



## **Project title**

The Impact of Implementing Quality  
Management on Institutions and Companies

## **ID - Student Name**

Mohammed Hussain Almusallam - 221001173

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## **Final Project - 2**

# Table of Contents

1.1. Research Introduction:.....5

1.2. Research Problem.....5

1.2.1. Gaps at the Theoretical Level.....6

1.2.2. Gaps at the Practical Level.....6

1.3. Significance of the Research.....7

1.3.1. At the Theoretical Level:.....7

1.3.2. At the Practical Level:.....7

1.4. Research Questions.....8

1.5. Research Objectives.....10

1.6. Research Hypotheses .....8

1.7. Research Model.....99

1.8. Scope of the Study.....9

1.9. Project Diagram.....10

2.1. Introduction.....11

2.4. Commentary on Previous Studies: .....14

2.3. Foreign Studies.....13

2.2. Arabic Studies.....11

3.1. Introduction.....17

3.2. Operational Definitions of Research Variables.....17

3.2.1. Implementing Quality Management on Institutions&Companies (Independent Variable)...17

3.2.2. Improving Industrial Project Performance (Dependent Variable).....18

3.3. Research Design (Research Approach).....18

3.4. Research Population and Sampling Methods and Techniques.....18

3.4.1. Research Population.....19

3.4.2. Research Sample.....19

3.4.3. Sampling Methods and Techniques.....20

3.5. Data Collection Method.....20

3.6. Types of Data.....21

3.7. Statistical Analysis Procedures.....22

3.8. Conclusion.....22

4.1. Introduction.....24

4.2. **Description of the Study Sample (Descriptive Statistics of the Research Sample).....24**

4.3. Validity and Reliability Tests for Questionnaires.....31

4.4. Descriptive Statistics of Research Variables.....33

4.4.1 Analysis of the First Axis.....33

4.4.2. Analysis of the Second Axis.....39

4.5. Hypotheses Testing and Discussion of Results.....44

4.6. Summary of Results:.....47

4.7. Conclusion.....48

5.1. Introduction.....50

5.2. Theoretical Contribution .....50

5.3. Practical Contribution.....50

5.4. Recommendations.....50

5.5. Future Studies.....52

## References

# Abstract

**Study Objective:** This study measures the impact of Quality Management implementation in institutions and companies by examining the relationship between core practices (customer focus, continuous improvement, leadership support, employee involvement, process standardization, and performance measurement) and organizational performance indicators such as operational efficiency, reduced errors and costs, improved output quality, and enhanced customer satisfaction and organizational reputation.

**Methodology:** A descriptive–analytical approach was used. The target population included employees in companies within [City/Sector], and the study was applied to a sample of 100 employees and administrators. Data were collected through a questionnaire grounded in quality management literature and ISO 9001 principles. Validity and reliability were verified, and statistical tests were conducted to assess the effect of quality dimensions on performance.

**Findings:** The results show a high level of Quality Management practice implementation and a statistically significant positive impact on organizational performance. Continuous improvement had the strongest effect, followed by customer focus, then performance measurement and process standardization, while employee involvement showed a relatively lower effect. The findings also indicate reduced waste, smoother process flow, stronger compliance with procedures, and improved customer experience.

**Theoretical Contribution:** The study offers a framework explaining how Quality Management is linked to performance improvement in the local business context and identifies the most influential dimensions.

**Practical Implications:** The study recommends strengthening leadership commitment, improving measurement and follow-up, training employees on improvement tools, and aligning quality initiatives with clear performance indicators to enhance competitiveness and sustainability.

**Keywords:** Quality Management, Total Quality Management, ISO 9001, Organizational Performance, Continuous Improvement, Customer Satisfaction, Cost Reduction, Performance Measurement

# 1- Chapter One: The General Framework of the Study

## **1.1 Research Introduction**

As a result of the rapid developments witnessed worldwide across various fields, modern management has undergone a significant transformation in its concepts and practices in order to keep pace with the fast-changing business environment. Technological advancement, the expansion of communication tools, and increasing competition among organizations have reshaped traditional management approaches and driven institutions to adopt more efficient and flexible managerial practices that focus on performance improvement and output quality.

Within this context, Quality Management has emerged as one of the most important contemporary management approaches aimed at enhancing organizational performance by focusing on customer requirements, improving processes, reducing errors, and promoting a culture of continuous improvement. Quality Management is based on a set of principles that seek to achieve high levels of efficiency through optimal use of available resources and alignment between strategic objectives and process quality.

Moreover, Quality Management reflects the ability of organizations to adapt to surrounding environmental changes in both the public and private sectors. Adopting quality systems and standards has become a necessity for addressing challenges and achieving sustainability. Effective implementation of Quality Management contributes to improved efficiency, higher productivity, cost reduction, and enhanced competitiveness in a constantly evolving business environment.

Accordingly, this research aims to examine the impact of implementing Quality Management on the performance of institutions and companies by analyzing the extent to which quality practices contribute to operational efficiency, error reduction, and overall organizational performance. The study also seeks to assess the role of Quality Management in strengthening organizations' ability to adapt to rapid challenges in today's dynamic business environment.

## **1.2 Research Problem:**

The research problem arises from the importance of implementing Quality Management in improving the performance of institutions and companies amid increasing challenges in today's business environment, including intense competition, rising customer expectations, and pressure to reduce costs while improving efficiency. Despite the widespread adoption of Quality Management concepts and standards, many organizations still experience inconsistent outcomes, as quality initiatives do not always translate into the desired level of organizational performance.

Several studies have identified challenges that hinder the effective implementation of Quality Management across different sectors, such as limited top management commitment, weak organizational quality culture, insufficient employee involvement, and reliance on formal procedures without emphasizing continuous improvement and performance measurement. Other studies have also indicated that the absence of supportive information systems and the weak use of data-driven decision-making reduce the effectiveness of quality programs and limit their impact on organizational performance.

Moreover, there is a growing need to examine the role of Quality Management in enhancing organizational competitiveness, particularly in light of rapid economic and technological changes. Quality Management is considered a key managerial approach that helps organizations improve product and service quality, increase customer satisfaction, reduce errors and waste, and optimize the use of available resources.

Accordingly, the research problem lies in the lack of applied studies that analyze the impact of Quality Management implementation on the performance of institutions and companies in the local context. This gap highlights the need for an analytical study that measures this impact and identifies the most influential quality dimensions to support strategic directions and enhance organizational competitiveness and sustainable development.

### **1.2.1 Gaps at the Theoretical Level:**

At the theoretical level, there is a gap in Arabic and local literature that examines the impact of Quality Management on organizational performance in an integrated way, despite the availability of general studies on quality principles. In addition, some studies focus on a single dimension—such as customer satisfaction or documentation—without providing a comprehensive model linking quality dimensions to performance indicators within institutions and companies

### **1.2.2 Gaps at the Practical Level:**

At the practical level, many institutions and companies face challenges when implementing Quality Management, including resistance to change, limited employee involvement, uneven training on quality tools, and inconsistent measurement and follow-up. In some situations, quality requirements are treated as documents and procedures rather than daily practices that shape operations, which reduces their impact on defect reduction and productivity improvement.

These challenges highlight the need to understand how to implement Quality Management systematically in a way that improves process flow, reduces waste, and supports data-driven decision-making. Therefore, this study seeks to answer the following main research question:

What is the impact of Quality Management implementation on improving the performance of institutions and companies in Kingdom of Saudi Arabia

### **1.3 Significance of the Study:**

The significance of this study lies in addressing a contemporary managerial topic represented by Quality Management and its impact on the performance of institutions and companies, particularly in an increasingly competitive and rapidly changing business environment. Quality Management has become a key approach for improving operational efficiency, enhancing output quality, and increasing customer satisfaction. Despite the widespread adoption of quality concepts, there is still a need for scientific investigation of their actual impact within the local context, which contributes to filling a knowledge gap in this field

The importance of the study can be viewed from two main perspectives: theoretical significance and practical significance

#### **1.3.1 Theoretical Significance:**

At the theoretical level, this study contributes to enriching the academic literature related to Quality Management applications in institutions and companies. It focuses on analyzing the relationship between quality practices and organizational performance within a local context. The study seeks to provide a conceptual framework that identifies the most influential Quality Management dimensions, thereby deepening theoretical understanding and expanding academic knowledge in the field of Quality Management

#### **1.3.2 Practical Significance:**

At the practical level, the study offers results and recommendations that can support top management in institutions and companies when implementing Quality Management. It also helps identify key challenges associated with quality implementation, such as resistance to change or insufficient training, and proposes practical solutions to address them. The findings support

strategic directions aimed at improving performance, increasing efficiency and productivity, and enhancing competitiveness in today's business environment

## **1.4 Research Questions:**

To achieve the objectives of the study, the following research questions are proposed:

- 1.What is the level of Quality Management implementation in terms of its dimensions (continuous improvement, customer focus, process standardization, employee involvement, and performance measurement) in institutions and companies?
- 2.What is the level of impact of Quality Management implementation on improving the performance of institutions and companies?
3. Is there a statistically significant effect of Quality Management implementation on improving the performance of institutions and companies?

## **1.5 Research Objectives:**

- 1.To measure the level of Quality Management implementation across its dimensions (continuous improvement, customer focus, process standardization, employee involvement, and performance measurement) in institutions and companies.
- 2.To analyze the impact of Quality Management implementation on improving the performance of institutions and companies.
3. To examine the effect of Quality Management implementation on cost reduction and operational efficiency in institutions and companies.
4. To evaluate the role of Quality Management implementation in coordinating processes and improving output quality within institutions and companies.

## **1.6 Research Hypotheses:**

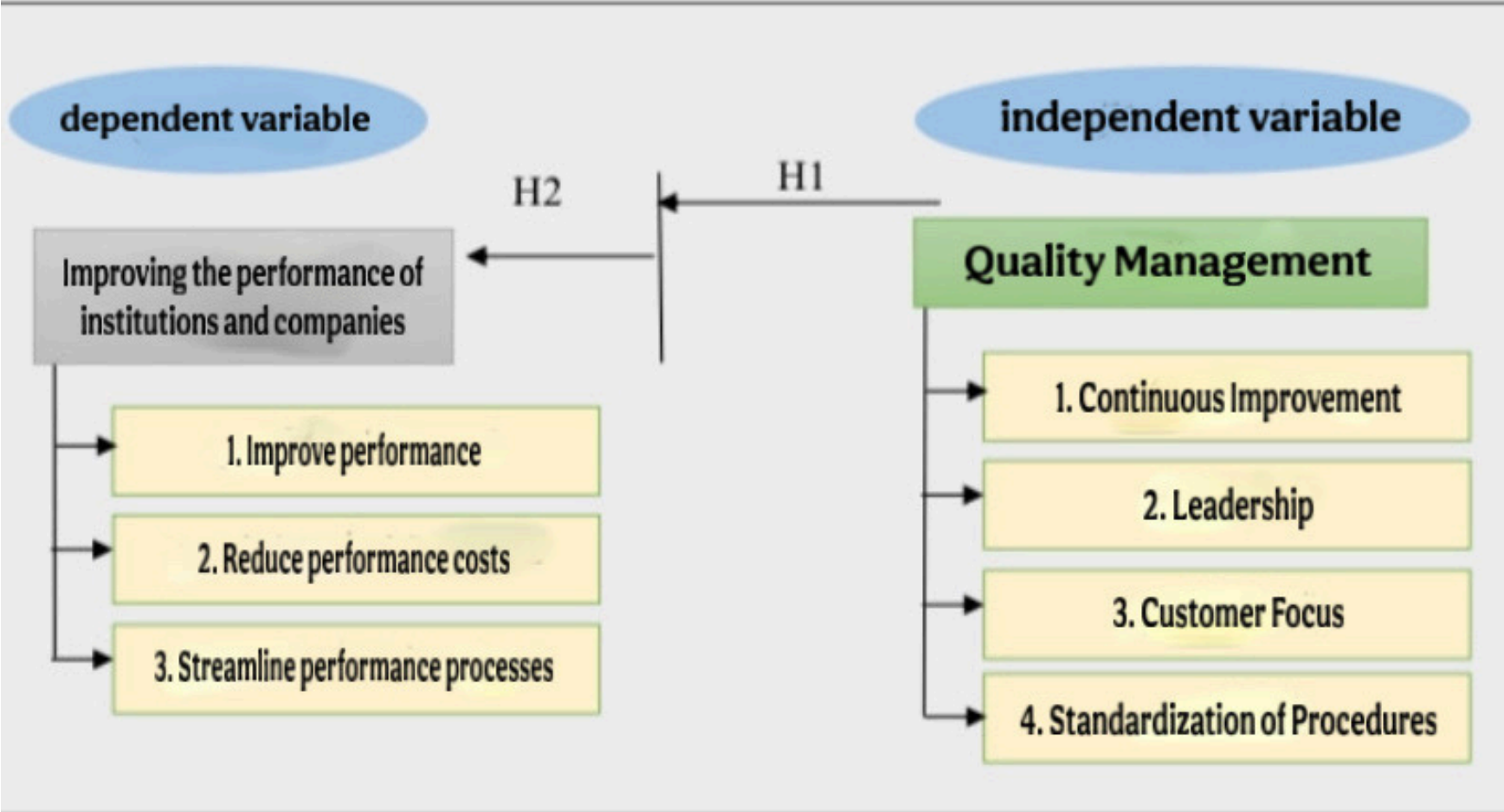
:Based on the study model, the main hypothesis is formulated as follows

There is no statistically significant effect of Quality Management implementation across its dimensions (leadership, continuous improvement, customer focus, process) (standardization, performance measurement, and employee involvement) on improving the performance of institutions and companies at the .significance level ( $\alpha \leq 0.05$ )

The following sub-hypotheses are derived

- 1. There is no significant effect of adopting Quality Management on improving the performance of institutions and companies at ( $\alpha \leq 0.05$ ).
- 2. There is no significant effect of adopting Quality Management on reducing performance costs in institutions and companies at ( $\alpha \leq 0.05$ ).
- 3. There is no significant effect of adopting Quality Management on coordinating performance operations in institutions and companies at ( $\alpha \leq 0.05$ ).

