

The extent of applying the target costing method in the Jordanian industry sector

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Abstract:

This study aims to recognize the extent of applying the target costing method in the Jordanian industry sector, and the suitability of the industrial environment for supporting such a modern concept, in addition to determining the obstacles that come in the way of applying target costing.

To achieve the goals of this study a questionnaire was designed and distributed to financial managers and financial department employees in 10 companies that are listed in the Amman Stock Exchange. 40 questionnaires were distributed and 30 were collected and were featured in this study which makes for a 75% participation rate. The results of the study showed that companies in Jordan are aware about the concept of target costing however, the companies fail to utilize target costing in a modern, scientific way furthermore this study found that there are obstacles that come in the way of proper implementation of the concept, researchers have also provided many recommendations, some of the most important ones are listed as follows: The need to apply target costing in a scientifically efficient manner, establishing a specialized team to help achieve the goals of target costing, working on having a better environment for the proper operation of target costing and removing the obstacles that might hinder the operation of target costing.

Key Words: Target Costing, Industry sector

Introduction:

In the shadow of revolutionary industrial and technological advancements, as well as the rising competitiveness on both the local and global level. Industrial companies and business organizations are raising the bar in creativity in delivering products and services to be able to compete in today's market, and due to not being able to increase selling price of some products the focus shifted on lowering the cost of production which involves using a target costing method. (Al Hadad, 2011)

The concept of target costing is considered to be one of the most important aspects of reducing cost of production. It can be explained as a method that analyses the needs of consumers and then sets an appropriate price for the product or service offered.

The target costing method first came about in 1973 in Japan for developing some American inputs; it was later used to give Japanese products an edge when it came to pricing. It the helped revolutionize the entire concept of costing and setting a selling price. (Al-Ishamwi, P329, 2013)

According to the Japanese Accounting Association the target costing method can be defined as a method for managing profits by determining the quality of the product produced according steps taken during production as well as the needs of the consumers. (Al Refai, 2007)

Theoretical Background:

Target costing is a complete concept that covers cost effectiveness and profitability; therefore it helps managements with pricing and marketing. As a result this study comes to answer the following question: to what extent is target costing used in the chemical industries in Jordan? This question branches to other questions which are as follows:

- What level of awareness and understanding currently exists about target costing in the Jordanian chemical industrial sector?
- To what degree is the appropriate work environment provided for using the target costing method in the Jordanian chemical industrial sector?

- What are the difficulties and the obstacles that hinder the usage of the target costing method in the Jordanian chemical industrial sector?
- Is there an appropriate accounting system currently used for implementing the target costing method in the Jordanian chemical industrial sector?

Significance of the study:

The concept of target costing is being used in developed countries to enhance product specifications, as well as lowering the cost of production of the product or service offered.

To keep up with the rapid growth of foreign industries, we should gain knowledge about what industrial companies in developed countries have done to reach the level of success they currently stand on. Therefore, the significance of the study stems from the magnitude of benefits that arises from utilizing target costing in the Jordanian chemical industrial sector, which will increase profitability and improve the quality of products produced, which in turn will reflect positively on the national economy by reducing importation as well as decreasing exportation due to having lower costing products.

Objectives of the study:

This study seeks to achieve several objectives, and they are summed up as follows:

1. The introduction of target costing and recognizing it as one of the most important modern methods of cost management.
2. Identifying the suitability of the environment in the Jordanian chemical industrial sector for applying target costing.
3. Recognizing the obstacles that get in the way of implementing target costing in the Jordanian chemical industrial sector.
4. Identifying the level of providing an adequate for implementing target costing in the Jordanian chemical industrial sector.

To achieve these objectives this paper will work on introducing, defining and point out the specific proprieties of an accounting system that will support the use of target costing.

Hypotheses of the study:

The first hypothesis: awareness about target costing is insufficient for it to be used in the Jordanian chemical industrial sector.

The second hypothesis: the proper environment for implementing target costing does not exist in the Jordanian chemical industrial sector.

