

The Application of ABC in the Logistics Enterprises to Account the Cost

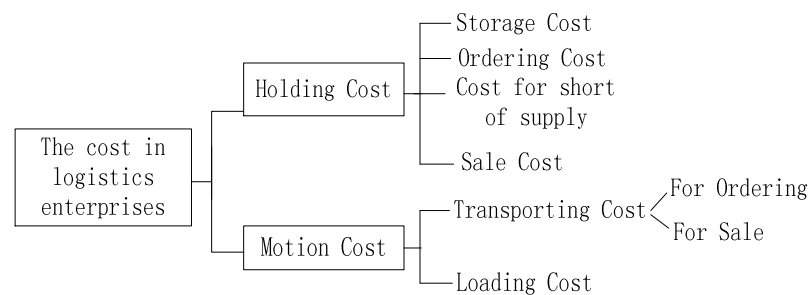
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Abstract: The cost of the production in logistics enterprises is difficult to be accounted because the activity process is very complex compared with the common enterprises. Applying the ABC into the logistics enterprises to account the cost might clarify the resource used and get the cost of the production (service) and control the whole cost by analyzing the value chain.

Key words: logistics enterprise cost activity-based costing (ABC) value chain

1. The Cost Composition of the Logistics Enterprises and Its Accounting

The logistics enterprises carry mainly on the logistics service associated with each other, and the product—logistics service chain—is also invisible. The core to control the cost is the cost of the chain as well as the traditional manufacturing industry. According to this supposition, we analyze the cost composition of the logistics enterprises based on the theory of logistics and cost. Unlike the transportation and the storage processes, the service chain should not catch some part factors but the whole process. In this way, the cost of logistics is composed of two sorts: holding cost and motion cost showed as Figure 1:



has different understanding to check it up. The logistics cost would not be contrasted and analyzed among the enterprises and the average cost in the industry would not be got.

(3) The responsibility is not transparent. The logistics cost is not set as a single index in the usual accounting system. All of the costs are generally listed in the expense column and it is difficult to make a definite calculation and analysis on a variety of logistics cost. Also, there are many kinds of costs which are unable to control in logistics enterprise, such as the costs brought about from the excessive stock, overstock and emergent transportation belonging to the holding cost. This increases the difficulty of the logistics cost management. The cost of excessive service in logistics and the cost of standard service are blended together.

(4) The cost in logistics enterprise is the result of appraising logistics activity by using the money. On the condition that we just stay on the logistics product cost, the most exact accounting of logistics cost would also lose its signification. Therefore, only by managing logistics activities through managing logistics cost is the purpose of accounting. Logistics cost management is not only “to manage logistics cost”, but also “to manage logistics through cost”. From this point of view, present accounting system has already rested on the “managing logistics cost”, whether standard cost method or target cost method is used. It is very difficult to manage logistics activities through managing cost. So, it is worth investigating the problem, which probes into a more efficient accounting method of logistics cost.

2. The Definition of the Activity-based Costing (ABC)

The conception of activity-based costing (ABC) is put forward by Doctor Kaplan and Cooper in the American Harvard University at first. The fundamental principle of ABC is: activities consume resources, products consume activities, and activities are the bridge of communicating the enterprise resource and the end products. Taking the place of product, activities become the respect of enterprise cost accounting. Activity-based costing could be used to settle the problem of cost information twist brought by the manufacturing environmental changes, such as the diversity of product and product due to automatization. ABC provides a more exact clew to calculate product cost, and offers valuable information for enterprise decision. Along with the successful application in manufacturing, the voice of application in service industry is higher and higher. Logistics industry is integrated and reformed from traditional service industry. The logistics industry and traditional service industry have similarity in many respects such as product service characters and industry characters. Along with the warming of logistics during the past two years, the research on the cost management in logistics enterprise through the application of activity-based costing becomes a popular topic for scholars at home and abroad.

3. The Necessity and Feasibility Analysis on Application of ABC in Logistics Enterprise

The applied condition of ABC is said in Yan Meng's monograph *The Development of West Modern Management Accounting and Its Revelation to Our Country*: “From the applying experience of ABC in western countries, enterprise with these conditions is suitable to apply ABC: the proportion of indirect expense in total manufacturing cost is high; managers are unsatisfied with the information exact extent supplied by traditional cost calculation system; the operational activities in production are very complex; the breed structure of product is very complex; the production process is complex, changeable, and adjusting preparatory cost recurrently; the enterprise often adjusts production actives, but rarely adjusts accounting system correspondingly; the enterprise has modern computer technology and automation production equipment, and implements Just-In Time System (JIT) and Total

Quality Control System (TQC) preferably; and the enterprise possesses professional managers of higher skills.” These conditions don’t point to the whole ABC, but to emphasize particularly on the Activity-Based Cost Accounting. Under the circumstance of high indirect expense and complicated range of products, implementation of ABC can bring immense returns, because the information provided by the traditional costing twists the products’ actual cost seriously and misleads the enterprise’s administration and decision. According to the cost-benefit principle, enterprise should consider to adopt the activity-based costing.

