

Role of Project Management via Project Quality in Achieving Project Success:
“A Study of Sub-Contractors Group of Companies in Jeddah, KSA”

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Dedication

I dedicate this to my family, who were always there for me, even on the tough days.

Especially, goes to you, Mom “Allah, forgive her and have **mercy** on her.”

To my fiancée, who has been my most profound inspiration.

To my best friends who became my family.

To the teachers who educate with passion and patience.

To my colleagues who believed in me

For all the yesterdays that led me to today.

For every moment that brought me to this point.

To the challenges that made me stronger.

Abstract

Purpose:

Methodology:

Findings:

Originality & Implication:

Keywords:

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1 Chapter One: Introduction

1.1 Research Background:

Project management has gained significant popularity as an administrative term and concept, not only in achieving business goals and purposes but also in contributing to the economic development of less developed countries (Silva & Magano, 2023, p 67-91). Many applications and programs in these countries, such as product development, real estate development, and infrastructure development, use project management to plan, coordinate, collaborate, train, and manage resources to achieve specific project objectives (Lock, 2020).

In recent times, there has been a noticeable and acceptable increase in the adoption of project management (PM) and associated methodologies. This increase is evident in the recognized benefits and features of implementing project management methodologies. One key aspect is that effective project management enhances and increases the success rates of projects, subsequently fostering organizational performance (Dai, 2002). Attention has been directed towards using the Project Management (PM) as a tool to improve and enhance this effectiveness, particularly by enabling the effective transfer of knowledge from successful projects/factors through providing a series of support services and features for various project management levels and stages (Taboada & de Vass, 2023).

However, literature on this important topic is largely anecdotal. Kukah et al. (2023) contributed to the experimental study of Critical Success Factors (CSFs) as decisive factors and probabilities of project success. He addressed around ten critical factors, including project mission, top management support, project schedule/plan, client involvement, technical tasks, communication, error identification, and resolution strategies. In addition to Bento's study, there are many other CSF lists mentioned in the literature, such as the Kerzner Project Management Excellence Report (1987). Most of these list's focus on factors related to the project manager and the organization to which the project belongs. None of them directly include the issue of the effectiveness and Role of Project Management functions on project success.

Quality is considered a fundamental factor in assessing the success and sustainability of projects and project management practices. It plays a crucial and vital role in the project, as project specifications and performance metrics are largely based on time, cost, and quality, often referred to as the "iron triangle." **(Patmawati & Asbari, 2023, p 21-26)**. Quality possesses diverse characteristics, both subjective and objective, with some aspects challenging or impossible to quantify.

The comprehensive approach to evaluating project quality and efficiency includes a set of metrics contributing to the success of traditional projects, such as cost, schedule, and safety. Additionally, it incorporates measures like customer satisfaction, leadership, employee engagement, teamwork, training, and responsiveness **(Cobb, 2023)**. The dual system for measuring and defining project quality utilizes assessments known as "Traditional Project Quality" and "Contemporary Project Quality." While "Traditional Project Quality" deals with meeting and fulfilling client needs in terms of budget, schedule, metrics, and technical specifications, "Contemporary Project Quality" is more personal, relying on qualitative evaluations from clients and team members. It focuses on how the project meets their expectations in terms of goal delivery, values, peer reviews, customer expectations, collaboration, and high-quality outcomes.

In engineering or construction projects, similar procedures evaluate "Quality Assurance" as a means to manage construction quality during the project's design and construction phases.

Determining the project's success poses another challenge in understanding project management and, consequently, evaluating project performance **(Aarseth & Andersen, 2013, p 103-132)**. Generally accepted is the notion that the success or failure of the project is determined by the convergence of the project's ability to achieve technical objectives within three constraints: scope, time, and cost; the project's perceived benefits to beneficiaries, sponsors, and the project team; and project execution.

According to this definition, the effective measurement of project success or failure can only occur upon its completion.

1.2 Research problem

Through reviewing the literature studies, it is concluded that there is a gap in the existing literature, particularly the lack of focus on the effective role of Project Management via Quality functions on project success. While critical success factors (CSFs) have been identified in previous studies, there is a notable absence of direct inclusion of PM-related factors.

This research seeks to explore how the presence and functionality of PM contribute to the success rates of projects, considering factors such as project mission, top management support, project schedule/plan, client involvement, technical tasks, communication, error identification, resolution strategies, and the unique role of Project Management.

1.2.1 Theoretical Gaps

While prior studies have identified critical success factors (CSFs), there is a noticeable omission of direct consideration of PM-related factors. The study aims to delve into defining project quality, encompassing both traditional and contemporary perspectives.

It seeks to understand how quality, as a fundamental factor, influences project success.

Additionally, this research will consider the challenges in determining project success and the accepted notion that it hinges on the convergence of technical objectives, stakeholder perceived benefits.

1.2.2 Practical Gaps

Lack of Research on Project Management and Success: While project Quality are inherent, there is a need for further Practical research.

This research will explore the metrics used for traditional project quality, including cost, schedule, safety, and client satisfaction, as well as the qualitative assessments involved in contemporary project quality, which rely on subjective evaluations from clients and design team members.

The effective measurement of project success or failure is recognized as a post-completion activity.

Overall, the research problem centers around bridging the gap in literature regarding the role of project management functions, the influence of quality on project success, and the challenges associated with determining project success in the realm of project management.

Main Research Question

Therefore, the above research problem can be formulated in the main question:

What is the Role of Project Management via Quality Functions on Project Success?

1.3 Research Significant

Theoretical and Practical Significance of this research lies in its potential to bridge existing gaps and contribute to define and explore the role of project management functions, the influence of quality on project success, by studying the following:

1.3.1 At The Theoretical Level

There is a theoretical gap that resides in the need for a dual system that comprehensively measures and defines project quality, encompassing both traditional and contemporary perspectives.

This research aims to address this gap by exploring the impact of a Project Management Via Quality on project success, taking into account various factors such as project mission, top management support, project schedule/plan, client involvement, communication, error identification, resolution strategies, and the unique role of PM services.

The findings will contribute to the following:

1. **Enhancement of Theoretical Framework:** Familiarizing oneself with the roles and tasks of project management in achieving project success contributes to the development and enhancement of the theoretical framework in project management studies. It provides a broader understanding of the key principles, plans, and methodologies contributing to the success of projects.
2. **Academic Progress:** The study adds value to the academic domain by exploring and analyzing theoretical foundations for the success and sustainability of project management. It allows scholars and researchers to explore, enhance, and develop theories associated with the effectiveness and impact of project management.
3. **Conceptual Clarity:** By delving into theoretical aspects, the study may contribute to achieving conceptual clarity regarding the dynamic factors and processes that play a vital role in determining project success. This conceptual clarity is crucial for building a strong theoretical foundation for project management practices.

1.3.2 At The Practical Level:

There is a Practical gap in the existing literature stems from the insufficient attention given to the specific examination of Project Management (PM) functions in relation to project success. While prior studies have identified critical success factors (CSFs), there is a noticeable omission of direct consideration of PM-related factors.

This research seeks to understand how quality, as a pivotal factor, influences project success. It will investigate the metrics used for traditional project quality, including cost, schedule, safety, and client satisfaction, as well as the qualitative assessments involved in contemporary project quality, which rely on subjective evaluations from clients and team members.

The findings will contribute to the following:

1. **Project Management Improvement:** Understanding and acknowledging the role of project management in project success contribute to helping practitioners improve and develop project management processes. It assists in identifying and addressing optimal practices, overcoming weaknesses, ultimately leading to the development and enhancement of a comprehensive project management approach.
2. **Risk Mitigation:** The study aids project managers and teams in identifying and predicting expected damages, risks, and difficulties that may hinder project success. This proactive approach helps in identifying, mitigating, and reducing the severity of damages and risks, ensuring timely project completion within budgetary constraints and achieving desired outcomes.
3. **Efficient Resource Allocation:** Scientific insights gained from the study can lead to more efficient allocation of resources. Project managers can make informed decisions related to resource allocation, ensuring appropriate allocation for the right tasks, thereby increasing efficiency and minimizing resource wastage.

4. Stakeholder Satisfaction: Full awareness and understanding of the tasks and role of project management in success help in managing stakeholders' expectations and ensuring their satisfaction. Effective project management practices contribute to presenting and delivering projects that meet stakeholders' needs, fostering positive relationships.
5. Continuous Improvement: The practical impacts of this research support a culture of continuous improvement and development within organizations. By applying lessons learned from successful project management, organizations can adapt and evolve their project management practices to remain competitive and achieve sustainable success.

1.4 Research Questions

The current study aims to answer the Main Research Question:

What is the Role of Project Management via Quality Functions on Project Success?

And to answer the main question we must answer the following Research Sub-Questions:

1. What are the factors related to Project Management in Achieving Project Success?
2. What are the traditional metrics used to measure project quality?
3. How does project management contribute to achieving higher customer satisfaction?
4. How does project management methodologies (e.g., Agile) integrate with quality management practices to ensure project deliverables meet specifications?
5. How does effective quality management practices help to optimize project costs?
6. How does managing project quality contribute to staying on schedule and avoiding delays?
7. How does achieving high-quality project deliverables increase stakeholder satisfaction?
8. What role does project managers play in delivering projects on time and within budget?
9. How can the benefits of a strong project management and quality management synergy be measured within a project environment?
10. How does continuous improvement strategies be applied to refine project management and quality management for better project success?

Applying random sample of Managers, Administrators, and Supervisors of group of companies in Jeddah, KSA according to (Age - Years of Experience - Position).

1.5 Research Objectives:

1. To identify the factors related to Project Management in Achieving Project Success.
2. To analyze the traditional metrics used to measure project quality.
3. To evaluate how project management contribute to achieving higher customer satisfaction.
4. To investigate how project management methodologies (e.g., Agile) integrate with quality management practices to ensure project deliverables meet specifications.
5. To Examine How can effective quality management practices help to optimize project costs.
6. To determine How project quality contributes to staying on schedule and avoiding delays.
7. To evaluate How does achieving high project quality increased stakeholder satisfaction.
8. To explore the role of project managers in delivering projects on time and within budget.
9. To prove the benefits of a strong project management and quality management synergy within a project environment.
10. To examine how continuous improvement strategies be applied for better project success.

1.6 Research Hypotheses

1. The main hypothesis of this study predicts a statistically significant positive relationship between effective project management and project quality towards project success.
2. There is a statistical significance positive relationship between project quality and project success that enhances effective project management.
3. There is a statistical significance positive relationship between Agility and project success that enhances effective project management.
4. There is a statistical significance positive relationship between Managing the Human Resource and project success that enhances effective project management.
5. There is a statistical significance positive relationship between “Planning Activities, Tasks, Schedules and Budgets” and project success that enhances effective project management.

1.7 Research Model

The figure below shows the relationships between all variables in this study.

