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The impact of applying target costing on enhancing the competitive advantage of industrial companies in the kingdom of Saudi Arabia: A field study

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Abstract: This study explores the impact of implementing the Target Costing (TC) approach on enhancing the competitive advantage of industrial companies in the Kingdom of Saudi Arabia. The research adopts a descriptive-analytical methodology, utilizing a structured questionnaire distributed to 211 financial managers, accountants, and administrative staff. The collected data were analyzed using SPSS to assess the relationship between TC application and key dimensions of competitiveness, including cost reduction, quality enhancement, and operational flexibility. The findings reveal that applying TC has a statistically significant positive effect on reducing costs, improving product quality, and increasing the ability to innovate and adapt to market changes. These outcomes demonstrate the potential of TC as a strategic tool for strengthening firms' competitive positioning. The study concludes that TC should be widely adopted across Saudi industrial firms to optimize resource utilization and sustain competitive advantage. Practical implications include the need for management to invest in employee training, adopt modern cost management systems, and align pricing strategies with market expectations.

Keywords: *Competitive advantage, Cost reduction, Operational flexibility, Quality improvement, Saudi arabia, Target costing.*

1. Introduction

In recent years, the business environment has changed significantly. These changes include Significant economic and technological advancements, characterized by the expansion of enterprises, intensified competition, and the rapid evolution of markets and consumer demands, have introduced critical challenges related to the sustainability and survival of businesses, particularly industrial enterprises. To address these challenges, organizations have been compelled to produce high-quality products at reduced costs, offering them at competitive prices and within shorter timeframes to maintain and enhance their competitiveness [1].

Success in the industrial sector amidst modern technological advancements, such as the Fourth Industrial Revolution, artificial intelligence, and the Internet of Things, requires heightened awareness of the importance of creating innovative and superior products. This involves generating new ideas that enable businesses to adapt to crises and modern transformations, leading to production processes that lower product costs while addressing economic and industrial needs and strengthening competitiveness [2].

Traditional costing systems have faced substantial criticism for their inability to meet the strategic management needs of contemporary manufacturing environments. Their limitations in providing accurate product costing information have underscored the need for industrial enterprises to adopt

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modern methodologies. One of the most prominent is the Target Costing approach (TC), a contemporary strategic cost management tool. Target costing reduces costs throughout the product lifecycle by improving operational performance and integrating desired features and specifications. Additionally, it identifies critical quality attributes by analyzing customer feedback on essential and secondary product specifications, thereby enhancing material allocation precision in manufacturing [3].

Target costing seamlessly aligns with the modern competitive business landscape by using market-allowed selling prices as the starting point for determining unit costs after deducting desired profit margins. This market-driven cost approach contrasts sharply with traditional costing systems, where costs dictate prices [4, 5]. In Saudi Arabia, the nation's accession to the General Agreement on Tariffs and Trade (GATT) has obligated industrial enterprises to deliver high-quality, competitively priced products. Studies such as Jones and Capperauld [6] emphasize that enhancing competitiveness and meeting customer demands primarily depend on an early-stage focus on product costs and design.

This study investigates the impact of adopting target costing as a modern cost management concept in enhancing the competitive advantage of industrial enterprises in Saudi Arabia, based on the perspectives of financial managers, accountants, and administrative staff in these organizations.

2. The Methodological Framework of the Study

2.1. Study Problem

The rapid advancements in modern manufacturing environments and the globalization of markets have created a highly competitive landscape, where the survival of enterprises hinges on their ability to innovate and develop their products. The early 21st century witnessed the emergence of numerous economic blocs and agreements, such as the General Agreement on Tariffs and Trade (GATT) and the establishment of the World Trade Organization (WTO). These developments have intensified competition among enterprises of varying legal structures and ownership types, pushing them to modernize their administrative and accounting practices to maintain a competitive edge and adapt to the rapidly evolving business environment [7].

