

## The impact of the DMAIC model in enhancing service quality : An analytical study of the opinions of a sample of employees at Zain Iraq Telecommunications Company

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**Abstract:** The current study aims to test the impact of the (DMAIC) model in enhancing the quality of service in Zain Iraq Telecommunications Company, and to identify the reality of the company's situation as a study community, in order to help it solve the problems it faces and develop appropriate solutions to overcome these problems and deal with the changing environment effectively and efficiently.

The study adopted the comprehensive enumeration method, meaning that the study community is the same as the study sample, and on this basis, an electronic form was adopted to be distributed to the target sample through agreement with the company's public relations department, and accordingly, the study sample included (282) valid answers for analysis from a community of (290), which means that the actual sample response rate reached (97%), and the descriptive analytical approach was relied upon in this study.

In order to analyze and interpret the collected data, some statistical methods were used, such as the arithmetic mean, standard deviation, coefficient of variation, relative importance, as well as the structural modeling equation (SEM) and the simple correlation coefficient (Pearson), and impact analysis using statistical analysis programs (SPSS & AMOS.V.29). Several results were reached, the most important of which was the existence of a correlation and influence relationship between the (DMAIC) model on the one hand, and enhancing service quality. This indicates that it is a system that derives its interactions from the reciprocity of the relationship between them on the one hand, and the integration in the structure on the other hand.

**Keywords :** DMAIC , service quality , Zain Iraq .

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**Introduction:** In the past few years and to this day, organizations have witnessed a state of great change in their markets and operations, resulting from the rapid transformations towards globalization and the unprecedented openness of the divides and borders between countries, which increased the intensity of competition between them, which required organizations to think about a preliminary drawing of the appropriate strategy for their work and determine their directions, and search in various fields for distinct work methods, capabilities and possibilities that enable them to survive and adapt to the rapid environmental changes. Local and international competition has led organizations to face an increasingly turbulent and hostile environment, in addition to the tastes and requirements of customers that have become more complex, which has been reflected in the competition that has become more fierce. Therefore, many organizations have adopted a set of approaches to improve their response to these forces. In the last years of the last century, we have witnessed the adoption of a set of Six Sigma standards (the DMAIC model, statistical process control, and total quality management). Since the service sector has become the most important element in economies in recent years, it constitutes 50% of the gross domestic product in industrialized countries. From this standpoint, the importance of this study came to contribute to clarifying the impact of the model DMAIC in enhancing service quality and reducing damage through the pioneering strategic orientation in Zain Iraq Mobile Telecommunications Company, and communicating with previous research efforts in order to enrich the conceptual and philosophical intellectual frameworks for such topics.

Accordingly, the main objectives of the study were represented in two main dimensions: the philosophical intellectual dimension, which is an attempt to remove the ambiguity from the concept of the (DMAIC) model for the concerned departments and then enable them to have a vision and intellectual background supported by effective application indicators in how to invest and use the (DMAIC) model to ensure enhancing service quality.

As for the second dimension of the study objectives, it is: the applied dimension, which is an attempt to analyze and diagnose the role of the DMAIC model with its dimensions in enhancing service quality for the study sample, which

will contribute to the direction of Zain Iraq Mobile Telecommunications Company towards adopting the modern intellectual and cognitive philosophy and its reflections in achieving the best scientific results that meet the requirements of enhancing its performance through the pioneering strategic orientation and in a way that helps it succeed and excel in the long term.

## **1.study Methodology**

### **1.1 The problem of the study**

The field problem is the need for the departments (top, middle) of the study sample to establish the concept of the DMAIC model, which confirms the reality and implications of the study problem that focuses on the need for officials at Zain Telecommunications Company to realize the nature of the impact between the study variables in the field. Through repeated visits and unstructured personal interviews with a sample of officials, this problem was diagnosed, which was represented by the deficiency and weakness of conceptual and field awareness regarding the study topics "DMAIC model, enhancing service quality, reducing damage, and pioneering strategic orientation". On this basis, the main features of the field problem of the current study become clear by framing it with a set of the following questions: —

- 1- What is the level of adoption of the "DMAIC model, service quality in the company, the study community?
- 2- What is the nature of the correlation between the study variables and their sub-dimensions in the company, the study community?
- 3- What is the extent of the impact of the (DMAIC) model in enhancing service quality (direct impact) in the company, the study community?

### **1.2 The importance of the study**

The importance of the current study is represented in the following aspects:

1. Highlighting the reality of using the study variables in Zain Iraq Telecommunications Company in order to diagnose the problems and obstacles it faces and to provide proposals and recommendations regarding them.
2. Through the expected results, the researcher hopes to provide appropriate contributions that will help the company under study in building and formulating a clear strategy and avoiding ambiguity and paying attention to its capabilities to enhance the quality of its services in order to face challenges and expand its market share.
3. The researcher hopes that the results of this study will play a role in working on conducting more research by studying these variables with other variables in a way that supports and contributes to the integrated crystallization of its topics and dimensions.
4. The importance of the study lies in identifying the strengths and weaknesses in the service provided by the company, the study sample, and working on developing its capabilities and abilities to meet the requirements of competition in an environment characterized by high dynamism.
5. Drawing the attention of the company's management to applying the activities and practices of the (DMAIC) model on the ground in the telecommunications sector, due to its prominent and effective role in enhancing the quality of its services.
6. The DMAIC model represents a business strategy that enables organizations to improve their performance level efficiently and effectively by planning and monitoring daily business activities. This makes it possible to reduce the occurrence of variation, enhance the quality of their services, and increase customer satisfaction.