1.7 Research Model:



The research model illustrates the relationship between the independent and dependent variables.

The independent variable is Quality Management, represented by the following dimensions

- Leadership
- Continuous Improvement
- Customer Focus
- Process Standardization
- Performance Measurement
- Employee Involvement

The dependent variable is Improvement of Institutional and Corporate Performance, which includes

- Performance improvement
- Cost reduction
- Performance operations coordination

The model assumes a direct effect of Quality Management implementation on improving institutional and corporate performance

1.8 Scope of the Study:

This study focuses on examining the impact of Quality Management implementation on improving the performance of institutions and companies within a defined scope. The study analyzes the extent to which quality practices are applied and their effect on organizational performance, including performance improvement, cost reduction, output .quality enhancement, and customer satisfaction

The scope of the study is limited to collecting data from employees and managers in the selected institutions and companies through structured questionnaires, in addition to reviewing relevant previous studies and reports. The study adopts a descriptive-analytical approach to measure the impact of Quality Management implementation on organizational performance, allowing the results to be analyzed and interpreted in line .with the study objectives and variables

## 1.9 Project Plan

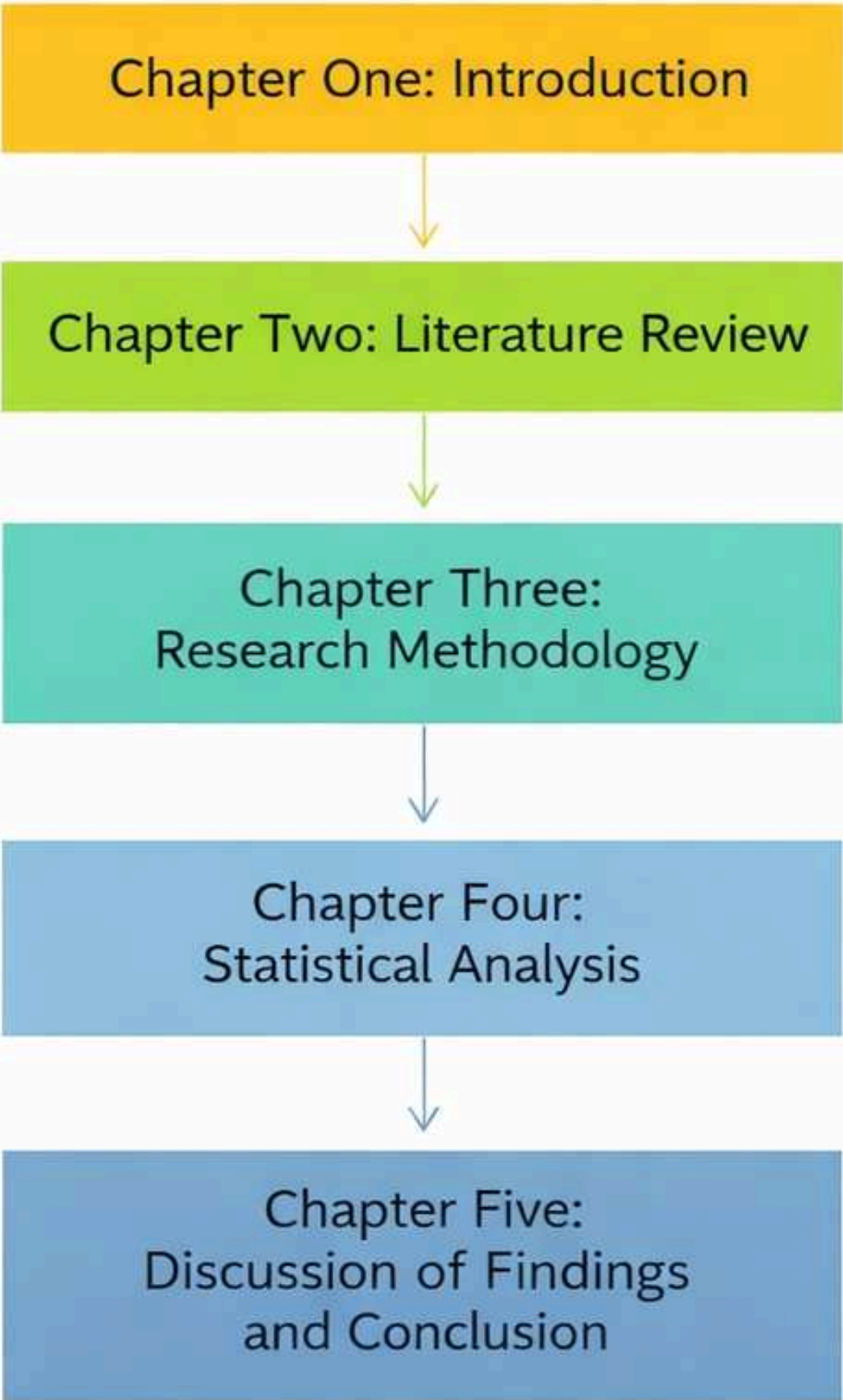


Figure (2): Proposed Project Plan

# Chapter Two: Previous Studies

## 2-1 Introduction:

Quality Management is widely recognized as a modern managerial approach adopted by institutions and companies in response to rapid environmental change, rising customer expectations, and intensified competition. Quality is no longer limited to final inspection; rather, it has become an integrated system that emphasizes clear work processes, continuous improvement, and the reduction of defects and waste—ultimately improving efficiency, effectiveness, satisfaction, and trust. Technological advancement and data availability have accelerated this shift by enabling more accurate performance measurement, deeper analysis of deviations and root causes, and decision-making based on clear indicators instead of broad estimates

In the management literature, Quality Management is linked to several approaches, most notably Total Quality Management (TQM), which highlights supportive leadership, customer focus, continuous improvement, employee involvement, the process approach, and fact-based decision-making. International standards such as ISO 9001 also translate quality principles into implementable requirements and procedures, helping organizations standardize processes, clarify responsibilities, and enhance consistency in delivering services or products. These approaches matter because they directly connect quality to organizational performance: success is evaluated not only by production or sales volume, but also by customer satisfaction, the reduction of error-related costs, responsiveness, process stability, and the organization's capacity for ongoing improvement

Previous studies have examined the impact of Quality Management on performance across several Arab sectors, including services, telecommunications, education, healthcare, and public organizations. Overall, this body of research generally supports a positive relationship between quality practices and performance indicators, while the strength of the effect varies depending on implementation maturity, top management support, organizational culture, and the availability of training and tools. Accordingly, this chapter reviews selected relevant Arabic studies to build a scientific background for understanding how Quality Management affects institutions and companies and to highlight gaps that the current study can address

## 2.2 Arabic Studies

1. Al-Azb (2022) examined the effect of applying TQM principles on organizational performance in the Jordanian Telecommunications Company, using a descriptive-analytical design and a questionnaire. The study reported positive evidence regarding the relationship/impact of TQM principles on organizational performance, underscoring the value of adopting quality practices to improve effectiveness and operational outcomes.

2. A study published in the Arab Journal for Scientific Publishing (2022) investigated the role of TQM in improving organizational performance in electricity distribution companies in Palestine. It assessed the level of TQM implementation, its relationship with performance, and the degree of its influence. The findings supported the idea that quality practices are associated with better performance, and the study offered recommendations to strengthen implementation and enhance performance.
3. A study available on EKB addressed the impact of implementing ISO 9001:2008 within a Saudi university-related unit, focusing on how system implementation reflects on work organization and performance improvement. The study highlighted the importance of standardized procedures and process documentation in supporting institutional performance efficiency.
4. A study on ISO 9001:2000 in Jordanian pharmaceutical companies explored the effect of ISO implementation on an organizational outcome (such as institutional innovation). Using a descriptive–analytical method and a questionnaire administered to managers and department heads, it provided evidence that ISO-based quality systems can support positive organizational results—reinforcing that quality standards can function as a genuine improvement mechanism rather than a purely formal requirement.
5. A recent (2024) EKB study focused on the impact of TQM on beneficiary satisfaction and service quality in government hospitals, demonstrating the relevance of quality to service sectors. The results support the notion that quality practices influence user experience and satisfaction and may be associated with improved service levels and stronger trust.
6. A Saudi (Riyadh) study investigated the effect of TQM on organizational performance in a local context using a descriptive–analytical approach. It concluded that TQM contributes to performance improvement, emphasizing the role of measurement, continuous improvement, and integrated quality practices across the organization.

Summary of Arabic Studies: Collectively, prior studies indicate that applying Quality Management—through either TQM or ISO 9001—is generally associated with improved organizational performance across multiple Arab contexts. Common success factors include leadership support, a culture of improvement, employee involvement, and active measurement and follow-up. Conversely, limited implementation maturity or focusing only on procedures may reduce the expected benefits. This review therefore provides the foundation for the current study on the impact of Quality Management implementation on institutions and .companies

## 2.3 International Studies

1.Samson & Terziovski (1999) examined the impact of Total Quality Management (TQM) practices on operational performance in manufacturing organizations. Using a large survey of over 1,000 firms in Australia and New Zealand, the study found a significant positive relationship between comprehensive TQM implementation and improved productivity, defect reduction, and process efficiency.

2.Kaynak (2003) developed a model to explain direct and indirect relationships between TQM practices and firm performance. Based on survey data from U.S. companies, the findings indicated that leadership and continuous improvement influence performance indirectly through enhanced process management and coordination, highlighting the importance of measurement and feedback systems.

3.Douglas & Judge (2001) investigated the role of TQM in achieving competitive advantage. The study showed that organizations with integrated quality practices achieved higher competitive performance, particularly when supported by clear organizational structures and management commitment.

4.Nair (2006) conducted a meta-analysis of studies examining the relationship between quality practices and firm performance. The results demonstrated that process management, continuous improvement, and customer focus were the strongest predictors of performance improvement, while superficial implementation yielded limited benefits.

5.Corbett, Montes-Sancho & Kirsch (2005) analyzed the financial impact of ISO 9001 certification. Using longitudinal data, the study found that certified firms outperformed non-certified firms financially, provided that certification was accompanied by genuine process improvement.

6.Benner & Veloso (2008) examined the long-term effects of ISO 9001 adoption on firm performance. The findings suggested that quality systems improve performance initially, but sustained benefits depend on continuous innovation and improvement.

## **2.4 Commentary on Previous Studies**

Based on the review of previous Arabic and international studies related to Quality Management, it is evident that there is growing scholarly interest in examining the impact of quality practices on the performance of institutions and companies across different sectors. Most of these studies focused on analyzing the relationship between Quality Management—whether in the form of Total Quality Management (TQM) or through the implementation of international standards such as ISO 9001—and various organizational performance indicators, including operational efficiency, .output quality, customer satisfaction, and cost reduction

The findings of the reviewed studies generally indicate a positive relationship between the application of Quality Management practices and improved organizational performance. However, the magnitude of this impact varies depending on several factors, such as the level of implementation maturity, the degree of top management support, the organizational culture, and the availability of continuous improvement mechanisms. Several studies emphasized that superficial or partial implementation of quality systems does not lead to the desired performance outcomes, highlighting the importance of comprehensive .and integrated quality adoption

In addition, the literature reveals that many studies examined specific dimensions of Quality Management, such as continuous improvement, customer focus, leadership commitment, or process standardization, rather than addressing all quality dimensions collectively within a single framework. Similarly, some studies focused on a single aspect of performance, such as cost reduction or service quality, without linking multiple performance dimensions together to provide a holistic view of organizational performance.

From a methodological perspective, most previous studies relied on descriptive and analytical research designs and used questionnaires as the primary data collection tool. Statistical analysis techniques were commonly applied to test hypotheses and identify relationships between quality practices and performance outcomes. These methodological approaches provide a valuable reference for the current study in terms of selecting appropriate measurement tools, identifying relevant variables, and designing the research instrument. Moreover, the results of prior studies support the logical formulation of the hypotheses examined in the present research.

International studies, in particular, demonstrate that Quality Management can generate sustainable performance improvements when integrated into the organization's overall strategy and supported by systematic measurement, evaluation, and employee involvement. These studies also indicate that the long-term effectiveness of quality initiatives depends on continuous learning, innovation, and adaptation rather than merely achieving certification or complying with documented procedures.

Despite the significant contributions of previous studies, several research gaps remain. One notable gap is the limited number of applied studies that examine the impact of Quality Management on institutional and corporate performance within the local business environment using an integrated analytical approach. Furthermore, many studies focused on specific sectors, such as healthcare, education, or public organizations, leaving a need for broader research that addresses institutions and companies across different industries.

