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# THE COST CONTROL BY APPLYING THE TARGET COSTING METHOD IN THE CONSTRUCTION INDUSTRY

Case  
Study

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## Keywords:

The Target costing method  
Managerial accounting  
Performance  
The construction industry

## JEL Classification

D22, M41, L52

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## Abstract

*The Romanian economic spectrum, found on a slightly increasing trend in the general aspects of the national economy feels more and more strongly the need for an upgrade in terms of cost management problem. One of the modern costing methods that can fill this gap in the Romanian business practice related to accounting management is the Target Costing method. The overall objective of this study is to demonstrate the full applicability and usefulness of this calculation and cost tracking methods, widely used in the field of managerial accounting practice in developed economies. Managerial accounting and financial accounting converge in terms of ultimate interest of the company, namely value creation and growth performance in a sustainable way. Following the case study, conducted with real financial data, it was concluded that the target costing method is applicable and particularly useful in the construction industry and the results may provide support for decision-makers.*

## 1. Introduction

Controlling costs is a goal in the world wide economic crisis in full process of manifestation of the effects of the global economic crisis. Any viable tool capable by its use to help reduce the cost of an enterprise becomes a real concern for any company. The target costing method is one of the modern methods of cost management and is distinguished from the other methods by a characteristic element: evaluation of the product price based on profit margin desired by the manufacturer. Unlike other methods of costing, the target costing method gives the manufacturer the opportunity to control and adjust product design in a timely manner, beginning with the design stage, adapting the product after the product price and not the price after the product.

Capitalism economy specific to the political regime called democracy, in which the market is the one that regulates prices through free trade, the ongoing relationship between demand and consumption, the target costing method can become a financial accounting tool particularly useful for increasing the performance of specific manufacturing entities.

The construction industry is one of the industry's most affected by the economic crisis among the industries in Romania. The economic crisis effects by their nature have as a central point the decrease in liquidity in the economic and financial market at macroeconomic level. Thus, by decreasing the purchasing power of citizens, their interest in real estate investment drops dramatically, directing these investments indirectly towards citizens who socially feel this need acutely. The reason we tested in the case study the implementing of the target costing method in the construction industry is the timeliness and interest of practitioners in the construction industry in this area. Output under the effects of the global financial crisis by implementing new modern systems of calculation and

cost management is the desire of the whole industry.

In our view, we consider useful and timely any request for a decrease in the effective management of production costs in the industry, as lower costs push up consumer demand in the market, a finality element that will be a factor generating new jobs, basically meaning an important social benefit.

## 2. Research methodology

For this work, specialized bibliography was used in the field of the current financial and economic literature. A number of works in the field have been consulted in the subject of cost management from domestic and foreign literature with a view to theoretically funding the target costing method in order to express the strengths and weaknesses of target costing method applicable to the construction industry.

For this study, actual financial data in managerial accounting of construction companies were used, which for reasons of competition shall be kept anonymous.

Regarding the Target Costing method, it is widely addressed in the economic and financial literature. According to the authors Briciu S., Sorinel C., Rof L. M. and Topor D. (2010, pp. 386-387), the target costing method was developed in Japan in the automotive industry around 1980 and is based on the idea that "the selling price of a product is determined by the market. According to this method, the price does not depend on the cost, but rather the cost of the product is adapted to the price. Modern management is a method that uses advanced techniques on market research, value analysis, reducing diversity but also costing calculation method".

The Target costing method has also been treated by C pu neanu S. and Briciu S. (2011, p 52) in Romanian literature. The authors state that "the aim is to identify the target cost method of production cost for the desired product, so that this sale

generates the desired profit margin. The Target cost method focuses on reducing the cost of a product". According to the same authors, a major advantage of the method "is in its use in the planning and design costs of *products prior to their introduction into production, and ensuring that products whose margins generate sufficient profits are not placed into production*" (*Ibidem*, p. 67-68).