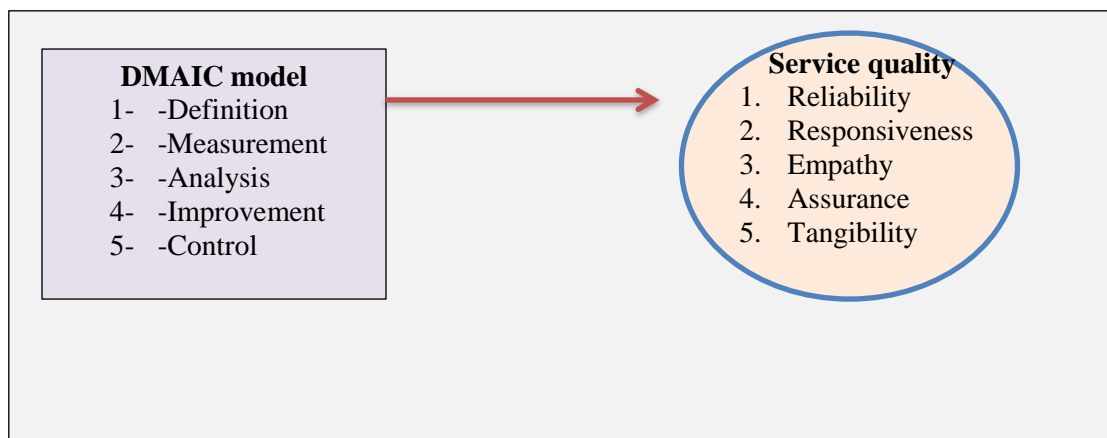
### **1.3 The aim of the study**

This type of goal is determined in the light of the homogeneous composition of the study variables and the extent of their impact on behavior better through:

- 1- Identify and reveal whether Zain Iraq Telecommunications Company has an appropriate level of application of the DMAIC model in its activities and business through the pioneering strategic orientation.
- 2- Clarify the relationship of association and influence between each of the DMAIC model and its sub-dimensions while enhancing the quality of service in its dimensions.
- 3- Provide decision makers "senior management" at Zain Iraq Telecommunications Company with a number of mechanisms that would enhance the quality of its services.
- 4- Identify the obstacles and difficulties that limit the availability of the requirements of the DMAIC model at Zain Iraq Telecommunications Company, the study community.
- 5- Work to help the company under study to control its operations and ensure that the applied improvements are directed towards providing the customer with what they need with a high level of quality in its services.

#### 1.4 The hypothetical scheme of the study

The hypothetical diagram of the study represents a simplified, brief, and hypothetical diagram of the phenomenon under study, and identifies the effect relationships expressed by hypothetical arrows that have not yet been tested. This diagram reflects a set of hypotheses that were built primarily on the possibility of measuring each variable of the study, and the extent of the diagram's comprehensiveness and possibility. Figure(1) depicts the hypothetical plan of the study .



**Figure (1) shows the hypothetical scheme of the study:**

**Source: Prepared by the researcher.**

#### 1.5 The hypotheses of the study

##### 1.5 Hypotheses of influence

The first main hypothesis: There is a significant effect relationship between DMAIC model and Service quality . The following sub-hypotheses are derived from it:

**First sub-hypothesis:** There is a significant effect relationship between Definition and Service quality.

**Second sub-hypothesis:** There is a significant effect relationship between Measurement and Service quality.

**Third sub-hypothesis:** There is a significant effect relationship between Analysis and Service quality.

**Fourth sub-hypothesis:** There is a significant effect relationship between Improvement and Service quality.

**Five sub-hypothesis:** There is a significant effect relationship between Control and Service quality.

#### 1.6 The sample of the study

A sample was selected that represented the senior and middle management leaders in Zain Iraq Telecommunications Company. The study sample included (Chairman of the Board of Directors, General Manager, Department Manager, Branch Manager, Division Manager, Unit Manager), and the study adopted the comprehensive enumeration method, meaning that the study community is the same as the study sample. Based on this, an electronic form was adopted to be distributed to the targeted sample through an agreement with the Public Relations Department in the company. Accordingly, the study sample included (282) valid answers for analysis from a community of (290), which means that the actual sample response rate reached (97. %). In order to analyze and interpret the data and come up with the best results, the study resorted to relying on two analysis packages, which are (SPSS & AMOS.V.29).

#### 1.7 The tool of the study

The study used the questionnaire as a tool to collect data from the study sample. The questionnaire consists of two parts. The first part included the demographic data of the respondents, while the second part included the variables of the study, as it included DMAIC model (18) items by relying on the dimensions mentioned by (DeMast&Lokkerbol,2012), while the Service quality variable included (22) items through Relying on the scale (Leksic et al.,2020). To implement the test, the Cronbach's alpha coefficient was adopted, which studies indicate is acceptable at values greater than 0.70 (Chen & Huang. 2007). By applying the test, it was found that the DMAIC model axis recorded an acceptable reliability coefficient of (0.945), and the combined axes recorded (0.946), which indicates that all axes reflect acceptable results.

## **LITERATURE REVIEWI**

### **2.1 The concept of DMAIC model**

According to the researchers' work, the DMAIC model has been applied in several fields, starting with project management, manufacturing industries, reducing errors, and quality costs (Norhazrina et al., 2020:335). The emergence of Six Sigma represents a natural extension of the efforts of total quality management. It can even be said that it is a management thought born from the womb of total quality management and has the ability to bring about radical changes and move from the stage of reducing errors, which is the main goal of total quality management, to the stage of no errors, i.e. zero defect, which is the goal of the DMAIC model. Quality management provides the tools and techniques necessary to bring about technological changes and develop processes within management. The growth in customer demand for high-quality products and services with speed of delivery, and the increase in competition due to globalization, forced organizations to explore profitable solutions to gain a competitive advantage. Organizations around the world have adopted many commercial and operational strategies to improve their productivity and customer satisfaction (Perera et al., 2021: 1). Both (2021; Kesek et al., 2019) believe that the DMAIC model represents the strategic goals of organizations by using a set of statistical tools to identify changes in process performance and work to target and eliminate defects. The DMAIC model represents the basic approach to Six Sigma, which is used to develop processes, whether industrial or service.

