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Research on the Cost Management of the Value Chain of Smart Logistics Enterprises from the Perspective of the Digital Economy

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Abstract: In the era of digital economy, the application of digital technology using value chain analysis tools to optimize the cost management of intelligent logistics enterprises can reduce the development cost of logistics enterprises and realize the high-quality development of logistics enterprises. With the deepening of the supply-side structural reform, the current logistics enterprise development mode changes, the traditional logistics management mode and the modern logistics development mode conflict between the new development situation needs to strengthen the value chain management of the logistics enterprise, improve the efficiency of logistics operation, therefore, the development mode of the intelligent logistics enterprise has attracted the attention of the relevant scholars. This paper takes enterprise A as an example, outlines the development mode of the logistics enterprise, analyzes in depth the problems encountered in the external value chain cost management of the enterprise, and puts forward the optimization of the enterprise value chain cost management related suggestions on this basis, aiming at promoting the sustainable development of the intelligent logistics enterprise.

1. Introduction

At present, China has stepped into the era of digital economy, and digital technologies such as big data, cloud computing, artificial intelligence and blockchain are constantly developing. It is of great significance to the development of China's digital economy to promote the deep integration of digital technology and the real economy, and to give rise to new industries, new business forms and new models. The factors of production, industrial models, and consumption patterns in the era of digital economy have undergone radical changes, deeply affecting various industries. These changes also make all aspects of economic activities fused into the digital space, the value chain of enterprises is gradually being reconstructed, the traditional logistics model has been unable to adapt to the needs of economic development, logistics enterprises are in urgent need of transformation and upgrading [1]. Modern logistics industry is expanding under the support of e-commerce, gradually becoming a supportive industry of China's economy and playing an irreplaceable role in

people's lives. At present, the market competition of logistics enterprises is fierce, and the cost management is insufficient. Reducing cost and increasing efficiency is not only the key link of supply-side reform, but also the key point to improve the competitiveness of logistics enterprises. Under the background of digital economy, it is of far-reaching significance for logistics enterprises to study how to use digital technology more efficiently for cost management, to improve the operational efficiency of logistics enterprises, and to optimize the allocation of resources in the industry for high-speed and high-quality development of logistics enterprises.

2. Overview of relevant theories

Value chain theory was firstly put forward by Michael Porter in 1985: he believes that the value creation activities of enterprises can be divided into two categories, the first one is the basic activities, which are mainly design, production, sales and after-sales service, and the second one is the auxiliary activities, which are mainly infrastructure construction, research and development, human resources, etc. The value chain can be divided into internal value chain and external value chain from the perspective of enterprise operation. From the perspective of enterprise operation, the value chain can be divided into internal value chain and external value chain, in which the internal value chain mainly involves the enterprise's internal business activities, including product design, production, sales and after-sales service. The external value chain, on the other hand, is subdivided into vertical value chain and horizontal value chain [2]. Vertical value chain extends the value creation activities of an enterprise upstream and downstream, and is a vertical value chain from suppliers to customers, and from raw material procurement to final product output. Horizontal value chain refers to the value chain of competitors in the industry, and analyzing the horizontal value chain helps firms to understand their competitors and analyze them to determine competitive advantage [3].

Value chain cost management theory is a combination of value chain and cost management theory. Based on the division of value chain, value chain cost management is divided into two parts: internal value chain cost management and external value chain cost management. The cost management of the internal value chain of logistics enterprises is centered on the product and analyzes the cost of the whole life cycle from design to after-sales service. Guided by the enterprise strategy, it seeks ways to improve the production efficiency and reduce the production cost by analyzing the advantages and disadvantages of each link. Logistics enterprises' external value chain cost management mainly through the establishment of strategic alliances with upstream suppliers and downstream customers, on the one hand, can reduce raw material procurement costs, on the other hand, can meet the diversified and personalized needs of consumers [4].

