

Research on Activity-based Costing in Small and Medium-sized Logistics Enterprises

-- Taking A Company as an Example

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Abstract

As an integral part of contemporary economy, logistics plays an increasingly important role in the development and progress of national economy and society. As the mainstream industry to maintain the economic operation, the high cost of logistics weakens the competitiveness of enterprises and is not conducive to the transformation and upgrading of China's economy. Under the current accounting system, the logistics cost obtained by the traditional accounting method is also inaccurate and not comparable, which is not helpful for cost control. Activity-based costing, a new way, effectively makes up for the shortage of traditional cost and provides a new way of thinking for cost control. This paper introduces the concept of cost-based logistics enterprise cost control research activities, and applies cost-based cost accounting method in the complete cost control process.

Keywords

Activity-based Costing; Logistics Enterprise Cost; Logistics Cost Accounting.

1. Introduction

Although China's logistics enterprises have made great progress, the cost of each logistics service product can not be accurately calculated in China, and there is a lack of research on how to reduce logistics cost, and the concept of logistics cost management is still slightly weak. Although the traditional manufacturing industry has been established on the basis of the traditional cost method, it can not be applied to the cost management of modern logistics enterprises, and the information calculated by it is distorted, which will mislead the decision-making of enterprises. Therefore, it is necessary to study a cost management method which is consistent with the characteristics of logistics-related business.

2. Literature Review

Kaplan and Anderson (2010) Activity-based costing will promote enterprises to optimize management [1]. Dejnega (2011) thinks that enterprises can show complex and diverse costs and complicated business processes in a simple and clear way by using Activity-based costing [2]. Amir H. Khataie (2013) mentioned in the research that the use of Activity-based costing is beneficial for enterprises to achieve lean production [3]. Ahmed E. Haroun (2015) believes that Activity-based costing can make all financial information meet the accurate requirements, which is beneficial for enterprises to improve the level of cost management [4]. Bourem Sen Brimson (2016) pointed out that Activity-based costing can accurately calculate various costs [5]. Dai Renhui (2016) found that Activity-based cost management and Activity-based costing can have an important impact on non-financial performance [6]. Lu Jiayi (2017) believes that for the better implementation of Activity-based costing, it is necessary to increase the training

of employees' thoughts [7]. Wang Yizhong (2017) pointed out that the current production mode in China has changed significantly, and the application of Activity-based costing in enterprises can achieve good results [8]. Zhu Hui (2018) pointed out that carrying out Activity-based cost management plays a key role in the development of enterprises [9].

3. Research Design

A logistics company signed two logistics service agreements between Party A and Party B this month. The requirement of the agreement A is that 30,000 pieces of goods will be delivered to the warehouse of Company A at one time, and then 3,000 pieces will be delivered to the workshop of a city in Y country every three days. The requirements of the agreement B are as follows: 30,000 pieces of goods will be delivered to the warehouse of Company A in three times, and then 1,000 pieces will be delivered to a factory in a city in Y country every day. If the warehouse of Company A is 1,000 square meters, of which 600 square meters are rented by Party A and 400 square meters are rented by Party B. The contract period is one month.

4. Practical Application of Activity-based Costing

4.1. Confirm the Main Operation

The main businesses mentioned in the contract are: transportation of auto parts from country X to country Y (referred to as transportation business), entry of goods into the agent for customs declaration (referred to as customs declaration business), transfer of goods to the warehouse for temporary storage (storage business), transfer of auto parts in the warehouse goods to the auto parts warehouse for storage (trusteeship business), loading of goods out of the warehouse (outbound business), and transportation of goods to relevant cities (delivery operation).

4.2. Confirm the Consumption of Different Resources

Assume that the sum of the indirect costs of the logistics company consists of labor cost, raw material cost, warehouse and machinery depreciation. The expenses learned from the finance and statistics department of the logistics company are as follows: enterprise labor expenses are RMB18,000, materials expenses are RMB10,000, and depreciation expenses are RMB66,000.

4.3. Collection of Costs

The logistics contract includes six major businesses, and the operations of these six businesses are divided into three departments of the company, among which the transportation department of the enterprise undertakes two major businesses of transportation and distribution; Warehousing, warehousing and consignment are all realized by the warehousing department; The declarant handles the customs declaration business.

