

EVALUATING THE IMPACT OF KEY QUALITY FACTORS ON OPERATIONAL PERFORMANCE: AN EMPIRICAL STUDY OF AL KARAWANCHI GROUP'S SOFT DRINKS, JUICES, AND MINERAL WATER

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ABSTRACT

The interests of the company's Management 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 at the same time, 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, a number of research questions were addressed and a general framework for the problem defined so as to determine the relationship and impact between the relevant quality factors and the operational performance within the company being investigated. This study concluded that there is 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, customer satisfaction) were associated with the operational performance. It was recommended that the company needs to develop standards in order to assess the performance of the leaders and employees within the company, as well as adopting a comprehensive system of learning, training and development.

Keywords: critical factors, quality, performance of operations.

INTRODUCTION

The operational performance in industrial organizations and general organizations is affected by a number of factors, especially critical quality factors, which are crucial to quality output. Quality management, as one of the main activities of a company, aims to control the quality of its products. It is therefore essential to identify performance excellence in its operations through the acquisition of sources of knowledge and moreover, developing and focusing on critical factors of quality in the production process through considering customer satisfaction, which helps to maintain and expand market share. We found it appropriate to study the relationship between the determinants of quality and operational performance 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.

LITERATURE REVIEW

Critical quality factors are the expression of or a concept of the main measurable characteristics of a product and / or process in terms of performance or specification limits that must be met in order to satisfy the internal and external customers. In other words, the critical factors of quality are expressed in the form of the request submitted by the upper limits, the minimum standards, or any other factors. A number of scholars have defined it as follows:

(Al-Ali,2000)laimed that quality is the measurable characteristics and requirements identified by the customer to ensure improvements meet their requirements and thus, ensure their satisfaction.

(Al-Ali,2000) 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.

(Buffa,1989)created a tool for setting and improving objectives that helps formulate the basic aspects in terms of understanding the requirements of the current process, and allowing a company to meet the requirements of any future processes.

(Buffa,1989) elaborated on the concept of quality determinants and emphasized that they include a number of axes, i.e.: facilitating or simplifying product design, linking designs to customers' requirements, meeting the current market through quality standards, exceeding reliability requirements, product, meeting technical requirements, and providing high-quality products.

We note that this criteria come close to defining the necessary requirements in terms of clearly defining the determinants of quality, applicable from simple designs to high-quality products.

Each organization has characteristics and specific circumstances which determine their framework and critical factors relating to its range of products. These characteristics and specifications may be related to their customers' requirements and the market sector that the organization is working within, besides the market share and market type (internal or external). In fact, researchers have different point views regarding the critical quality factors. For example, the choice of (Cost of operation and satisfaction) model.

((Al-Ali,2000)does 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. () .

A - Supply Chain

This includes work procedures and the contribution of business partners in the flow of products and information from design to delivery to the customer end. Thus, the processing chain is also concerned with the flow of materials, information and money. () represents a group of parties that manufacture and sell products to customers. The consumption of goods and services represents the endpoint (Daft,2001).

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. (Daft,2001).

C - Cost of Operations:

The classification of these costs may include a binary or triangular adjustment. Some emphasize that the operating costs include two types: production costs, including direct and indirect wages; storage costs, equipment costs, and cost of materials; and product costs, which include direct and indirect administrative costs. The third consists of direct material costs, direct manufacturing costs and indirect manufacturing costs (Shekhar,2006).

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.

OPERATIONAL PERFORMANCE

First: The Concept of Operational Performance

The concept of performance is one of the most important concepts in the field of operations management, being a concern for researchers and managers alike in all types of organizations and industries. Operations management is key in achieving an organization's goals, especially regarding survival and growth. (Murzyn,2003) demonstrated that the company's performance results from individuals' production, financial, marketing and performance. When we focus on performance, we are concerned with cost minimization and quality improvement concerning input, process and output activities. pointed out that performance reflects upon the company's ability to achieve its objectives as a result of using the available resources efficiently and effectively. While believed that the performance of

operations involves activities that transform the input of the production system and adds value to it, as well as providing 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 towards achieving its objectives, survival and growing 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 desire at the lowest possible cost, with the appropriate quality and flexibility required, alongside reliable delivery and accuracy in executing the agreed dates with them.