The current study benefits from previous research in multiple ways. First, it draws on earlier findings to define the research problem and develop the study objectives and hypotheses. Second, it adopts widely recognized Quality Management dimensions—such as leadership, continuous improvement, customer focus, process standardization, performance measurement, and employee involvement—identified as critical success factors in the literature. Third, the study leverages statistical techniques and analytical methods used in prior research to enhance the reliability and validity of its findings.

In terms of similarity, the present study aligns with previous research in its focus on examining the relationship between Quality Management practices and organizational performance. However, it differs by offering a more comprehensive examination that integrates multiple quality dimensions with various performance indicators within a single research model. This integrated approach allows for a deeper understanding of how Quality Management contributes to performance improvement in institutions and companies.

Moreover, the current study seeks to provide practical insights and recommendations that can assist decision-makers in implementing Quality Management more effectively. By identifying the most influential quality dimensions and clarifying their impact on performance outcomes, the study contributes to enhancing competitiveness, operational efficiency, and sustainability in organizational settings.

#### What Distinguishes the Current Study from Previous Studies:

- The current study focuses specifically on the impact of Quality Management implementation on institutional and corporate performance, whereas some previous studies addressed limited dimensions or specific sectors only.
- It examines Quality Management dimensions in a comprehensive and integrated manner, linking them to multiple organizational performance indicators.
- The study emphasizes a practical analytical perspective, aiming to support managerial decision-making and promote effective quality implementation strategies.

# 3-Chapter Three: Research Methodology

## 3.1 Introduction

This chapter presents the research methodology adopted to examine the impact of Quality Management implementation on improving the performance of institutions and companies. It provides a comprehensive overview of the research design, methodological approach, and procedures followed to achieve the study objectives and answer its research questions. The chapter explains the research method used, defines the study variables operationally, identifies the study population and sample, and describes the data collection methods and statistical techniques applied for data analysis.

Presenting these methodological aspects enhances the reliability and validity of the study results by ensuring systematic measurement and analysis. This chapter also clarifies the methodological foundations upon which the current study is based, enabling a clear understanding of how the research hypotheses were tested and how relationships between variables were examined.

## 3.2 Operational Definitions of Research Variables

The operational definitions section clarifies the key concepts used in the study and explains how they are measured. In this study, Quality Management refers to a set of structured managerial practices aimed at improving process quality, enhancing operational efficiency, and increasing customer satisfaction through continuous improvement, process standardization, performance measurement, and employee involvement

## 13.2 Quality Management (Independent Variable)

In this study, Quality Management refers to a set of structured managerial practices aimed at improving the quality of processes and outputs within institutions and companies through continuous improvement, process standardization, performance measurement, and customer satisfaction. Quality Management seeks to enhance organizational performance, reduce errors and waste, optimize resource utilization, and support competitiveness and sustainability.

This study adopts several key Quality Management dimensions commonly discussed in management literature. These include leadership, which reflects top management commitment and support for quality practices; continuous improvement, focusing on the ongoing development of processes; customer focus, emphasizing the identification and fulfillment of customer needs and expectations; process standardization, which involves establishing clear procedures to reduce performance variation; performance measurement, using accurate indicators to support effective decision-making; and employee involvement, which encourages staff participation in quality-related activities and teamwork. Collectively, these dimensions contribute to improving institutional and corporate performance and enhancing the effectiveness of Quality Management implementation.

## **Improving Industrial Project Performance 2.3.2 (Dependent Variable)**

The current study defines industrial project performance improvement as enhancing various aspects of project performance in industrial companies through improving outcomes related to cost, time, quality, and resources. This dependent variable includes a set of dimensions that reflect the :efficiency and effectiveness of project implementation, as follows

- Performance Improvement: This refers to increasing productivity and efficiency across the different operational processes of the project, .thereby improving overall performance quality .1
- Reduction of Project Performance Costs: This dimension involves minimizing expenses related to project implementation by improving operational processes, reducing waste, and eliminating non-value-added activities .2
- Coordination of Industrial Project Performance Operations: This refers to ensuring effective coordination among different operational stages and involved teams to achieve project objectives at the lowest possible .cost and the highest quality level .3

## **Research Design (Research Onion) 3.3**

This study adopts a structured research design to examine the impact of Quality Management implementation on industrial project performance. The research is based on the positivist philosophy (Positivism), as it relies on quantitative data to measure relationships between variables. A deductive approach is employed to test hypotheses derived from previous .literature

The study follows a case study strategy to analyze the application of Quality Management practices within a specific industrial context. A quantitative mono method is used as a single research tool, and a cross-sectional time horizon is adopted with data collected at one point in time. Questionnaires and statistical analysis are used as the main techniques .and procedures for data collection and analysis

## **Research Population and Sampling Techniques 3.4**

The research population of this study consists of industrial companies operating in the Jeddah Industrial City, which include a wide range of companies implementing industrial projects across various sectors. This area was selected due to the density and diversity of industrial activities, as well as its significant role in supporting the industrial sector in Saudi Arabia

A random sampling method is used to ensure accurate representation of industrial companies in the region. The sample size is determined based on the total number of industrial companies, focusing on those that implement or intend to implement Quality Management principles. This sample provides data that reflect the diversity of Quality Management applications in industrial projects

**Research Population 3.4.1**

The research population consists of all industrial companies located in the Jeddah Industrial City operating in different industrial fields. These companies represent a wide range of industrial activities and include organizations that apply or seek to apply Quality Management practices in their industrial projects. The selected population forms the basis for examining the impact of Quality Management implementation on industrial project performance

Table (1): Research Population

| Company                        | Category       | Number of Employees |
|--------------------------------|----------------|---------------------|
| Industrial Companies in Jeddah | Top Management | 35                  |
| Industrial Companies in Jeddah | Employees      | 65                  |

**Research Sample 3.4.2**

The research sample is defined as a group of individuals or units selected from the research population for the purpose of collecting and analyzing data, with the aim of obtaining results that can be generalized to the entire population. In this study, the sample was determined based on specific criteria related to industrial companies located in the Jeddah Industrial City that operate in the field of industrial project implementation, in addition to companies that apply or intend to apply Quality Management principles

The study sample will be selected from industrial companies operating in the Jeddah Industrial City according to methodological criteria that consider both size and type. Companies that use or intend to use Quality Management practices in their industrial projects will be targeted. The expected sample size for this study is 100 respondents, including project managers, engineers, and supervisors involved in production operations within industrial companies

Participants will be selected based on their practical experience and knowledge of Quality Management application. Data will be collected through a questionnaire distributed to the selected respondents, while ensuring diversity among companies to achieve accurate representation of .the research population

Table (2): Research Sample

| Targeted Organization          | Sample Size |
|--------------------------------|-------------|
| Industrial Companies in Jeddah | 100         |

### Research Sample 3.4

The sample is defined as a group of individuals or units selected from the research population for the purpose of data collection and analysis, aiming to obtain results that can be generalized to the entire population. In this study, the sample was determined based on specific criteria related to industrial companies located in the Jeddah Industrial City that operate in the field of industrial project implementation, in addition to companies .that apply or intend to apply quality management principles

The study sample will be selected from industrial companies operating in Jeddah Industrial City according to methodological bases that include size and type. Companies that use or intend to use quality management practices in their industrial projects will be targeted. The expected sample size is (100) respondents, including project managers, engineers, and production supervisors, selected based on their practical experience and .knowledge in the application of quality management

### 3-5 Data Collection Method

A questionnaire will be used as the primary tool for collecting information and data related to the study topic. Given the nature of the research and the necessity of applying it to the study sample, the researcher determined that the questionnaire is the most appropriate instrument for achieving the objectives of this study. The questionnaire is considered one of the effective tools in descriptive research, as it is less costly compared to other data collection methods and provides a level of confidentiality that encourages respondents to provide objective answers. In addition, it is a flexible tool that can be distributed to employees across different geographical locations.

For this purpose, the researcher designed an electronic questionnaire consisting of two main sections. The second section covers the study domains, with the questionnaire comprising (35) items distributed across two main dimensions, as illustrated in the study domains table.

Table (3): Study Domains

| Study Domains                                      | Variable Dimensions     | Number of Items | Source                 |
|----------------------------------------------------|-------------------------|-----------------|------------------------|
| Quality Management<br>(Independent Variable)       | Continuous Improvement  | 20              | Al-Hussainat<br>(2023) |
|                                                    | Work Organization       |                 |                        |
|                                                    | Layout Standardization  |                 |                        |
|                                                    | Waste Reduction         |                 |                        |
| Organizational Performance<br>(Dependent Variable) | Performance Enhancement | 15              | Al-Jabouri<br>(2021)   |
|                                                    | Cost Reduction          |                 |                        |
|                                                    | Process Coordination    |                 |                        |

After reviewing relevant literature and previous studies related to the impact of quality management application on improving industrial project performance, the final questionnaire was developed. This questionnaire will be distributed electronically to a sample of (100) participants to ensure easy and effective access. This electronic distribution aims to achieve a high response rate, thereby enhancing the accuracy and objectivity of the study findings and ensuring the comprehensiveness of the collected data

( Types of Data 3-6

This study relied on two main sources for data collection: secondary sources and primary data

Secondary Sources: The researcher reviewed relevant literature related to the study topic by consulting books, scientific articles, academic theses, and credible electronic resources. This review aimed to cover different aspects of the topic and enrich the theoretical framework of the study, contributing to a deeper understanding of quality management practices and their impact on the efficiency of organizations and companies, as well as project performance

Primary Data: To achieve the analytical objectives of the study, a questionnaire was used to collect data related to the independent variable (Quality Management) and the dependent variable (Industrial Project Performance Improvement). Data were collected from respondents within the study sample, consisting of employees of industrial companies in Jeddah City, based on their perspectives. This tool is appropriate for the study objectives and methodology, as it provides accurate information that supports answering the research questions. This section also covers the practical aspects of the study and their validation through a carefully developed and analyzed questionnaire to ensure accurate and reliable results

### **3-7 Statistical Analysis Procedures**

Based on the nature of the study and its intended objectives, the data will be analyzed using the Statistical Package for the Social Sciences (SPSS). The extracted results will rely on a set of appropriate statistical methods, as follows:

- **Frequencies and Percentages:** These will be used to describe the characteristics of the study sample by preparing frequency tables that include frequencies and percentages, in addition to graphical representations of the study variables.
- **Means and Standard Deviations:** Arithmetic means will be calculated for the questionnaire items, as well as the overall and sub-dimension scores, based on respondents' answers.
- **Cronbach's Alpha Coefficient:** This will be applied to assess the reliability of the research instrument, providing assurance regarding the consistency of the collected data.
- **Simple Regression Analysis:** This method will be employed to measure the impact of applying Quality Management on improving industrial project performance.

### **Conclusion 3-8**

Chapter Three presented the research methodology adopted to examine the impact of applying Quality Management on improving industrial project performance. The main study variables were defined, including Quality Management and industrial project performance improvement. The research population and sampling techniques were explained, with a random sample selected from industrial companies in Jeddah Industrial City

To facilitate data collection, an electronic questionnaire was distributed to the target sample, enabling access to a larger number of respondents. Secondary sources such as books, journals, academic theses, and electronic resources were also utilized. Regarding statistical analysis, frequencies, percentages, means, standard deviations, and Cronbach's alpha were applied. Finally, simple regression analysis was conducted to measure the impact of Quality Management application on .improving industrial project performance

## **Chapter Four: Statistical Analysis and Discussion of Results**

( ) Introduction 4-1

This chapter presents the descriptive statistics of the study sample and examines the validity and reliability of the questionnaire instrument. It also provides a descriptive analysis of the study variables and addresses the research questions. Appropriate statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS) to extract and analyze the results related to the study sample. In addition, the chapter includes hypothesis testing and discussion of findings in light of theoretical frameworks and previous studies, contributing to clear conclusions regarding the impact of Quality Management application on organizational .and company performance

