

The Impact of Integrating Quality Costing and Value Stream Costing Concerning Competitive Advantage: Applied Study in Iraqi Industrial Sector

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ABSTRACT

By collecting data from a sample of Iraqi companies, the purpose of this study was to look into the impact of integrating quality cost and value stream costing on competitive advantage in Iraqi industrial companies. Quality costing helps management in lowering costs and preventing non-added costs, whereas value stream costing assists in tracing costs through production lines and enhancing cost Consumption, both of the systems mentioned above assist in reducing production costs while increasing production efficiency, hence increasing competitive advantage. To achieve the research objectives, a quantitative method has been used, with a questionnaire with closed-ended questions distributed online to a sample of (100) managers and accountants in Iraqi industrial companies. The study concluded that there is a statistically significant, positive, and strong relation between the integration of Quality cost and value stream costing in Iraqi industrial companies, and that these two systems are complementary. The researchers recommend that in Iraqi industrial companies, Quality Cost be used in conjunction with Value Stream Costing in order to improve the use of the establishment's resources thus reducing costs to improve competitive advantage.

Keywords: Quality Cost; Value stream costing; Competitive advantage; Lean Accounting.

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El Impacto de la Integración del Cálculo de Costes de Calidad y del Cálculo de Costes del Flujo de Valor en Relación con la Ventaja Competitiva: Estudio Aplicado en el Sector Industrial Iraquí

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RESUMEN

Mediante la recopilación de datos de una muestra de empresas iraquíes, el objetivo de este estudio era examinar el impacto de la integración del coste de la calidad y el cálculo del flujo de valor en la ventaja competitiva de las empresas industriales iraquíes. El cálculo de costes de calidad ayuda a la dirección a reducir los costes y a evitar los costes no añadidos, mientras que el cálculo de costes de la cadena de valor ayuda a rastrear los costes a través de las líneas de producción y a mejorar el consumo de costes; ambos sistemas mencionados ayudan a reducir los costes de producción al tiempo que aumentan la eficiencia de la misma, aumentando así la ventaja competitiva. Para alcanzar los objetivos de la investigación, se ha utilizado un método cuantitativo, con un cuestionario con preguntas cerradas distribuido en línea a una muestra de (100) directivos y contables de empresas industriales iraquíes. El estudio concluye que existe una relación estadísticamente significativa, positiva y fuerte entre la integración del coste de la calidad y el coste del flujo de valor en las empresas industriales iraquíes, y que estos dos sistemas son complementarios. Los investigadores recomiendan que en las empresas industriales iraquíes se utilice el Coste de Calidad junto con el Coste de la Cadena de Valor para mejorar el uso de los recursos del establecimiento y así reducir los costes para mejorar la ventaja competitiva.

Palabras clave: Coste de la calidad; Coste del flujo de valor; Ventaja competitiva; Contabilidad ajustada.

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1. Introduction

Company competition is becoming more intense. Companies have been searching for ways and strategies to help them stay competitive and maintain market share as a result of the changing world, and a variety of methods and techniques have arisen to help them do so, including Quality costs that help minimize costs represented by failure costs in order to achieve Acceptable Product quality that adds value to the consumer, as well as a value stream costing technique that helps distinguish both Added and Non-Added Value activities. As a result, the following question can be used to illustrate the research problem Acceptable Product quality that adds value to the customer, as well as a value stream costing technique that helps identify both the Added and Non-Added Value activities. Therefore, the research problem can be explained by the following question:

2. Literature Review

2.1. Value stream costing

High market competition and rising production costs forced businesses to look for ways to become more efficient, so they switched to lean production, which is a philosophy that relies on a systematic production system to minimize waste production to a minimum by maximizing added-value activities and reducing non-value-added activities (Bhamu & Sangwan, 2014: 877). (Kennedy & Brewer, 2006:32) defined Lean accounting is based on two simple dimensions, The first dimension is cost analysis of the value stream, which involves both added and non-added value activities as well as activities that do not add value but are present within operations and consume resources; the second dimension is lean income identification or a lean income statement. From a cost perspective, lean accounting is described as an approach that supports the development of value for consumers by measuring the entire Value Stream costs rather than the costs of particular goods or individual departments (Horngren, 2012: 727). As a result, all forms of waste from operations are eliminated. According to (Hanson 2013: 755), lean accounting is mainly aimed at promoting lean manufacturing in order to eliminate bottlenecks and false signals, as well as the need for improvements in both product costs and operational control while transitioning to a value Stream-based lean manufacturing system.