Increasingly, researchers in management accounting have acknowledged that traditional tools are insufficient to meet the accelerating changes in contemporary business environments, driven by intensified competition at both local and international levels. This realization has prompted businesses to explore innovative tools and methodologies for cost management and reduction, with the TC approach emerging as one of the most prominent solutions [8].

This study focuses on a problem specific to the Saudi Arabian business environment, which has experienced substantial transformations in recent years, creating a new reality for industrial enterprises. These companies must now produce high-quality, competitive products while ensuring profitability, a challenge intricately tied to product costs and selling prices. However, traditional costing systems in Saudi industrial firms exhibit notable shortcomings, including their inability to develop appropriate policies to counteract the intense competition from imported goods. Moreover, their reliance on historical cost-based methods for future cost estimations often proves ineffective, and pricing strategies frequently fall outside managerial control.

These challenges underscore the urgent need for Saudi industrial enterprises to adopt the TC approach. This approach recognizes the intensity of market competition and enables determining product costs based on expected market selling prices that consumers are willing to pay.

2.2. Significance of the Study

Many countries worldwide employ the TC to control various cost components, as it plays a crucial role in reducing costs and contributing to product development. This study's scientific significance lies in emphasizing the importance of applying the TC, a relatively modern concept in cost accounting. It also addresses the pressing need for industrial companies to adopt advanced costing systems that provide integrated and accurate information, aligning with the rapid developments and competitive pressures these companies face.

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This study's practical significance is reflected in its goal to inform industrial companies about the importance and extent of using target costing to manage their product costs. Furthermore, the application of target costing remains underexplored in the context of field studies conducted within Saudi Arabia, making this research a valuable contribution to the literature.

2.3. Objectives of the Study

This study primarily aims to examine the impact of implementing the TC approach on enhancing the competitive advantage of Saudi industrial firms
By addressing the following objectives:

1. To analyze the impact of applying the TC on cost reduction in Saudi industrial companies.
2. To investigate the effect of the TC on achieving quality in Saudi industrial companies.
3. To assess the role of target costing in fostering flexibility and innovation within Saudi industrial companies.

2.4. Scope of the Study

The following boundaries define this study:

Subjective Scope: The research focuses on identifying the impact of applying the TC on enhancing the competitive advantage of industrial companies.

Temporal Scope: The study was conducted during the first semester of the academic year 1446 AH.

Human Scope: The study targeted financial managers, accountants, and administrative staff in industrial companies across Saudi Arabia.

2.5. Theoretical Framework of the Study

2.5.1. Target Costing

The intense competition in the modern era has driven industrial companies to adopt advanced management accounting techniques to gain a competitive advantage. These techniques enable businesses to penetrate new markets and achieve customer satisfaction by ensuring their products are competitive in terms of quality, innovation, and pricing across both local and global markets [9-11].

In light of this, researchers emphasize the necessity of developing cost systems for industrial companies to support informed pricing decisions. Hamood, et al. [12] argues that target costing is highly applicable and aligned with increasing competition, especially in environments where supply significantly exceeds demand. Thus, target costing has become vital for achieving cost reduction objectives, ultimately enhancing competitiveness. Otieno, et al. [13] define target costing as a process that supports cost reduction during the general design phase of products by planning specifications to meet customer needs and determining costs based on targeted selling prices. Similarly, Alkababji [14] describes target costing as a procedural planning approach to reduce the cost of new products to increase profit margins.

The researchers define target costing as an innovative cost management system that reduces costs through product development without compromising quality. This approach satisfies customer needs while maximizing profit margins. The primary objective of target costing is to reduce and control product costs by providing relevant cost management information to support a company's competitive advantage. According to Ben Klib [15]; Tani, et al. [16] and Norhafiza and Ruzita [17] the main objectives of the TC include:

- Delivering high-quality products at competitive prices that achieve targeted profits by reducing and controlling production costs throughout the product lifecycle, from planning and design to sales.
- Focusing on costs during the product lifecycle from both producers' and consumers' perspectives to ensure mutual satisfaction.
- Meeting management's goals of achieving targeted profit margins while securing market share.

