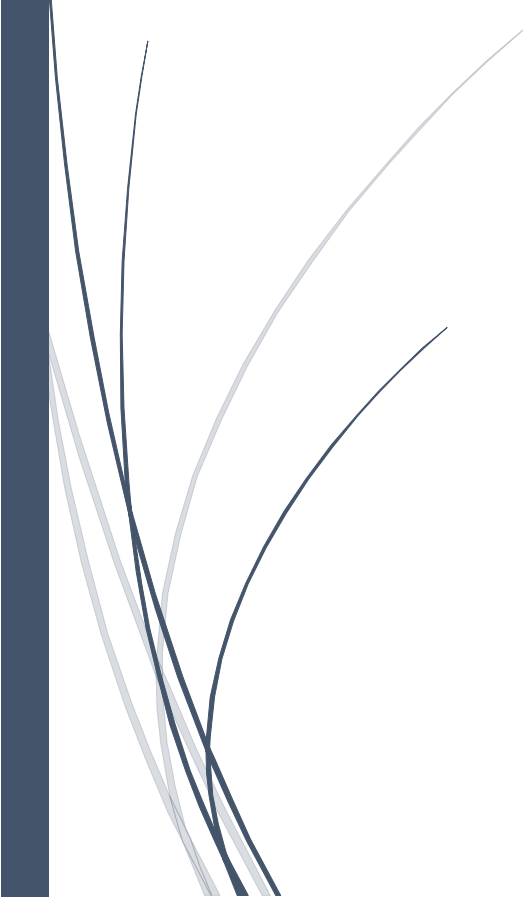




Final Project 2

PMG 497

Project Template



Improving industrial project management in Jeddah city using total quality management principles

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Final Project - 2

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Dedication

This work is dedicated to my beloved family, whose unwavering support, encouragement, and prayers have been the foundation of my success. To my parents, who taught me the values of perseverance and hard work, and to everyone who believed in me throughout this journey, this achievement is a reflection of your faith and guidance. I am deeply grateful for your love, patience, and inspiration.

Abstract

Purpose:

The purpose of this study is to examine how Total Quality Management (TQM) principles can improve industrial project management practices in Jeddah City. The research aims to identify the key quality factors that influence project performance and explore how organizations can enhance efficiency, reduce operational issues, and achieve better project outcomes through the adoption of TQM frameworks.

Methodology:

This study follows a quantitative research approach using a structured questionnaire distributed to professionals working in industrial project management sectors in Jeddah. The collected data is analyzed through descriptive statistics, validity and reliability tests, and hypothesis testing using statistical analysis software to determine the relationships between TQM practices and project performance indicators.

Findings:

The findings indicate that the implementation of TQM significantly improves project planning, execution, communication, and overall performance. Results also show a positive relationship between continuous improvement, leadership commitment, employee involvement, and the successful delivery of industrial projects. These findings highlight the effectiveness of TQM as a strategic tool for enhancing project outcomes in the industrial sector.

Originality & Implication:

This study contributes to the limited research on the application of TQM in industrial project management within the context of Jeddah City. The research provides practical insights for managers and decision-makers seeking to improve project performance by integrating TQM principles. It also emphasizes the importance of adopting quality focused strategies to address operational challenges and achieve sustainable project success.

Keywords:

Total Quality Management, Industrial Project Management, Jeddah City, Continuous Improvement, Project Performance, Leadership Commitment.

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1. Chapter 1: Introduction

1.1. Research Background

Industrial projects in Jeddah City represent a vital component of the region's economic and developmental landscape. As one of Saudi Arabia's major industrial hubs, Jeddah hosts numerous strategic projects in manufacturing, construction, infrastructure, logistics, and energy. Despite the growth and strategic importance of these projects, many organizations continue to face persistent challenges that negatively impact their overall performance. These challenges often manifest in the form of cost overruns, delays in project schedules, rework due to quality deficiencies, and a general inability to meet desired performance standards. Such recurring issues significantly reduce the competitiveness of industrial projects in Jeddah and hinder their ability to support broader national economic goals.

A closer examination of these challenges reveals several underlying causes. Many industrial projects suffer from **inadequate planning**, where initial project scopes, timelines, and cost estimations are not developed using robust analytical tools or accurate forecasting techniques. Additionally, **inefficient resource allocation** remains a major concern, with organizations struggling to distribute manpower, equipment, and materials in a manner that ensures optimal productivity. **Weak coordination among departments** further contributes to operational bottlenecks, miscommunication, and duplication of tasks. Collectively, these issues disrupt the flow of work, increase waste, and reduce the ability of industrial projects to deliver consistent results within budget and time constraints.

