

Target Costing as a Modern System for Managing and Reducing Costs –A Case Study of The Sanitary Ceramics Unit “Ceramig” in Ghazaouat (Tlemcen)-

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Abstract :

This study aims to show the effectiveness of the target cost in controlling and reducing costs, through its application in the enterprise of sanitary ceramics “Ceramig” in Ghazaouat city.

The descriptive approach was relied upon to prepare the theoretical side of study, and the case study approach in the applied side through which it was proven that the target costing method is applicable in the sanitary ceramic unit “Ceramig”, the effectiveness of target costing in reducing the costs of the products of the institution under study has also been proven.

Keywords : target costing, traditional costing system, cost reduction, sanitary ceramic unit

JEL Classification Codes : M41

Introduction

The controversy raised by the traditional cost management method, which is dominated by the lack of accuracy in controlling and determining the cost of products led to the emergence of modern methods of calculating and managing costs.

Despite the emergence of several strategic techniques for managing costs, many economic firms still resort to the traditional system of calculating costs.

These enterprises in this case are under two threats, one of which is the high cost of some products due to the lack of accuracy in charging costs on these products.

The second is the high price selling these products is what makes the firm lose its share of customers, and its competitive position, and here it must reconsider the cost system on which it relies.

Target costing is one of the modern methods aimed at managing and reducing costs and developing products. Its signs began to appear on the horizon since the year 1960,

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specifically in Japanese enterprises, and then followed by the spread of this tool in a remarkable way.

It was adopted by many economic enterprises, especially since the firm that produces with quality and at the lowest cost, it will impose the good price, also it will have a significant market share of sales.

In light of the above, the problematic of the study lies in the following:

How can the sanitary ceramic enterprise “Ceramik” apply the target costing method to reduce the costs of its products?

Study hypotheses:

- Sanitary ceramic enterprise “ Ceramik” relies on a traditional inaccurate cost system to calculate its costs
- The target costing method can be applied in sanitary ceramic enterprise “Ceramik”.
- Applying the target costing technique at the Sanitary Ceramics unit “Ceramik” Contributes to reducing the costs of its products.

Aims of the study: This study aims to:

- Know the principles underlying the target costing technique.
- Discover the stages of applying the target cost method in economic enterprises.
- Know the cost method used by the Sanitary Ceramics enterprise “Ceramik”.
- Apply the target costing method in the unit under study “Ceramik” to reduce the costs of its products.

Study approach :

This study was relied on the descriptive approach in the theoretical side, by giving definitions of the target cost, its characteristics, and the stages of its application.

As for the practical side, it was relied on the case study approach, by applying the target costing method to two of the products of the enterprise under study “Ceramik”.

I.The theoretical framework of Target Costing

1. Definition of Target Costing

The emergence of the target cost concept dates back to Japan as the original origin of this concept, and it was used in 1963 by the “Toyota” company.

Then its use expanded and was considered one of the most important factors helping to enhance the competitive position of Japanese companies during the eighties. (Abdewahed & Dubai, p. 729)

Among the definitions presented for the Target Costing is that it is a process for negotiating client needs and the producers' capacity to design and offer products that best meet these demands and the firm's objectives. (Emre & Ayten , 2010, p. 3132)

It has also been defined as : “a structured approach that uses the expected selling price of a product under development and its desired margin to determine the cost at which the product must be manufactured” (Petru , Mamdouh, & Wagdi, 2014, p. 364)

Also Target Cost technique can be defined as : “An approach to management accounting for cost management, which aims to reduce product costs from the design and development stage of the product, as well as to provide a variety of high-quality products that satisfy the needs of customers.” (Ben barika & Bakroun, 2017, p. 158)

2. Principles of Target Costing

It includes six principles:

- **Price-led costing** : where the target profit margin is first reduced from the price at which a product can be sold in the market to arrive at the target cost.
- **Focus on the customer** : Creating products to meet customer demand and be sold at a price they are prepared to pay while attempting to identify the products that consumers want? How much they are willing to spend for a particular level of product quality and what features are significant to them.
- **Focus on product design**: specifying the raw materials, components, labor, equipment, and other production process components while developing a product for manufacturability.
- **Cross-functional teams**: It takes a team effort from market research, sales, design and production engineering, procurement, material handling, and cost management to achieve the target costing process.
- **Value Chain orientation** : When a new product's predicted cost exceeds the goal cost, find ways to reduce costs by identifying non-value added costs by mapping out the firm's full value chain.
- **Life cycle costing**: When calculating the LCC, all items are taken into account, and this includes the price of product conception and planning, manufacture, distribution, and customer service. (Ihenyen J, Teibowei, & Izein, 2022, pp. 03-04)

