A Framework for Integration between the Target Cost and Standard Costs' Approaches to Achieve Continuous Improvement
(A Field Study)

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Abstract

Machine The research aims to confirm that the standard costing system is in an urgent need to be developed due to the many criticisms leveled against in light of the modern manufacturing environment and explore the integration relationship between standard costs and target cost under the approach of continuous improvement. This aim can be achieved through identifying the theoretical framework for standard costing, its role in accounting systems for entities; the role of target costing in updating the standard costing system, and finally the integration between the two approaches to achieve the continuous improvement. This research involves both theoretical and experimental analysis. It begins with a review of the available literature which provides a basis for standard costing and target costing approaches, hence, suggesting a framework for the integration relationship between standard costs and target cost. A Survey was the main instrument for the experimental investigation. The survey was used to gather data from the selected sample to explore the integration relationship between standard costs and target cost under the approach of continuous improvement. The field study was carried out through a questionnaire distributed in two categories (academic staff in some Egyptian universities and accountant in the Egyptian business organizations).

Keywords: Standard Costing, Target Costing, Continuous Improvement, Integrated Costing.

1 Introduction

In recent times, recent technological changes have led to the entities' need to strengthen their competitiveness, by providing services with characteristics and specifications acceptable to customers, which are not less important than competitors' services at lower prices than them, by identifying the strengths and weaknesses of competitors, so that they can be the best.

The accounting system is considered one of the most important systems that produce the information needed for decision-making, and managerial accounting represents the most important sub-system of the accounting system because it plays a prominent role in providing the information necessary for management to take various administrative decisions. As a result of the continuous technological development in operating processes, it has led to the failure to continue with traditional management accounting for the performance of entities under modern manufacturing systems. Therefore, companies must apply advanced management accounting approaches.

Therefore, entities' have strived to use modern approaches that enable them to reduce costs and improve competitiveness, such as the target cost method, the activity-based costing approach, the value engineering approach, the just in time production approach, the continuous improvement, and this is what has called many researchers to call for the outdated cost systems. Therefore, the modern manufacturing environment has created new environmental variables that lead to the obsolescence of the effectiveness of the standard costing approach in its existed position because it no longer provides the information that the management needs to make decisions and that this requires a review of the applied standard costing approach.

The target cost approach is defined as an approach that aims to provide a product to the market with high quality and low price in line with competitors' prices, for achieving the required profits by reducing production costs throughout

the product life cycle, starting from design and planning stage, until determining the target selling price (عبد الرحمن البكري، ٢٠١٨، ص. ١٧٨)

Continuous improvement is considered a fundamental factor for the sustainable development of the quality of the organization's performance and a mechanism for building new knowledge through creativity and participation. It is considered a fundamental principle to eliminate the unfavorable deviations in performance (مليكة سليماني، ٢٠١٧ ، ص. ٧٦)

The standard costs approach is considered one of the important approaches in the field of management accounting; it is defined as a budgeted cost that to be determined in advance for the production of goods and services, which serves as a benchmark which the actual costs are compared with and also its most important objectives are planning, controlling and decision making" (أمال عبد الله، ٢٠١٥، ٥٨٨)

2 Conceptual Framework

2.1 Target cost and standard costs, measurement, and goals:

2.1.1 Target cost definitions:

Target costing management is defined according to the strategic objectives of the organization, considering the targets of markets, customers, and products that the organization intends to offer. This technique is an important concept and tool for managing product costs during the design stage and to lead effective new product development processes (Silva, 2022).

Target costing is a cost accounting system that provides management with information to enable management to monitor the progress achieved in reducing product costs towards predetermined costing targets (Palulun, Luhsasi & Sitorus, 2021) .

The researcher defines it as a method aimed at reducing the cost during the planning and design stage during the product life cycle, which makes the entities enjoy a highly competitive advantage as a result of success in reducing costs while maintaining the level of quality and achieving a target profit and customer satisfaction.

2.1.2 Principles of target costs method:

The Target Costs method is based on some key principles established by Consortium for Advanced Management International (CAM-I). The researcher makes a short brief in the following paragraphs:

a. The target or affordable costs are calculated starting from the product or service market price. This value depends on competition intensity, supply and demand dimension or some other factors which influence product or service market. It must be identifying an equilibrium price between economic entity needs and specific industry features.
b. Focus on the customer is the second principle. The product or service quality and performance are required by clients. All production process decisions must incorporate them.
c. Target costs are applied in the design phase of product or service. Costs' changes adjustments are made before manufacturing phase which leads to lower costs and reduce the time to launch the product on the market.
d. Target Costs method implies mixt and interdisciplinary teams which are responsible for all life circle stages of a product or a service.
e. Target Costs method uses the whole chain value. It implies suppliers, distributors and customers (Paschia, 2016).
f. The method is focused on costs implied by all product or service life circle stages. It tries to diminish costs in benefit of whole entity but also in benefit of the customers.