Description of the Study Sample (Descriptive 4–2  
Statistics) – Gender

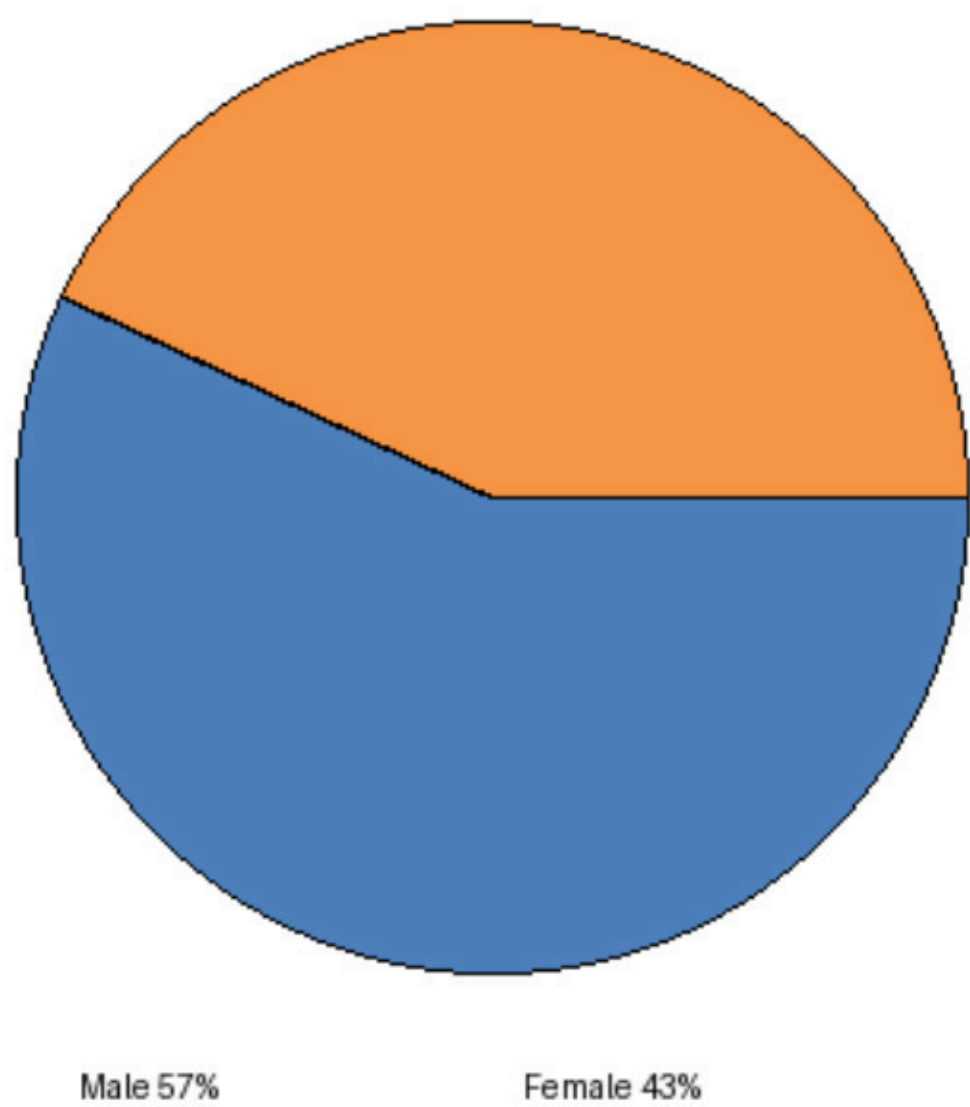
This section presents the descriptive and frequency statistics of the study sample by reviewing the frequency distribution of the demographic variables. After coding and analyzing the respondents’ answers, descriptive results were obtained to reflect the main characteristics of the study .sample

Table (4): Sample Distribution by Gender

| Category | Frequency | Percentage |
|----------|-----------|------------|
| Male     | 86        | 57%        |
| Female   | 64        | 43%        |
| Total    | 150       | 100%       |

We note from the previous table that the majority of the sample were males (57%), while the percentage of females was (43%), indicating the diversity of the study sample between the sexes. The following figure .illustrates these percentages

Figure (4-1): Gender Distribution



Quality Management impact on organizations and companies

Table (5): Sample Distribution by Age

| Age Group          | Number | Percentage (%) |
|--------------------|--------|----------------|
| 25 years and below | 14     | 9.3%           |
| 25-34 years        | 67     | 44.7%          |
| 35-44 years        | 46     | 30.7%          |
| 45-54 years        | 15     | 10.0%          |
| 55 years and above | 8      | 5.3%           |
| Total              | 150    | 100%           |

Total: 150 respondents – 1580 of the total 150.

The table illustrates the distribution of the study sample according to age groups. The results show that the 25–34 years age group represents the highest proportion of the sample at 44.7%, followed by the 35–44 years group at 30.7%. Meanwhile, participants aged below 25 years accounted for 9.3%, those aged 45–54 years represented 10.0%, and the 55 years and above group recorded the lowest percentage at 5.3%. This distribution indicates that the majority of respondents fall within the middle-age categories, reflecting an adequate level of professional experience and practical knowledge relevant to the application of quality management practices in industrial organizations.

**Figure (4-2): Age Distribution of the Study Sample**

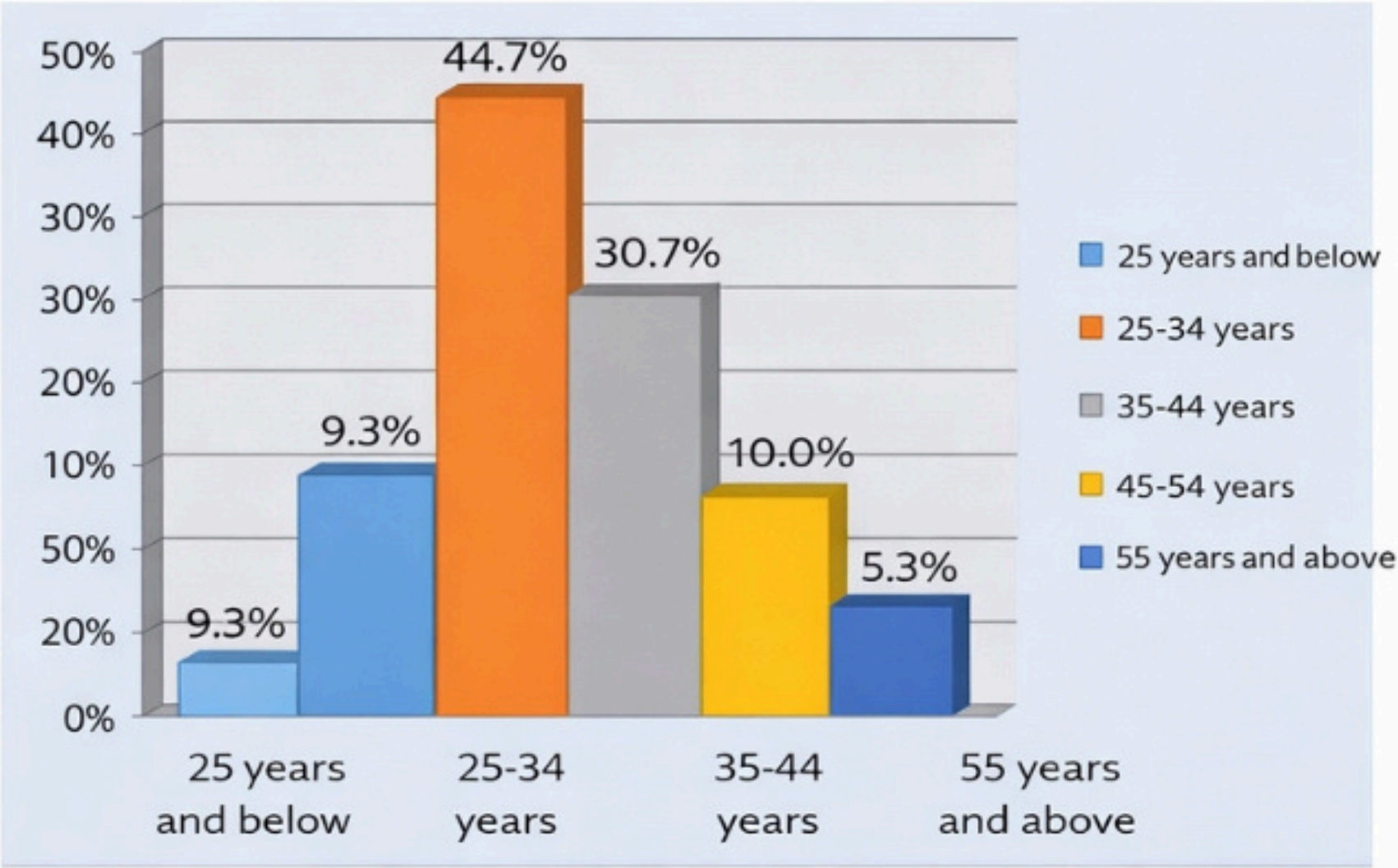


**Figure (4-2): Age Distribution of the Study Sample**

**:Academic qualification –3**

**Table (6): Educational Qualification Distribution**

| Qualification Level | Number | Percentage (%) |
|---------------------|--------|----------------|
| Diploma             | 6      | 4%             |
| Bachelor's degree   | 84     | 56%            |
| Master's degree     | 55     | 36.7%          |
| Doctoral degree     | 5      | 3.3%           |
| Total               | 150    | 100%           |

The table presents the distribution of the study sample according to educational qualifications. The findings indicate that the majority of respondents hold a Bachelor’s degree, accounting for 56% of the total sample, followed by those holding a Master’s degree at 36.7%, reflecting a high level of academic attainment among participants. Meanwhile, 4% of the respondents possess a Diploma, and 3.3% hold a Doctoral degree. This distribution demonstrates diversity in educational backgrounds, which enhances the reliability of the study findings and suggests that respondents possess sufficient academic knowledge to understand and apply quality management .practices within industrial organizations

**Figure (4-3): Educational Qualification Distribution of the Study Sample**

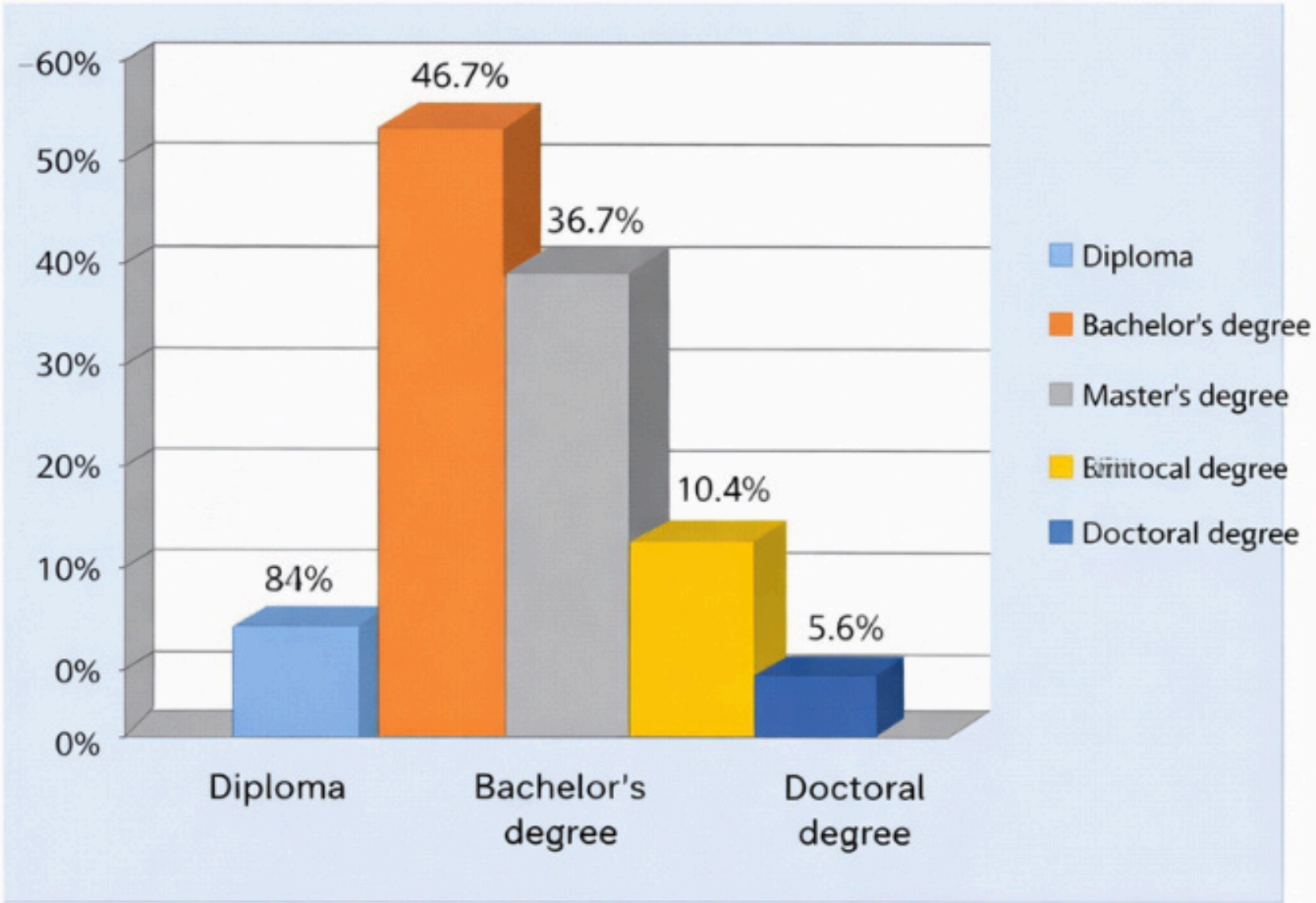


**Figure (4-3): Educational Qualification Distribution of the Sample**

**:Work experience –4**

**Table (7): Sample Distribution by Years of Work Experience**

| Years of Work Experience | Number | Percentage (%) |
|--------------------------|--------|----------------|
| Less than 1 year         | 21     | 9%             |
| 1-3 years                | 17     | 11%            |
| 4-6 years                | 31     | 21%            |
| 7-10 years               | 35     | 23%            |
| More than 10 years       | 54     | 36%            |
| Total                    | 150    | 100%           |

It is evident from the previous table that the highest level of work experience among the study sample is more than 10 years, representing 36% of the total respondents. This is followed by the category of participants with 7-10 years of experience, accounting for 23%. The remaining categories show lower proportions, where individuals with 4-6 years of experience constitute 21%, those with 1-3 years of experience represent 11%, and participants with less than one year of experience account for 9%. This distribution reflects diversity in the practical experience of the study sample, and the following figure .illustrates these percentages