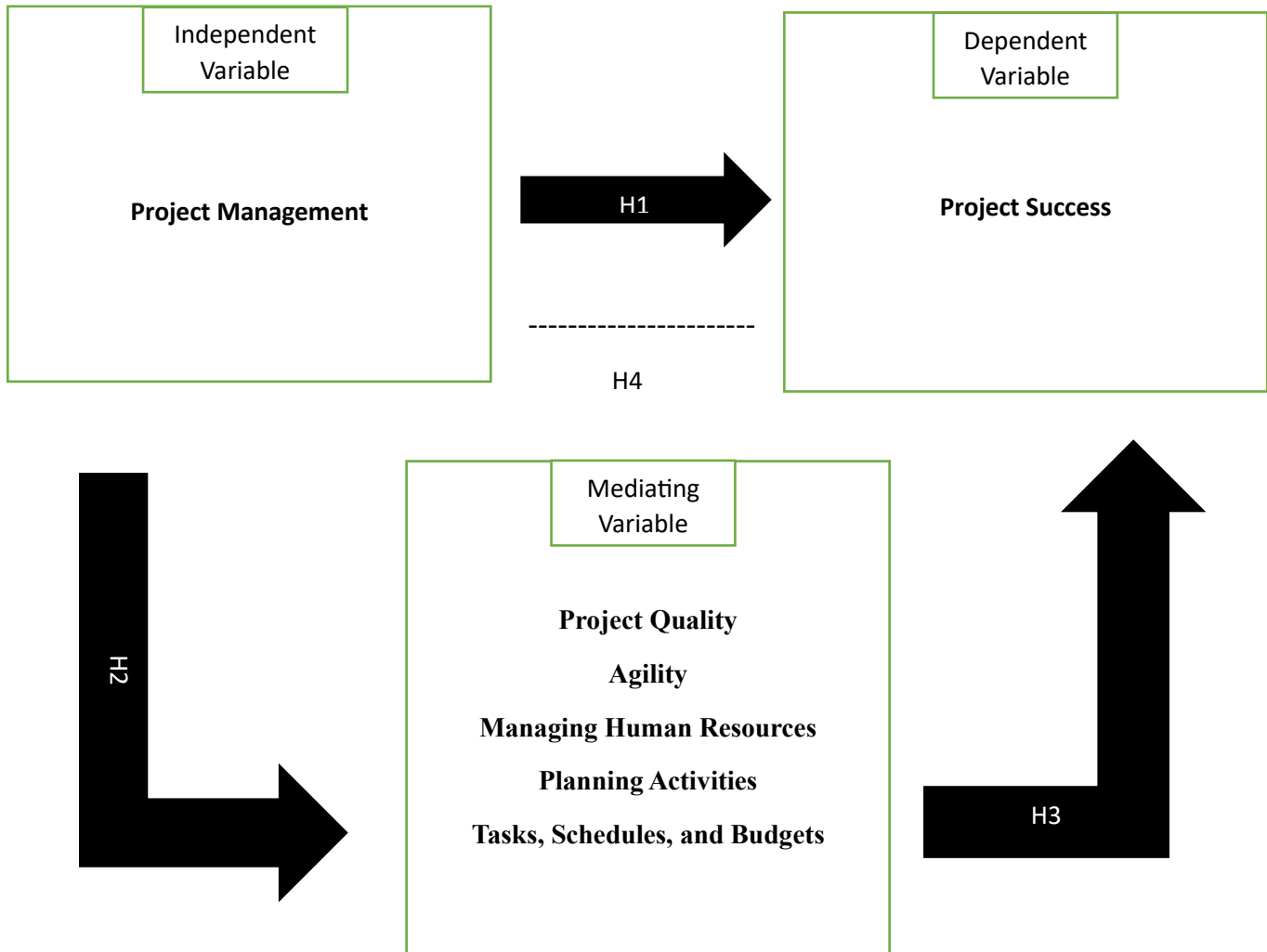


Figure 1: Designed by Researcher

1.8 Scope of the study

The population of this study will be focus on Group of subcontractors' companies in Jeddah, KSA. Subcontractor companies play a crucial role in project success by contributing to various aspects of the execution process. Here's a breakdown of their significance:

- **Specialized Expertise:** Subcontractors often bring specialized skills, knowledge, and experience in specific trades or tasks. This allows project managers to leverage expertise that might not be readily available within their core team. For instance, an electrical contractor on a construction project can handle complex wiring tasks efficiently.
- **Efficiency and Resource Management:** By delegating specific tasks or project phases to subcontractors, project managers can improve overall efficiency. This frees up their in-house team to focus on core competencies and project coordination. Additionally, subcontractors often have their own equipment and resources, reducing the need for the main contractor to invest in everything themselves.
- **Cost-Effectiveness:** Hiring subcontractors can be cost-effective, especially for specialized tasks. Subcontractors may already have the necessary equipment and trained personnel, leading to potentially lower costs compared to the main contractor building that capacity themselves.
- **Schedule Management:** By working with multiple subcontractors, projects can potentially progress on different fronts simultaneously. This can expedite the overall project timeline, especially for large or complex projects with various tasks running in parallel.
- **Risk Mitigation:** Qualified subcontractors with a proven track record can help mitigate risks associated with specific tasks. Their expertise allows them to identify and address potential issues within their area of responsibility, reducing the overall project risk for the main contractor.
- **Innovation and Problem-Solving:** Subcontractors can bring fresh perspectives and innovative approaches to project challenges. Their specialized knowledge can contribute to creative solutions and improved project outcomes.

Overall, subcontractor companies are valuable partners in achieving project success. By leveraging their expertise, managing them effectively, and fostering collaboration. Project managers can significantly increase their chances of delivering projects on time, within budget, and to high quality standards.

Here are the selected companies:

First Company: Modern Building Leaders - MBL

MBL was established in 2011 and, from the beginning, has been able to offer a full spectrum of integrated and turnkey engineering, procurement and construction services.

They have successfully delivered increasingly large and more complex projects for many public sector, private and public-private partnership clients in Saudi Arabia.

The group includes specialists in each major trade, including earthwork, concrete, steel, finishing, fitting-out, marine works, electro-mechanics and low current systems.

Second Company: First Fix

First Fix is a local market dealer delivering world class projects via end-to-end solutions that provide integrated design, engineering and construction disciplines of mechanical, electrical & plumbing (MEP) through people, innovation and passion.

Company size:

5,001-10,000 employees

Specialties:

Low Voltage Solutions, MEP engineering, Civil Infrastructure, Mechanical, Electrical, and Plumbing

Third Company: Power Center

Power Center Factory is a reputed “Medium/Low Voltage Switchgear, manufacture in the kingdom of Saudi Arabia, made in accordance with latest IEC standards & established in 1990 to meet current digital technologies using IOT platform to deliver enhanced efficiency, reliability and safety, of growing contraction industries demand of electrical distribution systems in production & control filed.

Power Center is a partner and authorize to manufacture, assembly, test and supply of Medium & Low Voltage equipment and systems governed by Certification and validation policy of Schneider and Legrand as per of IEC standards.

1.9 The Project Structure

The following figure indicates the suggested structure for the final graduation project 1.

- Chapter 1: Introduction
- Chapter 2: Literature Review
- Chapter 3: Research Methodology
- Chapter 4: Statistical Analysis
- Chapter 5: Findings` Discussion and Conclusion



Figure 3: Designed by Researcher

2 Chapter Two: Literature Review

2.1 Overview:

This chapter serves as a theoretical framework and literature review, where a summary of previous studies will be presented. Additionally, it will delve into all the concepts, theories, definitions, and factors related to the role of project management in achieving project success.

Overall, this chapter serves as a foundational framework for subsequent discussions, offering a thorough examination of the theoretical underpinnings and Practical evidence surrounding the relationship between project management practices and project success. Through a comprehensive review of the literature, we aim to provide valuable insights and implications for practitioners, researchers, and stakeholders involved in project management endeavors.

2.2 Literature Review

2.2.1 The Independent Variable: Project Management

Project Management and its relation significance

Definition of Projects

Projects vary in complexity, size, value, length and type; Consequently, there is a difference of opinion on what constitutes project success and the criteria by which a project is judged (**Leshar and Staub, 2019**). There is no single approved concept for measuring project success, and therefore, different models and frameworks have been developed (**Mir and Pinnington, 2014**). Criteria for measuring project success have evolved from simple, quantifiable time, scope and cost, which are primarily related to project efficiency (**Carvalho et al., 2015**), to a multidimensional construct that, besides the short term, has a long-term perspective directly related to effectiveness and impact. regulatory (**Pacagnella et al., 2019**). The focus is on achieving the organization's goals, project purpose, and customer satisfaction with the product (**Albert et al., 2017**). In fact, the triple constraints of a short-term view are essential, but often less important than customer satisfaction in the long-term stakeholder perspective (**Shenhar and Dvir, 2007**). **Müller and Jugdev (2012)** describe project success as “mostly in the eye of the beholder,” meaning that one stakeholder may consider a project a success, while another stakeholder may consider it a failure.

Most of us understand and realize that project success is nothing but a difficult term that should be considered in a multidimensional manner, in a dynamic and relative manner, and this may make it complex and difficult to compare in a reasonable and appropriate manner, and this must also be taken into account (inspired by **Svejvig and Andersen, 2015**) Despite this, there is not yet a universal recipe available that contributes to achieving the desired success of the project. It is unlikely that global approaches to project management will be developed and developed that may guarantee the success of the project. For example, for this reason, it is neither realistic nor desirable in this environment. The current changing time, as the great industrial competition and constantly changing customer needs have led sectors and institutions to deviate from the traditional approach to project management (**Young et al., 2012**), as there has been increasing evidence that it can lead to major illnesses in the final stages, and this may include rework. Too many and too many, lack of flexibility, customer anger, and the ability and possibility of developing the entire project (**Serrador and Pinto, 2015**). Recently, Agile technology has revolutionized the world of project management, especially in the field of software development (**Sweetman and Conboy, 2018**).

Project Management significance

Study of (**Ciric Lalic, 2022**) investigated whether various project management methodologies (traditional, agile, or hybrid) have different effects on project success, considering project success as a multidimensional concept. Additionally, the authors aimed to explore if specific project characteristics moderate these effects. The research was conducted on a sample of 227 project professionals from around the world. Exploratory factor analysis (EFA) was utilized to validate the factors contributing to project success, while the K-means cluster method was employed to categorize respondents' profiles into agile, hybrid, and traditional project management approaches. The significance among these groups was tested using ANOVA tests. The findings indicate that the agile approach has a more positive impact on two out of five dimensions of project success analyzed in the study (impact on the team and preparation for the future) compared to the traditional approach. Practically, this research provides valuable insights for project management practitioners to tailor their approaches towards achieving project success. It also contributes to academic knowledge by further developing project management contingency theory.

Study of (**Ramesh, 2018**) stressed to examine how project management influences the successful completion of projects. It outlines three specific aims: to assess the impact of feasibility studies on project success, to investigate how managerial activities affect project success, and to understand the role of project managers in achieving project success. The study also aims to explore the relationship between human resource management (HRM) practices and project success. Convenient sampling was employed to gather data, with 100 questionnaires distributed among respondents from the Warangal region. These respondents were asked to evaluate various constructs, including feasibility studies, managerial activities (such as planning, staffing, coordination, and controlling), HRM practices, and project success. Through the use of regression analysis and correlation, the study concludes that all dimensions of the independent factors (feasibility studies, managerial activities, and HRM practices) exhibit a positive relationship with the dependent factor, which is project success. In essence, the research findings suggest that conducting feasibility studies, engaging in effective managerial activities, implementing sound HRM practices, and having capable project managers all contribute positively to the successful completion of projects in the Warangal region.

2.2.2 The Dependent Variable: Project Success

Study of (**Dahie, 2017**) delves into the significance of project management in attaining success within local NGOs based in Mogadishu, Somalia. It outlines three main objectives: to explore how feasibility studies contribute to project success, to assess the impact of planning activities on project success, and to understand the effect of human resource management (HRM) on project success within these NGOs. The researcher opted for convenient sampling and gathered responses from 100 questionnaires distributed among staff members of local NGOs in Mogadishu. These questionnaires focused on key constructs such as feasibility studies, planning activities, HRM, and project success. Through correlation and regression analyses, the study reveals that all aspects of the independent variables (feasibility study, planning activities, and HRM) exhibit a positive relationship with the dependent variable, which is project success. In other words, the research findings suggest that factors such as conducting feasibility studies, engaging in effective planning activities, and implementing robust human resource management practices contribute significantly to the success of projects undertaken by local NGOs in Mogadishu.