2.1.3 Objectives of Target Costs:

The fundamental objective of target costing is to enable management to use proactive cost planning, cost management and cost reduction practices whereby, costs are planned and managed out of a product and business, early in the design and development cycle, rather to a during the later stages of product development and production. Broadly speaking, a target costing system has three objectives:

1. To lower the costs of new products so that the required profit level can be ensured.
2. The new products meet the levels of quality, delivery timing and price required by the market.

3. To motivate all company employees to achieve the target profit during new product development by making target costing a companywide profit management activity (Clifton et al., 2019).

2.1.4 Standard costing definitions:

Standard costing is an integral part of management accounting control technique, which has to do with the process of estimating the total cost of production per unit (Akenbor & Agwor, 2015).

It is a system of accounting which makes use of predetermined costs relating to each element of cost layout, materials and overhead for each line of product manufactured or service supplied. Standard costing technique therefore represents an integral part of management accounting control technique which will also include budgeting system and responsibility accounting statement (Sainati et al., 2020).

The researcher defines standard cost as a figure which represents an amount that can be taken as a typical of the cost of an article or other cost factor. It is established on the basis of planed operations, planed cost efficiency levels, and expected capacity utilization.

2.1.5 Objectives of standard costing:

According to Coletti (2016) the most important objectives of standard costing are as follow:

- **Cost Control:** The most important objective of standard cost is to help the management in cost control. It can be used as a yardstick against which actual costs can be compared to measure efficiency. The management can make comparison of actual costs with the standard costs at periodic intervals and take corrective action to maintain control over costs.
- **Management by Exception:** The second objective of standard cost is to help the management in exercising control over the costs through the principle of exception. Standard cost helps to prescribe standards and the attention of the management is drawn only when the actual performance is deviated from the prescribed standards. It concentrates its attention on variations only.
- **Develops Cost Conscious Attitude:** Another objective of standard cost is to make the entire organization cost conscious. It makes the employees to

recognize the importance of efficient operations so that costs can be reduced by joint efforts.

- **Fixing Prices and Formulating Policies:** Another object of standard cost is to help the management in determining prices and formulating production policies. It also helps the management in the areas of profit planning, product-pricing and inventory pricing etc.
- **Fixation of Prices:** To help the management in formulating production policy and helps in fixing the price quotations as well as in submitting tenders of various products. This can be done with accuracy with standard cost than the actual costs. It also helps in formulating production policies. A standard cost removes the reflection of abnormal price fluctuations in production planning.
- **Management Planning:** Budget planning is undertaken by the management at different levels at periodic intervals to maximize the profit through different product mixes. For this purpose, it is more convenient using standard costing than actual costs because it is done on scientific and rational manner by taking into account all technical aspects.

2.2 Target cost approach and its role in achieving continuous improvement:

2.2.1 Advantages of target costing:

Obviously, a primary reason why companies use target costing is to plan or project the costs of products before they are introduced, and to ensure that low-margin products are not introduced which do not bring sufficient returns. There are, however, additional purposes for which companies have introduced target costing which vary from company to company. A number of other reasons are given in the literature for the use of target costing, as outlined below (Jalaee, 2012):

- To reduce costs before they are locked in: As previously mentioned, it is being increasingly recognized that the major proportion of product costs, around 70 to 80% are effectively fixed during the design stage.
- Target costing provides a means to manage costs from the design stage to maximize the potential for cost reduction.

- To control design specifications and production techniques: Target costing is a tool which can be used to control decisions such as design specifications and production techniques. For this reason, it tends to be oriented more towards management and engineering than accounting, and to be successful requires the use of cost engineering techniques such as value engineering.
- As an analysis which highlights other problems: The discipline of target costing and the detailed review of costs can reveal more general managerial problems.
- As a driver for cost improvement: As already discussed, target costing was originally introduced into Japanese companies as a way to integrate the use of other tools such as just in time (JIT) and total quality control (TQC) and promote their use.
- To encourage a focus on the customer Target costing is, by nature, market driven. It therefore stimulates behavior which is customer-focused and encourages all functions within the company to respond to market demand and competitive trends rather than internal performance indicators. In addition, the marketing department is free to make product decisions without the costs being a given.

2.2.2 Continuous Improvement (Kaizen Costing) definitions:

The concept of kaizen costing originated in Japan. Japanese word kaizen comprises of two words kai and zen. where kai means changes and zen stands for improvement that is kaizen means small continuous changes for improvement. Kaizen costing is a system of cost reduction through continuous improvement. It tries to maintain present cost levels for products currently being manufactured through systematic efforts to achieve the desired cost level. The word kaizen is a Japanese word meaning continuous improvement. It has two dimensions. One dimension considers product (narrow perspective) and another dimension covers assets and organization (broader perspective) (Gupta, 2021).

Kaizen is a way that is done by eliminating or removing waste, minimizing excessive workload, and quality improvement that is always done (Subawa, 2016).