(Godina et al., 2021:5) defined it as a methodology used in Six Sigma projects to improve the quality of manufacturing processes, the aim of which is to identify and solve the various root causes that cause defects through the already defined stages. (Rifqi et al., 2021:59) defined this model as a method inspired by Deming's practices in planning, executing, verifying and controlling, which is an approach used to guide the scheduling and execution of Six Sigma projects.

### **2.2 Dimensions of DMAIC model**

#### **1- Definition**

This first stage represents a number of steps that work to define the problem, identify the customer's needs and expectations, and choose the appropriate organizational structure to determine the objectives. Therefore, it must be verified whether the procedures and practices that have been taken and related to providing solutions to the problems of the targeted operations and the services to be provided are sound and correct procedures. (Sharma et al., 2019: 526) see that at this stage, the problem begins to be understood and defined, and the process, flows, inputs and outputs are designed where improvement is targeted, and the process map is prepared. This step is very important before starting the project implementation. (Godina et al., 2021: 5) described the purpose of this step as knowing the project's work and current status, identifying the production process and identifying the types of defects. Thus, the target, i.e. the assembly line and the product, is chosen to conduct the analysis. This determination is made using historical data analysis and based on interviews and discussions with the engineers responsible for managing operations. At the end of this step, it is possible to determine the line chosen for analysis, the product, and the specific failure modes. Thus, once these principles are established, the second stage comes.

#### **2- Measurement**

Efforts at this stage focus on measuring the performance of the current system, documenting the actions taken in the first stage and subject to continuous improvement by preparing a plan to collect information and data in order to have a comprehensive and broad understanding of all company operations. This stage of the DMAIC model focuses on how to measure internal processes, and requires understanding the causal relationship between process performance and customer value. Fact-checking procedures, collecting valid data, observations, and careful listening must be identified and implemented (Karout, 2015:10). (Sharma et al., 2019:530) indicated that this stage in the DMAIC model aims to uncover the potential causes of defects and form the basis for listing the causes that have been further analyzed to determine the root causes of the problem, while exploring the possible interrelationships between potential causes and their undesirable effects. emphasized the special importance of this stage as it represents the reference point for the project, as by defining the metrics it becomes possible to measure progress and set goals. (Jamil ,2020:338) described the measurement stage in the DMAIC model as consisting of creating reliable and applicable metrics to help monitor key process characteristics, the range of parameters taken into account, and their performance to understand their progress towards the goals set in the definition stage.

#### **3- Analysis**

During the measurement phase, information about the real causes is collected and then verified. These causes should be linked to effects to visualize the process factors that affect performance (Zhong, 2017:35). Hypothesis testing may begin to validate assumptions and possible solutions in the analysis and continue until the improvement phase. Teams may begin developing the process design by identifying activities that add value from those that do not, identifying areas where errors and bottlenecks may occur, and improving requirements to properly meet the project needs and objectives (Chalb & Abdulhad 2022:5418). (Gilbert 2003:32) indicated that the purpose of the analysis is to identify the most influential factors within the process and find the main sources of common cause variation, thus gaining knowledge of the entire process. Having a better knowledge of what affects the process translates into better control of the process. At this stage, sufficient data is collected to reduce the variables being considered and find the correlation between the remaining variables.

#### **4.Improve**

(Trimarjoko et al., 2020:36) The improvement phase is the activity of selecting the best alternative measures, which analyzes the event from the analysis phase by conducting a test of the action taken During this phase, solutions must be developed to address the main causes already identified during the analysis phase, and then these solutions are evaluated for the expected risks and the improvement is also evaluated after conducting a pilot test. The objective of this phase is to obtain the necessary information to create and develop an action plan to improve the organization's performance, financial aspects and customer relationship issues. The possible solutions of the action plan should be presented to the team involved in the process and implemented iteratively, and some kind of pilot solution should be deployed based on risk-reward optimization, which confirms the validity and accuracy of the analytical work that allows any corrections to be made before the solutions are implemented on a large scale (Paulo et al., 2020:19).

#### **5.Control**

This stage ensures that the changes made in the improvement stage are continuous and sufficient, by verifying the quality of the improved processes, and continuously monitoring current and future processes to reduce deviations and the need to emphasize the need for feedback. The control stage focuses on creating and implementing control and response plans to sustain improvements, disseminating the results and methodology to the entire organization, and ensuring the creation of a new culture within the organization. In addition, operating standards and procedures will be documented and published in the control stage (Gupta, 2013:51). (Trimarjoko et al., 2020:36) referred to the control stage as the stage of monitoring the solution and standards used and ensuring that control is carried out at the cause of the problem, as well as obtaining support from management.

### **2.3.Service quality**

#### **1. The concept of Service quality**

"Service quality" is a combination of two different words "service" and "quality". Service means "the activity or benefit that one party can provide to the other, which is basically intangible and does not lead to ownership of anything, while quality is "the most important strategic tool to maintain operational efficiency and better business performance". It is a very important factor in the service sector for the success of any business, as service quality helps maximize profit and customer satisfaction (Kanzariya & Shukla, 2022: 118). The concept of quality goes back to the Latin word that "means the nature of the thing and the level of solidity", and in the past it meant accuracy and mastery, as quality went through historical stages and crystallized through it and was Japanese in origin and at the beginning of the twentieth century and after that the idea spread in North America and Europe (Salwa and Al-Fali, 2021:9). Due to the change in the market and the emergence of the need to develop service industries, and the need to stimulate competition and obtain competitive advantages in the highly competitive market, researchers worked in the eighties of the last century to introduce And developing some models to measure service quality, as service quality literature depends on product quality literature (Brady & Cronin, 2001) and researchers and practitioners unanimously agree on the tremendous role of service quality in the organization's performance and its effective impact on customer satisfaction and well-being, as high-level service quality has positive and effective advantages in relation to products such as ease of use, increased productivity, and improved profitability (Ghotbabadi et al., 2015: 269).