The third hypothesis: there are no obstacles that may get in the way of implementing target costing in the Jordanian chemical industrial sector.

The fourth hypothesis: a proper accounting system for utilizing target costing in the Jordanian chemical industrial sector does not exist.

Methodology of the study:

This study is based on the use of descriptive analytical approach by collecting data about the subject of study. The study is based on all the information collected using the questionnaires prepared for this study.

Previous Studies:

- 1- The Hadad study 2013 titled the usage of target costing in industrial companies operating in Gaza strip: the study aimed to recognize the concept of target costing, its benefits and the reasons it is successful in Japan, in addition the study also looked at the extent of applying the principle in industrial companies operating in the Gaza strip, and the suitability of applying target costing in the Palestinian environment.

The study found that companies in the Gaza strip do not apply the concept of target costing correctly; in addition the study found that the environment and accounting system used in the strip is suitable for applying the concept.

The researchers also had the following recommendations:

The implementation of target costing should be carried out using a scientific method, in addition to having a multi-tasking team that works to improve the working environment in companies in Gaza as well as working

to remove obstacles that might come in the way of implementing target costing.

- 2- Al Matarneh's field study in 2008 titled "The requirements and constraints of applying of the concept of target costing in the public shareholding industrial companies in Jordan.

The study aimed to identify the areas of the use for target costing for the Jordanian industrial companies and the availability of the necessary elements for this method of costing to succeed, in addition to identifying the restraints that come in the way of the full implementation of this concept.

Some of the study's most important results are mentioned below:

Not using target costing in the operation, installation and delivery of retail products, in addition to not using the concept in planning, designing, research and development. The study also found numerous elements available in Jordanian industrial companies that can be used to implant the concept effectively like having a competitive market.

Some of the recommendations of the study are summed up below:

It's vital to have industrial companies in Jordan to apply target costing, in addition to improving the environment to be more suitable for implementing target costing, as well as carrying out more research on how target costing leads to increasing profits by decreasing the cost of production.

- 3- Hashim's study in 2003 titled "Evaluating the effect of target costing on increasing profits in an advanced business environment.

The study aimed to provide an overall view of target costing in successfully reducing cost of production in the modern business environment. Some of the most important results of the study are summed up below:

The changes that have occurred in the modern business environment showed a deficit in cost systems, target costing however emerged as a high quality method for lowering the overall costs of an institution.

- 4- Borgernas and fridh's study in 2003 titled "the application and usage of target costing in Swedish industrial companies"

This study as the title suggests measured the usage of target costing in Swedish industrial companies. The study showed that only 16% of the study population (81 companies) actually implemented the concept of target costing. Fear of change came in the way of having target costing

implemented in the rest of these companies, which led researchers to recommend their counterparts conducting additional research to prove the effectiveness of target costing.

The concept of target costing

Target costing first emerged in Japan, and it was defined by the Japanese Accounting Association as procedure to monitor profits by making decisions on the finished product's quality, selling price and terms of distribution, which enables a company to form strategies to accomplish these decisions in the planning phase of production, it also helps the company develop their products to best suit their clients. (Keun-Hyo Took, 2005, P6).

Target costing according to (Tahami, 2013, P57) is defined as a modern entry to cost management that is used in the planning and production stages, that differs from old methods for cost control as it works to basically lower the cost of production.

(Al Matarneh, 2008, P281) defines Target costing as an action that works to lower the cost of production in a new product's life cycle while marinating the customers' quality needs in the finished product.

The general definition of target costing can be defined as a method for controlling the cost of production and it is based on six key principles which are as follows: (Swendon, & et al., 2006, p281)

- Determining the targeted selling price in accordance to the cost of production.
- Making clients' needs the focal point during production by attaining to quality, price, estimated time of delivery, and the value presented in the product to the client.
- Having teams from different departments to produce and develop products
- Reducing the cost of the life cycle of the product including but not limited to the following aspects: cost of distribution, operation costs, maintenance and the cost of disposal of a fully depreciated product.
- Concentrating on the design phase of production as it is vital for finding the actual cost of production before production.

