

The Role of Using Modern Managerial Accounting Techniques in Reducing Production Costs in the Listed Industrial Companies on the Amman Stock Exchange

Belal Nayef Turki Shatnawi, Thaer Abu Taber

Jadara University

Belal_shatnawi@hotmail.com

thaer@jadara.edu.jo

Abstract This study aimed to identify the role of the use of modern administrative techniques in managerial accounting, which is the target cost technology and cost technology based on activities and quality cost technology, value engineering technology in reducing production costs in Jordanian industrial companies listed on the Amman Stock Exchange, as these technologies demonstrated its high ability to reduce costs in industrial companies and provide the necessary information to the higher departments to take appropriate decisions, which guaranteed these companies competing in the market and continuity. The study community consisted of the 56 public joint-stock industrial companies listed on the Amman Stock Exchange as it is in the year 2020, and to achieve the objectives of the study, the researcher developed the study instrument represented in preparing the questionnaire and distributed it to the sample of the study which represented the financial managers, production managers, marketing managers, cost managers and accountants in the public joint-stock industrial companies listed on the Amman Stock Exchange, to obtain the results of the study, the researcher used the descriptive statistical method to study the characteristics of respondents using frequencies and percentages through the use of the Statistical Packages Program for Social and Economic Sciences (SPSS). Among the most important findings of the researchers, there are differences related to statistical significance in the role of using modern accounting techniques in reducing production costs in public joint-stock industrial companies provided on the Amman Stock Exchange, and that public joint-stock industrial companies seek to reduce production costs at an early stage of production. Based on the results of this study, the researcher recommended several recommendations, the most important of which is the continuous development of general industrial companies in the Amman Stock Exchange for modern managerial accounting technique.

Keywords: *Modern Managerial Accounting, Production Costs, Techniques, Industrial Companies*

1. Introduction

The process of manufacturing the product and presenting it to customers in a way that meets their desires and needs with the best quality and the lowest possible price lies in reducing the costs of the product. Therefore, the problem faced by companies is to reduce costs in a way that achieves a balance between customer desire and the lowest possible price, while ensuring the preservation of the desired quality. In recent times, there has been a lot of talk about modern management accounting techniques, which include the target cost technology, the activity-based

costing technique, the total quality cost technique and the value engineering technique, which has met with wide and great success at the global level. As these techniques are characterized by a systematic methodology for solving problems, whether they are administrative, engineering, or manufacturing, they are scientifically studied techniques. And it has become effectively used by many international and local companies, and its success is due to it facilitating the companies' decision-making and helping them to obtain the largest material return in line with the objectives and tasks required. This leads to improving the competitive position of the company and achieving the goals of reducing costs while ensuring continuity [1].

The study problem was summarized by the following question: Is there a role for using modern management accounting techniques in reducing production costs in public joint-stock companies listed on the Amman Stock Exchange?

In terms of the importance of the study, we find from the scientific point of view that the study showed modern methods in management accounting that help companies reduce production costs without affecting the quality of the product, to achieve a balance between customer desire and reduce the price of the product to reach the lowest possible cost. To find suitable solutions to reduce and improve the efficiency of production costs in industrial companies with the least sacrifice of resources and capabilities available through modern management accounting techniques to ensure their continuity and survival in the market.

The Study methodology: Industrial establishments suffer from the increasing increase in production costs, which reflects negatively on the profit margin achieved. Therefore, it was necessary to search for modern methods and means that help these establishments reduce production costs without affecting the quality of the product, to achieve a balance between customer desires and reduce the price of the product to reach the lowest possible cost. Therefore, this study aims to explain the role of using modern management accounting techniques (target cost, activity-based costs, quality costs and value engineering) in reducing production costs in public joint-stock companies listed on the Amman Stock Exchange?

Study hypotheses: The main hypothesis: There is no statistically significant role at the level of significance ($\alpha \leq 0.05$) for using modern management accounting techniques in reducing production costs in the public joint-stock companies listed on the Amman Stock Exchange.

- There is no statistically significant role at the level of significance ($\alpha \leq 0.05$) for using the target cost technique in reducing production costs in the public joint-stock industrial companies listed on the Amman Stock Exchange.

- There is no statistically significant role at the level of significance ($\alpha \leq 0.05$) for the use of activity-based costing technology in reducing production costs in the public joint-stock industrial companies listed on the Amman Stock Exchange.

- There is no statistically significant role at the level of significance ($\alpha 0.05$) for the use of TQC technology in reducing production costs in the public joint-stock industrial companies listed on the Amman Stock Exchange.

