Information Sciences Letters
An International Journal

http://dx.doi.org/10.18576/isl/121233

An Empirical Study of the Effects of Key Quality Parameters on Operational Performance in the Soft Drink Industry

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Received: 6 Jul. 2023, Revised: 15 Sep. 2023, Accepted: 3 Nov. 2023.
Published online: 1 Dec 2023.

Abstract: The company's management's interests are concerned with the critical factors of quality and operational performance, which contributes to their potential for providing quality products that meet the needs of customers and their desires while simultaneously allowing them to produce competitive products. This research sought to determine the relationship and impact between the factors critical to quality and performance operations in the Karawanchi Group of Companies in Kirkuk. Consequently, several research questions were addressed, and a general framework for the problem was defined to determine the relationship and impact between the relevant quality factors and the operational performance within the company being investigated. This study concluded a correlation and a significant effect between the determinants of critical quality factors and operational performance. Each of the determinants of quality (the processing chain, the inspection process, the cost of operations, and customer satisfaction) was associated with operational performance. The collective crucial success elements notable and constructively influence operational performance. The quality of the testing process plays a crucial role in determining the success of activities inside the organization, particularly when materials are tested and compared against standard requirements. It was recommended that the company develop standards to assess the performance of the leaders and employees and adopt a comprehensive learning, training, and development system.

Keywords: crucial quality factors, operational performance, Supply chain, cost of operations.

1. Introduction

Operational performance in industrial and general organizations is affected by several factors, especially critical quality factors crucial to quality output. Quality management, as one of a company's main activities, aims to control the quality of its products. It is, therefore, essential to identify performance excellence in its operations through acquiring knowledge and developing and focusing on critical quality factors in the production process by considering customer satisfaction, which helps maintain and expand market share. Several scholarly investigations have been conducted about the crucial success criteria associated with public-private partnerships. Nevertheless, the amount of research examining essential success determinants within the framework of developing nations is limited. Numerous scholarly investigations have been undertaken to examine the essential determinants of success in quality. For instance, notable research [1] sought to ascertain the significance of important quality aspects in implementing cleaner manufacturing practices. The research used an analytical methodology and concluded that there are connections and a discernible impact of crucial success elements on clean production.

The primary recommendations were the adoption of a corporate ethos centered on the perpetual enhancement of quality across all facets of management and production. This strategic approach aims to foster the development and advancement of operational performance within the firm. The objective of the research [2] was to ascertain the essential aspects that contribute to the successful implementation of comprehensive quality management. The research contributed to the field by identifying the key characteristics that facilitate implementing quality management in organizations. The research used a mixed-methods approach, including both quantitative and qualitative methodologies in the case study. The research yielded several findings, the most notable being that leadership plays a pivotal role in successfully implementing quality within organizations. Leadership is identified as a basic criterion for ensuring the ongoing effectiveness of the organization. According to the findings of the research referenced in [2], organizations need to establish Organizations need to establish a cohesive system that connects the key success elements.

Additionally, the dimensions of these critical success factors have a statistically significant impact on achieving

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operational excellence. The research suggests that rising organizations should use a theoretical and practical framework of essential success elements for quality. This framework may serve as a guide to effectively applying operational spending. To do this, it is advised that these organizations perform a thorough and complete analysis of the critical success factors. Given the limited number of studies examining the association between these factors, particularly within the context of Iraq, the researchers endeavored to include them in the present study. We found it appropriate to study the relationship between quality and operational performance determinants in the Kirkuk conglomerate group of companies. The research included four axes: the first presenting the research methodology, the second considering the theoretical aspects, the third being conducted in the field, and the fourth presenting the research findings and recommendations.

