THE IMPACT OF QUALITY MANAGEMENT AND HUMAN RESOURCE MANAGEMENT ON PROJECT MANAGEMENT: AN EMPIRICAL STUDY ON CONSTRUCTION PROJECTS CONTRACTORS IN IRAQI

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THESIS APPROVAL PAGE

I certify in my opinion that the thesis presented by DALYA MOHAMMED HASSAN entitled "THE IMPACT OF QUALITY MANAGEMENT AND HUMAN RESOURCE MANAGEMENT ON PROJECT MANAGEMENT: AN EMPIRICAL STUDY ON CONSTRUCTION PROJECTS CONTRACTORS IN IRAQI" is well suited in terms of scope and quality as a thesis for a Master of Science degree

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FOREWORD

In this section, it is expected that the student gives information about the process of emergence of the thesis and thanked the people who helped for writing of the thesis.

ABSTRACT

This study aims to adopt illusion for the impact of quality management, and human resource management on project management: an empirical study on construction projects contractors in Iraqi, these five variables have been known to have strong influences on construction projects in Iraqi. the researcher draws their conceptual foundations from previous studies and test the model and data analysis was based on multivariate statistical techniques encompassing Cronbach's alpha (α) to test reliability, percentage and frequency, descriptive analysis to describe the sample, multiple linear regression, via using SPSS analysis software. this study emphasizes the impact of quality management, and human resource management on project management, the study demonstrates that there is positive impact of quality management, and human resource management on project management. the findings are expected to provide researchers with useful insights to conduct future studies on quality management, and human resource management independent variables on project management dependent variable.

ÖZ

Bu çalışma, kalite yönetimi ve insan kaynakları yönetiminin proje yönetimi üzerindeki etkisine ilişkin yanılsamayı benimsemeyi amaçlamaktadır: Irak'taki inşaat projeleri müteahhitleri üzerine ampirik bir çalışma, bu beş değişkenin Irak'taki inşaat projeleri üzerinde güçlü etkileri olduğu bilinmektedir. araştırmacı, kavramsal temellerini önceki çalışmalardan alır ve modeli test eder ve veri analizi, güvenilirliği, yüzdeyi ve sıklığı test etmek için Cronbach alfa'yı (α) kapsayan çok değişkenli istatistiksel tekniklere, numuneyi tanımlamak için tanımlayıcı analize, SPSS analiz yazılımını kullanarak çoklu doğrusal regresyona dayanıyordu. bu çalışma, kalite yönetimi ve insan kaynakları yönetiminin proje yönetimi üzerindeki etkisini vurgulamakta, çalışma, kalite yönetimi ve insan kaynakları yönetiminin proje yönetimi üzerindeki olumlu etkisinin olduğunu göstermektedir. bulguların, araştırmacılara kalite yönetimi ve insan kaynakları yönetiminden bağımsız değişkenler üzerinde gelecekteki çalışmaları yürütmeleri için yararlı bilgiler sağlaması beklenmektedir.proje yönetimi bağımlı değişken.

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SUBJECT OF THE RESEARCH

The Impact Of Quality Management And Human Resource Management On Project Management: An Empirical Study On Construction Projects Contractors In Iraqi

PURPOSE AND IMPORTANCE OF THE RESEARCH

This study is viewed from two distinct, but complementary, perspectives: relevance to theory and relevance to practice.

The main methods for assessing service quality around Quality Management are And Human Resource Management. However, this research will not look at this concept affecting Quality Management. Instead, you will focus on Project Management. However, this study will focus on the Construction Projects Contractors in Iraqi. And the (Relationship between Quality Management and Human Resource Management on Project Management). In view of that, this study identifies the growing need for further research in this area and categorized the significance into practical, theoretical contributions.

METHOD OF THE RESEARCH

The previous chapter containing the literature review describes studies devoted to the influence of Quality Management And Human Resource Management On Project Management. More specifically, the variables examined in the framework of this research include (Quality Management, Human Resource Management and Project Management). This chapter presents the study methodology, and hypothesis development based on a literature review to clarify the influence between variables (independent and dependent variables). The questionnaire was used as a data collection tool to achieve the research objective. Besides, in this chapter an overview of study methodology, including sampling strategies, data collection methods, and analysis tools, will be.

HYPOTHESIS OF THE RESEARCH / RESEARCH PROBLEM

The study's concern is the fierce competition that Construction Projects Contractors In Iraqi. As a result, these institutions should implement Quality Management solutions. In turn, this lowers Construction Projects Contractors In Iraqi, boosts market share, improves Project Management, and raises profit margins for the institution concerned. There are numerous technical and financial hurdles that impede Contractors

POPULATION AND SAMPLE (IF AVAILABLE)

210 Contractors with Project Management authority were chosen as the sample size.

SCOPE AND LIMITATIONS / DIFFICULTIES

The research of this study is to investigate the processes and procedures used in construction project management, as well as to identify the elements that lead to success and those that lead to failure. In this analysis, public construction firms in Iraq were taken into account. The businesses that made up these contractors were ranked accordingly. Only in the state of Iraq are there close to four hundred construction firms registered with CIDB

Understanding the research project's short cost management rings is crucial to its success. Education literature benefited from the author's efforts in this thesis. The only way for management to benefit from these investments is if they are accompanied by a candid assessment of the constraints they face. Future research directions are explored in this paper. Some of these restrictions will be discussed below.

1. INTRODUCTION

1.1. Research Background

Increased economic growth has raised the need for building of infrastructure everywhere, making the construction sector important. Manufacturing in the building industry also provides the necessities for human existence to persist and advance on Earth. Construction projects and related activities are thriving in many nations as governments attempt to accommodate rising populations, rising demands for land, and expanding economic activity. In addition, activities and projects are carried out to guarantee the economy's long-term growth and to forge deep ties within the sector (Zhang et al. 2014). An effective project management (PM) technique must be adopted from the planning stage through the completion of these projects if they are to be implemented effectively and if their functional goals are to be met within their service duration.

Those involved in the project's management often don't think forward to find solutions to issues that crop up unexpectedly, such site safety. As a result, missed opportunities for reducing risk frequently lead to project delays and cost overruns (Hyvari, 2006). Cost overruns, delays, and cancellations, as well as a negative influence on the project team's image, were all the direct result of inadequate knowledge and incompetent management of the project. To improve the chance of success and minimize the likelihood of failure, it is important to identify, investigate, and monitor success criteria and unknown elements (Kuo et al. 2013).

The construction sector in Iran is crucial to the country's economy, but it has a terrible reputation due to issues including schedule and budget overruns, accidents, shoddy work, team strife, and unfinished or abandoned public and private building projects (Ting et al. 2009). The public's perception of the construction sector in Iraq has been negatively impacted by the recent spate of high-profile collapses of buildings, roads, and bridges, all of which have left a bad taste in people's mouths. Poor project management is a major cause of construction project failures, hence preventing them must be a top priority.

Large capital investments, incorporating multiple disciplines, geographically dispersed project participants, shorter timelines, higher quality standards, higher costs, unexpected environmental changes, increasingly influential stakeholders, and technological advancements have all contributed to an increase in the complexity of today's construction projects (Irefin, 2013). A project's performance may be measured by how well its output contributes to the management of the enterprise. The project manager's familiarity with the company's or organization's rules and processes for product and service governance is essential. Project managers must be well-versed in the discipline of project management in order to guarantee the project's success. Project management success, individual project success, and corporate success are the three broad areas into which the twelve criteria normally connected to the attainment of project success, found from a research on 136 European projects conducted between 1994 and 2004, fall (Low, 2012).

The importance of project management in the growth of a country has led to a rise in the importance of construction projects for project management. In order to narrow the difference between the number of failed and successful construction projects, numerous municipalities have turned to project management approaches. There is a growing understanding of the importance of project management in businesses, but many initiatives still fail. Various facets of project management, including the project's integration, scope, time, cost, quality, human resource, communication, and stakeholder management, are dissected to find the factors that contribute to the project's success (Salleh et al., 2014).

Organizations that have a comprehensive awareness of the limitations and major construction technologies of buildings and the competence to manage the whole process, from planning to maintenance, are necessary for the successful implementation of building projects. Successful project management requires an organization to facilitate a steady stream of information, gather a wide range of technical facts and perspectives, steer the decision-making process, and give all stakeholders a bird's-eye view of the project at all times. However, this has not been implemented in Iraq due to a lack of clients acknowledging its relevance and a lack of relevant legislation and regulations to back it up (Norman, 1993).

Decision making at the right times is crucial to the success of any construction project. Construction projects present unique challenges for decision-making due to the large number of stakeholders and experts involved. Claims, time delays, increased costs, diminished quality, and the dissolution of the partnership can all come from a lack of communication between the parties, which in turn causes a failure to make decisions. The ability to make important decisions quickly has been identified as a critical success element in the management of tower projects in certain studies (Kwon et al., 2004).

Construction projects benefit from fast track management in several ways, including the shortening of overall project duration and the increased flexibility with which the project may respond to shifting market conditions and design requirements. In addition, fast track is the factor management success and necessitates a comprehensive familiarity with the properties of project planning, design, and maintenance, as well as a well-organized body of knowledge and an important level of management skills gleaned from previous experience with similar projects. Preparing the necessary design documentation pertaining to each project stage based on the milestone is the single most crucial aspect of a successful construction project. It is also important to maintain uniformity and comprehensiveness throughout the management's implementation. Also, the application of new information to relevant areas must be done promptly and with due care. In order for there to be no missteps in the information transmission procedure (Kwon et al., 2004).

1.2. Problem Statement

Currently ongoing construction projects in both Korea and the Middle East, particularly in Gulf nations, are undergoing a great deal of learning by doing. Beyond extrinsic factors such a lack of expertise and technology, there is a longer list of possible causes. This indicates that the whole procedure, from preparation to upkeep, is not simple to grasp and implement exactly. Some locally based construction projects were planned by large Iraqi construction firms, and after a thorough evaluation and modification of risk management in their own manner, they finally got underway. However, they have not yet shown sufficient performance in line with their intended goals (Kuo et al., 2013). However, there is yet to be a standard way to determine what

constitutes a competent manager or managing factor, or how to ensure that a building's features are being managed well. In addition, the management aspect in charge of management itself is unprofessional. According to research carried out in Iraq, several issues related to the administration of building sites persist owing to a lack of standard guidelines and expertise in project management (Ta, 2006).

From the projects collected from completed projects in Iraq, they identified issues that hinder effective project management. These issues were summed up as follows: first, a lack of knowledge about design management leads to ineffective project results in terms of design completeness, cost control at each design phase, and time management. Second, including several alternatives while keeping an eye on the bottom line causes decision-making delays and poor buildability. Third, consultants' input and responsibilities are constrained during the first stages of a project's development. Concern number four: timing issues with decision-making. Fifth, a lack of cooperation between different parts of the project is made clear by a weak design and delivery plan. Sixth, it's not uncommon for fundamental features, like the structural system, to undergo revisions in the latter stages of design development. Finally, the split in the timetable cycle is born out of discrepancies between the plan and the actual situation (Ting et al., 2009).

Organizations waste millions of dollars annually due to the persistent failure of most projects worldwide (Ibrahim et al., 2010).. This constant difficulty has prompted far too many experts in the field of project management to investigate the building-specific success variables that contribute to, and are dependent upon, successful project management outcomes. Few empirical studies have focused on the success determinants for project management inside individual organizational operational units, although there is a large body of research on the topic for industrial sectors and nation situations (Norman, 1993).

Several Iraqi building projects, and notably their project management, have been criticized for failing to properly account for time, money, and quality. There is a lack of understanding in the administration of the knowledge domain, which means that the projects were not well planned, at least according to the project managers.

We may conclude from these studies and others (Ta, 2006; Ting et al., 2009; Ibrahim et al., 2010; Norman, 1993) that building project management is an important

topic. As a result, the purpose of this study is to analyze the most important aspects of project management for a successful construction endeavor.

1.3. Research Questions

To achieve study objectives, the following research questions are formulated:

1. What project management practices on building project implemented?
2. What the impact of time management, communication management, cost management, quality management, and human resource management on project management in Iraqi Contracting.?

1.4. Research Objectives

The aim of this research is to conduct appraisal on the causes of project success and un-success. This aim is intended to be achieved with the following objectives.

The main objectives of the research are:

1. To study project management practices on building project.
2. To examine the impact of time management, communication management, cost management, quality management, and human resource management on project management in Iraqi Contracting..

