
THE RELATIONSHIP BETWEEN THE TDABC APPROACH AND TARGET COSTS AND ITS ROLE IN REDUCING COSTS AND INCREASING THE COMPETITIVENESS OF COMPANIES

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Abstract

The research aimed to demonstrate the relationship between the time-driven activity-based costing (TDABC) approach and the target costing approach, and their combined role in reducing costs and increasing corporate competitiveness. This is particularly true in light of the challenges facing economic units in Iraq due to high costs and the ineffectiveness of traditional costing systems. The research relied on an analysis of the role of each approach in addressing the shortcomings of the traditional system. TDABC provides greater accuracy in allocating indirect costs by using time as a primary cost driver, while the target costing approach contributes to strategic planning to reduce costs by determining the target price and planned profit. The research concluded that combining these two approaches provides an effective integrative framework for cost management, supporting the ability to make accurate decisions that contribute to improving financial and operational performance and achieving a competitive advantage in the market. The results also revealed a gap in studies and actual applications of this integration within the Iraqi context, reflecting the need for future applied studies to support the adoption of this advanced accounting approach.

Keywords: Time-Driven Costing (TDABC), Target Costing, Cost Reduction, Competitiveness, Management Accounting.

Introduction

Economic units in Iraq face many challenges for many reasons, especially regarding rising prices and high production costs, in addition to the use of the traditional costing system, which has become unable to provide information that meets customer requirements. Based on technological developments, as well as competition between companies at the local and

international levels, and the inability of these companies to change product prices by raising prices, these companies have focused on using new methods and procedures through which they can confront this crisis and the problems associated with it that affect the ability of these companies to compete and maintain their share in the market or increase it if they are able to do so. Among these methods and procedures are the (TDABC) approach and target costing. Since each of these two methods has a specific way of working, researchers have decided to propose an approach that combines these two methods by defining the relationship between them and how to employ them to reduce costs and increase the competitiveness of companies.

Research problem

There are major problems faced by economic units in Iraq when using the traditional system in allocating costs by following estimated bases in allocating costs, which do not take into account the precise determination of the cost and profits of each branch of those economic units, which leads to a lack of accurate knowledge of the cost of the final product unit. Since cost measurement is considered a basic objective of cost accounting, new methods have emerged that address the flaws in the traditional cost system, which is represented by measuring costs on the basis of time-oriented activities, one of the most important objectives of which is achieving justice in allocating indirect costs.

Importance of research:

The importance of the research is summarized by studying the possibilities that can be applied through the use of target costing technology and the costing system based on time-driven activities in order to know and determine the indirect costs that were followed in the traditional costing system in many economic units due to what this new technology provides based on time-driven activities (TDABC) of information that helps in reducing costs. The costing system based on time-driven activities (TDABC) is also of great importance as it helps management to increase efficiency and control cost management with great accuracy.

Research objectives:

The research aims to achieve several objectives, the most important of which are:

.Understand the impact of applying the TDABC approach on reducing indirect costs in order to arrive at the true cost and then make administrative decisions to reduce those costs and maximize profits.

Increase competitiveness among companies by applying the TDABC approach. •

Research hypothesis:

The research was based on the following main hypothesis:

.The relationship between the TDABC approach and target costs contributes to reducing costs and increasing the competitiveness of companies.

Previous studies:

There are some studies that have addressed the research variables and the relationship between them. The researchers review these studies through the following:

Study (Abu Ghaben, 2013).

Titled: (Time-Driven Activity-Based Costing (TDABC) and its impact on the dividend distribution policy of public shareholding companies listed on the Palestine Stock Exchange). This study aimed to identify the policy of using the time-driven activity-based costing system (TDAB) on dividend distributions in the Palestine Stock Exchange through the application of the (TDABC) system by these companies. The study concluded that Palestinian shareholding companies apply the time-driven activity-based costing system (TDABC) at varying but acceptable rates. Moreover, these companies do not distribute cash dividends. Furthermore, the relationship between the companies that apply the time-driven activity-based costing system (TDABC) and cash flows is a direct relationship with statistical significance.

Kaplan & Anderson , 2017).(.study

Time Driven Activity- Based Costing : simpler and More Powerful Path to higher profits. This study explains how to measure product cost using the time feature in comparing the traditional activity-based costing (ABC) method with the modern time-driven activity-based costing (TDABC) method. The study concluded that applying the time-based costing method provides knowledge of the unit cost in any company and the amount of time required to perform each activity, which enables management in these companies to manage these costs in order to achieve significant profits.