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- Fostering collaboration and innovation among designers, engineers, and employees to deliver the desired product.

2.5.2. Principles of Target Costing

To achieve the objectives of target costing, several principles must be adhered to, as outlined by Atwi [18]; Zamlat [19] and Ali and Obaid [20]:

- Target selling price drives cost: The product's market-acceptable selling price is determined. The desired profit margin is subtracted to arrive at the target cost.
- Focus on customers: The process meets customer requirements for quality, price, and timely delivery.
- Emphasis on product design: Costs are monitored during the design phase, allowing for engineering changes before production begins. This approach reduces costs and shortens the time-to-market for new products.
- Cross-functional teamwork: Teams from diverse departments, including sales, marketing, design, and cost management, collaborate to ensure the product meets target cost parameters.
- Lifecycle cost consideration**:** All costs associated with the product lifecycle are accounted for to achieve overall cost reduction.

The researchers conclude that target costing primarily aims to reduce product or service costs while maintaining competitive quality standards and meeting customer needs. This approach balances consumer satisfaction and required profitability.

2.5.3. Critical Success Factors

Norhafiza and Ruzita [17] and Yoo, et al. [21] identify several factors necessary for the successful implementation of the TC, including:

- A robust accounting information system.
- An accurate cost estimation system based on comprehensive market surveys.
- Strong support from top management due to the strategic nature of the approach.
- The ability to produce diverse products and provide training on target costing techniques.
- Delegating authority to cross-functional work teams to foster innovation.
- Maintain continuous communication channels between the company, suppliers, and customers, as well as internally between departments, to facilitate information exchange.
- Allocating sufficient financial resources for market studies and adopting modern technologies to support the application of target costing.

2.6. Implementation Stages of Target Costing

Horngren, et al. [22] outline the following stages for implementing target costing:

- Identifying products or services that fulfill customer needs.
- Determining the target price: This represents the price customers are willing to pay, identified through market research.
- Calculating the target cost involves subtracting the desired operating income from the expected selling price while maintaining quality.
- Applying value engineering: Conducting systematic evaluations across the value chain to reduce costs while ensuring customer satisfaction.

2.7. Criticism of Target Costing

Despite its advantages, the TC has faced several criticisms. Studies by Al-Amari, et al. [23] and Al-Nihawi and Abu Azoum [1] highlight the following challenges:

- The framework's general nature focuses primarily on implementation steps derived from Japanese case studies that may not be fully applicable in other contexts.

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- Difficulty identifying target cost components, such as selling prices and profits, due to the lack of suitable cost systems in many industrial companies, particularly in developing countries.
- The need for significant organizational changes and associated testing costs complicates the linkage between inputs and outputs.
- Resistance from managers who adhere to traditional practices and exhibit reluctance toward adopting new methods.

2.8. Competitive Advantage

Competitive advantage arises when companies create value by implementing unique strategies that differentiate them from competitors in the product market [24]. This capability enables companies to provide consumers with distinctive value by offering lower prices or delivering additional benefits and services that justify higher prices. To achieve a competitive advantage, companies must evaluate their internal capabilities and resources and leverage them to establish a competitive position that is difficult for rivals to imitate in a rapidly changing and highly competitive environment.

Competitive advantage has been defined as a state where competitors cannot replicate the strategies employed by a company, nor can they benefit from the advantages derived from those strategies Awan, et al. [25] and Klib [8]. Haider [26] views competitive advantage as a combination of skills, resources, and capabilities that management can coordinate and invest in to deliver superior value to customers compared to competitors. Although there is no universally agreed-upon definition of competitive advantage, there is consensus on leveraging a company's unique capabilities to build a distinctive identity that resonates with customers, adapts to continuous changes, and meets customer needs, thereby creating a position that is difficult to replicate.