2. Literature Review

2.1. Critical Quality Factors

2.1.1. First: The determinants of quality

Critical quality factors are the expression of or a concept of the main measurable characteristics of a product or process in terms of performance or specification limits that must be met to satisfy internal and external customers. In other words, the critical quality factors are expressed in the request submitted by the upper limits, the minimum standards, or any other factors. Several scholars have defined it as follows: Katanashuo [4] claimed that quality is the set of measurable characteristics and requirements identified by the customer to ensure improvements meet their requirements and, thus, their satisfaction. Shekhar [5] suggested that these factors are critical and effective for production. Thus, CTQ measurement and analysis can be used to standardize and improve quality, leading to a more customer-oriented company. Kim et al. [6] created a tool for setting and improving objectives that helps formulate the basic aspects of understanding the requirements of the current process and allowing a company to meet the requirements of any future processes. Kim et al. [6] elaborated on the concept of quality determinants and emphasized that they include several axes, i.e., facilitating or simplifying product design, linking designs to customers' requirements, meeting the current market through quality standards, exceeding reliability requirements, meeting technical requirements, and providing high-quality products.

We note that these criteria come close to defining the requirements to clearly define the determinants of quality, applicable from simple designs to high-quality products. Each organization has characteristics and specific circumstances that determine its framework and critical factors relating to its range of products. These characteristics and specifications may be related to their 'requirements and the market sector the organization is working within, besides the market share and market type (internal or external). Researchers have different points of view regarding critical quality factors—for example, the choice of the Cost of operation and satisfaction model. Koning and Mast [7] do not fit the company being studied. Hence, two other dimensions were added (the supply chain and the examination process). Therefore, the classification of the quality factors in this company was quadrupled, and the focus of this explanation regarding the quadrant to be implemented and the practical aspects are set out below. Jabouri and Al-Dabbagh [8].

A- Supply chain: This includes work procedures and the contribution of business partners to the flow of products and information from design to delivery to the customer end. Thus, the processing chain is also concerned with materials, information, and money flow. Murzyn [9] represents a group of parties that manufacture and sell products to customers. The consumption of goods and services represents the endpoint. Obedient [10].

B- The examination process includes all the measurement, testing, and examination of the materials or their characteristics, as well as a comparison with the standard specifications to determine the degree of conformity and similarity. The examination is done inside or outside the company. Al-Aukaleah [11].

C- Cost of operations: The classification of these costs may include a binary or triangular adjustment. Some emphasize that operating costs include two types: production costs, including direct and indirect wages; storage costs, equipment costs, and the cost of materials; and product costs, which include direct and indirect administrative costs. Davis et al. [12] The third consists of direct material costs, direct manufacturing costs, and indirect manufacturing costs. Horngren et al.; Davis et al. [13–12].

D- Customer satisfaction: This includes product quality, performance, price suitability, after-sales guarantees, fast delivery, etc. The only key area of customer satisfaction is shown when the customer has a problem or a question that needs to be answered. Successful companies recognize that the customer problem can be solved quickly by paying attention to this problem, thus being fast and highly efficient, and this is not achieved without fully understanding the customer's requirements. AL-Janabi [14].

2.2. Operational performance

2.2.1 First: the concept of operational performance

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Performance is one of the most important concepts in operations management, being a concern for researchers and managers alike in all organizations and industries. Operations management is key to achieving an organization's goals, especially survival and growth. Al-Tawil and Sultan [15] demonstrated that the company's performance results from individuals' production, financial, marketing, and performance. When focusing on performance, we are concerned with cost minimization and quality improvement concerning input, process, and output activities. Daft [16] pointed out that performance reflects the company's ability to achieve its objectives by efficiently and effectively using available resources.

In contrast, Krajewski and Ritzman [17] believed that the performance of operations involves activities that transform the production system's input, add value to it, and provide final products to customers. Based on the above, operational performance is a relatively modern management concept and reflects the ability of the organization to use its available resources efficiently to achieve its objectives, survive, and grow effectively. All of this will help to ensure the sustainability of its competitiveness in the business world through the provision of new and developed products that meet customers' requirements and desires at the lowest possible, with the appropriate quality and flexibility required, along with reliable delivery and accuracy in executing the agreed dates with them.

