RISK MANAGEMENT ASSESSMENT BASED ON MANAGERIAL COMMUNICATION SKILLS FOR LIBYAN OIL AND GAS PROJECTS

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ABSTRAK

Komuniti pengurusan projek sedang aktif membahaskan cara mengenal pasti faktor yang membawa kepada kejayaan projek. Kedudukan pengurus projek dan kesannya terhadap hasil keseluruhan projek telah menjadi topik hangat di kalangan penyelidik, industri dan ahli akademik. Percubaan untuk mentakrifkan ciri dan kecekapan pengurus projek yang baik telah membawa kepada pengiktirafan bahawa pelbagai kecekapan melangkaui kemahiran teknikal diperlukan. Oleh kerana kemahiran manusia dan kepimpinan pengurus projek adalah penting untuk kejayaan projek, kebolehan ini mesti diajar dan dibangunkan sebagai sebahagian daripada pendidikan pengurusan projek. Sebagai tindak balas kepada permintaan ini, kajian ini bertujuan untuk mengenal pasti faktor yang mempengaruhi kemahiran komunikasi pengurusan dalam projek minyak dan gas Libya dan pendekatan untuk melaksanakan prinsip pengurusan risiko dalam projek ini untuk meningkatkan kecekapannya. Kajian literatur yang berkaitan dan pentadbiran soal selidik telah digunakan untuk menentukan faktor yang memberi kesan kepada pelaksanaan pengurusan risiko yang berkaitan dengan kemahiran komunikasi pengurusan. Untuk mencapai kadar respons yang baik, 260 soal selidik telah dihantar secara rawak kepada syarikat minyak dan gas di Tripoli, Libya. Sebanyak 246 soal selidik yang boleh digunakan telah diterima, yang mencukupi untuk analisis menggunakan pemodelan persamaan struktur (SEM) dalam perisian Smart PLS. Selain itu, pendekatan pemodelan persamaan struktur digunakan untuk mengkaji hubungan langsung dan penyederhana yang dicadangkan oleh hipotesis. Oleh kerana reka bentuk kajian kuantitatif adalah berdasarkan paradigma penyelidikan positivis, metodologi diwujudkan untuk memfokuskan kepada persoalan kajian dan objektif kajian. Soal selidik telah dibuat menggunakan skala pengukuran selang tertutup, dan perhatian yang besar diberikan kepada mereka bentuk semua instrumen tinjauan. Penemuan kajian ini, yang diperolehi melalui SEM, mencadangkan bahawa kemahiran insaniah pengurusan boleh meningkatkan proses pengurusan risiko berterusan dan komunikasi intra-projek dalam industri minyak dan gas Libya. Pendekatan ini dijangka akan membantu pihak berkepentingan projek semasa fasa perancangan dan membantu dalam menghasilkan projek berkualiti tinggi yang dipantau rapi dari segi pengurusan masa dan kos. Ini menunjukkan bahawa penemuan kajian menyumbang kepada pemahaman yang lebih baik tentang faktor-faktor yang mempengaruhi pengurusan risiko yang berkaitan dengan kemahiran komunikasi pengurusan. Ia mungkin dilaksanakan untuk membantu proses membuat keputusan pengurus dan berfungsi sebagai rujukan berharga untuk penyelidikan seterusnya dalam bidang pengurusan projek pembinaan.

ABSTRACT

The project management community is actively debating how to identify the factors that lead to project success. The project manager's position and its impact on the project's overall outcomes have become a hot topic among researchers, practitioners, and academics. Attempts to define the traits and competencies of good project managers have led to the recognition that a range of competencies beyond just technical skills is required. Because a project manager's human and leadership skills are critical to a project's success, these abilities must be taught and developed as part of project management education. In response to this demand, this study aims to identify factors affecting managerial communication skills in Libya's oil and gas projects and an approach for implementing risk management principles in these projects to improve their efficiency. A review of relevant literature and the administration of a questionnaire were used to determine factors impacting risk management implementation related to managerial communication skills. To achieve a good response rate, 260 questionnaires were randomly sent to oil and gas companies in Tripoli, Libya. A total of 246 usable questionnaires were received, which was sufficient for analysis using structural equation modeling (SEM) in Smart PLS software. Additionally, a structural equation modeling approach was employed to examine the direct and moderating relationships proposed by the hypotheses. Because the quantitative research design was based on the positivist research paradigm, the methodology was created to focus on the research questions and the study's objectives. The questionnaire was created using a closed interval measurement scale, and great attention was given to designing all the survey instruments. The findings of this study, obtained through SEM, suggest that managerial soft skills can improve continuous risk management processes and intra-project communication in Libya's oil and gas industry. It is anticipated that this approach will assist project stakeholders during the planning phase and aid in producing high-quality projects that are closely monitored in terms of both time and cost management. This suggests that the study's findings contribute to a better understanding of the factors affecting risk management related to managerial communication skills. They might be implemented to assist managers' decision-making processes and serve as a valuable reference for subsequent research in the field of construction project management.

