The Application of Value Chain Cost Management in M Company

Ning Wu¹, Qing Yuan¹, Mengjing Xiao¹, Yeling Zhao²,* and Xiaoyan Chen¹
¹School of Finance and Economics; Jiangsu University, Zhenjiang, China
²Office of Financial Affairs, Jiangsu University, Zhenjiang, China

*Corresponding author e-mail: 919232675@qq.com

Abstract: From the perspective of competition, the competition of value chain has gradually become the main form of competition among enterprises, and is no longer merely the internal competition between enterprises. At the same time, the upstream and downstream related industries as well as the competition between peer enterprises also came. As one of the important ways to create enterprise value, cost management should adapt to the changes in the market environment. If enterprises want to reduce enterprise costs on the premise of ensuring product market demand, they can apply value chain cost management to achieve cost minimization and value maximization through strengthening and improving each link.

1. Introduction
1.1. Value Chain Cost Management Theory
Value chain cost management as a modern cost management method, with the value activities of enterprise as the management object, and tries to seek the maximization of the value of the activities in the value chain, its essence is the enterprise value chain analysis and strategic cost management product of organic combination, formed on the whole value chain is the foundation of the enterprises of various value activities, for these activities to carry out the comprehensive research and analysis, is helpful for enterprises to improve management environment, optimize the allocation of resources, improve the efficiency of management, realize the value of the enterprise overall value. According to the space scope, the enterprise value chain cost management can be divided into internal and external.

1.2. Production Function Theory
The production function represents the relationship between the number of various production factors used in production and the maximum output that can be produced under the condition that the technical level remains unchanged during a certain period of time. Such a relationship is common in all kinds of production in the production process. Suppose that X1, X2, ...Xn in sequence represents the number of inputs of production factors in the production process, and Q represents the maximum output that can be produced. Then the production function can be expressed in the following general form, as shown in Formula (1):

\[ Q = f(X_1, X_2, \ldots, X_n) \]  

(1)

To simplify the analysis in economics, it is generally assumed that only labor and capital are used in production. Nobel prize-winning economist Robert Solow proposed the general expression of the production function in 1987, as shown in Formula (2), where Q represents output, K represents capital, and L represents labor.
2. Problems in M company profile and cost management

2.1. M Company Profile

M company is located in the developed Yangtze river delta in eastern China, with Shanghai in the east, Suzhou in the south, Wuxi in the west and Yangtze river in the north. This company engaged in the steel manufacturing industry, its main business scope includes black metal smelting and rolling processing of special steel production and sales, production of major products are automotive steel, engineering machinery, steel, rail steel, spring steel, bearing steel, steel tube rounds, etc., products are mainly used in automotive, railway, locomotive, shipbuilding, machinery manufacturing and other industries.

As a steel production enterprise, M company's costs mainly include production costs and various period expenses. The details of each period expenses and production costs incurred from 2016 to 2018 are shown in Table 1. It can be seen that the total cost of M company fluctuates greatly in the three years from 2016 to 2018.

Table 1. Spring steel production cost of M company from 2016 to 2018

| Project                  | 2016(yuan)      | proportion | 2017(yuan)      | proportion | 2018(yuan)      | proportion |
|--------------------------|-----------------|------------|-----------------|------------|-----------------|------------|
| Outsourcing materials    | 122,410,898.03  | 55.31%     | 77,549,330.90   | 54.95%     | 67,857,966.65  | 53.22%     |
| Fuel power               | 67,701,127.66   | 30.59%     | 44,418,723.43   | 31.48%     | 43,963,598.08  | 34.48%     |
| Direct labor             | 5,665,736.74    | 2.56%      | 4,470,068.03    | 3.17%      | 3,621,131.63   | 2.84%      |
| Manufacturing costs      | 25540078.89     | 11.54%     | 14679079.83     | 10.40%     | 12061938.45    | 9.46%      |
| Total                    | 221317841.3     | 100%       | 141117202.2     | 100%       | 127504634.8    | 100%       |

