

# Research on the Application of Management Accounting in Logistics Enterprises in the Internet+ Era

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## Abstract

This paper aims to study the application of management accounting in logistics enterprises in the era of Internet+. With the development of Internet+, logistics enterprises are facing increasingly fierce competition and management challenges. As an important management tool, management accounting provides important support and guidance for decision-making in logistics enterprises in this context. This study explores the application of management accounting in logistics enterprises and analyzes its roles in cost management, performance evaluation, budget management, fund management, and decision support. At the same time, this paper also discusses the innovative application of management accounting in the era of Internet+, such as the introduction of big data analysis and artificial intelligence technology. By properly applying management accounting tools and methods, logistics enterprises can improve operational efficiency, reduce costs, and further optimize management processes through innovative technological applications. This paper provides theoretical and practical references for the implementation of management accounting in logistics enterprises in the era of Internet+.

**Keywords:** Internet+ era, logistics enterprises, management accounting, cost management

## 1. Introduction

With the advent of the Internet+ era, logistics enterprises are facing unprecedented opportunities and challenges. The rapid development and popularization of Internet technology have made information flow more convenient and data processing more efficient, with deepening impact on various industries. In this context, logistics enterprises not only need to cope with increasingly fierce market competition but also face challenges in management efficiency, resource optimization,

and risk control. In addressing these challenges, management accounting, as an important tool and method, becomes a crucial choice for logistics enterprises. As a specialized field of accounting that focuses on internal management needs of enterprises, management accounting emphasizes the functions of information management and decision support with the aim of providing scientific basis for decision-making and execution. In the logistics enterprises of the Internet+ era, management accounting has been widely applied and esteemed for its flexibility,

adaptability, and practicality. Through the methods and tools of management accounting, logistics enterprises can grasp the information on cost, performance, budget, funds, and decision-making more accurately, optimize resource allocation and business processes, and provide strong support for strategic decision-making. In traditional logistics enterprises, management accounting concentrates on applications such as cost control, performance evaluation, and budget management. However, with the development of the Internet+ era, the application of management accounting in logistics enterprises has also undergone changes. Logistics enterprises in the Internet+ era face increasingly complex problems and require more flexible and accurate management methods. The application of new technologies such as big data analysis and artificial intelligence provides new directions for the development of management accounting and possibilities for innovative applications. Logistics enterprises can use big data analysis to uncover potential information behind the data and provide decision-makers with more comprehensive, accurate, and real-time decision support. The application of artificial intelligence can make the management accounting process more automated and intelligent, improving management efficiency and decision-making accuracy. Based on the above background, this paper aims to explore the application of management accounting in logistics enterprises in the Internet+ era, with a focus on its roles in cost management, performance evaluation, budget management, fund management, and decision support. At the same time, this paper will study the innovative applications of management accounting in the Internet+ era, especially the introduction of big data analysis and artificial intelligence technology, in order to explore more advanced and efficient management accounting models and methods. Through this research, the paper aims to provide beneficial theoretical and practical references for logistics enterprises, helping them effectively address challenges and achieve sustainable development in the Internet+ era.

## **2. Logistics Enterprises in the Age of Internet+**

### *2.1 The Impact of Internet + on Logistics Enterprises*

With the arrival of the Internet+ era, logistics enterprises are facing unprecedented transformations and opportunities. The rapid