VSC are a simpler form of activity-based costs and one of the facets of lean accounting. Because of the flaws in conventional costing systems, as well as the difficulty of implementing activity-based costing (ABC) and the associated transition to lean manufacturing processes, businesses have turned to other approaches to provide valuable information to those carry out the lean manufacturing process. The method of value Stream costs are one of the tools that can assist in the provision of the information (Markel, 2000: 46). What a consumer is willing to pay for is referred to as value (Reheat, 2009: 116) or the ability to develop a product through operations (Rahaeu, 2009: 116). (Tapping & Shuker, 2003). Value Stream costs, according to (Weinberg, 2010: 15), is the method of allocating actual costs to the company. As shown by (Tsigkas, 2013: 142), The aim of this approach is to compute the cost of the value components so that the total amount spent can be seen in order to create linkages between the value Stream's components, which include wages and production cycle expenses, manufacturing and material expenses, and their management, , or expenditures related to the value characteristics desired by the consumer through the arrangement of work Stream, supplies, and information related to the product, are referred to as product cost.

2.1.1 Types of Value Stream Costs

Value stream costs including:

- **Value Streams Material Costs:** Material costs are calculated based on the actual materials used by the value stream. The actual materials used could be calculated using the actual materials purchased or the actual materials delivered from the raw materials stock. (Maskell & Others, 2007: 39).

- **Value stream labor costs:** There is no distinction between direct and indirect wages in the value stream labor costs. Therefore, all salaries spent within the value flow are considered direct awages, regardless of whether they are paid to employees in productive or supportive activities such as production planning, sales, marketing, accounting, or customer care (Hanson & Mowen, 2007:733).
- **Facilities Costs:** the cost of the facilities is comprised of the following items: (the cost of rent, depreciation, costs of public utilities, maintenance, security and protection services, real estate taxes, etc.) The value path area basis is used to assign these costs to the value paths, where the total of these costs is divided by the plant's area to get the cost per square meter, which is then compounded by the value path's area to get its share of those costs. This foundation promotes value stream management and employee efforts to reduce the amount of space occupied by the value stream. (Maskell & Others, 2007: 37).
- **Supports Cost:** Also known as activities beyond the value stream, these costs are difficult to charge directly into a value stream and are not included in the value stream operations, so they are reported separately in the income statement at the business level.

2.2 Types of Value stream costs diagram

One of the indicators associated with achieving or not achieving quality improvements is quality costs. It's a comprehensive metric for evaluating operational performance. As a consequence of quality management and cost measurement methods, it also assists in lowering the overall cost of quality. Improving quality costs is reflected by focusing on value-adding activities, such as prevention, prevention in order to reduce the costs of internal and external failure by adhering to the standards and specifications needed to achieve the highest level of quality in order to meet the demands and fulfill the customer's desires (Glogavac, 2019: 278). (Markuzi & Wisirdani, 2014,369) define quality costs as costs associated with the design, implementation, operation, and maintenance of a company's quality system, as well as the cost of resources consumed in the continuous improvement process, as well as costs associated with system failure, quality products and services, and their costs. The British Standards Institution (BSI) divided quality costs into two sections, one based on the operating cost model and the other on the PAF model, where quality costs were specified as ((the cost of quality assurance as well as the loss incurred when quality is not achieved)) (Ayati, 2013: 4).

The PAF classification is the most widely used model, which divides quality costs into three categories: prevention, evaluation, and internal and external failure costs (Daunoriue & Staniskiene, 2016: 122). (Balouchi & others, 2019: 1137) described these categories as follows:

***Costs of prevention:** These are the costs of avoiding flaws prior to implementation, finding and fixing them, and staff training.

***Evaluation costs:** These are the costs of inspection, testing, and other costs incurred to ensure product or process quality and compliance.

***Internal failure costs:** include rework, waste, and repairs, as well as costs incurred due to product failures within the business or associated with defects prior to delivery of the product or service to the consumer.

***External failure costs:** these are the costs incurred after the product has been delivered to the consumer, such as product replacement during the warranty period, loss of company credibility, complaint management, and product repair.

2.3. Competitive advantage

The basic definition of competitive advantage dates back to 1939 with Chamberlin, then to 1959 with Selznick, who connected advantage with ability, and to Schendel & Hofer, who defined competitive advantage as "the exceptional situation that an enterprise develops against its competitors by allocating resources. It's also known as the characteristics of distinct opportunities within a growing sector defined by a product-market duality. Its goal is to identify unique