#### **2.4 The dimensions of Service quality**

##### **1. Reliability**

(Kotler, 1997:465) defined reliability as the commitment and fulfillment of providing a service with a high degree of accuracy and reliability. While (Cronin & Taylor, 2012:55) see it as the ability of service providers to perform it effectively, and can be relied upon to achieve a balance for the customer between what he will pay and what he gets from the service. (Ramya et al., 2019:40) indicated that it means the promises of service organizations regarding

delivery, provision of service, problem solving and pricing, as he wants to deal with those organizations that fulfill their promises, so it is an important element in the customer's perception of the quality of service and his loyalty, and therefore organizations must be aware of customer expectations regarding reliability. (Uppal et al., 2018:4) confirmed that it is the ability to perform the guaranteed service continuously and accurately. Others went on to say that it is the correct technical operation of the site and the accuracy of the service "delivering the order, and delivering product information on time", as reliability is a basic factor of satisfaction if the customer does not trust the organization (Jameel et al., 2018:4 al.,2021:4).

## **2. Responsiveness**

It refers to the capabilities of the service provider organization in meeting the new desires and needs of customers, through the procedures and methods followed to provide high-quality services, and its ability to quickly deal with customer complaints, listen to their suggestions and work on implementing them. (Rad et al., 2010) believes that responsiveness means the timing of service provision, i.e. providing quick services to customers, setting appointments as soon as possible, and sending the request immediately to the customer so as not to form a false impression. When service providers increase the speed of service, it is likely to have a positive impact on their customers' satisfaction (Islam et al., 2016: 110).

## **3. Empathy**

It means the care and diligence that the organization exerts to identify and recognize the needs and requirements of the customer and to accommodate them, and to adapt and adjust the service delivery process according to those desires. (Le Hoa et al., 2023:128) see that empathy shows the level of interest in the service for each customer individually. (Albeiro et al., 2009: 393) described empathy as "the process of perceiving, understanding, experiencing, and responding to the emotional state and thoughts of another person." (Legesse , 2017:18) stated that the empathy dimension represents "care, individual attention, accessibility, and ease of communication" and the effort expended in understanding the needs of customers, knowing the needs of customers and the individual attention that the organization provides to its customers, and is related to the organization's ability to understand the needs of customers and the ability to respond to them such as "identifying new customers and knowing their specific requirements (Parasuraman et al., 1985:41- 48).

## **4. Assurance**

Are customer obtaining products and services free of risk, and instilling and gaining confidence in the customer that his choice of the organization was right. And freedom from danger or risk or uncertainty and physical safety, financial security, and confidentiality (Yarimoglu1,2014:83). And described (Alemu , 2023:18) employee courtesy and knowledge and the ability to transfer trust. (Parasuraman et al.,1985:41-50) sees it as representing the employee's knowledge, courtesy, and the ability to transfer knowledge and kindness of employees and their ability to spread trust and reassurance, i.e. employees must have the knowledge and skills necessary to serve customers in the best possible way and respect and consideration for them, and trustworthiness, credibility and honesty among employees.

## **5. Tangibility**

The organization's capabilities are represented in providing all facilities and comforts to its customers, including seats, communication devices, and physical equipment (buildings), which must meet the customer's expectations in terms of their readiness to achieve the quality of services provided to the customer, and reflect the customer's feelings towards the service provided. Parasuraman et al., 1985 refers to the appearance of employees, physical facilities, tools or equipment used to deliver the service. The physical representation of the service such as signs, has been noted as one of the important dimensions of service quality to improve quality performance in the service industry. It is primarily related to the diversity of service features to meet customer expectations (Islam et al., 2016:110). (Ali et al., 2021:18) describes it as "the appearance of physical facilities, equipment, employees and communication materials". Physical appearance refers to the appearance of equipment, the appearance of employees, and the appearance of construction and renovation. Tangibility refers to the cleanliness and appropriateness of uniforms used by employees. Tangibility, among all the other five dimensions, is the most important element for the customer. It gives a physical representation of the images of services that customers, especially new customers, will use to evaluate quality. Despite the fact that service providers often use tangible assets to enhance their reputation, give conformity, and sign quality to the customer, most organizations combine assets together. Concrete with others in order to create a quality service technology for the organization.

## **3.The Practical Side Of The Study**

### **A.Descriptive analysis of sample responses**

#### **First: describing and diagnosing the dimensions of DMAIC model**

**1- Describe The first dimension: Definition**

It is noted from the results of Table (1) that the general average of the definition dimension reached (4.56), with a high relative importance of (91.11%), and the paragraphs were consistent with the level of answers with a standard deviation of (0.50), and with acceptable homogeneity with a coefficient of variation of (11.17%), and this shows the interest of employees in the upper and middle managements at Zain Telecommunications Company in giving high priority to this dimension. As for the paragraph level, paragraph (3), which indicates (the company's management realizes the importance of arranging customers' priorities, needs and requirements), was the most interested and agreed upon, as the level of agreement on it was with an arithmetic mean of (4.61), a standard deviation of (0.53), a coefficient of variation of (11.58%), and a relative importance of (92.24%). The paragraph with the least agreement was paragraph (2) (the company's management is keen to clearly identify stakeholders) as it obtained an arithmetic mean of (4.46), a higher standard deviation of (0.66), a coefficient of variation of (15.07%), and a relative importance of (89.11%). From the above, the results above show that the interest in this dimension came as a result of the company's management's interest in focusing greatly on understanding customers' needs and requirements, which reflects an effective strategy towards improving the customer experience, and its keenness to clearly identify stakeholders in order to develop and raise the level of the company's work.