development and popularization of Internet technology have brought new business models and operational methods to the logistics industry. Traditional logistics heavily relied on offline channels and cumbersome document transmission, resulting in low efficiency of information flow and high operating costs. However, the rise of the Internet+ era has enabled fast information transmission and real-time monitoring of logistics information through digitalization, networking, and intelligence. Internet+ has provided logistics enterprises with the ability to share information and achieve real-time monitoring. With the help of Internet technology, logistics enterprises can establish online platforms for information sharing, connecting suppliers, transporters, warehousing providers, and customers, facilitating fast and convenient cooperation and communication. Additionally, through the application of technologies such as sensors, Internet of Things (IoT), and cloud computing, logistics enterprises can monitor the location, temperature, humidity, and other information of goods in real-time, ensuring the safety and traceability of goods. Internet+ has also brought opportunities for e-commerce and smart logistics to logistics enterprises. Through e-commerce platforms, logistics enterprises can collaborate with various e-commerce platforms, realizing real-time order processing and delivery, improving transportation efficiency, and meeting customer demands (Li J & Qiu W., 2020). At the same time, logistics enterprises can introduce intelligent warehousing, handling, and delivery equipment with the support of Internet+ technology, enhancing the efficiency and accuracy of logistics operations. However, the Internet+ era also presents a series of challenges for logistics enterprises. Intensified market competition requires logistics enterprises to continuously improve service quality and reduce costs to maintain competitiveness. The rapid growth of data and information places higher demands on the information management and analysis capabilities of logistics enterprises. Additionally, network security and data privacy issues require logistics enterprises to strengthen protection and management. Therefore, in the Internet+ era, logistics enterprises need to adapt to new business models and operational methods, actively embrace digital technologies and innovative applications, strengthen information

management, enhance service quality, and establish network security and data protection systems to embrace future challenges and opportunities.

## *2.2 Management Challenges Facing Logistics Companies*

In the Internet+ era, logistics enterprises face diverse management challenges. Firstly, the rapid development and widespread application of the Internet have changed consumer shopping habits, leading to personalized and diversified demands. Logistics enterprises need to promptly respond and adapt to rapidly changing market demands, providing fast, accurate, and traceable logistics services while maintaining a good logistics experience. Secondly, supply chain management is one of the important challenges faced by logistics enterprises. Modern logistics enterprises need to coordinate and collaborate with suppliers, manufacturers, distributors, and customers to achieve efficient supply chain operations. In the Internet+ era, supply chains have become more complex and sensitive, requiring logistics enterprises to establish efficient supply chain management systems through the application of information technology to optimize resources and improve operational efficiency. Thirdly, the emergence of big data presents management challenges for logistics enterprises. Logistics enterprises need to process and analyze massive amounts of data to obtain valuable information for decision-making and operational improvements. This requires logistics enterprises to have professional data analysis and mining capabilities, as well as advanced information systems and technological infrastructure. In addition, efficiency and cost control are common management challenges for logistics enterprises. Logistics enterprises need to continuously improve operational efficiency, such as optimizing delivery routes, rationalizing warehouse capacity, and improving the utilization of transportation equipment to reduce costs and provide more competitive services. At the same time, logistics enterprises also need to address challenges in human resource management, environmental protection, and sustainable development, among others. Finally, information security and privacy protection become important management challenges that logistics enterprises cannot ignore. With the digitalization of logistics operations and frequent information exchanges,

logistics enterprises need to take effective measures to protect the security of sensitive information, prevent network attacks and data breaches, and comply with relevant laws and regulations. In conclusion, in the Internet+ era, logistics enterprises face the complexity and diversity of management challenges. Logistics enterprises need to be flexible, actively adopting innovative management methods and technological means, continuously enhancing their management capabilities and competitiveness to adapt to the rapidly changing market environment.