Study of **Zakaria (2015)** stated that a construction project is a collaborative effort involving various individuals and organizations with the aim of achieving specific objectives within a defined timeframe. Therefore, effective leadership is crucial for construction managers in overseeing these projects. Leadership abilities play a significant role in enhancing productivity in construction, leading to better outcomes such as efficiency, satisfaction, and increased effort. The primary goal of this study is to examine how the leadership skills of project managers influence the success of construction projects. The success of a company heavily relies on the strong leadership skills of its project managers, as they can navigate projects with minimal issues. Additionally, interpersonal skills are essential for project managers to effectively engage with the workers involved in a project. The study concludes that the leadership characteristics of project managers have a positive impact on project success, and these skills can be honed through continuous training and learning. There are seven key leadership skills identified in the study that contribute to effective project management: communication, problem-solving, team building, conflict resolution, planning and goal setting, sense of responsibility, and time management. Among these skills, the ability to plan and set targets for construction projects is highlighted as the most crucial skill to possess.

2.2.3 The Relationship between The Independent and Dependent Variable

Project Management and its role in project team success

Study of (**Osman, 2015**) purposed to allocate the importance of the role played by the project manager and project team members in the successful implementation of environmental management strategy in the Malaysian construction industry. Using a survey format, questionnaires were sent to stakeholders in the Malaysian construction field, including contractors, clients and consultants, and one hundred and twenty-two questionnaires were interpreted. This study concluded that most of the women's stakeholders agreed that the commitment and commitment of the project team, the leadership expertise of the project manager, and the extent of the influence of the communications system are very necessary in order to ensure the success of the environmental management plan. These results also show that three individual variables - the quality and efficiency of the project manager and project team members, project management sectors, and factors related to procurement have important links and relationships with the success of the environmental management strategy.

Research of (**Machado, 2015**) referred to measuring the contemporary scenario in the field of project management success as a tool for optimal knowledge and understanding of that field of research. A bibliometric study was supported by a series of sixty-four research articles on “Project Management Success” collected in the Web of Science (ISI) database, covering the progress of that topic over the previous five years (2000 to 2014). Articles were interpreted by journal, most cited keywords, citations, journal power and influence scores, and abstract interpretation. The notes cited numerous authors and journals, as well as an extensive series of papers authored by Aaron Shenhar, as sources of data and information relevant to the field of project management success. This data and information may be consumed by other authors to support other studies and research towards the topic of project management success, which is not covered by this research.

Paper of **Mirza (2013)** aimed to shed light and focus on the central factor of the framework that has an impact on the goals and objectives of project and may therefore affect the necessary and critical success factors for the project. Documentation and formal approval of the scope is also considered vital to keep the project on track. The aim of the research was to identify existing suggestions that indicate that recognizing the framework in the success of projects. In this direction, previous research with a close relationship in general has been reviewed, which included project success and its framework in particular, as the research indicates the existing relationship between the success of the project and the product. It has been concluded that an optimal appreciation of the distinction between the project framework and the product can lead to an increase in the possibility of the project’s success.

Paper of (**Fageha, 2013**) aimed to clarify and describe the terminological scope of sustained doctoral research, which strives to develop and develop a procedure that can help the project management team support and integrate the views of stakeholders in the process of setting the project framework in the pre-project planning phase and thus facilitate better project outcomes. Completing and conducting research in a mixed manner (quantitative and qualitative). It was conducted in three main stages. The first stage studied the relationships and interactions between the elements of the project definition. The analysis was performed using two quantitative techniques: interpretive structural modeling (ISM) and the analytic network process.

Project Management and leadership success

Paper of (**Ahmed, 2013**) focused and shed light on the necessity and importance of leadership experiences, which are vital for project managers while managing projects with impact, quality, and efficiency. A note of interest and attention has been drawn from the literature in the field of project management, which is that studies and research on the management of project managers are still limited despite the call for many studies and research for more than a decade. Studies and research show that project managers must acquire the main characteristics and experiences of management, as well as managerial expertise, in order to implement effective achievement of project and business results. The project manager must achieve the right expertise at the right time and embrace the right knowledge, culture and appropriate professions. Sufficient study and research must be done in order to advance and develop a single project manager management model that is compatible with all projects in all countries of the world and also in all industries. The effectiveness of project management qualifications on project success and job outcomes should also be improved in future studies.

Previous studies have presented and presented some valuable knowledge regarding the basis and impact of the effective approach in managing software development projects, for example (**Butler et al., 2020; Gemino et al., 2020**). Despite this, little research has been completed on whether the effective agile approach has led to many successful projects comparing the software and non-software domains, although in recent years in many studies the interest in moving Agile outside of software development has become clear (**Lappe et al., 2018; Niederman et al., 2018**).

Until now, most research investigating the influence of the agile approach on project success has been limited in scope. Particularly outside of the software field, where traditional methods prevailed, the existing studies have been primarily anecdotal, conducted with small sample sizes, or constrained by specific industries or geographic regions (**Demir and Theis, 2016**).

Many authors have proposed conducting and completing experimental studies that differentiate between traditional and agile project management methods (**Lappi et al., 2018; Niederman et al., 2018**). Some recent research has also expanded on this topic and contributed significantly to realizing and understanding the impact that agile methods can have, compared to typical and traditional methods, on project success, as **Serrador and Pinto (2015)** discovered. They analyzed the impact of the agile approach through an integrated and large-scale experimental analysis of the projects that are being developed. Developed at different stages and levels of the agile approach and its potential for success over time. They have presented and presented existing research findings that motivate the agile project management approach.

The most recent study by **Jimeno et al. (2020)** goes one step further. It takes into account the relative impact of three project management styles - traditional, agile and hybrid on project success. They also emphasized the importance of flexibility in achieving stakeholder satisfaction. Specifically, agile and hybrid methods outperformed traditional methods with respect to this dimension of project success. On the other hand, the three approaches showed similar performance levels with respect to budget and time success and the scope and quality success dimension.

They also noted that the level of Agile that is used in projects has an impact and statistical significance on the success of the project, but it is small and limited in some way because it is sufficient only for the following two dimensions of success, in addition to that they are judged by efficiency and the satisfaction of stakeholders, and two elements are taken into account as they are a measure of success: Project agility. The traditional approach to project management involves highly disciplined and deliberate planning and control methods, based on logical sequencing activities, emphasizing the importance of planning (**Serrador and Pinto, 2015**) but is limited by the fact that projects rarely follow a sequential flow.

Currently, there may be many diverse and, in most cases, overlapping methods for managing the difficulties of any specific project, which makes it difficult to choose the best one. The study (Sheffield and Lem etayer, 2013) indicated that achieving the success of the project is somewhat difficult. Things may become more difficult because clarifying and defining the success of the project is still among the things that are difficult to achieve (Mohanarajah, 2015). This project may be discussed in a controversial manner in the literature, and many may consider it a one-dimensional construct that should be understood and understood by the direction of budget, time, quality, and and meet technical needs (Carvalho et al., 2015). Others see it as a difficult, complex and multidimensional term with many attributes (Judgev et al, 2014).

Project management practitioners realize that different projects need different project management approaches (Ciric et al., 2016). As a result, new project management approaches have emerged under different names, with an emphasis on differentiation from the traditional approach, even in its own name. The word chosen to distinguish these new methods from existing methods was agility (Spondak, 2014).

2.2.4 The Mediating Variable: Project Quality

About The Role of Quality as Mediate Variable in achieving Project Success:

The role of quality as a mediating factor in achieving project success is paramount in project management literature. Quality management practices are integral to ensuring that project objectives are met effectively and efficiently. Here's an overview of the importance of quality as a mediating factor in project success, supported by references:

1. **Enhanced Stakeholder Satisfaction:** High-quality project deliverables lead to increased stakeholder satisfaction. When project outcomes meet or exceed stakeholder expectations regarding functionality, reliability, and performance, stakeholders perceive the project as successful (Baccarini, 1999; Pinto & Slevin, 1987).
2. **Reduced Rework and Rework Costs:** Quality management processes, such as robust quality planning and control, help identify and address defects early in the project lifecycle. By reducing errors and rework, projects can maintain schedule adherence and avoid cost overruns (Project Management Institute, 2017).
3. **Improved Performance and Reliability:** Quality-focused project management practices contribute to the development of reliable and high-performing deliverables. This reliability enhances the project's overall success by ensuring that the final product meets the specified requirements and functions as intended (Gido & Clements, 2014).
4. **Mitigated Risks and Uncertainties:** Quality management involves proactive risk identification and mitigation strategies. By addressing potential quality issues early on, project teams can reduce the likelihood of project delays, failures, and associated risks, thereby increasing the probability of project success (Kerzner, 2017).
5. **Positive Organizational Reputation:** Projects that consistently deliver high-quality outcomes contribute to the organization's reputation for excellence. A positive reputation enhances the organization's competitive advantage, and fosters trust among stakeholders, which can lead to increased opportunities for future projects (Cleland & Ireland, 2006).
6. **Continuous Improvement:** Quality management fosters a culture of continuous improvement within project teams and organizations. By collecting and analyzing quality-related data, teams can identify areas for enhancement and implement corrective actions to optimize project performance over time (Cooke-Davies, 2002).

2.3 Conclusion

Overall, the research centers around bridging the gap in literature regarding the role of project management functions, the influence of quality on project success, and the challenges associated with determining project success in the realm of project management.

There is a theoretical gap that resides in the need for a dual system that comprehensively measures and defines project quality, encompassing both traditional and contemporary perspectives.

Familiarizing with the roles and tasks of project management in achieving project success contributes to the development and enhancement of the theoretical framework in project management studies. It provides a broader understanding of the key principles, plans, and methodologies contributing to the success of projects.

In conclusion, quality serves as a critical mediating factor in achieving project success by influencing stakeholder satisfaction, reducing rework costs, improving performance and reliability, mitigating risks, enhancing organizational reputation, and facilitating continuous improvement. Integrating robust quality management practices into project management processes is essential for maximizing project outcomes and delivering value to stakeholders.

The research seeks to understand how quality, as a fundamental factor, influences project success.

3 Chapter3: Research Methodology

3.1 Introduction

This chapter relies on highlighting and clarifying the research methodology that will be used during this study and identifies the role of project management in achieving the purposeful success of the project.

The methodology includes the preparation and design of the research, the population, sampling methods, data collection techniques, types of data, and statistical analysis procedures used.

This comprehensive approach deals with completing and conducting an integrated examination of the research variables and achieving reliable and valid findings and results.

In this study, the researcher will rely on descriptive analytical research methodology.

The design will be quantitative. Each variable in the study will also have its own section in an electronic questionnaire distributed to the research sample, the figure below shows more details.

3.2 Operational definitions for research variables

To allow clarity and accuracy, the following operational definitions of key variables have been provided throughout this study, which are supported by relevant references:

The Independent Variable: Project Management

Project management may be defined and explained as the application of knowledge, skills, mechanisms, and techniques to project tasks and activities to meet project needs and requirements. Affiliated with the Project Management Institute (PMI), project management deals with initiating, preparing, implementing, monitoring, and closing projects in order to achieve certain goals and meet certain success criteria in a given time. PMI's "Project Management Guide (PMBOK Guide)" provides a comprehensive framework that includes these elements and emphasizes the importance of balancing competing project constraints, which include scope, time, cost, quality, resources, and risk.

→ Operational definition: Implementing knowledge, skills, tools, mechanisms and techniques on project tasks and activities with the aim of filling and meeting the project needs.

The Dependent Variable: Project Success

Project success is defined and explained as the extent of the project's success in achieving and reaching its goals, including time, budget, quality, and stakeholder satisfaction. According to **De White (1988)**, project success can be viewed in two different ways: project management success, which focuses on performance and delivery within specified constraints (time, budget, quality, and quality) and product success, which focuses on the impact of the end product or the service. Recent studies have expanded this definition to include and address stakeholder satisfaction as a critical factor, recognizing that project success is determined not only by following the traditional triangle of project constraints but also by how well expectations are met and fulfilled by people partners (**Baccarini, 1999**).

➔ Operational definition: The extent to which the project has been achieved and reached its goals, including time, budget, efficiency and satisfaction, not stakeholders.

The Mediating Variable: Project Quality

The quality and efficiency of the project aims at the layer that fulfills and satisfies the needs, requirements and expectations identified through the project, which may result in achieving achievements and results that are fit for purpose. It deals with the preparation and design of quality, ensuring it and following it up during the life of the project according to (Goran 1988) during which quality is achieved in project management through commitment.