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LIST OF ABBREVIATIONS

IPA	Independent Project Analysis
BP	British Petroleum
BPD	Barrels per day
E&P	Exploration and Production phases
EIA	Environmental Impact Assessment
EPC	Engineering Procurement and Construction
EPSA	Exploration and Production Sharing Agreements
EXP	Experience.
EY	Ernst & Young
GCS	General Communication Skills
GDP	Gross domestic product
IMF	International Monetary Fund
IOC	International Oil Company
OPEC	Organization of the Petroleum Exporting Countries
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
PRAM	Project Risk Analysis and Management
PRMP	Project Risk Management Practices
PCS	Project Communication Skills
SEM	Structural Equation Modelling
VCS	Verbal Communication Skills
WCS	Written Communication Skills
PLS	Partial Least Square

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

According to the British Petroleum Statistical Analysis of World Energy for June 2022, both the consumption and production of oil and gas worldwide have recently skyrocketed to never seen before (BP, 2022). In addition, the analysis found that the global demand for oil had climbed by 1.4 million barrels per day, which is equivalent to a 1.5% increase, while production had increased by 5.3 million barrels per day since 2019 (BP, 2022). The increase in many nations' gross domestic product has been slightly outpaced by investments in the oil and gas industries (Lyu & Fang, 2023).

In 2021, there was a significant increase in the cost of electricity worldwide. In direct proportion, hydrocarbon producers increased their investment levels to satisfy the necessary capital levels (Lyu & Fang, 2023). Oil prices increased by about 70%, culminating in Brent reaching over $70 per barrel, which is the second-highest level since 2015 when adjusted for inflation (BP, 2022). The International Energy Agency (IEA) predicted that the worldwide oil and gas market will incur a total expenditure of $22.4 trillion between 2014 and 2035 (International EnergyAgency, 2019).

Regarding projects, a substantial number of Oil and Gas endeavours are going above their initial expense projections. According to Ernst &Young (2014), 89% of Oil and Gas projects in the Middle East, 67% in Africa, and 68% in Asia Pacific are doing so. These percentages generally pertain to the amount of time that has been lost due to delays in the completion of projects: 82% in Africa, 87% in the Middle East, and 80% in Asia Pacific (Ernst &Young, 2014). The magnitude of cost overruns and scheduled delays underscore the fact that 65 percent of the evaluated projects encountered budget shortages, with an overall increase in acceptable spending of 23 percent. Conventional

oil and gas industry megaprojects are expensive and typically encounter large delivery delays (Natarajan, 2022).

The extraction of oil and natural gas in Libya is the primary economic driver for the nation and accounts for a sizeable portion of the country's gross domestic product. According to the International Monetary Fund (IMF, 2023), oil and gas production is the primary driver of Libya's economy. This sector contributes around 96% of total government revenue. In addition to being a significant exporter of natural gas, Libya is the ninth biggest in the world in terms of its oil and gas reserves (BP, 2022). In Africa, Libya has the greatest oil and gas reserves. Nevertheless, there is a lot of variation in output levels because of the war. In 2021, Libya had an average export volume of 1.2 million barrels per day, which resulted in a yearly income of around $22 billion to 24 billion US dollars. In the oil and gas business, making risk management a top priority is necessary in light of the current difficult circumstances (Libya Economicm, 2021).

Oil and gas industries are exposed to risks that might influence the overall cost, time, and quality of a project. According to Noghabaei et al. (2020) research, between 40 and 50 percent of infrastructure projects worldwide are anticipated to incur budget overruns. Inefficiencies in the processes of delivering projects are a far more substantial contributor to these problems than the expenses of raw materials or labour. According to Orgut (2017), owners frequently regard the project controls as inadequate, listing project management teams and cost controls as critical areas that require improvement. According to Kassem et al. (2021), the effectiveness and completion of oil and gas projects are negatively impacted by various variables, including insufficient communication and inappropriate contracts.