)..Study (Dibs, 2015

Increase the competitiveness of the facility by identifying unutilized production capacity using a time-driven activity-based costing system.

This study aimed to identify the unutilized production capacity within the company's resources by applying the costing system based on time-driven activities (TDABC), as determining the cost of energy has a major role in reducing costs in these companies. The researcher concluded that using costs based on time-driven activities (TDABC) leads to reducing costs.

Study (Al-Atabi, 2015•

Measuring the cost of banking services using the time-driven activity-based costing (TDABC) technique: an applied study.

Through this study, the cost of services provided in Iraqi private commercial banks was determined by applying the costing based on time-driven activities (TDABC), as well as analyzing and studying the advantages of applying this modern system with the presence of high indirect costs. The researcher concluded that there is idle capacity that was not taken into account by bank officials, and that there are no sound scientific and practical foundations upon which to rely in determining the price of banking services. The researcher also concluded that the application of time-driven activities is compatible with the activities within the bank, with the presence of one driver, which is the time driver.

Comment on previous studies:

time-driven activity-based costing (TDABC) approach to reducing costs and improving their measurement more accurately, with a focus on identifying idle capacity, increasing profitability, and achieving operational efficiency. Previous studies also revealed a clear impact on enhancing competitiveness. However, the aforementioned studies failed to directly or systematically address the complementary relationship between the two approaches.

Furthermore, they did not attempt to highlight their combined role in supporting cost reduction strategies and enhancing the competitive advantage of industrial companies. Therefore, the research gap this study seeks to address is in examining the relationship between the two approaches and the impact of their integration on enhancing financial and competitive performance in the contemporary business environment.

Theoretical framework:

Axis 1: Time-Driven Activity-Based Costing (TD-ABC).

1. Time-Driven Activity-Based Costing (TD-ABC) 1.1(

The recent global developments, particularly in the economic and social spheres, and the subsequent need for competition among them have had a profound impact on the nature of the work provided by these economic institutions. This, in turn, has led to the emergence of cost accounting, which has helped management make sound decisions based on the information it provides, which constitutes a high-quality service. Therefore, the Activity-Based Costing (ABC) system initially emerged, and the advantages of this system have addressed the shortcomings of cost measurement. However, with the passage of time and the emergence of many obstacles and impediments, it became necessary to find a new system to address these impediments, which led to the emergence of an approach called the time-driven activity-based costing approach (TD-ABC), which was adopted by (Kaplan & Anderson, 2003). This approach focused on the time consumed by the group of different resources used in activities (Kont & Jantson, 2011: 113). The emergence of this approach led to overcoming the criticism directed at the activity approach, which suffers from high application costs and the treatment of non-independent energy in economic units, as the time approach is considered more accurate, less expensive, and easier and faster to implement in practice (Abu Ghaben, 2013). Therefore, the main reason for the emergence of the time-driven activity-based costing system (TD-ABC) is due to the reluctance of economic units within institutions to adopt the activity-based costing system (ABC) due to the many problems resulting from its implementation. Accordingly, some concepts and definitions related to the time approach will be reviewed:

The time-based costing approach (TD-ABC) was defined as the approach that helps in completing the cost allocation process by basing its application on the utilized and unutilized practical capacity (Ratnatunagam, et al, 2012: 284).

The time-driven activity-based costing approach (TD-ABC) is also known as an approach based on the activity-based costing approach (ABC), but with a reduced implementation cost and a focus on time-driven cost drivers (Al-Shaarani, 2010: 49).

It is also known as an alternative to the ABC approach, due to the many advantages enjoyed by this system, such as speed of implementation based on time rates, lower cost of use, and handling of problems and overcoming the defects and criticisms that accompanied the application of activity-based costs (Al-Rashidi, 2009: 303-350).

The system was also defined as the system that helps management in the process of developing pricing policy by using time rates in calculating costs based on the actual application of the product within the units (Max, 2007: 16-28).

The system was defined as a modern approach based on time-driven activities, which depends in its application on two things: the time required to perform each activity and the cost of the

activity's time to arrive at the cost of the product in a more accurate and clear manner (Guzman, et al, 2014: 160).

Therefore, it can be said that the time-driven activity-based costing (TDABC) approach is distinguished by its accuracy in allocating costs by relying on time as the primary driver, which contributes to both uncovering unutilized capacity and reducing costs. It is also easier and less expensive to implement, and it helps management improve pricing and make necessary decisions, which enhances the efficiency and competitiveness of industrial companies.