Through the allocation and calculation of the above-mentioned resources and the allocation of the cost of each type of resource to different operation activities, the cost of each resource allocated for each operation activity is finally obtained, as shown in the following Table 1:

4.4. Define the Activity-based Cost Drivers and Calculate the Driver Rate

(1) The specific operation motivation of this contract service is shown in the following Table 2:

Table 1. Cost of each activity

Job name	Labor cost	material cost	depreciation cost	Total
hauling operation	2000		8000	10000
Customs declaration operation	2000			2000
warehousing operation	4000	5000	5000	14000
Custody operation	2000		8000	10000
Outbound operation	4000	5000	5000	14000
Distribution operation	4000		40000	44000
Total	18000	10000	66000	94000

Table 2. Activity-based Cost Drivers (a)

Job name	hauling operation	Customs declaration operation	warehousing operation	Custody operation	Outbound operation	Distribution operation
Activity cost driver	Transportation times	Customs declaration times	Warehousing loading and unloading times of goods	Warehouse area	Outbound loading and unloading times of goods	Delivery times

(2) Determine the number of cost drivers for each activity

According to the agreement of this logistics service, the number of operation drivers for different operation activities is as follows:

Table 3. Activity-based Cost Drivers (b)

Activity cost driver	Activity cost driver of contract a	Activity cost driver of contract b	Total number of job drivers
Transportation times	1	3	4
Customs declaration times	1	3	4
Warehousing loading and unloading times of goods	30000	30000	60000
Warehouse area	600	400	1000
Outbound loading and unloading times of goods	30000	30000	60000

Note: The distribution times of A are: $30000/3000=10$ (times); The distribution times of B, according to the agreement in the contract, the number of pieces to be distributed each time is 1,000, and the calculated distribution times are: $30,000/1,000 = 30$ (times). And the sum of the number of operation drivers in Contract A and the number of operation drivers in Contract B together constitute the total number of drivers in this operation.

(3) the cost driver rate calculation

The driver rate for each activity cost is calculated by comparing the cost of each activity with the total number of activity drivers. The expression is:

$$\text{Activity Cost Driver Rate} = \text{Activity Center Cost} / \text{Total Activity Drivers}$$

Table 4. Activity-based Cost Driver Rate

Job name	Activity center cost	Total number of job drivers	Activity-based cost driver rate
hauling operation	10000	4	2500
Customs declaration operation	2000	4	500
warehousing operation	14000	60000	0.23
Custody operation	10000	1000	10
Outbound operation	14000	60000	0.23
Distribution operation	44000	40	1100

4.5. The Allocation of Activity-based Costs

Activity cost is determined by activity driver rate and number of drivers. Based on the driver rate calculated above and the number of drivers for different activities, the activity cost shown in the following figure is obtained. The details are shown in the following Table 5:

Table 5. Costing of Logistics Service Contracts

Job name	Activity driver rate	A contract		B contract	
		Driver number	quota	Driver number	quota
hauling operation	2500	1	2500	3	7500
Customs declaration operation	500	1	500	3	1500
warehousing operation	0.23	30000	7000	30000	7000
Custody operation	10	600	6000	400	4000
Outbound operation	0.23	30000	7000	30000	7000
Distribution operation	1100	10	11000	30	33000
Total cost			34000		60000
Number of logistics service products			30000		30000
Logistics service product unit			1.13		2.00

Judging from the whole process, the service terms of Contract A and Contract B are identical except for the slight difference in arrival frequency and delivery. The cost accounting method also uses the Activity-based costing method, which obtains the product cost of RMB1.13/piece for Party A and RMB2.00/piece for Party B. This difference is also very obvious.

5. Conclusion

Through the analysis of this paper and the current situation of cost management of logistics enterprises, it can be concluded that more and more enterprises will introduce Activity-based costing into the cost management of enterprises in the future, and the following conclusions are drawn:

First, in terms of cost management, China's logistics enterprises still have many imperfections. Only by strengthening the cost management of an enterprise can it win the survival of the enterprise. The disadvantages of traditional cost accounting methods are becoming more and more prominent, and new cost accounting methods are urgently needed to create more profit space for enterprises.

Second, from the perspective of enterprise development, the internal operating environment of the enterprise is becoming more and more perfect, which creates better conditions for the use of Activity-based costing. Practice also fully shows that Activity-based costing is an effective method in enterprise cost control, which will more powerfully promote the development of logistics enterprises.

Last, Activity-based costing has shown great advantages compared with traditional accounting methods, but it is not a perfect cost accounting method. Therefore, in the process of using it, we should also alert us to make full use of the advantages of this cost accounting and promote the development of enterprises.

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