3. Business profile

A logistics enterprise was established in 2013, with courier business as the main business. At the present stage, A logistics enterprise courier business includes inter-provincial express transportation, air express transportation, same day arrival and other business modes. In addition, A logistics enterprise also undertakes transportation agency, reservation logistics and other businesses. Under the background of modern enterprise development, A logistics enterprise takes service as the purpose, and can provide targeted and personalized service according to the actual needs of customers. At present, A logistics enterprise operating scale, service level are relatively high, complete distribution business, site distribution, comprehensive strength.

Up to now, the service scope of A logistics enterprise covers more than 400 cities in China, the number of franchisees is close to 5000, and the number of logistics outlets is more than 36000. In addition, A logistics enterprise has 73 self-operated transfer centers, more than 6,000 trunk carriers,

10 aircraft fleet. A logistics enterprise service process is mainly divided into five steps: ① receiving: ② sorting; ③ transit; ④ transport; ⑤ delivery. The specific process is shown in Figure 1.

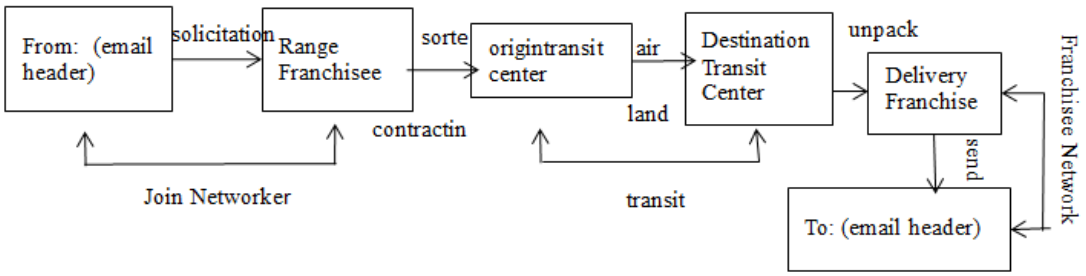

Figure 1. Service flow of A logistics enterprise

4. Cost management problems of logistics enterprises

4.1 Internal cost management issues

4.1.1 High operating costs

In recent years, A logistics enterprises continue to expand business, resulting in business volume rose at the same time, business costs continue to increase, operating costs and operating income ratio continues to rise. Logistics enterprises still need a large number of employees to carry out logistics division of labor, disassembly, transportation and other activities. Although enterprises have suppressed the rise of operating costs by outsourcing business and strengthening research and development, high labor costs still cause an imbalance between the cost and benefit of enterprises, thus reducing the economic benefit of enterprises. In addition, A logistics enterprise also needs to invest in human resources to engage in information technology construction, data analysis and other work, all kinds of labor compensation, social insurance, welfare costs forced A logistics enterprises from all sides to seek optimization and cost-saving methods to improve operational efficiency in order to reduce operating costs.

4.1.2 High logistics costs

Logistics cost is an important expense item of logistics enterprise operation, the cost is mainly determined by the business volume of the enterprise. Transportation cost is one of the most important costs of logistics enterprises. The rising growth rate of logistics cost in A logistics enterprise in recent years is the main reason for the high cost of enterprises. Logistics costs are closely related to enterprise scale, logistics network complexity, transportation distance, etc. Although A logistics company reduces logistics costs through third-party logistics agents, there is still a large pressure on logistics costs, and the proportion of logistics costs in total costs has not changed significantly. Therefore, how to optimize logistics costs is a key issue that A logistics enterprise needs to focus on. It should mainly start from how to improve transportation efficiency, optimize warehouse management, improve packaging, strengthen supply chain coordination, and use information technology for logistics management.

4.2 External cost management issues

4.2.1 Lack of high-quality major clients

After years of development, A logistics enterprise gradually grows from a small-scale enterprise

to a large volume of group enterprises, but in the business philosophy is still a bit backward, the service object is also limited to small and medium-sized customer groups, the lack of high-quality large customer support. Although the number of small and medium-sized customers is increasing steadily every year, A Logistics Group is unable to maximize the use of warehousing resources and aviation fleet resources, resulting in idle and wasteful resources [5]. At the same time, due to the large number of small and medium-sized customers base, resulting in uneven distribution of business volume, low season often idle equipment, the peak season will be overloaded, in the face of different market demand, enterprise A has not yet been able to rationalize the deployment of resources, flexible response to changes in the situation.