- There is no statistically significant role at the level of significance ($\alpha \leq 0.05$) for the use of value engineering technology in reducing production costs in the public joint-stock industrial companies listed on the Amman Stock Exchange.

Previous studies and theoretical framework: Management accounting is "a system based on collecting and classifying data, analyzing it and processing it in the form of useful information provided to the management [2]. And it is carried out around all aspects of activity to be used in planning, control and performance evaluation processes to contribute to making administrative decisions that lead to achieving the company's goals. In this study, the two researchers shed light on the most important modern management accounting techniques, while trying to link these technologies, and this is also what Pradhan, Swan and Dash (2018) indicated in their study that these technologies have met with great success in advanced industrial countries while trying to find out the role of using these technologies in the Hashemite Kingdom of Jordan in reducing costs. Among the most prominent of these technologies that have been discussed is the target cost technology, which is known as "an instrument concerned with reducing costs, during the stages of the product life cycle starting from the stage of research and development and then the design activities and then production even marketing, distribution and sale.

finally, providing after-sales service such as maintenance, to reach the stage of disposal of the product, it is a good instrument for pricing, especially in markets characterized by a high degree of competition, as it allows a critical analysis of the probabilities of the success of the product before allocating productive resources to it. On the other hand, it is necessary to refer here to the characteristics of this target cost [3].

2. Method

Applying this method to small projects is considered more successful than applying it to large projects. As it works to reduce the cost as much as possible, and thus it is considered one of the most effective modern management accounting methods for making rational management decisions. The application of this method requires that the departments of the facility cooperate with each other and intensify their efforts to be applied as appropriate. On the other hand, it is necessary to refer to the target cost objectives that can be limited to achieving profit and achieving a competitive advantage in the long and short term alike, by reducing the cost of production to the lowest possible level and controlling it before its occurrence instead of waiting until a late stage, while preserving The desired quality.

Then work on developing new products and maintaining their functional capacity while maintaining customer confidence. This allows the target cost method to

deliver products to the market in a timely manner, as well as maintaining long-term management objectives in light of technological and economic changes, as well as changing customer tastes, and then working on a balance between price and cost in order to ensure reaching the target profits and achieving the competitive dimensions of the product. We do not neglect here to talk about the advantages of the target cost method, as the use of the target cost method has many advantages and benefits, including working to improve product quality, reduce costs to the maximum extent possible, and develop new products while avoiding compromising product quality, and motivating suppliers to Innovation [4]. However, this may face a set of obstacles in applying the target cost method, the most important of which is privacy, the lack of a clear conceptual framework capable of applying modern methods, and the difficulty of knowing the basic elements for applying this approach and the current cost estimate process is considered [5]. Or the expected cost is not a clear process and the inability to continue maintaining the target cost plan in light of the rapid economic and technological development and then the increase in the number of unemployment. But in general, there are two main factors that affect the target cost method the first is concerned with market conditions (continuous and fierce competition, the necessity to purchase competitors' products to work on analyzing them, the nature of customers) and the other concerns the management strategy (a service-specific strategy. Time limitation is considered an urgent necessity to achieve cost [6].

The most important principles adopted for applying the target cost method are that the price leads to the cost (target cost = target selling price - desired profit margin), and that the customer is the goal (focus on the customer) Focusing on design, a team with different functions and the cost of the product life (pre-production cost, cost of production phase, cost of after-sales service stage and disposal of the product), and the process of dividing the product life cycle helps provide valuable information to departments that can control and manage cost in Each of these stages [7]. The researchers believe that the target cost will achieve the desired results if its application passes through three main stages, which the researchers explained in Figure (1)

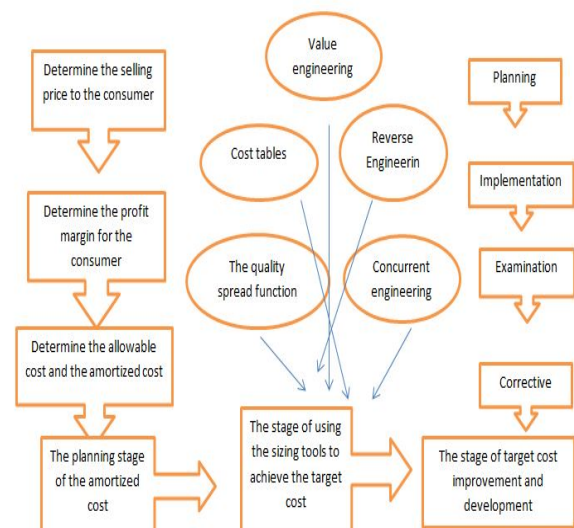


Figure 1: stages for target cost

As for the second technique of the techniques used by management to reduce costs, it is the activity-based costing technique (ABC), where the concept of activities-based costs can be clarified as one of the modern accounting techniques and systems, which is based on distinguishing the activities that cause costs by allocating those costs to activities and then allocating the cost of the activity to the products or services, in order to determine the indirect costs more precisely and to charge them for the products or services assigned to them [8].