2.2.2. Second: the dimensions of the performance of operations

Many writers have agreed on the dimensions of the performance of the processes of operations, including Leong and Ward [18], Rahim [19], Evans [20], Heizer and Render [21]; Mohsen and Al-Najjar [22]; Al-Taweel, and Kashmoula [23]. Therefore, the operational performance dimensions that will be used in this research are:

1. Cost, 2. Quality, 3. Flexibility, 4. Delivery, 5. Creativity. Below is a brief explanation of each dimension relating to the work.

1. The dimension of product cost: Buffa [24] found that cost reduction can be used to evaluate production function and operations. Several researchers confirm that the cost dimension is crucial in determining a company's ability to continue its business and remain in the market. Moreover, Al-Ali [25] claimed that Cost was one of the dimensions of the content of the production strategy and processes appropriate for companies whose product cost is primarily based on competition by reducing all types of losses. Mohsen and Al-Najjar [22] suggested that low cost is a competitive priority that helps a firm deliver products at lower prices than competitors, thereby increasing its market share.

2. The dimension of product quality: Heizer and Render [26] confirmed that a company's acquisition of the expected value commensurate with its mission requires it to establish the expectations of customers and their desires to determine the quality and work needed to achieve this. Krajewski and Ritzman [17] indicated that customers want quality products that meet their desired characteristics, which they expected or saw in an advertisement. Companies that do not offer quality products that meet the needs and desires of their customers, and their expectations cannot continue in the competitive market.

3. Flexibility: Flexibility refers to the ability to adapt or respond quickly to changes in the circumstances faced by companies that lead to a shift from one product to another or from one production level to another. Mohsen Al-Najjar [22] believed that flexibility is focused on developing the company's ability to change the product type according to customer needs, alongside changes in market demands. Furthermore, Slack et al. [27] highlighted that flexibility means the ability to change operations to other methods, which may mean changing the performance of operations and the mode and time of operations.

4. Dimension of delivery: Customers believe that the fast delivery of products is an important element in many industries. At the same time, Slack et al. [27] asserted that doing business quickly means reducing the time it takes to receive and deliver product orders quickly. Moreover, Krajewski and Ritzman [17] contended that post-delivery competition involves three aspects: fast delivery, punctual delivery, and speed of development.

5. Dimension of innovation refers to applying an idea developed within or borrowed from outside the company, whether it relates to the product, methods, systems, processes, policies, programs, or services. This idea is new for the company when applied. Daft [28] emphasized that innovation is the adoption of a new idea or behavior for a company's industry, market, or public environment, and they are the first company to introduce a new product as innovative. Al-Saad and Abdul-Sada [29] suggested that innovation involves a new idea relating to a new product, process, method of operation, or system that contributes to the company's efficiency in achieving its objectives.

3. Research Methodology

3.1. Research the problem

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Operations performance is essential to achieving organizations' overall objectives and, within particular industries, to survive and grow in the business world. This issue has become increasingly important in theoretical frameworks because it enhances or weakens a company's performance. If a company wants to stand up to its competitors, it must pay attention to the performance of its operations. Many critical factors influence this performance. Quality requires attention from management since it affects operational performance. Through the theoretical vision and the operational application in the Iraqi industry, it can be said that there is a need to highlight the nature of the relationship and impact between the critical factors on the quality and performance of operations in industrial organizations. In general, the research problem can be identified by asking the following questions:

1 - Is there a significant correlation between the determinants of quality and the performance of operations in the company being studied?

2 - Is there a significant effect of the combined quality factors on the performance of the operations in the company being studied?

3.2. Research Objectives

The research aims to achieve the following:

1- Provide theoretical parameters for managers in the company concerning the search for critical factors relating to the quality and performance processes.