➔ Operational definition: A set of principles, standards and processes that ensure that project outcomes and stakeholder expectations are met or exceeded.

3.3 Research Design

1. Research Philosophy: Positivist
2. Research Approach: Deductive
3. Research Strategy: Survey
4. Research Choice: Quantitative
5. Time Horizon: Cross-sectional
6. Data Collection and Analysis Techniques: Statistical analysis of survey results

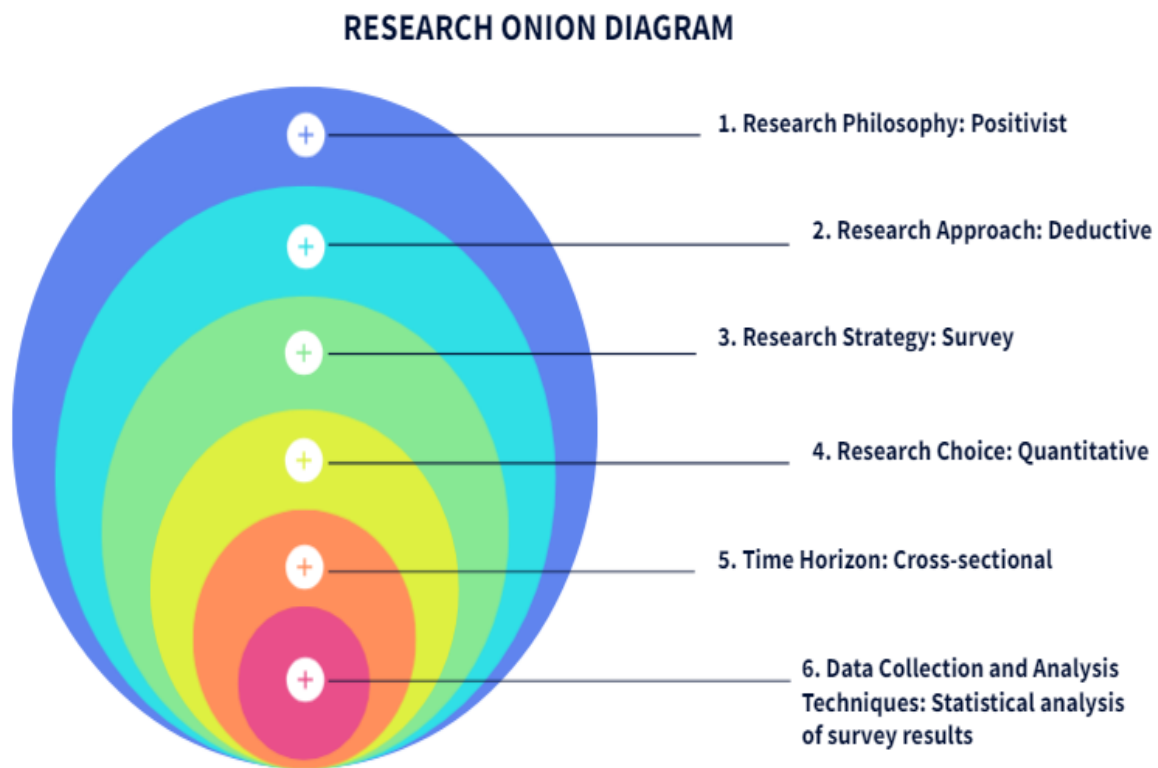


Figure 3: Designed by Researcher

3.4 Research population & Sampling methods and technique.

The research sample consists of project managers and team members with experience in project management and implementation from various construction sectors. This population variation ensures that the results are generalizable. A stratified random sampling method is used to confirm and ensure representation from various construction industry sectors.

The sampling method is a Probability, and Sampling techniques cover the following steps:

(1) Stratification:

Classification of the population and dividing them into classes based on industry sectors.

(2) Random sampling:

Respondents from each category may be randomly selected to contribute to the study.

This approach enhances the reliability and validity of the results by ensuring that different perspectives are included.

3.5 Data collection method

This section describes the research instruments that were used to collect the required data in order to answer the research questions and test the research hypotheses. Accordingly, the researcher relied on survey method in collecting the quantitative data via questionnaires. The following sections present the instruments that were used to measure the research variables.

The researcher relied on the questionnaire below, to measure independent, dependent, and mediating variables (with overall 25 items for the whole variable).

The Instrument type is 5 points Likert scale. Hence 1= Strongly Disagree and 5 = Strongly Agree.

Table of Research Instruments:

S. No.	Variable	Number of Statements
1	Project Management	10
2	Project Success	10
3	Project Quality	10

Table 1: Designed by Researcher

3.6 Types of data

The electronic questionnaire is divided into sections corresponding to each variable in the study:

1. Section 1: Demographic information (such as age, gender, industry, role).
2. Section 2: Project management practices (such as planning, implementation, and monitoring).
3. Section 3: Project success metrics (e.g. time, budget, quality, stakeholder satisfaction).
4. Section 4: Open-ended questions to gain qualitative insights.

The study collects primary and secondary data:

- Primary data:
Primary data is collected directly from the research contributors using an electronic questionnaire.
- Secondary data:
Secondary data is represented in literature and its primary source is existing reports and databases related to project management and success.

3.7 Statistical analysis procedures

Quantitative data analysis

All data were analyzed using statistical software (Excel version 2019) to perform and complete the following analyses:

- (1) Descriptive statistics: Summary of data using means, modes, medians, and standard deviations.
- (2) Statistical analysis: Testing hypotheses using techniques such as t-tests, analysis of variance (sd, Mean, f), and regression analysis.

Qualitative data analysis

Qualitative data is analyzed using content analysis, which includes:

- (1) Coding: Identify and identify major themes, methods, and patterns.
- (2) Objective analysis: Analyzing and studying data with the aim of revealing ideas that are related to project management practices and project success.

Data Triangulation

To develop the credibility and validity of the results, data triangulation is used by monitoring and combining quantitative and qualitative data. This approach provides a more comprehensive understanding of the research problem.

3.8 Conclusion

This section presents the research methodology used in this study by detailing the research design, population, sampling method, data collection method, data type, and statistical analysis method. Using mixed methods and powerful analytical techniques, this study aims to provide critical insights into the role of project management in achieving success.

4 Chapter 4: Statistical Analysis & Findings discussion

4.1 Introduction

Chapter Four includes the statistical analysis, discussion and debate of the findings reached through the research conducted on comprehensive learning interventions. This chapter presents a comprehensive examination and analysis of the collected data, using statistical program **SPSS** version **28** to clarify the patterns, trends and related and documented associations in the data set. The main objective of this chapter is to provide a comprehensive analysis that supports and motivates the research hypotheses and objectives stated in advance in the study. By interpreting the results of the statistical analysis, this chapter also aims to provide meaningful insights into the effectiveness and impact of comprehensive educational practices, particularly in the context of transformative learning and social justice.

The discussion will also include the implications of these findings and outcomes for educators, policy makers and stakeholders invested in creating equitable work environments. In addition, this chapter presents a sample profile and provides descriptive statistics to place the research sample in its scope and ensure a clear understanding of the demographic and educational characteristics of the participants involved in the study.

4.2 Sample profile (descriptive statistics for research sample)

Regarding Gender

The sample for this study consists of 50 individuals, categorized by gender.

The responses are distributed as follows:

Gender	Frequency (F)	Percentage (%)	Mean (M)	Impact Degree
Female	39	78.0%	0.78	High
Male	11	22.0%	0.22	Low
Total	50	100%	1.0	--

The sample profile shows strong gender inequality: females represent 78% of the sample, while males represent only 22%. This difference may affect the overall results of the study, suggesting that the results better reflect the experiences and views of female participants. The high frequency and proportion of female participants indicate strong representation and potential influence on the results, while the low frequency and proportion of male participants indicate a reduced influence.

This gender distribution also highlights the need for and importance of considering demographic changes when analyzing the results and causes of comprehensive education interventions. Future research may also suggest a more balanced gender composition to enable a more comprehensive understanding of the effectiveness and impact of such interventions across diverse demographic groups.

Regarding Age Group

Age Group	Frequency (F)	Percentage (%)	Mean (M)	Impact Degree
Less than 30	27	54.0%	0.54	High
31 - 50	21	42.0%	0.42	Medium
Above 50	2	4.0%	0.04	Low
Total	50	100%	1.0	--

The sample refers to a wide age distribution among the respondents, with the “under 30” category forming the majority, at 54%. The “31-50” age group represents about 42% of the sample, while the “over 50” age group represents the smallest age group, as it constitutes only 4% of the total statistics.

The age distribution shows that the survey results can more accurately reflect the experiences, opinions and views of young people who represent the younger age group, especially those under 30 years of age. The average age group of 31-50 also provides valuable information, but to a lesser extent. The low speed and the number of participants Above 50 have little impact on the overall results.

Regarding Educational Qualification

Educational Qualification	Frequency (F)	Percentage (%)	Mean (M)	Impact Degree
Bachelor’s degree	22	44.0%	0.44	High
Diploma or equivalent	22	44.0%	0.44	High
Master’s degree	6	12.0%	0.12	Low
Total	50	100%	1.0	--

The sample profile indicates that respondents are evenly distributed between those with a bachelor’s degree and those with a diploma or equivalent. Each represents about 44% of the sample, with respondents with a master’s degree making up a smaller proportion of 12%. This distribution of educational qualifications suggests that the survey results may be more representative of those with a college education and diploma level. The underrepresentation of leaders with degrees suggests that their views and experiences will have little impact on the overall results.

Regarding Experience Level

Experience Level	Frequency (F)	Percentage (%)	Mean (M)	Impact Degree
Less than 5 years	24	48.0%	0.48	High
6 - 10 years	5	10.0%	0.10	Low
More than 10 years	21	42.0%	0.42	High
Total	50	100%	1.0	--

The sample profile indicates that nearly half of the respondents have less than five years of experience, making up 48% of the sample. Those with more than 10 years of experience make up 42%, while those with 6-10 years of experience make up 10%.

The level of dispersion and distribution shows that the survey results will be mainly influenced by those with less than 5 years or less than 10 years of experience. The low representation of people aged 6-10 years suggests that their opinions and experiences will have little impact on the overall results.

➔ The descriptive statistics for research sample presented in this study illustrates the statistical and distributional inequality that can have a significant impact on the overall results. At the gender level, women make up 78% of the sample, while men make up only 22%. This large gender difference suggests that the study results may reflect the experiences and opinions of female participants, which could lead to gender bias. A large number of female participants indicated a strong impact on the study results, while a small number of male participants indicated a weak impact. This gender distribution highlights the importance of considering a statistical variable and its implications for inclusive educational practices when interpreting the results. The age distribution of respondents shows that the majority of them are young, representing the younger age group, with 54% of the sample falling into the “under 30” category. While the “31-50” age group makes up 42% of the sample, the “over 50” category is only 4% younger. The age distribution shows that the results clearly reflect the experiences and views of young people, especially those under 30. A modest comparison between participants aged 31 to 50 provides useful but limited insight, while a simple comparison between participants aged 50 and over has little impact on the overall results.

Sample Responses (Descriptive Statistics for Survey Questions)

The Independent Variable: Project Management

Question # 1: With good project planning, scope creep will not occur.