3. Results

Here it is necessary to refer to the most important objectives and features of the costing method on the basis of activities, which is the fair and accurate distribution of indirect costs among the products, then evaluate the reasons for the high costs and the accurate and clear crystallization of the activities that caused the cost, and determine the share of the product from each activity and then work to reduce costs. Periodic profit and evaluation of commodity stocks [9]. Accordingly, the importance of applying the activity-based costing method emerges in identifying the activities that shape the cost, determining the areas of savings or extravagance in this cost, then determining the activities that add value and excluding the worthless activities and working on The user is a resource entirely. And then disaggregate these resources according to the level of each activity within the establishment, then work to determine the responsibility of individuals towards the methods used to them, which leads to adequacy of performance by directing the method of control more effectively. And finally, providing accurate cost information. Accordingly, the most feasible product is put on the market, and the products that do not lead to the required profitability are excluded, and here we will find that the disadvantages of applying the costing method on the basis of multiple activities, including the difficulty of implementing the costing system on the basis of activities and some activities are not distributed on the cost despite its association with the products [10].

Also, the high cost of implementation and the difficulty of accessing information due to the complexity of procedures and the difficulty of identifying cost drivers or the general driver of products. To reduce these defects, the process of applying costing technology on the basis of activities may pass through several stages, which we summarize in Figure (2), which the researchers prepared, and although these stages may differ from one researcher to another, their content is the same.

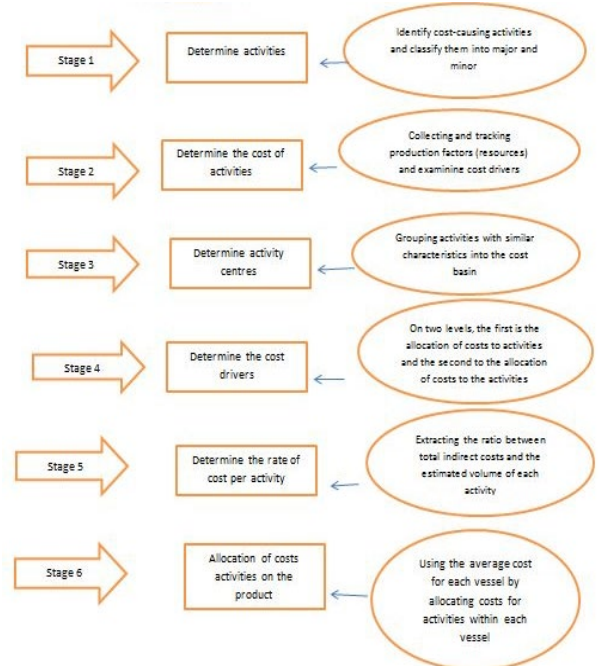


Figure 2: high cost of implementation and the difficulty of accessing information

The two researchers believe that the most important of these stages is the first stage, through which activities are identified through grouping and analyzing them, as at this stage these activities are classified and excluded from them that are not feasible, and thus it is known whether the application of this system is feasible or not, and this matter requires the existence of A highly qualified team of employees working in the departments involved in indirect costs. It is important to point out that the application of the two previous techniques will pay off if it is followed by the application of two other techniques, the first of which is the Total Quality Costs (TQC) technique, whose concept (Sarah, 2017) is defined as “the costs that occur due to preventing a decrease in quality due to the non-conformity of products to the quality standards set by Before the entity interested in quality. Total quality costs are usually measured using financial and non-financial measurement indicators as follows [11], and we start with financial indicators: which are expressed through the relative relationship, which is divided into:

a. Labor index: expressed in the following equation (for total quality costs) / (direct work hours)

B. Cost index: expressed in the following equation: (total quality costs) / (direct and indirect manufacturing costs)

C- Sales Index: It is expressed in the following equation: (for total quality costs) / (total sales)

D- Production index: It is expressed in the following equation: (for total quality costs) / (final production costs)