**Table (1) Statistical description outputs for the definition dimension**

Order of importance	Relative importance %	C.V	S.D	Men	Paragraph
3	91.20	13.98	0.63	4.56	DMDE1
4	89.11	15.07	0.66	4.46	DMDE2
1	92.24	11.58	0.53	4.61	DMDE3
2	91.88	12.44	0.57	4.59	DMDE4
<b>Definition</b>					
			4.56	<b>Men</b>	
		0.50	<b>S.D</b>		
11.17		<b>C.V</b>			
91.11		<b>Relative importance</b>			

**2) Describe the Variety of Measurement**

The results indicate that the arithmetic mean of this dimension reached a value of (4.47) with a high relative importance of (89.31%), a standard deviation of (0.55), and a coefficient of variation of (12.43%). This element had a positive impact on paragraph (2) (the company's management makes great efforts to organize its resources towards achieving the highest returns and the lowest costs) with the highest level of relative importance, reaching (91.04%) and an arithmetic mean of (4.55) and a standard deviation of (0.57) and a coefficient of variation of (12.67%), while the lowest response at the level of relative importance was paragraph (5) (the company's management evaluates the performance of employees based on the ability to respond to work requirements) reaching (87.50%) with an arithmetic mean of (4.38) and a standard deviation of (0.72) and a coefficient of variation of (16.51%). This indicates a noticeable difference in opinions, which reflects a lack of complete agreement among employees about the importance of this paragraph. From the above, the results indicate that the company's management believes in the importance of organizational and material resources in achieving success. By organizing and evaluating its resources in order to obtain the highest returns and following the research and development trends of competing companies and reflecting a good understanding of market needs. In return, management should consider improving methods of evaluating employee performance, as there seems to be a disparity in opinions, which may affect the overall performance of the company.

**3) Describe the Variety Analysis**

The results show that the general average for this dimension was (4.46), a standard deviation coefficient of (0.61), a coefficient of variation (13.74%), and a relative importance of (89.29%), and that the most important and agreed upon paragraph is paragraph (1) (the company's management emphasizes the need to analyze the internal and external factors that lead to the failure of the services provided by it) with a relative importance of (89.58%) and an arithmetic mean of (4.48), a standard deviation of (0.63) and a coefficient of variation (14.29 (%), and the lowest paragraph is paragraph (3) (the company's management monitors the causes of failure in the current process), with a relative importance of (89.53%) and an arithmetic mean and standard deviation of (4.48), (0.71) respectively and a coefficient of variation (16.13 (%). From the above, the results indicate that the high level of interest in this dimension came due to the company's management's ability to analyze the factors affecting the failure of services, which reflects its

awareness of the importance of improving methods for monitoring the causes of failure. Working on developing and providing new services to meet the needs and desires of customers according to market studies and requirements.

#### **4) Describe the Variety Improvement**

The results showed that the overall average of the improvement dimension was (4.49), and the standard deviation coefficient was (0.63), and the coefficient of variation was (14.28%), and the relative importance was (89.74%), which shows the interest of employees in the upper and middle managements at Zain Telecommunications Company in giving high priority to this dimension. As for the paragraph with the most interest and agreement in forming this dimension, paragraph (2) (the company's management is keen to develop emergency strategies in response to changes that may occur in the market movement and its requirements), as it obtained an arithmetic average (4.55), and a standard deviation (0.66), which indicates the existence of good consensus among the opinions of employees, as most of them agree on the importance of these strategies, and the coefficient of variation was (14.72%), which indicates relative stability in opinions, which means moderate variation, and this paragraph obtained a relative importance of (91.09%), which indicates the management's awareness of the importance of adapting to market changes. The paragraph with the least agreement was paragraph (3) (the company's management works on developing and continuously improving its services in response to changes in customers' tastes and desires), as it obtained an arithmetic mean of (4.46), a higher standard deviation of (0.77), and a coefficient of variation of (17.38%), which indicates a noticeable difference in opinions, reflecting a complete lack of agreement. It also obtained a relative importance of (89.17%), and although it continues to receive a positive assessment, it is considered the least important. From the above, the results indicate that Zain Telecommunications Company focuses greatly on developing emergency strategies to confront changes in the market, which reflects a deep understanding of market needs and customer trends. Management must enhance its efforts in developing and improving its services, and adapting to changes in customers' tastes and desires.

#### **5) Describe the Variety Control**

The results indicate that the overall average of the control dimension was (4.46), and the paragraphs were consistent with the answers with a standard deviation of (0.63), and had acceptable homogeneity with a coefficient of variation of (14.32%), and a relative importance of (89.27%). Perhaps the importance of this dimension is due to the paragraph that contributed the most to forming this dimension, paragraph (1) (The company's management has a work team with distinguished knowledge of continuous control to ensure the continuity of improvements), as it obtained an arithmetic average of (4.52), and a standard deviation of (0.67), and this indicates good agreement among the opinions of the employees, as most of them agree on the importance of this control to ensure continuous improvement, and with a coefficient of variation of (14.89%), and this indicates relative stability in opinions, which means moderate variation, and this paragraph obtained a relative importance of (90.36%), which indicates the management's awareness of the importance of having a distinguished work team. The least positive paragraph in forming this dimension is paragraph (3) (the company's management works to benefit from feedback to complete the continuous improvement process), as it obtained an arithmetic mean of (4.32), a higher standard deviation of (0.83), and a coefficient of variation of (19.46%), which indicates a noticeable difference in opinions, reflecting a complete lack of agreement between the two workers. This paragraph also obtained a relative importance of (86.30%). From the above, the results indicate that the company's management is distinguished by its ability to seize opportunities, as it works to identify, distinguish and seize opportunities according to proactive plans by monitoring market movements, and enhancing its efforts in using feedback as a tool to improve performance.