Over the past decade, global research has increasingly emphasized the role of **Total Quality Management (TQM)** principles as an effective framework for improving project performance. TQM focuses on a set of integrated managerial practices that prioritize continuous improvement, customer satisfaction, employee involvement, leadership commitment, and systematic process control. Numerous international studies highlight that

TQM contributes to reducing defects, lowering operational costs, and improving overall organizational performance across various sectors. For instance, empirical findings have shown that when TQM practices such as process standardization, continuous monitoring, and proactive problem-solving are applied, organizations experience higher success rates in project implementation and customer satisfaction.

Several local and regional studies support these findings as well. For example, Al-Omari (2020) found that the application of TQM practices in construction projects resulted in a **15% reduction in overall project costs**, primarily due to improved planning and efficient execution. Another study by Al-Salmi (2021) demonstrated that integrating TQM principles led to a noticeable improvement in product quality and a significant increase in customer satisfaction levels in manufacturing industries. These results collectively indicate that TQM has the potential to enhance multiple project performance dimensions, including time, cost, quality, and stakeholder satisfaction.

Despite the positive outcomes reported in previous research, a critical gap remains evident. Most existing studies focus either on the general construction sector, healthcare services, or manufacturing industries in broad contexts. There is a **scarcity of research directly addressing the specific industrial environment of Jeddah City**, particularly in the context of applying TQM to improve industrial project management. Jeddah's industrial sector has unique characteristics influenced by its geographic location, its role as a gateway to the Red Sea, ongoing mega-projects, regulatory frameworks, and the city's commitment to serving as a regional industrial hub. These characteristics require tailored solutions that consider local challenges, regional competition, and the operational environment of industrial organizations.

The lack of research that provides a practical, applicable TQM-based model for managing industrial projects in Jeddah creates a critical knowledge gap. Managers and practitioners currently lack a localized guideline or framework that can help them systematically apply

TQM principles to address challenges in cost control, scheduling, quality assurance, and resource management. This absence highlights the need for a research-driven framework that aligns TQM concepts with the actual needs, constraints, and opportunities within the industrial sector of Jeddah.

The importance of this research extends beyond individual organizations. Industrial projects play a crucial role in achieving the goals of **Saudi Vision 2030**, which emphasizes the diversification of the economy, the enhancement of industrial capacity, and the development of high-quality infrastructure. Improved project management in the industrial sector contributes directly to increasing productivity, strengthening national manufacturing capabilities, attracting foreign investments, and creating employment opportunities. Therefore, improving project management practices through TQM is not only an operational necessity but also a strategic requirement for supporting national development efforts.

The primary audience for this research includes project managers working in the industrial sector, quality management professionals, organizational leaders in manufacturing and industrial firms, and decision-makers in governmental bodies such as **Jeddah Municipality** and the **Royal Commission for Jeddah City**. Academic researchers and students specializing in industrial management, project management, and quality improvement will also benefit from the study's findings. By providing a comprehensive and practical model, this research aims to guide them in understanding how TQM principles can be integrated into daily project operations to achieve better outcomes.

This research aims to propose a model for improving the management of industrial projects in Jeddah City through the application of TQM principles. The proposed model seeks to address deficiencies in planning, scheduling, execution, monitoring, and evaluation. By focusing on critical dimensions such as leadership support, continuous improvement, employee engagement, and standardized work processes, the model will enable

organizations to better utilize their available resources and ensure that project tasks are carried out systematically and effectively.

Through the systematic application of TQM, the research anticipates providing solutions that help industrial organizations in Jeddah improve cost efficiency, reduce delays, enhance inter-departmental coordination, and deliver high-quality project outcomes. Ultimately, the successful implementation of the proposed model will support the broader economic vision of Jeddah City, strengthen its industrial competitiveness, and contribute to achieving national strategic objectives.

1.2. Research Problem

While Total Management principles are widely recognized for enhancing organizational performance, their specific application and effectiveness in addressing the unique challenges of industrial project management in Jeddah remain unclear and underexplored. The existing literature often discusses these principles in isolation or within different industrial contexts, failing to provide a comprehensive framework tailored to the specific socio-economic, regulatory, and operational landscape of Jeddah's industrial sector. This section outlines the specific theoretical and practical gaps that this research seeks to address.

1.2.1. Theoretical Gaps

The primary theoretical gap lies in the lack of an integrated conceptual framework that adapts Total Management principles to the context of industrial project management in a major Saudi urban center like Jeddah. Existing models are often generalized and do not account for the unique interplay of local supply chain dynamics, regulatory environments, and 6 cultural factors that influence project execution in this specific region. Furthermore, there is a scarcity of empirical studies that test the applicability and relative importance of various Total Management components such as total quality, total cost management, and human resource integration within the Jeddah industrial project ecosystem.