According to Sahri & Novita (2019) Kaizen Costing is a concept that aims to reduce costs, strengthen brands, increase market share, increase information

related to exchanges within the company, increase profits, reduce unused capacity, and improve quality and product processes and eliminating waste.

2.2.3 Applied Steps of Continuous Improvement Technique:

The continuous improvement technique seeks to improve the operations and products in order to provide consistent products and services with the needs and desires of the customers. So, it is necessary to monitor these needs and desires continuously and evaluate all information regarding the feedback provided by customers (Gosselin, 2001). Therefore, PDCA method (plans, Do, check and correct) can be used as the main steps to apply the continuous improvement technique. Illustration of the steps for continuous improvement technique application through the following (Lizarelli & Toledo, 2016):

Step 1. **Plan:** This step is the starting point to identify the problem while collecting the necessary data on the process to be improved. In the light of the data collected, the main causes of the problem are determined with the appropriate plan to avoid these causes and determine the course of action.

Step 2. **Work (DO):** After developing the appropriate plan for the improvement process, the team will implement the plan and monitor the progress. The monitoring of implementation is on a continuous basis in order to measure and evaluate all the additional improvements as a result of applying the plan.

Step 3. **Check:** During this step, the results of the improvements that have been made are checked to evaluate whether the required objectives are achieved effectively and efficiently. During this step the results are documented in the form of reports in order to review and evaluate the plan in the case of any problem.

Step 4. **Correct (ACT):** If the results of the improvement are positive (the objectives set through them have been achieved), the plan is adopted and approved for other similar processes. If the results are negative (failure to achieve the objectives set through them) the plan is corrected, and appropriate adjustments are made.

2.2.4 The strategic impact of integration between target costing and continuous improvements techniques:

The target costing and continuous improvement are the most important techniques of strategic management accounting in the field of strategic cost management, as it was called this name because of its concerns focused on the support and the assignment of strategies that followed by the managements of companies, especially the strategies of competition, a result of the nature of the contemporary business environment by the appearance of the challenges of intense competition, and global major openness of the trade and economy, as well as the transformation of industrial economies and societies to the heavy reliance on modern technology and informatics.

And in order to meet the competitive forces facing the company, there are three basic strategies can generally be used in various types of industry and the company can choose one of them, it:

- Overall cost leadership strategy.
- Differentiation strategy.
- Focus strategy.

The successful adoption of these strategies requires the availability of many of the conditions and the use of techniques that help on that, where the techniques of target costing and continuous improvement represent the most important techniques of strategic management accounting that will help the success of these strategies to the impact of the use of the results will help to achieve the objectives of those strategies (Al-Maryani, 2015).

And that the strategic cost management represent one of the modern approaches of management accounting which sheds light on the issues and strategic matters and puts the cost analysis in a broad framework to be used in the formulation and development of best strategies for the differentiation and enhance the competitiveness of the company , so we can define the strategic management accounting as the accounting that covering and analyzing data for an activity and its competitors for use in developing and controlling activity strategies, in particular the levels and trends in costs, prices and production volume and market share and cash flow and the quota required of the total resources of a company.

And that, the basic inputs to the process of strategic cost management was the strategies of cost-leadership , differentiation and focus, as well as the analysis of competitors, which is accomplished by analyzing the value chain of them ,as

well as the use of strategic analysis tools to identify the strengths and weaknesses in the company and match them with the opportunities and environmental threats diagnosed through a process of environmental scanning for the purpose of determining the best options that can be implemented in order to achieve strategic objectives, it also requires development of standards and connotations for the purpose of benchmarking , and to ensure the success of the strategies (Sahib & Idan, 2019).

So, the researcher can see that the techniques of target costing and continuous improvement are among the most important techniques of strategic cost management affecting the company's success to the implementation of it competitive strategies, and despite the fact that there are more of a strategic competitive as possible to pursue one of the company, the usefulness of these techniques that can be felt in the light of all of these strategies are in support of the least-cost strategy, where the adoption of target costing and continuous improvements techniques helps to achieve the objectives of least-cost strategy, as well as support differentiation strategy, and also support the focus strategy, so we can see that there is an strategic impact for the techniques of target costing and continuous improvement in support and the assignment of strategies to compete.

2.3 The activation of standard costs in the light of continuous improvement approach:

2.3.1 Standard costing approach and its criticisms in light of modern manufacturing systems:

Since the mid-1980 s, standard costing has come under intense criticism. Various authors have suggested that companies in today’s intensely competitive environment may find standard costing and variance analysis to be less relevant for cost control and performance evaluation primarily because the tool is not able to provide appropriate strategic signals for business enterprises. Some authors also claim that the benefits of using standard costing as an operational control mechanism may be less evident in today’s advanced manufacturing environment. In fact, standard costing may lead to dysfunctional behavior (Sulaiman et al., 2014).