1.5. Significance of Research

The current state of contractor's and site worker's advancement has prompted ministries to adhere to norms and procedures when implementing projects. But there are also certain restricting obstacles that prevent the various ministries from fully preparing projects, such as a shortage of specialists who can create project plans, limited funds, and a lack of familiarity with project management. In any case, this research adds to the existing body of knowledge and study by doing the following: a) providing the responsible parties in the construction industry with access to study project management practices on building projects; b) conducting research into the factors that contribute to the success of such projects; and d) analyzing the factors that contribute to the failure of such projects.

These results could be valuable to those working in the construction business and should help direct future efforts to boost the sector's productivity. As a result, this research may prompt practitioners to pay more attention to project management issues in their ongoing and future endeavors. Furthermore, it is hoped that by reducing the most significant causes on project management, this investigation would lead to improved practices in the delivery of building projects. One of the factors that affects the statistical outcome of project management in the building construction industry has been found. Study findings can be used as a reference by all stakeholders involved in a building project.

1.6. Research Scope

The research of this study is to investigate the processes and procedures used in construction project management, as well as to identify the elements that lead to success and those that lead to failure. In this analysis, public construction firms in Iraq were taken into account. The businesses that made up these contractors were ranked accordingly. Only in the state of Iraq are there close to four hundred construction firms registered with CIDB (CIDB, 2013). Therefore, the sample size is 200 people, consisting of 30 representatives of the whole population and the minimum of 60 completed questionnaires from the 200 construction companies registered with the CIDB in Iraq (Blair, 2013). These businesses were chosen because they are capable of handling such a project, can reach an infinite financial goal, are conveniently located near me, and have agreed to fill out a questionnaire. This study, inspired by problems exposed by Ta (2006), aims to identify the characteristics that affect the effectiveness of project management in Iraqi construction. The entire investigation was conducted using a quantitative approach, and data was analyzed with SPSS. Moreover, this study's respondents include project managers, professional engineers, contractors, and construction managers at those businesses; their insights will be used to better understand the elements that contribute to cost and schedule overruns in project management (Ibrahim et al., 2010).

1.7. Thesis Structure

The research encompasses five (5) introduction, literature review, study methods, analysis and discussion of results, and finally, conclusion and suggestions as the paper's key chapters. Listed below are descriptions and clarifications for each section:

Chapter 1: Introduction

The chapter focuses on introduction of the research topic. It encompasses the research background, the research problem, research questions, Objectives of the research, significance of research, scope of the study, and Thesis Structure.

Chapter 2: Literature Review

The chapter discusses the main success factors for site management in a tower building project were identified through an in-depth literature review of relevant literature from previous writing research in line with the scope, including projects, construction success, success factor management hierarchy, site management practices in a tower building project, and main success factors for site management in a tower building project.

Chapter 3: Research Methodology

The chapter will focus on the methods, techniques, and strategies that will be used to conduct the research. This involves the methodology, design, population, and sampling methods of the research. What is done to collect and analyze information.

Chapter 4: Data Analysis and Discussion

Statistical evidence collected, shown, and analyzed in this chapter. Findings from the survey and analytical results were presented and discussed in the same chapter. Finally, the analysis results and discussion that informed the suggestions are included.

Chapter 5: Conclusion and Recommendation

The chapter presents conclusion and recommendations which were led by the results of the data analysis and subsequent debate. This section provides an overview of the full study project from which findings and recommendations will be drawn. An

advice for next action is provided depending on the topic of the study. Furthermore, it concludes by commenting on the limits of the research.

2. INTERACTION

This study aims to identify the Variables that affect project management on construction projects in Iraqi industry. This chapter focuses on the literature relevant to the subject, such as (time management, communication management, cost management, quality management, human resource management). They all together constitute one section containing the (time management, communication management, cost management, quality management, human resource management), which are the independent and dependent variables (project management). This chapter reviews and correlates project management in construction projects in Iraqi industry.

2.1. The Project Concept

Understanding what a project is is the starting point for any conversation about the procedures involved in project management. A project is, thus, a time-limited effort to develop something new and to carry out the long-term goals of an organization (PMBOK, 2017). Then, projects are launched to fulfill the request made by the initiator (Heagney, 2012; Oberlender, 2014).

Project Management Vocabulary (BS 6079-2:2000) provides a more thorough definition of a project, outlining it to "undertake an aim according to precise requirements, including limits of time, money, and resources," a project is "a unique process, consisting of a series of coordinated and controlled actions with start and conclusion dates" (Lester, 2014).

The results of projects might vary widely since they can be carried out in so many different sectors. According to Singh and Singh (2017), in order to meet the demands of any sector, project management necessitates the methodical use of contemporary methods that facilitate the management of operationally connected components (such as planning, monitoring, and funding).

Morris (2013) asserts that in project management, all projects, despite their varying deliverables, go through the same process or lifetime. Figure 2.1 depicts a linear progression through the stages of the project management lifecycle, with the conclusion of one phase signaling the start of the next. There are five phases to this process: preparing, carrying out, monitoring, and finally wrapping up.

This clearly defined lifetime, especially the preliminary work, is what sets project management apart from more conventional forms of management. These procedures help businesses plan out the whole scope of the work that needs to be done, together with its subsequent implementation and monitoring, in order to implement a business-wide transformation (Ofori & Deffor, 2017; Morris, 2013).

For the sake of this research, and more specifically the implementation of infrastructure building projects, a project is defined as a one-off effort to achieve unique business goals within predetermined parameters such as budget, schedule, staffing, and material availability.

2.2. Project Management

The field of project management has matured during the past sixty years, and its history is well documented in books and articles. No one seems to agree on where project management came from, yet historical landmarks like the Great Wall of China and old city centers are often cited as proof that project management methods have been in use since antiquity (Abbasi & Jaafari, 2018; Padalkar & Gopinath, 2016; Morris, 2013).

The literature published in the 20th century made significant contributions to the development of the current idea of project management. When discussing the history of project management, names like Henry Gantt and Henri Foyal immediately come to mind. These forerunners are lauded for their work in developing groundbreaking concepts like the Gantt chart, a scheduling tool for managing the scheduling of all tasks related to a project, and administrative management theory, which identifies five universal functions of management: planning, organizing, commanding, coordinating, and controlling. These two methods are still commonly utilized in the project management industry today (CIOB, 2014; Garel, 2013; Ong, Wang & Zainon, 2016; Seymour & Hussein, 2014).

Two more planning approaches, the Critical Path Method and the Project Evaluation Review Technique of project management, were also developed during this time period and are considered significant contributions to the profession. These methods of organization and management are crucial to the present framework of

project administration, which they helped to develop (Abbasi & Jaafari, 2018; Takakura, Yajima & Kawajir, 2019).

Figure 1. Project Management Processes (Author's own construction)

In the 1990s, with the growing acknowledgment of project management as a legitimate field of study, attempts were made to formally establish the discipline. Industry organizations like the International Project Management Association (IPMA) and the Project Management Institute (PMI) were founded as a result of these initiatives. Most of the project management approaches and standards, such as Projects in Controlled Environments 2 (PRINCE 2) and the Project Management Institute's (PMI) Project Management Body of Knowledge (PMBOK), were introduced during this time frame.

It's worth noting that scholars have argued both for and against the viability of project management as a theoretical framework (Abbasi & Jaafari, 2018; Pollack & Alder, 2015).

The importance of providing an overview of the current best practices within the project management discipline is highlighted by the fact that this study is about project management practices. This subsection's primary focus is on delivering and answering the secondary objective, which is to assess the quality of project management.

A project manager is someone who applies their expertise in a particular field to the management of a certain project in order to ensure that the goals of that project are met. The phases of a project, "starting," "planning," "implementing," "monitoring," "controlling," and "closing," are managed by applying and integrating the project management procedures (Khazanchi et al, 2004).

Project management, as defined by Ohara (2005), is the skill of professionals to complete a task or set of tasks through the formation of specialized teams, the application of appropriate research, the synthesis of suitable technological and

management approaches, and the creation of optimal plans for breaking down the work and putting the plan into action.

A project manager is someone who "applies knowledge, skills, tools, and strategies to project activities to satisfy project criteria." Project management is defined similarly by the Association for Project Management (APM) as "the process through which project goals are realized via the integration of people, products, and processes." (Association for Project Management, 2012).

However, Berssaneti et al. (2012) argue that project management is more than a collection of management practices; it's also a management philosophy that can be applied to projects in any industry. The five project processes described in Section 2.2.2 form the backbone of every successful project management strategy (Heagney, 2012).

According to Lester (2014), project management is the process of organizing and executing a project's work in accordance with predetermined goals for cost, time, and quality.

According to Lester (2014), the success of every initiative depends on the dedication of all those involved. Thus, in this research, in particular as it relates to the implementation of infrastructure construction projects, project management is defined as the application of knowledge, tools, and experience to the process of planning, monitoring, and controlling all phases of a project within predetermined parameters (such as time, money, and quality) to ensure that the project's stated goals are met.

2.2.1. Project Management Practices, Processes and Knowledge Areas

Standards and best practice approaches regulate the majority of project management procedures. It's vital to remember that there's no universally accepted norm in this field; rather, every standard is an attempt to set a bar for excellence (Lester, 2014). The purpose of these frameworks is to equip businesses with best-in-class project management techniques that will, in theory, result in more successful project completion and fewer unintended consequences. Project Management Institute (PMI), International Project Management Association (IPMA), and Axelos' Global

Best Practice are just a few examples of the many organizations that have provided techniques, standards, and processes for project management (PMBOK, 2017; PRINCE 2, 2017). There are advantages and disadvantages to using the many standards that have been extensively embraced across various sectors. This research follows a PMI-created framework for project management (Farrokh & Azhar, 2013; PMBOK, 2017). Its widespread acceptance, versatility across sectors, and comprehensive coverage of best practices in a given field all contribute to its widespread adoption. Project management, as defined by the Project Management Body of Knowledge (2017), is the practice of systematically applying knowledge to project activities and through several process groups to accomplish project objectives. According to PMBOK (2017), a process group is an organized set of procedures for achieving a certain goal. There are a total of 49 processes in PMBOK, and the results of one process might have a domino effect on the rest of the project.

Inputs, tools, techniques, and outcomes are the four cornerstones that hold the activities and processes together. In addition to suggesting superior method PMBOK (2017) follows the same stages of a normal program with its productivity procedures divided into knowledge areas. Table 2.1 displays the various knowledge areas that are used in project management (PMBOK, 2017).

There is a relationship between the inputs and outputs of a project and the processes carried out in each knowledge area throughout the course of the project's life cycle. Table 2.2 depicts in detail how different domains of knowledge and process teams interact with one another. Better management and more command over the final product are made possible by adhering to these procedures followed by project managers (Silva, Duarte, Barros & Fernandes, 2019). It is important to remember that the PMBOK is not a methodology in and of itself, but rather a collection of best practices that may be used across a variety of sectors. Despite this knowledge, several businesses have adopted PMBOK as a framework or technique (PMBOK, 2017).

Project Management Knowledge Areas

Knowledge Areas	Description
Project Integration management	Processes that identify and coordinate the various activities of the project (7 processes)
Project Scope management	Processes for defining and controlling the project (6 processes)
Project Schedule management	Processes involving project timelines activities are met and completed on time (6 processes)
Project Cost management	Processes that ensure project budget related activities (4 processes)
Project Quality management	Processes ensures that the project is delivered to the correct specification and meets stakeholder's expectations (3 processes)
Project Resource management	Processes that ensure the correct use of people to deliver the project (6 processes)
Project Communication management	Processes that align the communication of project information with all stakeholders (3 processes)
Project Risk management	Processes that identify, assess, mitigate and manage all potential project risks (7 processes)
Project Procurement management	Processes that govern the purchase and acquisition of products and services (3 processes)
Project Stakeholder management	Processes that identify role players within the organisations who can either impact or be impacted by the project (4 processes)

Figure 2. Interaction of Project Management Process Groups, Knowledge Areas, and Deliverables

2.3. Time Management

Using Project TM, you may build your company in a more practical approach. Time management starts with a well-organized schedule. Developing a plan for how long it will take each employee to perform their tasks is a crucial component of a manager's job. To ensure that tasks are performed in a timely manner, it is recommended to list them first, and then set a deadline. Consider the subtask if you need to add extra tasks to your list. After planning the work for your time period, this will provide you an additional benefit. The contractor's use of good project management (PM) will pay off in projects that not only please the customer but also are finished on time (Hamimah et al., 2013).