2The importance of the time-driven activity-based costing system (TD-ABC1-)

The business environment has witnessed many economic, information and technological developments through the intensity of competition between companies, which prompted them to adopt new and contemporary methods that enable them to face competition between them and other institutions. Therefore, the costing approach based on time-driven activities (TD-ABC) appeared through its accurate measurement of the cost of used and unused energy in each activity. Hence, the importance of the costing approach based on time-driven activities (TD-ABC) comes, which can be summarized in the following points:

.This approach is considered one of the most important systems that provides an accurate measurement of the costs and profits achieved by each unit of activity within organizations, in addition to its use for planning purposes (Kaplan & Anderson, 2007, p. 41).

.This system provides a more accurate representation of energy by expressing it in units of time (Szychta, 2010: 53).

.The use of this system leads to successful resource management by identifying unutilized capacity and idle resources (Huang, 2016:5-6).

.The system's ability to operate in a complex and constantly changing environment, as well as attempts to mitigate the criticisms of the ABC approach (Levant & Zimnovitch, 2011:19).

.Helping in making strategic decisions by providing accurate information about costs within each activity in economic institutions (Terungwa, 2012:33).

The researcher believes that time-driven activity-based costing (TDABC) is a modern, effective system that meets the demands of the contemporary business environment, due to its precision in measuring costs and the use of time as a primary driver. In addition, it helps uncover unused capacity and improve resource efficiency, which will support effective strategic decision-making and enhance institutional competitiveness.

1-3Advantages and disadvantages of the time-driven activity-based costing approach (TD-ABC).

Despite the advantages of the time-driven activity-based costing (TD-ABC) system, it has been subjected to many criticisms as an ideal solution to the problem of cost allocation. The most important of these advantages and criticisms are as follows:

). 1Advantages of the time-driven activity-based costing approach (TD-ABC-31-

The TD-ABC system has many advantages, including:

..Ease and speed of implementation due to the use of time-based mechanisms

.Overcoming the problems and obstacles encountered in the Activity-Based Control (ABC) system.

) ..Due to its time-based nature, it is easy to update and develop quickly (Al-Rashidi, 2009: 55

.There is a strong desire to use it in economic units, where it has proven highly successful in practical application.

).The system is used in budgeting and energy planning processes (Kaplan & Anderson, 2007.

)..Low cost and rapid maintenance (Bonetti & Wernke, 2017: 5-6

.Helping users address problems that arise during implementation through the information provided by this system (same source).

.This system serves to make and rationalize administrative decisions within economic units, especially those with data related to complex activities, such as service facilities. This system highlights the unutilized energy of resources and isolates it from the actual cost of utilization within the economic unit (Al-Rashidi, 2009: 55).

).Disadvantages and criticisms of the time-driven activity-based costing approach (TD-ABC1-3-2

The time-driven activity-based costing (TD-ABC) system has been subjected to many criticisms despite its advantages, the most important of which are:

.Overestimating time rates when measuring costs within economic units, as they rely on personal judgment.

.During the data collection phase, actual time rates are overestimated

.When calculating joint costs, weaknesses in this approach become apparent due to its reliance on time rates, which is inaccurate in the process of standardizing services within economic units (Bahr, 2016: 122-123).

The researcher believes that the time-driven activity-based costing (TD-ABC) approach is an important development in modern costing systems, due to its advantages, most notably speed of implementation, accuracy in detecting unutilized capacity, and support for decision-making. However, it should be noted that its heavy reliance on time estimates can negatively impact its accuracy, particularly when calculating joint costs. This highlights the need to develop more objective measurement tools to ensure its effectiveness in various operational environments.

Axis II: Target costs.

2-1The origin and concept of target costing.

Recent developments in economic institutions, most notably intense competition, have prompted these organizations to resort to new methods for calculating costs. Costing is a key success factor for economic units, and managing it well is a priority, taking into account customer requirements to achieve customer satisfaction and increase product value compared to competing products. Therefore, a new method known as target costing was devised and used by advanced enterprises. Target costing dates back to the first decades of the last century at the American company Ford and the German company Volkswagen, through reducing manufacturing costs using alternative technologies. One of the most important reasons for the emergence of target costing was the search for a new method that would enable organizations to survive and continue in the markets for a long time, as a result of increased competition among organizations by offering low-cost, high-quality products. Criticisms directed at traditional systems by those in charge of these organizations also led to the emergence of this

system, as did the inaccuracy of comparing actual performance with planned performance by traditional regulatory bodies. This method has not found difficulty in imposing itself due to its focus on physical indicators, production processes and product life. There are many studies that have clarified the concepts of target costs.

