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The Integration Between the Cost of Product Life Cycle and Target Cost and Its Impact on Reducing Production Cost (an Applied Study in Samarra Factory of Medications)

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Abstract

The study aimed at achieving a competitive advantage in cost reduction by finding an integrated combination between target cost technology and product life cycle. The integration of target cost technology and product life cycle costs are considered an essential mechanism for any economic entity aiming to add value to itself, satisfy customers, create a competitive advantage, and keep up with technological advancements. Traditional systems do not have any advantage in this field. The study sample was selected from the public company, which is the state company for drug industry and medical appliances, Samarra factory of medications. The study referred to several conclusions; Samarra factory of medications has a unique capability in the field of manufacturing and production medications, it has qualified human resources in the fields of accounting and auditing. The staff can be promoted more if the factory adopts modern management methods that requires the management to join courses on this approach, its advantages, and disadvantages. Additionally, Samarra factory of medications requires efficient and qualified suppliers of raw materials. The study recommended several recommendations: enroll employees in training courses to enhance their capabilities and increase their scientific experience in cost management, especially for departments that apply accounting methods of cost management. It also recommended establishing a specialized team of management techniques to keep pace with modern scientific methods to utilize them in cost reduction. Furthermore, the researcher urges senior management in Iraqi industrial projects to collaborate with universities and institutes through conducting scientific research and tests to develop a mechanism that can minimize costs without compromising product quality.

Keywords: Costs, Target Costs, just-in-time Production, Cost Reduction, Product Life Cycle, and Samarra factory of medications.

Introduction

The emergence of cost can be traced back to the 1960s when Toyota, the automobile manufacturer, introduced it for the first time. Then, it was adopted by many other automotive companies. The concept of target costing originated from the principle that most costs in the early stages of production and product development are fixed, allowing management the opportunity to reduce costs during these stages. Target costing is an activity aimed at reducing costs throughout the product lifecycle based on a predetermined cost that ensuring product quality and satisfying consumer needs. Due to increasing costs, decreasing profits, and intense

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competition among companies, organizations began searching for ways to streamline their operations and obtain more accurate data for decision-making purposes. This step led to the development of modern cost system known as just-in-time production. This system helps managers reduce costs, increase efficiency, expand production, and improve quality. So, the research aims to shed light on target costing as a cost management tool in economic units.

One of the main reasons to change towards target costing is the deficiencies of traditional cost systems, which led to neglect them because these systems do not determine the price first; instead, they determine the cost and add the desired profit margin. This allows companies to pass all costs, including the desired profit margin, to customers, which eventually determining the price based on cost. Yet, in the contemporary business environment, prices are determined by market forces, not cost. The study problem is that the Samarra factory of medications struggles to reduce production costs because they do not plan accurately, resulting in unnecessary costs such as storage and treatment. This measure adds additional costs to their products, which affect their competitiveness in the market. In the past, companies could determine prices based on cost plus profit margin, but currently, prices are determined by market forces. Thus, companies that still depend on cost-based pricing along with profit margin do not adapt well to the modern competitive environment and need to find ways to reduce costs without compromising product quality. This is known as achieving the target costing.

In the light of the abovementioned problem, the following questions are raised:

1. Is there a relationship between the target costing approach and cost reduction?
2. Is there a relationship between the production system and production cost reduction?
3. Can the integration between the target costing approach and just-in-time production system lead to a reduction in production costs?

The study aims to propose the integration between the target costing approach and the production system within just-in-time cost system in the factory of car tire. The study also aims to demonstrate the extent to which the integration between the target costing approach and the production system can achieve accuracy in measurement in a Samarra factory of medications. Moreover, the study's another objective is to identify the defects of traditional cost systems in modern business environments. Furthermore, the study focuses on the concept of target costing, its history, reasons for its emergence, and its importance as a cost management tool in Samarra factory of medications. The study elucidates the contribution of the integration between the target costing approach and the production system in cost reduction in Samarra factory of medications. The study significance lies in its focus on the concept of target costing, its history, reasons for its emergence, and its importance in cost reduction and profit increase in Samarra factory, and its application.

The Study Is Based on the Following Hypotheses

1. The use of target costing in Samarra factory of medications results in cost reduction.
2. The study goals are achieved through testing the following hypotheses:
 1. There is a relationship between the target costing approach and cost reduction.
 2. There is a relationship between the production system within just-in-time and reduction of productivity cost.
 3. There is a relationship between the integration of the target costing approach and the production system within just-in-time and reduction of productivity cost.