The necessity of application of ABC in logistics enterprise can be summarized as these aspects as follows:

(1) The characteristic with higher proportion of indirect expense in total cost in logistics enterprises happens to have the same view with the applied condition of ABC. As before, the production cost accounting in logistics enterprise is relatively complicated;

(2) The logistics enterprises offer invisible product: service. The product requires the independent sections to cooperate freely. This is the same as the purpose of ABC;

(3) The application of ABC would solve the difficulty to fix the product price in logistics enterprises.

There are two ways to make the feasible analysis of cost control by applying ABC to logistics enterprise:

(1) The logistics enterprises usually apply the advanced information management. The integrated logistics chain would be formed by the logistics activities from the operation in logistics enterprises. The chain is commonly composed as follows: transport, storage, load/unload, package, distribute, cure and other services. In each section, the information would be produced along with the activity process. The logistics enterprises usually choose intranet and computers to manage the operation. This would help the enterprises to control the cost by applying ABC;

(2) The staffs in logistics enterprises usually know the whole operation process compared with the ones in other manufactured factories. The process in logistics enterprises would be known easily because the sections are less complicated.

4. The Process of Application and Calculation

During the implementation of ABC in the operation, logistics enterprises had better choose the process as follows:

The manager should schedule the plan to carry on ABC, including the executed field, the complex extent, the purpose to account the cost and the guarantee during the implementation. The interrelated personal should analyze and confirm the activity, the cost elements, and the motive of its activity and resources of each section.

(1) Choosing different activities is one of the common means for logistics enterprises to make decisions. For example, different transport activities and different cost would be produced when choosing different transport tools and routes. Supposing other factors stayed changeless, the whole cost would be reduced when the supervisor chose the transport activity which has the minimum cost.

(2) The motives of activities are the key factors which determine the work spending to execute the activities. These factors would involve the interrelated ones between this activity and the previous as well as what occurred in the activity. The purpose of analyzing the activity motive is to explain what the activity was caused by. For example, the work ‘portage’ is caused by the distance between the workshop and the warehouse. In other words, because of the distance formed by previous position planning, the portage cost was caused. Therefore, the analysis on the motives of the activities would reflect the relationship between the products and the activities as well as

explain the cause of the activities.

For example, an enterprise will finish the transport activity of a product as follows: Firstly, the enterprise is informed of the operation by the customer that the goods will be send to some port by the suppliers overseas in a few days. Let's analyze the activity. The transport activity is a chain-reacting which is composed of a series of activities and stays as an activity chain. This chain involves the empty vehicles reached the port→the empty ones are waiting for loading→the goods are loading→the loaded vehicle reached the warehouse→the loaded are waiting for unloading→the goods are removed to the warehouse. When the activity chain is analyzed by timing, the six activities would be set as six sections and supposed as $T_1, T_2, T_3, T_4, T_5, T_6$ in turn. Suppose the whole period is T , then, $T = T_1 + T_2 + T_3 + T_4 + T_5 + T_6$.

From the point of view of the value chain, activities are not all necessary and value-added. In this case, the product is that the goods are send to the warehouse on schedule. However, the activities T_2 and T_5 that the empty vehicles are waiting for loading and the loaded ones are waiting for unloading won't contribute to the value of the product. Thus T_2 and T_5 are invalid activities. Accordingly, the time spent on the two activities is called invalid time. The left activities contribute values to the product and are called valid activities and the time spent is valid time. Setting standard by timing, the efficiency of the chain would be calculated. The calculating formula is:

$$\text{the cofficiency of the value chain} = \frac{\text{the valid time}}{\text{the cycle of the chain}}$$

According to the calculation of the efficiency of the value chain, the enterprise would get the invalid time easily. Supposing the efficiency in this case is 0.8, the result shows that there is invalid time wasted. By improving the adjusting of the activities, the invalid activities would be eliminated and the result would be close to 1. Therefore, the analysis on the value chain of the logistics enterprises by accounting the cost of the activities would reach the purpose to control the cost in logistics enterprises. This case shows that the method would get the efficiency of the activities quantitatively.

5. Conclusion

In conclusion, with the improvement of the automatization, the application of ABC to account the cost and ABM (Activity-Based Management) would be more necessary in logistics enterprises. Once the logistics enterprises get the idea of ABC, the economic benefit would be brought rapidly.

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