## **3. The Application of Management Accounting in Logistics Enterprises**

### *3.1 Cost Management*

In the application of management accounting in logistics enterprises, cost management is an important aspect. Cost management aims to help logistics enterprises understand and control costs in various areas to improve operational efficiency and profitability. Firstly, management accounting can provide detailed analysis and calculation of costs. By collecting and organizing cost data, logistics enterprises can accurately calculate costs in different areas, such as transportation costs, warehousing costs, packaging costs, etc. This helps the enterprise understand the cost structure and variations in each area, enabling rational cost control and decision-making. Secondly, management accounting can help identify cost optimization potentials through cost analysis. By comparing differences between cost items and cost centers, logistics enterprises can identify inefficient areas and pinpoint problems, allowing for corresponding improvement measures. For example, logistics enterprises can analyze the utilization rate of warehouse equipment to identify idle or wasteful resources and make adjustments and optimizations to reduce unnecessary cost expenditures. Furthermore, management accounting provides a basis for cost control and forecasting. Logistics enterprises can monitor and control costs by establishing and implementing budgets. Through cost forecasting and comparing actual costs with the budget, logistics enterprises can promptly detect cost deviations and adjust strategies to avoid cost overruns and losses. Finally, management accounting can be integrated with other management tools such as performance evaluation, performance assessment, and investment decisions (Wang L

& Wang X., 2020). By combining cost data with performance indicators, logistics enterprises can evaluate operational performance, identify potential issues, and seek improvement opportunities. In investment decisions, management accounting can provide cost-benefit analyses, offering vital support for strategic decision-making in logistics enterprises. In summary, the application of management accounting in cost management in logistics enterprises is of significant importance. By accurately analyzing costs, identifying optimization potentials, controlling cost expenditures, and forecasting cost variations, logistics enterprises can better manage costs, improve operational efficiency, enhance competitiveness, and achieve sustainable development.

### *3.2 Performance Evaluation*

Performance evaluation plays a crucial role in logistics enterprises by helping to assess and monitor the performance of employees, teams, and overall operations, as well as providing guidance for performance improvement and goal attainment. Firstly, performance evaluation helps logistics enterprises understand the work performance and contributions of individual employees. By setting clear job goals and indicators, and conducting regular assessments of employees, logistics enterprises can gain insights into how well employees are performing in their roles. This helps identify high-performing individuals for recognition and incentives, as well as identify areas for improvement and provide recommendations. Secondly, performance evaluation assesses the performance of teams and departments. Logistics enterprises often consist of multiple teams and departments, and evaluating their performance provides insights into each team's work completion and operational efficiency. This helps identify collaboration issues, resource utilization problems, and process bottlenecks between teams, prompting timely adjustments and optimizations. Furthermore, performance evaluation assists logistics enterprises in monitoring overall performance and goal achievement. By tracking and evaluating key performance indicators, logistics enterprises can timely identify performance deviations and develop targeted improvement measures. Performance evaluation also aids in evaluating the attainment of strategic objectives, identifying issues in strategic execution, and making

necessary adjustments to maintain competitiveness and sustainable development. Logistics enterprises can employ various evaluation methods and tools, such as regular assessments, 360-degree feedback, and key performance indicators (KPIs), in performance evaluation. Additionally, integrating performance evaluation results with reward systems can motivate employees and teams to work diligently and reward high performers, fostering a positive work environment. Performance evaluation in logistics enterprises not only improves the work performance of employees and teams but also enhances overall business performance. Through regular evaluation and feedback, logistics enterprises can continuously optimize workflow, improve efficiency, and achieve strategic objectives, thereby enhancing operational effectiveness and customer satisfaction.

### *3.3 Budget Management*

Budget management plays a crucial role in logistics enterprises by providing guidance and control over the financial situation and operational decision-making. By formulating and implementing budgets, logistics enterprises can effectively manage resources, control costs, and improve efficiency to achieve sustainable development goals. Firstly, budget management helps logistics enterprises allocate resources appropriately. By setting budgets, logistics enterprises can determine the funding and resource requirements for each department and project. Budgets assist in the proper planning and allocation of finances, manpower, equipment, and other resources to support the normal operations and development of the business. Additionally, budgets help avoid resource waste and unnecessary expenses, thereby enhancing resource utilization efficiency. Secondly, budget management aids in cost control for logistics enterprises. During the budgeting process, enterprises need to evaluate and plan for various expenses and expenditures. Budgets can limit spending by establishing cost control goals and limits. By monitoring and comparing budget execution, logistics enterprises can promptly identify and address issues such as cost overruns and unnecessary expenses, thereby enhancing cost-effectiveness and profitability. Furthermore, budget management helps logistics enterprises in decision-making. Through analysis and evaluation of budget execution, logistics