characteristics for a marketable product that will offer the company a competitive advantage (Fritz, 2008: 10). According to Porter, a competitive advantage occurs when a company develops strategies that are more successful than those used by competitors, and it is able to execute this discovery in the field, in other words, it is simply a process of innovation in its broadest sense (Porter, 1985: 3). In another perspective, (Hamid, 2018: 4) characterized competitive advantage as a property that a business can have over its rivals, which can be obtained by offering better value to customers, lower prices, or higher quality to consumers. The previous concepts focused on general strategies for competitiveness as a means of competitive advantage, and implied that, in order to gain a competitive advantage, a facility must manufacture products or offer services in a different manner and method than rivals, as long as this distinction earns a favorable view from consumers, whether through low cost or reasonable quality. In a way that ensures their loyalty while also assisting the organization in continuing and surviving in the face of intense competition in the business environment, while there are definitions of competitive advantage based on an organization's ability to achieve profits that are higher than the average profits in a particular industry over a relatively long period of time. Hill and Jones (2008) defined it as follows: (The enterprise acquires a competitive advantage when achieving a rate of profit higher than the industry average), it was also defined as the advantage gained if the facility was able to provide a competitive product that helped maximize its profitability (Zyl, 2006: 19). (Barney & Clark, 2007: 24) believe that a facility has a competitive advantage if it can generate more economic value than its closest competitors in the product market.

The facility's relative position within the same industrial sector determines whether its profitability is higher or lower than the industry average within the same sector, and the basis of profitability is when it is above the average and is considered a sustainable competitive advantage in the long term, and there are two basic types of competitive advantages that the facility can own, which are low cost or differentiation, and the two basic types of competitive advantage work side by side with the range of activities performed by the facility, which it seeks to achieve by leading three general strategies to achieve higher than average performance within the same sector, and the basis of profitability is when it is above the average and is considered a sustainable competitive advantage in the long term, as shown in table (1) based on the porter model (Porter: 1985,11).

Table 1 Competitive Advantage

		Lower Cost	Differentiation
Competitive Scope	Broad Target	1- Cost leadership	2- differentiation
	Narrow Target	3- Cost Focus	3-Differentiation Focus

Source: Porter, Michael E, "competitive advantage", 1985, Ch., pp11-15. The Free Press. New York

*** Lower Cost:** A lower cost advantage is defined as an organization's ability to design, manufacture, and market a lower cost product than its competitors, which may result in higher returns, to achieve this advantage, the organization's value-added activities must be understood, which is an important source of cost advantage, and this is accomplished through ownership of technology. Better, cheaper raw material sources, better utilization of production capacities, efficiency of marketing operations, effectiveness of production and maintenance systems, efficiency and effectiveness of transportation and storage operations, and the facility can achieve a lower cost advantage if its cost structure related to value-adding activities is less than that achieved by competitors, that is to say If the costs of a company's non-value-added activities are lower than those of competitors, it has the lowest cost advantage. The institution can also gain a competitive advantage if it is able to reduce costs in order to sell its products at a lower price than competitors who provide the same goods and services of equal quality (Porter, 1985: 12-13).

***Differentiation:** The ability of an organization to provide a distinct, unique, and high-value product from the customer's perspective, such as higher quality and product-specific characteristics and after-sales services. The process of presenting high-quality products and services to customers is a way to create value for the enterprise, particularly in the field of industrial goods, and the basic idea is that improving quality achieves good financial performance for the enterprise, and perhaps clarifying a tangible benefit to improving quality is to reduce costs associated with not compromising quality, High quality (Graeme: 2013,19), Rapid Response, Renewal, Distribution, and Trade Mark are all examples of differentiation strategies. According to (Magma, 2014:5), the determinants of competitive advantage are limited to the country's current economic and productive conditions, the determinants of human resources and capital, the determinants of technology and infrastructure, and the limited efficiency of workers. While Porter proposed four key determinants of competitive advantage as part of his Diamond Theory, and these four fundamental determinants are expressed in the factors of production, demand factors, related and support industries, Strategy and structure of the institution and competition, added to that two secondary elements, namely the role of government and opportunity (PORTER, 1990:8).

3. Research Methodology

3.1 Research Design and Tool

The research problem in this study is to determine the impact of quality cost and value stream costing convergence on competitive advantage. The quantitative approach is regarded as the most suitable method for addressing the research issue in a more comprehensive manner. According to Apuke (2017), This strategy entails combining data with analysis and using them to evaluate relative hypotheses about various topics. Apuke (2017) stressed the importance of quantitative study, claiming that the data gathered could not be obtained using other methods, and that it also includes a formal evaluation and objective representation of the target group. Since all participants share the same data. The primary data was collected using a cross-sectional survey. This survey (questionnaire) was designed using previous related studies and literature. The questionnaire is divided into four sections, each with a collection of closed statements aimed at gathering information on the deference variables of study. The first component of the questionnaire covers questions regarding the socioeconomic status of the study participants.