3. Characteristics of Target Costing:

Characteristics of the target costing method include: (Habshi & Toumi, 2020, p. 333)

- It is considered among the appropriate means to know the price that achieves the required profits;
- Activating innovation among all members of the firm to produce a product that has all the required characteristics;
- What distinguishes this technology is that it is applied in the early stages of the product, especially in the design and development stages;
- Stimulating the enterprise to compete and creating a competitive atmosphere in the future for it;
- A special control tool regarding product design decisions and the various techniques used by the enterprise during production;

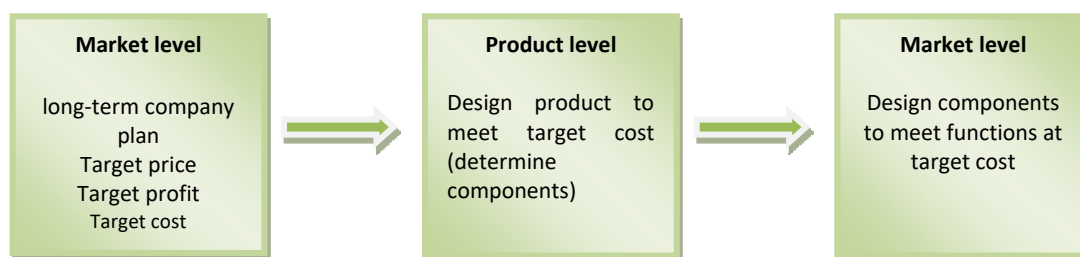
4. Objectives of Target Costing: The most important objectives of the target costing system can be summarized as follows: (Duygu, 2020, p. 1311)

- ✓ Making sure businesses, and costs in particular, are in line with the market
- ✓ Giving a product cost management support in the early stages so that costs can be controlled even during the design phase
- ✓ Assisting businesses in increasing their current market share
- ✓ Ensuring constant control over cost targets for a dynamic cost structure while maximizing profit margins
- ✓ Assisting in the development of the corporate strategy in line with market demands.

5. The stages of applying the target cost

The stages of applying target costing can be divided into three stages, as shown in the following figure:

Figure1: Basic Phases in target costing



Source: (Helmut, 2002, p. 03)

a) At the market level

As a first stage in the process of calculating the target cost, it leads to determining the target price for the product, and in most cases this price may be related to a new product or a re-evaluation of the price of an existing product.

In the case of the current product, its price is available in the market and it must only be reset in line with competitors' activities (Helmut, 2002, p. 03)

At this stage, the pressure facing the institution in the market is transferred to the designers and suppliers of the product, by subtracting a target profit margin from the target selling price to reach the cost of the product that the market allows, through the following relationship:

Allowable cost = Target selling price – Target profit margin. (Atwi, 2016, p. 111)

b) At the product level

Referring to the target (allowed) cost that was calculated in the first stage, it does not attach great importance to the capabilities of the organization or suppliers.

So work is done to estimate the cost of the product that can be achieved in view of the qualifications of the organization and in particular the technology it uses.

So the estimated cost is often Greater than the target cost, so work must be done to absorb the difference between the two costs, in other words, at this stage, the product is designed to comply with the target cost.

c) At the components level

The endeavor behind this stage is to create a kind of pressure on the suppliers of the institution to reduce the costs of the components they offer.

So that the institution can determine the price that it wants to pay for each component of the product, and these prices must be realistic (reasonable), and allow suppliers to achieve returns Relevance. (Atwi, 2017, pp. 124-125)

6. Theory on Target Costing adoption

Some of reasons for adoption of Target Costing back to these studies (tanaka 1993; Gagne and Discenza 995; Wijewardena and De Zoysa 1999) which propose that only enterprises that fall within process industry and firms that experience competition intensity, and a high environmental uncertainty can gain benefits from Target Costing adoption.

For instance, (Gagne and discenza 1995) argue that Target Costing is very important for assembly and related process businesses because design advancements gained in the initial process functions can be realized as lower costs in the following process operation.