2- We are trying to develop a default model and test it to understand the image that reflects the relationship and impact between the critical quality factors and the performance of operations in the company under consideration.

3.3. the research model

The systematic processing of the research problem in light of its theoretical framework and field implications requires designing a default model, as in Figure (1), which refers to the relationship and impact between the determinants of quality and process performance.

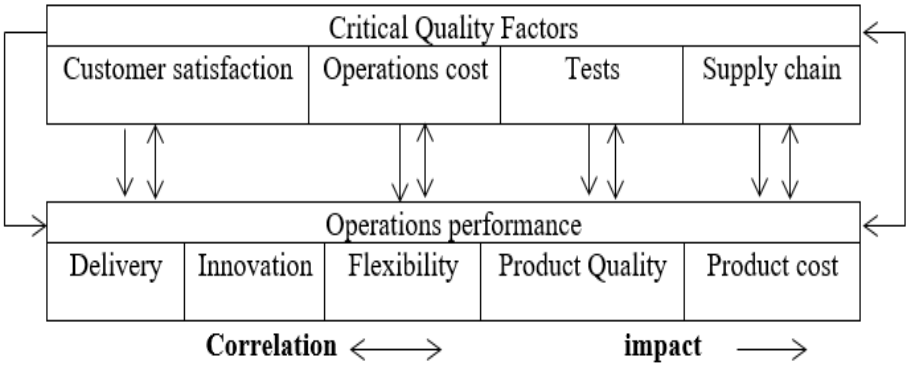

Fig. 1: Research model

3.4. The hypothesis of the research

The first main hypothesis: There is a significant correlation between the determinants of the combined quality and performance dimensions of the combined operations in the company under consideration.

The following sub-assumptions can be made:

1 - There is a significant correlation between the processing series and operations performance.

2 - There is a significant correlation between the examination process and operations performance.

3 - There is a significant correlation between the cost of operations and the performance of operations.

4 - There is a significant correlation between customer satisfaction and operations performance.

The second main hypothesis: Critical quality factors are significantly affected by the performance of the combined operations concerning the company in question.

The following sub-assumptions can be made:

1 - There is a significant effect of the processing chain factor on the performance of operations in the company in question.

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2 - There is a significant effect of the process factor in the performance of operations on the company in question.

3 - There is a significant effect of the cost factor on the company's operations performance.

4 - There is a significant effect of the customer satisfaction factor on the company's operations' performance.

3.5. Research Methodology

The researcher relied on descriptive and analytical methods to test the research model and hypotheses by studying and determining the relationship between the main and sub-variables of the research model.

3.6. The research limitations

1- Time horizon: The research aimed to identify the positions of individuals during the specified research period, specifically from 1/9/2017 until 1/9/2018.

2- Research location: The research was confined to the Karungi group (nationalization - Muna - Karungi) for producing soft drinks, juices and mineral water, which was considered the research community.

3- Human limits: The scope of this research was restricted to individuals holding managerial positions within the Al-Karwanji group of firms, namely senior, middle, and executive managers, as well as workers involved in all production lines.

The company's principles are based on health standards and the quality of its products, and it works to produce safe and healthy goods for all citizens. Providing fresh juices and healthy water with reliable international standards is a primary aim, along with tastes that match customers' desires. Today, Karungi Group is one of Iraq's largest health and nutrition companies [30].

A history of the Al-Karungi Group is given below, symbolizing a truly proud national industry and exhibiting its success in developing the food industries in Iraq in line with global technological developments.

The Al-Tameem Company

In 2002, the first line of production of glass bottles, the type of production line in Germany to pack glass bottles with a capacity of 250 ml and a production capacity of 24 thousand bottles per hour for a production rate of 24 hours per day, was added. The first line of packing plastic bottles (PET) is Turkish, with a capacity of 1.5 liters and a production capacity of 10,000 bottles per hour. In 2005, a line of packaging for another type of plastic machine was added, which was Turkish and Italian. These had a capacity of 2,250 liters and a production capacity of 10,000 units per hour. In 2006, Dade production machines were added, which were Turkish and Italian, with a capacity of 1 liter and a production capacity of 20,000 bottles per hour Per hour. It should be noted that these lines met changes in product type according to market needs.