The study goal can also achieved by testing the validity or invalidity of the following

hypotheses:

1. Some industrial projects have the ability to apply target costing system.
2. The application of target costing leads to cost reduction of industrial projects.
3. Target costing provides important information that helps the development of product.
4. There are certain hindrances that hamper the application of target costing in industrial projects.

Previous Studies

First: Arabic Studies

1. Jariyrah study (2011) entitled: "Pricing Approach based on the Target Costing Approach and its Applicability in the Pharmaceutical and Medical Industries Sector in Jordan." The study's goal is to pinpoint the extent to which the pharmaceutical and medical industries sector in Jordan depends on the target costing approach and its contribution to product development and cost reduction. The study employed a descriptive analytical method to analyze the responses to reach conclusions. The study concluded that the pharmaceutical and medical industries sector in Jordan primarily pricing product on total cost with a specific profit margin. One of the important recommendations of the study highlighted the need to train accountants and employ programs that deal with modern cost inputs and systems, in addition to the importance of conducting scientific seminars and training workshops.
2. Al-Haddad study (2011) entitled: "The Application of the Target Costing Approach in Palestinian Industrial Companies Operating in the Gaza Region - A Field Study." The aim of this study was to examine the application of target costing in industrial companies operating in the Palestinian industrial sector in the Gaza Strip. The study wanted to show the importance of target costing as a modern cost approach that provides several benefits and has been a key factor in Japan's success. The study concluded that the industrial environment in the Gaza Strip allows the implementation of this approach, and the sampled industrial companies comprehend the concept of cost. But, companies did not use the target costing to reduce costs. The study recommended the application of the target costing approach via rigorous scientific approach and efforts to create an industrial environment that is more conducive for the necessary cost implementation in Palestinian companies operating in the Gaza Strip.
- 3- Abdulhafidh study (2010) entitled: "The Role of Target Costing as a Modern Approach for Cost Management and Reduction." The study purpose is to examine and analyze the role of target costing as a modern approach for cost management and reduction by examining the principles underlying the target costing approach and analyzing methods for determining the target cost. The study concluded that target costing depended on a group of principles, including price leading to cost, focusing on product design, and establishing integrated work teams.

Second: Foreign Studies

1. KEE study (2010) entitled: "The Sufficiency of Target Costing for Evaluating Production-Related Decisions." The goal of this study was to test whether the production decisions taken using target costing add economic value to the organization. The traditional target costing model provides low estimates for the contemporary cost of invested capital and high estimates for the contemporary cost of cash associated with production resources. The study recommended conducting future research to examine target costing from

different perspectives.

2. Camacho and Rocha study (2008) entitled: "Target Costing in Hospital Services: A Study from a Strategic Cost Management Focus." The study goal was to determine the feasibility of applying target costing to hospital services. A case study was applied to municipality of Maringa hospital, Brazil. The study is limited to cesarean births in regular rooms utilized by insured patients. Multiple data sources were used, including the distribution of questionnaires to (50) women to assess the level of each service provided. Interviews were conducted with department officials to understand pricing determination and profit margin calculations. The study concluded that target costing can be successfully applied in various sectors, including hospitals. Furthermore, Camacho and Rocha suggested that target costing should be applied to different types of hospitals, including public and private hospitals, as well as charitable and non-profit organizations.
- 3- Kocsoy et al. study (2008) entitled: "Target Costing in Turkish Manufacturing Enterprises." The study's goal was to identify whether companies utilize target costing in industrial activities and investigate whether companies implementing target costing, taking into consideration the rules of applying this method, such as customer expectations, profit margins, costs, pricing determination, and reducing administrative costs. The study found that pricing new products is cost-dependent and can be a barrier to successful implementation of target costing. The study concluded that greater attention should be given to customer expectations before product design to achieve the anticipated benefits through target costing implementation.
- 4- Everaert & Swenson study (2014): entitled "Truck Redesign Case: Simulating the Target Costing Process in a Product Design Environment." The study goal was to identify the mechanisms of cost management in a product design environment through simulating the target costing approach. The study attempted to get a better understanding of opportunities to reduce product costs during the design phase and comprehend the mechanisms for changing design decisions that can affect the product cost. It also highlighted the role of cost information in streamlining decisions and understanding the functional interaction among sales, marketing, and engineering design in product development.

