

# **COST CALCULATION IN THE ELECTRICAL INDUSTRY-MANUFACTURE LARGE ELECTRIC MOTORS**

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**Abstract:** After more than 20 years, as the productive economic entities argue that they implement the standard or normalized cost method, we see that economic practice, as applicable electrical industry, still persist method commands. In fact, we see a truncated application of the standard or normalized method , meaning that in the pre-calculation stage, principles are used on a scientific substantiation of the expenses level and costs are used and just so. As the production process is underway, almost it is forgotten that the standard method has a well defined principles of operative follow-up of the of the costs, in order to identify causes that have generated adverse deviations and to establish responsibilities, for which recourse to the classical concept of collection, recording and processing accounting information in order to establish cost controls and cost carriers.

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## **1. INTRODUCTION**

Costing methods include a set of processes that ensure "the quantification of the correlation between costs and production as measurable and estimating economic units".<sup>1</sup> After more than 20 years of capitalism, we discover that a large majority of economic agents still apply the ordering method, although they strongly maintain that they use the standard or the standardized method. Such is the case of the electrical industry where this method is also to be found.

## **2. OJECTIVES**

The ordering method is a method of full costing which involves a full price calculation, that takes into consideration all the additional production expenses. The method is specific to individual production and series production enterprises, with complex manufacturing processes in which the finished product is the result of combining mechanical parts, assemblies which had been made previously as independent parts.

The ordering method presents a series of traits generated by the specific features of the technological process, namely:

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<sup>1</sup> Carstea C.,Calin O, Costing. Ed teaching and Pedagogical Bucharest, 1980

- ✓ it involves the estimation and evaluation of the unfinished production due to its variation from one period to another;
- ✓ The final bearer is the product, but for costs survey and recording, an intermediary process, called order, is being used;
- ✓ The object of the order differs according to the organization of production.

The order is launched at the beginning of the production process based on orders received from customers and is assigned a number in the order book which will necessarily go in all the records on the consumption of primary raw materials, auxiliary materials and workmanship so to correctly estimate the expenses.

Indirect costs are collected from each production department due to the collection and distribution master summary sheets, and at the end of the month these costs are distributed over all the manufacturing orders regardless of whether they were completed or not.

### 3. METHODOLOGY

Given these issues presented, the ordering method presents two main versions:

- the version without semi-manufactured components, which is specific to individual production and is especially characterized in that the ordering object is composed of a product or batch of products. Through calculation there is no expense differentiation either marking-based or component-based. Calculation reveals at the most the role of each manufacturing department to cost formation. If the product comes from a long manufacturing cycle, the order object may refer to a particular part of the product that is to be assembled. The calculation of the costing unit is:

$$C_u = \frac{\sum_{S=1}^n ( \sum_{a=1}^n C_{hd} + \sum_{k=1}^n C_{hi} )}{Q}$$

$C_u$  - unit cost  
 $C_{hd}$  - direct cost  
 $C_{hi}$  - indirect cost  
 $Q$  - production

- the ordering method with semi-manufactured components is specific in particular to the series production enterprises where finished products are the result of combining mechanical parts, markings, assemblies or subassemblies produced independently and simultaneously or externally acquired and then processed, assembled and finished. Setting the costing unit for the finished product involves the following steps:
  - ❖ establishing of the estimating costing for own semi-manufactured components and for raw parts;
  - ❖ establishing of the estimating costing for the processing operations and the finishing of the semi-manufactured components, subassemblies or other parts;
  - ❖ establishing of the estimating costing for the finished product comprising the costing of the semi-manufactured components and the combining, assembling, associating or finishing expenses.

Thus resulting the following calculation pattern of the costing unit of the finished product:

- the costing unit of a component „i”:

$$Cu(i) = (ChD + ChI) / Q$$

Cu(i) – unit cost for each component

ChD – direct cost

ChI – indirect cost

Q – production

- the costing unit of the finished product:

$$Cu = C1 + C2 + \dots + (ChD + ChI) / Q$$

Cu – unit cost of finished product

The analysis of the ordering costing method used by a large majority of the productive economic agents shows that its biggest drawback is its lack of efficiency and prediction. Such information about the production flow does not reach in time to the decision factors, which affects the efficiency of the economic process.

#### 4. ANALYSES

Therefore it is necessary to call into question if perhaps another method or the improvement of the existing one would lead to reaching the objective of any economic agent, namely maximizing profit.

One of the methods considered here is the target costing method or the target cost method. It was developed in Japan in the automotive industry in the '80s, and it based on the idea that the selling price of a product is fixed by the market. Price does not depend so on the cost, on the contrary one could say that the costing of the product must be adjusted according to the market price.

According to this method, the cost is limited to two restrictions:

1. The price which is fixed by the market.
2. The margin of profit set by the enterprise.

The objective cost (or the authorized cost) is defined as the maximum allowable cost under the two restrictions above. The causal relationship price equal cost plus profit describes the less competitive market situation, dominated by manufacturers. The price minus cost equal profit causal relationship describes the situation of the enterprises dominated by their customers. They have no alternative but to accept lower profit margins or to withdraw from the market.

The target-costing method is not only a method of calculating the costs, but also a method of modern management that uses techniques assessed on the basis of market study, the value analysis, the reduction of diversity, the manufacturing technology, the partnership with suppliers. "The objective cost" is compared with the estimated cost of the product. The estimated cost is determined on the basis of the existing methods of supply, production or distribution, taking into account the estimated volume of production. It is estimated according to the characteristics attributed to the product from the time of its definition in the project. The estimated cost is generally higher than the target cost and will be reduced to the cost objective. Reduction can be achieved either through a change in

product characteristics that does not alter its perceived value by the customer or by an improvement in existing methods of supply, production and distribution.

The basic principles of the target costing method are:

- calculation and cost analysis is done on the product. Each product is the natural link between the market and enterprise, the former being the latter's profit source.
- calculation and cost analysis is performed on the product life cycle.

The target costing operates mainly from the very conception of the product and may be reviewed at different stages of the product life cycle. The target costing method is based on the findings that on average 80% of product costs are incurred even in its conception. Since then, margins made on the product during its life cycle, are mainly related to the management of costs in the project phase. The possibilities to exercise a significant influence on costs greatly diminish, after the phase of product research and development. Any cost control cannot be really operated but at the peak of production, by observing the costing objectives determined at the earliest possible. Time is therefore considered the second dimension of the target cost method.

## 5. CONCLUSIONS

We might conclude that the target costing method is a customer-oriented method, which means that the cost analysis is driven by the customer's requirements regarding the quality and selling price of the product, as well as delivery time.

The target cost should allow not only the reaching of the target profit but also maintaining the competitive dimensions of the product so it cannot be achieved by sacrificing the desired characteristics of the customers and lowering the performance or the reliability of the product. In the view of this calculation method, product design is the key to cost reduction efforts. Target costing requires an active long-term collaborative relationship, with suppliers and other value chain members. All these aspects translate my concerns which I will further develop in my research.

It can be stated that the choice of the most appropriate method of organizing the expenditure, costing and drafting of the budgets is a matter that depends on a number of factors:

- The different nature of production;
- The specificity of the production process;
- Nomenclature of production;
- The evolutive tendency of certain factors;
- The leading aim of the asset management unit.

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