The Mina Company for mineral water production and packaging:

The date of establishment is 2009.

The first production line was Italian for producing plastic bottles, with a capacity of 0.5 liters and a production capacity of 25,000 bottles each hour.

The second line was Turkish for producing plastic cups with a 250 ml capacity card 6000 bottle. The third line was Turkish and was concerned with producing plastic cups, with a 250 ml capacity card of 6000 bottles each hour. The fourth line was Turkish, producing plastic cups with a 250ml capacity card of 6000 bottles each hour. The number of working hours was 24 hours.

The Karunji Company produces soft drinks, juices, and healthy water. In 2010, after the successes of the previous two companies, Karunji was opened. It was one of the largest companies in the country in terms of the size and quality of buildings, besides the size of the company's area (40 acres), the number of lines, and its production capacity. It has three production lines with a capacity of 28000 bottles each hour per line. Note that the manufacturer of the machines (Turkish and Italian) produced as follows:

1 - Production of all sizes of plastic bottles (PET) (200 ml + 1 liter + 1.5 liters) containing various juices of all colors.

2 - Production of all-size plastic containers containing soft drinks.

3 - Production of plastic bottles containing water, with a capacity of 0.5 liters.

In 2012, three Turkish-made lines were added to produce 250 ml plastic bottles for healthy water bottling, with a production capacity of 6000 bottles each hour.

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The number of employees in the company is the largest compared to the rest of the civil companies, thus reducing unemployment and creating a place where many Iraqi talents and expertise in this field can be utilized. The company established an integrated laboratory and control strand to produce a sufficient quality product. Therefore, the quality of the products is inspected periodically in terms of all components. (company data).

3.7. Methods of data collection and information

The researcher relied on collecting data and information by using the following methods:

1- Secondary data, using several sources related to the research subject to cover the theoretical side of the research.

2- Primary data, which was a questionnaire. The questionnaire was adopted as the main tool for obtaining data and information related to the field aspect of the research; see Appendix (1) Questionnaire. One hundred twenty questionnaires were distributed to 400 individuals representing the research community, and 100 questionnaires from the sample were appropriate for analysis.

3.8. Measuring The Stability of the Resolution

The validity and reliability of the questionnaire were assessed using Cronbach's alpha, a commonly used measure in research. The study revealed that the alpha coefficient had a value of 0.952. The questionnaire used a five-point Likert scale for assessment purposes. The researchers assigned numerical grades (ranging from 1 to 5) to the replies provided by the participants following the corresponding directional labels (strongly disagree, disagree, neutral, agree, strongly agree).

3.9. Statistical Methods

Some statistical methods were adopted to determine the relationship between research variables and for the analysis and use the SPSS program to analyze research data.

- Simple and multiple correlation coefficients were employed to determine the strength and nature of the correlation between the independent variables (determinants of quality) and the dependent variables (performance of processes), as presented in the research model.
- The identification factor (R2) was used to measure the size of the interpretation given by the variable or the independent variables according to the changes in the variable or the variables adopted in the research model.
- Simple and multiple linear regression was also utilized to determine the strength and nature of the relationship of the effect between the independent variables and the variables adopted in the research model.

3.10. Sample of the Research

The sample of the research was deliberately chosen. The sample consisted of managers in the senior, middle and executive departments and the executive management staff of the company in question (100) managers and employees. Table (1) describes the individuals in the research sample.