Firstly: The Study Theoretical Framework

The theoretical perspective is considered a fundamental pillar of the scientific study. Familiarizing oneself with the theoretical foundation of the research topic enables the researcher to grasp the various perspectives related to the study. Theoretical framework also allows researchers to formulate the research problem, illuminate the goals they intend to achieve, and understand all the foundations and concepts directly associated with their study. Due to the importance of the literature review, the researcher attempted to provide a brief overview of cost theories, with a focus on the most significant one (Yahya, 2008, p. 359).

- Theory of Total Costs: The theory is based on the concept of total burden, where activity units bear their share of all production and direct and indirect marketing costs, both variable and fixed. Administrative costs, on the other hand, are considered temporal costs borne by the income statement.
- Direct Cost Theory: As a result of the criticism directed to the Total Cost Theory, particularly regarding its use of various estimation methods in allocating indirect costs, some accountants attempted to evade the problem of distributing those items by not allocating them and considering them as temporal costs, which represent administrative burdens that should be charged to the income statement. The theory depends on the idea that production units bear

their share of direct costs only, while all types of indirect costs, whether productive, marketing, or administrative, are borne by the income statement as temporal expenses.

- Variable Cost Theory: It depends on partial costing; the activity units bear their share of variable costs only, and fixed costs are considered as periodic or temporal costs borne by the income statement.
- Exploited Energy Cost Theory: It depends on loading activity units with variable costs (assuming that every variable is exploited) and a portion of fixed costs according to the level of utilization or exploitation. The unutilized fixed costs are considered burdens borne by the income statement

1- Target Cost

Products pricing decisions are among the most important decisions made by management due to their direct impact on the organization's profits. The price is defined as the expression of the product or service's value in market units, and the price is affected by several factors, including costs, the nature of the product, demand, and competitors' products, the degree of competition, competitors' behavior, and other factors (Salman, 2010:369). Thus, it can be said that the target cost is the cost that allows companies to achieve their targeted profit when selling products at their target prices. The evaluated cost of the product is the cost of producing the product using the current production processes and technology, and usually the estimated cost of producing the product is higher than the target cost. Hence, the company must adopt strict measures to reduce the estimated cost to the target cost (Fassler & Fisher, 2000:35). Therefore, the target cost is a strategic cost management technique that operates with forward feed, and relates the internal and external factors of the company to increase its profitability and competitiveness depending on retaining success factors through adoption of advanced engineering and information techniques (Al-Mousawi, 2007:32).

2- Steps of Applying Target Costing Technique

Target costing depends on cost management during the product design and development stages. Although it is used throughout its entire life cycle, the reason is that the characteristics and components of the product, the required materials for manufacture, the cost of each material, manufacturing costs, and packaging costs are determined and observed during design and development stages. These specified elements during these stages affect the potentiality of cost reduction throughout different stages of the product's life cycle. This approach depends on cost reduction strategy, which is directly related to long-term planning for profitability, production, and products.