The project is success depends on efficient project management, with the project manager serving as the leader of a team that includes management in addition to team members and stakeholders (Afzal et al., 2018). This group is responsible for initiating, planning, executing, managing, controlling, and closing the project, all of which contribute to determining its final results (Ghorbani, 2023). It is generally agreed that selecting the correct project manager is quite important; nevertheless, paying attention to their soft skills (Eva & Afroze, 2021; Jena & Satpathy, 2017). There has been relatively

little research done on the specific soft skills that substantially influence a project manager's performance. In addition, further research is required to investigate the interrelationship that exists between "soft" skills and "practical" abilities in effective risk management (Tian, 2020).

In dynamic oil and gas projects involving many stakeholders, clear and efficient communication is of the utmost importance. The failure to communicate effectively can result in disagreements, delays, and inefficiencies (Matullah et al., 2021; Wu et al., 2017). Communication includes the interchange of information as well as the networking of users, which increases the amount of knowledge that is shared for more successful project results. Information must flow freely at each stage of the building process, and organized communication routes must make this possible. According to Sarhadi, (2016), effective communication is a key competence that must be maintained throughout the life cycle of a project and is essential to the project's success. However, in order to traverse the uncertainties that are present in the oil and gas business, it is vital for project managers to improve their "soft skills," such as communication (Castro et al., 2022).

The purpose of this study is to investigate how effective managerial communication techniques and experiences might contribute to the successful execution of project risk management by project managers. The focus of this research is to evaluate project managers' interpersonal skills and determine how these skills affect the successful execution of project risk management in Libya's oil and gas sector. According to Beenen et al. (2021), "soft skills" are essential for achieving the highest possible level of performance in projects, and project managers play a pivotal part in ensuring that initiatives are ultimately successful. This study aims to identify and examine the soft communication abilities of project managers as well as quantify how these skills are utilized for successful risk management in Libya's oil and gas projects. Experience was taken into consideration as a moderating variable.

Oil and gas projects are complex and risky due to numerous stakeholders and technological challenges. Bakaddour, (2022) and Seddeeq et al. (2019) highlighted issues with project failures in meeting timelines and budgets. They concluded that improper project risk management practices contribute significantly to this problem. To address

this, the industry and academia are focusing on developing dependable and systematic project risk management strategies to minimize project failures. Conventional project management practices and experienced managers are insufficient in challenging environments. The call is for project managers to adopt a cohesive risk management framework involving vigilant monitoring and evaluation of project risks. Companies have escalated their commitment to implementing project risk management to enhance project performance and remain competitive (Rawat et al., 2023). Effective project risk management involves analyzing project challenges in multicultural environments and implementing robust monitoring procedures for various processes across combined projects. However, the oil and gas sector has been vulnerable to recent oil price fluctuations and political unrest in regions like Libya, which has hindered progress (Hicks et al., 2019). Numerous oil and gas projects struggle to meet their anticipated timelines, costs, and quality benchmarks. This underscores the pivotal role of project risk management in mitigating potential threats to their success (Nguyen & Macchion, 2023; Rawat et al., 2023). Recent research has investigated risk management practices within National Oil Corporation companies in Libya, identifying a need for further exploration of project risk management alongside focusing on project managers' skills and team dynamics (Elhoush & Kulatunga, 2017a).

An in-depth literature review revealed a critical gap in knowledge, with a paucity of studies addressing project risk management in the Libyan context (Ahmed, 2016; Bahamid et al., 2022; Chileshe et al., 2016; Elhoush & Kulatunga, 2017a; Omar & Zulkiple, 2021). Despite the region's significance, limited research has been conducted on this crucial topic within the Libyan oil and gas industry, forming the foundation for this study and highlighting the importance of comprehensive research. Given the essential role of the Libyan oil sector in the country's economy and the recurrent struggles of oil and gas projects to align with approved budgets and schedules, the urgency to address this gap is evident (Elkbuli et al., 2023). As organizations increasingly adopt a project-oriented approach to achieve their objectives, the importance of project risk management has gained traction across industries, prompting discussions in the project management community to identify elements driving project success (Atig, 2020). These factors include risk management, project management techniques, and experience (Tsiga et al.,

2017; Veiga & Da Silva, 2020). For instance, Elhoush and Kulatunga (2017a) explored the practical effectiveness of project risk management practices in the Libyan oil and gas industry, concluding that establishing an organizational culture to support written risk management guidelines, project manager leadership, and familiarity with the risk management concept enhances effectiveness. Similarly, Salazar-Aramayo et al. (2013), emphasized the need for a comprehensive risk management framework and project manager leadership for project success. A case study on a Libyan oil project applied Monte Carlo simulation and risk analysis, demonstrating advanced techniques to mitigate potential risks. However, significant research gaps remain, particularly in understanding the role of managerial communication skills, especially written communication, in enhancing project risk management practices in Libyan oil and gas projects, considering the moderating effect of experience. This study aims to address this gap by investigating how managerial communication skills, with a focus on the moderating effect of experience, influence project risk management practices in Libyan oil and gas projects, providing valuable insights into the integration of communication skills and risk management currently lacking in the existing literature.