**Figure (4-4):** Years of Work Experience Distribution of the Study Sample

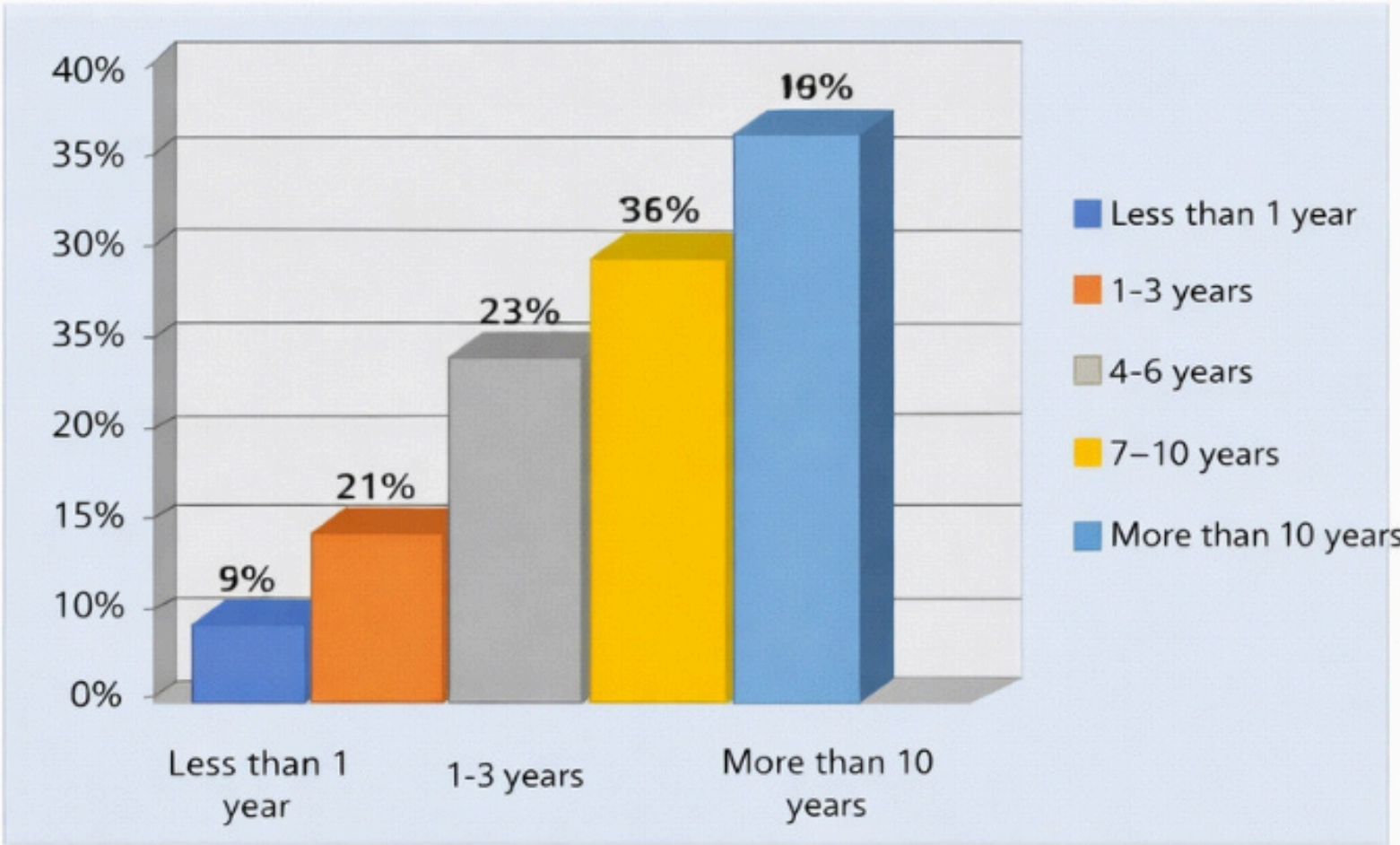


**Figure (4-4):** Years of Work Experience Distribution of the Study Sample

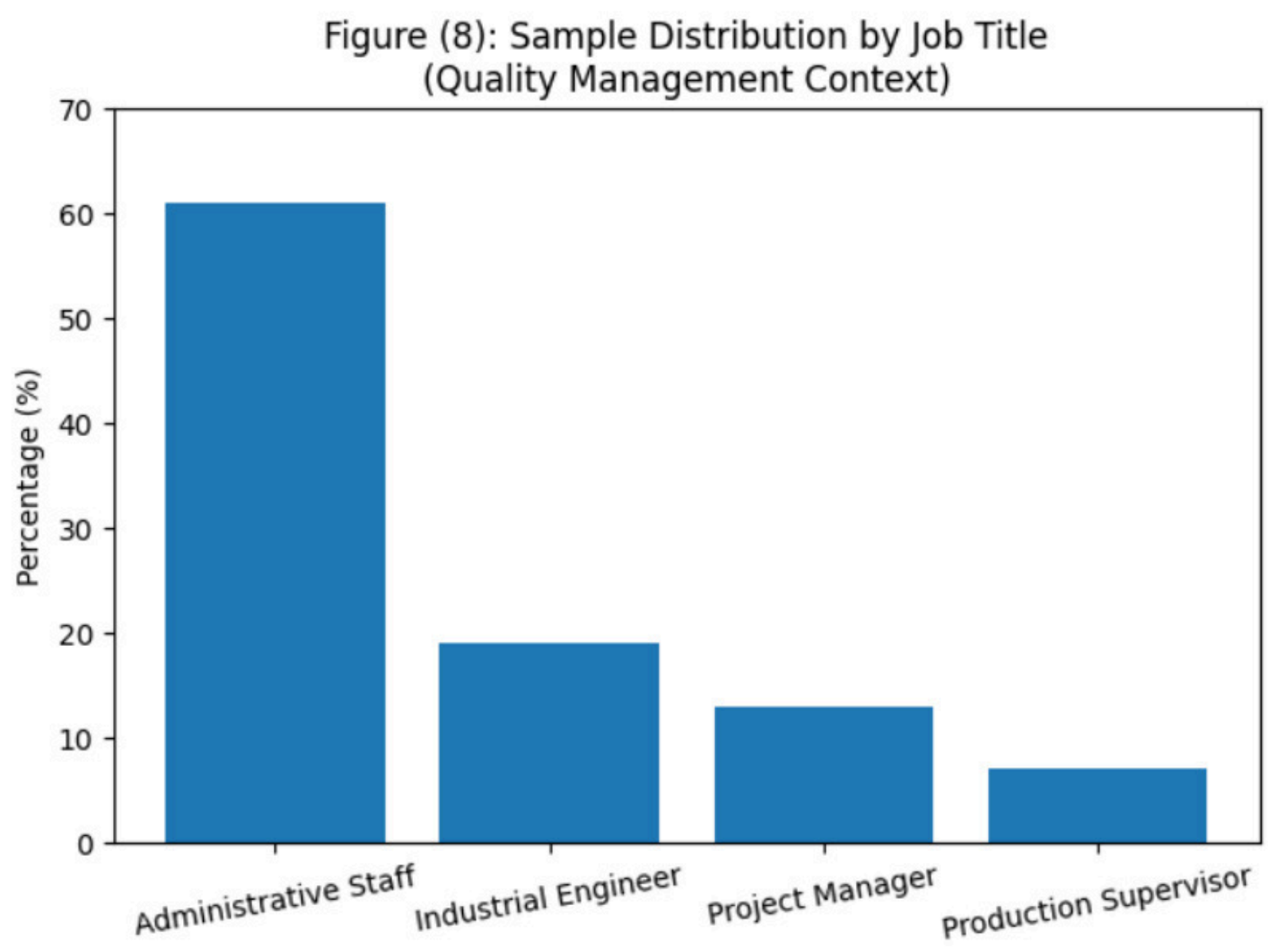
**5- Job title:**

**Table (8):** Frequency Distribution of the Study Sample by Job Title

| Job Title               | Frequency | Percentage (%) |
|-------------------------|-----------|----------------|
| Administrative Employee | 92        | 61%            |
| Industrial Engineer     | 29        | 19%            |
| Project Manager         | 19        | 13%            |
| Production Supervisor   | 10        | 7%             |
| Total                   | 150       | 100%           |

Total: 150 respondents = 150 of the total 150.

It is clear from Table (8) that the majority of the study sample consists of administrative employees, with a total of 92 participants, representing 61% of the overall sample. This indicates that the administrative staff category has a significant presence in the study, which contributes to understanding the impact of quality management from an organizational and managerial perspective. The industrial engineers category ranked second, accounting for 19% of the sample, followed by project managers at 13%. Production supervisors represented the smallest proportion of the sample at 7%.



**Type of industrial activity:**

**Table (9):  
Sample Distribution by Industrial Activity Type**

| Industrial Activity Type    | Frequency | Percentage (%) |
|-----------------------------|-----------|----------------|
| Food Industries             | 34        | 23%            |
| Chemical Industries         | 26        | 17%            |
| Mechanical Industries       | 38        | 25%            |
| Electronic Industries       | 18        | 12%            |
| Other Industrial Activities | 34        | 23%            |
| Total                       | 150       | 100%           |
| Total: 150 respondents      |           |                |

The table shows that mechanical industries represent the largest proportion of the study sample, accounting for 25% of the total participants. This is followed by food industries and other industrial activities, each representing 23% of the sample. Chemical industries accounted for 17%, while electronic industries recorded the lowest percentage at 12%. This distribution reflects a clear diversity in industrial activity types within the study sample, which is considered a positive indicator of comprehensive sector representation. Such diversity enhances the accuracy of the study findings regarding the impact of quality management implementation on organizational and corporate performance and supports the generalizability of the results across different industrial environments with varying operational and technical characteristics.

**Table (10):**  
**Sample Distribution by Industrial Project Size**

| Industrial Project Size | Frequency | Percentage (%) |
|-------------------------|-----------|----------------|
| Small                   | 42        | 28%            |
| Medium                  | 73        | 49%            |
| Large                   | 35        | 23%            |
| Total                   | 150       | 100%           |
| Total: 150 respondents  |           |                |

The table shows that medium-sized projects represent the largest proportion of the study sample at 49%, indicating a strong focus on adopting quality management practices to enhance efficiency and organizational performance. The presence of small projects (28%) and large projects (23%) reflects diversity in project sizes, which strengthens the reliability of the findings and supports their broader applicability.

**Table (11):**  
**Distribution of Sample Participants Based on**  
**Experience in Lean Management Implementation**

| Prior Participation in Lean Management Implementation? | Frequency | Percentage (%) |
|--------------------------------------------------------|-----------|----------------|
| Yes                                                    | 150       | 100%           |
| No                                                     | 0         | 0%             |
| Total                                                  | 150       | 100%           |
| Total: 150 respondents                                 |           |                |

The table indicates that all respondents in the study sample (100%) have previously participated in the implementation of quality management practices. This reflects the targeted nature of the selected sample, which was carefully chosen to ensure the availability of the required practical experience. Such a selection enhances the accuracy of the analysis related to assessing the impact of quality management on the performance of industrial projects.

4-3 Validity and Reliability Tests of the Questionnaire

Questionnaire validity refers to the extent to which the questionnaire items measure what they were designed to measure. In this study, the researcher ensured the validity and reliability of the questionnaire through the following procedures:

First: Validity

The researcher adopted two methods to verify the validity of the research instrument, namely face validity and internal consistency validity, as follows:

1- Expert Validity (Face Validity):

The initial version of the questionnaire was presented to a group of academic experts specialized in the field to obtain their opinions regarding the suitability, clarity, and accuracy of the questionnaire items. Based on their feedback, some items were modified, deleted, or added to ensure clarity and relevance. According to the experts’ recommendations, the researcher revised the questionnaire, resulting in a final version consisting of (35) items (Appendix 1). A five-point Likert scale was used for all items, where:

- (1) Strongly Disagree,
- (2) Disagree,
- (3) Neutral,
- (4) Agree,
- (5) Strongly Agree.

2- Internal Consistency Validity:

a- Internal Consistency Validity of the quality Management Dimension:  
Internal consistency validity refers to the degree of consistency between each questionnaire item and the dimension to which it belongs. The researcher calculated internal consistency by computing correlation coefficients between each item of the questionnaire dimensions and the total score of its respective dimension. This procedure ensures that each item is statistically consistent with the overall construct it is intended to measure, as illustrated in the following section.