The Dimension of Product Cost

(Leong,1990) found that cost diminution is one of the dimensions that 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, (Krajewski,2005) 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 the competition by reducing all types of losses. While Mohsen and (Koning,2007) suggested that low cost is a competitive priority that helps a firm to deliver products at lower prices than competitors, thereby increasing their market share.

The Dimension of Product Quality

(Kim,2007)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. indicated that customers want a quality of 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.

Flexibility

Flexibility refers to the ability to adapt or respond quickly to changes in the circumstances faced by companies that leads to a shift from one product to another or from one production level to another. Mohsen (Horngren,2005) 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, (Davis,2001) 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.

Dimension of Delivery

Customers believe that the fast delivery of products is an important element in many industries. At the same time, (Daft,2001) asserted that doing business quickly means reducing the time it takes to receive product orders and delivering them in a short time. Moreover, contended that post-delivery competition involves three aspects: fast delivery, punctual delivery, and speed of development.

Dimension of innovation

Refers to the application of an idea developed within the company 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. Emphasized that innovation is the adoption of a new idea or behaviour 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 (Kim,2007) 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.

METHODOLOGY

The performance of operations 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 due to its role in enhancing or weakening a company's performance. If a company wants to stand up to their competitors, they have to pay attention to the performance of 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:

- Is there a significant correlation between the determinants of quality and the performance of operations in the company being studied?
- Is there a significant effect of the combined quality factors on the performance of the operations in the company being studied?

Second: Research Objectives

- Provide theoretical parameters for managers in the company concerning the search for critical factors relating to the quality and performance processes.
- We are trying to develop a default model and test it so as to gain an understanding of the image that reflects the relationship and impact between the critical factors of quality and performance of operations in the company under consideration.

Third: the Research Model

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

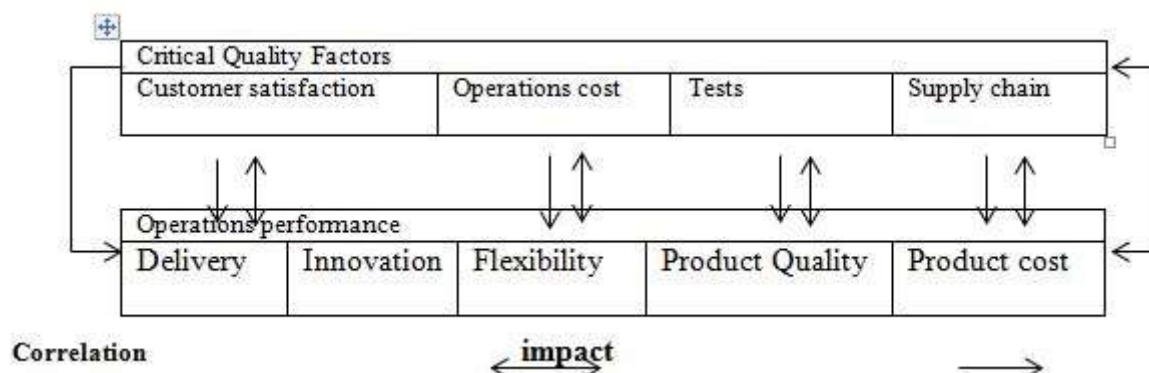


FIGURE: 1
RESEARCH MODEL

Fourth: 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

- There is a significant correlation between the processing series and operations performance.
- There is a significant correlation between the examination process and operations performance.
- There is a significant correlation between the cost of operations and the performance of operations.
- 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

- There is a significant effect of the processing chain factor in the performance of operations in the company in question.
- There is a significant effect of the process factor in the performance of operations on the company in question.
- There is a significant effect of the cost factor on the performance of operations of the company in question.
- There is a significant effect of the customer satisfaction factor on the performance of operations of the company in question.