The second section contains a set of (7) statements that inquire about the study's first independent variable, Quality cost, while the third section inquires about the study's second independent variable, Value stream costing. Which consists of (8) closed-ended statements, and the fourth portion, which consists of another (7) statements inquiring about the study's dependent variable, Competitive Advantage. The responses of the study sample were gathered using the fifth Likert Scale. The questionnaire's validity was achieved, however, as long as the statements were taken from questionnaires published in peer-reviewed and trustworthy previous papers and studies. However, the questionnaire's reliability was verified by conducting a pilot study with a sample of (31) managers and accountants from a sample of Iraqi industrial companies. Before distributing the tool to the original research sample participants and performing the actual study, SPSS' Alpha Cronbach was used to assess the tool's reliability and component tests. The Cronbach alpha values for the entire questionnaire as well as its individual sections are displayed.

Table 2 Cronbach's alpha reliability test results

No.	Variable	Number of Items	Cronbach's alpha value
1	The application and implementation of quality cost	7	0.909
2	The application and implementation of lean accounting tools	8	0.888
3	The extent of the Competitive advantage	7	0.889
Total Tool's Items		22	0.906

Table 1 shows the results. For first-scale elements, Cronbach's alpha was estimated to be (0.909), (0.888) for second-scale elements, and (0.889) for third-scale elements, Furthermore, for the overall instrument components, it was (0.906), As long as Cronbach's Alpha value is greater than (0.7), the tool's reliability is sufficient, and the results obtained from this questionnaire are valid and would be the same if it is redistributed to another random sample (Graham, 2006).

3.2 Research Sample

The current study's population included all managers and accountants employed by industrial firms in Iraq. The questionnaire was sent electronically via e-mail to a random representative sample of the study population, consisting of (100) managers and accountants employed in six Iraqi industrial companies.

Table 2 displays the socio-demographic description of the study sample participants based on (age, job title, educational attainment, and years of experience):

Table 3 The research sample's socio-demographic characteristics

Variable	Categories	Frequency	Percentages
Age	Below 30 years	42	42.00%
	30- 40 years	35	35.00%
	41- 50 years	19	19.00%
	More than 50 years	4	4.00%
Job position	Manager	44	44.00%
	Accountant	56	56.00%
Qualifications	Bachelor's degree	73	73.00%
	Master's degree	21	21.00%
	PhD	6	6.00%
Years of Experience	Less than 3 years	11	11.00%
	3 years - 5 years	13	13.00%
	5 years - 10 years	58	58.00%
	More than 10 years	18	18.00%
Overall		100	100%

According to the descriptive statistics of the study sample's socio-demographic characteristics, the sample consists of two types of employees of Iraqi industrial companies: accountants (56%) and managers (44 %). However, individuals under the age of 30 years old were the most likely to participate in this survey (42%), followed by individuals aged 30-40 years old (35%), individuals aged 41-50 years old (19%), and finally individuals aged over 50 years old (4%), as shown in Table 2. The majority of the study participants were well qualified, with at least a Bachelor's degree (73%), a Master's degree (21%), or a PhD (13%) (6%), Years of experience have shown that. Table 2 also reveals that accountants and managers with less than 3 years of experience are in short supply, accounting for just 11% of the sample, followed by employees with 3-5 years of experience with (13%). On the other hand, the vast majority of the study sample has 5-10 years of experience (58%) with almost ten years of experience (18%), implying that the research sample is made up of highly qualified persons with knowledge in the study's subject, demonstrating their credibility and efficiency in answering the research questions.

4. Analysis and Results

In this section, data from questionnaires collected from a sample of managers and accountants employed in Iraqi industrial companies were analyzed, with standard means and deviations used to determine the amount and ranges of the study's items, to anticipate the association between Quality Cost, Value Stream Costing, and Competitive Advantage, the Pearson correlation and multiple linear regression tests were performed. In Iraqi industrial companies.

4.1 Results of Quality Cost Implementation in Iraqi Industrial Companies

The descriptive statistics (means and standard deviation) of the answers were measured and organized using five variables to assess the degree and value of using Quality Cost in Iraqi industrial companies from the perspective of managers and accountants: SPSS-based Likert scale point, with very low average values (1-1.80), From (1.81 to 2.60) low, from (2.61-3.40) medium and (3.41-4.20) moderate and from (4.21-5.00) was very high. Table 3 below provides a descriptive summary of the answers to the survey that measured the implementation of productivity accounting tools.