Table 1: Demographic analysis for research sample individuals

Job position											
Senior Management				Middle Management				Executive Management			
No		%		No		%		No	%		
8		8		35		35		57	57		
Level of education											
PhD & MSc		Bachelor		Diploma		High school		High school	Primary school		
No	%	No	%	No	%	No	%	No	%	No	%
1	1	33	33	29	29	20	20	12	12	5	5
Work experience (in years)											
21+		16 - 20		15 - 11		10 - 6		5 - 1			
No	%	No	%	No	%	No	%	No	%		
32	32	17	17	22	22	18	18	11	11		
Years of work experience in these positions											
One or less		1 - 2		3 -4				5 +			
4	4	47	47	8	8			41	41		

Statistical analysis for the distributed questionnaire of the research sample

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4. Data Analysis

This aspect deals with the identification and analysis of the relationship and the impact between the determinants of quality and the performance of operations according to the following axes:

4.1. Relationship between Critical Factors of quality and process performance

Table 2 presents the correlation results between the determinants of quality and the performance of the company's combined operations under study.

Table 2: the performance of the combined processes in the company under consideration results.

Dependent variable	Independent variable	Operational performance
Supply chain factor		*0.687
Operations test factor		*0.712
Operations cost factor		*0.689
Customer satisfaction factor		*0.704
Total indicator		*0.690

Source: the researchers P 0.05 N = 100 computer results

Table 2 presents the results of the correlations between the determinants and the performance of the combined processes, indicating a positive correlation between the independent variable (the determinants of quality) and the dependent variable (operational performance). The correlation coefficient of the total index (*0.690) was a sign of the strength of the relationship between the search variables. Thus, the first major hypothesis was achieved, which stated that there is a significant correlation between the determinants of quality and the performance of the processes combined.

1. The sub-hypotheses arising from the first main hypothesis were tested. Table (2) shows the following: There was a significant positive correlation between the processing chain factor and the combined operational performance, with a correlation coefficient of 0.687. This relationship indicates that interest in the processing stage improves the performance of processes in product production, thus accepting the first sub-hypothesis of the first main hypothesis. There was a significant positive correlation between the processing factor and the combined process performance, with a correlation coefficient of 0.712.

2. This relationship means that whenever there is greater interest by the company in an examination, this improves the performance of the proion processes, thus accepting the second hypothesis of the first hypothesis. There was a significant positive correlation between the operating cost factor and the combined operational performance, with a correlation coefficient of *0.689.

3. This result indicates that the company's interest in operating costs will help it respond to outstanding operations, thus accepting the third sub-hypothesis of the first main hypothesis. There was a significant positive correlation between customer satisfaction and the combined operational performance, with a correlation coefficient of (*0.704).

4. This result shows that the company's interest in customer satisfaction will contribute to the performance of production processes and the delivery of products to customers on time, thus accepting the fourth sub-hypothesis of the first hypothesis. The researchers claim that the results from the correlation analysis align with the findings presented in the study [3], indicating a substantial positive connection between the important success elements of quality and process performance.

4.2. The influence of the combined quality factors and the performance of processes

The regression analysis results shown in Table 3 indicate a significant effect of the determinants of combined quality on the performance of the combined operations at all organization levels under study. The value of (F) calculated (93.41) was greater than the tabular value of (6.58) at the degrees of freedom (98, 1) and the level of significance (0.05). The independent explanatory variable's value through the value of R2 was 0.521. We saw that the independent variables (deterministic factors of quality and operational performance) significantly affected the organizational level under study. This was supported by the fact that the calculated value of 9.72 was higher than the table value of 1.658 at a significant level (0.05). Accordingly, the second major hypothesis is accepted.

Table 3: Effect of the determinants of quality combined in the performance of operations on the company under consideration.