The following are some of the criticisms which may be leveled against the standard costing system. The arguments have been suitably answered as stated against each by advocates of the standard costing and hence they do not invalidate the usefulness of the system to business enterprises (The Institute of Chartered Accountants of India, 2021).

[1] **Variation in price:** One of the chief problems faced in the operation of the standard costing system is the precise estimation of likely prices or rate to be paid. The variability of prices is so great that even actual prices are not necessarily adequately representative of cost. But the use of sophisticated forecasting techniques should be able to cover the price fluctuation to some extent. Besides this, the system provides for isolating uncontrollable variances arising from variations to be dealt with separately.

[2] **Varying levels of output:** If the standard level of output set for pre-determination of standard costs is not achieved, the standard costs are said to be not realized. However, the statement that the capacity utilization cannot be precisely estimated for absorption of overheads may be true only in some industries of jobbing type. In vast majority of industries, use of forecasting techniques, market research, etc., help to estimate the output with reasonable accuracy and thus the variation is unlikely to be very large. Prime cost will not be affected by such variation and, moreover, variance analysis helps to measure the effects of idle time.

[3] **Changing standard of technology:** In the case of industries that have frequent technological changes affecting the conditions of production, standard costing may not be suitable. This criticism does not affect the system of standard costing. Cost reduction and cost control is a cardinal feature of standard costing because standards once set do not always remain stable. They have to be revised.

[4] **Attitude of technical people:** Technical people are accustomed to thinking of standards as physical standards and, therefore, they will be misled by standard costs. Since technical people can be educated to adapt themselves to the system through orientation courses, it is not an insurmountable difficulty.

[5] **Mix of products:** Standard costing presupposes a pre-determined combination of products both in variety and quantity. The mixture of materials used to manufacture the products may vary in the long run but

since standard costs are set normally for a short period, such changes can be taken care of by revision of standards.

2.3.2 Updating standard costs using kaizen (continuous improvement approach) costing:

In the current global competitive world companies need to harmonize more than one costing system to reach to one integrated strategic costing system that is considered optimal for the company, and though some studies preferred standard costing system because of its simplicity and affordability, they cannot deny the fact that the main purpose of the system is cost control; which in the current rapidly changing environment doesn't help the company to maintain its position in the market, because if a company wants at least to survive and hold its market share stable, then it needs to reduce its costs while maintaining or increasing its quality, and in order for it to do so, taking into consideration the short life cycle of products and services, the company needs more than cost stabilization, it needs a rapidly effective cost reduction system. And through paying careful attention to the criticisms of standard costing system it's noticed that Kaizen costing system came to overcome those criticisms (El Dardery, 2017).

Although Kaizen costing system is a more developed sophisticated system than standard costing system, that doesn't mean that it replaces standard costing system; on the contrary both systems must coexist together in the manufacturing stage in order to reach to the optimal strategic cost management system. Therefore, standard costing systems are not really the dinosaurs of cost systems, but they may benefit from a little evolution. Updating variances with dynamic standards will vastly improve the usefulness of the system. Standards can be adjusted to be dynamic, or changing, by several methods from them the following (Blocher et al., 2019):

- Using prior periods' results as standards: One way to have dynamic standards is to use last period's results as standards. The objection can be made that; last period's results may not make very good standards if last period was unrepresentative for whatever reason. If this is the case, last period's results can be modified using kaizen costing to provide new more suitable standards.
- Using moving cost reductions: Another way to have dynamic standards is through the use of predetermined cost reductions. That system was described

as a "continuous improvement standard costing system" or a "moving cost reduction standard costing". This system reduces the standard cost by a predetermined percentage each time period, such as a one percent reduction in standard cost per month computed by setting the new standard at 99% of the previous month's standard. Cost improvement curves are used to determine the percentage of reduction. Cost improvement curves are a new version of the old learning curve idea. Learning curves were based on reduction of direct labor costs due to learning by the workers. With a large percentage of products being produced by automated equipment rather than laborers, the potential cost reductions become related to the experience factor of the organization as a whole which may be measured by cost improvement curves.

- Using target costs: After target cost is set using the TC system, which takes place during the development and design of the product. When the product is finally in production, the target cost is gradually tightened on a monthly basis. Later the actual cost of the previous period is used to drive costs down further.

3 Literature Review and Hypotheses Development

The Study of Hassan, Alber, & Attia (2019) measures Antifly the extent to which emetrics and aware of the target cost method and its application as a modern cost management tool in the modern manufacturing environment in the cement sector, The extent to which performance appraisal metrics are used and used, Changes in the manufacturing environment and their impact on performance measures, And test the relationship between the use of the target cost method and performance appraisal metrics, and testing the relationship between changes in the modern manufacturing environment and performance appraisal metrics, The questionnaire was distributed to a sample of (57). Senior, middle and technical officials at Kuwait Cement Factory in Kuwait. The results showed that there is a significant effect on the use of target costs on performance evaluation measures in the modern manufacturing environment. In terms of the components and dimensions of each, this leads us to conclude that the target cost and modern manufacturing environment have an impact on the evaluation criteria.