4.2.2 Dispersal of supplier locations

In terms of supplier selection, considering the product price factor, the location of the suppliers selected by logistics enterprise A is too decentralized, and the required raw materials are purchased from multiple suppliers, which is not only less stable, but also leads to a lack of sufficient bargaining power in the purchasing process. Although the scattered location of the suppliers shared the risk, provided more choices for the enterprise, and reduced the problem of single dependence, but the scattered layout inevitably generated higher transportation costs, and the unit cost of transportation increased, reducing the stability of the supply chain, as well as the operating efficiency of the enterprise.

4.2.3 Outdated management models

A logistics enterprise business number is more, more diverse, with the continuous expansion of the enterprise scale, the cost of expenditure continues to increase, but the actual profit growth is slow, and the scale of the enterprise does not match. The reason for this situation is mainly due to the lack of advanced management mode of A logistics enterprise, complicated process response, slow decision-making, information is not smooth, and senior personnel are fixed. The actual situation of the enterprise is unclear, and the outdated management mode has led to a bottleneck period for the development of A logistics enterprise.

5. Value Chain Cost Management Measures for Intelligent Logistics Enterprises in the Digital Economy Era

5.1 Cost optimization based on internal value chain

5.1.1 Optimization of the transport and distribution chain

① Allocate capacity resources with a digital platform

Under the background of the digital economy era, A logistics enterprise should comprehensively update the intelligent logistics system, improve the capacity system, improve the capacity and expand the use of vehicles at the same time, through information technology means to strengthen the management of transport vehicles, so as to reduce the cost of vehicle idleness. On this basis, A logistics enterprise also needs to combine with the market situation, through digital information technology in a fixed area unified control, mobilization of transshipment vehicles, to improve the transport capacity of the enterprise.

Specifically, A logistics enterprise needs to build its own digital management platform, and business data, vehicle data transmission to the management platform, with the help of the digital management platform of intelligent algorithms to achieve effective management of regional transport vehicle deployment, to ensure that the deployment of vehicles in various regions and

business outlets, transit centers, matching the business situation [6]. In addition, through big data analysis tools, based on historical data and real-time data, predict customer demand and road conditions, develop a reasonable vehicle scheduling plan, adjust routes in a timely manner, and implement the "shift" system of transportation equipment. At the same time, it is necessary to further improve the utilization rate of aviation resources, strengthen the scheduling capacity of different types of vehicles, and enhance the transport capacity of franchisees and transit centers, so as to improve the efficiency and quality of transport services.

② Optimize transport routes

Logistics enterprises in the process of vehicle transport, often appear empty car driving situation, in order to further improve the efficiency of transport resources, reduce transport costs, A logistics enterprises can improve the transport route, as far as possible, let the transport vehicle radiation more business points, warehouses and transit centers, to the maximum extent possible to improve the single transport process of the radiation range of the transport vehicle, to avoid the emergence of the situation of empty load. At the same time, A logistics company locates all transport vehicles through the digital management platform, and plans vehicle routes, taking into account road tolls, fuel costs and traffic congestion, etc., so as to save transportation time and transportation costs as much as possible.

③ Actively utilizing the advantages of aviation

Compared with logistics enterprises of the same scale, the biggest advantage of logistics enterprise A lies in its aviation fleet, so it should further utilize its aviation advantage to improve the efficiency and quality of logistics transportation. On the one hand, A logistics enterprise can deploy the aviation fleet to the area with larger transportation volume to improve the transportation efficiency; on the other hand, A logistics enterprise can expand the efficient and effective transportation business such as cold chain and business pieces to expand the customer group and develop the high-quality customer source. Through the optimization of the above two aspects, it can further improve the efficiency of the use of the aviation fleet, reduce the idle maintenance costs of the aircraft at the same time, create higher economic benefits and improve the operating profit of the enterprise. At the same time, A logistics enterprise can also combine the actual situation to build the aviation network system, improve the user experience and product transportation efficiency, and then realize the enhancement of corporate brand value.