By " time management as it pertains to professional and personal objectives," Green and Skinner (2005) defined TM. Today's project managers have a significant challenge in balancing the demands of delivering quality work on schedule and within budget. When it comes to the success or failure of a business, time is the single most crucial factor, according to Berman (2007). Leaders that value time and make that value known to their teams are more likely to see it used efficiently (Mahaney and Lederer, 2010). In the past, studies have shown that when business executives

implement beneficial TM procedures, their companies prosper (Stack, 2000). To get things done, businesses need leaders who can promote a culture of effective time management. It's impossible to effectively manage anything else without first mastering time, as Drucker (2002) pointed out. According to their findings, professional architects and engineers should prioritize customer satisfaction, project completion on time, and cost containment. Poor planning, insufficient prioritizing, procrastination, and disorganization are common causes of ineffective TM strategy implementation (MacKenzie and Taylor, 1986). It's also recognized that people who have trouble managing their time aren't always conscious of how they're spending it. This might cause issues that prevent them from reaching their goals, which begs the question: if those with superior time management skills are more likely to succeed, why do some people have such poor results? The issue is not a shortage of time, but rather inefficient time management. Procrastination and laziness are two of the main causes of wasted time (Dembo, 2004). Managers show up late to meetings, put in excessive hours at the office, struggle to focus on any one task, feel overwhelmed by their workload, and constantly moan about how they have little time to accomplish the things that bring them joy. Although time management is a familiar, unsolvable problem for most people, this is due in large part to the qualities of time itself as well as traits in persons and organizations that make it a challenging resource to manage properly (Mellon, 1985). One manages, invests, learns to master, and exerts command over time as a resource (Lakein, 1973). Most businesses want to achieve dramatic reductions in waste, which in turn reduces operational costs and boosts corporate financial performance to a point where the organization becomes more competitive and profitable (Ogundu, 2011).

To lessen the effects of stress, conflict, and uncontrolled time, businesses engage in three time-related activities: scheduling, synchronizing or meshing, and allocating available time among tasks. These three tasks are the foundation of efficient time management. Timelines, priorities, and plans of action (Mackenzie, 1972; Lakein, 1973; Leboeuf, 1979).

According to the study, time is defined as "a period that includes images, thoughts, feelings, and experiences from our lives that will never be replicated." The abilities necessary to achieve TM success were outlined by the study's author, and they include, among others, the ability to choose appropriate activities, create an actionable

plan, set realistic priorities, prioritize work, and schedule and monitor progress. Success rates on projects go up if a manager makes use of TM techniques. All project managers should place a premium on developing their TM skills, since they are seen as one of the most important components in ensuring the success of their projects and the businesses they oversee.

According to Fitsimmons (2008b), leaders are more likely to succeed when they have a clear plan of action. Leaders need strong TM abilities since poor TM may have a negative effect on the bottom line. "Time is money" (Fitsimmons, 2008a) means the business saves money when its staff are efficient. According to Lemberg (2008), a list of priorities should include no more than seven "mission-critical" items that will have a significant effect on the organization.

In order to proceed with the checklist, each item must be checked off. One alternative was to maintain a list of tasks and update it every day. The current scientific time measurements include clocks and calendars (Bittel, 1990), and other technologies like PDAs, mobile phones, and other electronic gadgets help individuals be more productive and time-conscious (Collins, 2005; Draper, 2006; O'Brien, 2003; Pearce, 2007).

Leaders can make more accurate estimates of how long projects will take if they keep track of the time it takes to complete each step. More possibilities to solve problems and finish projects on time, which might contribute to the success of an organization, are created when leaders are good at managing time. Leaders should use productive TM methods if their companies are to advance. Stack outlined three crucial TM methods necessary for achieving organizational goals:

1. minimise overloading employees
2. use effective TM behaviour
3. manage time wasters.

The difficulty of getting individuals to acknowledge the existence of TM problems is a significant barrier to effective TM strategy implementation. Leaders should raise people's understanding of TM's worth, put in place a workable system to achieve TM's aims, and be flexible enough to adjust the method as needed (Kerzner, 1992). TM's ultimate aim is to help organizations prioritize and accomplish goals that

have a positive impact on their performance (Tyler, 2003). Lemberg recommended that executives check in on their teams' development by comparing completed tasks and goals. Leaders may see TM more clearly when they prioritize tasks (Lucco, 1994). Understanding what must be done and prioritizing it in order to satisfy missions was at the heart of Ostrowski's (2005) strategy for time management.

To do more in a given time period, you must either work more quickly or more efficiently. Most of us are already working as quickly as we can without compromising quality, but you may improve your productivity by removing time-wasting behaviors. We are all too familiar with the feeling of trying to cram too much into one day in an effort to satisfy our employer, keep our jobs (or make enough money from our businesses to pay ourselves), and take care of our families. Focusing on what matters most to your progress and sanity is essential at some point. Each and every professional and company owner has to master this technique in order to devote their time and effort where it will do the most good. You'll need to find a way to free up more time in your day by cutting out all the random activities that provide little to no benefit. Consider the proportion of your daily inbox that might be cleared of messages that don't really need a response from you, and the number of such messages that you get.

Make a list of things to do the next day the night before to help cut down on time wasters. Making a mental rundown of your day's activities and organizing them on paper before bed will help you get better rest. In part because we care, many of us are unable to answer "No" when asked. Having compassion does not preclude saying "No" or finding alternative means of making a difference. The researcher proposed TM strategies that would be highly helpful for any organization to apply since they encourage people to slow down and concentrate on the greatest pay-off activities that would generate the outcomes they seek in the timeframe they choose. The numerous useful TM methods provided by Dembo (2004) include:

1. Set regular study periods.
2. Study in an environment that is relatively free of distractions and interruptions.
3. Schedule tasks so they can be accomplished in 30- to 60-minute blocks of time.

4. Take short breaks.
5. Be specific in identifying how you plan to use your time.
6. Estimate the time needed for each assignment.
7. Prioritise tasks.
8. Carry your calendar with you and write down any appointments as soon as you make them.
9. Work ahead of your assignments when possible.

The current research emphasized the significance of TM studies for construction industry executives and academics, as well as the value of precedent-setting research on the impact time, talking, and COM on projects once management. According to Macan et al. (1990), there are three main components of effective time management:

1. Deciding what needs to be accomplished and when
2. TM works, mechanically
3. An inclination toward order.

Time management tactics like making and sticking to schedules might help individuals become more accountable for their actions (Weinstein and Palmer, 2002).

According to Hall and Hursch (1982), when the individual's non-verbal behavior matches their verbal behavior; that is, when consistent with expectations and goals, actual work individual, then we have achieved good task management (TM). This means that the right tasks are done at the right times; work proceeds at an orderly and relaxed tempo; there's plenty of downtime; and, more crucially, there is sufficient time for the individual to relax. Organizational performance excellence is attainable when leaders' strategies and tactics are in harmony with the needs of the business. Once you've outlined everything that needs to be done, it's easier to get started on the projects TM. This approach is recommended if you need to generate a big number of tasks and then prepare for the subsequent subtasks. You may use this information to better plan out your future activities. Lack of resources is a major problem in TM that prevents tasks from being completed. It's possible that the resources will be late, leading to tasks that end up being completed in tandem or even simultaneously. If you

want to modify the time period or implement a new system and get the best possible outcomes, using software is your best bet. When it comes to saving time, cutting costs, enhancing performance, and boosting productivity, Al-Nady (2012) recommends that every e-supplier and e-retailer take use of the electronic commerce environment.

2.4. Communication Management

The internet is one of the most essential technologies that has led to the rise of e-commerce and the emergence of a global digital economy that presents new opportunities for businesses of all sizes (Al-Nady et al., 2014). Effective communication is crucial to the growth of any organization's quality procedures. In this stage, one of the most useful instruments for acquiring information is the communication plan created and used (Aliza, 2012). The improvement of projects for the sake of future generations and the enhancement of the contribution that greater project achievement may make are two reasons why it's crucial to cultivate better communication practices. (Dodd, 2004). When it comes to design and construction work processes, which may need to evolve often to keep up with new needs and technology, customers also want their projects to have a great deal of flexibility (Hamimah et al., 2013). PM relies heavily on effective communication. Those who have managed several projects successfully are always excellent communicators, at least in my experience. That's because project work is inherently different from process work. Individual projects are like no other collection of actions ever taken. It would be less vital for project managers to be good communicators if we always followed the same procedure, always worked with the same people, and always finished projects in the same order. Moreover, a few writers (Mishra et al., 2011; Nethathe et al., 2011) sought to show that manager-team communication is crucial to a project's success, while others concentrated on stakeholder interactions.

According to the study's findings, FBMC is unable to organize its communication process for a number of reasons, including the fact that it employs unqualified workers, does not clearly define the roles and responsibilities of its employees, and, to make matters worse, the fact that many of its workers are unfamiliar with and/or unfamiliar with how to use modern communication tools. Job satisfaction was found to be higher among workers whose managers used effective

communication and interaction strategies (Arons, 2010). Managers and employees have been tasked by upper management with boosting output, improving responsiveness, innovating services and products, competing on a global scale, keeping their feet firmly planted on the ground with consumers, stepping up communication and agility in management, and boosting cost and price awareness (Avolio et al., 1999). Projects with a small team size are easier to manage because of the increased emphasis on communication and planning that is necessary. In many cases, a project manager can handle communication simply by holding one-on-one meetings or phone calls with each team member and stakeholder. Stanley (2005) business organizations as "dynamic social units" in which managers and supervisors must endeavor to create and maintain connections with workers via continuous interactions and clear and effective communication. Managerial and organizational success is dependent on open lines of communication with employees that enable effective leadership, alignment, inspiration, motivation, and development. Continual change within an organization relies heavily on excellent communication to be implemented and realized (Bardwick, 2008). Having a conversation has long been assumed to be a two-way street, with each party taking turns talking and listening (Eisenberg and Goodall, 2004; Sias, 2005). Effective communication and interaction with employees is essential for supervisors and middle managers to exert influence and build connections that disseminate information, link workers to the organization's vision and goals, and unite individuals within the group (D'Aprix, 2006). The bulk of the labor can be reached quickly and easily via mobile phones, pagers, laptops, and other electronic devices, and the majority of the administrative and managerial staff are similarly wired. Because of the ease with which information can be collected, transmitted, and accessed with the use of these technical instruments, they serve as the major mechanism by which information is disseminated. But have these technology tools effectively provided the message, established the engagement, and formed the connections that improve the organization's successes and goals (Arons, 2010).

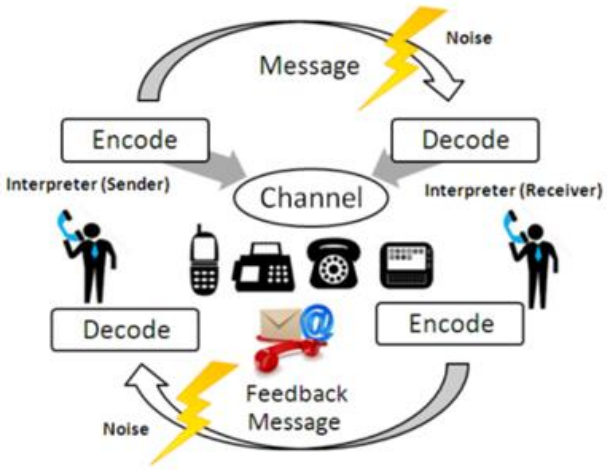

Figure 3. Communication process, combined by Al-Nady et al. (2013)

The first is an appreciation of the 'Sender-Receiver' model (Figure 1), which holds that any time before a message can reach its intended recipient's brain, it must be translated from the sender's mental state into the language of the receiving culture. Both translations could lead to misunderstandings, and any given transmission could introduce noise and errors. That's why I think effective communication should be a top priority for any project manager. Any time you share information with someone else, it goes through a series of steps to get from you to them. The sender's ideas are encoded into a text or spoken message throughout this procedure. A channel carries this message. It might be a blog post, a tweet, an email, a letter, a fax, etc. This communication must be received and comprehended by its intended recipient. If the message has been encoded successfully, the receiver will provide feedback. In our office, e-mail is the preferred method of communication since it allows both parties to read the message at their own pace, save it for later reference, and ask follow-up questions. It is helpful to read over an email you have written from the perspective of a new reader. Who you are talking to, what you are talking about, when, where, and how should all be made clear. Two, understanding that there are three stages to effective listening. If a teammate doesn't seem to be paying attention, it's crucial to figure out where in the listening process the problem lies. Those three stages of attentive listening are as follows:

1. Hearing
2. Understanding
3. Judging.

In the past, the most common method of disseminating new knowledge was through personal conversations. According to D'Aprix, the most effective means of conveying information within an organization are personal encounters that make workers feel that their contributions are deeply appreciated.