Here we point out that the use of these financial indicators is usually for the purposes of comparing the levels of quality or between the departments of the facility itself, and the positive relationship between quality and its cost whenever these ratios decrease, but if these ratios increase, this indicates a negative relationship between quality and its costs. As for the non-financial indicators, they are:

a. The index of good quality expressed in the following formula: $\% 100 \times (\text{product in good quality}) / (\text{final production quantity})$

b. Poor Quality Index: It is expressed in the following relationship: $100\% \times (\text{product in poor quality}) / (\text{final production quantity})$

We must limit the technical elements of total quality costs, as the two researchers approved the division they prepared in Figure (3)

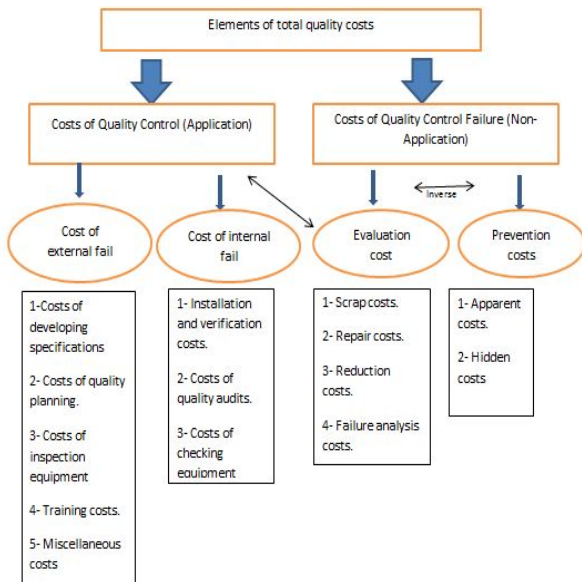


Figure 3: the division

Here, we point out that the more adjustment costs are controlled, the costs of internal and external failure will be greatly reduced, since the costs of internal failure can be avoided if the production is carried out with the required quality. This, in turn, leads us to reduce the costs of external failure, which will ensure customer satisfaction and loyalty to the products of the company itself. Here we come to the latest technology that the researchers dealt with, which is the Value Engineering (VE) technique, which is “a technique aimed at raising the sales value of products by analyzing the primary and secondary functions of these products in order to reduce the cost by excluding unnecessary functions with the need to achieve a balance between quality and reduction. The cost to maintain the quality of the design and not prejudice the basic specifications of the product” [12]

In order to achieve the purpose of this technology, it is necessary to explain the most important goals that value engineering seeks to achieve, which is to reduce costs by excluding jobs that do not add value and focus on the customer by identifying the customer’s needs and working to achieve and then improving the utilization of available resources and assisting the facility in completing the production process. At high speed and working to change the method of work and the instruments used to accomplish the tasks [13]. The most important characteristics of the value engineering method is the work on merging the separate functions with a single functional vessel and the involvement of employees in the decision-making process instead of resorting to only diversification and multiplicity in the specifications of each production process,

improvement of the general performance of products, abandonment of the sequence and sequence of steps, and integration in the arrangement of production steps according to the nature What is the process itself, reducing external contacts for each production process, and combining centralization and decentralization in the production process, Attawa and [14-20].

This leads us to the fact that there are a set of obstacles to applying the value engineering method, the most important of which is the resistance from some implementers of the value engineering method, the lack of procedural plans, the presence of a bad impression on some officials and managers about the value engineering technique and their fear, the absence of a mechanism for applying the value engineering technique, and the small number of qualified people in Their application ateur [15]

As there should be a specialist in value engineering heading the work team, the lack of available information and the weakness of the resources needed to implement this technology, and the difficulty of coordination for the purposes of its application, given the lack of an adequate database of costs and the lack of clear and specific standards capable of choosing the projects that would apply the technology. Value engineering. We must stand at the most important elements of measuring the method of value engineering, which both [16] limited to job performance, quality and total cost, and therefore it is necessary to find a relationship capable of linking these elements by raising the job performance and improving the required quality and working to reduce the cost. Colledge as much as possible, and this relationship can be clarified according to the following equation:

$$\text{Value Index} = \frac{(\text{Quality} + \text{Functional Performance})}{(\text{Total Cost})}$$

To explain the reason for the success of applying the value engineering method, it can be said that there are a set of factors that lead to this, including strategy, commitment and conviction of senior management, communication, employee empowerment and information technology [17, 21]. As with the rest of the aforementioned techniques, the success of preparing and applying this method is complete if it passes through a set of stages, which the researchers have included in Figure (4):