Several stages of applying the method exist in the specialized literature, among which we mention the following steps (Capusneanu S. and Briciu S., 2011, pp. 53-54):

- **Step 1. Target pricing based on market and competitive environment context.** In this respect the method differs from other methods of cost calculation starting from product to customer. This method is based on the market, the sale of the product and gives a price to bring a fixed profit to the company.
- **Step 2. Setting the margin target by the equation:**

$$\text{Target Price} - \text{Target Profit Margin} \\ = \text{Allocable Target Cost}$$

The target profit margin is the residual interest of the company, the "real reason" for which it is involved in the business. The Target cost is composed of the allocable types of costs in the specialized literature. There are a variety of costs in management accounting. In our example, according to the authors Capusneanu S. and Briciu S. (*Ibidem*) "allocable cost can be composed of *variable production costs* (raw materials, direct wages), *unitary production costs* (development, depreciation, instrumentation), *other costs* (general manufacturing, administrative) *investment costs* (inventory, equipment, installation)".

- **Step 3. Determination of estimated cost and target cost-** in this highly technical and specialized stage

engineers and technicians that help assess the estimated cost have a special role, afterwards being highlighted the difference between the estimated cost and the target cost.

- **Step 4. The calculation of the estimated cost of products and estimated activities.** At this stage, the overall costs are determined by adding direct and indirect costs allocated to the products included in the Target Costing analysis.
- **Step 5. Calculation of the amount to be reduced / adjusted in costs.** At this stage, there can be operated adjustment costs by the difference between the estimated cost and the target cost. If the difference is positive, a revision of the estimated cost is needed so that it fits the target cost. If the difference is negative, it appears that we have a target cost bigger than the estimated cost and the situation is favorable to the company.

### 3. Literature review

The Accounting Law in Romania, no. 82/1991 (Accounting Law, no. 82/1991, art. 1 align. 1.) provides that Romanian accounting requires the mandatory use of two distinct types of accounting: *financial accounting* and *managerial accounting*. These two types are distinguished by the recipients of the offered information, managerial accounting providing information for internal users and financial accounting to external users.

According to the authors Briciu Sorin et. al (2010, p 39), "management accounting is to model the formation of value inside the establishment. Information provided by management accounting is confidential and intended only for decision making by managers, which justifies the name of *managerial accounting* [...]; it aims to establish the relationship between costs (effort) and utilities (ie goods, works, services, activities, namely effects), with

the recognized objective to facilitate the control of the entity".

Cost management is a fundamental element of management accounting used primarily in the substantiation of management decisions, underpinning the whole system of budget preparation of the company.

According to the Accounting Law no. 82/1991 - reissued and published in the Official Gazette no. 23/12.01.2004, it is stated that "to provide real content and accuracy of the cost structure the following **principles** will be taken into account":

1. *The separation of costs principle related to obtaining goods, works, services from expenses not related to the acquisition, production or processing etc.. thereof.* This implies that the calculation objects determined by each legal entity separate the expenses attributable to the respective objects from the remaining costs of the activity.

Expenses not involved in obtaining the mentioned calculation objects, such as administrative expenses, selling expenses, unallocated fixed overhead costs, financial costs, extraordinary expenses and so on, are not included in cost.

2. *The principle of delimitating expenses in time.* This assumes that expenses included in cost perform charges during the reporting period to which they belong.

3. *The principle of delimitating expenses in space.* It involves delineation of costs incurred in a period of management on the main processes or other places in which they have incurred expenses, such as: purchasing, production, administration, sales and in the production sector, on departments, workshops, production, etc.. The structures mentioned can be production centers, profit centers or other centers of responsibility in relation to the delimitation deepening expenses.

4. *The principle of delimitating productive expenses from the ones of unproductive nature.* This involves the delineation of productive expenses that are creating

value, from the expenses of unproductive nature.

5. *Delimitation of finite production costs from production expenses in progress.* This principle applies to those production units whose output is presented in part at the end of the reporting period in various stages of processing, the quantity and value being different from one reporting period to another.

Accounting can be considered the center of the accounting information system. Professor Briciu Sorin says that the central role in the accounting information system can be attributed to accountancy leaving from the next premises (Briciu Sorin, 2006, pp. 13-14):

- most decisions at the entity level are provided by accounting;
- based on information, accountancy allows managers to form a clear picture of the whole;
- it forms links with other components of the information system (marketing, production, personnel, etc..)".

This idea that positions accounting in the center of the information system is underlined by others. The author Horomnea E., says that by its means accounting provides clarification on the past and present of a company, it provides guidance on the future economic strategy, it analyzes society by analyzing market opportunities, etc.(Horomnea E., 2011, p 58).

The author Iuliana Cenar connects the accounting, statistical and operational records. "Accounting, statistics and operational records are forms that economic evidence takes and are closely interrelated and complementary" (Cenar Iuliana, 2008, p 18).