- Paying close attention to the supply chain beginning with distributors and ending with the consumers.

Motives for adopting the concept of target costing:

There are a number of deficiencies in traditional cost management systems which led researchers to look for a better alternative, some of those deficiencies are listed below:

- Supervisors of old cost management systems used to lower the cost of production without having to think about target consumers.
- Traditional methods reduced the selling price in line with the market's priority of reducing the price first.
- The costs that have been loaded on the product are the main determinant in determining the selling price, without considering the market price first.

In the modern cost systems numerous things are taken into consideration before setting a selling price like the suggestions of suppliers as well as the recommendations of consumers.

These methods determine the selling price by adding the profit margin to the cost of production (Hasan, 2003, P29).

It should be noted that target costing is applied in the design phase of product, developed cost management method "kaizen" concentrates on cost management during the production stage as opposed to target costing, however, the "kaizen" method is not concerned by individual products, but focuses instead on the entire production process to make it more effective. (Abdul Dayem, 2001, P470).

Therefore, the application of target costing is extremely important to maintain the profitability of products, especially when the organization is facing increasing competitive pressures or was planning to make future cuts on the price of a product. (Ken, et al, 2005, P118).

Obstacles facing target costing:

Despite the importance of target costing, the actual implementation of the concept faces lots of obstacles that administrators need to be aware of prior to the implementation of it (Ezat, 2008, P36):

- Organizational Conflict, occurs when different departments pursue different goals.

- Target costing requires regulatory changes across different functional areas.
- Target costing requires some resources to be allocated for product improvement and development; however, this requirement is optional because it causes confusion as the resources input will not result in a clear tangible output.
- Target costing activities are time consuming while product development should be carried out as quickly as possible; balancing the two creates added pressure on the responsible team.
- System administrators and managers tend to hang on to old systems because of fear of change and lack of accepting new responsibilities.
- Target costing requires more experience than it does knowledge, therefore companies should learn from all previous experiences
- Cost of production and return on investment must both be studied prior to introducing target costing
- Changes in the market should be monitored at all times because the concept of target costing was developed to reduce the cost of production according to the customer's needs and demands.
- Many ideas and cost cutting opportunities will result by applying target costing, although some of these ideas may not be economically feasible.
- Target costing can be hard to apply in some industries like pharmaceutical industries, where components are governed by other factors like medical and legal.

Supporting elements for applying target costing

The satisfaction of managements is not sufficient evidence of the successful application of target costing; instead managements should have a strong belief in the necessity of target costing for the survival of their company in contemporary markets. A questionnaire that had 135 companies from the Tokyo stock exchange that used target costing listed the top 10

reason for the success of target costing which are as follows: (Keun-hyo took ,2005, P8)

- 1- Using a new system for accounting information.
- 2- Having a good system for estimating costs based on historical cost of production as well as the market's price trends.
- 3- The complete support of senior management
- 4- Providing individuals with practical training to get familiarized with target costing.
- 5- Encouraging team work and establishing teams from all departments of the company
- 6- Developing good relationships with suppliers
- 7- Sharing information with all departments of a company despite the fact that some departments do not require knowledge of that information.
- 8- Having open channels of communication on preminent basis between the company and the suppliers, the company and its consumers as well as the different departments within the same company to facilitate the submission of proposals, ideas and allow access to new information.
- 9- Allowing creativity and innovation by sharing some power between managements and work teams.
- 10- Evaluating all activities, business and individuals based on the extent of their contribution to the company's profit strategy.