5.1.2 Optimization of central operating links

A logistics companies can accurately manage the personnel as well as equipment in the transit center through the digital management platform. First of all, you can popularize automated sorting equipment in transit centers and package building centers to improve the efficiency of express sorting. Secondly, combined with the actual business situation, the transit operation process optimization, through intelligent, refined management mode, improve the efficiency of the equipment, reduce the sorting error rate. We analyze and optimize the whole operation process, eliminate several remaining links, reasonably divide the work responsibilities, improve the work efficiency and reduce the error rate. On this basis, A logistics enterprise also needs to reform the existing management mode, set up a clear organizational structure, clarify the scope of responsibilities and tasks of each person, and form a good communication and coordination mechanism. Finally, A logistics enterprise should also establish a performance management system and incentive mechanism to fully mobilize the enthusiasm of all parties, including salary incentives, promotion and training, career development, etc., to encourage employees to enhance work enthusiasm and efficiency.

5.2 External value-based cost optimization

5.2.1 Upstream value chain optimization

Supplier selection largely affects the operational efficiency of the enterprise, so in the process of selecting suppliers, A logistics enterprises should adhere to the principle of "in the fine rather than many", from the multi-dimensional, multi-faceted evaluation of the supplier, in consideration of the short-term development goals and long-term development planning at the same time, in the intention of the supplier group to select the Select the best supplier among the group of potential suppliers while considering the short-term development goals and long-term development plan. In addition, A logistics company can predict the consumption of raw materials in the future period of time according to its own business volume, and use this to build a supplier assessment and evaluation system to ensure that the selection of suppliers is more scientific and reasonable. Through careful screening of suppliers, logistics enterprises can further reduce the upstream costs of enterprises, and reduce the operating costs of enterprises while ensuring that the normal operation of enterprises is not affected. Supplier assessment and evaluation system is shown in Figure 2.

