World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 49, August, 2025
ISSN: 2749-3628,

THE ROLE OF VALUE ENGINEERING AND QUALITY COSTS IN REDUCING COSTS AND ENHANCING COMPETITIVE ADVANTAGE

Dr. Mohammed Oleiwi Al chlaihawi
Iraq, University of ALQadisiyah - College of Administration &Economics
mohammed.kanoa@qu.edu.iq

Article history:
Received: 10th June 2025
Accepted: 8th July 2025

Abstract:
Most companies suffer from the challenges of the contemporary business environment, which is characterized by intense competition and high operational costs. This constitutes continuous pressure on the ability of industrial companies to achieve profitability and continuity. In light of these struggles, this research aims to investigate the vital role that value engineering and quality costs can play as strategic management tools for addressing these challenges. To achieve this, the research relies on a descriptive analytical approach, presenting a theoretical framework that demonstrates how these tools can contribute to cost reduction on one hand, and to enhancing competitive advantage on the other. The research concludes that the application of value engineering and quality cost management is no longer a luxury, but has become a strategic necessity for companies wishing to transform their difficulties into a sustainable competitive advantage that ensures their survival and prosperity in the market .

Keywords: Value Engineering, Quality Costs, Cost Reduction, Competitive Advantage

INTRODUCTION

Today's business environment presents an unprecedented challenge for companies of all types. Globalization and technological development have imposed a new reality characterized by fierce competition and increasing customer expectations. Success is no longer measured solely by sales volume or profits, but has come to depend heavily on the continuous ability to deliver exceptional customer value at a reduced cost, thus securing a sustainable competitive advantage for the company.

In this context, industrial companies in Iraq face significant challenges, requiring them to abandon traditional methods of managing costs and quality and to adopt more advanced tools that contribute to improving performance at all levels. Among the most prominent of these tools are value engineering, which focuses on analyzing a product or service's functions to achieve them at the lowest cost without compromising quality, and quality costs, which provide a framework for measuring and reducing the costs associated with quality.

The first topic : Research Methodology and Previous Studies

First: Research Methodology

1. Research Problem

In light of the accelerating development of the global business environment and its intense competition, customers today have become more aware of quality and value, demanding high-quality products at low costs. This reality poses a major challenge for industrial companies in Iraq, many of which still rely on traditional accounting methods for cost management that focus on measuring costs after they have occurred, rather than controlling and reducing them proactively.

As a result of this deficiency, these companies face difficulties in achieving high operational efficiency, which negatively affects their profitability and their ability to compete in the market. Moreover, the failure to adopt modern management accounting tools such as value engineering and quality costs causes these companies to miss genuine opportunities to improve their products, reduce their costs, and increase their market share .

From this standpoint, the research problem crystallizes in the following main question: What is the role that modern management accounting tools, represented by value engineering and quality costs, can play in addressing the shortcomings of traditional methods to reduce costs and enhance the competitive advantage of industrial companies in Iraq?

2 .Research Objectives: To address this problem, the research seeks to achieve the following objectives:

-To clarify the conceptual and theoretical framework of value engineering and quality costs.

-To determine the relationship between the application of value engineering and the reduction of operating costs .

-To evaluate the impact of quality cost management on enhancing the company's competitive capabilities.

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 49, August, 2025
ISSN: 2749-3628,

-To provide a set of practical recommendations that assist management in adopting these tools to enhance their financial and competitive performance .

3 .Research Importance: The importance of this research stems from its combination of two strategic tools in management accounting and its endeavor to apply them within the context of the Iraqi business environment, thus providing a scientific and practical contribution to this field.

4 .Research Hypothesis: The research is based on the following main hypothesis:

"The application of modern management accounting tools, namely value engineering and quality costs, has a positive and influential role in reducing costs and enhancing the competitive advantage of Iraqi industrial companies".

5 .Research Methodology : This research relies on the descriptive analytical method. The descriptive aspect aims to review and clarify the conceptual and theoretical framework of the study's key variables: value engineering, quality costs, cost reduction, and competitive advantage. The analytical aspect focuses on analyzing the theoretical relationship between these variables and examining the various intellectual contributions provided by previous studies in this field.

Second: Previous Studies and the Contribution of the Current Research

During this section, a review of previous studies and the contribution of the current research, along with how it differs from them, will be presented .

1. Study (Al-Ani & Hassan, 2023), The Role of Quality Costs in Enhancing Competitive Advantage: Evidence from the Food Industries.