Advantages of using target costing:

There are multiple advantages for using target costing; some of the most important advantages are listed below:

- 1- Target costing contributes to achieving the company's profit goals (Al Nashaar, 2005, P403)
- 2- Target costing can be used as a tool for managing costs and profit together (Ken, et al., 2005, p271).
- 3- Target costing leads to having products that better suit the needs of consumers for a lower production price (Ken, et al., 2005, p271).
- 4- Using target costing enables the aspects of cost and pricing to be a common factor between design engineers, and other external

- parties such as suppliers and even customers. (Ken, et al., 2005, p272).
- 5- Using target costing aids in stimulating the capacity of suppliers to innovate for the benefit of the organization. (Zamel, 2008, p 57).
 - 6- Target costing works to reduce costs before they occur during the design stage because managing costs becomes more difficult after that. (Zamel, 2008, p 57)
 - 7- The target costing method helps achieve many cost cuts by managing the combination of the value chain activities of the entity (Hassan 0.2003, p 30).
 - 8- The responsibilities of accountants are not limited to just measuring and reporting business activities but they extend to participating with teams in design, and development of products (Hassan, 2003, P30).
 - 9- Target costing encourages team work as it brings individuals from different departments to work on one common goal (Keunhyo took, 2005, P10).

Elements of target costing:

1- Planning and designing the product

The planning and designing phase in a product's life cycle is considered the most important phase according to target costing because if carried out efficiently it translate to a smoother process of marketing, and sales. In addition, 80% of cost reduction happens during the planning and designing phase of a product. (Al Ishmawi, 2013, P92)

The planning and designing phase of a product entails identifying the following sub-variables:

- The estimated cost of the initial design, which is recognized through the technical and financial characteristics of preliminary specifications of the product by analyzing the capabilities and internal inputs of the organization. This will be symbolized by (X_1)
- Targeted profit margin, which is determined by looking into the amount of money invested, elements of the financing structure, interest rates on loans in the state, rates of return on

alternative opportunities for investments, prices of intermediate products, the market, and the competitiveness of the organization, this will be denoted by (X_2)

- Targeted selling price, this price has to be market appropriate, relatively close to competitor prices and most importantly the price has to be accepted by consumers. This will be denoted by (X_3)
- Cost allowed, which has to allow good satisfactory products to be produced as well as a good return on an investment (X_4)

Cost allowed can be measured using the following equation:

$$X_4 = X_3 - X_2$$

- Target costs, (X_5) which must not exceed the estimated cost (X_1) and not be less than cost allowed (X_4). In other words it is the value between cost allowed and the estimated cost, this relationship is demonstrated below:

$$X_1 - X_4 = X_5$$

Target costs can equal the Costs allowed In the case of the adoption of the Organization's system of incentives, however, the absence of such system reduces the gap between estimated and allowed costs creating access to targeted costs in addition cost and value engineering can also be used as a tool for reducing defective production, and as a tool that limits the waste of raw materials (Al Ishmawi, 2013, P97).

- The standard cost of a product, which reflects the reality of the conditions of operation, production activities and other factors. The symbol (X_6) will be used for this element

In light of the standard cost a the product, target costing can be introduced in an alternative way by comparing the standard cost of a product (X_6) to the costs allowed (X_4), were if the standard cost of a product (X_6) was less than the costs allowed (X_4), (X_7) emerged as the equation for Target costs, on the contrary a study must be conducted using value & cost engineering to analyze costs to ultimately realize the company's targeted cost.

2- Focus on the consumer.

The consumer is the main reason behind target costing; therefore analyzing the costs should be done in the context of the consumer's requirements towards elements of the product, its quality, its price and time of production, on the other hand the three elements (Quality, Price and Time) should be studied in the light an acceptable competitive selling price that satisfies the needs and desires of the consumer (Al Ishmawi, 2013, P99)

3- The full cooperation of members of the value chain

To achieve the targeted cost the principle of participation must be developed among members of the value chain during the product's life cycle, this chain includes the various departments of the organization, customer representatives, suppliers, maintenance channels based outside of the organization, and any other parties that can contribute in either the production or sales stages. (Al Ishmawi, 2013, P101)

4- The analysis of competitors

The analysis of competitors is one of the most important elements of target costing as it achieves a competitive advantage for the organization through excellence in pricing.