It has been defined as the process of reducing costs to a minimum through the difference between the selling price and the target profit margin for the product based on the technology used in cost management, which puts the organization in a good competitive position in the markets (Lawrence, 2014: 52).

Target costing has also been defined as a method that provides information about a product's profitability by determining the cost and then designing the product within that cost (Al-Afiri, 2010: 17). (

Target costing has also been defined as the initial stages of a product's lifecycle, which are planned to impact products according to market requirements (Horvarth, 1993: 33).

It has also been defined as the system used to achieve targeted profits when designing a new product or developing a previous one, and it is an integrated system subordinate to cost management (Saleh, 2003: 210-229).

Thus, the concept of target costing can be defined as costs with effective and comprehensive systems that focus on planning, design, and control of all phases of a project to deliver high-quality products at low costs, achieving targeted profits.

From the above, it can be said that target costing is a newly emerging accounting and strategic system, due to increasing market competition and the need for organizations to offer high-quality, low-cost products that ensure sustainability and profitability. This system relies on reducing costs through advance planning and careful product design based on market requirements and targeted profit margins, making it an effective tool for achieving a competitive advantage. Target costing is also a comprehensive process encompassing all stages of a product's lifecycle, with a strong focus on profitability and continuous control, reflecting a significant development in cost management beyond traditional systems.

.Target costing objectives2-2

There are several objectives that the target costing system primarily seeks to achieve, the most important of which is reducing costs while maintaining product quality. It also aims to achieve the following objectives:

.Achieving profits, which is one of the most important goals of the organization's top management, as well as long-term competitiveness.

.The organization seeks to determine the profit margin before launching the product on the market (Majid, 2019: 469).

.Finding a way to reduce the cost of new products without affecting product quality and ensuring a good profit level.

.One of the most important goals of the target costing system is to support cost management in product design in its early stages.

.Finding appropriate solutions by changing the product development method to achieve the goal of the target costing method, which is to reduce the difference between it and the estimated cost (Emilia, Ion, 2013: 114-127).

The researcher believes that the target costing system aims to reduce product costs while maintaining quality, determine profit margins in advance, and support product design to achieve financial goals, while reducing the gap between estimated and target costs to enhance profitability and competitiveness.

Advantages of applying the target costing approach.2-3

There are a number of advantages that the target costing method seeks to achieve, which are: Target costing is a tool for managing costs and profitability simultaneously.

.Cost elements that do not provide an advantage or benefit to the customer are excluded according to the target costing method (Abu Odeh, 2010: 40-41).

.Pricing is fair based on actual cost from the customer's perspective according to the target costing method (Dur, 2016: 149).

.Cost analysis at all stages of service delivery, from the initial planning stage to the post-service delivery stage, enables the target costing approach to achieve comprehensive cost control (Mansour, 2008: 2).

.One of the most important advantages of implementing target costing is reducing production costs while maintaining quality and customer satisfaction.

.Establishing the concept of working as a single team within the organization when implementing the target costing approach is through concerted efforts at various administrative levels within the organization (Al-Nabulsi, 2009: 11).

Disadvantages of applying the target costing approach.2-4

Despite the advantages of the target costing method, there are some criticisms directed at this method, which are:

.Product delivery to market is delayed due to development time, due to re-engineering the value chain to reduce costs. This delay can be very costly.

.Differences in opinion among design team members regarding the appropriate product design result in difficulty reaching consensus (Al-Masoudi, 2010: 170).

.Difficulty predicting the future market price of products, as one of the most significant problems with target costing is determining the actual cost.

.It places significant pressure on workers, which is considered the most significant weakness of the target costing system, as reducing the schedule becomes almost impossible to achieve the target cost (Radhia, 2008: 60).

The researcher believes that the target costing approach is an effective tool for managing both cost and profitability. It helps eliminate non-customer costs and achieve comprehensive control across all stages of production, while supporting administrative cooperation and achieving product quality while reducing costs. However, this approach faces challenges such as product launch delays due to value reengineering, difficulty in coordination among the design team, the inability to accurately predict future market prices, and the high pressure on workers to meet timelines and target costs.