One of the modern costing methods that rely heavily on the connection between marketing and client is the Target Costing method. The authors Charles Horngren et. al. (2006, p 458) highlight the advantage of the method, as follows: "Companies realize market studies on the characteristics of the products customers

want at prices they are willing to pay for these features. **Understanding customer perceived value is a key aspect of customer orientation.** " The authors also remind the wide use of the Target Costing method in the world's largest multinational companies such as Ford, Toyota, DaimlerCrysler, General Motors, etc..

The Target Costing method is very similar to another modern method of cost management, namely the Kaizen costing method. According to the authors Briciu Sorin et. al (2010, p 246) unlike the Target Costing method that is used by the design staff before the manufacturing begins, the Kaizen Costing method is used by production personnel during product manufacture. Both methods aim at the same target, but differ in implementation: the Target Costing method is based on customer considerations while the Kaizen Costing method is based on profitability targets set by managers.

#### 4. Case Study

##### 4.1 Aspects of Companies and the Costing Calculation Process by the Target Costing Method.

The case study in this paper is based on the actual financial data extracted from company X, the Bucharest branch of a German company operating in the construction sector. The activity of the firm is divided into four fields of coverage of the construction area

1. *Civil constructions.* In the department of civil engineering and underground construction underground works are included, infrastructure and structural repairs. If the work is more complex and are done on a large-scale, new technologies are used, ventures are done so that the final beneficiary shall transmit the values of a team with extensive experience.

2. *Construction of real estate projects.* This segment provides construction services for office buildings, residential areas, hospitals, schools and industrial buildings, projects being

delivered at turnkey, as well as building restoration services.

3. *Environmental Engineering.* For over 20 years, the company has realized important projects in the field of environmental engineering, during which the company's specialists have proven competence in several key areas such as recycling and waste depositing, construction of sewage treatment plants and compost, specializing in the reduction of pollutant emissions by using BIOPUSTER procedures.

The Branch in Romania of company X was founded in April, 2007, having as main activity according to NACE code 4521, "the construction of buildings and civil engineering works." Due to the seriousness shown by the successful completion of various projects, the company made its place on the Romanian market, yet still failed to enter the top 10 Romanian construction companies.

In conducting the case study methodology we followed specific steps of the target cost method. The target costs are determined for three different items as follows:

1. *application layer of paint;*
2. *waterproofing application layer;*
3. *concrete blast.*

**The effective work method is the following:** In order to obtain the desired results the end user of the information generated by managerial accounting should develop internal procedures specific to the activity by using specific calculation accounts by either developing accounts used in financial accounting or by implementing its own operative technical record. Taking a German model, the company has developed its own system of tracking costs based on the information provided by financial accounting.

The Company considers each construction project that it has as **cost center**. Based on budgeting the project, the immediate next stage after it being awarded by the contracting authority, there shall be made a cost estimation over the life of the

project. Realizing an initial calculation, there can be estimated the amount of costs that will result from the manufacturing process.

In order to set the price for the execution of various works to be carried out according to specifications, a market study is to be performed, taking into account the period of execution, determining target costs based on the rule that **the market dictates the selling prices and not the company costs, pursuing as such the value-price-benefit-cost ratio analysis.** The profit margin that is supposed to result from work completion has an interactive character and results from initial planning. The Target cost is determined as the difference between the target price and target profit.

Further, during the progress of work, especially at the end of each month, in order to establish the paper result in part, a comparison between the current state of the work with initial estimation is to be provided. For this, the person appointed to carry out the measurement of executed quantities shall report the work performed and the current state in terms of quantities. The report is sent to the person designated to handle the project by checking costs, respectively the cost controller. The latter draws a new report that summarizes all data needed for the cost development analysis.

Starting from the initial estimate, each month, the cost theoretically achieved is calculated. For each article, mentioned in the ongoing of the execution, an account belonging to the class of respective works is attributed from the initial calculation. The account name and format, respects the Austrian accounts plan, and recording in accountancy is based

on the account registration under the Romanian account and the Austrian account becomes analytical. Each work group is assigned a code so that when a cost analysis is made we should be able to talk about a correct estimate both on items and groups of works.