Sirota et al. (2006) found that "the vast majority of workers are fairly excited when they start a new job. However, in over 85% of organizations, "staff morale dramatically drops during the Initially, it declines rapidly within the first six months, and it keeps getting worse for years afterwards." The association between managers' actions and the morale and motivation of their staff was uncovered by Sirota et al. (2006). The ability to communicate without resorting to conflict is a rare skill in modern culture (Canary et al., 1995).

In his research, Jehn (1995, 2000) advocated classifying conflicts as either "relational," "task," or "process" conflicts. There is interpersonal friction, and it has apparently been quite harmful to the partnership. Disputes between loved ones often go out of control and disrupt everyone's lives. It's likely that people don't feel as much of an obligation to fix a broken connection at work, even if they plan to stay there for a long time, since they don't have as much at stake as they would, say, with a spouse. Accordingly, the disagreement may persist until one of the parties exits the company (Dodd, 2004).

According to research (Jehn, 2000), Negative effects on performance and escalation to interpersonal conflict are common results of unresolved process conflict. There is, however, some indication that, under some settings, task conflict can have beneficial effects on performance. In a word, it has to do with people having different ideas on how to best reach a same objective. With rising customer consciousness and participation, as well as the rapid evolution of communication technology and the proliferation of network applications like Apple Apps and Android Apps, businesses are finding that they must adapt quickly to survive (Al-Nady et al., 2014).

According to Harrison's (2007) according to the researchs, having an open line of contact with others around you is critical during a crisis and will help you get throughout the moment of severe crisis, which was incredibly challenging and complicated. Effective communication helps fulfill It is more difficult to achieve crises objectives and communicate effectively, because hazardous and detrimental, yet much

crisis preparation is rule-based, reactive, and a extraordinarily uncertain period for an organization. Al-Nady (2012) advocates for the use of EC, as it plays a crucial role in facilitating better communication between e-suppliers and e-retailers, allowing the latter to more effectively sell their goods and services to a wide audience in a short amount of time.

2.5. Cost Management

The term "cost of operations management" (COM) refers to the method by which businesses keep their operating expenses under control and prepare for future increases, as well as the efficient, comprehensive management of their finances across all departments and processes. The only way to maintain such tight fiscal management is to have a thorough knowledge of the services offered by the company. Who, exactly, is helped by these offerings? Exactly how much does it cost the company to deliver such services? Excellent management necessitates good COM since it is an organizational duty and an aspect of general management. The costs associated with COM may be recovered in full, in part, or not at all. The high cost and low efficiency of releasing items with distinct features and monitoring market reception, as well as the common practice of displaying such products in showrooms before first gauging the market's reaction, are two factors that contribute to the higher risks of new invention and development failures in the construction industry (Al-Nady ,2012). In many cases, the project manager will need to complete the project without a sufficient budget, a sensible schedule, or a sufficiently skilled crew. The cost-benefit analysis provided by COM paves the way for better choices to be made. Global consensus has established benchmarking as a legitimate method for managers to boost company results. The benchmarking technique is simple in principle, and it has been successfully used by numerous organizations, including Xerox Corporation. Still, not every company has been successful in using this basic idea. Similar to the reasons of other types of project failure, there are common factors at play in the demise of benchmarking initiatives. Failure to understand the vision, values, and objectives of the organization; assuming that a site visit is necessary for every project; hiring the wrong people for the job; taking on too much work; not having the support of upper management; focusing on measurements for success rather than internal operations;

failing to situate benchmarking within a broader strategic framework; and assuming that every project needs to be visited on-site. According to studies and studies on the issue, the COM starts with cost benchmarking and early cost planning, moves on to accounting for expenses and analyzing the data gathered, and finally concludes with assessments and decisions based on the data. These steps may be ordered differently depending on the demands of the organization, as there is no universally accepted template for a COM system. Figure 5 depicts the six separate phases discussed above, all of which are interrelated and actions made at any step will influence the system as a whole. Because the system is closed-loop, the output of the last stage feeds back into the input of the first stage. What follows is a rundown of the six steps:

1. Cost benchmarking to find ways to save expenses is as simple as creating and analyzing criteria or measurements of costs (ratios or qualitative measures). (Götze, 2004).
2. Cost identify is a essential part of the COM cycle.
3. Cost planning: Consists of tasks like planning for the future and allocating funds accordingly.
4. Cost tracking: Using tools like time sheets, expense reports, and accounting software to track activities and their related expenses is part of this category.
5. Cost analysis: This includes a breakdown and breakdown of the actual expenditures incurred.
6. Evaluation and decision: includes analyzing existing expenditures and making adjustments as needed, assessing current asset management and resource use, and making choices about cost recoupment.

For In order to find the benchmarking object with the greatest potential for cost savings, a company should look at the entire value chain.

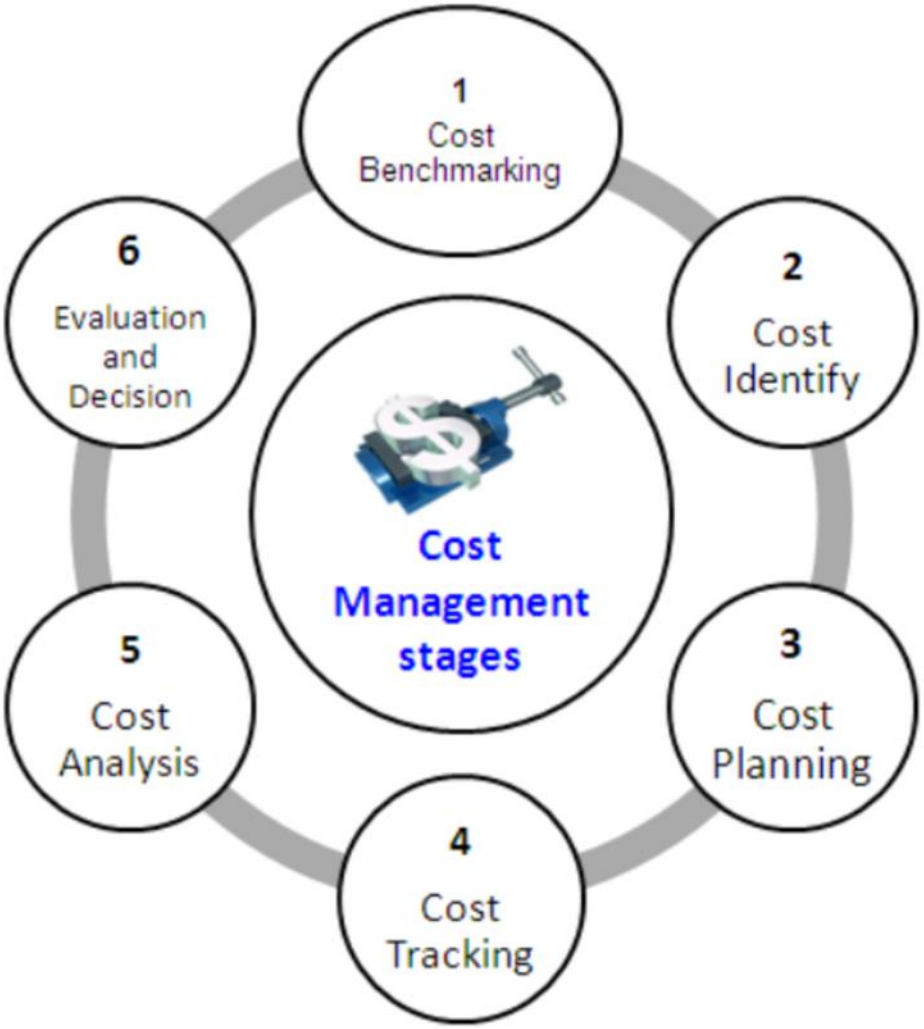

Figure 4. COM stages, combined by Al-Nady et al. (2013)

Logistics processes, customer service operations, human resources endeavors, etc. are all examples of potential objects. According to Götze (2004), it is crucial for a business to determine which benchmarking object will have the most impact on its capacity to perform and compete. To begin tagging expenses, it's helpful to have a basic awareness of the many categories of spending, including direct, indirect, direct and indirect, and fixed costs. Unlike variable expenses, fixed expenses do not fluctuate significantly in response to variations in output level. Depreciation, management salaries, and repair costs are all examples. Expenses that shift (globally) in response to variations in output are said to be variable. The assumption that variable expenses are directly proportionate to output is widespread. Spending on things like direct labor, direct supplies, and direct costs are all examples. Expenses that have both variable and fixed components are said to be "mixed." One common example is the cost of renting a

car, which often consists of both an initial fee and additional charges based on how far you drive. Direct expenses are those that can be directly attributed to a given project, task, or group. When a service, activity, or division incurs a cost that cannot be directly attributed to them, we call it an indirect expense. Costs can be categorized as direct, indirect, constant, variable, or mixed, and can be dissected into categories like labor, materials, and overhead. Cost planning encompasses the processes of cost estimation, forecasting, and budgeting. A key part of any effective business strategy is accurate cost forecasting. Accounting for past events is what cost tracking is all about. Discrete coding of activities and their associated costs enables "cost tracking," the process of tracing the cost of various operations as they move through the COM system. Keeping tabs on how much time and money is spent on individual tasks is known as "discrete coding." Time tracking (through employee time sheets) and cost tallying are examples of this. Accurate analysis and best-in-class decision making are made possible through this sort of data collecting since it links service charges and activities. The deficiency in data collecting at the cost tracking stage will have the greatest impact on the other phases of the COM system, making it one of the most significant stages. Weak conclusions and unreliable preparation are the results of inaccurate information. While the focus of the analysis phase is on itemized expenses and associated activities, the decision phase gives a system-wide assessment of the COM and a window of opportunity to implement necessary improvements and standardize current best practices. All aspects of the system can be better with this thorough analysis. Every big event should be followed by an evaluation and, if necessary, a revision of the corresponding procedure. Justifying expenditures and revenues and proving a service's worth to clients and the general public rely heavily on this.

An essential and critical business strategy in today's global market is accurate product and service pricing. Even if a company has the greatest products and services in the world, it will not succeed without offering such items and services at affordable pricing. The greatest strategy for gaining market share and expanding revenues in such marketplaces is to compete based on pleasing consumers and adding value. According to Monden (1992, p.12) and Sakurai (1996, p.44), target costing's primary goal is to lower overall life cycle costs so that a desired profit margin may be maintained while still providing products that are competitive in terms of quality, timeliness of delivery, and cost. Many Japanese businesses employ target costing as part of their strategic

profit planning, in addition to strategic COM [Sakurai, (1996), p.44]. Strategic profit planning is the process of developing strategies for maximizing profits via the coordinated use of marketing, production, and technological data. Materials costs, acquired part costs, conversion costs (such labor and measurable overhead charges), tooling costs, development expenses, and depreciation are the usual costs that receive the greatest attention in the target costing process. Reducing and eliminating wasteful activities with significant cost consequences is one way to keep operational performance indicators within budget. According to numerous sources (e.g., Horvath, 1993; Monden, 1992; Cooper and Slagmulder, 1997; Ansari et al., 1997), the target costing process's primary goals are to optimize the relationship between materials, parts, and manufacturing processes; minimize costs; concentrate design efforts on market-driven variables for quality and total cost of ownership; connect product development with consumer needs; and attain a sustainable competitive advantage. From a research perspective, expenses may be broken down into its constituent parts, as shown in Figure 6; this allows us to identify four main categories within the overall cost of producing a good or service. They include things like the price of machinery and tools, the price of goods and supplies, the price of labor, and the cost of general operating expenses. Expenses incurred in acquiring necessary apparatus and instruments for a certain undertaking. Materials and product costs are the money spent on things like raw materials and finished goods. wages and benefits for employees are included in the cost of labor. Overheads are the costs that are incurred besides the main purpose of the business. These costs might be incurred directly or indirectly. Direct costs are those able to become easily assigned to a certain product, service, or project, when significant expenses are individuals who are unable directly linked to a specific source or purpose. As a result, such costs are divided out fairly. Kotler (2003) offers a conventional explanation of how prices are determined; in this model, the cost of developing the product serves as a floor, the pricing of competitors and replacements serve as a reference point, and the value customers assign to the product's attributes serve as a ceiling. A COM policy's efficacy is proportional to how widely it is communicated throughout an organization. Therefore, COM is an integral aspect of everyone's employment. All government employees should have a firm grasp on the principles of COM, know their place in the larger practice, and be able to effectively implement the policies of their respective agencies. The capacity to grasp the

connection between actions and expenses and to manipulate these connections to one's benefit is a fundamental part of any COM system, even though the specific components may vary. Indirect overhead is trickier to allocate since it is used by several activities and has expenses that are determined by the sub-activities that support multiple end activities.