#### **Second: Describing and diagnosing the dimensions of Service quality**

This paragraph shows the statistical description of the service quality variable through interpreting and analyzing the results based on the arithmetic mean, standard deviation, coefficient of variation, and relative importance. In order to determine the order of importance, the order of the coefficient of variation for each paragraph and dimension belonging to this variable was relied upon as follows:

##### **1) Description of Reliability**

It is noted from the results that the general average of the reliability dimension was (3.25), and the paragraphs were consistent with the answers with a standard deviation of (0.42), and had acceptable homogeneity with a coefficient of variation of (13.10%), with a relative importance of (64.98%), and perhaps the importance of this dimension is due to (1) (the company's management provides services that add value to the customer), as it obtained an arithmetic mean of (3.27), which indicates that employees see this service as important, although the rate is still relatively low, and with a standard deviation of (0.49), and this indicates a good agreement between the opinions of employees about the importance of adding value to customers, as the variance is not large, and with a coefficient of variation of (15.17%),

and this paragraph obtained a relative importance of (65.31%). While paragraph (5) (the company's management believes that the secret to success is excellence in working within an environment of uncertainty) came in last place, as it obtained an arithmetic mean of (3.22), which indicates that it is considered less important compared to In the first paragraph, with a standard deviation of (0.55), and a coefficient of variation of (17.23%), this indicates a significant difference in opinions, which reflects a lack of complete agreement among the workers about its importance. This paragraph also received a relative importance of (64.49%), indicating that this paragraph is considered the least important, which reflects a lack of consensus on the importance of excellence in an environment of uncertainty. From the above, the results indicate that Zain Telecommunications Company attaches importance to providing services that add value to the customer, which is a basic element in its strategy. However, the low rates in both paragraphs show the need to improve these aspects, especially with regard to understanding the importance of excellence in an unstable work environment, which requires working within an environment of uncertainty and searching for opportunities, even if they are high-risk, in order to excel and distinguish themselves.

### **2) Description of Responsiveness**

The results show that the general average for this dimension was (3.27), and the standard deviation coefficient was (0.40), and the paragraphs were homogeneous based on the value of the coefficient of variation, which was (12.49%), and a relative importance of (65.41%), which shows the interest of employees in the upper and middle managements at Zain Telecommunications Company in giving high priority to this dimension, and that the most important paragraph and agreement was paragraph (1) (The company's management conducts continuous communications with its customers to know their current and potential requirements), with an arithmetic average of (3.24), and despite the importance of communications for employees, the rate is still relatively low, with a standard deviation of (0.48), and this indicates a good agreement between the opinions of employees, as the variance in opinions is not large, and the coefficient of variation is (14.94%), which means that most employees agree on the importance of these communications, and this paragraph received a relative importance of (64.90%). While paragraph (2) came (The company's management has the ability to respond quickly For customer requirements), it ranked last, as it obtained an arithmetic mean of (3.37), a standard deviation of (0.53), and a coefficient of variation of (15.84%), which indicates a noticeable difference in opinions, reflecting a complete lack of agreement between the two workers about the importance of this paragraph. It also obtained a relative importance of (67.35%). From the above, the results show that Zain Telecommunications Company attaches importance to conducting continuous communication with its customers, which is an essential element for understanding their needs. However, the low rate in both paragraphs shows the need to improve these aspects, especially with regard to the ability to respond quickly to customer requirements, which may affect customer satisfaction and loyalty.

### **3) Description of Empathy**

The results show that the general average of the empathy dimension was (3.23), and the level of consistency in the answers was acceptable, which is reflected in the standard deviation value (390). The paragraphs were also homogeneous based on the value of the coefficient of variation, which was (12.05%), which resulted in a relative importance of (64.57%). This shows the interest of employees in the upper and middle managements at Zain Telecommunications Company in giving high priority to this dimension. Perhaps the importance of this dimension is due to paragraph (5), which indicates (the company's management provides a suitable environment and appropriate working conditions in order to enhance the loyalty of its employees), as it obtained an arithmetic average of (3.20), with a standard deviation of (0.41), and this indicates good agreement among the opinions of employees, as the variation in opinions is not large, and the coefficient of variation is (12.84%), and this indicates relative stability in opinions, which means that most employees agree on the importance of providing this environment. This paragraph also obtained a relative importance of (64.08%), and this paragraph reflects Its importance, but it is not a top priority. Also, the lower paragraph, paragraph (1), which indicates (the company's management meets all the needs of its employees in a manner that does not conflict with its policies and objectives) with an arithmetic mean of (3.22), which indicates that it is considered less important compared to paragraph (5), and with a standard deviation and a coefficient of variation of (0.55), (17.23%), respectively, and this indicates that there is a greater variance in opinions about this paragraph, which means that some employees see it as less important, and this obtained a relative importance of (64.49%). From the above, the results indicate that Zain Telecommunications Company attaches importance to providing a suitable work environment to enhance employee loyalty, which reflects the management's awareness of the importance of job satisfaction. However, the low rate in both paragraphs shows the need to improve these aspects, especially with regard to meeting employee needs, which may affect the level of morale and commitment within the company.

