

Applied research on enterprise logistics cost accounting based on Activity-based Coating

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Abstract: Activity-based costing is a cost accounting method, compared with the traditional accounting method, and has great advantages. Starting from the basic principle of activity-based costing, this paper introduces the general steps of activity-based costing, and according to the current situation of logistics cost accounting in China, combining with activity-based costing, the logistics cost accounting system of enterprises is reconstructed.

1. The fundamentals of activity-based costing

Activity-based costing, also known as ABC cost method, is an accounting method that allocates resources consumed by enterprises to activities according to resource drivers and allocates activity-based costs collected by activities to cost objects according to drivers. Activity-based costing links the consumption of resources with activities, and then links activities with products or services, which reflects the causal relationship between resource consumption and cost objects and reflects the dynamic process of cost formation.

2. Activity-based costing of logistics cost accounting

Logistics cost accounting under activity-based costing requires the following steps: decomposing total logistics cost into activity-based cost, classifying costs according to resource drivers, determining activity centers, dividing levels, determining resource drivers and activity drivers, quantifying cost drivers, allocating costs to activities or activity centers according to resource drivers, and allocating costs to cost objects according to activity drivers.

(1) Analyze and identify resources

Resources are the source of costs, and the definition of resources is based on the definition of activities. Each activity must involve relevant resources, and resources unrelated to activities should be excluded from the calculation of logistics costs.

Table 1. Enterprise logistics common operations and consumption of resources

| Operation | Resources |
|-------------------------|--|
| Purchase | Cost of processing purchase orders; Business entertainment expenses; Travel expenses |
| Transportation | Carriage of third party freight; road maintenance expense; Vehicle depreciation fees; petrol fee |
| Warehousing | Inbound and outbound inspection fee; Warehouse rental; Capital occupation fee; Depreciation cost |
| Loading and Unloading | Handling fee; Equipment depreciation fee |
| Distribution processing | Cost of packaging materials; Equipment depreciation fee; Processing fee; Inspection fee |
| Distribution | Sorting cost; Equipment depreciation fee; traffic expense |

(2) Analyze and identify activities

In the process of business operation, every link or procedure can be regarded as an operation. The division of operations is not necessarily consistent with the traditional functions of the enterprise. Sometimes the assignments are cross-departmental, and sometimes a department has to complete several different assignments. In analyzing and identifying jobs, enterprise activities are broken down into basic jobs that are easy to understand and operate.

(3) Determine resource drivers and allocate resource consumption to ABC

Resource drivers are the amount of resources consumed to complete a task. Jobs determine the amount of resource consumption, and resource drivers are related to resources and jobs. First, identify the type of resources contained in the activity, i.e., identify the cost elements contained in each activity, such as wages, materials, depreciation, etc. Then, the resource drivers of all kinds of resources are established, and resources are allocated to each activity, so as to calculate the cost amount of this cost element in the activity. Finally, the activity-based costing list is listed and each cost element is summarized to obtain the total cost of the activity-based costing database.

(4) Determine activity drivers and allocate activity costs to logistics cost objects

Job motivation reflects the logical relationship between job consumption and job object. Firstly, the activity drivers of each activity were confirmed, and the total number of activity drivers was counted, based on which the indirect cost allocation rate of unit activity drivers of each activity was calculated. Then the number of activity drivers of each product can be counted to calculate the corresponding indirect costs of each product. Then the indirect costs and direct costs can be summarized to obtain the corresponding costs of the product.

3. ABC cost accounting in manufacturing industry

A manufacturing industry produces A, B two kinds of products. The production process of the two products is basically the same. The difference between the two is mainly in the logistics services provided. Product A is distributed in large quantities and at low frequency, with a quantity of 4000 pieces per batch; B products are distributed in multiple frequency and small batches, with 10 pieces for each batch. The company produced 5 batches of product A in that month, a total of 20,000 pieces. B production of 140 batches of products, 1400 pieces.

(1) Determine resources

Table 2. Cost of all kinds of resources

| Resource item | Fixed costs | Direct variable cost | Indirect activity cost | | | |
|----------------|------------------|----------------------|------------------------|----------------|--------------|------------------|
| | executive salary | Direct material cost | salary | Electric power | depreciation | office allowance |
| Resource costs | 10000 | 26240 | 23400 | 4800 | 24400 | 8500 |

The apportioned management salaries of products A and B are 7,000 yuan and 3,000 yuan respectively, and the unit direct variable costs are 1.2 yuan/piece and 1.6 yuan/piece respectively. So the fixed costs $F_A=7000$ yuan, $F_B=3000$ yuan. Direct variable costs are $S_A=20000*1.2= 24,000$ (RMB), $S_B=1400*1.6=2240$ (RMB)

(2) Determine activities, determine resource drivers and allocate resource costs

Table 3. Allocation of resources between jobs

| activities | The order processing | Packaging and equipment adjustment | Transportation loading and unloading | The quality inspection | Summons management | resource driver |
|----------------------|----------------------|------------------------------------|--------------------------------------|------------------------|--------------------|-------------------|
| Pay fee | 1600 | 4800 | 5000 | 5000 | 4000 | The worker number |
| Power resources | 200 | 1600 | 1250 | 1400 | 180 | Electricity power |
| Depreciation expense | 2500 | 5600 | 4000 | 7700 | 2400 | |
| Cost of office | 1200 | 1400 | 600 | 1900 | 1600 | |
| Total | 5500 | 13400 | 10850 | 16000 | 8180 | |

(3) Determine cost drivers, and calculate the allocation rate of activity cost drivers according to the allocation rate of cost drivers = activity cost/activity quantity provided.

Table 4. Cost drivers and activity-based cost drivers allocation rate

| Activities | The order processing | Packing adjustment | Transportation loading and unloading | The quality inspection | Summons management |
|-------------------------------------|--------------------------------------|----------------------------|--------------------------------------|----------------------------|--------------------|
| Cost drivers | Number of copies of order processing | Packaging adjustment times | Working hours | The quantity of inspection | Computer hours |
| The activity cost | 5500 | 1340 | 10850 | 16000 | 8180 |
| The amount of work provided | 1008 | 160 | 840 | 800 | 840 |
| Assignment rate of activity drivers | 5.46 | 8.38 | 12.92 | 20 | 9.74 |

(4) Calculate the resource value actually consumed by products A and B

Table 5. Table of resource value actually consumed by A and B

| Activities | Assignment rate of activity drivers | The number of cost drivers actually consumed | | | Actual consumption of resources (yuan) | |
|--------------------------------------|-------------------------------------|--|-----------|-------|--|-----------|
| | | A product | B product | Total | A product | B product |
| The order processing | 5.46 | 700 | 308 | 1008 | 3822 | 1682 |
| Packing adjustment | 8.38 | 100 | 60 | 160 | 838 | 503 |
| Transportation loading and unloading | 12.92 | 600 | 240 | 840 | 7752 | 3100 |
| The quality inspection | 20 | 500 | 300 | 800 | 10000 | 6000 |
| Summons management | 9.74 | 540 | 300 | 840 | 5260 | 2922 |
| Total | | | | | 27672 | 14207 |

The total logistics cost of product A =7000+ 24,000 +27672=58672

The total logistics cost of product B =3000+2240+14207=19447

4. Conclusion

As a brand new cost control method, activity-based costing (ABC), based on the logistics process of enterprises, can provide enterprises with more comprehensive and more accurate cost information through the analysis of cost drivers and activity drivers, and is an effective method to solve the distortion of traditional costing method in the logistics cost accounting.

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