Based on this, the researchers define competitive advantage as the benefit that arises when a company discovers and implements more effective methods than competitors. Competitive advantage focuses on three main dimensions, elaborated as follows:

2.8.1. Quality Dimension

Quality is a critical component of competitive advantage for industrial companies. It refers to performing tasks correctly to deliver products that meet customer and consumer expectations for high-quality products at lower prices Ben Klib [15]. Al-Hamiri [27] defines quality as a managerial approach that emphasizes the contributions of all organizational members to achieve long-term profitability by meeting consumer needs and benefiting society. Quality fosters competitive advantage by diversifying products, increasing their number, and adhering to global standards, ensuring consumer loyalty.

The researchers conclude that industrial companies must produce high-quality products at low costs while maintaining flexibility to effectively meet customer demands.

2.8.2. Cost Reduction Dimension

Cost reduction is another essential dimension of competitive advantage. Industrial companies strive to capture the largest possible market share by offering products that are lower-cost than their competitors Darouch [28]. Koudid [29] defines cost reduction as the actual and permanent decrease in the costs of activities performed by the company or a reduction in unit costs without compromising product quality. Companies achieve cost reductions through several methods, such as optimizing production capacity, continuously improving product quality, and innovating in product design.

The researchers highlight the relationship between target costing and cost reduction, which is evident in product development processes. This involves designing products based on team proposals, estimating production costs, and comparing target and estimated costs. Suppose the estimated costs align with the target costs, production proceeds while focusing on continuous cost improvement. If estimated costs exceed target costs, adjustments are made using value engineering principles to redesign the product to meet target costs, fulfilling customer and consumer needs.

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2.8.3. Flexibility Dimension

Flexibility is crucial for achieving a competitive advantage in industrial companies, as it enables them to respond quickly to changes in product design to meet evolving consumer needs. Al-Nihawi and Abu Azoum [1] defines flexibility as the ability of industrial companies to identify changes in the external environment and mobilize resources to respond swiftly.

The researchers agree that flexibility refers to industrial companies' ability to effectively adapt their processes to meet customer requirements. This aligns with the findings of Klib [8] who demonstrated that flexibility significantly contributes to competitive advantage and serves as one of its fundamental pillars.

2.8.4. Previous Studies

Numerous recent studies have explored the relationship between applying target costing and achieving competitive advantage in industrial companies. This section highlights some of these studies as follows:

2.9. Al-Nihawi and Abu Azoum [1]

This study investigated the impact of applying the target costing method in supporting the competitive capability of industrial companies operating in Misrata, Libya. Using a descriptive-analytical approach, a questionnaire was distributed to 158 financial and administrative employees in these companies. The findings revealed that industrial companies in Misrata recognize the importance of implementing the target costing method, which positively impacts cost reduction and quality achievement, thus supporting their competitive capability.

2.10. Abdul Samad [30]

This study examined the importance of applying the target costing system to achieve competitive advantage at Al-Murooj Dairy Production Company in Algeria. Using a descriptive-analytical methodology and content analysis of the company's 2023 cost data, the study found that implementing target costing significantly benefited the company, achieving substantial profits that enhanced its competitiveness.

Masadeh, et al. [9]: This research explored the effect of target costing on product structure in Jordanian publicly traded industrial companies. Analytical approaches were employed, and questionnaires were distributed to financial, production, and sales managers in 42 public shareholding companies. The findings demonstrated that applying target costing contributes to product development and profitability improvement by focusing on analyzing product success potential.

Zaytoun [31]: This study investigated the role of target costing in achieving competitive advantage at Sidal Company in Algeria. Using a descriptive-analytical approach and content analysis of the company's cost data, the study concluded that target costing helped reduce costs while maintaining quality. It also balanced cost and quality, ensuring customer satisfaction and preserving the company's reputation.

Alkababji [14]: This research examined the impact of target costing on sustaining competitive advantage in industrial companies in southern Palestine. Utilizing a descriptive-analytical approach and a questionnaire distributed to 415 employees, the study found that implementing target costing significantly contributed to sustaining competitive advantage among the sampled companies.