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.

Sixth: 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.

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

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 Germany to pack the glass bottles capacity 250 ml and production capacity / 24 thousand bottles per hour for the production rate of 24 hours per day, and in 2003 was added The first line of packing plastic bottles (PET) is Turkish, with a capacity of 1.5 litres and a production capacity of 10,000 bottles per hour. In 2005, a line of packaging of another type of plastic machine was added, which were Turkish and Italian. These had a capacity of 2,250 litres 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 litre and a production capacity of 20,000 bottles each 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 first production line was Italian for producing plastic bottles, with a capacity of 0.5 litres and a production capacity of 25,000 bottle 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 the production of plastic cups, with a 250 ml capacity card of 6000 bottle each hour. The fourth line was Turkish, producing plastic cups with a 250ml capacity card 6000 bottle each hour. A number of working hours was 24 hours.

The Karunji Company for the production of soft drinks, juices and healthy water: In 2010, and 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) was produced as follows:

- Production of all sizes of plastic bottles (PET) (200 ml + 1 litre + 1.5 litres) containing various juices of all colours.
- Production of all-size plastic containers containing soft drinks.
- Production of plastic bottles containing water, with a capacity of 0.5 litres.

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.

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

Seventh: Methods of Data Collection and Information

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

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

Eighth: 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 (R^2) 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.

Ninth: Sample of the Research

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

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		%	
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		%	
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

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:

1. There was a significant positive correlation between the processing chain factor and the combined operational performance, with a correlation coefficient (*0.687). This relationship indicates that interest in the processing stage contributes to improving the performance of processes in product production, thus accepting the first sub-hypothesis of the first main hypothesis.
2. There was a significant positive correlation between the processing factor and the combined process performance, with a correlation coefficient (*0.712). This relationship means that whenever there is greater interest by the company in an examination, this improves the performance of the processes of producing the products, thus accepting the second hypothesis of the first hypothesis
3. There was a significant positive correlation between the operating cost factor and the combined operational performance, with a correlation coefficient (*0.689). This result indicates that the company's interest in operating costs will help it to respond to

outstanding operations, thus accepting the third sub-hypothesis of the first main hypothesis.

4. There was a significant positive correlation between the customer satisfaction factor and the combined operational performance, with a correlation coefficient of (*0.704). This result shows that the company's interest in customer satisfaction will contribute to the performance of production processes and delivery of products to customers on time, thus accepting the fourth sub-hypothesis of the first hypothesis.

CONCLUSION

- The critical factors of quality and the performance of operations have been of interest concerning 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.
- The critical quality factors are important issues that enable the company to provide its products with the appropriate quality, ensuring its continuity, survival and growth.
- An increasing interest of quality management researchers in the field of operation Management are the dimensions relating to the performance of operations due to their role in helping the company use the available resources efficiently to achieve its survival and growth goals as meeting customers' requirements.
- There is a positive correlation between the determinants of combined quality and the performance of the combined processes in the company under consideration.
- There is a positive correlation between the critical combined quality factors and the performance of the processes adopted in the research.
- There is a significant correlation between the critical combined quality factors and the combined operations' performance.
- There is a significant correlation between the critical combined quality factors on the performance of operations adopted in the research.
- The results showed the greatest effect of the testing process as a quality factor in the performance of operations at all the organization levels.

RECOMMENDATIONS

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

- An increase of 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 to enhance their role in achieving better results in terms of the performance dimensions of operations.
- The need to increase the attention of = Management of 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.
- The Management of the company under study should study continuously study the relationship between the determinants of quality and the performance dimensions of operations.

- The need for the Management of the company, in coordination with Iraqi universities and institutes, to provide continuous courses for the staff to develop their skills and abilities in the areas of work, including quality management and operations performance.
- The 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.

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