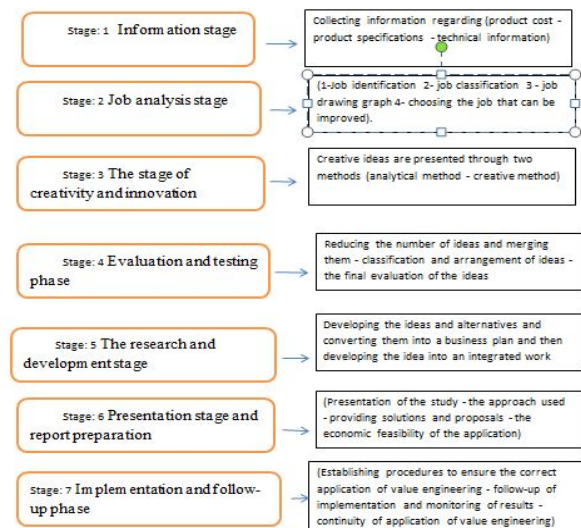


Figure 4: the success of preparing and applying method

Before we finish talking about management accounting techniques, we must explain its relationship to costs. Cost accounting is defined as “the amount of sacrifice in order to obtain the good or service. The sacrifice can be measured by the cash spent, transferred property, services performed, etc.” Cost accounting aims to calculate the cost of each of the elements used in the production process, and thus it calculates the costs of the good that was produced or the service that was provided, and this helps the management to determine the appropriate price for selling this good or service that will be determined by the establishment in line with the required profit margin. Cost accounting helps establishments in the process of controlling operational processes and controlling costs.

On the other hand, the outputs of cost accounting systems from financial reports are considered as raw materials for management accounting, but this does not negate their great importance as raw materials, as these systems are considered as systems. It is vital when preparing financial and administrative accounting reports, as these reports serve to formulate the entity's objectives, formulate its financial policies, and plan for the future. Me her.

In terms of the subject of management accounting techniques and their relationship to reducing costs, we will find that the process of reducing production costs by using these technologies is one of the best methods, whether these technologies are used separately or some of them are applied together or even all of them are applied simultaneously, as the use of target cost technology a major role in reducing production costs by determining the target price and the target profit margin and paying great attention in the product design stage, since the costs that the facility incurs at this stage is equal to 80% of the total production costs.

Then the allowable cost is determined, which reflects the market conditions and requirements. After that, instruments are used to reduce the possible cost to achieve the possible cost reduction. On the other hand, the activity-based costing technique works to reduce production costs by distinguishing the activities that cause costs. And that by allocating those costs to activities and then allocating the cost of the activity to the products or services in order to determine the indirect costs more precisely and to load them for the products or services assigned to them, which allows the management to redistribute resources in a fair and better manner, then we find that the Total Quality Costs technique which are important in controlling cost, time and quality. Thus, finding weaknesses and identifying the necessary methods to improve product quality, satisfy customers' desires and achieve their loyalty to the company's products, by reducing costs associated with reducing the production of inferior products that do not conform to the specifications and standards specified in advance.

Finally, we find the technology of value engineering that is based on reducing production costs by excluding jobs that do not add value and strengthening jobs that add value for the purposes of enhancing their activities, identifying the needs of the customer and working to redesign products to achieve his desires as the customer is not ready to pay costs that do not add any value to him . It is worth noting here that through these combined techniques, the researchers see that separate jobs are merged into one

functional container, which leads to easy distribution of workloads, effective control of performance, and elimination of errors resulting from the multiplicity of departments and jobs. This is what achieves the competitive advantage in both the long and short term and the ability to develop products while preserving the desired characteristics in order to ensure the establishments applying this method for long-term sustainability, which is what the top management aims at in any economic establishment.

Study methodology: This study is one of the field studies in which the researcher followed a descriptive and analytical method with the aim of identifying the role of management accounting techniques in reducing product cost in industrial companies listed on the Amman Stock Exchange. Then studying the non-quantitative descriptive variables and analyzing them through the questionnaire into quantifiable quantitative variables, with the aim of reaching an accurate selection of hypotheses, and thus explaining the results and recommendations of the study.

Study population and sample: The study population consists of workers in Jordanian industrial companies under the following names: (financial manager, cost manager, marketing manager, sales manager, production manager, accountant). The researcher distributed several questionnaires to these companies and distributed through (250) questionnaires. For workers within the aforementioned job titles. (192) questionnaires were retrieved, of which the rate was 76.8%. After reviewing the questionnaires, it was found that there are (6) questionnaires that are not valid for statistical analysis. Accordingly, the study sample consisted of (186) employees and employees in Jordanian industrial companies, the percentage of which was 74.4% of the study sample.