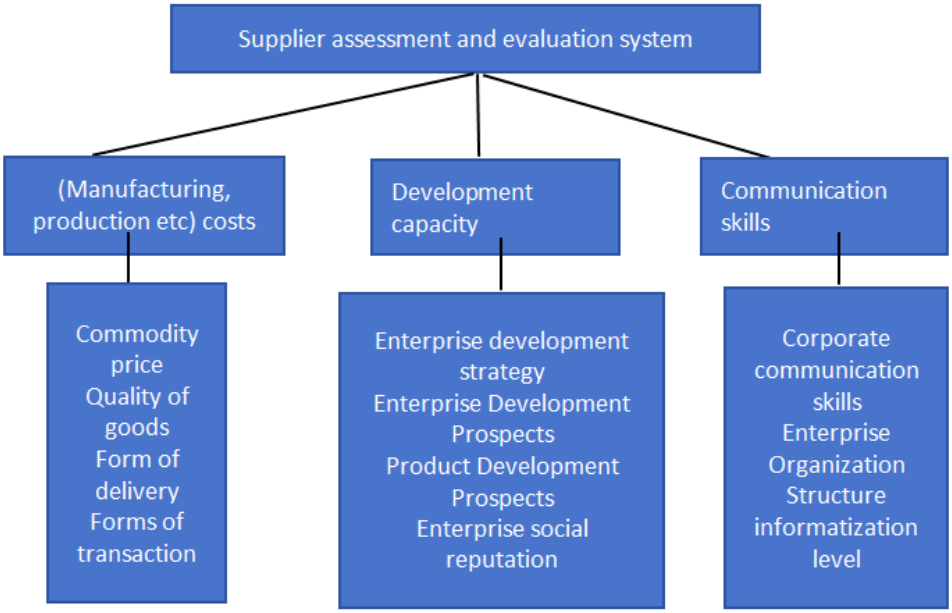

Figure 2. Supplier assessment and evaluation system

5.2.2 Downstream value chain optimization

A logistics enterprise needs to establish a perfect, clear and efficient customer service ecosystem to improve customer service capability. A comprehensive and effective customer service ecosystem can not only provide products and services to meet customer needs, but also promote the upgrading and long-term development of enterprises to achieve a win-win situation. A logistics enterprises need to establish a perfect, clear and efficient customer service process, build a two-way communication and interaction platform, oriented to the user's needs, and the content of the service includes customer inquiries, complaint handling, problem solving and other links [7] . At the same time, A logistics enterprises should make full use of the Internet, Internet of Things, artificial intelligence and other advanced technologies, through a variety of channels to provide services to customers, using the customer relationship system to record information, tracking the service process, improve the service experience.

② Deep collaboration with downstream companies

Consumers are the main source of enterprise revenue, determining the direction of development of the enterprise, A logistics enterprises should cater to the market situation, optimize their own service system, accelerate the speed of service mobility, intelligent construction, and provide users with targeted logistics services, to improve service performance. In this process, A logistics enterprises can further improve the weight and index of user service ability, strengthen the education and training of customer employees, and build reward and punishment and incentive mechanism, so as to improve the service ability of customer employees. At the same time, it can also strengthen the interaction with consumers through new media channels such as WeChat public number, Jittery, microblogging, Xiaohongshu, etc., to provide users with accurate and convenient business services, so as to realize the effective enhancement of service efficiency.

5.2.3 Enhanced vertical value chain management using digital technologies

Logistics enterprises should make full use of digital technology to optimize the integration of upstream supplier value chain management. In the complex market environment, suppliers are of mixed quality and provide products or services of different quality, logistics enterprises choose high-quality, reliable suppliers can not only reduce procurement costs, but also improve the efficiency and quality of logistics services, and thus enhance the competitiveness of enterprises. The use of grading and categorization management of suppliers, while using rating and assessment indicators for their assessment, is crucial for logistics enterprises to choose suppliers. The development of digital technology as well as the digital economy has provided technical support for the establishment of a supplier performance management platform. Logistics enterprises should use a series of digital technology tools such as big data to strengthen information sharing with suppliers, reduce information communication costs and transaction costs, and achieve mutual benefit and win-win situation for both sides. Overall: The use of digital technology to categorize and manage suppliers and establish a supplier performance management platform can not only fully understand the suppliers, select suppliers, and better control them, but also strengthen communication and reduce the cost of information communication.

Secondly, logistics enterprises should make full use of digital technology to optimize the management of the downstream customer value chain. Logistics enterprises establish a customer relationship management platform, collect member data, and manage customers digitally and visually. Logistics enterprises analyze and mine customer needs through digital technology, carry out fine management of customers, carry out precise marketing according to different needs of customers, and improve brand awareness through customer communication. Through digital technology, we can obtain information about customers' needs, provide different services for different needs of customers, provide customers with the best quality service, and continuously increase the number of customers. For example, some customers pay more attention to the price, some customers pay more attention to the time limit, logistics enterprises can customize different services according to different customer needs, provide customers with humanistic care, form a benign interactive relationship with customers, continuously consolidate the relationship with old customers, expand new customers, reduce costs and increase market share. The use of big data technology to collect customer satisfaction data is also conducive to improving the service quality of logistics enterprises.

6. Conclusions

The development of the digital economy has brought new challenges and development opportunities for the cost management of enterprises. In view of the current problems in the cost

management of the value chain of logistics enterprises, the combination of digital technology with the various value chains of enterprises and the construction of related support system informatization will help to optimize the internal and external allocation of resources, enhance the efficiency of resource use, and promote the high-quality development of logistics enterprises. Logistics enterprises should also aim to build a smart logistics enterprise, further improve the construction and application of relevant data platforms and information systems, and provide a source of power for their sustainable and healthy development.

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