The analysis of competitors is important because it identifies advantages offered by competitors starting with retail products and ending with the production and planning for it (Al Ishmawi, 2013, P102)

Statistical Analysis:

The data in this research was handled by using the Statistical Package for the Social Sciences, SPSS; the researcher used 0.05 as the significance level, and then determined the calculated value and the tabular value in testing hypotheses using descriptive statistical methods.

Processing methods and statistical analysis of the data:

- 1- Descriptive Statistical Measures: were used to describe the characteristics of the study sample, percentages and frequencies were used to analyze the study sample's answers to the questionnaire, and to determine the relative importance of the answers arithmetic means and standard deviations were used
- 2- One Sample T-test was used to test the hypotheses of the study
- 3- Cronbach's alpha was used for assessing the reliability of scales

Methods of data collection:

- Primary sources: collected using a questionnaire that has been prepared specifically for the subject of the study.
- Secondary sources: collected from books other research papers and the internet.

The specifically designed questionnaire was the main tool used for raw data collection in this study, in addition to using other research materials and the internet for data collection. The questionnaire's paragraphs have been formulated on a Likert scale as shown in Table (1)

Table 1

| 1 | 2 | 3 | 4 | 5 |
|-------------------|----------|---------|-------|----------------|
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |

Reliability and stability testing:

Cronbach's alpha was used for assessing the reliability and stability of the study, The Cronbach's alpha coefficient for all paragraphs was (78.47%) which is considered an excellent percentage as it is higher than the acceptable percentage which is (60%). Table (2) displays these results in detail

Table 2

| Hypothesis | Number of Paragraphs | Cronbach's coefficient |
|---------------|----------------------|------------------------|
| First | 10 | 87.39% |
| Second | 10 | 71.64% |
| Third | 10 | 94.3% |
| Fourth | 10 | 78.42% |
| Overall index | 40 | 78.47% |

Study population and the study sample:

The study population consisted of (10) companies based in Amman, 40 questioners were distributed, 30 were collected which accounts for a 75% representation of the population of the study.

Displaying the results:

The following portions were classified with accordance to their importance to the arithmetic mean.

Maximum – Minimum = $5-1 = 4$, and since there are three degrees of approval ($4/3 = 1.33$) the distribution of the degrees is as follows:

- $1 + 1.33 = 2.33$ Low measure
 $2.34 + 1.33 = 3.67$ acceptable measure
 $3.68 + 1.33 = 5$ High measure

Table 3

| | |
|---------------|--------------------|
| (1 - 2.33) | Low measure |
| (2.34 – 3.67) | acceptable measure |
| (3.68 – 5.00) | High measure |

Paragraphs of the first hypothesis:

The arithmetic mean and standard deviation were extracted to analyze the study sample's response to paragraphs of the first hypothesis as shown in table 4

(Table 4)

| No. | Paragraph | Mean | Standard Deviation | Importance measure | Rank |
|---------------|--|--------|--------------------|--------------------|------|
| 1 | The company is interested in reducing costs and follows the newest methods to do so | 4.3000 | 0.59596 | High | 4 |
| 2 | The company allows employees to contribute with ideas for overall improvement | 4.4000 | 0.72397 | High | 1 |
| 3 | The "kaizen" concept reduces costs and increases profitability | 4.3333 | 0.71116 | High | 2 |
| 4 | The company is interested in continuously using "kaizen" | 4.3000 | 0.53498 | High | 3 |
| 5 | Employees have "kaizen" training sessions | 3.8667 | 0.89955 | High | 8 |
| 6 | The "kaizen" concept is used to improve the quality of a product | 4.1000 | 0.71197 | High | 6 |
| 7 | The "kaizen" concept is used for better time management in the company | 4.0333 | 0.85029 | High | 7 |
| 8 | The company is constantly working to improve as well as reduce the cost of its operations | 3.8333 | 0.83391 | High | 9 |
| 9 | The company persuades employees to generate beneficial ideas that can also help reduce some of the costs | 3.8333 | 1.01992 | High | 10 |
| 10 | The company is constantly improving the design and production phases in its products' life cycle | 4.1000 | 0.71197 | High | 5 |
| Overall index | | 4.110 | 0.5280 | High | |

It is noted that the study sample had positive responses regarding the first hypothesis as it is evident by looking at the average arithmetic mean (4.110). The second paragraph was the most important one according to responders as it had an arithmetic mean of 4.4000 and a standard deviation of 0.72397, on the other hand the ninth paragraph was the least important according to responders as it had an arithmetic mean of 3.8333 and a standard deviation of 1.01992.