The third axis: The relationship between time-based activity-based analysis (TDABC) and target costs.

the introduction:

In the face of economic challenges and increasingly competitive environments, organizations are required to devise effective and accurate cost management methods to achieve sustainable

profits. Among the most prominent systems are the time-based activity-based costing (TDABC) and the target costing system, which constitute an important and strategic tool for managing and improving costs. Among the most important benefits achieved from the relationship between TDABC and target costs are the flexibility of cost models and their ability to be updated and modified, as well as the ability to reduce the time and resources used when reaching the target cost, achieve sustainable operational efficiency, and support management decisions made in the pre-production stages (Miftah Muhammad, 2025).

The relationship and point of intersection between (TDABC) and target costs

The relationship between the two systems can be summarized as follows:

aspects of the relationship	Target costs	Time-based activity-based analysis (TDABC)	Axis
Improving the process of obtaining profitability	Achieving profitability according to the market price by reaching the cost of production	Accuracy in determining the actual costs of activities	the goal
Support target costing objectives	Used at the beginning of the project	Used when performing the operation	Time focus
Support management decisions by providing unit costing	Depends on expected market price and profit margin	Depends on time and activities	basic unit of analysis
Gain a comprehensive view by integrating time accuracy and market forecasts	Strategic assessment based on market data	Accurate quantitative estimation based on resources used	Estimation mechanism
Integrating them into the product life cycle from design to operation	Design, activity development, pricing strategy	Planning, process analysis, and performance evaluation	Scope of application
If the target costs are exceeded, TDABC is used as a course correction tool	Less flexibility when changing activities, as it may require radical adjustments	It is highly flexible when changing activities in the organization	Flexibility
Reducing costs with operational efficiency	The goal is to achieve profitability from the start	Achieving efficiency by reducing waste and improving resource utilization	Results
Through accurate data, TDABC supports the implementation of target costs	It depends on strategic planning to determine the cost	Time and activity based system	Nature
The accuracy of the data provided by TDABC contributes to the verification of the target cost	Based on forecast data	Relying on actual data	The role of data

Source prepared by the researcher based on various sources.

The table above shows that the relationship between Time-Based Activity-Based Analysis (TDABC) and target costing indicates a significant functional and strategic interdependence that leads to a radical shift in the cost management methodology within production and service organizations. The researcher believes that there is a close relationship between the two concepts that goes beyond a mere conceptual connection, but rather extends beyond that to include a direct impact on shaping the models used in cost planning and the decision-making process within economic organizations.

Axis Four: The Practical Side:

Testing the validity and reliability of the field study too:1-

The researcher conducted a validity and reliability test for the survey list after its initial design. The researcher verified the reliability of the survey list through Cronbach's Alpha Coefficient as shown in Table No. (1).

Table No. (1) Cronbach's alpha coefficients for the study variables

reliability coefficient	Cronbach's alpha coefficient	Number of phrases	Dimensions
0.733	0.537	7	Main hypothesis: There is a statistically significant complementary relationship between the two cost inputs (activity-based and target-based) in achieving cost reduction and increasing competitiveness.
0.778	0.605	7	First sub-hypothesis: There is a statistically significant relationship between the application of activity-based costing and the extent of cost reduction in companies.
0.781	0.610	7	Second sub-hypothesis: There is a statistically significant effect of applying the target costing approach on improving the competitiveness of companies.
0.857	0.734	21	All phrases

Source of results: Descriptive statistics - Frequencies test. *

Table No. (1) shows that the value of Cronbach's Alpha coefficient to measure the reliability of the questionnaire consisting of (21 statements) reached 0.734, which is a value that indicates an acceptable degree of reliability, as the scale is considered acceptable if the value of Alpha exceeds 0.60, and is considered scientifically acceptable if it exceeds 0.70.

The reliability coefficient (usually calculated from the square root of the reliability coefficient) was 0.857, which indicates a high level of validity, confirming that the instrument is able to accurately measure what it was designed to measure.

These results can be interpreted as follows:

.Values ranging between (0.50 - 0.60) are considered sufficient and acceptable in social studies

.Values above 0.70 are considered good.

.Values reaching (0.80 or more) are considered an indicator of an excellent level of confidence and reliability in the measuring tool.

Accordingly, the questionnaire used in this study can be relied upon as a tool with an appropriate degree of reliability and scientific validity.

:Internal consistency validity2-

The researcher verified the validity of the internal consistency of the questionnaire by calculating Pearson's Correlation Coefficient to determine the degree of correlation of each paragraph of the questionnaire with the total score of the dimension to which it belongs. The following tables illustrate the validity of the internal consistency of the study tool.