Testing Study instrument: To ensure validity and reliability, the researcher measured what should be measured and reached a high level of internal validity in the study, and to know the ability of the study instrument to measure the variables of this study and to test its validity as a instrument for collecting data and information. The researcher subjected it to several tests, the most important of which are:

- The apparent validity test: where the questionnaire was presented to a group of Jordanian university professors with experience and specialization in the subject of the study, totaling (5) arbitrators, and after reviewing it, they indicated some valuable suggestions and recommendations about its phrase, as the two researchers made the amendments referred to by the arbitrators.

- The reliability of the study instrument: the researcher developed a questionnaire to cover all the study variables and the hypotheses on which it was based, as the (Cronbach Alpha) coefficient was extracted for the internal consistency of all areas of the study instrument to test the extent of dependence on it as shown in Table (1) as the values of the coefficients The reliability of the dimensions and fields of study ranged between (0.818-0.870), all of which are high values, acceptable for the purposes of application, as most studies indicated that the acceptance rate of the reliability coefficient is (0.70), [16].

Table 1: the reliability coefficient (Cronbach Alpha) and the Pearson correlation coefficient for the study instrument

domain	Cronbach Alpha
Implementing the target costing system in the company	0.818
Implement a costing system based on activities in the company	0.820
Implement a comprehensive quality costing system	0.826
Implement a value engineering system	0.865
The instrument as a whole	0.870

Normal distribution test: Table (2) shows the results of the normal distribution and it is clear that all the variables of the study follow the normal distribution, by looking at the Shapiro-Wilk test values and the value of the level of

significance associated with them. And since all the values of the significance level in the table are greater than (0.05), which means that the values of the variables in the current study follow the normal distribution.

Table (2) Normal distribution test using Shapiro-Wilk test

Domain	Test value	Sig level	result
Implementing the target costing system in the company	0.86	0.45	Normal
Implement a costing system based on activities in the company	1.24	0.09	Normal
Implement a comprehensive quality costing system	0.78	0.58	Normal
Implement a value engineering system	1.37	0.06	Normal
The instrument as a whole	0.80	0.55	Normal

Results of study questions and hypothesis testing: Results related to the first sub-hypothesis: There is no statistically significant role at the significance level ($\alpha \leq 0.05$) for the use of the target cost technique in reducing production costs in the public joint-stock companies listed on the Amman Stock Exchange. In order to verify the validity of the first sub-hypothesis, the arithmetic averages and standard deviations were extracted for the answers of

the study sample individuals from the paragraphs of the first field of the fields of study, which aims to identify the role of using the targeted cost technology in reducing production costs in the industrial public joint-stock companies listed on the Amman Stock Exchange, and the One test was applied. Sample T-test on the field as a whole, presenting the results on the role of using target costing technology in reducing costs Table (3)

Table 3. role of using target costing technology in reducing costs

Hypothesis	Mean	Value degree	T	D.F	sig	result
The role of using targeted costing technology in reducing costs in the public joint-stock industrial companies listed on the Amman Stock Exchange	3.18	medium	3.14	185	0.00	rejected

The role of using targeted costing technology in reducing costs in the public joint-stock industrial companies listed on the Amman Stock Exchange

It is noticed from Table No. (3) that there are statistically significant differences between the arithmetic mean of the approval of the sample members of the role of using the target cost technique in reducing production costs in public joint-stock companies listed on the Amman Stock Exchange to the level corresponding to the standard mark of the five-point grading (3.00), where the value was (T) (3.14) and with significance level (0.00); This indicates that it is a statistically significant value at the level of significance ($\alpha \leq 0.05$), which means that there is a statistical

significance for the role of using target cost technology in reducing production costs in public joint-stock companies listed on the Amman Stock Exchange. Consequently, the first sub-hypothesis is rejected, which states "There is no statistically significant role at the significance level ($\alpha \leq 0.05$) for using the target cost technique in reducing production costs in the public joint-stock industrial companies listed on the Amman Stock Exchange."

Results related to the second sub-hypothesis: There is no statistically significant role at the significance level ($\alpha \leq 0.05$) for the use of the activity-based costing technique in reducing production costs in public joint-stock companies listed on the Amman Stock Exchange.

Table No. (4) -test on the role of using the costing technology based on activities in reducing production costs

Hypothesis	Mean	Value degree	T	D.F	sig	result
The role of using activity-based costing technology in reducing costs in public joint-stock industrial companies listed on the Amman Stock Exchange.	3.22	medium	3.73	185	0.00	rejected

The role of using activity-based costing technology in reducing costs in public joint-stock industrial companies listed on the Amman Stock Exchange.