1.2.2. Practical Gaps

On a practical level, a significant gap exists between the recognized potential of Total Management and its on-the-ground implementation in Jeddah's industrial firms. Many organizations face substantial barriers, including a lack of standardized procedural guides, resistance to cultural and organizational change, and insufficient technical skills among project teams to effectively deploy these principles. This implementation deficit often leads to persistent issues such as cost overruns, scheduling delays, and quality shortfalls, highlighting a critical need for a practical, actionable model that local managers can adopt. Therefore, the research question is How can Total Management principles be effectively applied to improve the performance of industrial project management in Jeddah City?

1.3. Research Significance

This study is significant for its potential to contribute new knowledge both theoretically, by advancing academic discourse, and practically, by providing actionable insights for industry practitioners.

1.3.1. At the theoretical level

This research will contribute to the body of knowledge by developing and proposing a contextualized theoretical model for applying Total Management in industrial project settings. It addresses a clear gap in the literature by focusing specifically on the unique variables present in the Jeddah context, thereby enriching the academic fields of project management and industrial engineering. The findings can serve as a foundational reference for future research on modern management practices in similar urban industrial environments in the Gulf region.

1.3.2. At the practical level

The practical significance of this study lies in its direct value to stakeholders in Jeddah's industrial sector. It will provide project managers and company executives with a clear, structured framework for implementing Total Management principles to achieve tangible improvements in cost control, timely delivery, and quality standards. Furthermore, the findings can inform policymakers and development agencies, such as the Jeddah Chamber of Commerce and Industry, in designing targeted training programs and supportive policies that foster excellence and competitiveness in the local industrial landscape.

1.4. Research Questions

What is the current level of application of TQM principles in industrial projects within Jeddah City?

What are the key challenges facing industrial project management in Jeddah, and how can TQM address these challenges?

What is the relationship between TQM practices (such as leadership commitment, employee involvement, and continuous improvement) and project performance indicators (cost, quality, and time)?

How do organizational factors in Jeddah's industrial sector influence the effectiveness of TQM implementation?

What practical model can be developed to enhance project management performance using TQM principles in the context of Jeddah City?

1.5. Research Objectives

The main objective of this study is to improve industrial project management in Jeddah City through the application of Total Quality Management (TQM) principles.

The specific objectives are:

1. To evaluate the current level of TQM implementation in industrial projects within Jeddah City.
2. To identify the major challenges affecting the performance of industrial projects in Jeddah.

3. To examine the relationship between key TQM practices and project performance indicators such as cost, time, and quality.
4. To analyze how organizational factors influence the successful implementation of TQM in the industrial sector in Jeddah.
5. To develop a practical TQM-based model that can support project managers in improving overall project performance.

1.6. Research Hypotheses

Main Hypothesis

- H0: TQM has no significant effect on the performance of industrial projects in Jeddah City.
- H1: TQM has a significant positive effect on the performance of industrial projects in Jeddah City.

Sub-Hypotheses

- H1₁: Leadership commitment has a significant positive impact on industrial project performance.
- H1₂: Employee involvement positively contributes to improving project management effectiveness.
- H1₃: Continuous improvement practices positively affect project performance in terms of cost, time, and quality.

- H14: Organizational factors significantly influence the effectiveness of TQM implementation.
- H15: A TQM-based model can significantly improve the performance of industrial projects in Jeddah City.

1.7. Research Model

The proposed research model is based on the relationship between Total Quality Management (TQM) practices and industrial project performance.

- Independent Variable (IV):

Total Quality Management (TQM), represented by:

- Leadership commitment
 - Employee involvement
 - Continuous improvement
 - Process management
 - Customer focus
- Dependent Variable (DV):

Industrial Project Performance, measured by:

- Cost performance

- Time performance
- Quality performance

The model assumes that applying TQM principles improves project performance. Organizational factors may influence the strength or direction of this relationship.

1.8. Scope of The Study

This study focuses on industrial projects located in Jeddah City, Saudi Arabia. It examines the impact of TQM principles on project performance in sectors such as manufacturing, energy, logistics, and industrial construction. The study targets project managers, engineers, supervisors, and quality professionals involved in industrial projects. The time scope of the research is limited to data collected during the first semester of 2026. The thematic scope includes TQM practices, project performance indicators, and organizational factors affecting TQM implementation.

1.9. The Project Structure

2.Chapter 2: Literature Review

2.1. Introduction

Brief introduction for the chapter

2.2. The independent variable

2.3. The dependent variable

2.4. The relationship between the independent and the dependent variables

2.5. Conclusion

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4.6. Conclusion

5. Chapter five: Research limitations, Recommendations & Conclusion

5.1. Research Limitations & Future Research

5.2. Research Recommendations

5.3. Conclusion

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Appendix