

# Research on the Importance of Time Cost to Enterprises

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**Abstract.** Cost problem has always been the focus of the enterprises. In order to make the enterprise obtain a long-term development, the enterprise must reduce the cost, however, the current accounting measurement is easy to make people ignore the importance of time. In this paper, we firstly introduce the meaning of time cost and related literature research, and then represent the cost which hidden in the current accounting data, next put forward the idea that we should notice the time cost, improve the customer satisfaction and shorten the process time, increase the turnover of funds, and eventually realize the sustainable development of enterprises.

## 1. Introduction

Cost management is one of the most important factors in the production and management of enterprises, and its management effect directly affects the enterprise's product pricing and enterprise's market competitiveness. Under the traditional accounting management system, the enterprise cost management is too much emphasis on the management and control of cost and how to achieve maximum profit in a short period of time, but rarely touches the key issues and the core layer of the problem in the production costs of the enterprise<sup>[1]</sup>. If the enterprises want to win in the competition, it must take a variety of means so that the company's cost less than other companies', although people have recognized the importance of time, but due to the understanding of time cost is not deep, and they even not aware of the huge cost of time. The current accounting for the product cost measurement is generally through direct materials, direct labor and manufacturing costs and so on to calculate, and not mention the problem of time, so even if people have realized the importance of time, but when you see the calculation of profit in current accounting, you will not have any question about the cost of measurement because the profit has been growing. Such a concept is easy to cover up the problems in the production process. For example, people like to store a lot of inventory, which is to be able to timely delivery when the order comes, but it is ignored the truth that when the product is stored in the inventory it becomes to be the potential costs. Therefore, we must pay attention to the importance of time, only in this way can help enterprises to find the real cost of the enterprise, and then help enterprises to eliminate waste, reduce costs, improve capital turnover rate, and promote long-term development of enterprises.

## 2. The Connotation of the Time Cost and Related Research

Time cost accurately, called "the time value of money ", refers to a certain amount of money stands for different values at the different time. As we all know, in the commodity economy condition, even if there is no inflation, the value of the same amount of money in the same time is not equal, today's 1 yuan and 1 yuan in the future is not equivalent, the former's economic value is higher than the latter. In the process of using the money, the money gained value, that is, the time value of money. The cost can be divided into visible and invisible cost in the production process of the enterprise. Visible costs are mainly refers to: direct labor, direct materials, manufacturing costs, energy costs, management costs. Invisible cost mainly refers to: the cost of inventory capital, quality cost, waste of cost<sup>[2]</sup>. The relationship between the cost and the time of the enterprise is more complex, but it can be divided into two categories: time dependent cost and time independent cost<sup>[3]</sup>. Enterprise products from R & D to the production and sales to go through many links, each link will consume a certain amount of resources to produce the cost. Some cost has nothing to do with time, such as some parts of

automobile production, their price has nothing to do with the time of production. On the one hand it depends on the product design and production technology, on the other hand, depends on the market pricing. Some cost and time are closely related, such as labor costs, cost of semi-finished products in the process of product production, the cost of maintain the machine running energy consumption of production, these costs are closely related to time consumption.

Zhao Liying believes that the use of computers and the Internet increases the efficiency of the whole society, only if the company give a rapid response to customer demand and at the same time shorten the time of new product development, it is possible to beat competitors<sup>[4]</sup>. Yang Baosheng believes that in order to become the winner of the time, the enterprise should reduce the time cost in the production time, circulation time and the time of achieve benefits<sup>[5]</sup>. From the perspective of customer demand, Xie Feng believes in the value chain of all stages, time is a very important factor. It is the first step for enterprises to send products to customers timely, more important is to take timely measures to the customer's views, so that make the customer value maximization. Doing this will not only get the market, but also to grasp the dynamics of the market<sup>[6]</sup>. Wang Aihua and Wu Fujuan from the time dimension to study the problem of government statistical cost and put forward the corresponding control strategy<sup>[7]</sup>. From this we can see that time is a kind of cost, time factor and the operation efficiency of the enterprise is closely linked, we can arrange the time through cost management to achieve the purpose of reducing the cost and improving the competitiveness of enterprises.

### **3. Hidden Costs in Current Accounting Data**

Companies are aware of the importance of cost calculation, but in the way of traditional accounting, things referred to costs are meaning the actual cost of funds (pay)<sup>[8]</sup>. For example, to spend 100 yuan to buy the material, regardless of the place for 1 days or 100 days, 100 yuan means 100 yuan, the cost is the same, the time has never been considered. As the cost concept did not join the time axis, the time of processing and handling of goods in the warehouse are not included in the cost. But we need to know: in order to produce a product we buy many related materials, although they are static in fact "there has been produced costs", however we are easy to ignore the cost of our "goods" on the idle, so we cannot be aware of the "cost" will grow over time. The manufacturing discussions of University of Tokyo had discussed the "horse and pig, which makes more money", the case has 6 evaluation methods in total, but according to different evaluation methods, when the time factor is added, the number changed a lot, and so as the results, but the current accounting methods cannot make us see the real cost.