The Study of Khan et al. (2019) aimed to analyze and implement continuous improvement (CI) techniques in an interior design case company, which faces challenges in different departments that affect the case company performance. The proposed methodology implemented in three departments of an interior design company in Gulf Cooperation Council (GCC). First, the authors analyzed and identified problems using Pareto chart and cause and effect diagram. After that, they improved identified problems using Kaizen, 5S, developed project selection form and modified organization chart. The result has been shown savings regarding money and time. Findings revealed successful implementation of the proposed methodology reduced project in pipeline time from 16 weeks to nine weeks, profit margin increased from 25 to 27 per cent, sales win ratio increase from 11 to 32 per cent, better project and financial forecasting and 92 per cent of tender submission deadline achievement. A habit of clean, tidy and organized workplace has been developed among workers.

The Study of Oncioiu et al. (2021) demonstrates, on one hand, how organizations are able to optimize their business processes to streamline their activities and, on the other hand, how performance can be enhanced by using the target cost method in a construction project. Based on the analysis of national and international literature, the authors carried out a quantitative and qualitative study based on a questionnaire containing a set of four questions aimed at highlighting the issues mentioned in the launched objectives. Business process-specific steps in a construction project are described and analyzed. The case study outlines how to optimize business processes by using Swim Lane charts and how to reduce operating costs by applying the target cost method. The study concludes the real benefits of optimizing business processes in a construction project by using the target cost method and increasing the performance of entities in this field.

The Study of Mohammad (2021) aimed to identify the role of target costs in restructuring the cost of the product and reaching the competitive price by restructuring the cost of the product to reach a competitive price compared to the current competitive markets with other prices. One of the Iraqi private factories was used to achieve the goal of the research and, depending on the data, the restructuring was done. The study has subsequently been shown that it is possible to use the target cost technique in competitive

price events compared to the competing markets, to demonstrate the quality of the Iraqi product and to contribute to attracting investors.

The Study of El-Kutayni et al. (2022) amed to gauge the role of information and targeted cost method on the quality of products. The quantitative method has been selected with a designed questionnaire involved 282 respondents comprising of the General Managers, Production Manager, Chief Financial Officers, Strategic and Planning Managers, Engineering department Managers and Finance Managers. The results showed that the information have a negative impact on the use of the target cost. The results also showed that the information has a negative impact on improving the quality of products. The results also showed that the targeted cost plays a positive mediating role in the relationship between information and the quality of products.

According to the above, the researcher concluded the following:

- Studies have shown the extent of integration between continuous improvement and target cost.
- The aim of applying the target cost approach in economic entities' is to reduce costs during the development and design stage throughout the product life cycle.
- The target cost approach is considered a strategic weapon, as it makes the entities' that use it enjoy a competitive advantage because they are not only set target values for the cost, but also interested in understanding product characteristics and thus determining the cost of the product life cycle that must be reached.
- Studies have shown the importance of the role that the standard costs approach plays as an effective tool for measuring quality costs and that it is an ideal system for achieving control.

Considering the findings provided in the previous literature, the following key hypothesis is suggested:

- **The first major hypothesis:** There is a statistically significant agreement about the need for the standard cost system to be developed due to the many criticisms directed at it in light of the modern manufacturing environment. This hypothesis is divided into the following sub hypotheses:

- **The first sub-hypothesis:** There is a statistically significant relationship between standard costs and their role in cost reduction.
- **The second sub-hypothesis:** There is statistically significant agreement of the standard costing system is in urgent need of development due to the many criticisms directed at rather than elimination.

➢ **The second major hypothesis:** There is a statistically significant integration between the target cost and standard costs' approaches to achieve continuous improvement to reduce cost, increase profitability and improve the level of performance of companies.

4 Research Methodology

4.1 Research methods:

The questionnaire has been selected as the most practical method to use in collecting data. In the field study, the researcher depends on questionnaire in the form of questions and was formulated in the light of the research hypotheses and objectives. The questionnaire is distributed on a sample consists of academic staff have been recruited in Egyptian universities and accountant in the Egyptian business organizations under study.

4.2 The survey groups:

The total sample size can be determined by the following formula (Kish 1965):

$$n = \frac{Z_{\frac{\alpha}{2}}{}^{2} \cdot p(1-p)}{d^{2}} = \frac{(1.9)^{2}.(0.25)}{(0.06)^{2}} ; \ 251$$

Where p is the proportion of estimate (obtained from previous studies) p = 0.5, $z_{\alpha/2}$ is the standard score corresponds to a certain confidence level (94%) = 1.9, d is the maximum error and n is the sample size.

The researcher received 251 questionnaires on academic staff and accountant. Then collected these questionnaires and 17 of 251 were invalid due to the missing data. The usable questionnaires were 234 respondents.