2.6. Quality Management

Quantum mechanics is defined by its guiding principles, standard procedures, and established methods. The principles serve as overarching guidelines and are put into action by established routines and backed up by various methods. Studies have repeatedly revised their conceptualizations of QM procedures, each time resulting in a distinct set of guidelines. A major problem is the decision-making process involved in choosing QM procedures. Guidelines for picking QM procedures may be found in the literature (Dean and Bowen 1994). A quality award, that is the international excellence awards created in honor of Malcolm Baldrige, can be used as a stand-in in the first place. The third option is to conduct interviews and surveys to learn about best practices.

Determining what constitutes excellence in the context of higher education has proven difficult. Quality has been called a "notoriously ambiguous phrase," according to Pounder (1999, p. 156), and Cheng and Tam (1997, p. 23) agree. Quality is hard to define, and this makes it hard to agree on how to quantify it. Several attempts have been made to adapt business models for use in higher education; these include the quality dimensions proposed by Gronroos, Garvin, and Parasuraman (Owlia and Aspinwall, 1996), SERVQUAL (Oldfield and Baron, 1998; Aldridge and Rowley, 1998), importance-performance analysis (Ford et al., 1999), and the balanced scorecard (Cullen et al., 2003). However, total quality management (TQM) is the most widely used method internationally (Cruickshank, 2003; Motwani and Kumar, 1997; Eriksen, 1995).

Quality management is a method of running a business that places a premium on the opinions and input of all employees in order to create a product or service that both meets and exceeds customer expectations and yields long-term benefits for the

company, its employees, and the community at large (ISO 8402 in Wiklund et al., 2003, p. 99).

2.7. Human Resource Management

Project performance is positively impacted by HRM practices, according to the literature on project management. Human resource management (HRM) methods have been studied in depth by scholars including Belout and Gauvreau (2004), Fabi and Pettersen (1992), and Huemann et al. (2007) since Pinto and Slevin's (1988) claim that human resources are crucial to project success. Temporary structures are used by project-focused businesses to put into action their procedures for completing projects. Some notable academics have addressed this issue, including Söderlund and Bredin (2006) and Turner et al.

(2008) contend that Project-oriented firms' HRM strategies should be tailored to their use of temporary workers. HRM methods in project-oriented businesses may therefore vary from those in the traditional management paradigm, as the latter assumes a consistent set of behaviors across all projects (Turner et al., 2008).

Many researchers have aided our comprehension of HRM's function in POC. For instance, an early contributor to this field was Begin (1992), who argued that the organizational structure in high-velocity information settings necessitated a novel pattern of people management systems. The idea that people management methods ought to be consistent with organizational structure is a key contribution of Begin's work. In addition, Clark and Colling (2005) believe that HRM practices have a substantial impact on project management, with special focus on the possibility that recruitment, selection, assessment, development, and reward should vary from project to project. HRM methods in a given context, however, are not explained.

Project may have anything to do with how work is done at Project-oriented businesses. Söderlund and Bredin (2006) highlight four unique difficulties in the examination of HRM in Project-oriented businesses: competence, trust, change, and people. They talk about these difficulties in the context of the HRM functions played by Project-oriented businesses (knowledge brokers, trust builders, change agents, and artist agency), and they pose pertinent concerns for the concept's on-going evolution.

While they do provide insights into the specific functions of HRM, they do not specify which HRM procedures would be most helpful for project management in Project-oriented businesses. Our findings expand on those of Turner and his coworkers, who argue that there is a correlation between HRM practices and project success.

2.8. Hypothesis Formulation

2.8.1. The Effect Between Time management and Project Management

There is a positive correlation between the amount of time spent on a project and the quality of the final product. This is because more time means more effort must be put into constructing the project. Time spent on a building project is directly proportional to the amount of time that was budgeted for it (Dobson, 2000).

The best way to get an idea of how long a project will take is to ask around and see what other people have experienced. This should be reflected in the projects' schedules and how they're carried out. As a result, it is essential for all construction projects to outline when each stage will be completed. The duration of a project is dependent on a number of factors, such as the complexity of the task at hand, the amount of time spent planning, and the availability of the necessary resources (Hewagmage, 2011). This also clarifies the structure of the piece, which is essential in dissecting it.

H1: Time management has a significantly positive effect on Project Management in Iraqi Contracting.

2.8.2. The Effect Between Communication management and Project Management

According to Zulch (2014), effective project management necessitates the ability to effectively communicate with project stakeholders through the transfer of information in real time. According to Aiyewalehinmi (2013), proper construction project success depends on effective site communication, which in turn requires training of project participants. Kliem (2008) argues that effective communication is

one of the most important skills for project managers to have. A communication management strategy is recommended by Garbharran, Govender, and Msani (2012) so that relevant project information may be sent to stakeholders in a timely fashion while the project is active. According to ulo and Skendrovi (2010), a project's success is greatly enhanced by a well-thought-out communication management strategy tailored to the needs of the undertaking Meid (2015) called for transparent dialogue to help businesses flourish. A study by Tipili, Ojeba, and Muhammad (2014) found that having a well-thought-out communication management plan in place from the start of a project significantly boosts its success. In addition, Tipili, Ojeba, and Muhammad (2014) emphasized the need of reviewing the plan on a regular basis to minimize interruptions in project implementation and boost the quality of the final product. A clear, well-crafted communication management strategy not only reduces the likelihood of construction projects failing, but also improves the quality of decisions made throughout the project's life cycle, as demonstrated by research by Gunasekaran and Morteza (2016). The following null hypothesis is expressed within this framework.

H2: Communication management has a significantly positive effect on Project Management in Iraqi Contracting

2.8.3. The Effect Between Cost management and Project Management

One of the most important things to think about while trying to complete a construction project is the way the project's cost (the second variable) relates to the project itself. As a result, if there is a positive correlation between price and construction projects, a rise in costs will slow down constructing. Construction projects are not complete unless they are of sufficient quality.

H3: Cost management has a significantly positive effect on Project Management in Iraqi Contracting.

2.8.4. The Effect Between Quality Management and Project Management

Evaluating, analyzing, and improving a project's quality is standard practice. Construction firms strive for excellence in project management in order to cut down on wasteful spending and keep tabs on and correctly regulate the activities that will ultimately decide the project's quality and success (Sorin, 2013). Time, money, and quality are the "triple constraint" that project management must optimize. In order to gauge how well construction projects have been carried out, quality control measures must be taken (Adeleke et al., 2016; Mane, 2015). Maintaining a project is necessary for enhancing a construction firm's quality assurance measures. The contractor's job is facilitated by the construction quality plan, which allows the building project to be completed on schedule.

H4: Quality Management has a significantly positive effect on Project Management in Iraqi Contracting.

2.8.5. The Effect Between Human Resource Management and Project Management

Many researchers have aided our comprehension of HRM's function in POC. For instance, an early contributor to this field was Begin (1992), who argued that the organizational structure in high-velocity information settings necessitated a novel pattern of people management systems. People management methods should be consistent with organizational structure, a concept bolstered by Begin's research. In addition, Clark and Colling (2005) believe that HRM practices have a substantial impact on project management, with special focus on the possibility that recruitment, selection, assessment, development, and reward should vary from project to project. However, they do not discuss the potential connections between HRM practices in a given project and those used by Project-oriented businesses. Söderlund and Bredin (2006) HRM research in Project-based businesses faces unique obstacles in the areas of competence, trust, change, and people. They talk about these difficulties in the context of the HRM functions played by Project-oriented businesses (knowledge brokers, trust builders, change agents, and artist agency), and they pose pertinent

concerns for the concept's on-going evolution. While they do provide insights into the specific functions of HRM, they do not specify which HRM procedures would be most helpful for project management in Project-oriented businesses. Our findings expand upon those of Turner and coworkers, who argue that HRM practices' contributions to project success are inextricably linked to the POC's overarching strategy. Turner et al. (2008, p. 42) HRM in Project-Oriented Organizations, Including Project Assigning, Project Employment, Project Performance Management, Project Appraisal, Project Reward, and Project Distribution. Turner et al. (2008), who hone in on HRM practices in the context of project employment, argue success of a project can be attributed to certain HRM practices, such build the unique talents and competencies of the project team and that inspire the team through project evaluations and incentives. Nonetheless, human resource management researchers have discovered that HRM techniques are most successful when they cultivate individuals in terms of their capability, motivation, and opportunity for success. (Appelbaum et al., 2000; Boxall and Purcell, 2003; Gerhart, 2007; Lepak et al., 2006). This finding agrees with Subramony's meta-analysis. " organisations need to provide employees with sufficient opportunity to utilize their skills even if they have the capability and motivation to perform towards company objectives.," concludes Lepak et al. (2006, pp. 232-233). Human resource management (HRM) methods that boost people's abilities, motivations, and opportunities have a direct impact on a project team's capacity to produce useful information, as pointed out by Argote et al. (2003). This study builds on the work of Turner et al. (2008) by incorporating techniques that give workers a voice in the outcome of projects. Scholars in the field of strategic human resource management (SHRM) have repeatedly stressed the need to look at a variety of HRM techniques rather than just one, and to consider how each one contributes to the overall goal of bettering an organization's human resources in order to give it an edge in the market. More than that, Delery and Doty (1996, p. 802) , "the essential principle behind SHRM is that firms adopting a certain strategy require HR practices that are distinct from those required by organizations adopting other strategies,". This highlighted the significance of implementing certain HRM strategies in a given workplace setting. To put this into reality on a project, HRM the most effective performance-enhancing methods are those that are tailored to the specific needs of the context of the project. Thus, in this study, HRM practices are defined to include not just the three practices of

training, reward, and career development mentioned by Turner et al. (2008), but also the extra activities that have been shown to boost chances for project team members to engage in. Using these methods is said to boost project efficiency (e.g., Chuang et al., 2010). Empirical studies show a favorable correlation between HRM practices and project outcomes. Chen and Huang (2009), for instance, show that HRM practices have a beneficial influence on innovation performance by increasing the capacity for knowledge acquisition, sharing, and application in Taiwanese enterprises, which is particularly relevant for short-term performance. According to Chuang et al. (2010), team-based human resource management strategies are important in developing an organization's knowledge resources and skills because they facilitate the process of knowledge acquisition and dissemination. Swart and Kinnie (2010) conducted multiple-case research to find that HRM practices effect the level of support for unit learning, which, in turn, affects long-term performance. Furthermore, HRM practices sharpen a focus on the future, which may result in the provision of improved assistance and, ultimately, better project performance. Human resource management strategies, when taken as a whole, aid project teams in their pursuit of both immediate and long-term project success. In keeping with this line of thinking, we propose the following hypotheses.

H5: Human Resource Management has a significantly positive effect on Project Management in Iraqi Contracting.

2.9. Underpinning Theories

2.9.1. Agency Theory

Due to agency theory, a company's incentive for peak performance is a purely monetary one. McGregor's idea X, upon which agency theory is founded, claims that workers actively want to avoid their jobs because they dislike them (Glinkowska & Kaczmarek, 2015). Agency theory, as Till and Yount (2018) see it, is an overly simplified method of governing that prioritizes profit maximization over all else. When one party's actions are contingent on those of another, a connection of agency exists between the two parties (Aßländer, Roloff, & Nayir, 2016). According to Hernandez

and Ibarra (2016), the organizational structure, performance evaluation, and culture all have a role in the successful implementation of strategy in agency theory.