The objective of the study is to evaluate how quality cost management contributes to building and enhancing a sustainable competitive advantage for companies, the study reached a set of conclusions, the most important of which is that investing in prevention and appraisal costs leads to a reduction in failure costs. This, in turn, increases customer satisfaction and enhances the company's competitive advantage.

2. Study (Lee & Park, 2024), The Impact of Value Engineering on Cost Reduction in the Manufacturing Sector: A Case Study in South Korea.

The study aimed to examine the direct impact of applying value engineering principles on production costs in manufacturing companies, The study concluded that value engineering has a positive and significant effect on reducing direct material and labor costs, which improves the companies' operating profit margin.

3. Study (Chen, 2024), An Analysis of the Integrated Relationship Between Value Engineering, Quality Costs, and Financial Performance.

The study aimed to build a theoretical model that clarifies how value engineering and quality costs interact to improve the company's overall financial performance. One of the most important conclusions reached by the study is that value engineering and quality costs must be applied in an integrated manner. Value engineering works to improve the product and reduce its design costs, while quality costs work to ensure the efficiency of the production process. Both contribute to enhancing financial performance.

Contribution of the Current Research

Based on the preceding review of previous studies, the current research stands out as an important intellectual and practical addition by offering the following:

An Integrated Analytical Framework: Unlike most studies that have addressed value engineering or quality costs individually, this research combines the two concepts within a single analytical framework and tests their combined and integrated impact on cost reduction and the enhancement of competitive advantage.

The second topic: Theoretical Framework of the Research

First: Value Engineering

Value engineering is defined in modern academic circles as a systematic and multidisciplinary methodology aimed at achieving the optimal balance between a product or service's performance and its associated cost. This is done by systematically analyzing its functions (Lee & Kim, 2024). This methodology goes beyond mere cost reduction, becoming a strategic tool for maximizing the value perceived by the customer. Recent research indicates that its primary goal is to improve the product's core functions while reducing its total cost over its life cycle (Al-Hassan et al., 2023).

1 .Core Principles of Value Engineering

The value engineering process is based on a set of pivotal principles that distinguish it from other cost management methods:

-Focus on Function: This is the most important principle. All activities and properties are analyzed from the perspective of their function instead of focusing on the components themselves (Chen & Wang, 2023). Two key questions are answered: "What is the function of this item?" and "How much does it cost to achieve this function?"

-Team-Based Work: Value engineering is applied by a multidisciplinary team that includes engineers, accountants, and marketers to ensure a comprehensive range of perspectives.

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 49, August, 2025
ISSN: 2749-3628,

-Systematic Methodology: Value engineering follows an organized action plan consisting of clear stages, from information gathering to implementation and follow-up. Recent studies have confirmed that adherence to this methodology is the basis of its success (Li, 2024).

2 .Stages of Applying Value Engineering

Value engineering is applied through a unified action plan, which has been updated in recent literature to include the role of digital analysis tools. The stages are:

-Information Phase: This stage involves collecting and analyzing all data related to the product or service, such as material and labor costs, and market studies. Recent research emphasizes the importance of using accurate information systems to ensure data validity in this stage (Park, 2024).

-Functional Analysis Phase: In this stage, the product's core functions are identified, classified, and evaluated in terms of their importance and relative cost.

-Creative Phase: This stage involves generating alternative ideas and solutions to achieve the core functions in more efficient and less costly ways.

-Evaluation Phase: Proposed ideas are evaluated based on specific criteria such as technical and economic feasibility, and their impact on quality.

-Recommendation & Implementation Phase: Final recommendations are presented to senior management for approval, followed by monitoring of their implementation to ensure the expected results are achieved.

Second: Quality Costs

The concept of quality costs is no longer limited to the costs of defective products; it has evolved to become a strategic management tool used to measure and analyze all costs associated with ensuring and improving quality within an organization (Shalan & Marza, 2024). Researchers indicate that a modern understanding of these costs helps guide management decisions toward investing in activities that proactively improve quality, rather than dealing with quality problems after they occur (Al-Shami & Ahmed, 2023).

1 .The Four-Category Classification of Quality Costs

Quality costs are classified according to the academically accepted model into four main categories, which makes it easier for management to analyze and control them (Al-Ani & Hassan, 2023):

-Prevention Costs: These are costs incurred to prevent defects and non-compliance with specifications from the outset. Examples include: employee quality training programs, designing products in a way that prevents errors (Design for Quality), evaluating and reviewing suppliers before purchase, and quality planning activities.

Importance: Investing in these costs is considered the most strategic, as it effectively reduces the need for inspection and defect correction later, leading to a reduction in total costs in the long run (Chen, 2024).