Tarawneh [32]: This theoretical study introduced the concept of target costing as a modern cost accounting approach and highlighted its importance compared to traditional methods. The study emphasized the role of target costing in cost control and reduction as a strategic cost management tool, concluding that it effectively reduces product costs and achieves competitive advantage for industrial companies.

Al-Mohammadi and Al-Rubaie [33]: This research explored the role of target costing techniques in achieving target costs at the General Company for Automotive Industries in Iraq. Using a descriptive-

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analytical approach and content analysis of the company's cost data, the study revealed that applying target costing helped reduce product costs and align them with customer requirements, enabling the company to maintain a competitive edge.

Al-Amari, et al. [23]: This study examined Libyan industrial companies' awareness of the benefits of applying target costing and the availability of the requirements for its implementation. Employing a descriptive-analytical approach and distributing questionnaires to 93 managers and administrative staff, the study concluded that participants had sufficient awareness of the advantages of applying target costing in Libyan industrial companies.

2.11. Key Insights Derived from the Studies

2.11.1. Consistent Findings

The reviewed studies, conducted in various business environments, consistently emphasize the significance of implementing target costing due to its positive impact on enhancing competitive advantage.

2.11.2. Novelty of the Current Study

This study differs from previous research by focusing on industrial companies in Saudi Arabia and surveying the perspectives of financial managers, accountants, and administrative staff. No prior studies specifically address the impact of target costing on competitive advantage within Saudi Arabia's industrial context, underscoring the originality and novelty of this research. Unlike previous studies that relied on content analysis, this study also employs questionnaires as the primary data collection tool.

2.11.3. Contribution of Previous Studies

Despite the differences, previous studies have informed the formulation of the current study's problem and hypotheses. They have also provided valuable theoretical and practical insights that guided the development of field data collection tools, such as the questionnaire used in this research.

3. Study Hypotheses

In light of the study's problem, objectives, competitive advantage dimensions, and the findings of previous research, the researchers formulated the following hypotheses:

1. There is a statistically significant positive effect at the significance level ($\alpha \leq 0.05$) between applying the TC and cost reduction in industrial companies.
2. There is a statistically significant positive effect at the significance level ($\alpha \leq 0.05$) between applying the TC and achieving quality in Saudi industrial firms
3. There is a statistically significant positive effect at the significance level ($\alpha \leq 0.05$) between applying the TC and achieving flexibility and innovation in industrial companies.

4. Methodology

The researchers adopted a descriptive-analytical methodology based on the study's nature and objectives. This approach involves accurately studying and describing the phenomenon by collecting data related to the research problem, analyzing it, and interpreting it to draw a conclusion. Data collection relied on two primary sources:

4.1. Secondary Sources

Including books, journals, reports, online resources, and previous studies.

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4.2. Primary Sources

The researchers developed and refined a questionnaire designed to measure the impact of applying the TC on enhancing the competitive advantage of industrial companies.

4.3. Study Population and Sample

The study's primary population was financial managers, accountants, and administrative employees in industrial companies across Saudi Arabia. Given the large size of this population and the challenges of comprehensive coverage (time, effort, and cost constraints), the researchers employed a systematic random sampling method to represent them proportionally.

The questionnaire was distributed directly to a sample of financial managers, accountants, and administrative staff working in industrial companies that adopt and apply the TC in Saudi Arabia. 64 industrial companies participated in the study, with 286 questionnaires distributed. Of these, 228 were retrieved, and after a thorough review, 17 questionnaires were excluded due to incomplete information. This resulted in 211 valid questionnaires for analysis.

4.4. Study Instrument

The researchers developed a structured questionnaire to measure the impact of applying the TC on enhancing the competitive advantage of Saudi industrial firms.

Drawing on relevant literature and previous studies, the questionnaire was designed to align with the study's objectives and consisted of two main sections:

- Section One:

This section captured demographic data about the respondents, including gender, educational qualifications, years of experience, academic specialization, and job title.

- Section Two**:**

This section focused on the study variables and included three main dimensions, comprising 28 items.