Paragraphs of the second hypothesis:

The 10 paragraphs of the second hypothesis are outlined in detail in table 5.

Table (5)

| No. | Paragraph | Mean | Standard Deviation | Importance measure | Rank |
|---------------|---|--------|--------------------|--------------------|------|
| 1 | The business environment for the organized industrial sector plays a huge role in applying target costing | 4.4000 | 0.62146 | High | 4 |
| 2 | Intense competition is a fundamental in applying target costing | 4.5333 | 0.57135 | High | 1 |
| 3 | Assembly industries have the most suitable environment for applying target costing | 4.4333 | 0.56832 | High | 3 |
| 4 | The industrial environment in Jordan features multiplicity of products | 4.3333 | 0.71116 | High | 5 |
| 5 | The industrial environment in Jordan is filled with creativity and innovation which best suits the application of target costing | 4.4333 | 0.56832 | High | 2 |
| 6 | One of the characteristics of the industrial environment in Jordan is the interest of consumers in the proprieties and quality of the product | 4.1333 | 0.68145 | High | 6 |
| 7 | One of the factors requiring the application of target costing is the rapid change of consumer needs | 4.0333 | 0.75886 | High | 9 |
| 8 | The close attention paid by companies to the quality of the product is a huge factor for applying target costing | 4.1000 | 0.75886 | High | 7 |
| 9 | One of the needs for target costing to be applied is that consumers already know what to look forward to in future products | 3.9333 | 0.78492 | High | 10 |
| 10 | Technological advancements ease the use of target costing | 4.0333 | 0.80872 | High | 8 |
| Overall index | | 4.2360 | 0.3634 | High | |

It is noted that the study sample had positive responses regarding the second hypothesis as it is evident by looking at the average arithmetic mean (4.2360). The second paragraph was the most important one according to responders as it had an arithmetic mean of 4.5333 and a standard deviation of 0.57135, on the other hand the ninth paragraph was the least important according to responders as it had an arithmetic mean of 3.9333 and a standard deviation of 0.78492.

Paragraphs of the third hypothesis:

The 10 paragraphs of the second hypothesis are outlined in detail in table 6.

Table (6)

| No. | Paragraph | Mean | Standard Deviation | Importance measure | Rank |
|---------------|--|--------|--------------------|--------------------|------|
| 1 | There isn't enough knowledge in the company on implementing target costing | 2.7000 | 1.39333 | Acceptable | 6 |
| 2 | Data collection needed for target costing requires a lot of labor and is time consuming | 2.5333 | 1.35782 | Acceptable | 8 |
| 3 | Implementing target costing is too expensive and its expenses outweighs its benefits | 2.5333 | 1.30604 | Acceptable | 10 |
| 4 | There is a fear of changing to a new system in the company | 2.5333 | 1.25212 | Acceptable | 9 |
| 5 | There is a lack of cooperation between suppliers and the company | 2.7667 | 1.35655 | Acceptable | 3 |
| 6 | There is a fluctuation in the prices of raw materials used. | 2.9000 | 1.24152 | Acceptable | 1 |
| 7 | The lack of competition requiring the application of target costing | 2.7333 | 1.31131 | Acceptable | 4 |
| 8 | There is an unavailability of the necessary elements for applying target costing | 2.5667 | 1.38174 | Acceptable | 7 |
| 9 | Cost management suffers from the unavailability of clear information that affects the use of target costing. | 2.7000 | 1.26355 | Acceptable | 5 |
| 10 | The unavailability of proper training facilities for employees to learn about target costing | 2.8667 | 0.97320 | Acceptable | 2 |
| Overall index | | 2.683 | 1.0478 | Acceptable | |

It is noted that the study sample had negative responses regarding the third hypothesis as it is evident by looking at the average arithmetic mean

(2.683) which is lower than the acceptable mean (3.00). The sixth paragraph was the most important one according to responders as it had an arithmetic mean of 2.9000 and a standard deviation of 1.24125, on the other hand the third paragraph was the least important according to responders as it had an arithmetic mean of 2.5333 and a standard deviation of 1.30604.