2-1Validity of the internal consistency of the main hypothesis: There is a statistically significant complementary relationship between the two cost inputs (activity-based and targeted) in achieving cost reduction and increasing competitiveness.)Table No. (2

Validity of the internal consistency of the paragraphs of the main hypothesis: There is a statistically significant integrative relationship between the two cost inputs (activity-based and targeted) in achieving cost reduction and increasing competitiveness.

Significance level	Correlation coefficient	Paragraph	The number
0.00	.448**	The company's costing system is based on combining the two inputs of target costing and activity costing.	1
0.00	.366**	The relationship between TDABC and target costing contributes to improving the company's financial performance.	2
0.00	.570**	Applying both inputs together results in greater cost reduction than using each input separately.	3
0.00	.574**	The integration of cost inputs contributes to improving the efficiency of managerial decision-making.	4
0.00	.515**	Using the two inputs in a complementary way improves the quality of products or services.	5
0.00	.582**	Alignment between the two inputs helps direct resources toward higher-value activities.	6
0.00	.551**	There is a clear impact of the integration of the two inputs on enhancing the company's competitiveness in the market.	7

****Significant at a significance level of 0.01 or less*.Source: Prepared by the researcher based on the results of statistical analysis./.**

Table No. (2) shows that the values of the correlation coefficients between each paragraph of the main hypothesis: "There is a statistically significant complementary relationship between the two cost inputs (activity-based and targeted) in achieving cost reduction and increasing competitiveness" and the total score for the axis were positive and statistically significant at a significance level of (0.05) or less.

The values of the correlation coefficients ranged between:

(0.448)minimum•

(0.582)maximum•

This indicates the existence of internal consistency between the paragraphs of this axis, and indicates that the paragraphs measure a unified dimension and address a single topic related to the complementary relationship between the two cost inputs in achieving corporate goals. Therefore, these results support the validity of the main hypothesis and confirm the validity of the items to measure what they were designed to measure, thus contributing to achieving the study's objectives.

2-2Validity of the internal consistency of the first sub-hypothesis: There is a statistically significant relationship between the application of the activity-based costing approach and the extent of cost reduction in companies.

Table No. (3)

Validity of the internal consistency of the paragraphs of the first sub-hypothesis: There is a statistically significant relationship between the application of the activity-based costing approach and the extent of cost reduction in companies.

Significance level	Correlation coefficient	Paragraph	The number
0.00	.546**	The company relies on activity analysis to determine the cost of products or services.	1
0.00	.616**	Using the TDABC approach helps identify sources of cost waste.	2
0.00	.584**	Activity-based costing helps improve the accuracy of costing.	3
0.00	.562**	The implementation of TDABC has resulted in a reduction in operational costs.	4
0.00	.654**	This approach helps to redistribute resources in a more efficient manner.	5
0.00	.416**	This entry provides detailed insights into the costs of different activities.	6
0.00	.448**	There is a significant improvement in financial efficiency after implementing activity-based costing.	7

**Significant at a significance level of 0.01 or lessSource: Prepared by the researcher based on the results of statistical analysis

It is clear from Table No. (3) that the values of the correlation coefficients between each paragraph of the first sub-hypothesis: There is a statistically significant relationship between the application of the activity-based costing approach and the extent of cost reduction in companies) in achieving cost reduction and increasing competitiveness” and the total score of the axis were positive and statistically significant at a significance level of (0.05) or less.

The values of the correlation coefficients ranged between

(0.416)minimum•

(0.654)maximum•

This indicates the existence of internal consistency between the paragraphs of this axis, and indicates that the paragraphs measure a unified dimension and address a single topic related to the complementary relationship between the two cost inputs in achieving corporate goals. Therefore, these results support the validity of the first sub-hypothesis and confirm the validity of the items to measure what they were designed to measure, thus contributing to achieving the study's objectives.

2-3Validity of the internal consistency of the second sub-hypothesis: There is a statistically significant effect of applying the target costing approach on improving the competitiveness of companies.

Table No. (4)

Validity of the internal consistency of the paragraphs of the second sub-hypothesis: There is a statistically significant effect of applying the target costing approach on improving the competitiveness of companies.