4.3 The reliability and validity test:

To determine the validity and reliability of the measures on which the researcher relied in the study, the researcher used both the internal consistency coefficient to measure the validity of the results achieved for each dimension of the questionnaire, which is based primarily on the correlation coefficient. Therefore, it is essential that the basic criterion is a test of the significant of the correlation coefficient. Also, the researcher used Alpha Cronbach's coefficient to measure the reliability of the study items, and it is statistically accepted that this test statistic should not be less than 0.60 (Churchill, 1979). The results show as in the following table:

Table No. (2): The results of the reliability and validity test.

Study Groups		Reliability		Validity	
		No. of Items	Cronbach 's Alpha	Correlation Coefficient	Sig.
The first group		**30**	**.867**	**.850****	**.000**
1	Importance of standard costing and its role in cost reduction.	10	.763	.688**	.000
2	Criticisms directed towards the standard costing system in the modern manufacturing environment.	10	.858	.755**	.000
3	Developing the standard costing system and addressing its shortcomings.	10	.839	.580**	.000
The second group		**44**	**.953**	**.887****	**.000**
1	The importance of integrating target costing and standard costing methods under the continuous improvement approach.	11	.897	.913**	.000

2	Continuous improvement is one of the cost management methodologies.	12	.883	.816**	.000
3	The importance of integrating target costing and standard costing methods under the continuous improvement approach.	21	.897	.926**	.000
The questionnaire as a whole		**73**	**.954**	----	----

****.** Correlation is significant at the 0.01 level (2-tailed).
Source: Prepared by the researcher based on the results of the statistical analysis (SPSS).

The previous table shows that the Alpha Cronbach's coefficient is greater than 60% for all the study's variables, in addition, the Alpha Cronbach's coefficient for the questionnaire as a whole is equal to (0.954) and therefore can be depended on to measure the study's variables of the questionnaire. **This confirms that** the questionnaire measures what it was built for, and that all items of the study are clear to the respondents (academic staff and accountant) and there is no ambiguity and if the researcher applies the questionnaire a second time to the same sample will give almost the same results.

The results of the validity confirm the consistency of the study variables with each other, through the correlation of variables within the same group, and the correlation of all variables to each other, as confirmed by the values of internal consistency coefficients, which ranged from (0.580:0.926) and all is significant at the level of (0.01). In addition to that the values of internal consistency coefficients for first and second group as a whole are close to the correct one, indicating that the internal consistency between questions of the questionnaire is very strong and acceptable.

4.4 Tests of hypotheses:

The researcher relied on a number of different sources when formulating the hypotheses of the study, especially the previous studies that are directly and indirectly related to the current study Problem, and based on the problem of the study and the questions related to it, the hypotheses of the study were formulated in the form of proof, which will be tested in order to reach the results of the study. **The following are the hypotheses of the study:**

4.4.1 The first major hypothesis:

There is a statistically significant agreement about the need for the standard costing system to be developed due to the many criticisms directed at it in light of the modern manufacturing environment.

To test the validity of this hypothesis we have tested the following sub-hypotheses:

- **The first sub-hypothesis:** There is a statistically significant relationship between standard costs and their role in cost reduction.
- **The second sub-hypothesis:** There is statistically significant agreement of the standard costing system is in urgent need of development due to the many criticisms directed at rather than elimination.

The following are the results of the first major hypothesis:

❒ **The first sub-hypothesis:**

There is a statistically significant relationship between standard costs and their role in cost reduction.

To test this hypothesis, the researcher used linear regression by (AMOS) and obtained the following results:

Table No. (3): Linear Regression Model.

Regression Weights					
Parameter	**Estimate**	**S.E.**	**C.R.**	**P-value**	**R^2**
Intercepts	4.987	.181	27.607	.0001	.586
Standard costing	-.801	.044	-18.156	.0001	

Source: Prepared by the researcher based on the results of the statistical analysis (AMOS).

The previous table shows the critical ratio of independent variable (employees' voice) is more than the value (1.96) in addition, the level of significance is less than 0.01 (sig< 0.01), which indicates that this variable has statistical significance for dependent variable (belief cynicism). The regression

coefficient is negative, which means that there is a negative relationship between standard costing and the cost.