The inventory itself takes up many funds and the increasing stock can increase the fixed cost allocation in stock, and these will be carried forward to the next, so the cost of sales will be reduced accordingly, eventually resulting in inflated profits<sup>[9]</sup>. So the traditional accounting can be seen to make people neglect the harm of inventory. In addition, Taiichi Ohno also said that the excess production will induce secondary cost. As the production of excess inventory cover up the other waste, which will lead to the occurrence of new related costs. For example, in order to store excess inventory, enterprises must build warehouse, hiring administrators, maintenance workers, porters, stevedores, and even equipped with forklifts or computers for them. In all, a waste will cause another waste, which is not easy to detect. But the waste caused by the inventory of multiple waste is calculated into the direct labor costs, indirect labor costs, depreciation charges and management fees so that the cost of enterprises continue to increase.

### **4. Pay Attention to Time Cost, Raise Capital Turnover Rate**

Reducing time helps to improve customer satisfaction. In the same service quality, customer waiting for the purchase of the service, the longer the time spent, the greater the total cost of purchasing is. At the same time, the waiting time is longer, the more likely to cause customers discontent, and the possibility of the buyers giving up will increase. Vice versa. Therefore, in order to reduce the time cost of customer purchase, business operators must have a strong sense of

responsibility and prior preparation, in order to improve work efficiency, reduce the time cost of customers and reduce the cost of purchase. It is an important way to create greater customer delivered value and enhance the market competition ability.

Reduce the process time means improving the capital turnover, if A stands for the principal, namely initial capital, i stands for the annual interest rate, n stands for compounding periods, namely the interval between two plan breath, F stands for the final value, also known as the capital and interest, according to the calculation principles of compounding, when the n year, the final value  $F=A(1+i)^n$ , if m stands for the actual turnover, then  $F=\frac{n}{m}A(1+\frac{i}{m})^m$ , if reducing the turnover days, that is shortening turnaround time and improving the turnover rate. We can prove the formula:

$$\frac{n}{m-1}A(1+\frac{i}{m-1})^{m-1} > \frac{n}{m}A(1+\frac{i}{m})^m$$

Because m, n, A, i are greater than 0 and  $0 < i < 1$ . Only need to prove the formula is monotone

decreasing:  $y = \frac{1}{x}(1+\frac{i}{x})^x$ ,  $y' = -\frac{1}{x^2}(1+\frac{i}{x})^x + \frac{1}{x} \cdot e^{x\ln(1+\frac{i}{x})} \cdot [\ln(1+\frac{i}{x}) + x \cdot \frac{1}{1+\frac{i}{x}} \cdot \frac{-i}{x^2}] =$

$$y' = -\frac{1}{x^2}(1+\frac{i}{x})^x + \frac{1}{x} \cdot e^{x\ln(1+\frac{i}{x})} \cdot [\ln(1+\frac{i}{x}) + x \cdot \frac{1}{1+\frac{i}{x}} \cdot \frac{-i}{x^2}], x > 0,$$

$$\text{so } -\frac{1}{x}(1+\frac{i}{x})^x < 0$$

$$-\frac{1}{x} + \ln(1+\frac{i}{x}) - \frac{i}{x+i} = \ln(1+\frac{i}{x}) - \frac{i}{x} + \frac{i}{x} - \frac{1}{x} - \frac{i}{x+i} = \ln(1+\frac{i}{x}) - \frac{i}{x} + \frac{i^2-i-x}{x(x+i)}$$

$$\text{and } \ln(1+\frac{i}{x}) - \frac{i}{x} < 0, 0 < i < 1, \frac{i^2-i-x}{x(x+i)} < 0, \text{ which means } y' < 0,$$

$$\text{that is } y = \frac{1}{x}(1+\frac{i}{x})^x,$$

the formula is monotone decreasing, and we all know  $m-1 < m$ , so

$$\frac{n}{m-1}A(1+\frac{i}{m-1})^{m-1} > \frac{n}{m}A(1+\frac{i}{m})^m$$

The proof shows that, as long as shorten the turnaround time and improve the capital turnover rate, which is useful for the enterprise. In a certain period of time, the number of working capital turnover, which indicates that the more the turnover of the same assets, the better the effect of the use of the current assets. The turnover of current assets turnover days, the less the number of days required, indicating that the flow of assets in the production and sale of each stage takes up the less time, the faster the turnover. In conclusion, improving the capital turnover rate is benefit to enterprise, so we should pay more attention to a matter of time, increasing the turnover of funds and eventually promote long-term development of the enterprise.

## 5. Summary

In the present situation, people lack the awareness of the importance of time cost, and the current accounting measurement is also easily to make people neglect the importance of time, especially to the inventory, people's understanding of inventory is not comprehensive. So this paper firstly puts forward the concept of time cost and related literature, and then represents the hidden costs in current accounting data, which suggest us that we need to pay attention to time, speed up the turnover of funds, reduce the process time, and promote the long-term development of enterprises. Only in this way can we make the enterprise successful.

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