It is noted from Table No. (4) that there are statistically significant differences between the arithmetic average of the sample respondents' approval of the role of using the activity-based costing technique in reducing production costs in joint-stock industrial companies listed on the Amman Stock Exchange to the level corresponding to the standard mark of the five-point grading (3.00) Where the value of (T) was (3.73) and with a significant level of (0.00); Which indicates that it is a statistically significant value at the level of significance ($\alpha \leq 0.05$), which means that there is a statistical importance of using the costing technique on the basis of activities in reducing production

costs in the public joint-stock companies listed on the Amman Stock Exchange, and thus rejects the second sub-hypothesis which It states, "There is no statistically significant role at the level of significance ($\alpha \leq 0.05$) for the use of the activity-based costing technique in reducing production costs in public joint-stock companies listed on the Amman Stock Exchange."

Results related to the third sub-hypothesis test: There is no statistically significant role at the significance level ($\alpha \leq 0.05$) in using the Total Quality Costs technique in reducing production costs in public joint-stock companies listed on the Amman Stock Exchange. The following is the results of applying the One Sample T-test on the role of using TQC technology in reducing costs.

Table 5 T-test on the role of using TQC technology in reducing costs

Hypothesis	Mean	Value degree	T	D.F	sig	result
The role of using TQC technology in reducing costs in the public joint-stock industrial companies listed on the Amman Stock Exchange	3.43	medium	7.276	185	0.00	rejected

It is noted from Table No. (5) that there are statistically significant differences between the arithmetic mean of the sample respondents' approval of the role of using the Total Quality Cost Technology (TQC) technique in reducing production costs in public joint-stock companies listed on the Amman Stock Exchange to the level corresponding to the standard mark of the five-point grading (3.00). The value of (T) was (7.276) and with a level of significance (0.00), which indicates that it is a statistically significant value at the level of significance ($\alpha \leq 0.05$), which means that there is a statistical significance in using the TQC technique in reducing production costs in the joint-stock industrial companies. The public listed on the Amman Stock Exchange, and therefore rejects the third sub-

hypothesis, which states "There is no statistically significant role at the significance level ($\alpha \leq 0.05$) for using the TQC technique to reduce production costs in the public joint-stock industrial companies listed on the Amman Stock Exchange.

Results related to the fourth sub-hypothesis test: There is no statistically significant role at the significance level ($\alpha \leq 0.05$) for the use of value chain technology (value engineering) in reducing production costs in public joint-stock companies listed on the Amman Stock Exchange. The following is the results of applying the One Sample T-test on the role of using value engineering technology in reducing costs

Table (6) applying the One Sample T-test on the role of using value engineering technology in reducing costs

Hypothesis	Mean	Value degree	T	D.F	sig	result
The use of value chain technology (value engineering) reduces costs in the Jordanian industrial companies listed on the Amman Stock Exchange	3.47	medium	10.272	185	0.00	rejected

The use of value chain technology (value engineering) reduces costs in the Jordanian industrial companies listed on the Amman Stock Exchange

It is noticed from Table No. (8) that there are statistically significant differences between the arithmetic average of the sample members' consent to use the value chain technology (value engineering) to reduce production costs in public joint-stock companies listed on the Amman Stock Exchange to the level corresponding to the standard mark. For a pentagonal scale (3.00), where the value of (T) was (10.272) and with a significance level (0.00); This indicates that it is a statistically significant value at the level of significance ($\alpha \leq 0.05$), which means that there is a statistical significance in the use of value engineering technology to reduce production costs in public joint-stock

companies listed on the Amman Stock Exchange. Consequently, the fourth sub-hypothesis is rejected, which states "There is no statistically significant role at the significance level ($\alpha \leq 0.05$) in using the value engineering technique in reducing production costs in the public joint-stock companies listed on the Amman Stock Exchange."