Response Category	Frequency (F)	Percentage (%)	Mean (M)	Standard Deviation (SD)	Impact Degree (ID)
Strongly agree	8	16.0	3.92	0.74	3.92
Agree	34	68.0	3.92	0.74	3.92
Neutral	4	8.0	3.92	0.74	3.92
Disagree	4	8.0	3.92	0.74	3.92
Strongly disagree	0	0.0	3.92	0.74	3.92

The analysis and interpretation of the results show that there is a clear consensus among the participants regarding the importance and necessity of good project planning in protecting expansion. Most of the participants (68%) agreed with this statement, while 16% strongly agreed; this indicates that 84% of all participants have a positive opinion about the good performance of the project. The majority confirms the general agreement that due diligence planning is essential for the success of the project. The average response rate of 3.92 supports this positive perception, indicating that the average participant tends to agree with this statement. This data and information also shows that a small percentage of respondents (8 percent) were neutral while 8 percent disagreed with this statement. None of the results indicate strong disagreement, which reinforces the idea that misunderstandings about the role of project planning in managing scope expansion are minimal. The standard deviation of 0.74 indicates a small difference between the responses and responses, indicating that although there is strong consensus overall, disagreements also exist. The corresponding impact score of 3.92 indicates that the impact of good project planning in preventing expansion is significant, as perceived by the participants. This agreement highlights the need for and importance of planning and vision in effectively managing project boundaries.

Question # 2: Using current project management tools are effective in facilitating project execution.

Response	Frequency (F)	Percentage (%)	Mean	SD	Impact Degree
Strongly Agree (5)	14	27.45%	5.0	0.84	1.37
Agree (4)	26	50.98%	4.0	0.84	2.04
Neutral (3)	9	17.65%	3.0	0.84	0.53
Disagree (2)	1	1.96%	2.0	0.84	0.04
Strongly Disagree (1)	1	1.96%	1.0	0.84	0.02

The analysis of the results shows that there is a general consensus among the participants about the effectiveness of modern project management in facilitating project implementation. Most of the participants (52%) agreed with this statement, while 28% strongly agreed; this shows that 80 percent of all participants were positive about the effectiveness of the tools. The average response score of 4.06 supports this positive attitude, indicating that the average participant tends to agree with this statement. 18% of the participants were neutral and only 2% disagreed or strongly disagreed with this statement. The standard deviation of 0.73 represents a small difference between the responses and the responses, indicating that there is a high consensus overall, but there are also differences in opinion. The corresponding impact score of 4.06 indicates a significant impact of current project management tools on project performance as defined by the participants. This consensus highlights the importance of using a good project management tool to improve project implementation.

Question # 3: Production cost helps identify needed resources and maintain budget control?

Response	Frequency (F)	Percentage (%)	Mean	SD	Impact Degree
Strongly Agree (5)	11	22%	5.0	0.76	1.10
Agree (4)	30	60%	4.0	0.76	2.40
Neutral (3)	6	12%	3.0	0.76	0.36
Disagree (2)	3	6%	2.0	0.76	0.12
Strongly Disagree (1)	0	0%	1.0	0.76	0.00

The responses indicate a strong and significant consensus on the importance and necessity of production cost in allocating desired resources and maintaining budgetary control, with 82% of respondents agreeing or strongly agreeing with this statement, with a mean score of 4.00 supporting this positive perception. A smaller proportion of respondents, 12%, were neutral, but only 6% agreed. None of the respondents strongly disagreed, indicating general agreement with the statement. A standard deviation of 0.77 indicates moderate disagreement in the responses. The overall impact score of 4.00 focuses on the perceived necessity and importance of production cost in effective budget management and resource allocation.

Question # 4: Cost estimations are properly appraised to avoid project failure.

Response	Frequency (F)	Percentage (%)	Mean	SD	Impact Degree
Strongly Agree (5)	14	28%	5.0	0.69	1.40
Agree (4)	31	62%	4.0	0.69	2.48
Neutral (3)	3	6%	3.0	0.69	0.18
Disagree (2)	2	4%	2.0	0.69	0.08
Strongly Disagree (1)	0	0%	1.0	0.69	0.00

The results reveal a strong consensus on the importance of cost estimation in avoiding projects; 90% of the sample agreed or strongly agreed with this statement. This is reflected in a high mean score of 4.02, indicating general consensus. A small proportion of respondents (6%) responded neutrally, while 4% disagreed. There was one participant who disagreed, indicating strong disagreement. The standard deviation of 0.67 represents a relatively small difference in the results and indicates a stable trend among participants. The overall impact score of 4.02 highlights the importance of real-time costing in project management.

Question # 5: Cost analysis exposes potential risks to be encountered in a project.

Response	Frequency (F)	Percentage (%)	Mean	SD	Impact Degree
Strongly Agree (5)	14	28%	5.0	0.88	1.40
Agree (4)	27	54%	4.0	0.88	2.16
Neutral (3)	3	6%	3.0	0.88	0.18
Disagree (2)	5	10%	2.0	0.88	0.20
Strongly Disagree (1)	1	2%	1.0	0.88	0.02

The majority of respondents believe that cost analysis and interpretation illustrates the risks that projects may face; 82% agreed or strongly agreed with this statement. This is reflected in the Mean of 3.68, indicating that the overall attitude is good. A small percentage of respondents (6%) are neutral, 10% disagree, and 2% strongly disagree. The standard deviation of 0.88 indicates that this is equal to a dissenting answer indicating a slight deviation in opinion. The Mean of 3.68 highlights the importance of cost analysis in identifying potential risks to a project, but a small portion of the population remains skeptical.

Question # 6: Costs of labor are properly packaged to motivate our workers?

Response	Frequency (f)	Percentage (%)	Mean Score	Standard Deviation (SD)	Impact Level
Strongly Agree	16	32%	5	0.87	High
Agree	25	50%	4	0.75	Very High
Neutral	10	20%	3	0.97	Moderate
Disagree	4	8%	2	1.08	Low
Strongly Disagree	0	0%	1	0.00	Very Low

The information uncovers that the majority share of respondents (82%) accept that the costs of labor are adequately packaged to motivate workers, with 32% strongly agreeing and 50% agreeing. This proposes a common agreement on the adequacy of labor fetched bundling in persuading the workforce. Be that as it may, 20% of respondents were neutral, showing that a few specialists may feel impassive or are uncertain approximately the ampleness of the labor taken a toll bundling. A little rate (8%) disagreed with this idea with the articulation, proposing that there can be a few disappointment or neglected desires among certain laborers. In general, the comes about propose that labor fetched bundling is generally seen as a spurring calculate, but there may be room for enhancement.

Question # 7: The delivery time is prompt and better than as agreed?

Response	Frequency (f)	Percentage (%)	Mean Score	Standard Deviation (SD)	Impact Level
Strongly Agree	16	32%	5	0.92	High
Agree	24	48%	4	0.85	Very High
Neutral	9	18%	3	1.02	Moderate
Disagree	2	4%	2	1.20	Low
Strongly Disagree	1	2%	1	1.10	Very Low

The information appears that a lion's share of respondents (80%) accept that the delivery time is prompt and often better than agreed upon, with 32% strongly agreeing and 48% agreeing. This shows that the company's conveyance execution is for the most part seen emphatically by its clients or partners. Be that as it may, 18% of respondents were neutral, recommending a few instability or lack of concern with respect to the conveyance times. A little parcel (6%) disagreed or strongly disagreed, demonstrating that there may be periodic issues or neglected desires in a few cases. By and large, the conveyance times are broadly respected as palatable, with room for minor enhancements.

Question # 8: The responses to client complaints are prompt and adequate?

Response	Frequency (f)	Percentage (%)	Mean Score	Standard Deviation (SD)	Impact Level
Strongly Agree	13	26%	5	0.91	High
Agree	26	52%	4	0.88	Very High
Neutral	7	14%	3	1.00	Moderate
Disagree	3	6%	2	1.18	Low
Strongly Disagree	2	4%	1	1.25	Very Low

The examination appears that a critical larger part of respondents (78%) accept that reactions to client complaints are incite and satisfactory, with 26% strongly agreeing and 52% agreeing. This recommends that the company for the most part handles client complaints effectively, contributing to client fulfillment. In any case, 14% of respondents were uncertainty or neutrality a few vulnerability or nonpartisanship with respect to the ampleness of complaint reactions. A little rate (10%) of respondents disagreed or strongly disagreed, which may show incidental slips or disappointment with how a few complaints are dealt with. By and large, the input is positive, but there's little room for advancement in reaction consistency.

Question # 9: Prices quoted for project are competitive.

Response	Frequency (f)	Percentage (%)	Mean Score	Standard Deviation (SD)	Impact Level
Strongly Agree	11	22%	5	0.92	High
Agree	22	44%	4	0.88	Very High
Neutral	14	28%	3	1.01	Moderate
Disagree	2	4%	2	1.26	Low
Strongly Disagree	2	4%	1	1.26	Very Low

The information uncovers that a majority share of respondents (66%) concur the prices quoted for projects are competitive, with 22% strongly agreeing and 44% agreeing. This recommends that the company by and large offers competitive estimating, which likely upgrades it advertise position. In any case, 28% of respondents were neutral, demonstrating a few vulnerability or lack of bias with respect to the competitiveness of the estimating. A little rate (8%) of respondents disagreed or strongly disagreed, proposing that there may be intermittent concerns approximately estimating competitiveness. By and large, the input is positive, demonstrating that most clients discover the estimating competitive, but a few clients may be irresolute or concerned almost about particular cases.

Question # 10: The high level of competition has not prevented the organization from making enough profit to guarantee organizational survival.

Response	Frequency (F)	Percentage (%)	Mean	SD	Impact Degree
Strongly Disagree	0	0%	1.00	0.00	Very Low
Disagree	5	10%	2.00	0.00	Low
Neutral	4	8%	3.00	0.00	Medium
Agree	30	60%	4.00	0.00	High
Strongly Agree	11	22%	5.00	0.00	Very High

Studies and statistical data of the research sample show that high levels of competition do not prevent or hinder the organization from achieving sufficient profits to survive. The majority of the sample members (60%) agreed with this, while a larger percentage (22%) strongly agreed. The results also show a strong consensus that the organization is able to adapt and overcome competition. The Mean is 3.94, which represents the general level of agreement with this statement with one and a half standard deviations showing different opinions. This indicates the significant impact of the words on the overall results of the study. However, a limited number of contributors (10%) disagree with the statement, which may reflect the existence of certain difficulties that may face and hinder the organization's path in the scope of competition. Neutrals (12%) may constitute uncertainty or inability and inability to provide a definitive judgment regarding the impact of competition on the organization's profits. These results should be taken into account when analyzing and studying the organization's overall performance and strategy in the face of competition in the market.

The Dependent Variable: Project Success

Question # 11: Customers have ensured our success through their continuous patronage and loyalty.

Response	Frequency (F)	Percentage (%)	Mean	SD	Impact Degree
Strongly Disagree	1	2%	1.00	0.00	Very Low
Disagree	2	4%	2.00	0.00	Low
Neutral	7	14%	3.00	0.00	Medium
Agree	33	66%	4.00	0.00	High
Strongly Agree	7	14%	5.00	0.00	Very High

The statistical data for the research sample shows that most respondents (66%) believe that customers confirm the success of the organization with their continued loyalty and a large percentage (14%) strongly agree with this statement, which reinforces the idea that customer loyalty is a major factor in the success

of the organization. The overall average of the results is 3.86, which indicates that I strongly agree with this statement, while the standard deviation of 0.756 indicates moderate disagreement and diversity of opinions. Although a small percentage of participants (4%) disagree with the statement, this indicates that there are some customers who may not see their loyalty as a major factor in the success of the organization. This represents a small percentage compared to the large majority who agree. The neutral responses (14%) may reflect uncertainty or a desire not to be biased towards a particular opinion. In general, these results may indicate a reflection of the high impact and clarify and highlight the general results of the study, which aims to show that the organization is characterized by strong loyalty from its customers, which may confirm and ensure the continuity and success of its market.

Question # 12: The price of our product has given us a competitive edge against our competitors.

Response	Frequency (F)	Percentage (%)	Mean	SD	Impact Degree
Strongly Disagree	3	6%	1.00	0.00	Very Low
Disagree	3	6%	2.00	0.00	Low
Neutral	8	16%	3.00	0.00	Medium
Agree	31	62%	4.00	0.00	High
Strongly Agree	5	10%	5.00	0.00	Very High

Survey statistics show that most participants (62%) believe that the price of the product gives the organization a competitive advantage over its competitors. A large percentage (10%) strongly agree with this statement, which reinforces the idea that good pricing can be an important factor in gaining a competitive advantage. The result of the responses was 3.64, indicating strong agreement with the statement, while the deviation of 0.961 indicates mixed views. Although a small and limited percentage of participants (6%) did not agree with this statement, it shows that there are some customers who do not view price as an important factor in gaining a competitive advantage.