According to (Dekker and Smidt 2003), Target Costing is advantageous in high environmental uncertainty because it can be successfully integrated with firms’ information processing needs to manage increasing product variability and specificity and because the capacity to develop a continuous stream of new products is a crucial requirement in managing increasing uncertainty. (Farshid & VG, 2017)

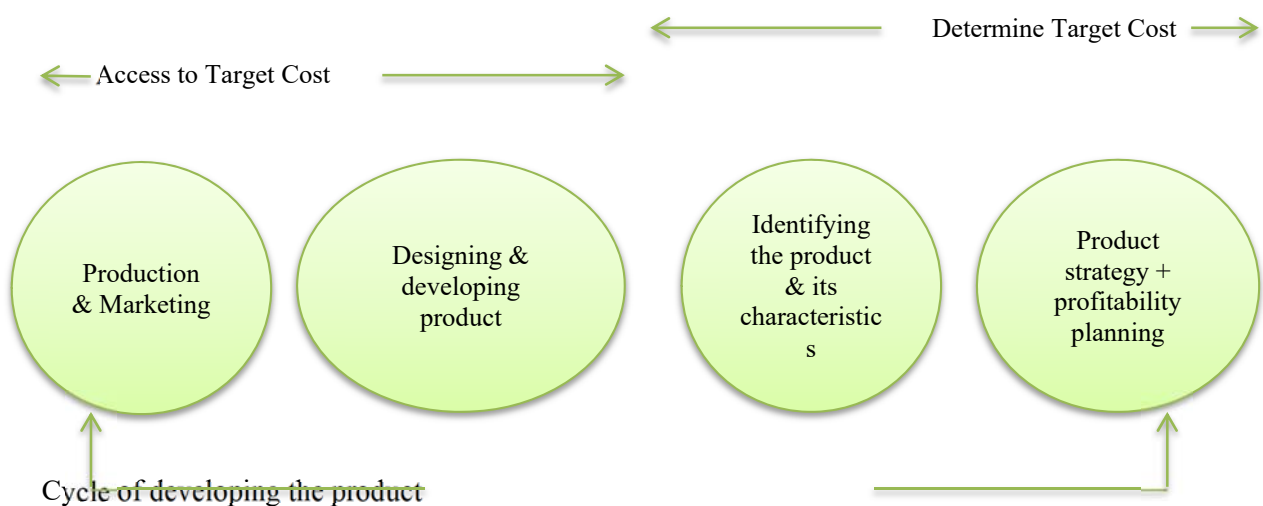
7. Efficiency of Target Costing technique in developing the products

The goal of applying the target costs is to reduce the costs of the products to the lowest possible level while maintaining the highest level of quality in order to give the company the best chance of competing effectively in light of open economies .

The process of creating new products is the target cost's most crucial objective, and it happens automatically as part of the cost-cutting process. (Ansari, Bell, & Cam, 1997)

The desired cost is also met by eliminating any excess efforts through the stages shown in the accompanying figure.

Figure2: Cycle of developing the product using Target Costing technique



Source: (Matarneh & EL-Dalabeeh, 2016)

8. The efficiency of target costing in managing and lowering costs

Given the fierce competition, one of the primary strategic cost management tools is the target costing system which aims to lower the total final costs of goods or services throughout the product life cycle.

As a result, the process of lowering costs is crucial for boosting profits in the short term.

To determine how the change would affect the organization, one should answer a number of questions before implementing a cost-cutting system. These inquiries are:

- Will there be a drop in customer service?

A negative response from management shouldn't result in an automatic rejection of planned cost reductions because this issue is crucial for revenues, customer happiness, and customer retention.

- Will it affect the customer's lifetime value?

Will the cost reduction result in a higher rate of client churn or a lower profit from their buyer, in other words? If so, the cost savings must be so significant that they clearly outweigh the anticipated client losses.

- Will it impact core functions ?

This is an important and critical question.

- Will target cost impact the quality of product ?

But first the current quality level and the customer expectations should be determined

- Will the employee's abilities and skills really be affected ?

The skills and abilities should be taken in consideration with an exact way

- Will there be any exit or leaving expenses (costs)?

Because there are a various of expenses must be recognized as a consequence of cost lowering. (Bouarar, 2014, pp. 08-09)

9. Limitations of Target Costing

Target Costing faces some problems which are as follows:

a- Blurring the concept of target cost and engineering concept value in practice for many economic units.

b- Great pressure on workers to reach the target cost within a specified timetable.

c- Poor ability of the company's management to predict the market price, which is the starting point for the target costing approach.