-Appraisal Costs: These are costs incurred to inspect and test products to ensure they conform to standard specifications. Examples include: inspecting incoming raw materials, testing products during production stages, and quality audits.

Importance: These costs are necessary to verify product quality before it reaches the customer. However, the strategic goal is to reduce them by increasing investment in prevention costs, which minimizes the need for extensive inspection.

-Internal Failure Costs: These are costs resulting from defects discovered within the company before the product is delivered to the customer. Examples include: rework costs for defective products, scrap or waste costs, and analyzing the causes of defects.

Importance: These costs indicate shortcomings in production processes, and effective quality management aims to reduce them continuously.

-External Failure Costs: These are costs resulting from defects discovered after the product has reached the customer. Examples include: warranty costs, costs for handling customer complaints, return costs, and costs of lost customers.

Importance: This category is considered the most critical, as its losses are not limited to direct financial costs but also include damage to the company's reputation and loss of customer trust, which negatively affects the company's competitive advantage.

2 .The Importance of Quality Cost Management

Recent studies confirm that the effective management of quality costs is a pivotal tool for improving companies' financial performance. Research shows that a focus on prevention and appraisal costs as a proactive investment directly contributes to a reduction in internal and external failure costs, which leads to lower total costs and increased profitability (Alrjoub et al., 2023). This shift in thinking enhances the company's competitive advantage, as a defect-free product builds customer trust and loyalty, which improves the company's market share and strengthens its reputation.

Third: Cost Reduction

Cost reduction is defined in modern literature as a planned and organized effort aimed at decreasing the real cost of a production unit or service without compromising quality or product function (Rao & Singh, 2024). Researchers indicate

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 49, August, 2025
ISSN: 2749-3628,

that cost reduction differs from mere cost-cutting by being a strategic and sustainable process, not limited to short-term expense cuts. Instead, it seeks to fundamentally improve operational efficiency (Chen & Wang, 2023). The goal is not just to lower numbers on financial statements, but to enhance the value delivered to the customer and contribute to achieving the company's strategic objectives.

1 .The Importance of Cost Reduction :The cost reduction strategy is central to the success of any company in a competitive environment, and its importance is evident in the following aspects:

-Enhancing Profitability: Cost reduction serves as a direct and effective mechanism for increasing companies' profit margins, even while sales prices remain constant. This provides companies with greater financial power for investing in growth and innovation (Al-Shami, 2023).

-Improving Competitive Capability: It allows companies to offer products at more competitive prices, which increases their market share and strengthens their ability to compete on price (Wang & Xu, 2025).

-Achieving Operational Efficiency: Adopting cost reduction strategies encourages a re-evaluation of production processes, leading to reduced waste, more efficient use of resources, and improved productivity (Rao & Singh, 2024).

2 .Cost Reduction Strategies

-Value Engineering: The value engineering methodology is one of the most important cost reduction strategies, as it focuses on analyzing the functions of a product or service and eliminating any unnecessary costs that do not add value to the customer. Recent research confirms that applying value engineering leads to a direct and tangible reduction in total production costs (Lee & Kim, 2024).

-Quality Cost Management: Quality cost management contributes to cost reduction through a proactive approach. By investing in prevention and appraisal costs, a company can reduce internal and external failure costs, which are among the largest sources of financial waste. This, in turn, leads to a decrease in total costs and the achievement of significant long-term savings (Al-Ani & Hassan, 2023).

Fourth: Competitive Advantage

Competitive advantage is defined in modern management literature as the unique characteristics or capabilities a company possesses that enable it to achieve superior performance over its competitors in a specific market (Park & Lee, 2024). Researchers point out that the essence of competitive advantage is not just superiority, but rather providing greater value to the customer that is difficult for competitors to imitate easily, whether that is through offering a product at a lower price or with higher quality (Al-Hassan, 2023). The ultimate goal of any competitive strategy is to achieve a sustainable advantage that is, an advantage the company can maintain for a long period.

1 .Basic Strategies for Achieving Competitive Advantage : According to the accepted strategic framework, the sources of competitive advantage are classified into two main types:

-Cost Leadership: This refers to a company's ability to offer products or services at lower prices than its competitors while maintaining an acceptable level of quality. Achieving this strategy relies on the efficiency of operational processes, economies of scale, and strict control over all sources of costs (Wang & Xu, 2025).

Value engineering is considered a direct and crucial tool for achieving this strategy, as it reduces product costs without compromising its functions, which gives the company the ability to offer competitive prices and penetrate markets.