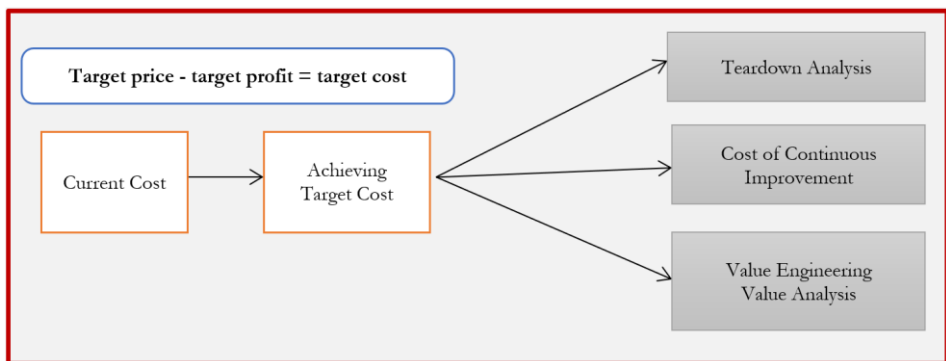


Fig. (1) Steps of Applying Target Cost

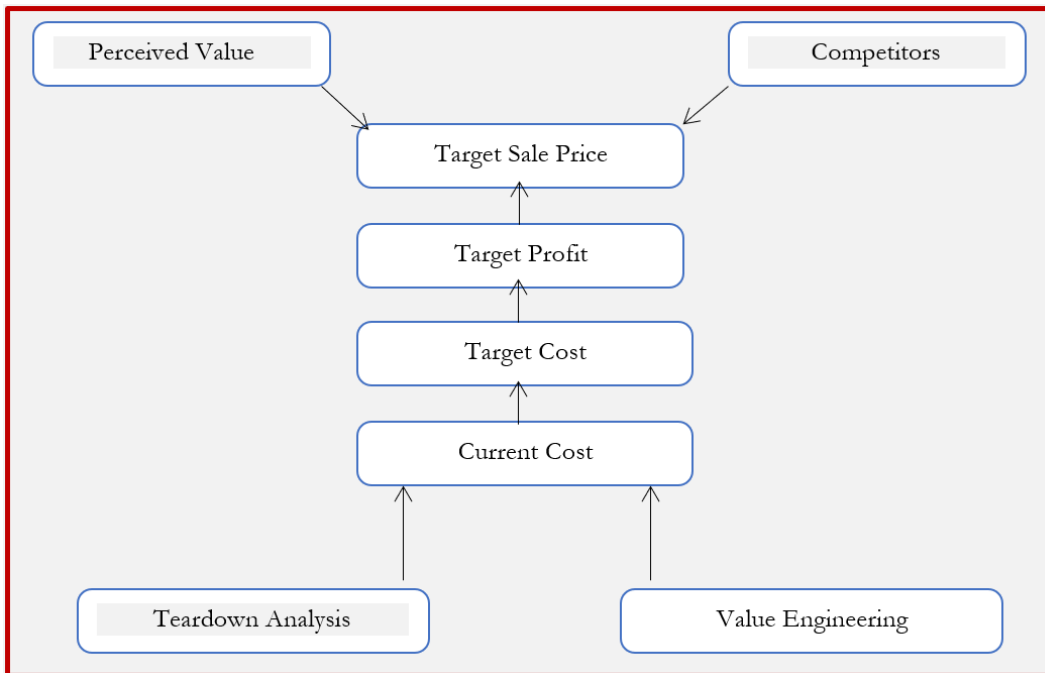


Fig (2) Steps of Applying Target Cost.

Second: Description of Research Variables, Identify them, and Results Analysis

The researcher employs Likert scale and the researcher constructs a table of frequency distribution of the study variables. The study adopts this type of table for statistical analysis to obtain the mean, standard deviations. The researcher depends on an assumed mean of (3) as a standard for measuring and evaluating the marks. In respect to the items of the product life cycle (just-in-time production) and the target cost in the factory under examination.

Table (1) Classification of Responses.

classification	I strongly agree	I agree	Neutral	I do not agree	I strongly do not agree
Mark	5	4	3	2	1

The table is prepared by the researcher

The validity of the study tool and the scale, such as (internal consistency and survey stability), in addition to the scientific qualification are among the important scientific requirements of the survey.

Third: Hypotheses Presentation, Analysis, and Testing

Descriptive statistical scale

After studying the responses of the research sample at Samarra factory of medications regarding my method (target cost and just-in-time production) according to the established survey scales, and descriptive statistical scales:

- Mean
- Standard deviation

- Variance
- t-test

A - Present the results of the sample responses of the questionnaire that revolves around the targeted cost.

Table (2) The Statistical Analysis of the Sample Responses at Samarra Factory of Medications.