- d- Difficulty predicting new competitors in the future, in addition to existing competitors.
- e- Difficulty predicting the technological developments that will be in the future (Yoshikawa, Innes, Michell, & Tanaka, 1993)
- f- Since the design team might need to go through several design iterations before coming up with a low-cost product that fits the goal cost and margin criteria, the process' development may be extended significantly.

The most frequent instance of this is when the project manager is unwilling to end a design project when it cannot reach its costing objectives in a reasonable amount of time.

- g- If employees in one department feel they are being asked to contribute an unfairly big portion of the savings, a significant amount of required cost cutting may lead to finger-pointing throughout the organization.

For instance, the industrial staff won't be pleased if totally changing the production layout is necessary to achieve cost savings, but the purchase staff is not needed to achieve any cost savings through supplier negotiations. The project manager must possess good interpersonal and negotiation abilities to avoid this issue.

- h- There may be difficulty in consensus among design team members in order to select the most appropriate design. (www.accountingnotes.net)

II.A case study of the Sanitary Ceramic Unit “Ceramig”

1. Presenting the Sanitary Ceramic Unit “Ceramig”

The New Company for Sanitary Ceramics in Ghazaouet city (Ceramig) is a public company with a company capital estimated at 900,000,000 DZD. It was founded in 1978 and is specialized in the manufacture of various sanitary ceramic pieces, and its area is estimated at 180,000 square meters.²

It employs about 365 workers, operating on time(8×3)Non-stop for security, cleaners and oven workers, and in the normal system for the rest of the interests, and produces more than 31 types of complete products that are directed to marketing.

2. Procedure of study

when going to “Ceramig” unit, it turns out that the establishment produces 31 types of finished products destined for the market. We chose two products: Shower tray plus , and Kitchen sink STP.

And the personal interview was adopted as a tool for the study, and the interview was with the chief of the accounting department and his assistant.

He also provided us with documents and information about product costs , and they were approved as appendices to our study.

The various stages that the products go through during the production process were tracked , and also the method of calculating the costs applied within the institution.

A modern method has been selected to complete this study by calculating the target cost for each product of the unit.

3. The method used to calculate costs in “Ceramig” unit

The organization uses the total costing method, by charging each product for the total direct and indirect costs, and then calculating the final cost of the two products that have been selected.

Through the following table, we will show the method by which the unit cost is calculated within the organization for each of the products under study

Table 01 : Final unit cost of the enterprise's products

| | Unit(DZD) | |
|-------------------------|-------------------------|-------------------------|
| | Shower tray plus | Kitchen sink STP |
| Production costs | 3288.39 | 2838.03 |
| Marketing costs | 83.74 | 96.01 |
| Broken products | 910.10 | 608.38 |
| Total costs | 4282.23 | 3542.42 |

Source: Author (based on the documents and information provided by the chief of accounting department)

Discussion

Production costs were included directly without clarifying the share of each product in direct and indirect costs, because the enterprise uses the total costs method in allocating and calculating costs.

So production costs are charged directly to the product, as the type of costs (direct or indirect) is not taken into account.

As for the broken products costs, they were charged for each of the products on the basis of the number of good products destined for marketing.

4. Application of Target Costing in “Ceramig” unit

One of the modern cost management techniques represented in the target costing technique will be applied in the unit under study, and the method will be explained through the following model:

Figure3: Target costing implementation model



Source: Author

First: Determine the target selling price

Based on the information obtained from the chief of the accounting department through a personal interview, he provided the quantity of production that the institution targets in the future, as well as the target selling price for each of the products of the institution.

The following table shows both the quantity and the targeted selling price for the products under study:

Table02: Calculation of the unit target selling price

| | Shower tray plus | Kitchen sink STP |
|---|-------------------------|-------------------------|
| Target production quantity | 383 | 863 |
| Total target selling price(DZD) | 1650730 | 2805181.5 |
| target selling price(DZD) per unit | 4310 | 3250.5 |

Source: Author (based on the documents and information provided by the chief of accounting department)

The unit target selling price was determined based on the total quantity that the chief of the accounting department expects to be sold in the next month (February), after dividing the total sales price by the total target quantity.

As he sees that the demand is constantly increasing at a rate of 3 units out of each product from the products under study, and the estimates that he set are for a period of 12 months, and these estimates were close.