Significance level	Correlation coefficient	Paragraph	The number
0.00	.594**	The company bases its costs on target prices in the market.	1
0.00	.582**	Target costing helps design products that meet customer requirements at an affordable price.	2
0.00	.436**	This approach helps maintain reasonable profit margins in a competitive environment.	3
0.00	.684**	Implementing target costing helps improve a company's competitive position.	4
0.00	.398**	Production processes are modified to achieve target costs without compromising quality.	5
0.00	.569**	This approach leads to the development of new products that meet market needs at competitive prices.	6
0.00	.558**	There is a direct impact of implementing target costing on increasing the company's market share.	7

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/Significant at a significance level of 0.01 or less Source: Prepared by the researcher based on the results of statistical analysis

It is clear from Table No. (4) that the values of the correlation coefficients between each paragraph of the second sub-paragraph: There is a statistically significant effect of applying the target costing approach on improving the competitive ability of companies in achieving cost reduction and increasing competitive ability” and between the total score of the axis was positive and statistically significant at a significance level of (0.05) or less.

The values of the correlation coefficients ranged between:

(0.436)minimum•

(0.684)maximum•

This indicates the existence of internal consistency between the paragraphs of this axis, and indicates that the paragraphs measure a unified dimension and address a single topic related to the complementary relationship between the two cost inputs in achieving corporate goals. Therefore, these results support the validity of the second subscale and confirm the validity of the items to measure what they were designed to measure, thus contributing to achieving the study's objectives.

Statistical description of the study sample:3-

Based on the valid responses for statistical analysis obtained, the researcher described the demographic variables of the study sample, which are job title, educational level, and years of service, as shown in the following tables:

Distribution of study sample members according to job title variable•

It is clear from Table No. (5) that the majority of the sample selected for the study were production managers, at a rate of 27.7% of the sample size of 101 individuals, and the least frequent percentage of sample members was cost managers, at a rate of 9.9%.

Table No. (5) Distribution of study sample members according to job title variable

percentage	number	Statement
26.7	27	Financial Director
9.9	10	Cost Manager
27.7	28	Production Manager
15.8	16	Planning Director
19.8	20	Cost Accountant
100	101	the total

Source: Prepared by the researcher based on the results of statistical analysis

Distribution of study sample members according to the variable of years of experience•

It is clear from Table No. (6) that the majority of the sample selected for the study were aged from 10 to less than 20 years, representing 39.6% of the sample size of 101 individuals, and the least frequent percentage of sample individuals was aged 20 and over, representing 28.7%.

Table No. 6 Distribution of study sample members according to the variable of years of experience

percentage	number	Statement
31.7	32	Less than 10 years
39.6	40	From 10 to less than 20 years
28.7	29	20 years and older
100	101	the total

Source: Prepared by the researcher based on the results of statistical analysis

Distribution of study sample members according to educational level variable.•

It is clear from Table No. (7) that the majority of the sample selected for the study were those who had a bachelor's degree, at a rate of 58.4% of the sample size of 101 individuals, and the

least frequent percentage of sample members were those who had a diploma, at a rate of 41.6%.

Table No. 7 Distribution of study sample members according to educational level variable

Percentage	number	Statement
41.6	42	Higher degrees
58.4	59	Bachelor's
100	101	the total

Source: Prepared by the researcher based on the results of statistical analysis

4-Study assignments test:

To test the study hypotheses, the researcher relied on using a single-sample T-test with the aim of comparing the average awareness of the study sample regarding “the relationship between the (TDABC) approach and the target costs and its role in reducing costs and increasing the competitiveness of companies”, with a reference value of 2.00, as this value represents the average Likert scale used and thus it was considered as an assumed value to measure the sample members’ attitudes towards the statements being measured, as the following table shows the results of testing this hypothesis.

1- Testing the main hypothesis: There is a statistically significant complementary relationship between the two cost inputs (activity-based and target-based) in achieving cost reduction and increasing competitiveness.

Table (8) Main hypothesis test results: There is a statistically significant complementary relationship between the two cost inputs (activity-based and target-based) in achieving cost reduction and increasing competitiveness.

Hypothesis test result	Significance level	T value	Standard deviation	Arithmetic mean	The assumption
Acceptance	0.00	7.51	0.43	2.32	Main hypothesis: There is a statistically significant complementary relationship between the two cost inputs (activity-based and target-based) in achieving cost reduction and increasing competitiveness.

Source: Prepared by the researcher based on the results of statistical analysis

The results of the above table can be interpreted as follows:

□ The arithmetic mean value of the study sample’s perception of the existence of a statistically significant integrative relationship between the two cost inputs (activity-based and targeted) in achieving cost reduction and increasing competitiveness reached 2.32, which

is higher than the assumed reference value (2.00), indicating a clear tendency towards approval.