No	Items	I Don't		I		Neutral		I		I		Mean	Standard Deviation	T Test
		Completely		Don't		Agree		Agree		Completely				
		1	2	3	4	5	1	2	3	4	5			
		ت	%	ت	%	ت	%	ت	%	ت	%			
1	The implementation of target costing facilitates reducing expenses throughout the product lifecycle by examining all stages of production to identify areas of excessive spending.	1	1.8	0	0	11	19.3	32	56.1	13	22.8	3.98	0.767	39.178
2	Applying the target costing approach leads to the elimination of activities that do not add value to the product.	0	0	2	3.5	6	10.5	31	54.4	18	31.6	4.14	0.743	42.097
3	Applying target costing helps eliminate waste and resource inefficiencies by identifying appropriate production costs and prohibiting costs that do not add value.	0	0	4	7	11	19.3	26	45.6	16	28.1	3.95	0.875	34.072
4	The implementation of target costing improves product design according to customer preferences.	2	3.5	0	0	16	28.1	24	42.1	13	22.8	3.81	0.875	32.848
5	Target costing accurately determines cost elements, encouraging control over production procedures.	0	0	2	3.5	27	47.4	0	0	20	35.1	4.14	0.789	39.609
6	Applying target costing reduces costs in research, development, planning, and execution stages.	4	7	4	7	12	21.1	25	43.9	12	21.1	3.72	0.959	29.279
7	Target costing works to minimize the most costly components when calculating costs.	1	1.8	4	7	13	22.8	30	52.6	9	15.8	3.74	0.877	32.176
8	Target costing relies on close relationships and collaboration with suppliers to reduce costs.	2	3.5	2	3.5	11	19.3	33	57.9	9	15.8	3.82	0.782	36.924
9	The target costing approach establishes product pricing based on market positioning prior to production.	1	1.8	5	8.8	11	19.3	32	56.1	8	14	3.72	0.881	31.857
10	Samarra factory of medications implements accounting procedures and systems that are flexible in control, planning, and execution.	0	0	3	5.3	18	31.6	26	45.6	10	17.5	3.75	0.808	35.080
11	The target costing method aims to reduce costs through product development and design throughout the product lifecycle.	1	1.8	1	1.8	11	19.3	33	57.9	11	19.3	3.93	0.728	40.727
12	Applying this method helps improve financial and operational performance and enables streamlined decision-making in the factory, which adds value to the factory.	0	0	1	1.8	12	21.1	30	52.6	14	24.6	4	0.7342	41.260
Axis Mean											3.892			

Spss outcomes

B- The results of the sample responses of the questionnaire that revolves around production within just-in-time

Table (3): Frequencies, Mean, and Standard Deviations for the Items Related to the Second Axis Concerning Just- in- Time Production.

N°	Items	I strongly don't agree		I do not agree		neutral		I agree		I completely agree		Mean	Standard deviation	T test
		1	2	3	4	5								
		ت %	ت %	ت %	ت %	ت %								
13	Applying of just-in-time production helps reduce inventory levels and lowers the cost of storing the product	0	0	3	5.3	13	22.8	34	59.6	7	12.3	3.78	0.725	39.436
14	The just-in-time production approach consolidates machinery and equipment in one location, reducing handling costs	0	0	1	1.8	11	19.3	31	54.4	14	24.6	4.02	0.719	42.162
15	Applying just-in-time production method reduces work time due to effective training of workers in setup	1	1.8	2	3.5	14	24.6	31	54.4	9	15.8	3.79	0.818	34.974
16	Just-in-time production helps reduce production costs by eliminating non-value-added activities.	2	3.5	1	1.8	12	21.1	33	57.9	9	15.8	3.83	0.751	38.628
17	This approach increases worker efficiency, reduces defects and rework, and ultimately lowers manufacturing costs	2	3.5	2	3.5	11	19.3	27	47.4	15	26.3	3.91	0.884	33.579
18	Implementing just-in-time production involves identifying an adequate number of reliable and certified suppliers	1	1.8	2	3.5	17	29.8	28	49.1	9	15.8	3.70	0.835	33.784
19	Just-in-time production aids in establishing a robust quality control system by eliminating waste in raw materials and operating under lean production	2	3.5	5	8.8	8	14	27	47.4	15	26.6	3.84	1.031	28.123
20	Applying just-in-time production enhances management skills in dealing with obstacles that impede production processes, leading to cost reductions	1	1.8	2	3.5	9	15.8	33	57.9	12	21.1	3.93	0.821	36.151
21	Management should understand workers' requirements and provide incentives to improve production levels and increase efficiency	2	3.5	4	7	12	21.1	26	45.6	13	22.8	3.76	1	28.469
22	The factory in Samarra is criticized for relying on imported raw materials in production, which makes it difficult to adopt the just-in-time production method	1	1.8	8	14	15	26.3	27	47.4	6	10.5	3.51	0.928	28.540
23	Adopting just-in-time production requires involving workers in training programs	2	3.5	4	7	8	14	28	49.1	15	26.3	3.89	0.958	30.702
24	The factory Samarra should engage employees, listen to their opinions regarding issues and difficulties in the workplace, and develop appropriate solutions	0	0	6	10.5	11	19.3	32	56.1	8	14	3.74	0.835	33.784
Axis Mean											3.808			

The table is set by the researcher depending on SPSS outcomes

C- The results of the sample responses of the questionnaire about the integration between the target costing approach and the just-in-time production method

Table (4): Frequencies, Mean, and Standard Deviations for the Items Related to the Integration Between the Target Costing Approach and the Just-in-time Production Method.