Paragraphs of the fourth hypothesis:

The 10 paragraphs of the second hypothesis are outlined in detail in table 7

Table (7)

| No. | Paragraph | Mean | Standard Deviation | Importance measure | Rank |
|---------------|---|--------|--------------------|--------------------|------|
| 1 | The product cost is determined by the employees of the company | 2.9667 | 0.85029 | Acceptable | 10 |
| 2 | The price of the product is set with the cooperation of suppliers | 3.8000 | 0.71438 | High | 5 |
| 3 | The price of a product is set with the cooperation of big clients | 4.2000 | 0.71438 | High | 2 |
| 4 | The cost of production is set with guidance from board members | 4.2333 | 0.56832 | High | 1 |
| 5 | The cost of a product is set with consultation from customer representatives | 3.8000 | 0.84690 | High | 4 |
| 6 | Competitors are analyzed to determine the causes of price difference | 3.4667 | 0.89955 | Acceptable | 9 |
| 7 | Competitors are analyzed to learn how to they limit their cost of production | 3.4667 | 0.86037 | Acceptable | 8 |
| 8 | The value of competitor's products is analyzed | 3.7667 | 0.81720 | High | 6 |
| 9 | Competitor's products are technologically analyzed | 4.0000 | 0.69481 | High | 3 |
| 10 | Constant field studies are conducted to find the company's rank among competitors | 3.7000 | 0.70221 | High | 7 |
| Overall index | | 3.740 | 0.4507 | High | |

It is noted that the study sample had positive responses regarding the fourth hypothesis as it is evident by looking at the average arithmetic mean (3.740) (with the exception of the 1st paragraph as it had a low mean). The fourth paragraph was the most important one according to responders as it had an arithmetic mean of 4.2333 and a standard deviation of 0.56832, on

the other hand the first paragraph was the least important according to responders as it had an arithmetic mean of 2.9667 and a standard deviation of 0.85029.

Testing hypotheses

The first hypothesis:

HO: awareness about target costing is insufficient for it to be used in the Jordanian chemical industrial sector

HA: awareness about target costing is sufficient for it to be used in the Jordanian chemical industrial sector

Table (8) 1st hypothesis test results

| Calculated T value | Tabular T value | SIG T | Result of nihilism hypothesis |
|--------------------|-----------------|-------|-------------------------------|
| 11.513 | 2.0452 | 0.0 | Refusal |

By using ONE SAMPLE T- TEST it is found that the calculated value of T (11.513) is larger than the Tabular T value (2.0452). And since the decision rule is accepting the nihilistic hypothesis (HO) if the calculated T value was less than the Tabular T value, and not accepting the nihilistic hypothesis (HO) if the calculated T value was larger than the Tabular T value the alternative hypothesis (Ha) is accepted, so in this case it is true that awareness about target costing is sufficient for it to be used in the Jordanian chemical industrial sector.

The second hypothesis:

HO: the proper environment for implementing target costing does not exist in the Jordanian chemical industrial sector.

HA: the proper environment for implementing target costing does exist in the Jordanian chemical industrial sector.

Table (9) 2nd hypothesis test results

| Calculated T value | Tabular T value | SIG T | Result of nihilism hypothesis |
|--------------------|-----------------|-------|-------------------------------|
| 18.639 | 2.0452 | 0.0 | Refusal |

By using ONE SAMPLE T- TEST it is found that the calculated value of T (18.639) is larger than the Tabular T value (2.0452). And since the decision rule is accepting the nihilistic hypothesis (HO) if the calculated T value was less than the Tabular T value, and not accepting the nihilistic hypothesis (HO) if the calculated T value was larger than the Tabular T

value the alternative hypothesis (Ha) is accepted, so in this case it is true that the proper environment for implementing target costing does exist in the Jordanian chemical industrial sector.

