

ПРОБЛЕМЫ УСТОЙЧИВОГО РАЗВИТИЯ ЭКОНОМИКИ

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THE MODELS OF COST MANAGEMENT: THE EVOLUTION OF IDEAS

Wang Jianbo, PhD student

Belarusian National Technical University, 17882828986@163.com

Ван Цзяньбо, аспирант

Белорусский национальный технический университет

Abstract. The evolution of cost management models reflects the dynamic changes in business environments and the increasing complexity of organisational structures and processes. This paper traces the development of cost management theories from traditional costing methods to contemporary strategic models that integrate technology and sustainability. Initially, cost management focused primarily on direct cost calculation and control, suitable for simple, linear production processes. As industries evolved, the advent of activity-based costing (ABC) marked a significant shift towards more accurate overhead allocation and better product costing. In recent years, the integration of advanced technologies such as big data analytics and artificial intelligence has introduced predictive cost management, enabling proactive decision-making and enhanced financial performance [1, p. 25]. This evolution signifies a move from tactical, operational cost management to a more holistic, strategic approach that aligns with long-term organizational goals and sustainable practices.

Keywords: cost management, evolution, activity-based costing, predictive analysis, sustainability.

Cost management is a critical aspect of any business, as it directly impacts the profitability and sustainability of an organization. Over the years, various models and strategies have been developed to help businesses effectively manage their costs and optimize their financial performance. The evolution of ideas in cost management has been influenced by changes in technology, globalization, and market dynamics, as well as by the need to improve the efficiency and effectiveness of cost management. Evolution of ideas in cost management has been influenced by changes in technology, globalization, and market dynamics, leading to the development of new and innovative approaches to cost control and optimization [2, p. 164]. In this article, we will explore the different models of cost management and how they have evolved to meet the changing needs of businesses in today's competitive environment.

As we know, inventory management is the core of enterprise management, it is in order to reduce the operating costs of enterprises, enhance the efficiency of enterprise management, and take some effective ways and means to manage inventory (raw materials, work in progress, semi-finished products, finished products, etc.), the purpose is to enable enterprises to provide customer satisfaction services at the lowest cost. Doing a good job of inventory management optimization can build a good image for the enterprise, accelerate the return of funds, and improve core competitiveness to lay a good foundation. The finiteness of resources and the infinity of human desire is a contradiction in terms of the existence of the same problem in the enterprise, due to the finiteness of the enterprise resources, the same degree of management of all the inventory is impossible, in order to obtain the maximum benefit in the limited human, financial and material must be classified and managed inventory. ABC analysis is based on the requirements of such a trend out of the way. Its role is mainly manifested in the following points:

1. it can make the enterprise will focus on a small number of key links; focus resources on their main business; improve their core competitiveness.

2. through the use of this method, make the enterprise in the inventory management slowly to zero inventory management closer to the real total cost of inventory to minimise.

3. from the value side, so that the enterprise according to the fact that the adjustment of their own industrial structure.

With the development of the market, the profit of the domestic oil refining industry in China is getting less and less, the refined management becomes more important. Finished oil can be divided into gasoline,

paraffin, diesel oil three categories, each category can continue to be divided down, if all products are treated equally, will make the management of inefficient and consume a lot of cost. ABC analysis in many industries now have applications in inventory management, and have achieved good results, and the more complex the inventory the more significant effect, theoretically, the ABC analysis method introduced into the management of refined oil inventory Theoretically, it is feasible to introduce ABC analysis into the management of refined oil inventory.

Shanghai Petroleum Company Limited (SPC), as a well-known oil company, has always been committed to improving efficiency and profitability in managing costs and resources. ABC analysis, as an important cost management tool, is widely used in SPC's operations. Through the ABC analysis method, Shanghai Petroleum Company Limited can meticulously categorise and evaluate different categories of costs to better understand which costs have the greatest impact on the company's operations and profitability. This detailed cost analysis and management methodology helps Shanghai Petroleum Company Limited to develop targeted cost control strategies, optimize resource allocation, reduce production costs, improve competitiveness and achieve sustainable development and long-term success.