Table 4 Summary of participants' responses to items measuring the extent and importance of Quality Cost in Iraqi industrial companies (N=100)

Statement	Mean	Std. Deviation	Rank	Level
1. Quality costs are optimally calculated within the enterprise's cost accounting, which ensures cost reduction and production improvement	4.1901	0.90670	5	High
2. There is Attention to prevention costs leads to improved competitive advantages.	4.2200	0.89512	4	Very High
3. There is an interest in valuation costs in a way that improves competitive advantages.	4.2300	0.81460	3	Very High
4. Quality costs are classified into appraisal costs, prevention costs, internal and external failure costs, which helps eliminate unnecessary activities and reduce losses.	4.3200	0.78846	1	Very High
5. The application of quality costs provides information on the places where quality costs arise in order to avoid them	4.1300	0.87786	6	High
6. The quality cost application provides cost information relevant to the modern manufacturing environment.	4.1200	1.01489	7	High
7. The management of the institution is concerned with the application and calculation of quality costs to find solutions to address waste in costs that affect the efficiency and effectiveness of performance and the competitiveness of the establishment	4.2500	0.72333	2	Very High
Overall	4.2086	0.8352		Very High

From Table 3 above, the arithmetic means that measure the amount and importance of applying Quality cost in Iraqi industrial companies were high and very high ranged from (4.120- 4.3200). It can be noticed that item (4) which stated: " Quality costs are classified into appraisal costs, prevention costs, internal and external failure costs, which helps eliminate unnecessary activities and reduce losses represents the average statement that is the most widely agreed-upon. (4.3200, St. = 0.78846) and was followed secondly by item (7) where it was stated: "The management of the institution is concerned with the application and calculation of quality costs to find solutions to address waste in costs that affect the efficiency and effectiveness of performance and the competitiveness of the establishment" with a mean (4.2500, St.= 0.72333), Then there was item (3), which said that: " There is an interest in valuation costs in a way that improves competitive advantages " with a mean (4.2300, St.= 0.81460), followed fourthly by item (2) which stated: " There is Attention to prevention costs leads to improved competitive advantages " with a mean (4.2200, St.= 0.90670), followed by item (1) fifthly which stated: " Quality costs are optimally calculated within the enterprise's cost accounting, which ensures cost reduction and production improvement " with a mean (4.1901, St.= 0.90670), followed by item (5) sixthly which stated: " The application of quality costs provides information on the places where quality costs arise in order to avoid them " with a mean (4.1400, St.= 0.88785) and followed by

item (6) seventhly which stated: " The quality cost application provides cost information relevant to the modern manufacturing environment " with a mean (4.1200, St.= 1.01489).

Furthermore, the overall mean for this axis was (4.2086), indicating that the majority of the study sample agrees strongly with the items in this section of the survey, emphasizing the importance of utilizing quality accounting in Iraqi industrial firms., because of their significant impact on Competitive advantage and optimal using of resources in the organization by tracking the resources used and idle energies, and providing information related to the time of completion of the restricted productive activities, as well as providing important information related to the modern and complex manufacturing environment and finding solutions to bottlenecks and constraints that affect efficiency and effectiveness of companies' performance.

4.2 Results related to the Implementation of Lean Accounting Tools in Saudi Industrial companies

In order to identify the extent and importance of applying lean accounting tools in Iraqi industrial companies from the perspective of managers and accountants, Several questions were posed on the most popular tools and solutions for implementing lean accounting in companies. Similarly, a five-point Likert scale was employed to organize the responses of the respondents, and the descriptive analysis yielded the following results:

Table 5 A summary of the responses of participants to items measuring the extent and importance of applying Value stream costing in Iraqi industrial companies (N=100)

Statement	Mean	Std. Deviation	Rank	Level
1-"Using the value flow costing system simplifies the accounting and process modeling processes in the company."	4.0110	1.04924	7	High
2-The value stream cost system helps lower overall costs and promote competitive advantages.	4.2200	0.84782	2	Very High
3-The Value Stream Costing System assists in identifying untapped energy and making continuous improvement processes in production processes.	4.1600	0.94564	5	High
4-The value stream costing system helps improve the quality of production.	3.9310	0.94554	8	High
5-The value stream cost system helps eliminate non-value-adding labor and inventory This leads to a reduction in costs in the long term.	4.1900	0.96082	4	High
6-The value flow cost method helps in increasing the competitiveness of companies by focusing on customer's achieved value in the production process.	4.2900	0.85630	1	Very High
7-It aids in winning the confidence of present and potential customers in the firm's products, hence expanding market share and enhancing firm competitiveness	4.0130	1.14926	6	High
8-The value stream costing system helps eliminate waste in production processes.	4.1920	0.78748	3	Very High
Overall	4.7153	0.89520		High