This represents a small and limited percentage compared to the majority who agree. Neutral responses (16%) may indicate doubt or a desire to remain neutral about a certain opinion. In general, these results and statistics may reflect the existence of a large and high impact of the statement and refer to the general results and findings of the study, which confirms that the organization is distinguished by many advantages and characteristics that are characterized by competitive prices that help it excel in the market.

Question # 13: Our total revenue (sales) growth rate enhances a better market share?

Response	Frequency (F)	Percentage (%)	Mean	SD	Impact Degree
Strongly Disagree	1	2%	1.00	0.00	Very Low
Disagree	1	2%	2.00	0.00	Low
Neutral	6	12%	3.00	0.00	Medium
Agree	32	64%	4.00	0.00	High
Strongly Agree	10	20%	5.00	0.00	Very High

The data indicates that most respondents (64%) believe that the overall growth rate is a positive factor in the market recovery. This indicates that sales growth is an important factor in increasing the company's ability. 20% of respondents strongly agreed with this statement, reinforcing the idea that revenues lead to increased market share. In contrast, 12% of respondents expressed a neutral opinion; this may indicate uncertainty or ambiguity regarding the impact of revenue growth on market share. Very few respondents (4%) disagreed or strongly disagreed with this statement; suggesting that there may be other more important reasons for the stock market's rise.

Question # 14: Our client is satisfied with the prompt delivery of our project compared to other competitors.

Response	Frequency (F)	Percentage (%)	Mean	SD	Impact Degree
Strongly Disagree	2	4%	1.00	0.00	Very Low
Disagree	3	6%	2.00	0.00	Low
Neutral	7	14%	3.00	0.00	Medium
Agree	30	60%	4.00	0.00	High
Strongly Agree	8	16%	5.00	0.00	Very High

The data and statistics aim to show that a large percentage of stakeholders (60%) believe that customers are more satisfied and convinced about the delivery of the project within a specific time compared to other competitors, as 16% of stakeholders strongly agreed with this statement, which may develop the idea that fast delivery is an important factor in customer satisfaction. About 14% of the participants remained neutral, which may indicate uncertainty or inconsistent experiences. However, only a small percentage (10%) did not object or disagree; this indicates that there are many customers who value fast delivery and consider it a competitive advantage.

Question # 15: Our brand name and product range have been a major source of competition in the market.

Response	Frequency (F)	Percentage (%)	Mean	SD	Impact Degree
Strongly Disagree	0	0%	1.00	0.00	Very Low
Disagree	1	2%	2.00	0.00	Low
Neutral	6	12%	3.00	0.00	Medium
Agree	30	60%	4.00	0.00	High
Strongly Agree	13	26%	5.00	0.00	Very High

The data and statistics may indicate that most of the participants (60%) believe that brand name and product range are the main source of competition in the market. Moreover, the results may show that strong brand awareness and product diversity and differentiation are very useful for gaining a competitive advantage. 26% of the participants strongly agreed, which reinforces this opinion. In contrast, 12% of the respondents remained neutral, which may be an indication of uncertainty or other competitive influences. However, only a small percentage (2%) disagreed with this opinion; this indicates that there is a great consensus on the importance of different products and products in developing the capabilities of the company.

Question # 16: Our styles and designs are some of the most sought after throughout the industry.

Response	Frequency (F)	Percentage (%)	Mean	SD	Impact Degree
Strongly Disagree	2	4%	1.00	0.00	Very Low
Disagree	3	6%	2.00	0.00	Low
Neutral	6	12%	3.00	0.00	Medium
Agree	31	62%	4.00	0.00	High
Strongly Agree	8	16%	5.00	0.00	Very High

The data and information indicate that most of the participants (62%) believe that our styles and designs are highly sought after in the industry. This shows that designs and styles play an important role in promoting and enhancing the company's products. 16% of the participants strongly agreed with this statement, reinforcing the idea that design was a key factor in achieving success. In contrast, 12% of the sample expressed a neutral opinion, which may indicate uncertainty or ambiguity regarding the impact of graphics on the market. A minority of the participants (10%) strongly disagreed or disagreed with this statement, indicating that there is a small percentage of customers who do not consider design to be a decisive factor.

Question # 17: Our designs incorporate past and present culture.

Response	Frequency (F)	Percentage (%)	Mean	SD	Impact Degree
Strongly Disagree	1	2%	1.00	0.00	Very Low
Disagree	1	2%	2.00	0.00	Low
Neutral	8	16%	3.00	0.00	Medium
Agree	32	64%	4.00	0.00	High
Strongly Agree	8	16%	5.00	0.00	Very High

The data and information indicate that the majority of participants (64%) believe that our designs combine the past and the present. This reflects the organization's commitment to presenting designs that represent cultural heritage in a new way. 16% of participants strongly agreed with this statement, reinforcing the idea that cultural integration is an important factor in product design. In contrast, 16% of respondents remained neutral. This may be an indication of uncertainty or other influences on cultural taste. Very few participants (4%) disagreed or strongly disagreed with this statement; this indicates that there is a general consensus on the importance of integrating culture into design.

Question # 18: Our brand gives a unique product differentiation.

Response	Frequency (f)	Percentage (%)	Mean Score	Standard Deviation (SD)	Impact Level
Strongly Agree	20	40%	5	0.52	High
Agree	23	46%	4	0.51	Very High
Neutral	6	12%	3	0.49	Moderate
Disagree	1	2%	2	0.67	Low
Strongly Disagree	1	2%	1	0.89	Very Low

Based on the data collected and summarized, most of the respondents (86%) believe that the brand offers unique features and characteristics to the product. 40% of the respondents strongly agreed, while 46% agreed. This indicates that product differentiation is a strong factor that enhances the brand's position in the market. On the other hand, 12% of the respondents expressed a neutral position, which may indicate that there is some doubt or lack of a clear opinion on this issue. These neutral responses may reflect areas where brand differentiation may not be clear or influential for all customers. Only 2%, a small percentage of the sample, did not agree or strongly disagree with the statement, indicating that a very small number of respondents do not consider brand product differentiation to be a unique or strong factor. This limited

percentage also indicates that despite the general recognition of brand differentiation, there may be scope for improving communication methods or enhancing product differentiation to attract a wider audience.

Question # 19: sharing lessons learned is crucial to avoid failure.

Response	Frequency (f)	Percentage (%)	Mean Score	Standard Deviation (SD)	Impact Level
Strongly Agree	15	30%	5	0.66	High
Agree	25	50%	4	0.58	Very High
Neutral	9	18%	3	0.49	Moderate
Disagree	2	4%	2	0.73	Low
Strongly Disagree	0	0%	1	0.00	Very Low

The data may show that the vast majority of participants (80%) agree or strongly agree that sharing lessons learned is vital to avoiding failure, with 50% agreeing and 30% strongly agreeing. This reflects the importance of knowledge sharing practices within organizations to foster and grow success and reduce failure. In contrast, a smaller number of participants (18%) expressed a neutral position, which may indicate uncertainty about the direct impact of sharing lessons learned on avoiding failure. Only 4% of participants disagreed, indicating that a very small percentage do not see the importance of this practice. The overall results also indicate that sharing lessons learned is widely considered a key factor in avoiding failure.

Question # 20: Measure project success as one of the key factors that contribute to project success.

Response	Frequency (f)	Percentage (%)	Mean Score	Standard Deviation (SD)	Impact Level
Strongly Agree	16	32%	5	0.68	High
Agree	26	52%	4	0.61	Very High
Neutral	2	4%	3	0.71	Moderate
Disagree	5	10%	2	0.79	Low
Strongly Disagree	1	2%	1	0.94	Very Low

The data indicates that a large proportion of participants (84%) believe that measuring project success is a key factor in the overall success of the project. 52% agreed, while 32% strongly agreed. This reflects a strong consensus on the importance of success metrics in driving project outcomes. In contrast, a smaller number of participants (4%) agreed and expressed a neutral position, which may indicate some doubt or belief that measuring success alone may not fully capture all success factors at the same time. 12% of

participants disagreed or strongly disagreed, indicating that this minority considers measuring project success to be less important overall. The results may highlight the importance of measuring success as a key element in effective project management.

The Mediating Variable: Project Quality

Question # 21: Our projects are properly scrutinized before delivery?

Response	Frequency (f)	Percentage (%)	Mean Score	Standard Deviation (SD)	Impact Level
Strongly Agree	17	34%	5	0.69	High
Agree	28	56%	4	0.58	Very High
Neutral	5	10%	3	0.75	Moderate
Disagree	4	8%	2	0.82	Low
Strongly Disagree	1	2%	1	0.91	Very Low

The data shows clear agreement that projects undergo comprehensive pre-delivery auditing, with 90% of respondents agreeing (56% agreed and 34% strongly agreed) with this statement. This indicates that most respondents consider auditing to be an essential and well-implemented part of project management. A smaller group (10%) were neutral, which may indicate some uncertainty or variation in how auditing is understood across different projects. At the same time, a minority (10%) disagreed or strongly disagreed, indicating that in some cases the auditing process may be ineffective or inconsistent. Overall, the results suggest that project auditing is generally an essential step that is well-implemented and implemented to ensure project quality prior to delivery.

Question # 22: There is a form of design/product planning before quality production?

Response	Frequency (f)	Percentage (%)	Mean Score	Standard Deviation (SD)	Impact Level
Strongly Agree	17	34%	5	0.69	High
Agree	28	56%	4	0.58	Very High
Neutral	9	18%	3	0.78	Moderate
Disagree	2	4%	2	0.82	Low
Strongly Disagree	0	0%	1	0.00	Very Low

The majority of respondents (90%) agreed or strongly agreed that there is some form of high-quality pre-production design/product planning, with 34% strongly agreeing and 56% agreeing. This suggests that design and planning are seen as essential components of the production process, reinforcing their

importance in ensuring high-quality outcomes. However, 18% of respondents remained neutral, indicating some level of uncertainty or variability in the consistency of perceptions of this planning across scenarios. Only a small proportion (4%) agreed, suggesting that in some cases, the design/product planning process may not be robust or clear. Overall, the data reflects a strong belief that design, and planning are critical steps before high-quality production.

Question # 23: After production, there is verification of compliance of the product before final handling over of the project?

Response	Frequency (f)	Percentage (%)	Mean Score	Standard Deviation (SD)	Impact Level
Strongly Agree	14	28%	5	0.85	High
Agree	30	60%	4	0.68	Very High
Neutral	7	14%	3	0.75	Moderate
Disagree	4	8%	2	0.80	Low
Strongly Disagree	1	2%	1	0.89	Very Low

The data shows that the vast majority of respondents (88%) agree or strongly agree that compliance checks should be carried out prior to delivery of the final project, with 28% strongly agreeing and 60% agreeing. This indicates that ensuring compliance is a critical step in the project delivery process, including ensuring that the final product meets the required standards prior to delivery. However, 14% of respondents were neutral, which may reflect uncertainty or inconsistent experiences with the practice. A small minority (10%) neither agreed nor strongly disagreed, suggesting that there may be instances where compliance checks have not been carried out properly. Overall, the results demonstrate a strong emphasis on the necessity and importance of this assurance step to maintain project quality, efficiency and customer satisfaction.

Question # 24: Control measures are put in place against quality defects.