4.5. Validity and Reliability of the Study Instrument

The validity of the study instrument (the questionnaire) refers to its ability to measure what it is intended to measure. The researchers ensured the validity and reliability of the study instrument using two key methods:

- Face Validity:
  Before initiating data collection, the researchers presented the study instrument to a panel of experts from various Saudi universities, including professors and associate professors specializing in management accounting and business administration. The panel's feedback and suggested amendments were incorporated to refine the questionnaire items and enhance their clarity and accuracy.
- Cronbach's Alpha Reliability:
  After making the necessary adjustments to the questionnaire, distributing it to the study sample, and collecting the final dataset, the researchers conducted a Cronbach's Alpha test to verify the reliability of the dimensions in the second section of the study instrument. The results are presented in Table 1 below:

Table 1.
Cronbach's Alpha Reliability for Study Variables.

Variables Enhancing Competitive Advantage	Number of Items	Reliability Alpha
Cost Reduction	10	0.73
Quality Achievement	8	0.68
Flexibility and Innovation	10	0.89

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The results in Table 1 indicate a high level of internal consistency among the measurement items for each variable in the study instrument, with values ranging between 68% and 89%. In administrative research, reliability values above 60% are considered acceptable. Therefore, the reliability coefficients for all study variables are deemed high and satisfactory.

4.5. Statistical Methods Used in Data Analysis

The researchers employed the Statistical Package for the Social Sciences (SPSS) to analyze the study data. The following statistical methods were utilized:

- Cronbach's Alpha Coefficient: To measure the reliability of the scales used in the study.
- Kolmogorov-Smirnov Test: To assess whether the data followed a normal distribution.
- Correlation Coefficients: To examine the relationships between the study variables.
- Means and Standard Deviations: To describe and summarize the data.
- Chi-Square Test and T-Test: To validate the study hypotheses.

These statistical methods ensured the robustness and reliability of the analysis process, providing a solid foundation for interpreting the study results.

5. Data Analysis and Discussion of Results

5.1. Normal Distribution Test

Before analyzing the data and testing the study hypotheses, the researchers used the Kolmogorov-Smirnov (K-S) test to verify whether the data followed a normal distribution. The results are presented in Table 2 below:

Table 2.
Kolmogorov-Smirnov Test Results for Normal Distribution.

Variables	Number of Items	Z Value	Significance Level
Cost Reduction	10	1.635	0.567
Quality Achievement	8	1.786	0.635
Flexibility and Innovation	10	1.532	0.719

The results in Table 2 indicate that the calculated Z values are less than the critical Z value of 1.27 at a significance level of ($\alpha \leq 0.05$). This confirms that there are no statistically significant differences between the distribution of questionnaire data and a normal distribution.

After verifying that the data followed a normal distribution, the researchers proceeded to analyze the data and test the study hypotheses as follows:

5.2. First Hypothesis

"There is a statistically significant positive effect at the significance level ($\alpha \leq 0.05$) between applying the TC and cost reduction in industrial companies in Saudi Arabia."

Analyzing the questionnaire data revealed that the mean score for each item testing this hypothesis was more significant than the hypothetical mean of 3, indicating participant agreement. The researchers attribute this result to the positive impact of applying the TC on the operational efficiency of Saudi industrial companies through cost planning and control over the product lifecycle.

Using the Chi-Square test, the calculated Chi-Square values were greater than the tabulated values for all items at a significance level of ($p < 0.01$), below ($\alpha \leq 0.05$). The overall Chi-Square value for this hypothesis was 89.07, exceeding the tabulated value of 11.19, indicating statistically significant differences between the overall mean of 3.76 and the hypothetical mean of 3.

These findings validate the first hypothesis. Comparisons with previous studies show consistency with the results of Al-Nihawi and Abu Azoum [1]; Zaytoun [31]; Tarawneh [32] and Al-Mohammadi and Al-Rubaie [33].

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5.3. Second Hypothesis

"There is a statistically significant positive effect at the significance level ($\alpha \leq 0.05$) between applying the TC and achieving quality in industrial companies."