□ The calculated T value reached 7.51, which is a significant value at the 0.005 level because the calculated significance level of (0.000) was less than 0.05, whereas the actual value of the significance level was (0.000).

□ Accordingly, the main hypothesis is accepted, indicating that the sample members perceive the existence of a statistically significant complementary relationship between the two cost inputs (TDABC and target costs) in improving companies' performance by reducing costs and enhancing their competitiveness.

2-Testing the first sub-hypothesis: There is a statistically significant relationship between the application of the activity-based costing approach and the extent of cost reduction in companies.

Table (9) Results of testing the first sub-hypothesis: There is a statistically significant relationship between the application of the activity-based costing approach and the extent of cost reduction in companies.

Hypothesis test result	Significance level	T value	Standard deviation	Arithmetic mean	The assumption
Acceptance	0.00	6.78	0.46	2.31	First sub-hypothesis: There is a statistically significant relationship between the application of activity-based costing and the extent of cost reduction in companies.

Source: Prepared by the researcher based on the results of statistical analysis

The results of the above table can be interpreted as follows:

□ The arithmetic mean value of the study sample's perception of the existence of the first sub-hypothesis: There is a statistically significant relationship between the application of activity-based costing and the extent of cost reduction in companies. It reached 2.31, indicating a positive tendency toward approval of the hypothesis.

□ The calculated T value reached 6.78, which is a significant value at the 0.005 level because the calculated significance level of (0.000) was less than 0.05. • It is statistically significant at a significance level less than 0.05 (where Sig. = 0.000).

□ The validity of the hypothesis is proven, and accordingly, the first sub-hypothesis is accepted, which reflects the sample members' awareness of the importance of the activity-based costing approach in reducing operational costs and improving the efficiency of resource use within companies.

3-Testing the second sub-hypothesis: There is a statistically significant effect of applying the target costing approach on improving the competitiveness of companies.

Table (10)

Results of testing the second sub-hypothesis: There is a statistically significant effect of applying the target costing approach on improving the competitiveness of companies.

Hypothesis test result	Significance level	T value	Standard deviation	Arithmetic mean	The assumption
Acceptance	0.00	32.16	0.46	4.34	Second sub-hypothesis: There is a statistically significant effect of applying the target costing approach on improving the competitiveness of companies.

Source: Prepared by the researcher based on the results of statistical analysis

The results of the above table can be interpreted as follows:

- The arithmetic mean value of the study sample's awareness of the existence of a statistically significant impact of applying the target costing approach on improving the competitiveness of companies reached 2.20, indicating moderate agreement of the study sample on the paragraphs of the hypothesis.
- The calculated T value reached 4.22, which is a significant value at the 0.005 level because the calculated significance level of (0.000) was less than 0.05. It is statistically significant at the significance level ($0.000 < 0.05$).
- The validity of the hypothesis is proven. Therefore, the second sub-hypothesis is accepted, which indicates the existence of a clear conviction among the sample members regarding the impact of the target costing approach in improving competitiveness through cost management from the early design stages and efficiently meeting market requirements.

Conclusions and recommendations:

:Conclusions

1-The TDABC approach is an important development of the traditional ABC system, providing greater accuracy in cost allocation and making it easier to implement thanks to its focus on time as the primary cost driver, which enhances the effectiveness of resource management and the detection of unutilized energy.

2-Target costing is an effective strategic tool that helps organizations reduce costs while maintaining product quality, through early planning and setting a target profit margin, which contributes to enhancing competitiveness.

3-Both TDABC and target costing have significant advantages for improving financial and operational performance, but both systems face implementation challenges such as accurate time estimation, administrative compliance, and time pressure.

4-There is a clear gap in existing studies on the integration of TDABC and target costing, indicating the need to explore the integration of these two approaches to achieve more comprehensive and efficient cost management.

Recommendations:

- 1- Encourage organizations to adopt the TDABC approach with a focus on developing accurate tools for collecting time data to reduce errors and increase the accuracy of cost allocation.
- 2- Integrate target costing with TDABC into an integrated accounting framework that supports strategic planning and cost reduction without compromising quality.
- 3- Enhance training and awareness among different work teams to ensure consistency in design and implementation views and reduce delays resulting from value reengineering.
- 4- Conduct applied studies in diverse business environments to better understand implementation challenges and how to address them, especially with regard to time and cost pressures.
- 5- Use artificial intelligence technologies and advanced analytics tools to support more efficient and accurate collection and analysis of time and cost data.

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