In response to increasing competition, organizations recognize the need for continuous performance improvement (Arslan & Staub, 2013).They often adopt projects to achieve this goal. According to the PMBOK, 5th Edition, projects are temporary efforts to create unique products, services, or outcomes (Akhmetshin et al., 2019). While technical skills are crucial in project management, developing soft skills is essential for project managers' success (Troukens, 2013). Troukens (2013) highlights that soft skills foster team cohesion and a productive work environment. Despite advanced technologies and systems, project managers' soft skills remain vital, especially in complex sectors like oil and gas (Dobrovič et al., 2018).

Both hard and soft skills are crucial in project management, with their importance varying by context (Touloumakos, 2020). This has sparked discussions about the prominence of soft skills over technical abilities (Qizi, 2020). Choosing project managers based solely on technical skills can overlook the human-centric skills needed for team motivation and leadership. Although research on the impact of project managers' soft skills is limited, their necessity for effective interpersonal communication and leadership

is clear (Jankelová & Joniaková, 2021). The evolving field of project management shows that technical skills alone do not ensure success (Gomes Silva et al., 2022). Effective project management requires a mix of technical and soft skills to handle complex human and social dynamics (Azim et al., 2010). Understanding project complexity and the importance of soft skills is crucial. These skills are essential not only in project management but also in personal development and professional success. However, research on assessing these skills is limited (Alvarenga et al., 2019). Ignoring the impact of soft skills when assigning project management resources can lead to missed deadlines, poor team dynamics, and costly projects. While expertise is important, lacking soft skills can impede a project manager's ability to inspire and lead teams effectively, ultimately affecting project success (McCorry & Mason, 2020).

In the sphere of project success, the project manager's collaborative dynamics significantly influence outcomes (Cech & Chadt, 2015). Core soft skills—managerial communication, leadership understanding, and experience determine a project manager's effectiveness. While much attention has been given to selecting suitable project managers, their soft skills need more focus (Jena & Satpathy, 2017). The impact of specific soft skills on project success is underexplored (Eva & Afroze, 2021; Jena & Satpathy, 2017), as is the role of these skills in project managers' profiles (Gulati, 2021). Although many studies examine leadership styles, few address soft skills and their effects on success (Peña & Muñoz, 2020; Yang et al., 2011). Soft skills are crucial for effective team leadership toward objectives (Peña & Muñoz, 2020; Zuo et al., 2018a). In the dynamic oil and gas industry, effective communication skills are essential (Sandhyavitri, 2022). Communication challenges, often due to misinterpretations or lack of coordination, are pervasive across industries. For example, inadequate visual design communication can lead to design flaws and delays (Zuo et al., 2018a). Efficient communication is vital for optimizing efficiency on project sites, involving the exchange of information, news, knowledge, and instructions (Radosavljevic & Bennett, 2012). Successful communication ensures the recipient understands the intended message (Peña & Muñoz, 2020), integral to every construction stage, involving sketches, measurements, notes, documents, and images (Olanrewaju et al., 2017). Project success hinges on effective communication among stakeholders and their teams, encompassing awareness,

data processing, soft skills, and technological advancements (Sandhyavitri, 2022). Soft skills include communication abilities, teamwork, organizational prowess, leadership qualities, customer service, and problem-solving, essential for project success (Khalilzadeh et al,. 2023). However, there's a lack of literature on a framework measuring project managers' soft communication skills' influence on project success via risk management (Gulati, 2021). This research gap highlights the importance of studying this aspect, especially as the oil and gas industry faces challenges like timing delays, cost overruns, disputes, settlements, and project discontinuation due to subpar risk management practices (Ullah et al., 2018).

Timing delays are central to risk management issues (Mashayekhi Ali et al.,2010). Poor timing management often leads to cost overruns and compromised quality (Haslinda et al., 2018; Johnson & Babu, 2020). Despite using assurance tools and methods, the oil and gas industry struggles with project alignment and coordination, especially at different stages (Chanmeka et al., 2012).The oil and gas industry's complexity requires effective communication among diverse stakeholders and stages. The ability to share information effectively is crucial for success (Sandhyavitri, 2022). Coordination lapses often lead to disputes and delays. For instance, poor visual design communication can cause design flaws, delays, and reduced quality. Effective communication is vital for efficiency on job sites, involving the exchange of information, knowledge, and instructions (Radosavljevic & Bennett, 2012).