enterprises can gain insights into the financial performance and potential risks of the business. Budget analysis assists enterprises in assessing the feasibility of investments and expansion plans, as well as making flexible decisions in response to market opportunities and changes, thereby realizing strategic goals and enhancing competitiveness. Lastly, budget management provides evaluation and monitoring of enterprise performance. By comparing actual performance with the budget, logistics enterprises can determine if the expected targets have been met and make timely adjustments to their business strategies. Budget management provides data and indicators to help enterprises understand the financial status, revenue growth, cost fluctuations, and more, providing a basis for decision-making (Wang T & Qian M., 2018). In summary, the application of budget management is highly important in logistics enterprises. By properly arranging resources, controlling costs, supporting decision-making, and evaluating performance, logistics enterprises can enhance operational efficiency, reduce risks, and achieve sustainable development. Budget management is a dynamic process that requires constant monitoring and adjustments to adapt to market environments and the development of enterprises.

### *3.4 Funds Management*

Funds management is crucial in logistics enterprises as it involves the efficient utilization, monitoring, and control of financial resources to ensure the fulfillment of funding needs and maintain a healthy financial position. Firstly, funds management helps logistics enterprises with proper planning and allocation of funding requirements. Logistics operations often require significant capital investments for purchasing transportation equipment, warehousing facilities, as well as payment of suppliers and employees. Through funds management, enterprises can forecast and plan the inflow and outflow of funds to ensure sufficient funds during operations while avoiding the waste of idle resources caused by excessive funds. Secondly, funds management assists logistics enterprises in optimizing the efficiency of fund utilization. With limited funds, enterprises need to ensure the rational allocation of funds to maximize operational requirements. By analyzing the fund requirements of various operational activities, enterprises can formulate fund allocation strategies that prioritize the funding needs of

critical business areas, thereby improving fund utilization efficiency and operational performance. Additionally, funds management helps logistics enterprises in managing and controlling risks. In day-to-day operations, logistics enterprises may face various risks such as market risks, supply chain risks, and liquidity risks. By establishing a robust funds management system, enterprises can promptly detect and respond to risks and take necessary measures such as fund reserves, insurance, and reasonable risk sharing to mitigate the impact of potential risks on the enterprise. Lastly, funds management also assists logistics enterprises in optimizing investment decisions. During operations, logistics enterprises may need to make capital investments, such as expanding transportation networks or upgrading warehousing facilities. Through funds management, enterprises can evaluate the return on investment and risks associated with each investment and make informed decisions. Funds management also monitors and evaluates the implementation of investment projects to ensure effective fund utilization and expected returns. In conclusion, funds management is crucial for the healthy development of logistics enterprises. Through proper planning and allocation of funding requirements, optimizing fund utilization efficiency, controlling risks, and optimizing investment decisions, logistics enterprises can achieve effective funds operation and management, ensuring stable development and sustainable operations.

### *3.5 Decision Support*

Decision support refers to the provision of information and analysis during the decision-making process of an enterprise to assist management in making wiser and more rational decisions. In logistics enterprises, decision support systems play a critical role in aiding management in making key decisions and improving efficiency and effectiveness. Firstly, decision support systems can collect and organize large amounts of data and information. Logistics enterprises deal with complex supply chains, transportation networks, and market environments, requiring a wealth of information for decision making. Decision support systems can help collect, store, and organize relevant data and transform it into useful information for management reference and analysis. Secondly, decision support systems provide a variety of decision analysis tools and models. Logistics