The **coefficient of R-square** is equal to (0.586) and this means that the standard cost explains 58.6% of the change that occurs in the cost and the rest of the percentage is due to random error or may be due to other variables not included model. *The following figure shows the distribution of residuals for regression model:*

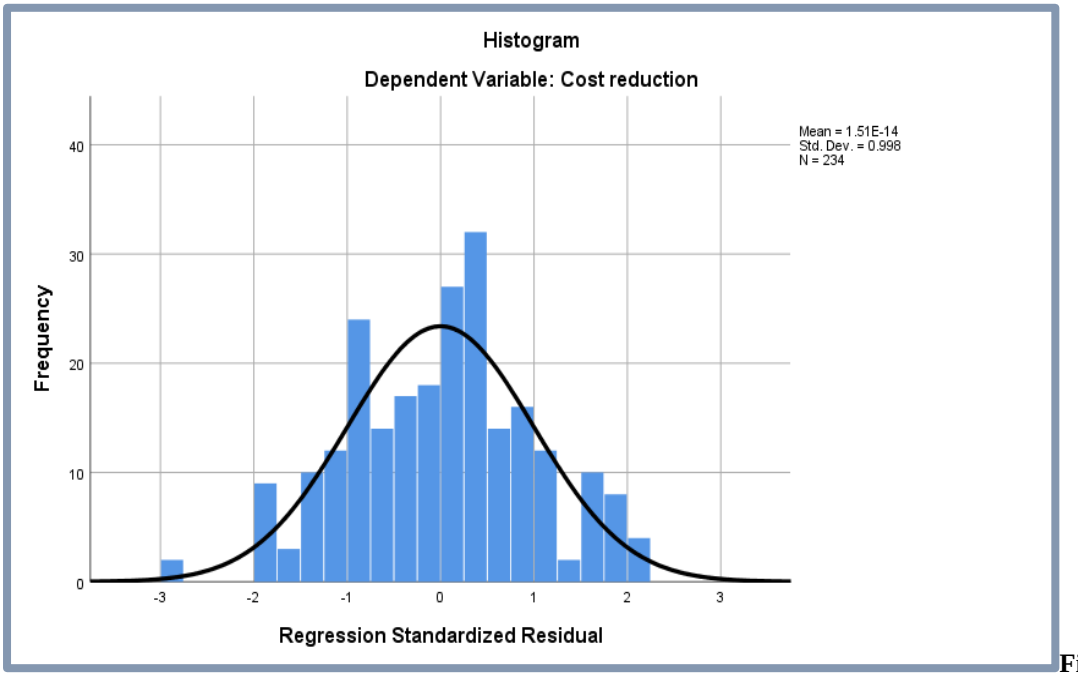

Figure No. (1): Histogram of regression model residuals.

The previous figure shows that the values of the residuals of regression model follow the normal distribution which is one of the conditions of the regression model.

According to the previous results we accept the hypothesis, which means that there is a statistically significant relationship between standard costs and their role in cost reduction.

❒ The second sub-hypothesis:

There is statistically significant agreement of the standard costing system is in urgent need of development due to the many criticisms directed at rather than elimination.

To test this hypothesis, the researcher used the descriptive statistics and T-test and obtained the following results:

Table No. (4): Descriptive Statistics and T- test for items of " The advantages of the accounting disclosure for sustainable development ".

Items	Mean	Std. Deviation	Coef. of variation	T-test	Sig.
Abolish the standard costing system in the modern manufacturing environment due to criticism of this system.	2.3231	.67986	.04444	-15.231	.000
Developing the standard costing system and addressing its shortcomings.	4.2744	.40811	.02668	47.767	.000

Source: Prepared by the researcher based on the results of the statistical analysis (SPSS).

The previous table shows that the mean of the first dimension is less than (3), which means that most of respondents disagree about "Abolish the standard costing system in the modern manufacturing environment due to criticism of this system". In addition to that, the T-test value of this dimension came negative, which confirms that its mean is less than the hypothetical mean (Test Value = 3), meaning that there is disagreement about this dimension and also the level of significance is less (*Sig* < 0.01), which confirms the refuse of the study sample (Academic staff and Accountant) about this dimension.

The mean of the second dimension is greater than (3), which means that most of respondents agree about "Developing the standard costing system and addressing its shortcomings". In addition to that, the T-test value of this dimension came positive, which confirms that its mean is greater than the hypothetical mean (Test Value = 3), meaning that there is agreement about this dimension and also the level of significance is less (*Sig* < 0.01), which confirms

the approval of the study sample (Academic staff and Accountant) about this dimension.

The standard deviation for these dimensions is low and the standard error mean for these dimensions is less than 10%, which meaning that the dispersion in most study sample' answers is low.

According to the previous results we accept the hypothesis, which means that there is statistically significant agreement of the standard costing system is in urgent need of development due to the many criticisms directed at rather than elimination.

According to the results of first and second sub-hypotheses we accept the first major hypothesis, which means that there is a statistically significant agreement about the need for the standard cost system to be developed due to the many criticisms directed at it in light of the modern manufacturing environment.

4.4.2 The second major hypothesis:

There is a statistically significant integration between the target cost and standard costs' approaches to achieve continuous improvement to reduce cost, increase profitability and improve the level of performance of companies.