	Critical quality factors combined		R	F	
	B1	B0		Calculated	Table
Dimensions of operational performance combined	0.796 (*9.72)	0.477(1.49)	0.521	*93.41	6.85

P 0.05 N = 100 df = (1, 98)

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Resource: The researchers, depending on computer results. () refers to the value of calculated **t**

The impact of the determinants of quality in the performance of individual operations and the sub-assumptions arising from the second main hypothesis can be determined as follows:

1 - The processing chain factor's effect on operations performance the regression analysis results shown in Table 4 indicate a significant effect of the processing chain factor on the performance of the operations at the company level in question. The calculated value of (50.52), which is greater than the tabular value of (6.58), was at (98) and (0.05). The value of (714) and the calculated value of (7.18), which is greater than the tertiary value of (1.658) at a significant level (0.05), confirmed the effect of the processing chain factor on the performance of operations at the company level. Thus, the first sub-hypothesis of the second main hypothesis was achieved. The influence relationship was consistent with the results of the study [2], which confirmed the existence of a significant influence relationship between the supply chain for quality and process performance, as it is one of the important factors that should not be overlooked and the characteristics of the supply chain in the organization. Supply management is the most important reason for adopting superior operations performance.

Table 4: The effect of the supply chain factor on the performance of operations for the company under study.

	Supply chain factor		**R**	**F**	
	B1	**B0**		**Calculated**	**Table**
Operational performance	0.714 (*7.18)	0.840 (*2.16)	0.355	6.58	*50.52

Resource: The researchers, depending on computer results.

P 0.05 N = 100 df = (1, 98)

( ) refers to the value of calculated **t**

2 - The test process factor's effect on operations performance: The regression analysis results in Table 5 indicate a significant effect of the examination process on the operations performed at the company under study. The value of (F) calculated (94.18), which is greater than the tabular value of (6.58) at the degrees of freedom (98, 1) and the level of significance (0.05), and the explanatory capacity through the coefficient of identification (R2) value (0.453) The value of (0.863) and the (t) calculated value of (9.76), which is greater than the tertiary value of (1.658) at a significant level (0.05), were confirmed to have a significant effect on the process of checking the performance of operations at the company level under study. The second sub-hypothesis of the second main hypothesis is accepted based on the above. The findings of the study [31] support the notion that the audit process significantly influences operational performance. his is because the audit process can provide organizations with valuable insights into the essential quality factors necessary for success. By identifying, addressing, and managing these factors, organizations can enhance their operational performance and increase the likelihood of successful implementation.

Table 5: The effect of the process of tests factors on the performance of operations at the company under study

	Process of tests factor		**R**	**F**	
	B1	**B0**		**Calculated**	**Table**
Operational performance	0.714 (*7.18)	0.840 (*2.16)	0.453	6.58	94.18

Resource: The researchers, depending on computer results

P ≤ 0.05 N = 100 df = (1, 98)

( ) refers to the value of calculated **t**

3 - The operating cost factor's effect on 'operations' performance the regression analysis results in Table 6 indicate a significant effect of the operating cost factor on the operations at the company level in question. The value of (F) was calculated at (45.57), which is greater than the tabular value of (6.58) at the degrees of freedom (98, 1) and the level of significance (0.05). The explanatory capacity through the coefficient of determination (R2) value (0.362), the value of (0.71), and the calculated value of (6.68), which is greater than the total value of (1.658) at a significant level (0.05), was confirmed by a significant effect of the cost factor on the performance of operations at the company level under consideration. The third sub-hypothesis arising from the second main hypothesis is accepted based on the above. The findings of the referenced study [1] align with the present study's findings on the correlation between customer satisfaction and operational performance. It is observed that companies that effectively address customer demands by providing products promptly, in appropriate quantities, at competitive costs, and within the desired timeframe and location tend to capture a greater market share compared to their competitors.

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Table 6: The impact of operation's cost factors on operational performance.