As shown from table 4: The arithmetic means that measure the amount and importance of applying are provided in Table 4 above. In Iraqi industrial businesses, value stream costing was high and very high, ranging from (3.9310- 4.2900). It is worth noting that item (6), which states: "The value flow cost method aids in boosting the competitiveness of companies by focusing on the customer's achieved value in the production process", with a mean (4.2900, St.= 0.85630), followed by "The value stream cost system helps lower overall costs and support competitive advantages" with a mean (4.2900, St.= 0.85630), and "The value stream cost system helps reduce overall costs and support competitive

advantages" with a mean (4.2900, St.= 0. Second, with a mean (4.2200, St.= 0.84782), item (2) claimed that: " The value stream cost system helps lower overall costs and promote competitive advantages," and third, with a mean (4.2200, St.= 0.84782), item (8) claimed that: " "The value stream costing system helps eliminate waste in production processes," with a mean of (4.1920, St.= 0.78748), and item (5), "The value stream cost system helps eliminate non-value-adding labor and inventory," with a mean of (4.1920, St.= 0.78748). This results in a long-term cost savings" with a mean (4.1900, St.= 0.96082), followed by item (3), which stated: "" The Value Stream Costing System assists in identifying untapped energy and making continuous improvement processes in production processes " with a mean (4.1600, St.= 0.94564) and followed by item (7) sixthly which stated:," with a mean (4.1600, St.= 0.94564), and item (7) sixthly which stated: : " It aids in winning the confidence of present and potential customers in the firm's products, hence expanding market share and enhancing firm competitiveness," with a mean (4.0130, St.= 1.14926), followed by item (1) Seventhly, which stated:, " "Using the value flow costing system simplifies the accounting and process modeling processes in the company." "With a mean (4.0110, St. = 1.04924). And followed by item (4) eighthly which stated: "The value stream costing system helps improve the quality of production" with a mean (3.9310, St. = 0.94554).

Furthermore, the overall mean for this axis was (4.7153), indicating that the majority of managers and accountants in Iraqi industrial companies strongly agree on the importance of Value stream costing. The value stream costing method aids in increasing a company's productivity by focusing on the customer's achieved value during the manufacturing process, as well as lowering total costs, and aids in the elimination of waste in manufacturing processes, as well as their importance in the System aids in the identification of untapped energy and the implementation of quality improvement processes in manufacturing processes. Any of the above contributes to the company's competitive advantage.

4.3 Results related to the Competitive Advantage in Iraqi Industrial companies

A series of questions were posed in order to ascertain the level of competitive advantage in Iraqi industrial firms from the perspective of managers and accountants. and the respondents' answers were organized using a five-point Likert scale. As shown in Table 5, the descriptive analysis yielded the following results:

Table 5 A summary of the responses of participants to items measuring the extent of Competitive Advantage in Iraqi industrial companies (N=100)

Statement	Mean	Std. Deviation	Rank	Level
1. The company's management adopts its competitive strategy on the basis of providing high quality products.	3.9610	0.90922	7	High
2. The company's management places a high value of quality, as shown by the low defect rate of the company's products."	4.2910	0.85630	1	Very High
3. The company selects its suppliers based on the quality of the raw materials they provide.	4.0920	0.96500	4	High
4. The company seeks to produce products distinct from all its competitors in the market	4.0810	1.04139	5	High
5. The company's management is concerned with the continuous development of employees' capabilities	4.2190	0.77305	2	Very High
6. The company's competitive strategies are based on achieving superior customer value	4.0500	1.02865	6	High
7. The company seeks to achieve a competitive advantage by minimizing costs	4.1800	0.93616	3	High
Overall	4.1248	0.82388		High

The arithmetic means that measure the level of competitive advantage in Iraqi industrial companies were high and very high (3.9610-4.2910), as shown in Table 5 above. It is worth noting the item (2) stated: " The Company's management places a high value of quality, as shown by the low defect rate of the company's products. " , reflects the highest negotiated mean statement (4.2910, St. = 0.85630), followed secondly by item (5), which stated: "The company's management is concerned with the continuous improvements of employees' capabilities " with a mean (4.2190, St.= 0.77305), and thirdly by item (7), which stated: " The company aims to gain a competitive advantage by minimizing costs " with mean (4.1800, St.= 0.93616), followed fourthly by item (3) which stated: " The company selects its suppliers based on the quality of the raw materials they provide " with a mean (4.0920, St.= 0.96500), followed by item (4) fifthly which stated: " The company seeks to produce products distinct from all its competitors in the market " with a mean (4.0810, St.= 1.04139), followed by item (6) sixthly which stated: " The company's competitive strategies are based on achieving superior customer value " with a mean (4.0500, St.= 1.02865) and followed by item (1) seventhly which stated: " The company's management adopts its competitive strategy on the basis of providing high quality products " with a mean (3.9610, St.= 0.90922).

Furthermore, the overall mean for this axis was (4.1248), indicating that the accountants and managers of industrial companies in Iraq firmly accept that all industrial companies strive to improve their competitive advantage by placing the utmost priority on quality. Which is reflected in the low defective rate of the company's products, concerned with the continuous development of employees' capabilities, reducing costs, produce products distinct from all its competitors in the market.