To test this hypothesis, the researcher used the **structural model**, where the structural model is based on the study of the impact relationships between the study variables and the analysis of the impact size and the results of the causal relationships between the study variables. The results came as shown in the following figure:

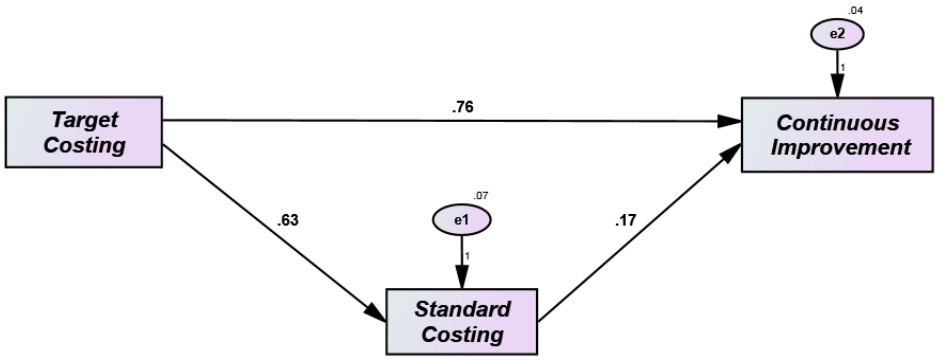

Figure No. (2): Structural model diagram.

The previous figure shows the following:

- The direct impact of target costing on standard costing.
- The direct impact of target costing on continuous improvement.
- The direct impact of standard costing on continuous improvement.
- The indirect impact of target costing on continuous improvement through the standard costing (integration relationship between the target cost and standard costs' approaches).

The following table shows the results of the structural model for causal relationships between the study variables:

Table No. (5): Results of the structural model of the study.

Regression Weights					
Path	**Estimate**	**S.E.**	**C.R.**	**P-value**	**R^2**
Target costing → Standard costing	.634	.043	14.616	0.0001	.478
Standard costing → Continuous improvement	.169	.053	3.183	.001	.728
Target costing → Continuous improvement	.764	.049	15.699	0.0001	

Source: Prepared by the researcher based on the results of the statistical analysis (AMOS).

The previous table shows the critical ratio of target costing on standard costing is equal (14.616) and this value is more than the value (1.96) in

addition to that, the level of significance is less than 0.01 (sig< 0.01), which indicates that target costing has statistical significance on standard costing.

The critical ratio of standard costing on continuous improvement is equal (٣.١٨٣) and this value is more than the value (1.96) in addition to that, the level of significance is less than 0.01 (sig< 0.01), which indicates that standard costing has statistical significance on continuous improvement. This confirms the validity of the first major hypothesis.

The critical ratio of target costing on continuous improvement is equal (١٥.٦٩٩) and this value is more than the value (1.96) in addition to that, the level of significance is less than 0.01 (sig< 0.01), which indicates that standard costing has statistical significance on continuous improvement. This confirms the importance of the target cost and its role in continuous improvement and thus cost reduction.

The coefficient of R-square for the standard costing is equal to (0.478) and this means that the target costing explains 47.8% of the change that occurs in the standard costing and the rest of the percentage is due to random error or may be due to other variables not included model.

The coefficient of R-square for continuous improvement is equal to (0.728) and this means that the integration between the target cost and standard costing explains 72.8% of the change that occurs in the continuous improvement and the rest of the percentage is due to random error or may be due to other variables not included model.

According to the previous results we accept the hypothesis, which means that there is a statistically significant integration between the target cost and standard costs' approaches to achieve continuous improvement to reduce cost, increase profitability and improve the level of performance of companies.

5 Conclusions and Recommendations

5.1 Conclusions:

This study aims to confirm that the standard costing system is in an urgent need to be developed due to the many criticisms leveled against in light of the modern manufacturing environment and explore the integration relationship between standard costs and target cost under the approach of continuous improvement. The research has shown that the standard costing system is an essential tool for cost management and cannot be dispensed with. It also revealed that, despite the criticisms directed at standard costing system, it remains a fundamental method for determining the cost of production and assessing the efficiency of operations. It provides a framework for cost control and helps companies make informed decisions about pricing, budgeting, and resource allocation. Therefore, it is important to continue to develop and improve the standard costing system to ensure its relevance and effectiveness in the modern business environment.

5.2 Recommendations:

Relying on study findings, and in the light of research objectives, the researcher recommends the following:

- The need for developing the standard cost system is due to the many criticisms directed at it in light of the modern manufacturing environment.
- Integrating the target cost and standard cost approaches to achieve continuous improvement in cost reduction, profitability, and overall company performance.
- Exploring the different ways in which standard costs can be used to achieve cost reduction, such as identifying and eliminating inefficiencies in the production process or negotiating better prices with suppliers. This can help companies optimize their cost structure and improve their profitability.
- Conducting further research to identify the specific criticisms directed at the standard costing system and develops targeted solutions to address them. This can help enhance the effectiveness and relevance of the cost

system and ensure its alignment with the modern manufacturing environment. Additionally, companies should consider investing in training programs to ensure that their employees are proficient in using the updated standard costing system.

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