Since tensions arise when, say, a project manager is tasked with achieving organizational goals but the client has opposing views on results, much of the research on agency theory focuses on finding ways to strike a happy medium in the principal-agent relationship. Contracts between the agent and the principal promote actions that correspond with the aims of the shareholders to reduce goal conflict and self-interested judgments (Martin & Butler, 2017). Agency issues arise largely when shareholders are not also directly involved in the decision-making process through the board of directors or the executive management. Project performance may suffer owing to agency difficulties, as proposed by Panda and Leepsa (2017). The decision makers and implementers are not the ones who gain from good outcomes (Keay, 2017). According to Max Weber's 1947 research, when rules are unambiguous, risks are distributed fairly, and people are acting rationally, agency issues are minimized or eliminated altogether (Bendickson et al., 2016). However, the agency issues reemerge when the risk assessment changes. Adam Smith's observation of the agency problem is highlighted by Borlea and Alchim (2013), who state that managers who report to others are more likely to be careless with decisions and wasteful with resources. Borlea and Alchim (2013) continue by saying that opportunistic conduct on the part of managers is a potential cause of business failure. As Kultys (2016) noted, the nature of the principal-agent relationship might result in different legal duties (i.e., litigation) for the organization. However, research conducted by Mullaly (2014) reveals that agency theory can be a unique aspect in the success of project decisions, and that it may even lessen organizational deficiencies while bolstering organizational goals.

2.9.2. Stewardship Theory

Stewardship theory, great performance in the business world is driven by a desire for development, success, and expansion (Glinkowska & Kaczmarek, 2015). McGregor's Theory Y, which states that workers thrive and like their jobs, serves as the theoretical foundation for stewardship. Managers strongly connect with the organization's purpose and make decisions that are in line with the organization's objectives, as found by both Van Puyvelde et al. (2016) and Kaymaz et al. (2016).

Managers prioritize the organization's needs, but they also take into account the perspectives of both Stakeholders, both internally and exterior (Aßländer et al., 2016). Managers are presumed to be reliable and logical. Additionally, Kaymaz et al. (2016) proposed that since stewardship theory is trust-based, a control mechanism is unnecessary while making decisions. Keay (2017) argued that despite the absence of control mechanisms, stewardship theory still requires some form of responsibility. To be accountable means to be open and honest with one another. Martin and Butler (2017) asserted that a competitive edge may be achieved with the use of monitoring because of the minimal expenses involved. However, this is most effective when the board of directors is composed primarily of current or former company employees, since this allows for quicker responses to strategic concerns and better long-term results (Borlea & Achim, 2013). Responsibility and autonomy. How managers act and make choices is explained by both of these views (Glinkowska & Kaczmarek, 2015). Because project managers can be viewed as either adversaries or allies, these strategic theories can have an impact on project management, as discovered by Nuijten et al. (2016). Borlea and Achim (2013) argued that Despite what agent theories and management theory be employed alone, they are more powerful when used together. Because no one individual is an agent or a steward 100% of the time, and because circumstances have a big part in motivating conduct, Keay (2017) discovered via extensive study that adopting these ideas in conjunction may be the best approach for businesses to govern. Both of these hypotheses fail, according to Till and Yount (2018), since they fail to provide an explanation for what motivates people to really change their behavior. However, the theories of agency and stewardship are relevant to this research because they illuminate the factors that influence managers' choices.

2.10. Conceptual Framework

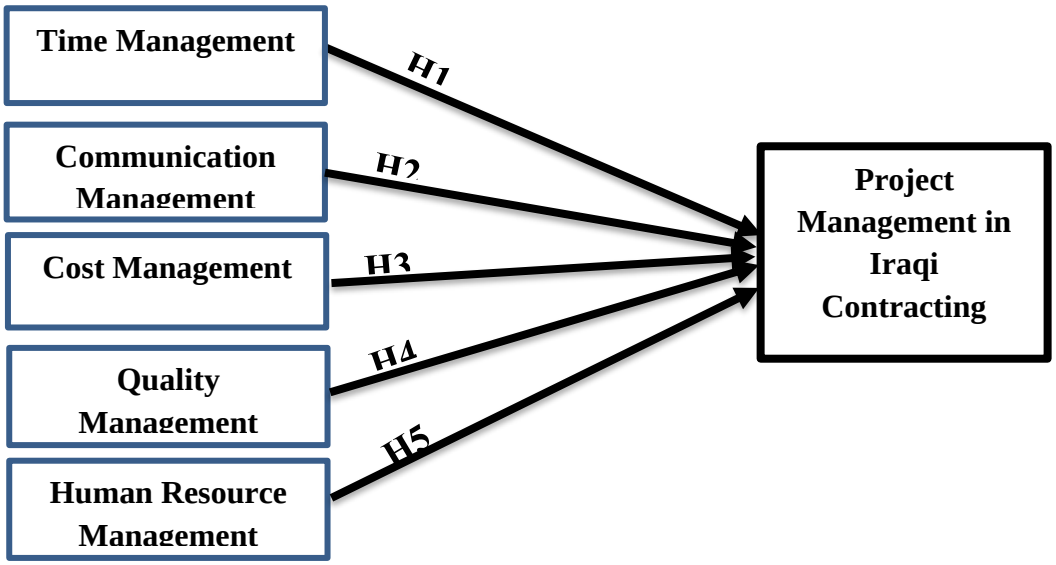

Figure 5.

2.11. Summary

This chapter reviewed the literature on previous and ongoing empirical work on the six variables of the study, including the effects of quality management and human resource the effects of building project management project customers in Iraq. An examination and discussion of the factors led to the development of hypotheses that helped shed light on the issues at hand and inform the direction of the investigation. The theoretical underpinnings, such as Stewardship theory and Agency theory, are given the opportunity to develop linkages between theories and complete institutions.

3. INTRODUCTION

The preceding chapter containing the literature review illustrated the studies dedicated to the preceding chapter containing research were provided in the academic review dedicated to Project Management in Iraqi Contracting. More specifically, the variables examined under this research include time management, communication management, cost management, quality management, human resource management and project management in Iraqi contracting. This chapter presents the study methodology, the questionnaire was used as a data-collecting instrument to accomplish the research objective. Besides, this chapter will also provide an overview on the research design, data sampling, data instrument, and testing in regards to the study's main aim.

3.1. Research Design

The research design is a in research, a research design is a "framework" (Creswell, J. W., & Creswell, J., 2003) or "model" (Fellows, R. F., & Liu, A. M., 2021) that lays out the steps to take in order to collect the data and information needed to answer research questions.

The present study employs a quantitative research approach as this is the most suitable research method for this study type (Bryman, A. ,2006). The quantitative approach encompasses a research framework based on the association between independent variables that may be reduced to numbers and applied to a large sample(Finnerty et al., 2013). A quantitative research concentrates on the research participants' inputs and the results can be easily collected, understood and linked to the subject matter under examination (Creswell, 2013). Moreover, quantitative outcomes are based on the ability and arguments of the author presented to reinforce the theory and outcomes. It refers to an approach that extensively makes use of systematic empirical relationships to increase information. A research of this type uses basis and impression premise that leads to accurate elements, hypotheses and concerns, using evaluation and observation and theories analysis (Creswell, 2013).

Descriptive and survey measurements were employed in this study. The research employed a descriptive technique on purpose, with the goals of characterizing

the industry and contractors involved in building projects and answering questions like "who," "when," "where," and "what sort" of issues have arisen. In addition, a survey methodology will be applied to the development of questionnaires in an effort to elicit responses from and gain insight into the perspectives of contractors working on building projects in Iraq. A questionnaire is a measuring strategy for gathering information from a cross-section of the research community (Zikmund et al., 1994). Therefore, the data will be collected using the hands of the special construction projects industry in Iraq.

3.2. Data Sampling

The research begins with a thorough investigation of Iraqi customers for building projects through a literature review. In a similar vein, the required number of responses was estimated by calculating a sampling size using Cochran's formula before the form was circulated. A sample size can be determined in two ways. The optimal sample size can be determined by first simulating an infinite population, and then downsampling to reflect the actual population size. The method created by (Cochran, W. G. ,1977). for the infinite population is as follows:

$$S = \frac{z^2 * p(1-p)}{M^2} \qquad (1)$$

Where:

S: is the sample size for an infinite population,

Z: is based on the confidence level and considered to be 95%,

Z score: = 1.96,

P: is population proportion (assumed to be 50% = 0.5),

M: is the margin of error, and it is taken to be ± 5%

$$AdjustedS = \frac{S}{1 + \frac{(S-1)}{population}} \qquad (2)$$

$$AdjustedS = \frac{384}{1 + \frac{(384-1)}{210}} = 136$$

.

This sample size is then, this number may be scaled up or down to the appropriate proportion of the target population. The total number of questionnaires sent out for this study was 210. In light of this, the minimum sample size needed to draw reliable conclusions from the survey is 136.

$$S = \frac{1.96^2 * 0.5(1 - 0.5)}{0.05^2} = 384$$

The term "convenience sampling" refers to a method of sampling in which the first accessible main data source is used for the study without any further prerequisites being met. In other words, this type of sampling entails recruiting subjects wherever it is most practical to do so. For participants to be included in a convenience sample, there are no predetermined criteria that must be met. Everyone is welcome to join in (Kothari, 2004).

Using convenience sampling has a number of benefits, such as (i) the easiness of sampling and research, (ii) aid in conducting pilot studies and developing hypotheses, (iii) the speed with which data may be collected, and (iv) lower implementation costs compared to other sampling strategies.

3.3. Data Instrument

A researcher's data instrument tool is any method or set of methods used to collect, organize, and analyze data in pursuit of knowledge. The questionnaire is used to collect information in this investigation. It is known to be the most practical and easy tool for data collection out of the research community and in this study, the questionnaire chosen is a close-structured questionnaire developed by the researcher where the respondent has to answer one of five questions. It is based on 5-Likert Scale by designing some special questions and restricting the options.

Table 1. Variables Scale Items

Variables	Items	Sources
Time Management	1. The supplier makes sure things are done on time. 2. The supplier eliminates time wasters in his project. 3. I think supplier have a 'to-do list' that he follows throughout the project process. 4. I think the project manager finished tasks on time. 5. Always supplier meets deadlines of customers projects.	Johnson-Blake (2009)
Communication Management	6. I think supplier do effectively communicate. 7. The supplier makes a high level of performance. 8. I believe that project manager provides a high quality of communication 9. I believe that project manager makes the effort to interact with me frequently. 10. Supplier project manager meets face-to-face with me to speak about my work performance at the frequency. 11. I believe that interaction with supplier project manager influences my satisfaction.	Arons (2010)
Cost Management	1. The supplier interested in serving the customer and reducing cost 2. Better supplier's cost awareness, more economical batch size 3. I think the relationship between supplier and project customer is win-win situation. 4. Supplier annual sales effect by customers projects 5. I think reducing supplier price increase sales.	Kulmala (2004)
Quality Management	1. Quality management is embraced in the vision of the company. 2. Top management reviews organizations QMS at planned intervals to ensure continuity, adequacy and fectiveness. 3. Employees are motivated towards the organization's goals and objectives 4. Top management devotes resources for development and support for ISO certification 5. There is the provision of resources for training and freedom to act with responsibility and accountability 6. Quality policies and procedures are documented and communicated to all employees 7. Quality policies are reviewed regularly to meet the needs of the organization 8. Quality policies are communicated and understood throughout the organization 9. Management takes leading positions in guiding quality teams 10. Top management establish trust and commitment to quality improvement by eliminating fear 11. The management allows participative and engagement of employees in making decisions on quality issues 12. Authorities and responsibilities are defined and communicated throughout the firms by management 13. There are creation and sustenance of shared values and fairness at all levels of the organization.	Saunders et al., 2007
Human	1. The human resources department communicates closely with	(Jiang et al.,

Resource Management	manufacturing when writing job descriptions 2. Job design at this plant is closely coordinated with manufacturing 3. The human resources department has a close and positive working relationship with manufacturing 4. Staffing, training and development of employees is closely coordinated with manufacturing 5. Manufacturing works well with human resources staff when changes take place in the manufacturing process 6. Human resources staff knows what manufacturing considers important in the training of employees for new skills	2012;Vomberg et al., 2015; Rauch and Hatak, 2016; Chadwick and Li, 2018; Ho and Kuvaas, 2020).
Project Management	1. Successful projects are those that meet cost, scope and schedule 2. Overall project schedule performance was met based on baseline goals, targets, or expectations. 3. Successful projects require leadership, experienced project managers, and an organisation that facilitates project.	Oren (2009)

3.4. Data Analysis Technique

Data analysis is used for checking, the process of preparing, examining, transforming, and modeling data with the aim of gaining insights, arriving at a conclusion, and facilitating decision-making. The researcher will be using SPSS, version 26.0, to evaluate the data gathered for this study. The SPSS package includes tools that may be used to analyze the textual responses, such as a reliability test, a correlation analysis, and others.