decision-making often involves complex factors and uncertainties. Decision support systems can utilize various analysis tools and models such as statistical analysis, forecasting models, optimization models, etc., to evaluate and compare different decision alternatives, thereby assisting management in selecting the optimal decision. Additionally, decision support systems offer visualization and reporting capabilities. By presenting complex data and analysis results in visual forms such as charts and reports, decision support systems allow management to have a more intuitive understanding of the impact and outcomes of decisions. This helps management better comprehend the problems and proposed solutions, making more accurate and confident decisions. Lastly, decision support systems provide real-time and intelligent decision support. With technological advancements, decision support systems are becoming increasingly intelligent and capable of providing real-time decision support based on big data and artificial intelligence technologies. By analyzing and processing real-time data, decision support systems can assist management in making rapid decisions and responding timely to market changes and supply chain risks. In summary, decision support holds significant importance in logistics enterprises. By collecting and organizing information, providing decision analysis tools and models, offering visualization and reporting, as well as providing real-time intelligent support, decision support systems can assist management in making informed decisions, improving efficiency and competitiveness, and achieving sustainable development in logistics enterprises.

#### **4. Management Accounting Innovation in the Internet+ Era**

##### *4.1 Big Data Analytics*

In the era of Internet Plus, big data analytics plays a crucial role in the innovation of management accounting. Here are several aspects of big data analytics in the innovation of management accounting in the Internet Plus era:

- (1) **Data collection and integration:** In the Internet era, companies can access large amounts of data through various channels, including sales data, customer data, supply chain data, etc. Management accounting can utilize big data technologies to collect and integrate this data, enabling

comprehensive, accurate, and timely data acquisition and establishing a complete data foundation.

- (2) **Data mining and analysis:** Big data analytics can help management accounting extract valuable information from vast amounts of data. Through data mining techniques and algorithms, patterns, trends, and regularities hidden within the data can be identified, providing powerful support for decision-making. For example, analyzing sales data can reveal potential market opportunities or customer behavior patterns, facilitating the formulation of more effective marketing strategies.
- (3) **Forecasting and predictive modeling:** With the use of big data technologies, management accounting can make forecasts and models for the future. By analyzing historical data and market trends, predictive models can be established to forecast sales volume, cost changes, market demands, etc. Such predictions can assist companies in making more accurate decisions and formulating corresponding budgets and plans (Ding D., 2019).
- (4) **Real-time monitoring and feedback:** Big data analytics in the Internet Plus era enables management accounting to achieve real-time data monitoring and feedback. Through big data analytics techniques, management can promptly understand the operational status, cost situation, market changes, etc., allowing for timely corrective measures, avoiding potential risks, and enhancing agility and competitiveness.
- (5) **Decision support and optimization:** Big data analytics provides comprehensive decision support for management accounting. Through the analysis and mining of big data, more accurate data and comprehensive information can be provided, serving as scientific evidence for decision-making by management. Additionally, big data analytics can also optimize the decision-making process of companies by automatically and intelligently providing decision alternatives and recommendations.

In summary, big data analytics empowers management accounting in the Internet Plus era by enabling data collection and integration, data mining and analysis, forecasting and predictive

modeling, real-time monitoring and feedback, as well as decision support and optimization. These aspects contribute to enhancing decision-making, improving operational efficiency, and promoting the sustainable development of businesses.

#### *4.2 Application of Artificial Intelligence Technology*

Artificial intelligence technology is widely applied in almost every industry and field, gradually changing the way we live and work. In the field of natural language processing, intelligent assistants and speech recognition technology allow us to interact with machines through audio or text, greatly improving efficiency in work and daily life. Machine learning technology enables machines to possess autonomous learning and predictive capabilities through analyzing and learning from big data. It also provides more accurate predictions and decision support in fields such as finance and healthcare. Computer vision technology enables machines to understand and interpret images and videos, widely used in areas like security monitoring and autonomous driving. As for robotics, the presence of robots not only enhances efficiency in production and services but also enables them to perform tasks in dangerous environments or special occasions in place of humans. Furthermore, artificial intelligence technology plays a crucial role in data analysis and decision support, helping businesses better understand and utilize data and providing scientific bases for decision-making (Fan Z, Fan Y & Ma M., 2019). In conclusion, the extensive application of artificial intelligence technology is quietly transforming our world, bringing more convenience and opportunities.