At the end of the month, based on the information obtained from financial accounting, namely the total costs and by using the initial estimate a comparative cost analysis is started. Totals for each item are performed, for each class of items, groups of works. If there are differences between what was planned and actual costs, a more complex analysis of executed and reported quantities is to be performed in order to eliminate the possibility of misreporting. Another reason for a difference between two costs, actual and estimated, it could be a mistake in accountancy registration. Either a certain expense was allocated on the wrong cost center or the account in which an expense was recorded is wrong.

For a result of the cost as truthful and accurate as possible, the problem of correct registration or the splitting of expenses at the moment it is generated must be considered, namely when reporting data submitted must include all information that may affect the total cost. Therefore, if we know that certain expenses were not recorded, such as rent for the current month, we should prepare a report that includes all expenses not recorded in the correct month divided on articles, work groups, respectively direct and indirect production costs. The total of these expenses is added to the total expenditure recorded in financial accounting.

Another aspect that should be considered is the stocks at the time of cost analysis. For this, at the end of each month an inventory of materials used for each piece of work, if used materials is to be performed. The result of the inventory and the statement of unregistered expenditure must be added to the total registered expenditure so that an analysis as real of the actual costs can be performed.

#### **4.2.Results and Discussions**

Indicators that appear in our tables are explained through the following:

1. **Projected area** - This area will be found in the contract for execution of the work and contractor invoices.

2. **Target-unit selling price** - is the sum of the target unit cost and the target profit margin that company X is following. It represents the target unit selling price fixed by company X for a square meter coat of paint, sealant or sanding concrete for possible subcontracting and can be easily adjusted to the value of the target unit profit margin.

3. **Target-unit profit margin** - is the winning margin in a square meter of article for the work done. This profit margin is the mechanism for negotiation between contractor and builder. It can easily be reduced to the minimum profit area provided on the budget of the contractor for larger work.

4. **Target unit cost** - this indicator is particularly important in our analysis and is meant to understand the target costing method. The whole future contract negotiation starts with this fixed cost established by lowering the target price and profit margin, value from which it cannot compromise.

5. **Target Turnover** - This index is the multiplication between the target unit selling price and the projected area.

6. **Target Profit margin** - representing the total interests of the company in the contract execution.

7. **Target cost** - is the multiplication between the expected target unit cost and the projected area.

8. **Share of profit margin in the turnover** - is a percentage indicator using the following formula:

$$Rmp = \frac{Mp}{CA} \times 100$$

Where,

Rmp= Share of profit margin in the turnover

Mp= Profit margin

CA=Turnover

#### 9. Cost Share in turnover

$$Pc = \frac{Ctint\acute{a}}{CA} \times 100$$

Where,

Pc= Cost Share in Turnover

Ctintă=Target Cost

CA=Turnover

As explained on each expressed indicator, we will present for three articles (from a larger work situation) the centralized situation of the target cost for each article and management provisions for the manufacturing sector.

Based on the target price on each item, the target unit cost is calculated. The target price is determined by the sector in charge with market research, namely the price values of competition. Offering a lower price than the competition, the entity will have more contracts.

In Table 1 we present the centralized situation which will be subject to the market for Article 1, entitled "application of a layer of paint." With reference to the projected area to be executed, in the specification book, the following values for the presented indicators will be proposed:

**Table 1. Target centralized situation for article 1: application of a layer of paint**

Crt. No.	Explanations	Measure Unit	Values
1	Projected area (mp)	mp	992
2	Target unit selling price	lei	2,78
3	Target unit profit margin	lei	0,05
4	Target unit cost	lei	2,73
5	Target turnover	lei	2757,76
6	Target profit margin	lei	49,96
7	Target Cost	lei	2708,16

<b>8</b>	Share of profit margin in the turnover	%	1,00
<b>9</b>	Share of target cost in turnover	%	98,19

Source: the authors' personal processing.

We note that a favorable situation for company X would mean in the case of Article 1, getting a turnover of lei 2757.76. The indicator values were calculated according to the calculation method explained in practice. Of the three items for paint coating application the lowest target unit profit margin, was perceived, namely lei 0.05, a total profit of lei 49.96 for a share of the profit margin of

only 1%. Management believes that the minimum rate of profit margin will boost buyer and will be the lowest on the market at this level.

Having established the value of the target unit cost for this item, 2.73 lei, in Table 2 there was achieved the unitary target cost state on components representing costs involved in the total cost of the item layer of paint application.