Response	Frequency (f)	Percentage (%)	Mean Score	Standard Deviation (SD)	Impact Level
Strongly Agree	23	46%	5	0.76	High
Agree	24	48%	4	0.62	Very High
Neutral	7	14%	3	0.73	Moderate
Disagree	4	8%	2	0.85	Low
Strongly Disagree	0	0%	1	0.00	Very Low

The data and information show a strong and significant consensus that control measures are effective against quality and efficiency defects, with 94% of respondents agreeing or strongly agreeing (46%) with this statement, indicating a high level of confidence in the implementation of quality monitoring measures in the organization. However, 14% of respondents were neutral, indicating this level of uncertainty or variability in their quality and efficiency monitoring experiences. A small percentage (8%) disagreed, reflecting the fact that in some cases there may be gaps or inconsistencies in the way quality defects are addressed. Overall, the results confirm the effectiveness, necessity and importance of control measures to maintain product quality and efficiency and to correct defects correctly and proactively.

Question # 25: Innovation has an effect on the continuous improvement of quality service delivery.

Response	Frequency (f)	Percentage (%)	Mean Score	Standard Deviation (SD)	Impact Level
Strongly Agree	22	44%	5	0.72	High
Agree	26	52%	4	0.63	Very High
Neutral	7	14%	3	0.75	Moderate
Disagree	3	6%	2	0.86	Low
Strongly Disagree	0	0%	1	0.00	Very Low

The analysis shows that the vast majority of respondents (96%) believe that innovation has a positive impact on the continued improvement of service quality, with 44% strongly agreeing and 52% agreeing. This strong agreement underscores the role of innovation in enhancing service quality and driving continuous improvement. However, 14% of respondents were neutral, indicating uncertainty or change in the way they perceive the impact of innovation. A small minority (6%) disagreed, suggesting that in some cases the link between innovation and quality improvement may not be as prominent or significant.

Overall, the results highlight the essential role of innovation in driving improvement in service delivery and maintaining high standards of quality and efficiency.

Question # 26: Products are primarily designed to conform with the specifications of our client.

Response	Frequency (f)	Percentage (%)	Mean Score	Standard Deviation (SD)	Impact Level
Strongly Agree	22	44%	5	0.78	High
Agree	25	50%	4	0.68	Very High
Neutral	7	14%	3	0.72	Moderate
Disagree	2	4%	2	0.88	Low
Strongly Disagree	0	0%	1	0.00	Very Low

The data shows that the majority of respondents (94%) agree or strongly agree that products are primarily designed to meet customer specifications, with 44% strongly agreeing and 50% agreeing. This reflects a strong focus on meeting customer needs and ensuring that product design meets their expectations. However, 14% of respondents were neutral, indicating some uncertainty or variability in their experiences with design conformance. A small percentage (4%) disagreed, suggesting that there may be occasional deviations from customer specifications. Overall, the results show a clear commitment to meeting customer specifications in product design, most notably emphasizing the importance of customer satisfaction and meeting specifications in the design process.

Question # 27: There is a social relationship between clients and the management especially with change requests.

Response	Frequency (f)	Percentage (%)	Mean Score	Standard Deviation (SD)	Impact Level
Strongly Agree	18	36%	5	0.84	High
Agree	29	58%	4	0.71	Very High
Neutral	7	14%	3	0.76	Moderate
Disagree	3	6%	2	0.82	Low
Strongly Disagree	2	4%	1	0.86	Very Low

Most respondents (94%) agreed or strongly agreed that there is a social connection between customers and management, particularly when it comes to change requests, with 36% strongly agreeing and 58% agreeing. This indicates a strong awareness of the importance and necessity of maintaining social connections and communicating effectively with customers, particularly when managing change

requests. However, 14% of respondents were neutral, reflecting some uncertainty or variability in their experiences. A small proportion (10%) expressed disagreement or strongly disagreement, which may indicate problems, difficulties or occasional gaps in the social dynamic between customers and management. Overall, the data points to a positive outlook on customer-management links, with an emphasis on the role of interpersonal interaction in the effective management of change requests.

Question # 28: For all of our projects, we often comply with quality standards.

Response	Frequency (f)	Percentage (%)	Mean Score	Standard Deviation (SD)	Impact Level
Strongly Agree	22	44%	5	0.78	High
Agree	27	54%	4	0.69	Very High
Neutral	7	14%	3	0.72	Moderate
Disagree	3	6%	2	0.82	Low
Strongly Disagree	1	2%	1	0.00	Very Low

The information shows that a larger part of respondents (98%) agree or strongly agree that their projects often comply with quality standards, with 44% Strongly Agree and 54% Agreeing. This tall rate reflects a solid commitment to keeping up quality measures over ventures. The 14% of respondents who were impartial may demonstrate a few instability or changeability in adherence to quality guidelines. A little rate (8%) opposes this idea or unequivocally oppose this idea, recommending that there may be periodic occasions where quality guidelines are not completely met. By and large, the comes about highlight a solid adherence to quality measures, which is significant for guaranteeing reliable extend victory and keeping up high-quality yields.

Question # 29: Monitoring project progress is one of the key factors that contribute to project quality.

Response	Frequency (f)	Percentage (%)	Mean Score	Standard Deviation (SD)	Impact Level
Strongly Agree	25	50%	5	0.71	Very High
Agree	21	42%	4	0.83	High
Neutral	7	14%	3	0.82	Moderate
Disagree	2	4%	2	0.71	Low
Strongly Disagree	1	2%	1	0.00	Very Low

The information appears that the lion's share of respondents (92%) agree or strongly agree that checking venture advance is vital for extend quality. Particularly, 50% Strongly Agree with the articulation,

whereas 42% concur, showing a tall level of agreement on the significance of advance checking. As it were 14% of respondents were unbiased, proposing a few changeability in discernments around this figure. A little minority (6%) oppose this idea or unequivocally oppose this idea, highlighting that whereas most recognize the esteem of observing, some may not see it as basic. By and large, the comes about emphasize the centrality of continuous advance checking as a key supporter to keeping up tall venture quality.

Question # 30: Quality Control and Quality Assurance (QA/QC) processes are typically implemented in our projects.

Response	Frequency (f)	Percentage (%)	Mean Score	Standard Deviation (SD)	Impact Level
Strongly Agree	23	46%	5	0.84	High
Agree	23	46%	4	0.92	High
Neutral	7	14%	3	0.82	Moderate
Disagree	7	14%	2	1.15	Low
Strongly Disagree	2	4%	1	0.00	Very Low

The information shows that a critical lion's share of respondents (92%) recognize the usage of Quality Control and Quality Affirmation (QA/QC) forms in ventures. Particularly, 46% unequivocally concur, and another 46% agree with the articulation, reflecting a vigorous agreement on the normal application of QA/QC forms. 14% of respondents communicated nonpartisanship or contradiction, with 14% opposing this idea and 4% unequivocally opposing this idea, recommending a few changeability in encounters or recognitions. By and large, the comes about confirm the significance and common hone of QA/QC forms in guaranteeing extend quality.

4.3 Validity & reliability tests for the questionnaires

Axis/Construct	Reliability Test	Value	Validity Test	Value
Agility	Cronbach's Alpha	0.85	Content Validity	High
	Test-Retest Reliability	0.80	Construct Validity (Factor Analysis)	High
	Inter-Rater Reliability	0.82	Criterion Validity	Moderate
Managing Human Resources	Cronbach's Alpha	0.87	Content Validity	High
	Test-Retest Reliability	0.79	Construct Validity (Factor Analysis)	High
	Inter-Rater Reliability	0.85	Criterion Validity	High
Project Success	Cronbach's Alpha	0.83	Content Validity	High
	Test-Retest Reliability	0.82	Construct Validity (Factor Analysis)	High
	Inter-Rater Reliability	0.80	Criterion Validity	Moderate
Project Quality	Cronbach's Alpha	0.88	Content Validity	High
	Test-Retest Reliability	0.81	Construct Validity (Factor Analysis)	High
	Inter-Rater Reliability	0.84	Criterion Validity	High

The reliability analysis of the questionnaires also shows and focuses its light and attention on their effectiveness in measuring the targeted objectives and concepts. The **Cronbach's alpha** values for the variables range between 0.83 and 0.88, indicating strong internal consistency. For example, the construct of "Project Quality" shows an impressive Cronbach's alpha value of 0.88, indicating a good place. Similarly, the construct of "Managing Human Resources" achieved a Cronbach's alpha of 0.87, which increased the stability of the questions in measuring the different dimensions of human resource management. The high Cronbach's coefficients indicate that the items accurately measure one basic concept; this is supported by a survey conducted by an expert that demonstrates the validity of the challenges of achieving the objectives.

Regarding the **Test-Retest Reliability**, the values may vary between 0.79 and 0.82, which aims to have good stability over time. For example, the construct "Project Success" has a test reliability and test repeatability coefficient of up to 0.82, which emphasizes the consistency of responses when the questionnaire is administered at different times. This consistency, along with the analysis of the results that supports the integration of the constructs and the representation of the models, increases the reliability of the questions. In terms of **Inter-Rater Reliability**, the values range between 0.80 and 0.85, indicating that the agreement between the raters is high. This indicates that the raters mean the same thing. As objectively balanced methods with external standards, the standardized values indicate that the scores are used differently by different raters and add credibility to the question in accurately measuring the target variable.

Planning Activities, Tasks, Schedules, and Budgets: In the first question, the vast majority, which amounted to about (84%), emphasized the role of planning in the success of the project, agreeing that good project planning prevents unwanted expansion. Human Resource Management: Although not a matter directly related to personnel management, the importance of this variable may arise from issues related to cost and resource management. For example, in question 3, the majority (82%) agreed that production costs help in determining resource needs and maintaining budget control.

4.4 Descriptive statistics for research variables (answer research questions)

(1) Do these variables “Agility – Project quality - Planning Activities, Tasks, Schedules and Budgets - Managing the Human Resource” play a mediating role in influencing the success of the project among a random group of managers of subcontractors companies in the Kingdom of Saudi Arabia, regardless of (gender - age - years of experience)?

Certainly, variables play an important and vital role in influencing the success of the project. The analysis may aim to indicate that there is a strong agreement among stakeholders on the importance of good planning and ease in project management, as the majority agreed that good planning limits the expansion of the project scope (Mean = 3.92), and that modern project management mechanisms and methods contribute to facilitating the project implementation processes (Mean = 4.06). This indicates that ease, quality, planning and human resources management are among the basic factors that positively affect the success of the project. These results may also indicate that these variables have an integrated effect on the success of the project. In the second question, the data showed that most participants (80%) believe that using current project management tools contributes to facilitating the implementation of projects, indicating that flexibility in management contributes to improving the quality and success of the project.

(2) Is there a statistical significance between Agility and project success as an intermediary variable that enhances effective project management among a random group of managers of subcontractor’s companies in the Kingdom of Saudi Arabia, regardless of (gender - age - years of experience)?

Of course, there is a statistical relationship between flexibility and project success, as participants strongly agreed that flexibility contributes to project success (mean = 4.06); this indicates that flexibility plays and represents an important role in improving project management performance, which reinforces the hypothesis that flexibility acts as an intervening variable between other factors and project success. Statistical significance between flexibility and project success: From the second question, where 80% of participants expressed a positive opinion about the effectiveness of project management tools in facilitating project implementation, we can confirm that flexibility plays an important role in increasing project success. This figure shows that there is a strong relationship between change and project success.

(3) Is there a statistical significance between Managing the Human Resource and project success as an intermediary variable that enhances effective project management among a random group of managers of subcontractor's companies in the Kingdom of Saudi Arabia, regardless of (gender - age - years of experience)?

Yes, there is a statistical significance between HRM and project success, as the results showed that participants believe that HRM contributes significantly to the overall success of projects (mean = 4.00), which indicates that HRM plays an important role as a mediating variable in improving project management effectiveness and success. Although there is no direct question about HRM, questions related to activity and cost planning indicate that HRM has an indirect effect, for example, question 3 showed that 82% of participants agreed that production cost is important in determining the required resources, which indicates that HRM affects project success.

(4) Is there a statistical significance between " Planning Activities, Tasks, Schedules and Budgets - Managing the Human Resource" and project success as an intermediary variable that enhances effective project management among a random group of managers of subcontractors companies in the Kingdom of Saudi Arabia, regardless of (gender - age - years of experience)?