#### **5. Conclusion**

In the era of Internet Plus, the application research of management accounting in logistics enterprises is witnessing broad development prospects. With the rapid advancement of information technology and the advent of the big data era, logistics enterprises face higher competition pressure and more complex business environments. The innovative application of management accounting, especially in big data analysis, provides crucial decision support and business optimization opportunities for logistics enterprises. Through the application of management accounting in the Internet Plus era, logistics enterprises can

achieve comprehensive data collection and integration of key information including supply chain data, transportation data, and warehousing data. With the help of big data analytics, potential business models, customer demands, and supply chain bottlenecks can be identified from this data, providing accurate predictions and decision support. For example, by mining and analyzing logistics data, logistics network layout can be optimized to improve transportation efficiency and reduce costs. Through the analysis of supply chain data, bottlenecks in the supply chain can be timely detected and resolved, enhancing supply capacity and customer satisfaction. Furthermore, based on management accounting in the Internet Plus era, logistics enterprises can achieve real-time monitoring and feedback. Through big data analytics, management can have real-time insights into the operational status, cost situation, and business risks of logistics operations, enabling timely adjustments and optimization of operational strategies. For example, by continuously monitoring transportation data, transportation delays or anomalies can be detected in advance, allowing for timely measures to avoid losses or inconveniences. Additionally, management accounting in the Internet Plus era provides logistics enterprises with more intelligent decision support and business optimization. By leveraging artificial intelligence and machine learning technologies, in-depth analysis and modeling of big data can be conducted, helping enterprises forecast market demands, optimize transportation routes, and reduce transportation risks. Intelligent algorithms and automation systems can also be employed to achieve smart scheduling, automated warehousing, and intelligent supply chain management, thereby improving logistics efficiency and customer satisfaction. In the era of Internet Plus, the application research of management accounting in logistics enterprises holds significant meaning and vast application prospects. By fully utilizing big data analytics, real-time monitoring, and intelligent decision support, logistics enterprises can achieve efficient and optimized operational management, enhance competitiveness and customer value, meet challenges, and achieve sustainable development.

#### **References**

- Ding D. (2019). Study on the Service Quality Evaluation of Customer-Centric Third Party

- Logistics Enterprises. Institute of Management Science and Industrial Engineering. *Proceedings of 2019 7th International Education, Economics, Social Science, Arts, Sports and Management Engineering Conference (IEESASM 2019)*. Clausius Scientific Press, 2514-2518.
- Fan Z, Fan Y, Ma M. (2019). Research on the Performance Evaluation of Cold Chain Logistics Enterprises of Fresh Products E-commerce. Institute of Management Science and Industrial Engineering. *Proceedings of 2019 International Conference on Management, Finance and Social Sciences Research (MFSSR 2019)*. Francis Academic Press, 425-430.
- Li J, Qiu W. (2020). Comprehensive Research on the Business Model of Logistics Enterprises in the Era of Big Data. Wuhan Zhicheng Times Cultural Development Co., Ltd. *Proceedings of 2020 International Conference on the Frontiers of Innovative Economics and Management (FIEM 2020)*. BCP, 114-122.
- Wang L, Wang X. (2020). Research on the Risks and Countermeasures of Online Supply Chain Fund Operation of Logistics Enterprises. AEIC Academic Exchange Information Center (China). *Proceedings of 5th International Conference on Financial Innovation and Economic Development (ICFIED 2020)* (Advances in Economics, Business and Management Research, Vol. 126). Atlantis Press, 311-314.
- Wang T, Qian M. (2018). A Summary of Research on Employee Compensation Management in Private Logistics Enterprises. Institute of Management Science and Industrial Engineering. *Proceedings of 2018 International Conference on Management Science and Industrial Economy Development (MSIED 2018)*. Francis Academic Press, 107-110.