The profitability of M company is reflected by the three indicators of operating net interest rate, return on equity and return on total assets, and the calculation is shown in Formula (3), (4) and (5):

\[
\text{Net Operating Rate} = \frac{\text{Net Profit}}{\text{Operating Income}} \quad (3)
\]

\[
\text{Return on Equity} = \frac{\text{Net Profit}}{\text{Average Shareholders’ Equity}} \quad (4)
\]

\[
\text{Return on Total Assets} = \frac{\text{Net Profit}}{\text{Average Total Assets}} \quad (5)
\]

So, the profitability indicators of M company from 2016 to 2018 are shown in Table 2. Thus, it can be seen that the enterprise development of M company was relatively stable from 2016 to 2017, with a slight increase in various profit indicators. However, the profitability of M company in 2018 not only declined sharply, but also dropped to the lowest value in recent years, among which the operating margin and the cost and expense margins both fell to negative, indicating that the profit space of M company was increasingly compressed and the competition among enterprises became increasingly fierce.

Table 2. Profitability indicators of M company from 2016 to 2018

| Project                  | 2016    | 2017    | 2018    |
|--------------------------|---------|---------|---------|
| Net operating rate       | 0.38%   | 0.67%   | -1.76%  |
| Return on equity         | 1.21%   | 1.49%   | -3.43%  |
| Return on total assets   | 0.49%   | 0.9%    | -1.89%  |

2.2. Analysis of Main problems Existing in Cost Management of M Company and Causes

2.2.1. Awareness of the company's cost management

Weak awareness of the company's internal staff cost management. There is often a problem of consciousness in M enterprise, that is, the responsibility of management is attributed to the leader, the responsibility of supervision is attributed to the financial department, while other employees do not
need to consider the management problem, nor need to have the concept of cost. As a result of this concept, the waste of internal resources is common, and it is difficult for enterprises to integrate and allocate resources to control costs. From the perspective of modern cost management, this negative internal cost management does not realize the importance of internal cost in industry competition. Therefore, enterprises should urgently change this mindset.

The company does not attach importance to external cost management. At present, M company pays more attention to the internal cost management, and pays little attention to the unnecessary external costs. From the perspective of enterprise’s value chain as a whole, to perfect the value chain of an enterprise can not only confined to the production activity link, also need to consider purchasing and sales activities such as various situation, based on the life of the product periodic management, to ensure the continuity and efficiency of product value chain each link, and cannot stay in the immediate interests.

2.2.2. Problems in the Company's Cost Management

Excessive procurement costs. M company procured raw materials through public bidding, and managed the procurement plan and process perfectly. The main problem lies in that it is difficult for the company to compete with its competitors in terms of purchasing scale, which leads to higher unit purchasing cost of raw materials produced by the company compared with competitors, and scale is an important driving factor for purchasing cost. As the prices of various raw materials are rising year by year, it is difficult for M company to further reduce the procurement cost, and if the procurement cost is difficult to decline, its production cost will be constrained, which will inevitably lead to the enterprise is difficult to seize the market opportunities in terms of product price competition.

Incomplete data in cost management. The production process of M company is long and the logistics are complicated and changeable, so it inevitably requires the timeliness and accuracy of the cost information. However, the method of calculating product cost by step method cannot provide the cost data of each step in time accurately, as well as the difference between actual cost and standard cost.

The information system is not perfect. M steel production process trial, including blast furnace ironmaking and steelmaking, continuous casting, steel etc., including production use of raw materials and semi-finished products, the production organization departments need to finely specialized division of labor, responsibilities layer upon layer, not only causes the company cost of information transmission and feedback time greatly extended, also easy to appear in the work of departments and docking process as well as the information leakage and information distortion, it is difficult to quickly solve the problem of the cost of enterprise, and reduces the efficiency of management of the enterprise.