Every month, the demand increases by 3 units, or at best 4 units from the producers, and in this case this rate is repeated only 3 times (3 months), and therefore the quantity targeted by the firm is the same as the estimated quantity of products for the next month.

Customers' willingness to purchase at a unitary price ranging between 4290 DZD and 4350 DZD as the maximum price for "shower tray plus", and 3000 DZD and 3300 DZD for "Kitchen sink STP" was taken into consideration.

This method of determining the target selling price is somewhat good, as it takes into consideration the customers' needs in pricing, but on the other hand, taking into consideration the customers' willingness to set the price of the product may cause the enterprise to suffer losses, and also its competitive position may be threatened in the future.

$$\text{target selling price per unit} = \frac{\text{Total target selling price}}{\text{Target production quantity}}$$

Second: Determine the target profit margin

With regard to the profit margin that the institution aims to achieve, we were provided with the target profit rates through a personal interview with the chief of the finance and accounting department of the unit , and this is based on the estimates that he made, which were as shown in the following table:

Table03: Calculation of the target profit margin

| | Shower tray plus | Kitchen sink STP |
|--|-------------------------|-------------------------|
| Total target selling price (DZD) | 1650730 | 2805181.5 |
| Target production quantity | 383 | 863 |
| The target profit margin percentage of the selling price% | 19.5 | 15 |
| Total Target profit margin (DZD) | 321892.35 | 420777.225 |
| Target profit margin (DZD) per unit | 840.45 | 487.575 |

Source: Author (based on the documents and information provided by the chief of accounting department)

The target profit margin in the firm under study was determined based on:
the usual profit margin + compensation for the costs of advertising.

In this case, the firm aims to find a solution to compensate the costs of advertising, therefore, it aims to target a profit margin that achieves profit + compensation of these costs.

So the target profit margin was 19.5% for “Shower Tray plus” and 15% for “Kitchen Sink STP”

This method is somewhat rational, especially that the enterprise only want to cover the costs of advertising while keeping the same usual profit margin

However, even determining the profit margin, the market price must be taken into consideration so that the firm is not exposed to the risk of losing its market share due to an exaggerated increase in the selling price.

$$\text{The value of the Target profit margin per unit} = \frac{\text{Total profit margin target value}}{\text{Target production quantity}}$$

Third: Determine the target cost

After determining the target selling price and the target profit margin, the next step is determining the target cost, and it comes through the following relationship:

$$\text{Target cost} = \text{target selling price} - \text{target profit margin}$$

The following table shows the target cost for each product:

Table04: Calculation of Target cost

| | Unit(DZD) | |
|--------------------------------------|-------------------------|-------------------------|
| | Shower tray plus | Kitchen sink STP |
| Target selling price per unit | 4310 | 3250.5 |
| Target profit margin per unit | 840.45 | 487.575 |
| Target cost per unit | 3469.55 | 2762.925 |

Source: Author (based on the documents and information provided by the chief of accounting department)

To achieve an effective and rational target cost, the firm can determine the target selling price and the target profit margin on the basis of :

- Pricing based on competition: By conducting market research, managers can determine prices based on what their rivals are charging for comparable or identical goods.

- Pricing based on function: This strategy bases the target pricing on the various features and functions that the product performs. The product will then have value added to

it or taken away from it. By setting standards for rivals' products this will demonstrate whether or not the given price is a true depiction of the market .

- Financial returns as Return On Sales (ROS) and Return On Assets (ROA) which are often used to estimate profit, Moreover, Return On Equity (ROE) is frequently used to reach this goal. All of these methods have many benefits as the ease of calculating and understanding, and simple to communicate

Fourth: Comparing the target costing technique and the traditional method used to calculate costs in the unit “Ceramik”

After addressing each of the traditional and modern methods of calculating costs within the sanitary ceramic unit , a comparison of the two methods can be made in the following table:

Table05: Comparison between the traditional cost method and the target cost method.

Unit(DZD)

| Product name | Product cost | Traditional cost method | Target cost method | Gap |
|------------------|--------------|-------------------------|--------------------|---------|
| Shower tray plus | per unit | 4282.23 | 3469.55 | 812.68 |
| Kitchen sink STP | per unit | 3542.42 | 2762.925 | 779.495 |

Source: Author (based on the documents and information provided by the chief of accounting department)

For both of these two products the gap amounts to 812.68 DZD and 779.495 DZD, respectively, and here the enterprise must work to reduce this gap to reach the target cost.