The third hypothesis:

HO: there are no obstacles that may get in the way of implementing target costing in the Jordanian chemical industrial sector

HA: there are obstacles that may get in the way of implementing target costing in the Jordanian chemical industrial sector

Table (10) 3rd hypothesis test results

| Calculated T value | Tabular T value | SIG T | Result of nihilism hypothesis |
|--------------------|-----------------|-------|-------------------------------|
| -1.655 | -2.0452 | 0.109 | Acceptance |

By using ONE SAMPLE T- TEST it is found that the calculated value of T (-1.655) is larger than the Tabular T value (-2.0452). And since the decision rule is accepting the nihilistic hypothesis (HO) if the calculated T value was less than the Tabular T value, and not accepting the nihilistic hypothesis (HO) if the calculated T value was larger than the Tabular T value the alternative hypothesis (HA) is accepted, which in this case means that there are obstacles that may get in the way of implementing target costing in the Jordanian chemical industrial sector.

The fourth hypothesis:

HO: a proper accounting system for utilizing target costing in the Jordanian chemical industrial sector does not exist

HA: a proper accounting system for utilizing target costing in the Jordanian chemical industrial sector does exist

Table (11) 4th hypothesis test results

| Calculated T value | Tabular T value | SIG T | Result of nihilism hypothesis |
|--------------------|-----------------|-------|-------------------------------|
| 8.992 | 2.0452 | 0.000 | Refusal |

By using ONE SAMPLE T- TEST it is found that the calculated value of T (8.992) is larger than the Tabular T value (2.0452). And since the decision rule is accepting the nihilistic hypothesis (HO) if the calculated T value was less than the Tabular T value, and not accepting the nihilistic hypothesis (HO) if the calculated T value was larger than the Tabular T value the alternative hypothesis (HA) is accepted, which in this case means that there is a proper accounting system for utilizing target costing in the Jordanian chemical industrial sector

Results and Recommendations:

By analyzing the answers to the questionnaires and testing the hypotheses results of this study can be summarized as follows:

- 1- The field study showed that there is a complete understanding of the concept of target costing.
- 2- “The company allows employees to contribute with ideas for overall improvement” this was the first ranking paragraph of the first hypothesis
- 3- “The company persuades employees to generate beneficial ideas that can also help reduce some of the costs” came in last place in the paragraph rankings of the first hypothesis.
- 4- The proper environment for applying the concept of target costing is available in the Jordanian chemical industrial sector.
- 5- “Intense competition is a fundamental in applying target costing” as it came in as the highest ranking paragraph of the second hypothesis.
- 6- “One of the needs for target costing to be applied is that consumers already know what to look forward to in future products” came in last place in the paragraph ranking of the second hypothesis.
- 7- There are obstacles that may get in the way of implementing target costing in the Jordanian chemical industrial sector.
- 8- The proper elements are available for using target costing in the Jordanian chemical industry sector.
- 9- The cost of production is set with guidance from board members came in first in the paragraph ranking of the fourth hypothesis.
- 10- There is a weakness in having the product cost determined by the employees of the company as the regarding paragraph came in the last place in the 4th hypothesis.

Recommendations:

- 1- It is vital for the Jordanian chemical industry sector to use the concept of target costing for the benefits and advantages it brings in the shadow of globalization and the revolutionary use of information technology. It is also important that companies train their employees on using the concept.
- 2- There should be a need to work on activating the elements necessary for applying target costing; however, elements that are currently available should be activated as an initial step to implementing the concept in addition to working to remove some of the obstacles it faces.
- 3- Having regular training sessions for employees to attend and learn about the proper application and implementation of target costing
- 4- Management encourage employees to put forward ideas that might to help improve and reduce the costs of the company

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