**Table (12):** Correlation Coefficient for Each Item within the quality Management Dimension

| Item Number    | quality Management Dimension |                         |                         |                         |
|----------------|------------------------------|-------------------------|-------------------------|-------------------------|
|                | Continuous Improvement       |                         | Organizing Work         |                         |
|                | Correlation Coefficient      | Correlation Coefficient | Correlation Coefficient | Correlation Coefficient |
| Item Number    | 1                            | 0.596**                 | 0.809**                 | 6                       |
| 11             | 2                            | 0.684**                 | 0.779**                 | 7                       |
| 12             | 3                            | 0.805**                 | 0.663**                 | 8                       |
| 13             | 4                            | 0.505*                  | 0.568**                 | 17                      |
| 14             | 5                            | 0.644**                 | 0.658**                 | 18                      |
| Reducing Waste |                              |                         | Organizing Work         |                         |
| 11             | 11                           | 0.684**                 | 0.809**                 | 6                       |
| 13             | 12                           | 0.466*                  | 0.779**                 | 7                       |
| 14             | 15                           | 0.876**                 | 0.663**                 | 8                       |
| 17             | 18                           | 0.832**                 | 0.801**                 | 9                       |

\*  $p < 0.05$ , \*\*  $p < 0.01$

## **Internal Consistency Validity of the Study Dimensions**

To ensure the internal consistency validity of the research instrument, the researcher examined the degree of consistency between the questionnaire items and the dimensions to which they belong, within the context of studying the impact of Quality Management implementation on the performance of organizations and companies. The results of the analysis indicated the presence of positive and statistically significant correlations between each item and the total score of its corresponding dimension, confirming that the items consistently measure the intended concepts

With regard to the Quality Management dimension, the findings showed that all related items achieved statistically significant correlation coefficients at acceptable significance levels. This reflects a high level of coherence among the items and confirms their effectiveness in measuring Quality Management practices within organizations and companies. These results indicate that the dimension is valid and suitable for subsequent statistical analysis

Similarly, the Organizational and Corporate Performance Improvement dimension demonstrated strong and statistically significant correlations between its items and the total dimension score. This indicates that the items accurately capture key aspects of performance improvement associated with Quality Management implementation, including operational efficiency, quality enhancement, and cost optimization

## **Reliability of the Research Instrument**

To assess the reliability of the research instrument, the researcher relied on Cronbach's Alpha coefficient to measure the internal consistency of the questionnaire and its main dimensions. The analysis results revealed high reliability values across all dimensions, indicating a strong level of consistency and stability in the measurement tool

These results confirm that the responses provided by the study participants were consistent and that the questionnaire is capable of producing reliable results when applied under similar conditions. Accordingly, the data collected through the questionnaire can be confidently used to analyze the impact of Quality Management implementation on the performance of organizations and companies

## **Conclusion**

Based on the above findings, it can be concluded that the research instrument demonstrates acceptable levels of validity and reliability. This enhances the credibility of the study results and supports the robustness of the statistical analyses conducted to examine the impact of Quality Management implementation on organizational and corporate performance

# Descriptive Statistics of the Research Variables 4-4

## Analysis of the First Dimension -1

This section addresses the following question: What is the level of Quality Management implementation through its dimensions (continuous improvement, work organization, standardized work, and waste reduction) ?in industrial companies

The questionnaire included 20 statements related to the application of Quality Management dimensions. By calculating the means and standard deviations of respondents’ answers, the level of Quality Management implementation within organizations and companies was identified based .on the data presented in Table (15)

| Table (15): Means and Standard Deviations of Study Sample Responses for Quality Management Implementation Dimensions in Descending Order Based on Their Means (N=150). |        |        |                    |       |                               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------------------|-------|-------------------------------|
| Rank                                                                                                                                                                   | Rating | Rating | Standard Deviation | Mean  | Quality Management Dimensions |
| 1                                                                                                                                                                      | High   | High   | .6574              | 4.130 | Continuous Improvement        |
| 2                                                                                                                                                                      | High   | High   | .6606              | 4.017 | Work Organization             |
| 3                                                                                                                                                                      | High   | High   | .5099              | 4.009 | Customer Focus                |
| 4                                                                                                                                                                      | High   | High   | .6097              | 3.966 | Cost Reduction                |
| -                                                                                                                                                                      | -      | -      | .5133              | 4.031 | Overall Mean                  |

The results presented in the previous table indicate that all dimensions of Quality Management application (quality improvement, process standardization, continuous improvement, and operational control) were implemented at a high level according to the views of the study sample. This reflects the effective application of quality management practices in improving institutional and corporate performance.

The quality improvement dimension achieved the highest mean score of (4.1307) with a standard deviation of (0.65742), followed by process standardization with a mean of (4.0173) and a standard deviation of (0.66066). The continuous improvement dimension recorded a mean of (4.0093) with a standard deviation of (0.50995), while operational control recorded a mean of (3.9667) and a standard deviation of (0.60973).

The overall mean value of (4.0310) indicates that the level of quality management application is generally high. This contributes to enhancing institutional performance efficiency, achieving higher .levels of quality, and reducing costs and waste

In addition, the standard deviation values for all dimensions were less than one, indicating consistency in respondents’ answers and a high level of agreement regarding the extent of quality management implementation. This consistency enhances the .reliability of the study results

These findings suggest that the institutions and companies included in the study demonstrate a high level of maturity in applying quality management concepts. This reflects advanced managerial awareness of the importance of quality management in improving overall performance, strengthening competitiveness, and .achieving operational objectives more efficiently

**A: For paragraphs related to the dimension of continuous improvement:**

The arithmetic averages and standard deviations for each paragraph were calculated as in Table (16)

| Table (16): Means and Standard Deviations of Items related to the Continuous Improvement Dimension in Quality Management. |        |                    |        |                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------|--------|--------------------|--------|--------------------------------------------------------------------------------------------|
| Rank                                                                                                                      | Rating | Standard Deviation | Mean   | Items                                                                                      |
| 1                                                                                                                         | High   | .692               | 4.19   | The company promotes a culture of waste reduction in production operations.                |
| 2                                                                                                                         | High   | .827               | 4.03   | The company provides training courses to enhance employee skills in improving performance. |
| 3                                                                                                                         | High   | .760               | 3.99   | The company conducts root cause analysis to ensure continuous improvement.                 |
| 4                                                                                                                         | High   | .769               | 3.93   | The company relies on employee feedback as a basis for continuous improvement.             |
| 5                                                                                                                         | High   | .769               | 3.93   | The company runs continuous programs to improve and develop production processes.          |
| -                                                                                                                         | -      | .50995             | 4.0093 | Overall Mean for the Dimension                                                             |

The results presented in the previous table, which illustrate the means and standard deviations, indicate that the attitudes of the study sample tended toward agreement with the statements related to the continuous improvement dimension of quality management. The overall mean for this variable reached (4.0093) with a standard deviation of (0.50995). Additionally, all standard deviations for the dimension items were less than one, which reflects a high level of consistency and homogeneity in .the respondents’ views regarding continuous improvement practices

The highest-ranked statement was: “The company works to promote a culture of reducing waste and losses within production operations,” recording a mean of (4.19) and a standard deviation of (0.692), indicating a high level of implementation. The second-ranked statement stated that “The company provides training programs to enhance employees’ skills in performance improvement,” with a mean of (4.03) and a standard deviation of (0.827), also reflecting a high implementation level

The statement ranked before last indicated that “The company contributes to analyzing root causes of problems to ensure continuous improvement,” with a mean of (3.99) and a standard deviation of (0.760). The lowest-ranked statement was: “The company adopts continuous programs to improve and develop production processes,” which recorded a mean of (3.91) and a standard deviation of (0.810), while still maintaining a high level of application

Overall, the findings demonstrate a clear agreement among respondents regarding the importance of continuous improvement in enhancing organizational performance and improving operational efficiency within industrial companies. The high mean values and relatively low standard deviations indicate strong consensus that quality management practices contribute to waste reduction, employee development, systematic problem-solving, and continuous process improvement

These results confirm that continuous improvement is not viewed as a temporary practice, but rather as a core element of quality management systems, supporting organizations in achieving higher performance levels, improving quality outcomes, and strengthening competitiveness in industrial and organizational environments

**B: Paragraphs relating to the dimension of organization of work:**

| Table (17): Means and Standard Deviations for the Work Organization Dimension Items                   |      |                    |      |       |       |
|-------------------------------------------------------------------------------------------------------|------|--------------------|------|-------|-------|
| Items                                                                                                 | Mean | Standard Deviation | Rank | Level | Level |
| The company provides a work environment that facilitates employees’ access to production sites easily | 4.04 | 0.704              | 1    | High  | High  |
| The company follows clear and defined methodologies for organizing production processes               | 3.98 | 0.831              | 2    | High  | High  |
| The company adopts specific standards for organizing workplaces in a way that ensures efficiency      | 3.98 | 0.878              | 3    | High  | High  |
| The company ensures smooth production processes and reduces unnecessary disruptions                   | 3.98 | 0.901              | 4    | High  | High  |

| Items                                                                                      | Mean | Standard Deviation | Rank | Level |
|--------------------------------------------------------------------------------------------|------|--------------------|------|-------|
| The company provides clear procedures and guidelines to direct new employees in work steps | 3.85 | .951               | 5    | High  |
| Overall Mean for the Dimension                                                             | –    | .60973             | –    | High  |

It is evident from the previous table, which presents the means and standard deviations, that the attitudes of the study sample tended toward agreement with the statements related to the work organization dimension, as the overall mean for this variable reached 3.9667 with a standard deviation of 0.60973. It is also noted that all standard deviation values for this dimension were less than one, indicating a high level of consistency in the respondents' views regarding the level of quality management application within this dimension.

The highest-ranked statement was: "The organization provides a work environment that facilitates employees' access to production sites easily," which recorded a mean of 4.04 and a standard deviation of 0.704, reflecting a high level of application. The second-ranked statement was: "The organization follows a clear and well-defined methodology for organizing production processes," with a mean of 3.98 and a standard deviation of 0.831, also indicating a high level of application.

The statement ranked before last was: "The organization adopts specific standards for organizing workplaces in a way that ensures efficiency," with a mean of 3.98 and a standard deviation of 0.878, reflecting a high application level. The last-ranked statement was: "The organization provides clear procedures and standards to guide new employees through work processes," which recorded a mean of 3.85 and a standard deviation of 0.951, while still maintaining a high degree of application.

The results clearly indicate a strong agreement among respondents regarding the importance of work organization in enhancing operational efficiency and improving the work environment within industrial projects. The relatively high means and moderate standard deviations reflect a consensus that effective work organization represents one of the fundamental pillars of quality management implementation.

This finding suggests that organizations are making serious efforts to establish an organized work environment that supports process flow, facilitates movement within production sites, and ensures clear guidance for employees, which positively affects overall performance. Furthermore, the results imply that work organization extends beyond physical arrangements to include the adoption of clear methodologies, precise standards, and structured procedures that help integrate new employees efficiently and effectively.

This orientation reflects a growing organizational awareness of the importance of functional structures and systematic organization in achieving quality management objectives, as well as in building a work culture based on discipline, productivity, and continuous improvement.

**C: Paragraphs relating to the standard dimension of work:**

Table (18): Means and Standard Deviations for Scaling Work Dimension Items

| Items                                                                                               | Mean   | Standard Deviation | Rank | Level |
|-----------------------------------------------------------------------------------------------------|--------|--------------------|------|-------|
| The organization applies clear standards to avoid repetition of operational errors                  | 4.10   | 0.925              | 1    | High  |
| The organization adopts unified procedures that facilitate employees' work and improve productivity | 4.01   | 0.855              | 2    | High  |
| The organization makes quick and prompt decisions within production processes                       | 4.01   | 0.786              | 3    | High  |
| The organization carefully completes work within the specified timeframe and reduces delays         | 4.00   | 0.983              | 4    | High  |
| The organization works to improve production arrangement to reduce loss and waste                   | 3.97   | 0.781              | 5    | High  |
| Overall Mean for the Dimension                                                                      | 4.0173 | 0.66066            | -    | High  |

The results presented in the previous table, which illustrates the means and standard deviations, indicate that the study sample showed a positive level of agreement with the statements related to the standardized work dimension within the application of quality management. The overall mean for this dimension reached 4.0173, with a standard deviation of 0.6606, reflecting a high level of implementation. In addition, all standard deviation values were less than one, indicating a clear consistency in the respondents' views regarding the level of quality management application in this dimension.

The statement stating that the organization applies clear standards to avoid the repetition of operational errors ranked first, achieving the highest mean score of 4.10 with a standard deviation of 0.925. This result highlights the importance of standardization in reducing errors and improving operational reliability. It was followed by the statement indicating that the organization adopts unified work procedures that facilitate employee performance and enhance productivity, which recorded a mean of 4.01 and a standard deviation of 0.855.

The statement related to improving the arrangement of production processes to reduce waste in time and resources ranked last, with a mean value of 3.97 and a standard deviation of 0.781, although it still reflected a high level of application.

Overall, the findings demonstrate that the implementation of quality management practices related to standardized work is at a high level. Industrial organizations place significant emphasis on unifying procedures, applying operational standards, and minimizing recurring errors, which contributes to enhancing performance quality and improving production efficiency. These results also reflect an organizational awareness of the role of standardized work as a key tool for quality control and continuous improvement, enabling employees to perform their tasks with clarity, stability, and confidence. This consistency further strengthens organizational sustainability and competitiveness in dynamic industrial environments.

**D: Paragraphs related to the waste reduction dimension:**

| Table (19): Means and Standard Deviations for Waste Reduction Dimension Items       |        |                    |      |       |
|-------------------------------------------------------------------------------------|--------|--------------------|------|-------|
| Items                                                                               | Mean   | Standard Deviation | Rank | Level |
| The organization spreads a waste reduction culture across all its activities        | 4.24   | 0.766              | 1    | High  |
| The organization adopts specific suggestions to reduce waste in different resources | 4.20   | 0.855              | 2    | High  |
| The organization uses root cause analysis to eliminate waste causes                 | 4.14   | 0.883              | 3    | High  |
| The organization applies modern methodologies to improve production operations      | 4.11   | 0.832              | 4    | High  |
| The organization adheres to operational agreements and specific budgets             | 3.96   | 0.933              | 5    | High  |
| Overall Mean for the Dimension                                                      | 4.1307 | 0.65742            | -    | High  |

The results presented in the previous table, which illustrates the means and standard deviations, indicate that the study sample’s responses toward the waste reduction dimension were high. The overall mean for this dimension reached 4.1307, with a standard deviation of 0.657, reflecting a strong level of application. In addition, the standard deviations for the items of this dimension ranged between 0.766 and 0.933, all of which are less than one, indicating a high degree of consistency in the respondents’ perceptions regarding the level of quality management implementation within this dimension.