3. M company Value Chain Cost Management Application Design Scheme

3.1. M company value chain analysis

3.1.1. Internal Value Chain Analysis

Procurement. The purchase of raw materials is the premise of production activities. As M company is engaged in the steel production and manufacturing industry, the purchase cost of raw materials and raw fuel consumed by its production accounts for a considerable proportion of the production cost, accounting for more than 80% of the purchase cost in recent years. From the perspective of the current procurement method, M company still adopts the traditional procurement method, which only focuses on the price of raw materials provided by suppliers, but this method is far from solving the problem of excessive procurement cost. Therefore, when choosing cooperative suppliers, enterprises should take price, quality, matching and other relevant factors into full consideration, and strive to establish a long-term strategic cooperative relationship with appropriate suppliers after determining them. This practice can reduce the procurement cost to the greatest extent for M company in the procurement process.

Production process. In the process of steel production, the purpose of production cost is to maintain the daily operation and maintenance of the workshop. The reason why the enterprise manages the production cost is that if the enterprise can obtain the maximum product output with the least resource input, it is enough to guarantee the realization of the lowest economic benefit. After many years of
production and operation, M company has mastered enough mature technical support, so the enterprise's steel production capacity is strong, which requires the enterprise should keep enough attention to the management of production costs. In response to this requirement, M company can improve the product quality by increasing corresponding r&d investment, so as to achieve the goal of maximizing the benefits of production links.

Sales. In today's sales market, diversification is increasingly synonymous with customer demand for products. Therefore, when conducting cost management based on value chain analysis, enterprises should first consider enhancing customer satisfaction with products and try their best to establish long-term strategic cooperation with downstream buyers. According to the value chain analysis of M enterprise, it can be seen that some value activities within the enterprise lack value-added, which to some extent limits the long-term development of the enterprise and tends to weaken the competitive advantage of the enterprise in the whole industry. Based on this situation, enterprises should conduct in-depth analysis of various activities in the internal value chain to find ways to reduce enterprise costs.

3.1.2. Vertical Industry Value Chain Analysis

Overview of the industry value chain. The industry value chain of M company starts from the upstream supplier to the company to produce products and finally to the downstream buyer, thus forming a complete chain, in which M company is the hub to maintain the continuity of the whole value chain. Upstream suppliers are the beginning of the whole chain and play a key role in optimizing the industry value chain of M company, because the price of raw materials provided by upstream suppliers plays a decisive role in the cost of production. Secondly, the production cost of M company's finished products largely determines the price of its products sold to downstream buyers. After the above two steps, it becomes obvious whether M company has advantages in the competition in the industry.

Influence of upstream supplier value chain on M company. When purchasing raw materials, price is often considered as the most important consideration. When purchasing, M company usually adopts the method of bidding to compare the prices provided by multiple suppliers, and finally chooses to establish a cooperative relationship with the supplier with the lowest price, so as to achieve the purpose of cost minimization. However, low price may also be accompanied by some negative effects, such as inferior raw materials leading to imperfect product processing, resulting in the final product quality inspection. If the company wants to reduce the cost and avoid these risks, it must study and analyze the problems existing in the upstream supplier value chain and actively take corresponding improvement measures, so as to reduce the negative impact on M company.

3.1.3. Horizontal Competitor Value Chain Analysis

Horizontal competitor value chain analysis requires that enterprises should adopt a more reasonable way to manage the internal cost circulation based on the understanding of the actual situation of competitors. At the same time, enterprises should also investigate and analyze the external environment, so as to identify their advantages and disadvantages. In the process of the actual development of the enterprise, the existence of competition is a double-edged sword for M company, from the positive point of view, it is because of the existence of competition, makes M can't slack off easily, motivate the implementation of technical reform and product optimization, to enhance their competitiveness to meet the challenge of the rival for the business development of the enterprise has played a great role in promoting. Therefore, in the process of operation and development, company M needs competitors in the same industry as the motivation to constantly improve the company's operation and management.