The analysis showed that the mean score for each item testing this hypothesis was greater than the hypothetical mean of 3, indicating participant agreement. The researchers attribute this to the positive effects of applying the TC in achieving quality, which is essential for enhancing competitive advantage by balancing cost reduction with product quality.

Using the Chi-Square test, the calculated Chi-Square values exceeded the tabulated values for all items at a significance level of ($p < 0.01$), below ($\alpha \leq 0.05$). The overall Chi-Square value for this hypothesis was 83.16, exceeding the tabulated value of 11.03, indicating statistically significant differences between the overall mean of 3.59 and the hypothetical mean of 3.

These findings validate the second hypothesis. Comparisons with previous studies reveal consistency with the results of Al-Nihawi and Abu Azoum [1]; Zaytoun [31]; Tarawneh [32] and Al-Mohammadi and Al-Rubaie [33].

5.4. Third Hypothesis

"There is a statistically significant positive effect at the significance level ($\alpha \leq 0.05$) between applying the TC and achieving flexibility and innovation in industrial companies in Saudi Arabia."

The analysis showed that the mean score for each item testing this hypothesis was greater than the hypothetical mean of 3, indicating participant agreement. The researchers attribute this result to Saudi industrial companies' ability to respond quickly to changes in product design, align with customer needs, and achieve flexibility and innovation.

The Chi-Square test results indicated that the calculated values exceeded the tabulated values for all items at a significance level of ($p < 0.01$), below ($\alpha \leq 0.05$). The overall Chi-Square value for this hypothesis was 87.34, exceeding the tabulated value of 10.96, indicating statistically significant differences between the overall mean of 3.71 and the hypothetical mean of **3**.

These findings validate the third hypothesis. Comparisons with previous studies show consistency with the results of Zaytoun [31]; Masadeh, et al. [9] and Al-Mohammadi and Al-Rubaie [33].

6. Conclusion

Economic and technological advancements, alongside increasing competition in the manufacturing sector over recent years, have compelled industrial companies to enhance their competitive advantage to ensure survival and continuity. Achieving this requires modern cost management approaches to reduce product costs while maintaining desired quality levels. Saudi Arabia's industrial companies operate in a highly competitive business environment characterized by rapid technological developments, short product lifecycles, and evolving customer preferences. Under these circumstances, companies must strive to meet the needs of a broad customer base, thereby increasing market share and ensuring sustainability.

This study aimed to examine the impact of applying the TC on enhancing the competitive advantage of Saudi industrial firms, based on a sample of these companies. The findings of the study are summarized below:

6.1. Findings

1. Applying the TC has a statistically significant positive impact on cost reduction in Saudi industrial companies, with an overall mean score of 3.76 for the responses related to this dimension.
2. Applying the TC had a statistically significant positive impact on achieving quality, with an overall mean score of 3.59.

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3. The application of the TC also demonstrated a statistically significant positive impact on achieving flexibility and innovation, with an overall mean score of 3.71.

The researchers acknowledge certain limitations that may restrict the generalizability of the study's results. These limitations include the reliance on a statistical sampling method due to the geographic dispersion of industrial companies across Saudi Arabia and variability in the response rates of the target group, such as financial managers, accountants, and administrative staff. Additionally, some questionnaires were excluded due to incomplete responses.

6.2. Recommendations

1. Increase Awareness:
   Industrial companies should raise awareness of the importance of adopting the TC.
2. Encourage Adoption:
   Companies should be encouraged to adopt and implement the TC, as the local business environment is conducive to its application. This can positively impact cost reduction, quality improvement, and flexibility, ultimately enhancing competitiveness.
3. Modern Cost Management:
   Industrial companies should keep pace with modern advancements in cost management to achieve greater profitability in the current competitive landscape.
4. Staff Training:
   Saudi industrial companies must focus on training and equipping accountants and administrative staff with modern cost management techniques to optimize resource utilization and reduce costs effectively.
5. Further Research:
   Companies should conduct further studies and research in cost management to strengthen their competitive positioning.

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Transparency:
The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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