3.4.1. Reliability Analysis

Reliability analysis is the first step in the test validation process (Wells & Wollack, 2003). Reliability analysis is employed to examine the measurement items in terms of their internal consistency. Specifically, it is carried out by calculating the Cronbach's alpha reliability coefficients for the new set up dimensions for the evaluation and testing of items. Cronbach's alpha refers to a statistic that examines the questionnaire items' internal questionnaire (Cronbach, 1951). Cronbach's Alpha ranges from 0 to 1.00 with value close to 1.00 indicating high consistency (Wells & Wollack, 2003). For high-stakes standardised exams, an internally consistent value of at least 0.90 is preferred, but for low-stakes examinations, an internally consistent value of as most 0.80 or 0.85 is used instead (Wells & Wollack, 2003). The reliability coefficient is suggested to be 0.70 or higher (Lehman, 2005; Wells & Wollack, 2003).

On the basis of Sekaran and Bougie (2019) study, he established that reliability analysis lower than 0.60 is poor, while 0.80 is good. The summary of the obtained reliability coefficient of the items is presented in Table 3.9.

Table 2. Summery of Reliability Coefficient

Reliability coefficient	Remarks
Less than 0.60	Poor
0.70	Acceptable
0.80	Good
0.90 and more	Excellence

Sources : (Sekaran & Bougie, 2019)

3.4.2. Descriptive Statistics

Analysis of descriptive data, such as frequency, percentage, mean, and standard deviation, provides insight into how respondents overall feel about each questionnaire category (Robert Cavana, Delahaye, & Sekaran, 2019). Descriptive statistics are used when they accurately portray important traits including behavior, opinion, ability, belief, and knowledge of a person, group, organization, or circumstance. Taking a data-driven approach to understanding guest habits in hotels, as is the current trend, was entirely in line with the findings. Mean, median, and standard deviation are examples of measures of central tendency and dispersion that may be derived from interval data and used in descriptive statistics (Wen, 2006). The central tendency and the extent of variability in the variables' distribution are respectively determined by the mean score and the standard deviation. Because the variables' items were scored using a 5-point Likert scale, we may interpret the mean scores as falling into one of three categories: low (scores of 1-2.99), moderate (scores of 3.00 to 4.99), or high (scores of 5.00 to 7.00) (Lopes, 2012).

Table 3. Summery of Descriptive Analysis

Mean score	interpretation
1.00 – 1.99	Low
2.00 – 3.49	Moderate
3.50 – 5.00	High

Source: (Lopes, 2012)

3.4.2. Correlation Analysis

1) A correlation can be found by comparing the variation in one set of variables to another, as shown in a prior research (Robert Cavana, Delahaye, & Sekeran, 2019). As a result, the appropriate statistical procedure is one that assesses the degree to which two variables are related. What's more, there are three goals associated with the R-value of the correlation coefficient:
2) To examine is whether the correlation coefficient is statistically significant.
3) To measure what strength of association.
4) To know the relationship between the variables; positive or negative (Hair, Money, Samouel, & Page, 2007)

According to the research of Coakes, Amar, and Luisa Granados (2010) and Sekaran (2003), a value of 1.0 (plus 1) indicates a perfect positive correlation. Otherwise, there is a perfect -1 negative correlation. A positive or negative number indicates a good or negative direction, whereas a positive or negative value indicates a strong association (Coakes et al., 2010).

3.7. Summary

This chapter serves as a guide in conducting this research. At the outset of this chapter, we describe the progression of the study design and processes from hypothesis formation through questionnaire creation to data collection. Methods of analysis tailor-made for this study are also outlined here. After finishing data collection using the survey questionnaire, the researcher will utilize SPSS to analyze and interpret the results. In addition, the study design, measurements, and data collecting were all accounted for in the framework and process flow.

4. INTRODUCTION

The present chapter has three sections divided as follows; cronbach's Alpha Reliability Test results and discussion of the demographics of the respondents make up the first section, while the psychometric properties of the measuring scales used in the study are presented in the second. The examination of the research hypotheses is discussed in the third and final part.

4.1. Response Rate and Demographic Profile

The rate of response and the demographic profile of the respondents are both essential in explaining the implications of the research findings. Therefore, in the present section, the rate of response and the respondent profiles (demographic characteristics) are presented and discussed.

4.1.1. Response Rate

The present study examined project management on construction projects contractors in Iraq, the contractors was selected to distribute the questionnaires to because among the contractor's category in Iraq, this is one of the best options in terms of project management. Following three weeks of hand to hand and online data collection and through email involving the distribution of 520 questionnaires in contractors, 350 questionnaires were retrieved, while the remaining (170) were unreturned or incomplete.

Table 4. Summary of questionnaires distributed

Iraq	Total	Present (%)
Distributed questionnaires	520	100
Usable questionnaires	350	67.4
Unreturned/incomplete questionnaires	170	32.6

4.1.2. Respondents Demographic Characteristics

The demographic profiles of the respondents including Field of operation, age, expertise, position, Project Ownership, and Role in the project are presented in table 4.2.

Table 5. Frequency and percentage of demographic information

		Frequency	Percent
Field of operation	Engineering	175	50
	Architecture	88	25.1
	Construction	87	24.9
	Total	**350**	**100.0**
Age	Less than 30	50	14.2
	31-40	80	22.8
	41-50	100	28.5
	More than 51	120	34.5
	Total	**350**	**100.0**
Number of years that your company has been operating in the construction industry	0-5 years	49	14.0
	5-10 years	109	31.1
	10-15 years	114	32.6
	15-20 years	44	12.6
	>20 years	34	9.7
	Total	**350**	**100.0**
Areas of expertise of your company	Infrastructure	42	12.0
	Transportation	59	16.9
	Building	92	26.3
	Industrial	44	12.6
	Water Structures	41	11.7
	Other	72	20.6
	Total	**350**	**100.0**
Your position at the company	Owner	150	42.8
	Board Member	49	14
	Director	50	14.2
	Manager	43	12.2
	Engineer	50	14.2
	Other	8	2
	Total	**350**	**100.0**
Project Ownership	Sole	151	43.1
	Joint Venture	123	35.1
	Consortium	70	21
	Other	6	0.8
	Total	**350**	**100.0**
Role in the project	Contractor	160	45.5
	Designer	100	28.5
	Client	45	12.8
	Sub-Contractor	40	11.8
	Other	5	1.4
	Total	**350**	**100.0**

Starting from gender, it is evident from the table that in construction projects in Iraq, majority of the respondents (50%) were Engineering, while the remaining (25.1%) were Architecture. Moving on to age, majority of the respondents (34.5%) were in the age group of more than 51of age, while the least of them were in the Less than 30 old category at (14.2%). As for the operating in the construction industry of the respondents in university, most respondents (32.6%) were 10-15 years, while the least (9.7%) were >20 years. Based on expertise, the respondents mostly (26.3%) were Building, while the least of them (11.7%) were Water Structures. Based on their position of the respondents mostly (42.8%) were Owner, while the least were in the Other (2%). Based on their Project Ownership of the respondents mostly (43.1%) were Sole, while the least were in the Other (0.8%). Finally, based on their Role in the project of the respondents mostly (45.5%) were Contractor, while the least were in the Other (1.4%).

4.2. Reliability Analysis

According to Sekaran (2019), The consistency and stability of a variable may be measured with a reliability test; the most common reliability instrument is Cronbach's alpha. A high Cronbach's alpha indicates excellent data dependability; one below 0.70 indicates poor reliability; and one over 0.80 indicates good reliability (Sekaran, 2019).

Table 6. The stability of the instrument Cronbach's alpha for the variables

No.	Variables	No. of items	Cronbach's alpha	Remarks
1	Time Management	5	0.873	Good
2	Communication Management	6	0.864	Good
3	Cost Management	5	0.832	Good
4	Quality Management	13	0.801	Good
5	Human Resource Management	6	0.832	Good
6	Project Management	3	0.873	Good

In Table 4.3, the reliability analysis of the variables from the contractors in Iraq data is presented. From the table, it is evident that the Cronbach’s alpha coefficient obtained for Project Management (dependent variable). As for the independent variables, the Cronbach’s alpha coefficients obtained are as follows; 0.873 for Time Management, 0. 864 for Communication Management, 0.832 for Cost Management,

0.801 for Quality Management, and lastly 0.832 for Human Resource Management. All the results obtained of the Cronbach's alpha coefficients for the dependent variable as well as for the independent variables ranged from acceptable to good.

4.3. Factor Analysis

Based on the results of the (KMO) test presented in the table below, the "Bartlett" statistic has a value of (0.905) on the "Olkn" scale, making it higher than Given that the since the P-value of the Bartlett test is 0.00 and less than the critical value of 0.05, we know that the correlation matrix is not equal to the matrix unit and that there is a link between some of the variables in the matrix, allowing us to perform a global analysis of the data and providing further evidence for the validity of the factors we obtain through factor analysis.

The following table "Kaizarr Mir UConn" measure to judge the adequacy of the sample and test "Bartlett" of the data.

Table 7. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.905
Bartlett's Test of Sphericity	Approx. Chi-Square	6688.539
	Sig.	.000

4.4. Descriptive Finding

On the basis of the descriptive analysis findings, the summary of the respondents' perceptions of variables were obtained to confirm their validity and reliability. More specifically, all of the measurement data was subjected to descriptive analyses contractors tables 4.5, 4.6, 4.7, 4.8, and 4.9 show the outcomes of a study of time management, communication management, cost management, quality management, and human resource management. The lowest possible score was 1, and the highest possible score was 3.50. Values between 2.00 and 3.49 were categorized as moderate. (Lopes, 2012).

Table 8. Results for Time Management

Items	Minimum	Maximum	Mean	Std. Deviation
TM1	1	5	4.34	.682
TMI2	2	5	4.27	.576
TM3	2	5	4.06	.598
TM4	2	5	4.25	.585
TM5	2	5	4.17	.613
TM6	2	5	4.42	.614

From Table 4.5, the mean range for Time Management in construction projects in Iraq falls between 4.06 and 4.42, with the highest obtained for **'(TM6)** (4.42±0.614), and the lowest for **'(TM3)** (4.06±0.598).

Table 9. Results for Communication Management

Items	Minimum	Maximum	Mean	Std. Deviation
CO1	1	5	4.10	.555
CO2	2	5	4.19	.570
CO3	2	5	4.12	.532
CO4	2	5	4.17	.586
CO5	1	5	4.11	.596
CO6	1	5	4.11	.595

Table 4.6 displays the mean range for Communication Management, in t in construction projects in Iraq, falls between 4.10 and 4.19, with the highest obtained mean for **'(CO2)** (4.19±0.570), and the lowest for **'(CO1) (**4.10±.0555).

Table 10. Results for Cost management

Items	Minimum	Maximum	Mean	Std. Deviation
OS1	3	5	4.41	.557
OS2	3	5	4.43	.586
OS3	2	5	4.29	.563
OS4	1	5	4.26	.569
OS5	1	5	4.27	.577

Table 4.7 contains the mean range for the independent variable Prompt feedback of students. In the construction projects in Iraq, falls between 4.26 and 4.43, with the highest mean obtained for **'(OS2)** (4.43±0.586), and the lowest mean obtained for **'OS4'** (4.26±0.569).

Table 11. Results for Human Resource Management

Items	Minimum	Maximum	Mean	Std. Deviation
HRM1	1	5	4.27	.594
HRM2	2	5	4.28	.563
HRM3	2	5	4.41	.592
HRM4	3	5	4.33	.591
HRM5	1	5	4.15	.595
HMR6	1	5	4.16	.598

Table 4.8 presents the mean range of the independent variable Human Resource Management falls between 4.15 and 4.41, with the highest obtained mean for **'(HRM3)** (4.41±0.592) and the lowest mean score for **'(HRM5)** (4.15±0.595).

Table 12. Results for Project management

Items	Minimum	Maximum	Mean	Std. Deviation
PM1	1	5	4.23	.578
PM2	2	5	4.11	.585
PM3	1	5	4.33	.618
PM4	2	5	4.36	.608
PM5	1	5	4.22	.607

Table 4.9 displays the mean range for Project management, in construction projects in Iraq, falls between 4.11 and 4.36, with the highest mean for **'(PM4)'** (4.36±0.608), and the lowest for **'(PM2)** (4.11±0.585).