4.4 The Effect of Integration between Quality cost and Value stream costing on competitive advantage

Pearson correlation and multiple linear regression methods were used with SPSS to assess the Effect of Integration between Quality cost and Value stream costing on competitive advantage, and the results are shown in Tables (6) and (7) below:

Table 6 Pearson correlation values of independent variables (Integration between Quality cost and Value stream costing) in the presence of a dependent variable (competitive advantage).

No.	Independent variables	Pearson correlation (r)	Significance (α)
1	Quality Cost	0.888**	0.000
2	Value stream costing	0.894**	0.000

In accordance with the preceding Table 6, the first independent variable (Value stream costing) has a Pearson correlation value (r= 0.894), p=0.000 < 0.01 and the (Quality Cost) which is second independent variable, has a Pearson correlation value (r= 0.888), p=0.000 < 0.01 with the dependent variable (competitive advantage). Hence, it can be concluded that the integration of Quality cost and value stream costing have significant and high correlation with the dependent variable which is the Competitive advantage in Iraqi industrial companies.

Furthermore, multiple linear regression analysis was performed between the integration of Quality cost and Value stream cost as independent variables and Competitive advantage in Iraqi industrial firms as dependent variable. Table (7) summarizes the findings:

Table 7 Multiple Regression of the impact of the independent two factors on improving competitive advantage in Iraqi Industrial companies

Dependent variable	Model Summary		ANOVA		Coefficients				
	R	R ²	F	sig	independent variables	β	Std. Error	T	Sig (α)
Competitive Advantage	0.895	0.804	6621.712	0.000	Quality Cost	0.295	0.055	5.365	0.000
					Value stream costing	0.748	0.054	14.394	0.000

From Table (7) above, The multiple correlation coefficient is ($R = 0.894$), indicating a strong positive correlation between the integration of Quality cost and Value stream costing and Competitive advantage in Iraqi industrial companies and this correlation is statistically significant, where F reached a value of (6621.712) at the significant level ($\alpha=0.000 < 0.05$). This means that the dependent variable (competitive advantage) and the independent variables (quality cost and value stream costing) both change in the same direction. Moreover, the goodness of fit value of ($R^2=0.804$) indicates that the integration of Quality cost and value stream costing can explain (80.2%) of the variation and change in competitive advantage in Iraqi industrial companies

However, In multiple linear regression, standardized (Beta) coefficients (β) and (α) significance levels were used to test which accounting tools have the most influential effect on competitive advantage in order to identify which accounting tools have the most influential effect on competitive advantage. The coefficients were statistically significant at the significance level (0.054), according to Table (7). The level of effect of these accounting tools on competitive advantage is determined by the (t) value; the higher the (t) value, the greater the effect on the dependent variable. As a result, the value stream costing ($\beta=0.748$) has the highest effect, followed by quality cost ($\beta=0.295$).

As a result, this demonstrated the effect of the integration of quality cost and value stream costing on competitive advantage in Iraqi industrial companies, demonstrating that both approaches are complementary and effective in helping to reduce costs and improve competitive advantage, and that neither approach is superior to the other, as the task of the company's management is to decide which system is more suitable for the company's work.

As a result, Iraqi businesses must pay attention to modern management accounting tools, such as quality cost and value stream, and use them to provide valuable information to the administration, allowing it to achieve its goals and gain a competitive advantage.

5. Conclusions

The industrial environment has developed locally and globally as a result of economic and technological developments in recent decades, Traditional accounting systems have been ineffective in fulfilling the company's administrative requirements in view of management's relentless effort to increase the quality of its products and improve its competitive advantage in order to maintain its market share in the face of intense competition, which required Iraqi manufacturing companies to apply the new accounting systems represented by both quality cost and value stream costing to meet the various needs of management. Accordingly, this study aimed to investigate the effect of integration between quality cost and value stream costing on competitive advantage in Iraqi companies by obtaining data from a sample of Iraqi companies. The study demonstrated the significance of using value stream costing in Iraqi industrial companies because of its significant impact in providing accurate information to factory and production line management in a way that allows them to set priorities and respond to questions about cost utilization across production lines and leveraging potential opportunities, As a result, the target production cost is met, the optimal financial return is realized, and prices are reduced, resulting in an increase in competitive advantage.

The study also revealed the significance of using quality cost in Iraqi industrial firms because it is a mechanism that helps managers make better decisions and identify waste. It also aids in the elimination of all costs that do not add value to the product, the achievement of loss-free manufacturing, and the improvement of product quality in response to consumer demands and customer needs, all of which contribute to a stronger competitive advantage. Furthermore, the research found a statistically important, positive, and strong link between the integration of quality cost and value stream costing and competitive advantage in Iraqi industrial firms, and that these two systems (quality cost and value stream costing) are complementary in their ability to boost efficiency, Management's job is to figure out which of these systems is best for company operations.