Results related to testing the main hypothesis: There is no statistically significant role at the significance level ($\alpha \leq 0.05$) in the use of modern management accounting techniques in reducing production costs in public joint-stock companies listed on the Amman Stock Exchange. In order to verify the validity of the main hypothesis and recognize the role of using modern management accounting techniques as a whole in reducing production costs in the industrial public joint-stock companies listed on the

Amman Stock Exchange, the researcher applied the One Sample T-Test to the instrument as a whole,

Table No. (9). Sample T-Test to the instrument as a whole

Hypothesis	Mean	Value degree	T	D.F	sig	result
The role of using the integration of management accounting techniques in reducing costs in the Jordanian industrial companies listed on the Amman Stock Exchange	3.33	medium	6.430	185	0.00	reject

The role of using the integration of management accounting techniques in reducing costs in the Jordanian industrial companies listed on the Amman Stock Exchange

It is noticed from Table No. (9) that there are statistically significant differences between the arithmetic average of the sample members' approval of the role of using modern management accounting techniques as a whole in reducing production costs in public joint-stock companies listed on the Amman Stock Exchange to the level corresponding to the standard mark of the five-point grading (3.00) Where the value of (T) was (6.430) and with a significant level of (0.00); Which indicates that it is a statistically significant value at the level of significance ($\alpha \leq 0.05$), which means that there is a statistical significance for the role of using modern management accounting techniques as a whole in reducing production costs in the public shareholding industrial companies listed on the Amman Stock Exchange. Thus, it rejects the main hypothesis which It states, "There is no statistically significant role at the level of significance ($\alpha \leq 0.05$) in using modern management accounting techniques in reducing production costs in public joint-stock companies listed on the Amman Stock Exchange.

4. Conclusion

Public shareholding industrial companies seek to reduce production costs at an early stage of production, especially in the design and planning stage, and this is what [12, 20] agree upon.

- There are statistically significant differences in the role of using target cost technology in reducing production costs in public joint-stock industrial companies listed on the Amman Stock Exchange, which means that there is a statistical importance of the role of using target cost technology in reducing production in public joint-stock industrial companies. Listed on the Amman Stock Exchange.

- Public shareholding industrial companies listed on the Amman Stock Exchange are keenly seeking to provide the necessary information on production activities and cost drivers, which has an impact on reducing costs and thus increasing profits and distributions, and this is in line with the findings of [18]

- There are statistically significant differences in the role of using activity-based cost technology in reducing production costs in public joint-stock companies listed on the Amman Stock Exchange. This means that there is a statistical significance for the role of using the costing technology based on activities in reducing production in the public shareholding industrial companies listed on the Amman Stock Exchange. As the public shareholding

industrial companies listed on the Amman Stock Exchange are interested in the supply operations in a large proportion so that the company guarantees that it will not stop working due to the lack of resources necessary for the production process, and this is consistent with some parts in the [20] study

- There are statistically significant differences in the role of using TQC technology in reducing production costs in public joint-stock companies listed on the Amman Stock Exchange. This means that there is a statistical significance for the role of using TQC technology in reducing production in public joint-stock companies, and this result is in agreement with the results of [16].

- Public shareholding industrial companies listed on the Amman Stock Exchange are very interested in products that are similar to certain parts in the production process in order to reduce production costs. To achieve the desired goal, the study indicated that companies are interested, to a moderate degree, in using the available economic resources with high efficiency

- There are statistically significant differences in the role of using value engineering technology in reducing production costs in public joint-stock companies listed on the Amman Stock Exchange. This means that there is a statistical significance for the role of using value engineering technology in reducing production in public joint-stock industrial companies listed on the Amman Stock Exchange.

- There are statistically significant differences in the role of using modern management accounting techniques in reducing production costs in public shareholding industrial companies listed on the Amman Stock Exchange, due to the role of using modern management accounting techniques in reducing production in public joint-stock industrial companies listed on the Amman Stock Exchange.

Recommendations:

- The serious work of the responsible departments in the industrial public joint-stock companies listed on the Amman Stock Exchange to apply modern management accounting techniques because they have a role in reducing production costs to a minimum.

Holding training courses for workers in the Jordanian industrial companies listed on the Amman Stock Exchange on the use of modern management accounting techniques in a systematic and scientific manner, making them aware of its great importance in reducing costs and improving pricing efficiency.

- Public shareholding industrial companies listed on the Amman Stock Exchange should undertake the work of a special section that cares and supervises the application of modern management accounting techniques, and activates the role of this section in controlling costs reduction.

- Continuous development in the industrial public joint-stock companies listed on the Amman Stock Exchange of modern management accounting techniques due to their great importance in reducing production costs to the maximum extent possible while maintaining the required quality.

- Increasing the awareness of the administrations of the industrial public joint-stock companies listed on the Amman Stock Exchange on attracting competencies in the field of managerial accounting and cost accounting.

- The industrial public joint-stock companies listed on the Amman Stock Exchange must keep pace with industrial and technical developments so that modern management accounting techniques are used and developed in a manner that meets the departments' needs of information and data appropriate to make rational administrative decisions.

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