Table 13. Results for Quality Management

	Minimum	Maximum	Mean	Std. Deviation
QUM1	2	5	4.31	.536
QUM2	1	5	4.26	.554
QUM3	1	5	4.28	.574
QUM4	2	5	4.28	.544
QUM5	2	5	4.44	.560
QUM6	3	5	4.34	.560
QUM7	1	5	4.13	.558
QUM8	1	5	4.23	.558
QUM9	2	5	4.09	.548
QUM10	1	5	4.10	.590
QUM11	1	5	4.38	.580
QUM12	2	5	4.40	.555
QUM13	1	5	4.26	.578

Table 4.10 displays the mean range for Quality Management, in in construction projects in Iraq, falls between 4.09 and 4.40, with the highest mean for '(**QUM12**)' (4.40±0.555), and the lowest for '(**QUM9**) (4.09±0.548).

4.5. Pearson Correlation Analysis

In the present study, the significance of linear bivariate relationship between the independent variables of time management, communication management, cost management, quality management, and human resource management, and the dependent variable of Project management was measured with the help of Pearson correlation analysis. Tables 4.11 display the results of the analysis in contractors in Iraq. The correlation analysis was primarily conducted to determine the relationship strength between each independent variable and the dependent variable.

Table 14. Pearson's Correlation Analysis of Variables

	Time Management	Communication Management	Cost Management	Quality Management	Human Resource Management	Project Management
Time Management	1					
Communication Management	.685**	1				
Cost Management	.708**	.536**	1			
Quality Management	.705**	.659**	.806**	1		
Human Resource Management	.708**	.536**	.659**	.806**	1	
Project Management	.691**	.687**	.713**	.807**	.685**	1

**. Correlation is significant at the 0.01 level (2-tailed).

This study employed the rule of thumb establishing that R-value of 0.10, 0.13 and 0.50 indicate low, medium and strong relationship as recommended by Green et al. (1997). On the basis of this rule of thumb, in the contractors in Iraq, all the correlation coefficients in the table are positive and significant. In particular, time management, communication management, cost management, quality management, and human resource management (independent variables) all registered positive and significant relationships with Project Management (dependent variable). The findings shows that the independent variables all positively correlated at the level of 0.01, with the highest correlation obtained between Time Management and Cost Management ($r=0.807$, $p<0.01$), and the lowest between prompt feedback of students and course design ($r=0.536$, $p<0.01$). In sum, all the variables positively correlated with each other in contractors in Iraq.

4.6. Hypothesis Testing Result of Direct Relationship of Variables

The hypotheses correlation coefficients (R), coefficients of determination (R2), and multiple regression analyses (MRAs) were used to examine the model's suitability.

The probable range of correlations that were taken into account was +1 to -1, and the general rule of thumb is that r values of 0-0.2 are weak, 0.3-0.6 are moderate, and 0.7-1 are high (Brace et al., 2000). The coefficient of determination (R2) is calculated to show what fraction of a variable's volatility can be accounted for by another. It's a metric for determining how well one can extrapolate information from a given model or graph. Finally, multiple regressions (beta) assess the extent to which several sets of independent variables (predictors) affect the dependent variable (the criteria). Multiple regression analysis allows researchers to examine hypotheses and models concerning the impact of a given collection of factors on a target outcome. The R2 coefficient is a measure of the strength of the association between two variables, whereas multiple regression analyzes the interplay between numerous independent variables and a dependent one. However, the coefficient (R2) represents the degree to which the variables are linearly related to one another. In the current study, Pearson Correlation Coefficients were used to validate the importance of the correlation coefficients between the pairs of variables, allowing for an examination of r. In this context, we employ linear regression analysis to quantify Beta. The findings of the initial extensive testing of hypotheses are shown in Table 4.11. In accordance with the first hypothesis;

H1: Time management, communication management, cost management, quality management, and human resource management have a significantly positive effect on Project Management in Iraqi Contracting.

Table 15. The results of the application of the regression Time management, communication management, cost management, quality management, and human resource management direct positively correlates with the Project Management

Variables	B	T	Sig.	R	R^2	F	Sig.
Time management	.263	2.168	.031	.841[a]	.708	209.219	.000[b]
communication management	.100	5.420	.000				
cost management	.225	2.515	.012				
quality management	.126	8.510	.000				
human resource management	.546	.992	.000				
a. Dependent Variable: Project Management							

Based on Tab. 4.12 shows that at the 5% level of significance, there is a direct statistical association between Time management, communication management, cost management, quality management, human resource management, and Project management among Iraqi contractors. The findings show that the value test statistic, F, is 209.219. The correlation coefficient, R, is 0.841, and the squared correlation coefficient, R2, is 0.708. That's why we'll go ahead and accept the theory.

4.7. Summary of Findings

According to the multiple regression analysis results, the following table summarizes the study findings.

Table 16. Summary of Hypotheses

The Hypotheses	Result	
H1	Time management has a significantly positive effect on Project Management in Iraqi Contracting.	**Supported**
H2	Communication management has a significantly positive effect on Project Management in Iraqi Contracting.	**Supported**
H3	Cost management has a significantly positive effect on Project Management in Iraqi Contracting.	**Supported**
H4	Quality Management has a significantly positive effect on Project Management in Iraqi Contracting.	**Supported**
H5	Human Resource Management has a significantly positive effect on Project Management in Iraqi Contracting.	**Supported**

In sum, all the study hypotheses are supported, confirming the acceptability of the study's proposed model.

4.8. Conclusion

In this chapter, we tested the hypothesis suggested in Chapter 2. Analyses such as a frequency table, descriptive analysis, and reliability and validity were performed using SPSS. This chapter also provided an illustration of the hypothesized model to test for goodness-of-fit indices and validate the hypothesized link between the independent variables of time management, communication management, cost

management, quality management, and human resource management, and the dependent variable of Project management among contractors operating in Iraq. The findings validated the independent variable's influence on the dependent variable, proving all of the predicted relationships.

5. INTRODUCTION

The results of the proposed hypothesis tests in the third semester were viewed in the previous semester. In this chapter, the data collected according to the research questions presented in the first chapter are explained in order to meet the objectives of the thesis. The results are discussed in relation to the ideas they explain, based on research findings and previous findings presented in the literature. Limitations and suggestions for further research are also included in the chapter.

5.1. Recapitulation of the Study

The objectives that this study attempts to reach are:

1. To examine the time management, communication management, cost management, quality management, and human resource management for project management on building project.

The survey method was used, where the sample was selected through the probability sampling technique in this study, where information can be collected contractor in Iraq from the data they volunteered through the questionnaire. Accordingly, 520 questionnaires were distributed in Iraq, after which 350 questionnaires were retrieved, respectively. The final virtual model was tested for its reliability and validity.

Based on hypothesis testing, the results supported **H1**. Time management has a significantly positive effect on Project Management in Iraqi Contracting. Based on hypothesis testing, the results supported **H2**. Communication management has a significantly positive effect on Project Management in Iraqi Contracting. Based on hypothesis testing, the results supported **H3**. Instructor's Prompt Feedback has a positive influence on Perceived Performance For students at Halabja University. Based on hypothesis testing, the results supported **H4**. Quality Management has a significantly positive effect on Project Management in Iraqi Contracting. Based on hypothesis testing, the results supported **H5**. Human Resource Management has a significantly positive effect on Project Management in Iraqi Contracting.

5.2. Theoretical Contributions

The significance of this research was that projects are used across all businesses to accomplish strategy, but that strategy and projects aren't always aligned. Results may help project managers, especially in the contracting industry, better understand how projects contribute to and align with the strategy of a company, so making projects a more vital component of that strategy. As a result of this study, managers will have a better idea of how to utilize the findings to ensure that the projects they select are in line with the organization's strategic goals. The results of this study might be used by project managers in the contracting industry to better integrate their projects into the overall strategic goals of their companies, hence increasing the likelihood of the projects' success. Organizations will increase their use of project management as the pressure to achieve strategic results through projects grows. Reasons why projects have not been properly linked with organizational strategy will be uncovered through the research.

5.3. Limitations

Understanding the research project's short cost management rings is crucial to its success. Education literature benefited from the author's efforts in this thesis. The only way for management to benefit from these investments is if they are accompanied by a candid assessment of the constraints they face. Future research directions are explored in this paper. Some of these restrictions will be discussed below.

We ran across certain problems with our methodology as the study progressed. For this study, we employed online survey tools to compile our data. Because the information obtained cannot be independently validated, this approach can only be described as descriptive and restricted. This might make it difficult, if not impossible, to draw any conclusions about the link between the study's dependent and independent variables. As a result, it is impossible to utilize the approach to study the crucial connection between variables in order to draw a broad conclusion (Yarkoni, 2019).

There are limits imposed by the study approach, which treats variables like time management, communication management, cost management, quality management, and human resource management as fixed factors. If the opinions of just

contractors in Iraq are considered, the results may not be indicative of the most important criteria for all contractors.

The research is limited to Iraqi contractors, but international data collection would likely yield more accurate findings across all aspects of management (including but not limited to time management, communication management, cost management, quality management, and human resource management). In order to evaluate manager effectiveness in comparable contexts in the future, this study only examines the quality of Project management among Iraqi contractors.

5.4. Recommendations and Further Research

This research is a first step in inspiring more in-depth studies on the interconnected nature of project management's time, communication, cost, quality, and human resource domains. The study's author suggests that everyone involved in the Construction industry and the Project should adopt the study's proposed Project management model in order to save costs, boost efficiency, and speed up the entire undertaking. Moreover, the management of time, communication, cost, quality, and human resources all play crucial roles in enhancing Project management and ensuring the satisfaction of both suppliers and consumers. In addition, the study's author advises that, before beginning any project, suppliers should familiarize themselves with the concepts of time management, communication management, cost management, quality management, and human resource management. This will help ensure effective completion of the program and in a timely fashion while also meeting the needs of the project's end customers. In addition, the researchers recommend incorporating strategic management into every aspect of project management, as this type of management is becoming increasingly widespread. This will help ensure the success of your projects while also allowing you to monitor the market for up-and-coming competitors who, thanks to factors like innovative project technologies or novel approaches to project management, could quickly rise to the top (Al-Nady et al., 2013).

Given these restrictions, more empirical investigation is required to broaden the scope of the study. In order to get better results and get around cost management hurdles, it is possible to expand and improve upon the current research framework.

Future research to more broadly generalize the findings, future study may also incorporate the perspectives of educators and policymakers. Although this study mainly focuses on Iraqi contractors, it recommends that future studies expand their sample to include other countries including countries outside of the Middle East. Expanding the study's sample size has been recommended for future research. In addition, the research was carried out in other cities in Iraq, or to draw parallels between the various cities in Iraq.

5.5. Conclusion

The results of the study indicated that project managers' ability to successfully implement interaction practices such as time management, communication management, cost management, quality management, and human resource management had a significant impact on project operation, worker satisfaction, and employee commitment on the job. Whether a project's environment is stable or undergoing constant change and growth initiated by project acquisitions, the findings of this study highlight the significance appreciation for management's function in business and the development manager's responsibility in creating an atmosphere conducive to success. Effective cost management is both a managerial necessity and a personal or professional obligation. Cost management is a never-ending, interconnected process that needs regular inspection to keep running well. While it is recommended that businesses create cost recovery strategies, those rules are discretionary and can only be used if and when the business sees fit. In order to estimate what much an operation can took and how much money program management must determine what resources should be (with the support of maybe one or two specialist employees) must construct an initial cost management system with interaction and coordination within the program. In order to get the project greenlit, this is required. If we assume that staff or contractors will be responsible for completing the project's work, we may encourage them and hold them accountable by letting them develop their own estimates for each job rather than handing them over to them. If we use this strategy, we will need to update the original estimate for the entire project, but the new number will be more precise. The project manager is responsible for reviewing and approving each staff estimate and raising questions about those that

appear to be too low. The staff member who consistently delivers inflated projections is either incompetent, lazy, or terrified of taking on responsibility, all of which are reasons to get rid of them. The management does not want someone with any of those traits working for us. First, we need to figure out if the people working on the project just need additional time, or if they're in over their heads. Overtime is the solution if they just need more time, however we obviously can't afford to do this forever. If they are unable of completing the work at hand, then we must either scale back the project's requirements (fewer features, poorer quality), or replace them with someone who is. It is rare that adding more people to a team that is already working on a job improves performance. Human psychology issues compound the productivity losses associated with this.

Having a well-executed project management model in place is thought to help businesses maintain their cost management advantages both domestically and abroad, but this highlights the fact that researchers in Iraq have yet to develop a comprehensive framework for studying the factors that influence this field.

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