3.2. The Application Design of Value Chain Cost Management in M Company

3.2.1. Internal Design

First, design the cost management of the value chain within M company, which is mainly divided into procurement, production and sales links. See Figure 1 for the specific design scheme.
Procurement. Company M shall establish a convenient and efficient procurement information platform, integrate suppliers into the procurement system, and improve the material procurement system to facilitate the comparison of procurement prices. Choose one or several reliable suppliers as the long-term cooperation object, to ensure a stable relationship between the two sides, to minimize the procurement cost of the enterprise. In addition, it evaluates the performance of suppliers in the industry and decides whether to let suppliers participate in the product processing and design based on the evaluation results. This way of purchasing cost management from the external value chain can minimize the purchase price of raw materials.

Production process. The goal of the production process is to manage the production time and quality of the product. As for company M, production time can be timely arranged according to different types of steel products. By reducing the preparation time of production activities, fixed costs can be reduced, so as to reduce the overall cost of products, thus improving production efficiency. Companies in the pursuit of reducing costs, but also should pay attention to the performance and quality of products, can continue to improve the production process to improve product quality. In addition, the company through the research and analysis of a variety of production activities and cost drivers, in order to achieve the purpose of reducing non-value-added activities, help the company to reduce production costs.

Sales. First of all, M company classifies and manages the sales expenses according to its application channels, analyzes various sales activities in a timely manner, and sets the budget target of matching expenses based on the channel revenue budget. Then, in the actual management process, the company should timely analyze the difference between the change curve and the plan curve of the ratio of cost to sales of each channel; At the same time, the company shall also timely compare the actual use of expenses with the budget target of channel revenue to find out the reasons for achieving or failing to achieve the target.

3.2.2. External design

Build strategic partnership. Company M should establish long-term business cooperation with upstream suppliers to achieve the purpose of timely acquisition of raw materials, and at the same time, clear the way for the company to purchase raw materials.

In order to carry out purchasing activities smoothly, M company also needs to carefully select and compare the prices and quality of each supplier and the raw materials they provide. In addition, M company can also refer to competitors, analyze and investigate their actual situation, and establish a reasonable accounting index system based on the analysis results, which can be used as the assessment index of each department.

Establish an information sharing platform. In order to guarantee the timeliness of information transmission and sharing, M company can establish a Shared platform for raw materials procurement information, is about to release its required material on the platform, so for suppliers to understand the needs of the company, with their own situation to match, if the condition, can deal with M, avoid the labor, company and supplier negotiations at the same time also greatly reduces the material procurement cycles of the company.

Optimize logistics and reduce non-value-added operations. For the suppliers with good reputation
and high reliability, M company can exempt them from inspection, so as to reduce the inspection cost and save manpower, material resources and financial resources. For materials that can be used immediately, M company can reduce the occupancy rate of working capital and avoid unnecessary procurement and inventory costs by implementing the zero-inventory system.

Strengthen customer relationships. As people living standard and living standards improve and enhance, customer demand for enterprise quality of service and also the rise, and for customers to choose the object of increasingly diverse, this means that the way of M company needs to improve the service quality and improve the service in order to attract more customers, to meet the diverse needs of customers. In addition, M company also needs to strengthen communication with customers and enhance mutual affection, so as to enhance the enterprise's insight into the market environment. In a word, the good degree of customer relationship management affects the rationality of the distribution of sales and after-sales service resources. The more stable the customer relationship is, the more conducive it is to the improvement of sales and after-sales service efficiency, so as to achieve the purpose of reducing costs.

4. Conclusion

Based on the actual cost management of M company and the analysis of internal and external value chain of the company, this paper designs the application of value chain cost management, and puts forward corresponding improvement Suggestions, which also provides reference for other similar enterprises.

5. Fund

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