The highest-ranked statement was: “The company contributes to spreading a culture of waste reduction across all its activities,” which achieved a mean score of 4.24 and a standard deviation of 0.766, indicating a high level of application. This was followed by the statement: “The company adopts effective strategies to reduce waste across different resources,” with a mean of 4.20 and a standard deviation of 0.760, also reflecting a high application level.

The second-to-last ranked statement was: “The company adheres to efficient spending in accordance with approved budget items,” which recorded a mean of 3.96 and a standard deviation of 0.933, while maintaining a high level of application. Finally, the statement: “The company seeks to adopt modern technologies to improve production processes and increase efficiency,” achieved a mean of 4.11 with a standard deviation of 0.832, indicating a high degree of implementation.

Overall, the results demonstrate that the application of quality management practices related to waste reduction was high, suggesting that industrial organizations place significant emphasis on efficient resource utilization and actively seek to reduce waste in time, effort, and cost within their operational processes.

These findings also reflect an organizational awareness of the importance of promoting a waste reduction culture and employing effective strategies to achieve this objective, which enhances performance efficiency, increases productivity, and reduces unnecessary costs. This orientation represents a fundamental pillar of quality management, as it directly contributes to maximizing value for customers while minimizing waste, and reflects organizations’ ability supports to utilize available resources efficiently and .effectively in a competitive industrial environment

**2. Analysis of the Second Axis:**

**This axis addresses the following research question:**

**“What is the level of improvement in project performance within industrial companies in light of the application of quality management principles?”**

To answer this question, the means and standard deviations were calculated for the project performance improvement axis in industrial companies, in light of the application of quality management principles, .as shown in the following table

| Table (20): Means and Standard Deviations for Industrial Project Performance Improvement Dimensions |                          |      |                    |                 |      |        |
|-----------------------------------------------------------------------------------------------------|--------------------------|------|--------------------|-----------------|------|--------|
| No.                                                                                                 | Dimensions               | Mean | Standard Deviation | Relative Weight | Rank | Result |
| 1                                                                                                   | Performance Improvement  | 3.94 | 0.86733            | 79%             | 1    | High   |
| 3                                                                                                   | Cost Reduction           | 3.93 | 0.91637            | 79%             | 2    | High   |
| 2                                                                                                   | Performance Coordination | 3.93 | 0.96081            | 77%             | 3    | High   |
|                                                                                                     | Overall Mean             | 3.92 | 0.75968            | 78%             | –    | High   |

The previous table presents the descriptive analysis results of the dimensions of the project performance improvement axis in industrial companies in Jeddah. The results show the frequencies, arithmetic means, and standard deviations of the respondents’ answers for each dimension. The overall mean reached (3.92), which indicates a high level of project performance improvement in industrial companies through its dimensions (performance improvement, reduction of project costs, and coordination of .project operations)

The highest arithmetic mean was recorded for the “Performance Improvement” dimension, with a mean value of (3.94), reflecting a high level of agreement among the study sample. This was followed by the “Reduction of Project Costs” dimension, which achieved an arithmetic .mean of (3.93), also indicating a high level

The “Coordination of Project Operations” dimension ranked last, with a mean value of (3.84), yet it still reflects a high level of application.

The overall weighted score for the axis reached (78%), indicating a positive orientation among respondents toward the effectiveness of applying quality management principles in improving project performance. These results demonstrate that the application of quality management in industrial companies in Jeddah contributes effectively to enhancing execution efficiency, reducing operational costs, and achieving a good level of coordination among project-related activities. This supports the role of quality management practices as a key factor in improving productivity and achieving institutional performance objectives within the industrial sector.

**The researcher extracted the arithmetic mean and the standard deviation of the approval levels for each dimension, according to the The following:**

**The first dimension: improving performance**

| Table (21): Means and Standard Deviations Ranking in the First Axis – Performance Improvement |                                                                                                        |      |                    |                 |      |        |
|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|------|--------------------|-----------------|------|--------|
| No.                                                                                           | Statement                                                                                              | Mean | Standard Deviation | Relative Weight | Rank | Result |
| 1                                                                                             | Specialized committees inspect used materials before use in projects.                                  | 4.04 | 1.042              | 87%             | 1    | High   |
| 2                                                                                             | Top management follows quality control measures to ensure implementation.                              | 3.93 | 1.076              | 79%             | 2    | High   |
| 3                                                                                             | Efficient personnel are trained on the precise execution of projects.                                  | 3.90 | 1.063              | 78%             | 3    | High   |
| 4                                                                                             | Materials are inspected periodically and their compliance with specification requirements is verified. | 3.89 | 1.054              | 78%             | 4    | High   |
| 5                                                                                             | Quality criteria are considered in the selection of project contractors and suppliers.                 | 3.89 | 1.060              | 78%             | 5    | High   |
| –                                                                                             | Overall Mean for Performance Improvement                                                               | 3.89 | 1.060              | 78%             | –    | High   |

The previous table shows the mean responses of the study sample to the items of the first dimension of the second axis (Performance Improvement), ranked according to their arithmetic means from the most to the least important. The arithmetic means ranged between 3.89 and 4.04, indicating an overall high level of .application

The item “Specialized committees inspect the materials used before approving them for the project” ranked first with an arithmetic mean of 4.04. It was followed by the item “Top management follows up on quality control to ensure efficient implementation of industrial projects” with a mean of 3.93. The item “Engineers are appointed to supervise project implementation accurately and efficiently” ranked third with a mean of 3.90.

The items “Materials are inspected to ensure their quality” and “Project materials are selected according to high-quality standards” ranked last, with an arithmetic mean of 3.89. The standard deviations ranged between 1.042 and 1.076, which indicates a high level of agreement among respondents regarding the importance of performance improvement in industrial projects.

These results indicate that the study sample perceives the application of performance improvement standards in industrial projects as effective, as their responses showed a high level of agreement across the items of this dimension. The strong emphasis on inspecting materials before project approval reflects the importance placed on quality assurance from the early stages of project implementation. The findings also highlight the critical role of top management in quality control and continuous monitoring, which contributes to enhancing project efficiency and supports the application of quality management practices in industrial companies.

**The third dimension: coordination of project performance processes**

| Table (22): Means and Standard Deviations Ranking in the Second Axis – Performance Coordination |                                                                                        |      |                    |                 |      |        |
|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------|--------------------|-----------------|------|--------|
| No.                                                                                             | Statement                                                                              | Mean | Standard Deviation | Relative Weight | Rank | Result |
| 1                                                                                               | Projects face challenges that require quick responses to ensure workflow.              | 3.94 | 1.056              | 79%             | 1    | High   |
| 2                                                                                               | Coordination between workers ensures efficient process execution.                      | 3.84 | 1.088              | 77%             | 2    | High   |
| 3                                                                                               | Communication influence the achievement of project stages within specified timeframes. | 3.84 | 1.133              | 77%             | 3    | High   |
| 4                                                                                               | Equipment is identified effectively to maintain quality and minimize breakdowns.       | 3.76 | 1.162              | 75%             | 4    | High   |
| 5                                                                                               | Top management makes use of previous quality control experiences.                      | 3.73 | 1.196              | 75%             | 5    | High   |
| –                                                                                               | Overall Mean for Performance Coordination                                              | 3.84 | 0.968              | 77%             | –    | High   |

The previous table shows the average responses of the study sample to the statements of the second dimension of the second axis, Project Performance Operations Coordination. The statements were ranked in descending order according to their arithmetic means, from the most important to the least important, based on .the perspectives of the study sample

The results indicate that the responses of the study sample to the statements of this dimension, which consisted of five (5) items, reflected a high level of application, with arithmetic means ranging between 3.73 and 3.94

Statement (1) ranked first with an arithmetic mean of 3.94, a relative weight of 79%, and a standard deviation of 1.056. This statement stated: “Projects face challenges that require quick responses to ensure smooth workflow,” which highlights the importance of rapid response in achieving effective coordination within projects

Statement (2) ranked second and statement (4) ranked third, both recording an equal arithmetic mean of 3.84 and a relative weight of 77%, with slight differences in standard deviations (1.088 and 1.133, respectively). This reflects a strong consensus among respondents regarding the importance of coordination among employees and updating equipment to improve quality and reduce breakdowns in projects

Statement (3) ranked fourth with an arithmetic mean of 3.76, a relative weight of 75%, and a standard deviation of 1.162, indicating that weak coordination during project phases has a moderate impact compared to other factors

Statement (5) ranked last with an arithmetic mean of 3.73, a relative weight of 75%, and a standard deviation of 1.196. Despite ranking last, it still reflected a high level of application, indicating the importance of utilizing previous experiences in quality control

Overall, the overall arithmetic mean for the dimension of Project Performance Operations Coordination reached 3.84, with a relative weight of 77%, indicating that the level of coordination among operations within industrial companies in Jeddah is high, from the perspective of the study sample

**For the fourth dimension: reducing project performance costs**

Table (23): Means and Standard Deviations Ranking  
in the Third Axis – Cost Reduction

| Result | No. | Rank | Relative Weight | Standard Deviation | Statement                                                                         |
|--------|-----|------|-----------------|--------------------|-----------------------------------------------------------------------------------|
| High   | 1   | 80%  | 1.035           | 4.01               | Project implementation is monitored to avoid resource and material wastage.       |
| High   | 2   | 78%  | 1.168           | 3.92               | Implementation phases are evaluated to ensure alignment of costs with the budget. |

|      |   |     |       |      |                                                                                                        |
|------|---|-----|-------|------|--------------------------------------------------------------------------------------------------------|
| High | 2 | 78% | 78%   | 3.92 | Strict procedures are taken to hold those responsible for cost increases accountable.                  |
| High | 4 | 78% | 78%   | 3.89 | Quality management contributes to rationalizing expenditures without negatively affecting performance. |
| High | 5 | 77% | 77%   | 3.87 | Specialized committees supervise spending to ensure compliance with the budget.                        |
| High | – | 79% | 0.916 | 3.93 | Overall mean for the project cost reduction dimension.                                                 |

The previous table shows the mean responses of the study sample individuals to the statements of the third dimension of the second axis, namely reducing project performance costs. The statements were ranked in descending order according to their arithmetic means, reflecting the level of importance from the respondents' point of view. The results indicated that the level of application of this dimension was high, as the arithmetic means of its five statements ranged between (3.87 – 4.01).

Statement No. (1) ranked first with an arithmetic mean of (4.01), a relative weight of (80%), and a standard deviation of (1.035). This statement emphasized monitoring project implementation to avoid waste in resources and materials, which highlights the importance of control as an effective tool for regulating project costs. In second place came statement No. (3), which referred to evaluating implementation stages to ensure cost alignment with the budget, along with statement No. (4), which stated that quality management contributes to rationalizing expenditures without affecting performance. Both statements recorded an arithmetic mean of (3.92) and a relative weight of (78%), while slight differences in standard deviations (1.168) and (1.183) respectively determined their ranking.

Statement No. (2) ranked fourth with an arithmetic mean of (3.89), a relative weight of (78%), and a standard deviation of (1.150), reflecting the presence of regulatory and accountability procedures against those responsible for cost increases, albeit to a lesser extent compared to previous statements. Statement No. (5) ranked last with an arithmetic mean of (3.87), a relative weight of (77%), and a standard deviation of (1.160), which relates to supervision by specialized committees over expenditures to ensure adherence to the budget.

Overall, the total arithmetic mean for the dimension of reducing project performance costs reached (3.93) with a relative weight of (79%), indicating that this dimension is applied at a high level within industrial companies in the city of Jeddah. It is considered one of the key dimensions for improving project management from the perspective of the study sample respondents.

## 4.5 Test the hypotheses and discuss the results

### Main Hypothesis:

There is no statistically significant effect of applying Quality Management practices (continuous improvement, work organization, standardized procedures, and waste reduction) on improving the performance of institutions and companies at the significance level ( $\alpha \leq 0.05$ ).

To test the above hypothesis, the researcher applied linear regression analysis to identify the effect of applying Quality Management practices and their dimensions on improving the performance of institutions and companies at the significance level ( $\alpha \leq 0.05$ ). The following table illustrates this.

| Table 24: Simple linear regression results examining the effect of applying Quality Management practices (independent variable) on improving institutional & company performance (dependent variable). |                                   |       |       |                 |         |                        |       |       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-------|-------|-----------------|---------|------------------------|-------|-------|
| Level of Sig. F                                                                                                                                                                                        | F Value                           | R2    | R     | Level of Sig. T | T Value | Beta Value ( $\beta$ ) | S.E.  | B     |
| 0.000                                                                                                                                                                                                  | 64.66                             | 0.425 | 0.652 | 0.000           | 8.041   | 0.652                  | 0.073 | 0.587 |
|                                                                                                                                                                                                        | Application of Quality Management |       |       |                 |         |                        |       |       |

The correlation coefficient (R) reached a value of 0.652, which represents a positive and statistically significant correlation. This indicates the existence of a statistically significant positive relationship between the application of quality management practices and the improvement of industrial project performance at a significance level of ( $\alpha \leq 0.05$ ).