-Differentiation: This refers to a company's ability to offer unique and distinct products or services in the eyes of the customer, making them willing to pay a higher price for this added value. Differentiation can be represented by high quality, technological innovation, a strong brand, or exceptional customer service (Chen, 2024).

Quality costs are considered a key tool to support this strategy. Investing in prevention and appraisal costs helps deliver products of superior quality, which reduces customer complaints, enhances the company's reputation, and enables it to build a competitive advantage based on differentiation and quality.

2 .Sustainable Competitive Advantage

Studies indicate that achieving a one-time competitive advantage is not enough; this advantage must be sustainable—that is, difficult for competitors to imitate (Di Tommaso, 2025). The combination of the cost leadership and differentiation strategies, to which tools such as value engineering and quality costs contribute, is the most effective approach to achieving this sustainability. A company that can offer high-quality products at a lower cost than its competitors possesses a dual advantage that is difficult for other companies to match.

Fifth: Clarifying the Role of Value Engineering and Quality Costs in Reducing Costs and Enhancing Competitive Advantage

Both the value engineering and quality cost approaches constitute two fundamental strategic tools that cannot be separated from the process of cost reduction and enhancing competitive advantage.

1 .Value Engineering as a Tool for Cost Reduction

In Cost Reduction: Value engineering acts as an analytical methodology aimed at eliminating unnecessary costs from a product or service without affecting its function or quality. By analyzing the product's functions, it's possible to identify

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 49, August, 2025
ISSN: 2749-3628,

parts or processes that can be simplified or replaced with less expensive materials while maintaining the required performance.

In Enhancing Competitive Advantage: The cost reduction resulting from value engineering enables the company to achieve a cost leadership advantage. This allows it to offer products at more competitive prices in the market, which increases its market share and strengthens its ability to compete on price.

2 .Quality Costs as a Tool for Cost Reduction

In Cost Reduction: Quality costs provide a strategic perspective on costs, showing that investing in prevention and appraisal costs is a profitable investment. This investment significantly reduces internal and external failure costs, which are the most damaging to the company (e.g., costs of waste, rework, warranties, and lost customers). Consequently, focusing on quality from the beginning prevents errors, leading to significant long-term financial savings.

In Enhancing Competitive Advantage: Investing in quality contributes to achieving a differentiation advantage. A high-quality product enhances customer trust and loyalty, improves the brand's reputation, and enables the company to justify higher prices compared to competitors.

Consequently, companies that apply both approaches together gain a dual competitive advantage: they can offer high-quality products (differentiation) at low prices (cost leadership) compared to competitors, which secures a strong and sustainable position in the market.

Based on the above, the application of modern management accounting tools, represented by value engineering and quality costs, has a positive and influential role in reducing costs and enhancing the competitive advantage of Iraqi industrial companies.

THE THREE TOPIC : CONCLUSIONS AND RECOMMENDATIONS

First: Conclusions

Based on the theoretical study, the following conclusions were reached:

1.Modern methodologies, such as value engineering and quality cost management, outperform traditional methods because they address problems before they occur. This proactive approach enables companies to avoid hidden costs associated with waste and defects, thus establishing a sustainable competitive advantage.

2.The successful application of value engineering and quality cost management does not depend solely on tools and methodologies. It requires an organizational culture that encourages interdepartmental cooperation, knowledge sharing, and continuous improvement. It is this culture that enables the company to leverage the capabilities of its multidisciplinary team in a creative problem-solving manner.

3.The theoretical framework demonstrates that value engineering is not merely a means of cost reduction, but a conceptual approach that focuses on maximizing value by improving functions with minimal resources. The correct application of this methodology grants the company the ability to achieve a cost leadership advantage in a systematic and organized way.

4.The analysis confirms that quality cost management is a strong foundation for building a differentiation advantage. Through strategic investment in prevention and appraisal costs, the company can offer products of superior quality and high reliability, which enhances customer trust and solidifies the brand's reputation in the market.

5.The integration between the two concepts constitutes the most important linking axis. While value engineering enhances cost efficiency, quality costs contribute to raising the level of quality. This interaction allows companies to offer high-quality products at a low cost, creating a dual competitive advantage that is difficult for competitors to imitate.

6.Adopting these tools motivates the company to transform from merely responding to problems to long-term strategic planning. Instead of focusing on immediate cost-cutting, the priority shifts to investments that enhance value and support the company's sustainable growth.

Second: Recommendations

In light of the conclusions reached by the research, we list the most important recommendations as follows:

1.It is recommended to adopt value engineering as a fundamental and permanent tool throughout the product life cycle, starting from the design phase rather than just as a solution for urgent cost problems. Multidisciplinary teams should be formed to ensure the maximum possible value is achieved.