No.	Items	I strongly don't agree		I do not agree		I neutral		I agree		I completely agree		Mean	Standard deviation	T test
		1		2		3		4		5				
		ت	%	ت	%	ت	%	ت	%	ت	%			
25	Integration leads to reducing raw material inventory to the lowest level, which reflects in lowering production costs.	3	5.3	4	7.7	12.33	34.59	6	9	15.8	3.74	0.992	28.454	
26	The integration ensures no inventory of fully produced medications in Samarra factory	3	5.3	1	1.8	5	8.8	31	54.4	16	28.1	4	0.906	33.321
27	It helps streamline important managerial decisions.	0	0	4	7.7	12.32	29.50	9	17	29.8	4.04	0.844	36.077	
28	Integration results in reducing production costs through analyzing internal processes and optimizing pricing decisions to increase market share	3	5.3	0	0	11	19.32	74.7	16	28.1	3.98	0.834	36.037	
29	The integration in both studied approaches in the Samarra factory of medications aims to achieve continuous improvement	23	53.78	3	5.3	10	17.52	84.9	1	14	24.6	3.89	0.880	33.414
30	It works towards achieving a balance between available capacities and design capacities	0	0	3	5.3	9	15.83	05.2	6	15	26.3	4	0.802	37.665
31	The application of integration between the target costing approach and just-in-time production leads to improving operational performance and overall performance of the factory	0	0	3	5.3	5	8.8	33.57	9	16	28.1	4.09	0.763	40.473
General axis mean											3.962			

The table is set by the researcher depending on SPSS outcomes

D- The results of the sample responses of the questionnaire regarding the application of target costing system in industrial projects.

Table (5): Frequencies, Mean, and Standard Deviations of the Items Related to the Application of Target Costing System in Some Industrial Projects.

No.	Items	I strongly don't agree		I do not agree		neutral		I agree		I completely agree		Mean	Standard deviation	T test
		1		2		3		4		5				
		ت	%	ت	%	ت	%	ت	%	ت	%			
32	Applying target costing system in industrial projects helps identify non-value-added activities	0	0	5	8.8	11	19.3	30	52.6	11	19.3	3.82	0.848	34.061
33	Adopting the target costing system allows industrial project management to eliminate activities that do not add value to their products	0	0	3	5.3	12	21.1	35	61.4	7	12.3	3.81	0.718	40.026
34	The target costing system in industrial projects works towards increasing market share by striving to gain customer favor	1	1.8	1	1.8	12	21.1	32	56.1	11	19.3	3.91	0.739	31.857
35	When implementing the target costing system in industrial projects, it guides management in making important decisions at all levels	5	8.8	1	1.8	11	19.3	20	35	20	35	3.72	0.881	31.857
General axis mean											3.815			

The table is set by the researcher depending on SPSS outcomes

Table (6): Frequencies, Mean, and Standard Deviations of the Items Related to the Valuable Information Provided by the Target Costing System That Helps Product Development.

No.	Items	I strongly don't agree		I do not agree		neutral		I agree		I completely agree		Mean	Standard deviation	T test
		1		2		3		4		5				
		ت	%	ت	%	ت	%	ت	%	ت	%			
36	Applying target costing system provides important information regarding quality control of its products	2	3.5	2	3.5	8	14	35	61.4	10	17.5	3.89	0.772	38.093
37	It provides valuable information that helps in designing products according to customer preferences	0	0	3	5.3	11	19.3	32	56.1	11	19.3	3.80	0.707	35.920
38	The application of target costing system provides information that helps management study research and development costs and planning	3	5.3	0	0	16	28.1	5	8.8	33	57.9	4.14	0.706	39.574
39	It provides information that assists in market research and determining the appropriate price before initiating production	0	0	3	5.3	12	21.1	33	57.9	9	15.8	3.84	0.751	38.628
General axis mean											3.92			

The table is set by the researcher depending on SPSS outcomes

Table (7): Frequencies, Mean, and Standard Deviations of Items Related to Cost Reduction in Industrial Projects.