Based on the sales data in Table 1.1, it can be seen that there are significant differences between different grades of fuel oil in terms of quantity sold, unit selling price and sales value. Paraffin I has the highest sales quantity of 12.38 million tons, but the unit selling price is relatively low at \$5,600 per ton, resulting in sales of \$519.12 million. In contrast, the quantity of Gasoline III sold was smaller, at 2.65 million tons, but the unit selling price was higher, at \$ 5,851/ton, resulting in sales of as much as \$ 217,519,000, making it the fuel type with the highest sales. In addition, the sales quantity of Diesel I was 110,000 tons, with a unit selling price of \$ 5,075 per ton, but due to the lower sales quantity, the sales amounted to \$ 6,282,291,000 yuan, showing the higher market value of this grade of diesel. Gasoline IV, on the other hand, had the highest unit selling price of \$ 6,182 per ton and a sales volume of \$ 8,462.55 million. Despite the fact that the quantity sold was only 1.37 million tons, the high selling price made the sales volume relatively high.

Table 1. – Annual sales revenue of refined oil products of Shanghai Petroleum Co., Ltd. in 2023

Kind	Sales, mln. tons	Unit selling price (\$/ton)	Sales/\$10,000
Paraffin I	1238	5600	51912
Petrol II	372	5700	113031
Petrol III	265	5851	2175519
Petrol IV	137	6182	846255
Petrol V	41	5904	63054
Paraffin II	20	5950	1578654
Petrol I	19	5520	228694
Diesel I	11	5075	6282291
Diesel II	9	5583	107529

Sources: [3, p. 42].

There are certain differences in the performance of different grades of fuel oil in the market, and the relationship between sales quantity, unit selling price and sales is complicated and diverse. Through in-depth analysis of the sales data of different grades of fuel oil, it can provide an important reference for market decision-making and help enterprises to better formulate sales strategies and optimise product structure.

The products were sorted and numbered in order of sales size and cumulative sales, cumulative sales percentage, cumulative sales, cumulative sales percentage were calculated and the products were classified according to ABC classification. The results are shown in Table 1.2.

Table 2. – Annual sales of refined oil products of Shanghai Petroleum Co., Ltd. in 2023

Kind	Number of sales/million-tons	Unit selling price (\$/ton)	Cumulative percentage/per cent	Categorisation
Diesel I	1238	1238	58.6	A
Petrol III	372	1610	76	A
Paraffin II	265	1876	89	B
Petrol IV	137	2012	95	B
Petrol I	41	2052	97	B
Petrol II	20	2072	98	C
Diesel II	19	2092	99	C
Petrol V	11	2103	99.6	C
Paraffin I	9	2112	100	C

Sources: [3, p. 42].

Finally, the above products are classified by ABC analysis as follows: diesel I, Petrol sub-species percentage is 22%, the value of the percentage found 74%, classified as A products; 2. Paraffin II, Petrol IV, Petrol I is classified as B products; 3. Paraffin I, Petrol II, diesel II, Petrol V is classified as C products. From the above, it can be seen that the classification method is basically in line with the standard of ABC classification. Category A products, which account for 22% of the assortment, account for 74% of the total amount, and should be given the highest priority in inventory management; Category B products are given normal control, and Category C products are only managed in a simple manner.

In recent years, the enterprise has been insisting on focusing on the A type of inventory, has played a very good effect. The number of those who accounted for 20 per cent of the products that can bring 80 per cent of the revenue must be as the management of the top priority; at the same time for the B products can not relax vigilance, to do regular inventory. The above data well illustrates the practicality of the ABC analysis method. Through this scientific management means for the company to save nearly half of the inventory fee, effectively revitalize the assets, increase revenue, while invariably improve the competitiveness of enterprises in the market [4, p. 162].

In the future, with the continuous development of science and technology and the acceleration of globalization, the cost management model will focus more on digitalization and intelligence. Enterprises will make use of big data, artificial intelligence and other technical means to achieve real-time monitoring and analysis of cost data, so as to carry out cost control and management more accurately and improve the competitiveness of enterprises [5, p. 50]. With the enhancement of the awareness of environmental protection and sustainable development, the future cost management mode will pay more attention to environmental protection cost and social responsibility cost. Enterprises will actively adopt green production methods, reduce resource consumption and environmental pollution, and incorporate environmental protection costs into the cost management system to achieve a win-win situation for both economic and environmental benefits.

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