Fifth: Reducing the gap to reach the target cost

Reducing the gap between the traditional cost of the institution and the target cost is by reviewing the various costs from the production stage to the goal of marketing.

As the financial and accounting department of the institution informed us that they can reduce the following costs:

Production costs: The “Ceramik” unit is negotiating with another supplier to obtain some raw materials at a lower price than it is now.

In addition to the possibility of reducing electricity costs by a percentage that can be said to be acceptable, and in general the establishment can reduce 10% maximum cost of production.

Marketing costs: the same interest (financial and accounting) sees that the organization can make the marketing cost of the product Shower tray plus Within 56.5 DZD instead of 83.74 DZD.

The product Kitchen sink STP To 75.5 DZD instead of 96.01 DZD, the institution will take over the transportation process with its own equipment after it was done by external means.

Broken products costs: The Department of Finance and Accounting considers that the non-occurrence of breaking in products is somewhat difficult, but these costs can be reduced by up to 50 percent with full care and care to achieve this goal.

After making these changes, it will make the cost of the previous two products lower than it was, and the following table shows the cost of the two products before and after the modification:

Table06: Cost before and after adjustment for Shower tray plus

| Shower tray plus | Unit(DZD) | |
|------------------------------------|-------------------------------|------------------------------|
| | Cost before adjustment | Cost after adjustment |
| production costs (per unit) | 3288.39 | 2959.551 |
| Marketing costs (per unit) | 83.74 | 56.5 |
| Broken products costs (per | 910.10 | 455.05 |
| Total cost (per unit) | 4282.23 | 3471.101 |

Source: Author (based on the documents and information provided by the chief of accounting department)

Through the table it is noted that the cost after the adjustment of the product Shower tray plus amounts to 3471.551 DZD and is very close to the target cost of 3469.55 DZD, where the difference is only 2.001 DZD.

This difference can be remedied because it is not considered a huge difference, by only making some little modifications and improvements to the rest of the costs, such as following the optimization technique (kaizen).

Table07: Cost before and after adjustment for kitchen sink STP

| | Unit (DZD) | |
|---|------------------------|-----------------------|
| Kitchen sink STP | Cost before adjustment | Cost after adjustment |
| production costs (per unit) | 2838.03 | 2554.227 |
| Marketing costs (per unit) | 96.01 | 75.5 |
| Broken products costs (per unit) | 608.38 | 304.19 |
| Total cost (per unit) | 3542.42 | 2933.917 |

Source: Author (based on the documents and information provided by the chief of accounting department)

Through the table it is noted that the cost of the product Kitchen sink STP after the adjustment, it amounted to 2933.917 DZD after it was equal to 3542.42 DZD.

It is somewhat close to the target cost of this product, which is 2762.925 DZD, but the difference still needs to be somewhat reduced, as it is estimated at 170.992 DZD.

Redressing this difference through the inclusion of modern techniques to control costs more accurately, such as the continuous improvement technology (Kaizen), or to be more careful to eliminate broken products costs or reduce them to lower percentages, as they do not exceed 10% as a maximum, and this is in the event that it is not possible to cancel it completely.

III. Conclusion

Modern cost management methods have added quality and contributed significantly to reducing costs for economic institutions.

It has been shown through this study that target costing contributes to reducing the costs of the enterprise, especially since all economic institutions are doing their best to control costs to continue their activities and maintain On the loyalty of its customers by setting the appropriate price for it and for this customer on the one hand, and to survive and strengthen its competitive position on the other hand.

Results

- The traditional cost system used by the Sanitary Ceramic Corporation “Ceramig” does not keep pace with current developments in the markets and is often inaccurate in determining product costs.

- The target costing system helps to determine the cost of products more accurately than is the case in the traditional costing system.

- The study proved that sanitary ceramic institution “Ceramik” can apply target costing method to reduce the cost of its products.

Recommendations : The study recommends:

- The need to reconsider the costing system used by the enterprise under study “Ceramik” It makes the cost of products inaccurate, which may expose the enterprise to a threat from competing institutions in the same field.

- Reconsidering the costs of broking products and working to control or cancel them at best.

- Paying attention to research and development, especially during the first production stages of the product, especially the design and development stages, and working to accurately control costs during these two stages.

- After the study proved the possibility of applying the target costing technique within the sanitary ceramic institution, we recommend the institution to do so.

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