No.	Items	I strongly don't agree		I do not agree		neutral		I agree		I completely agree		Mean	Standard deviation	T test
		1		2		3		4		5				
		ت	%	ت	%	ت	%	ت	%	ت	%			
40	Applying target costing system leads to studying cost elements that can be reduced without compromising the product's quality.	2	3.55	2	3.5	5	8.8	29	50.9	19	33.3	4.125	0.854	36.140
41	Applying target costing system helps identify and analyze cost increase factors	1	1.8	2	3.5	12	21.1	27	47.4	15	26.3	3.910	0.879	33.271
42	Applying the target costing system in industrial projects helps reduce the product's life cycle and consequently lower costs.	1	1.8	3	5.3	10	17.5	34	59.6	9	15.8	3.839	0.908	32.079
43	Applying target costing system in industrial projects reduces costs by consolidating machinery and equipment in one place, which positively affects reducing production time and costs.	3	5.3	2	3.5	12	21.1	30	52.6	10	17.5	3.892	0.986	29.116
General axis mean												3.941		

The table is set by the researcher depending on SPSS outcome

Table (8): Items Frequencies, Mean, and Standard Deviations of Fourth Axis of the Questionnaire (Industrial Projects).

No.	Items	I strongly don't agree		I do not agree		neutral		I agree		I completely agree		Mean	Standard deviation	T test
		1		2		3		4		5				
		ت	%	ت	%	ت	%	ت	%	ت	%			
44	Lack of conviction among industrial project management in making changes to their existing systems due to their confidence in the outputs of those systems	2	3.5	6	10.5	7	12.3	26	45.6	16	28.1	3.892	1	29.037
45	Insufficient human resources with scientific competence hinder the implementation of the target costing system	2	3.5	6	10.5	8	14	30	52.6	11	19.3	3.785	0.948	29.884
46	High costs associated with implementing the target costing system in industrial projects prevent its application.	3	5.3	2	3.5	10	17.5	34	59.6	8	14	3.803	0.818	34.779
47	The prevailing belief among industrial project management is that implementing the target costing system does not bring about tangible changes.	4	7	2	3.5	12	21.1	30	52.6	9	15.8	3.75	0.879	31.924
General axis mean												3.807		

The table is prepared by the researcher based on SPSS results

Second: Examining Study Hypotheses

The First Main Hypothesis: "The Use target costing technique in Samarra Factory of Medications leads to cost reduction"

Table No. (9) Testing the First Main Hypothesis.

Calculated T	Tabular T	Sig.	Hypothesis result
56.466	3.416	0.000	Accepted

The table is prepared by the researcher based on SPSS results

One Sample T-Test was used to examine this hypothesis. The analysis results shown in Table No. (9) that the calculated value of (T) is greater than the tabular value of (T), which is (3.416). This result has a statistical significance at level of (0.001). Therefore, the proposed main hypothesis is accepted. The result indicated that the factory uses the target costing technique to reduce costs.

1- First Sub-Hypothesis

(There is a relationship between the target costing approach and cost reduction.)

Table No. (10) Testing the First Sub-Hypothesis.

R ₂	Calculated F	Tabular F	Sig.	Hypothesis result
0.743	10.611	4	05.0	Accepted

The table is prepared by the researcher based on SPSS results

ANOVA test and correlation coefficient were used to test this hypothesis. The analysis results shown in Table No. (10) that the calculated value of (F) is greater than the tabulated value of (F), which is (4). The results showed a statistical significance at a level of (0.05). The correlation coefficient is (0.743), which means there is a correlation of (74.3%) with a reliability level by (95%) between adopting the target costing approach and cost reduction. Thus, the first sub-hypothesis is accepted.

Second Sub-Hypothesis

(There is a relationship between the just-in-time production system and reducing production costs)

Table No. (11) Testing the Second Hypothesis.

R ₂	Calculated F	Tabular F	Sig.	Hypothesis result
0.739	32.380	4	05.0	Accepted

The table is prepared by the researcher based on SPSS results

ANOVA test and correlation coefficient were used to test this hypothesis. The analysis results shown in Table No. (11) that the calculated value of (F) is greater than the tabulated value of (F), which is (4). The results showed a statistical significance at a level of (0.05). The correlation coefficient is (0.739), which means there is a correlation of (74%) with a reliability level by (95%) between adopting the target costing approach and cost reduction. Hence, the second sub-hypothesis is accepted.

C- Third Sub-Hypothesis

(There is a relationship between the integration of the target costing approach and the just-in-time production system and reducing production costs)

Table No. (12) Testing the Third Hypothesis.