Based on the findings of the report, the researchers suggest that in Iraqi industrial companies, quality costing be used in conjunction with value stream costing in order to maximize the use of the establishment's resources and thus increase competitive advantage.

References

1. Ayati, E. (2013). Quantitative cost of quality model in manufacturing supply chain (Doctoral dissertation, Concordia University).
2. Alexander. Tsigkas. (2016). *Lean Enterprise: From the Mass Economy to the Economy of One*. Springer-Verlag Berlin An.
3. Apuke, O. D. (2017). Quantitative research methods: A synopsis approach. *Kuwait Chapter of Arabian Journal of Business and Management Review*, 6(10), 40-47.
4. Balouchi, M., Gholhaki, M., & Niousha, A. (2019). Prioritizing the Main Elements of Quality Costs in Design-Build Mass-Housing Projects. *Civil Engineering Journal*, 5(5), 1136-1146.
5. Barney, J. B., & Clark, D. N. (2007). *Resource-based theory: Creating and sustaining competitive advantage*. Oxford University Press on Demand.
6. Bhamu, J., & Sangwan, K. S. (2014). Lean manufacturing: literature review and research issues. *International Journal of Operations & Production Management*.
7. Charles W. L. Hill, Gareth R. Jones. (2008) "Essentials of Strategic Management. New York: McGraw-Hill, 183.
8. Daunoriene, A., & Katiliute, E. (2016). The quality costs assessment in the aspect of value added chain. *Quality Innovation Prosperity*, 20(2), 119-144.
9. Glogovac, M., Filipovic, J., Zivkovic, N., & Jeremic, V. (2019). A Model for Prioritization of Improvement Opportunities Based on Quality Costs in the Process Interdependency Context. *Engineering Economics*, 30(3), 278-293.
10. Graham, J. M. (2006). Congeneric and (essentially) tau-equivalent estimates of score reliability: What they are and how to use them. *Educational and psychological measurement*, 66(6), 930-944.
11. Knowles, G. (2011). *Quality management*. Bookboon.
12. Hamid, N. (2018). Factor analysis for balanced scorecard as measuring competitive advantage of infrastructure assets of owned state ports in Indonesia: Pelindo IV, Makassar, Indonesia. *International Journal of Law and Management*.
13. Hansen, Don R.; Mown, Maryanne M. (2007). "Managerial Accounting", Eight Edition, South Western, China.
14. Hansen and Mowen, *Cost Management. (2013). Accounting and Control. 6th Edition*
15. Horngren, Charles T., and Foster, George and Datar, Srikant M. (2012). *Cost Accounting A Managerial Emphasis, 14th ed.*, Prentice – Hall, Inc., New Jersey.
16. Kagoma, Elekana. (2014). "Strategic Business Management". *Masters Of Business Administration- Corporate Management*, Mzumbe University, Mbeya Campus College, (5).
17. Kennedy, F. A., & Brewer, P. C. (2006). The lean enterprise and traditional accounting—Is the honeymoon over?. *Journal of Corporate Accounting & Finance*, 17(6), 63-74.
18. Marzuki, P. F., & Wisridani, M. (2014). Identifying Contractors' Planned Quality Costs in Indonesian Construction Projects. *Journal of Engineering & Technological Sciences*, 46(4).
19. Maskell, B. H. (2000). Lean accounting for lean manufacturers. *Manufacturing Engineering*, 125(6), 46-46.
20. Maskell, B., & Katko, N. (2007). Value stream costing: The lean solution to standard costing complexity and waste. In J. Stenzel (Ed.), *Lean accounting: Best practices for sustainable integration* (pp. 155–176) Hoboken, NJ: John Wiley & Sons.
21. Porter ME. (1985). *Competitive Advantage – Creating and Sustaining Superior Performance*, New York, the Free Press, P.3-19
22. Porter, M. E. (1990). New global strategies for competitive advantage. *Planning Review*.
23. Rahayu, D. A. (2009). Building Model of Basic Stability for Productivity Improvement Journey in PT. Dow Agro sciences Indonesia by Utilizing Value Stream Mapping (VSM) In *Production Shop Floor*

- (Doctoral dissertation, Tesis tidak diterbitkan. Medan: Universitas Sumatra Utara). Knowles, G. (2011). Quality management. Bookboon.
24. Tapping, D. and Shuker, T. (2003). Value Stream Management for the Lean Office. 1st ed. New York: Productivity Press.
25. Thomas Fritz. (2008). the Competitive Advantage Period and the Industry Advantage Period: Assessing the Sustainability and Determinants of Superior Economic Performance. Gabler Edition Wissenschaft, 1st Ed, P.10
26. Van Zyl, C. R. (2006). Intellectual capital and marketing strategy intersect for increased sustainable competitive advantage (Doctoral dissertation, University of Johannesburg).