**Table 2. Unitary target cost situation for article 1: layer of paint application**

Crt. No.	Name of cost components	Cost share product -%-	Unitary target Cost -lei-
<b>1</b>	Raw material (paint)	37,64	1,02
<b>2</b>	Direct wages	42,86	1,17
<b>3</b>	Fuel	19,50	0,54
<b>Total:</b>			<b>2,73</b>

Source: the authors' personal processing.

As can be seen, engineers have achieved the cost sheet for this item, its value is considered fixed for the entire period of the contract execution.

Table 3 presents the centralized situation which will be subject to the market for Article 2, entitled "Application of waterproofing layer."

**Table 3. Target cost situation for article 2: application of waterproofing layer**

Crt. No.	Indicators – explanations	Measure unit	Values
<b>1</b>	Projected area	mp	1800
<b>2</b>	Target unit selling price	lei	12,73
<b>3</b>	Target unit profit margin	lei	5,53
<b>4</b>	Target unit cost	lei	7,2
<b>5</b>	Target turnover	lei	22914
<b>6</b>	Target profit margin	lei	9954
<b>7</b>	Target cost	lei	12960
<b>8</b>	Share of profit margin in turnover	%	43,44
<b>9</b>	Share of target cost in turnover	%	56,56

Source: the authors' processing.

The situation of unit target costs on *cost components* implied in the total cost of

article 2 is the following:

**Table 4. The unit target cost situation for article 2: application of waterproofing layer**

Crt. No.	Name of cost components	Share in product cost -%-	Target unit Cost -lei-
<b>1</b>	Material	58,33	4,2
<b>2.</b>	Direct wages	41,67	3
<b>Total</b>			<b>7,2</b>

Source: the authors' processing.

For this article, we see that a turnover target of 22914 lei was followed at a rate of profit margin of 43.44%, higher than the first article. This was explained as such because the application of sealant layer is a more complex process than painting. It requires extra time and thus labor must be more expensive. Also note that for this article we do not have included fuel costs because the whole process is carried out without the help of machinery.

Also, note that if it will be negotiated, in principle, the profit margin rates for this article will be considered 5% diminished. The same reduction will be considered for the case when work will be completed ahead of schedule.

In Table 4 we present the centralized situation which will be subject to the market for Article 3, called "concrete blast."

**Table 5. The target cost situation for article 3: concrete blast**

Crt. No.	Explanations	Measure unit	Values
1	Projected area	sqm	494
2	Target unit selling price	lei	11,06
3	Target unit profit margin	lei	3,47
4	Target unit cost	lei	7,59
5	Target turnover	lei	5463,64
6	Target profit margin	lei	1714,18
7	Target cost	lei	3749,46
8	Share of profit margin in turnover	%	31,37
9	Share of target cost in turnover	%	68,63

*Source: the authors' processing.*

The situation of unit costs on cost components implied in the total cost of

article 3 are the following:

**Table 6. The target unit cost for article 3: concrete blast**

Crt. No.	Name of cost components	Share in product cost -%-	Target unit cost -lei-
1	Material (grit)	22,27	1,69
2	Direct wages	65,88	5
3	Fuel	11,85	0,9
<b>Total</b>			<b>7,59</b>

*Source: the author's processing.*

It may be noted that in the case of Article three, the target turnover is the second as value of the three articles, the largest being in the case of Article 2, sealant application. Therefore, a 31.37% profit margin rates was considered cost-effective for society.

From Tables 1, 3 and 5 we understand that Company X will perform for this the contract a net benefit (profit margin) of 11717.78 lei on a turnover of 31135.4 and project costs totaling 19418.33 lei. We note that in this work the company has

worked on an average profit margin in total turnover rate of 25.27%.

## 5. Conclusions

From the case studies we could conclude that practically the Target Costing method is a very useful tool for the evaluation and cost management. We noticed that the established method steps can determine if a product is profitable or not, is profitable to produce and if it can cause the entity to produce it at the cost at which it can be sold.

The Target Costing method is useful for what effective costing means for the construction industry. Through the case study we can conclude that the method is applicable to the industry but is also appropriate as subject to the production market acceptable limits.

We consider to have achieved the main objective of this study, without claiming completeness by the variety and complexity of calculation cost optics in the literature.

We believe that any improvement in management in companies with activity in the sphere of industrial production is a driver of the economy. Any improvement in management in the economic sense- and not just financial-can only entail a saving of resources, which is an increasingly common trend in the global effort to continuously improve classification in ecological parameters specific to the ideal of green economy.

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