### **4) Description of Assurance**

The results showed that the general average for this dimension was (3.27), and the results of the standard deviation and the coefficient of variation indicated that there is harmony and homogeneity in the answers related to this dimension, as it recorded a reading of (0.38), (11.75%) respectively, with a relative importance of (65.31%). This dimension was positively enriched by paragraph (1) (the company's management works to instill confidence in customers towards its services), as it obtained an arithmetic average of (3.27), with a standard deviation and coefficient of variation of (0.45), (13.80%) respectively, with a relative importance of (65.31%). This indicates a good agreement between the opinions of the employees, as the variation in opinions is not large, and most employees agree on the importance of instilling confidence. While paragraph (2) (the company's management is interested in making customers feel safe in their dealings with it) came in last place as it obtained an arithmetic mean of (3.35), a standard deviation of (0.52), and a coefficient of variation of (15.77%), which indicates that there is a greater variation in opinions about this paragraph, which means that some employees see it as less important. This paragraph also obtained a relative importance of (66.94%), which indicates that this paragraph is considered important, but it is the least important of the two paragraphs. From the above, the results indicate that Zain Telecommunications Company attaches importance to instilling confidence in customers towards its services, which reflects the management's commitment to improving the company's market share. And the need to enhance the company's efforts to ensure that customers feel safe towards it, in a way that serves both the company and the customer, to increase customer satisfaction and loyalty.

##### **5) Description of Tangibility**

It is noted from the results that the general average for this dimension reached (3.31), and the level of consistency in the answers is acceptable, which is reflected in the standard deviation value (0.39), and the paragraphs were homogeneous based on the value of the coefficient of variation, which reached (11.91%), with a relative importance of (66.22%). The most important and agreed paragraph is paragraph (1), which indicates (the company has advanced, high-precision equipment, which enables it to provide better service than competitors), with an arithmetic mean of (3.35), a standard deviation of (0.48), and a coefficient of variation of (14.51%), with a relative importance of (66.94%). The lowest paragraph is paragraph (4) (the company's management has modern technologies that are characterized by rapid response to activate its activities and achieve a competitive advantage for it), as it obtained an arithmetic mean of (3.29), a standard deviation of (0.50), and a coefficient of variation of (15.53%), with a relative importance of (65.71%). From the above, the results explain that the percentage of interest that this dimension received came through the company management's interest and emphasis on the need to provide advanced equipment to improve its services compared to competitors, reflecting the management's commitment to the quality of its services it provides to its customers. And enhancing the use of modern technologies to ensure rapid response, in response to market movement and requirements to achieve a greater competitive advantage.

##### **B-Impact relationship analysis**

The significance of the effect is determined by relying on the Calculated (F) value and comparing it to its tabulated value, in addition to the significance level (P), which must be smaller than the permissible error of (0.05), as follows:

**The main hypothesis:** There is a statistically significant effect relationship for the DMAIC model with its dimensions on the quality of service with its dimensions. The results and data presented in Figure (2) show that there is a significant effect for the DMAIC model with its dimensions on the quality of service, as increasing the DMAIC model by one unit leads to an improvement in the quality of service, by an amount of (0.523) and a standard error rate equal to (0.159) and a critical value of (13.289), which means that it contributes to building and improving the relationship between the DMAIC model and the quality of service with its dimensions, and the DMAIC model contributed to explaining (0.789) of the amount of variance in the quality of service, while the remaining value is due to factors not included in the study. This emphasizes the company's management to work on raising the level of application of the (DMAIC) model in its activities and operations, in order to enhance the quality of its services and contribute to achieving customer satisfaction, as the (DMAIC) model focuses primarily on preventing non-conforming products and providing services that do not meet the customer's desires, as the quality of service is among the priorities of the company that wants to give added value to its products and increase its profits within its business environment, which enjoys high competition. The results mentioned above demonstrate the validity of the seventh main hypothesis in general.

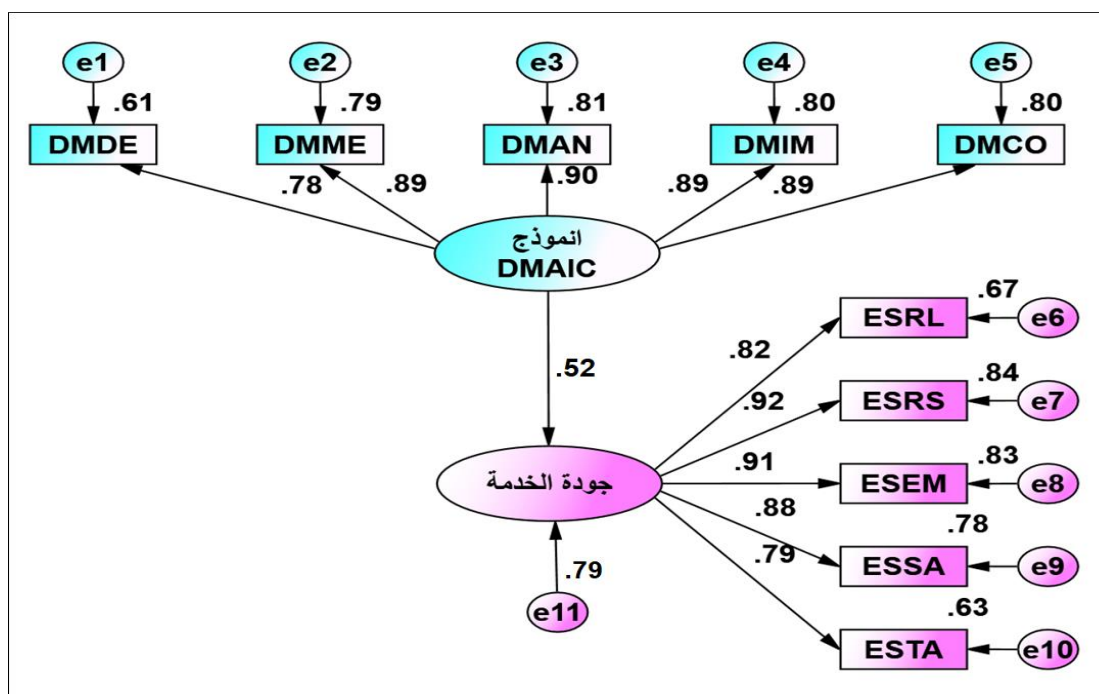


Figure (2) The structural model of the impact of the DMAIC model with its dimensions on the quality of service with its dimensions

Table (2) shows the results of the analysis of the impact of the DMAIC model with its dimensions on the quality of service with its dimensions

Path	Standard weight	Standard error	critical value	Interpretation factor	probability
DMAIC ---) Service quality	0.523	0.159	13.289	0.789	0.001

Source: Prepared by the researcher based on the outputs of the AMOS.V.29 program.