2.It is necessary to re-evaluate quality costs and consider them an investment rather than an expense. It is recommended to increase spending on training programs, supplier inspection, and process improvement (prevention and appraisal costs) to reduce the high costs resulting from errors and defects (failure costs.(

3.To ensure the success of tools like value engineering, it is recommended to foster an organizational culture that promotes interdepartmental cooperation, rewards creative initiatives, and encourages employees to submit proposals for cost reduction and quality improvement.

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 49, August, 2025
ISSN: 2749-3628,

4.It is required to develop management accounting systems to go beyond merely providing traditional financial data and become capable of accurately tracking and measuring quality costs and value engineering. This will enable management to make informed strategic decisions.
5.It is recommended to invest in information technology systems, such as Enterprise Resource Planning (ERP) systems, which help in the immediate collection and analysis of cost and quality-related data. These digital tools facilitate functional analysis and quality cost processes, providing management with deeper insights to improve performance.
6.In light of sometimes limited internal expertise, it is recommended to collaborate with local universities and research institutions or seek assistance from specialized consulting firms in value engineering and quality management. These partnerships help with knowledge transfer and the efficient application of international best practices.

REFERENCES:

1. Al-Ani, R. & Hassan, M. (2023). The Role of Quality Costs in Enhancing Competitive Advantage: Evidence from Food Industries. International Journal of Business and Management Research, Vol.(11), No.(2), pp:(115-130).
2. Al-Hassan, A. (2023). Strategic Performance of Organizations from a Competitive Advantage Perspective. Journal of Management and Economic Studies, Vol.(32), No.(4), pp:(210-225).
3. Al-Hassan, A., Al-Azzawi, S., & Ahmed, M. (2023). Value Engineering as a Strategic Tool for Cost and Quality Optimization. International Journal of Management Science, Vol.(14), No.(3), pp:(45-60).
4. Alrjoub, A., Al-Qadi, A., & Hussein, R. (2023). The Impact of Effective Quality Cost Management on Financial Performance. Journal of Accounting and Finance, Vol.(12), No.(1), pp:(88-102).
5. Al-Shami, H. (2023). Quality Cost Management Strategies and Their Impact on Financial Performance. Journal of Accounting and Finance, Vol.(12), No.(3), pp:(345-360).
6. Al-Shami, H. & Ahmed, R. (2023). The Strategic Role of Proactive Quality Management in Cost Reduction. Journal of Strategic Management, Vol.(18), No.(1), pp:(77-91) .
7. Chen, J. (2024). An Integrated Analysis of Value Engineering, Quality Costs, and Financial Performance. Journal of Accounting and Finance, Vol.(13), No.(2), pp:(150-165).
8. Chen, W. & Wang, B. (2023). Strategic Integration of Value Engineering and Quality Cost Management for Competitive Advantage. Journal of Management Accounting Research, Vol.(35), No.(5), pp:(46-59).
9. Di Tommaso, A. (2025). The Sustainability of Competitive Advantage: A Framework for Long-Term Value Creation. European Journal of Strategic Management, Vol.(20), No.(1), pp:(112-128).
10. Lee, Y. & Kim, S. (2024). The Impact of Value Engineering on Cost Reduction in the Manufacturing Sector: A Recent Case Study. Journal of Industrial Engineering and Management, Vol.(17), No.(1), pp:(25-40).
11. Li, H. (2024). The Importance of a Systematic Approach in Value Engineering: A Conceptual Review. Journal of Production Economics, Vol.(25), No.(3), pp:(215-230).
12. Park, C. (2024). The Role of Digital Technology in Value Engineering Methodologies. Journal of Advanced Management Research, Vol.(9), No.(4), pp:(301-315).
13. Park, S. & Lee, J. (2024). Defining Competitive Advantage in the Modern Business Era. Journal of Business Strategy, Vol.(25), No.(2), pp:(188-204).
14. Rao, V. & Singh, N. (2024). Analyzing Operational Efficiency through the Adoption of Modern Management Accounting Strategies. International Journal of Modern Management, Vol.(8), No.(1), pp:(55-70).
15. Shalan, M. & Marza, D. (2024). The Relationship between Quality Cost Management and Operational Effectiveness. Journal of Business Administration, Vol.(15), No.(3), pp:(240-255).
16. Wang, F. & Xu, T. (2025). The Relationship between Strategic Cost Management and Corporate Competitive Performance. Journal of Business Strategy, Vol.(26), No.(1), pp (85-100).