The coefficient of determination ( $R^2$ ) reached a value of 0.425, which means that the application of quality management explains 42.5% of the total variance in improving industrial project performance. This represents a good explanatory power according to administrative studies.

The significance level (Sig) recorded a value of 0.000, which is less than the approved significance level (0.05). This indicates the presence of a statistically significant effect of applying quality management on improving project performance from the perspective of the study sample.

Accordingly, the researcher rejects the null hypothesis and accepts the alternative hypothesis, which states:  
“There is a statistically significant effect of applying quality management on improving the performance of industrial projects.”

Testing the first sub-hypothesis:  
There is no statistically significant effect of adopting quality management practices on improving project performance in industrial companies at a significance level of ( $\alpha \leq 0.05$ ).

To test this hypothesis, the researcher applied simple linear regression analysis to identify the effect of adopting quality management practices on improving project performance. The results are presented in the following table.

Table 25: Simple linear regression results examining the effect of adopting Quality Management on improving performance.

| Level of Sig. F | F Value                           | R2    | R     | R     | Level of Sig. T | T Value (β) | S.E.  | B     |
|-----------------|-----------------------------------|-------|-------|-------|-----------------|-------------|-------|-------|
| 0.000           | 176.058                           | 0.533 | 0.730 | 0.730 | 13.269          | 0.730       | 0.052 | 0.684 |
|                 | Application of Quality Management |       |       |       |                 |             |       |       |

Statistically significant at ( $\alpha \leq 0.05$ ).

From the previous table, it is clear that:

- **Correlation coefficient:** The value of the correlation coefficient (R) reached 0.730, indicating a positive statistically significant correlation. This reflects the existence of a statistically significant positive relationship between the application of quality management and performance improvement at a significance level less than 0.05.
- **Coefficient of determination:** The value of the coefficient of determination ( $R^2$ ) reached 0.533, which indicates that the application of quality management explains 53.3% of the total variance in improving project performance.

Accordingly, the significance level (Sig) reached 0.000, which is lower than the approved significance level (0.05), indicating the presence of a statistically significant effect of applying quality management on performance improvement from the perspective of the study sample. Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted, which states that there is a statistically significant effect of applying quality management on improving the performance of industrial projects at a significance level ( $\alpha \leq 0.05$ ).

Testing the second sub-hypothesis: There is no statistically significant effect of adopting quality management on reducing project performance costs in industrial companies at a significance level ( $\alpha \leq 0.05$ ).

To test this hypothesis, the researcher applied simple linear regression analysis to identify the effect of applying quality management on reducing project performance costs in industrial companies, as shown in the following table.

| Sig. F Level | F Level | R <sup>2</sup> | R     | R     | Sig. T Level | Beta Value (β) | S.E.  | B     | Independent Variable |
|--------------|---------|----------------|-------|-------|--------------|----------------|-------|-------|----------------------|
| 0.000        | 0.000   | 0.672          | 0.672 | 0.820 | 0.000        | 17.759         | 0.820 | 0.780 | Quality Management   |

- **Correlation coefficient (R):** The value of the correlation coefficient reached 0.820, indicating a positive and statistically significant relationship. This reflects the existence of a statistically significant positive association between the application of quality management and the reduction of project performance costs in industrial companies, at a significance level less than 0.05
- **Coefficient of determination ( $R^2$ ):** The value of  $R^2$  reached 0.672, which indicates that the application of quality management explains 67% of the total variance in reducing project performance costs in industrial companies

In addition, the significance level (Sig = 0.000) is lower than the approved significance level (0.05), which confirms the existence of a statistically significant effect of applying quality management on reducing project performance costs from the perspective of the study sample. Accordingly, the null hypothesis is rejected and the alternative hypothesis is accepted, concluding that

There is a statistically significant effect of applying quality management on reducing project performance costs in industrial companies at a significance level ( $\alpha \leq 0.05$ )

Third Sub-Hypothesis

There is no statistically significant effect of adopting quality management on coordination of project operations in industrial companies at a .significance level ( $\alpha \leq 0.05$ )

To test this hypothesis, the researcher applied simple linear regression analysis to examine the effect of quality management application on coordinating project operations in industrial companies. The following .table presents the results

Table (27): Results of Simple Linear Regression Analysis for the Effect of Quality Management Application on Project Operations Coordination in .Industrial Companies

| Sig. F Level | F Level | R     | R-link | sig. T level | T value | Beta Value ( $\beta$ ) | S.E.  | B     | Independent Variable |
|--------------|---------|-------|--------|--------------|---------|------------------------|-------|-------|----------------------|
| 0.000        | 359.561 | 0.700 | 0.837  | 0.000        | 18.962  | 0.837                  | 0.039 | 0.740 | Quality Management   |

From the previous table, the following results are observed:

- Correlation coefficient (R): The value of the correlation coefficient reached 0.837, indicating a positive and statistically significant relationship between the application of quality management practices and the coordination of project performance operations in industrial companies, at a significance level of less than 0.05.
- Coefficient of determination ( $R^2$ ): The value of  $R^2$  reached 0.70, which indicates that the application of quality management explains 70% of the variance in project performance coordination within industrial companies.
- Significance level: The significance value (Sig = 0.000) is lower than the adopted significance level (0.05), which confirms the existence of a statistically significant effect of quality management application on coordinating project performance operations in industrial companies, from the perspective of the study sample.

Accordingly, the null hypothesis is rejected and the alternative hypothesis is accepted, which states that there is a statistically significant effect of applying quality management on coordinating project performance operations in industrial companies at a significance level of ( $\alpha \leq 0.05$ ).

Summary of Findings 6-4

- The results showed that all dimensions of quality management application (waste reduction, standard work, continuous improvement, and work organization) were implemented at a high level according to the study sample. The waste reduction dimension achieved the highest mean value (4.1307), followed by standard work (4.0173), continuous improvement (4.0093), and finally work organization (3.9667). The overall mean of 4.0310 indicates a generally high level of quality management application, reflecting significant improvement in operational performance efficiency and reduction of costs and waste .1
- The findings indicate that the industrial projects included in the study demonstrate a high level of maturity in applying quality management concepts. This reflects advanced organizational awareness of the importance of these concepts in improving overall performance, such as reducing waste, standardizing procedures, and continuous improvement .2
- The descriptive analysis of project performance improvement dimensions revealed that the overall mean of the axis reached 3.92, indicating a high level of performance improvement in industrial companies in Jeddah. The dimensions of performance improvement and cost reduction ranked first and second with mean values of 3.94 and 3.93, respectively, while coordination of project performance operations ranked third with a mean of 3.84. These results indicate that quality management application effectively enhances execution efficiency, reduces costs, and achieves good coordination among operations .3
- Correlation analysis results showed a strong positive relationship between quality management application and project performance improvement, with a correlation coefficient of 0.652. The coefficient of determination reached 0.425, indicating that quality management application explains 42.5% of the variance in project performance improvement .4
- The statistical analysis results demonstrated that the application of quality management has a statistically significant effect on improving project performance. Accordingly, the alternative hypothesis was accepted, which states that there is a positive effect of quality management application on improving industrial project performance .5
- There is a positive effect of quality management on cost reduction, as the coefficient of determination reached 0.533, indicating that quality management explains 53% of the variance in cost reduction .6
- There is a positive effect of quality management on process coordination, with a coefficient of determination of 0.672, indicating that quality management explains 67% of the variance in process coordination .7
- The application of quality management dimensions has a positive impact on improving industrial project performance in Jeddah, enhancing operational efficiency, reducing costs, and organizing operations .8
- A clear relationship is evident between adopting quality management and achieving tangible results in industrial projects, reflecting the importance of these dimensions in enhancing competitiveness and achieving operational objectives .9

## **Conclusion 7-4**

In this chapter, the researcher presented a detailed analysis of the study data by examining the study questions through an in-depth analysis of the questionnaire items. The analysis also addressed the personal characteristics of the study sample, including gender, age, educational qualification, years of experience, and job level. In addition, statistical analyses were conducted on the data collected from the study questionnaire using the Statistical Package for the Social Sciences (SPSS). The results obtained were then interpreted and discussed by the .researcher in light of the study objectives

## **Chapter 5: Discussion of the Findings and Conclusions**

## **Introduction 5.1**

This chapter presents the theoretical and practical contributions of the study, in addition to the recommendations, study limitations, future research directions, and the conclusion, as outlined below

## **Theoretical Contribution 5.2**

The theoretical contribution of this study is highlighted by its examination of research variables that have not been sufficiently linked within a unified theoretical framework in previous literature, or where studies addressing them jointly were limited and not comprehensive. This gap constituted a scientific motivation for the researcher to reformulate the relationship between these variables within a new research model that contributes to enriching theoretical knowledge in the field of quality management and the improvement of industrial project performance

The researcher succeeded in developing an integrated theoretical framework based on a thorough review and analysis of relevant literature, which helped in accurately defining the dimensions of the study variables, in addition to selecting an appropriate methodology that effectively achieves the study objectives. The study adopted a quantitative approach and used a questionnaire as the primary data collection instrument, enabling the researcher to obtain objective quantitative data that support hypothesis testing and yield statistically significant results reflecting the reality of quality management application and its impact on improving performance in industrial projects

## **Practical Contribution 5.3**

The practical importance of this research lies in its application to industrial companies in Jeddah Governorate. These companies can benefit from the study findings by developing work processes and improving operational performance efficiency through adopting quality management practices such as reducing waste, standardizing procedures, and continuous improvement. The results can also be utilized to design more flexible operational plans that are responsive to changes in the industrial work environment

In addition, companies can invest in modern technologies, such as digitalization and automation systems, which support the application of quality management concepts, thereby contributing to cost reduction, improvement of production quality, and enhancement of competitiveness in both local and international markets

## **Recommendations 5.4**

Based on the results of the study, the researcher proposes a set of recommendations that may contribute to enhancing the application of quality management in industrial projects in Jeddah Governorate and improving their operational and financial performance, as follows

First: Emphasizing the enhancement of waste reduction practices, as this dimension was found to be the most influential according to the study results, through redesigning processes, minimizing non-value-added activities, and improving resource utilization

Second: Encouraging industrial companies to adopt standardized work procedures and embed continuous improvement within their organizational culture, given their direct impact on increasing performance efficiency and achieving quality

Third: Calling on industrial management to improve work organization mechanisms through the application of quality management tools, such as workflow standardization, quality planning techniques, and process mapping, in a way that enhances internal coordination and reduces waste in time and effort.

Fourth: Strengthening organizational awareness of the importance of quality management through training programs and workshops for employees and managers, enabling them to understand quality concepts and apply appropriate tools within the work environment.

Fifth: Emphasizing the need to invest in technical and digital infrastructure that supports the application of quality management, such as operations management systems and predictive quality analytics, which assist in making fast and effective decisions.

Sixth: Encouraging future research to examine the relationship between quality management and other performance indicators, such as innovation, customer satisfaction, and operational flexibility, across diverse industrial environments.

## **5.5 Study Limitations**

This study is subject to several limitations that should be considered when generalizing or interpreting its results, as follows:

### **5.5.1 Subject-Matter Limitations**

This study is limited to examining the reality of quality management application as the independent variable, which includes four main dimensions: cost reduction, standardization of work procedures, continuous improvement, and work organization. The study also addresses the improvement of industrial project performance as the dependent variable, consisting of three dimensions: performance improvement, cost reduction, and operations coordination.

### **5.5.2 Human Limitations**

The study was limited to a sample of employees working in industrial companies in Jeddah Governorate, specifically managers, supervisors, and personnel responsible for production operations who possess experience and knowledge of quality management application mechanisms within their organizations.

### **5.5.3 Spatial Limitations**

The study was conducted within the geographical scope of Jeddah Governorate, where industrial companies operating in the city were selected as the applied field to verify the study objectives and hypotheses.

### **5.5.4 Temporal Limitations**

The study was carried out during the academic year 2025, which represents the approved time frame for data collection, analysis, and extraction of results.

# Future Studies 5.6

Based on the findings of this study, which revealed a strong relationship between the application of quality management and its various dimensions—such as continuous improvement, standardization of work procedures, work organization, and cost reduction—and the improvement of industrial project performance and its dimensions, including performance improvement, cost reduction, and operations coordination, the researcher recommends that future researchers focus on the following areas

- Generalizing the study results across diverse industrial environments, particularly in other regions of the Kingdom or internationally, in order to enhance the generalizability of the findings and expand research on the effectiveness of quality management application
- Focusing on specific sub-hypotheses derived from the current study, such as examining the effect of continuous improvement on cost reduction or the impact of work organization on operations coordination, and testing the relationships between these dimensions separately in different work environments
- Exploring additional dimensions not addressed in the current study, such as the role of digital technologies in supporting the application of quality management practices, and how these factors influence performance outcomes in industrial companies
- Examining the relationship between quality management and other factors such as innovation, productivity, and quality outcomes in industrial projects, which may contribute to enriching the understanding of the extent to which quality management affects various aspects of industrial business performance

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**Thank you for your time and attention. It is hoped that this research provides valuable insights into the impact of quality management on organizational and project .performance**