R₂	Calculated F	Tabular F	Sig.	Hypothesis result
0.667	14.014	4	05.0	Accepted

The table is prepared by the researcher based on SPSS results

ANOVA test and correlation coefficient were used to test this sub- hypothesis. The analysis results shown in Table No. (12) that the calculated value of (F) is greater than the tabulated value of (F), which is (4). The results showed a statistical significance at a level of (0.05). The correlation coefficient is (0.667), which means there is a correlation of (66.7%) with a reliability level by (95%) between the integration of the target costing approach and the just-in-time production system and reducing production costs. Hence, the third sub-hypothesis is accepted.

Testing The Following Hypotheses

A- Some industrial projects have the ability to apply the target costing system.

Table No. (13) Testing the First Hypothesis.

Calculated T	Tabular T	Sig.	Hypothesis result
45.765	5.31	0.000	Accepted

The table is prepared by the researcher based on SPSS results

One Sample T-Test was used to examine this hypothesis. The analysis results shown in Table No. (13) that calculated (T) value (45.765) is greater than tabular (T) value which is (3.416). This result has a statistical significance at level of (0.001). So, the hypothesis is accepted. The result indicated that the target costing technique can be applied in the projects.

B- The target costing system provides important information for product development.

Table No. (14) Testing the Second Hypothesis.

Calculated T	Tabular T	Sig.	Hypothesis result
46.663	5.31	0.000	Accepted

The table is prepared by the researcher based on SPSS results

One Sample T-test was used to examine this hypothesis. The analysis results shown in table No. (14) that calculated (T) value (46.663) is greater than tabular (T) value which is (5.31). This result has a statistical significance at level of (0.001). Therefore, the hypothesis is accepted. The result indicated that the target costing system provides important information for product development.

C- Applying the target costing system leads to cost reduction in industrial projects.

Table No. (15) Examining the Third Hypothesis.

Calculated T	Tabular T	Sig.	Hypothesis result
37.589	5.31	0.000	Accepted

The table is prepared by the researcher based on SPSS results

One Sample T-test was used to examine this hypothesis. The analysis results shown in table No. (15) that calculated (T) value (37.589) is greater than tabular (T) value which is (5.31). This result has a statistical significance at level of (0.00). Therefore, the hypothesis is accepted. The

result indicated that the industrial projects can benefit from applying the target costing system in addressing the increase in the factories' operational costs, in that way reducing expenses while maintaining revenue, resulting in increased profits.

D- There are some obstacles that hinder the implementation of the target costing system in industrial projects.

Table No. (16) Examining the Fourth Hypothesis.

Calculated T	Tabular T	Sig.	Hypothesis result
36.112	5.31	0.000	Accepted

The table is prepared by the researcher based on SPSS results

One Sample T-test was used to examine this hypothesis. The analysis results shown in table No. (16) that calculated (T) value (36.112) is greater than tabular (T) value which is (5.31). This result has a statistical significance at level of (0.00). Therefore, the hypothesis is accepted. The result indicated that there are some obstacles that hinder the implementation of the target costing system in industrial projects, and they should be minimized before applying this system.

Conclusions and Suggestions

1. Applying the target costing system demonstrates the factory management's vision in planning, controlling, and executing plans.
2. Samarra factory possesses a unique capability in the field of medications manufacturing and production, in addition to the availability of qualified human resources in the fields of accounting and control. This enables the successful adoption of modern management methods when applied.
3. The study results show there is a close relationship between factory management and employees in solving problems that hinder production processes.
4. Applying the target costing system facilitates the reduction of product lifecycle, waste, and resource inefficiency, in addition to improve product design, which leads to cost reduction.
5. Applying the target costing continuously reduces costs starting from the research and development phase, through planning, and ending with implementation.

Suggestions

- 1- It is necessary to involve managers of Samarra factory in training courses on the concept of target costing, just-in-time production, and integration mechanisms.
- 2- The factory management should establish good relationships with reliable and suppliers to ensure the continuous supply of raw materials for the project.
- 3- Efforts should be exerted to find locally manufactured raw materials to ensure their availability, since medication as part of food security of the country.
- 4- Rearranging the machines inside the factory in a way that minimizes handling cycles and eliminates the need for retaining raw material.
- 5- The researcher recommends urging senior management in Iraqi industrial projects to collaborate with universities and institutes through scientific researches and tests to develop a mechanism that can reduce costs to the lowest level without compromising product quality.

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