality of distribution services, high work intensity and low remuneration of delivery staff, and low efficiency due to insufficient application of technology, we propose a series of targeted optimization strategies.

To sum up, the optimization of last-mile delivery under the e-commerce logistics model is a complex and important topic.

Through the comprehensive application of unified and standardized distribution models, cost optimization and dynamic pricing strategies, improving the quality of distribution services, improving the treatment and working conditions of delivery personnel, and strengthening technology application and innovation, we can effectively solve the current problems faced by e-commerce logistics last-mile distribution, improve distribution efficiency and service quality, and then enhance the market competitiveness of e-commerce enterprises. Looking forward to the future, with the continuous progress of science and technology and the continuous development of the e-commerce market, last-mile delivery optimization will continue to become a research hotspot and practical focus in the field of e-commerce logistics.

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