#### 4. Conclusions

- The results confirmed that the analysis dimension receives a level of interest from the study sample, and the high level of interest in this dimension came as a result of the company's possession of the necessary capabilities to analyze the factors affecting the delay and failure of services, according to the quality standards that the company seeks to achieve and make them among its priorities and future plans and in line with the requirements of change, which reflects its awareness of the importance of improving methods of monitoring the causes of failure, and working to develop and provide new services to meet the needs and desires of customers according to market studies and requirements.
- The results indicate that the company's management is distinguished by its ability to seize opportunities, and this clarifies the effective role of the control dimension, as it works to identify and distinguish opportunities and seize them according to proactive plans by monitoring market movements, and enhancing the company's efforts in using feedback as a tool to improve performance.
- The results showed that Zain Iraq Telecommunications Company gives high priority to the DMAC model through community development and stability, which reflects the management's comprehensive vision and commitment to social responsibility.
- The results show a high level of interest of the management of the study sample company in enhancing the quality of service in general, and that this interest arises from its interest in the safety dimension in the first place. This is due to the sample studied realizing the importance of safety by enhancing customer confidence, motivating employees, and developing their capabilities in order to provide new services that meet the customer's renewed desires and contribute to activating the company's work and activities. As for the tangibility dimension, it came in second place, as the company emphasizes the need to provide advanced equipment to improve its services compared to competitors,

reflecting the management's commitment to the quality of the services it provides to its customers, and enhancing the use of modern technologies to ensure rapid response to market movement and requirements to achieve a greater competitive advantage compared to competitors.

- The DMAIC model affects the quality of service, which emphasizes that the company's management should work to raise the level of application of the model in its activities and operations, in order to enhance the quality of its services and contribute to achieving customer satisfaction, as the model focuses primarily on preventing non-conforming products and services that do not meet the customer's desires, and the quality of service is among the priorities of the company that wants to give added value to its products and increase its profits within its business environment, which enjoys high competition.

## **5.Recommendations**

1. The company's management needs to apply the (DMAIC) model as a strategic tool to improve the quality of services and work to raise its level among individuals by holding seminars, courses and workshops, as it is clear that using this model not only contributes to raising the level of quality of the service provided, but also plays a vital role in reducing the percentage of damage, which enhances efficiency and reduces waste in production processes.
2. The company should pay special attention to improving and clarifying the identification of stakeholders, as it is an important area that can contribute to enhancing transparency and effective communication. Therefore, it requires developing a framework that clearly defines the roles and responsibilities of stakeholders, which enhances the effectiveness of the strategy to improve the customer experience and ensures the achievement of common goals.
3. Directing attention and devoting efforts to the issue of improving methods of evaluating employee performance, and paying serious attention to providing specialized development courses for employees without focusing them on specific categories, and taking into account the development proposals submitted by employees and investing in their initiatives and working to implement them as they did not receive the necessary importance.
4. The company's management should focus on improving monitoring methods that identify the causes of failure. This requires developing effective mechanisms and techniques to collect and analyze data, which helps reduce the disparity in opinions about the causes of failure and enhances the effectiveness of the procedures followed to achieve a rapid response to challenges.
5. The company's management should be keen to enhance its efforts in developing and improving the services provided. This requires giving priority to collecting and analyzing customer opinions periodically to ensure that services are compatible with their changing needs, which enhances its ability to adapt to changes in customer tastes and strengthens the bonds of trust and cooperation with them.
6. The company's management should focus on enhancing control strategies. This requires developing mechanisms to develop effective techniques to monitor performance and benefit from feedback regularly, which contributes to improving overall performance and increasing competitiveness in the markets. Through this, the company will be able to better respond to market requirements and achieve sustainable results. 8- The company's management must evaluate the unstable work environment based on its ability to respond to work requirements, but the continuous development and improvement of its services in response to these environments was not at the required level, which requires the concerned departments to deal flexibly and develop emergency strategies capable of confronting problems and translating them into reasonable options in response to the changes that occur in the tastes and desires of renewed customers.
7. Enhancing the use of modern technologies in the field of information and communications technology and advanced knowledge in an attempt to bring the edges of science closer together, and developing work programs in order to adapt to changing environmental pressures by acquiring advanced technology and the necessary scientific skills and expertise in this field.
8. Although the company gives high priority to the unique capabilities in promoting its services, which reflects an effective marketing strategy, which requires attention to the promotional aspect, taking into account the reliance on modern methods to promote its services, whether in local or international markets, and not limiting itself to methods that have become traditional compared to competing companies.
9. The low rate in the dimension of underutilization of employees' capabilities shows the need to deepen awareness among employees to work as a team, provide them with material and moral support, and encourage them to provide new ideas and perform the required tasks better efficiently and effectively.

10. Improving the flow of information between different teams to enhance product quality, by creating an effective system for exchanging information about errors and updates, through which defects can be reduced and the effectiveness of operational processes increased.

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