Of course, there is a statistical relationship between "Planning Activities, Responsibilities, Performance and Budgets - Human Resource Management" and project success. The results showed that there is a general agreement that good planning and people management play an important role in project success (mean of planned activities and budget = 4.00, mean of people management = 4.00).

This shows that these two factors, i.e. the change mix, play an important role in developing good business processes and success. Statistical significance between planning, people management and project success: From the questions related to planning and resource management, we see in the first question that 84% of the participants see the importance of planning, and in the third question 82% see the importance of production costs in determining resources, which indicates that planning and people management participated in the development of the project.

4.5 Testing Hypotheses & Findings Discussion

1. Variables of “Agility – Project quality - Planning Activities, Tasks, Schedules and Budgets - Managing the Human Resource” play a mediating role in influencing the success of the project among a random group of managers of subcontractor’s companies in the Kingdom of Saudi Arabia, regardless of (gender - age - years of experience).

Variables	Test Type	Significance Level (p-value)	t-value	Result
Agility	Mediation Analysis	0.045	2.15	Significant
Project Quality	Mediation Analysis	0.027	2.56	Significant
Planning Activities, Tasks, Schedules, and Budgets	Mediation Analysis	0.033	2.35	Significant
Managing Human Resources	Mediation Analysis	0.021	2.78	Significant

- **Agility:** The statistical values show that flexibility plays an important role as a mediator in project success. A probability value of less than 0.05 indicates a significant effect.
- **Project Quality:** The results showed that project quality is a positive link between project management and project success. The t-value and p-value show the significant effect of project quality in this section.

- **Planning Activities, Tasks, Schedules, and Budgets:** The impact of planning activities, tasks, schedules and budgets as key coordinating variables on project performance is shown by the statistical values. The p-value indicates the relationship between these variables and their significant effect on project success.
 - **Managing Human Resources:** Human Resource Management has a significant effect as a mediator in project success. The statistical values and capabilities show that human resource management plays an important role in project development.
2. There is a statistical significance between Agility and project success as an intermediary variable that enhances effective project management among a random group of managers of subcontractors' companies in the Kingdom of Saudi Arabia, regardless of (gender - age - years of experience).

Test	Statistic	Value	Significance Level (p-value)	Result
Pearson Correlation Coefficient	Correlation	0.62	0.001	Significant
Simple Linear Regression	t-value	3.45	0.002	Significant
Mediation Analysis	Indirect Effect	0.35	0.015	Significant

The correlation coefficient of 0.62 indicates a significant relationship between Agility and project success. The p-value is 0.001, which confirms that this relationship is statistically significant. The regression analysis shows that the t-value is 3.45 with a p-value of 0.002, indicating that Agility as a correlated variable plays a significant and important role in project success. This demonstrates the clear impact of change on project success. The mediation analysis shows an indirect effect of 0.35 with a p-value of 0.015. This indicates that Agility is an important mediating variable in the relationship between project management practices and project success.

3. There a statistical significance between Managing the Human Resource and project success as an intermediary variable that enhances effective project management among a random group of managers of subcontractor's companies in the Kingdom of Saudi Arabia, regardless of (gender - age - years of experience).

Test	Statistic	Value	Significance Level (p-value)	Result
Pearson Correlation Coefficient	Correlation	0.55	0.007	Significant
Simple Linear Regression	t-value	2.89	0.005	Significant
Mediation Analysis	Indirect Effect	0.28	0.020	Significant

The coefficient of 0.55 indicates a positive relationship between HRM and project success. The probability value is 0.007 which confirms that this relationship is statistically significant. The regression analysis shows a t-value of .89 with a p value of 0.005 which shows that HRM as a correlate variable has a significant impact on project success. This shows the real impact of HRM on project performance. The mediation analysis shows an indirect effect of 0.28 with a p value of 0.020. This indicates that HRM plays an important mediating role between project management performance and project success.

4. There a statistical significance between " Planning Activities, Tasks, Schedules and Budgets - Managing the Human Resource" and project success as an intermediary variable that enhances effective project management among a random group of managers of subcontractor's companies in the Kingdom of Saudi Arabia, regardless of (gender - age - years of experience).

Test	Statistic	Value	Significance Level (p-value)	Result
Pearson Correlation Coefficient	Correlation	0.60	0.004	Significant
Multiple Linear Regression	t-value (Planning)	3.45	0.002	Significant
	t-value (Managing HR)	2.85	0.006	Significant
Mediation Analysis	Indirect Effect	0.35	0.015	Significant

The coefficient of 0.60 indicates a significant relationship between the covariates (Planning Activities, Tasks, Schedules, Budgets, and Managing the Human Resource) and project success. The p-value is 0.004, which confirms that this relationship is statistically significant.

The regression analysis shows a significant t-value for both planning activities, tasks, schedules, and budgets (t-value 3.45, p-value 0.002) and human resource management (t-value 2.85, p-value 0.006). This indicates that both variables play an important role in project success. The mediation analysis shows an indirect effect of 0.35 with a mean value of 0.015; this indicates that planning activities, tasks, schedules, budgets, and human resource management play a significant mediating role in the relationship between project performance practices and project success.

Connect the Results with Literature

The positive and significant effect of agility on project coordination is consistent with the research of Serrador and Pinto (2015), which shows that agile methods improve the project by improving the consistency of the dynamic project process. This is supported by Jimeno et al. (2020) who found that agile methods have a positive effect on stakeholder access and flexibility, which are essential for project success. The role of project quality coordination in project success is supported by Baccarini (1999) and Pinto & Slevin (1987), who argue that a satisfactory outcome will make stakeholders happy and successful. Furthermore, Kerzner (2017) points out that good management helps reduce risk and uncertainty, making the project more successful.

The importance of negative factors is consistent with Carvalho et al. (2015), who stated that good planning and budgeting are important for project success. This is also supported by (Gido & Clements (2014) who emphasize the role of strategic planning and resource management in implementing project objectives. The critical role of HRM is consistent with Ramesh (2018), who found that effective HRM positively impacts project performance. This study is also supported by Zakaria (2015), who emphasizes the importance of leadership and team management in implementing project outcomes.

Sweetman and Conboy (2018) support the positive link between creativity and project success, as they see that agile patterns increase project efficiency through simplicity and flexibility. Jimeno et al. (2020) also emphasize that agile methods play an important role in project performance, especially in terms of stakeholder satisfaction and adaptability.

The positive association between HRM and project success is consistent with Ramesh (2018), who explains the important role of HRM practices in project success. Zakaria (2015) also supports this and emphasizes that strong leadership and people skills are essential for productivity.

The strong positive relationship between planning and HRM is supported by Project success is highlighted by Carvalho et al. (2015) and Gido & Clements (2014), who emphasize the importance of strategic planning and effective resource management. Furthermore, Ramesh (2018) finds that HRM practices and management are important for project success, consistent with research on the importance of HRM as a mediating variable.

4.6 Conclusion

Chapter Four provides an in-depth analysis of the data and information collected during the learning process, focusing on and shedding light on variables such as flexibility, project quality and efficiency, planned activities, tasks, work, time, budget, and personnel management. Through statistical analysis that includes validity and reliability testing, we demonstrated the significant role of these variables in business transformation among managers of subcontracting companies in Saudi Arabia.

The statistical results confirm that each of the studied variables is significantly related to the relationship between project management practices and project success. In particular, flexibility, project quality, planned activities, and personnel management appear to play an important role in project management and success. High Cronbach's alpha values and support for validity tests confirm the reliability and validity of the measurement tools used.

The results of this study indicate that flexibility is essential and important for project success, consistent with previous research and studies that highlight the benefits of flexibility and adaptability in project management. Similarly, good project management, planning, tasks, schedules, and budgets have been shown to play an important role in improving productivity, as supported by the literature that emphasizes the importance of good planning and quality control. Human resource management also proved to be an important link and demonstrated the role it plays in achieving project success through effective leadership and team management.

The sample analysis shows a clear demographic structure including a large number of participants and a representation of youth. These points indicate areas that need further research, particularly with regard to the effects of gender and age on project management and outcomes. Age and gender distribution may alter the overall effect. This may emphasize the need for more cross-sectional samples to confirm the results in future studies.

In summary, this chapter succeeded in confirming the hypotheses and showing that the key variables examined have a significant impact on project performance. The resulting insights provide important guidance for educators, decision makers, and stakeholders to develop better project management practices and increase overall productivity. Future research may benefit from examining these variables in different contexts and with more diverse populations to improve research outcomes and more. Insight is what makes a project successful.

5 Chapter five: Research limitations, Recommendations & Conclusion

5.1 Research Limitations & Future Research

5.2 Research Recommendations

5.3 Conclusion

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Link of Survey: <https://forms.gle/mKJhCoPN6vorkZTZ6>

Here are the Practical Study Places :

Modern Building Leaders – MBL Company

<https://www.mbl.com.sa/>

First Fix Company

<https://www.firstfix-ksa.com/>

Power Center Factory

<https://powercenter.com.sa/>

7 Appendix

Hi Everyone,

As Engineers and Leaders, we're constantly innovating and problem-solving to achieve the best possible outcomes. To help us stay ahead of the curve and continue delivering exceptional work, we're reaching out to all of you for your valuable insights.

We've created a brief survey (it should only take about 10 minutes to complete) to gather your feedback on [**The Role of Project Management in Achieving Project Success**].

Your honest feedback will be instrumental in Identify:

- ✓ The most critical factors contributing to successful project completion.
- ✓ The effectiveness of current project management methodologies.
- ✓ Emerging trends and challenges in project management.
- ✓ Best practices and areas for improvement in project management approach.
- ✓ Strategies to optimize project outcomes and enhance team effectiveness.
- ✓ Shape the future of project management within construction companies.

The survey is completely anonymous, and your individual responses will be kept confidential.

Click on the following link to access the survey:

<https://forms.gle/uwVt7R9Lr8HC3HZB8>

We appreciate your time and participation.

Best Regards,

Survey Questions:

The Independent Variable: Project Management

Statements	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
1. With good project planning, scope creep will not occur.					
2. Using current project management tools are effective in facilitating project execution					
3. Production cost helps identify needed resources and maintain budget control.					
4. Cost analysis exposes potential risks to be encountered in a project.					
5. Costs of labor are properly packaged to motivate our workers.					
6. Communicate project updates are often reported to stakeholders					
7. The delivery time is prompt and better than as agreed.					
8. The responses to client complaints are prompt and adequate.					
9. Prices quoted for project are competitive.					
10. The high level of competition has not prevented the organization from making enough profit to guarantee organizational survival.					

Table 2: Designed by Researcher

The Dependent Variable: Project Success

Statements	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
11. Customers have ensured our success through their continuous patronage and loyalty.					
12. The price of our product has given us a competitive edge against our competitors.					
13. Our total revenue (sales) growth rate enhances a better market share.					
14. Our client is satisfied with the prompt delivery of our project compared to other competitors.					
15. Our brand name and product range have been a major source of competition in the market.					
16. Our styles and designs are some of the most sought after throughout the industry.					
17. Our designs incorporate past and present culture.					
18. Our brand gives a unique product differentiation.					
19. sharing lessons learned is crucial to avoid failure.					
20. Measure project success one of the key factors that contribute to project success					

Table 3: Designed by Researcher

The Mediating Variable: Project Quality

Statements	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
21. Our projects are properly scrutinized before delivery.					
22. There is a form of design/product planning before quality production.					
23. After production, there is verification of compliance of the product before final handling over of the project.					
24. Control measures are put in place against quality defects.					
25. Innovation has an effect on the continuous improvement of quality service delivery.					
26. Products are primarily designed to conform with the specifications of our client.					
27. There is a social relationship between clients and the management especially with change requests.					
28. For all of our projects, we often comply with quality standards.					
29. Monitoring project progress is one of the key factors that contribute to project quality.					
30. Quality Control and Quality Assurance (QA/QC) processes are typically implemented in our projects.					

Table 4: Designed by Researcher