	Operation's cost factor		R	F	
	B1	B0		Calculated	Table
Operational performance	0.714 (*7.18)	0.840 (*2.16)	0.453	6.58	45.57

Resource: The researchers, depending on computer results

P ≤ 0.05 N = 100 df = (1, 98)

() refers to the value of calculated t

4 - The effect of the customer satisfaction factor on processing performance the regression analysis results in Table 7 indicate a significant effect of the customer satisfaction factor on operations at the company level. The value of (F) calculated is (82.40), which is greater than the tabular value of (6.58) at the degrees of freedom (98.1) and a significant level (0.05). The explanatory capacity is determined by the coefficient of determination (R2) value (0.430). The value of (0.8) and the value of (t) calculated (9.02), which is greater than the value of (1.658) at a significant level (0.05), were confirmed to have a significant effect on the customer satisfaction factor on the performance of operations at the company level under consideration. Consistent with the above, we accept the fourth sub-hypothesis of the second main hypothesis. The observed impact relationship aligns with the findings of the referenced study [3], which substantiated the presence of a substantial impact relationship between operating costs and quality in process performance. This relationship is crucial in enhancing the product's competitive advantage by effectively reducing costs compared to rival products.

Table 7: The impact of consumer satisfaction on operational performance.

	Customer satisfaction		R	F	
	B1	B0		Calculated	Table
Operational performance	0.818 (*9,02)	0.496 (*0.133)	0.430	6.58	82.40

Resource: The researchers, depending on computer results

P ≤ 0.05 N = 100 df = (1, 98)

() refers to the value of calculated **t**

Based on the above, the sub-hypotheses arising from the main hypothesis were achieved concerning the affective relationship. This indicates a significant effect on the quality factors on the performance of operations at the company level.

5. Conclusions and Recommendations

5.1. Conclusions

1. The critical factors of quality and operations performance have interested quality management researchers and operation management. However, their efforts have not managed to clarify the relationship between the determinants of quality and the performance of operations in organizations, in general, and within particular industries.
2. The critical quality factors are important issues that enable the company to provide its products with the appropriate quality, ensuring continuity, survival, and growth. An increasing interest in quality management researchers in operation management is due to their role in helping the company use the available resources efficiently to achieve its survival and growth goals while meeting customers' requirements.
3. The company under survey exhibits favorable trends in the interrelationship of key quality factors, which is evident in its operational performance. The company is quality across various aspects, including the supply chain, control processes, operating costs, and customer satisfaction.
4. The respondent organization demonstrates superior operational performance to its rivals due to its commitment to supporting many elements that facilitate the implementation of quality in its supply chain operations, inspection processes, operational expenses, and customer satisfaction.
5. The company under study strongly emphasized prioritizing the quality aspect of the material inspection process during production. This was achieved by closely monitoring the various components and elements involved in the product, including the materials used and the packaging.
6. The adoption of excellence in operations is contingent upon the support and endorsement of the management of the respondent firm. This support is crucial for promoting and implementing the important components that contribute

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to the quality of goods and operations.

5.2. Recommendations

In light of the research results and conclusions, we found it appropriate to make the following recommendations:

1. An increase in management attention to studying the strands of administrative thought concerning the determinants of quality and the dimensions of the performance of operations since enhancing the company's ability to achieve better performance ensures its survival and growth in the business world, Increasing the interest of the company's management concerning the factors critical to quality will enhance their role in achieving better results regarding the performance dimensions of operations.
2. The need to increase management's attention to greater dimensions of the performance of operations and work to achieve them efficiently and effectively to use them as a weapon to compete against products produced by competitors.
3. The company's management should continuously study the relationship between the quality determinants and the operations' performance dimensions.
4. the company's management needs to provide continuous courses for the staff to develop their skills and abilities in the areas of work, including quality management and operations performance.
5. There is a need to establish joint research projects and seminars on quality and operations performance to enable the company to survive and grow in the business world.

Acknowledgment

The authors would like to acknowledge the financial support from the INTI IU Research Seeding Grant 2023: INTI-FEQS-1-06-2023. We express our gratitude to the Karawanchi Group of Companies in Kirkuk for their assistance in acquiring data for the research. Additionally, we would like to acknowledge the Northern Technical University for its administrative support in this study.

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