Project managers need various skills to handle project complexities and uncertainties, with effective communication being key to project success (Al-Hajj & Zraunig, 2018). It supports organizational performance, staff satisfaction, and outcomes. Despite its importance, few studies explore how project managers' soft communication skills affect project success through risk management (Gulati, et al., 2020). This research investigates how these skills impact risk management in the Libyan oil and gas industry, addressing a gap in the literature and offering insights into Libya's unique challenges and opportunities.

1.2 Problem Statement

Oil and gas projects are complex and risky due to numerous stakeholders and technological challenges. Bakaddour, (2022) and Seddeeq et al. (2019), highlighted issues with project failures in meeting timelines and budgets. They concluded that improper project risk management practices contribute significantly to this problem. To address this, the industry and academia are focusing on developing dependable and systematic project risk management strategies to minimize project failures. Conventional project management practices and experienced managers are insufficient in challenging environments. The call is for project managers to adopt a cohesive risk management framework involving vigilant monitoring and evaluation of project risks. Companies have escalated their commitment to implementing project risk management to enhance project performance and remain competitive (Rawat et al., 2023). Effective project risk management involves analyzing project challenges in multicultural environments and implementing robust monitoring procedures for various processes across combined projects. However, the oil and gas sector has been vulnerable to recent oil price fluctuations and political unrest in regions like Libya, which has hindered progress (Hicks et al., 2019). Numerous oil and gas projects struggle to meet their anticipated timelines, costs, and quality benchmarks. This underscores the pivotal role of project risk management in mitigating potential threats to their success (Nguyen & Macchion, 2023; Rawat et al., 2023). Recent research has investigated risk management practices within National Oil Corporation companies in Libya, identifying a need for further exploration of project risk management alongside focusing on project managers' skills and team dynamics (Elhoush & Kulatunga, 2017a).

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Both hard and soft skills are crucial in project management, with their importance varying by context (Touloumakos, 2020). This has sparked discussions about the prominence of soft skills over technical abilities (Qizi, 2020). Choosing project managers based solely on technical skills can overlook the human-centric skills needed for team motivation and leadership. Although research on the impact of project managers' soft skills is limited, their necessity for effective interpersonal communication and leadership is clear (Jankelová & Joniaková, 2021). The evolving field of project management shows that technical skills alone do not ensure success (Gomes Silva et al., 2022). Effective project management requires a mix of technical and soft skills to handle complex human and social dynamics (Azim et al., 2010). Understanding project complexity and the importance of soft skills is crucial. These skills are essential not only in project management but also in personal development and professional success. However, research on assessing these skills is limited (Alvarenga et al., 2019). Ignoring the impact of soft skills when assigning project management resources can lead to missed deadlines, poor team dynamics, and costly projects. While expertise is important, lacking soft skills can impede a project manager's ability to inspire and lead teams effectively, ultimately affecting project success (McCorry & Mason, 2020).

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investigates how these skills impact risk management in the Libyan oil and gas industry, addressing a gap in the literature and offering insights into Libya's unique challenges and opportunities.

1.3 Research Questions

Based on the above problem statement, this study tends to deliver responses to the following questions.

RQ1. What are the key managerial communication soft skills required for the practices of project risk management in Libyan oil and gas projects?

RQ2. Do key managerial communication soft skills influence the project risk management practices for the Libyan oil and gas projects?

RQ3. Does experience play a moderating effect between managerial communication soft skills and project risk management practices?

1.4 Research Objectives

In consistency with the research background and problem statement discussed above, this study aims to achieve these three objectives:

RO1. To identify key managerial communication soft skills for the practices of project risk management in Libyan oil and gas projects.

RO2. To evaluate the influence of key managerial communication soft skills on the project risk management practices for the Libyan oil and gas projects.

RO3. To investigate the moderating effect of experience between managerial communications soft skills and project risk management practices.

1.5 Scope of the Study

This study focuses on examining the impact of project managers' soft communication skills on risk management practices in onshore oil and gas projects within Libya. It aims to address a significant gap in the literature by exploring how these soft

skills contribute to effective risk management in the volatile and high-stakes environment of oil and gas operations.

The research is conducted in Tripoli, Libya, targeting managers employed by oil and gas companies under the National Oil Corporation (NOC). Participants were selected through simple random sampling to ensure a representative sample of the population. Data collection was carried out via mailed questionnaires, accompanied by a personalized permission letter from the researcher and an endorsement from the principal supervisor to enhance response rates and data integrity. Questionnaire data were analyzed using structural equation modeling (SEM) with Smart PLS software. This approach was employed to examine the direct and moderating relationships proposed by the study hypotheses. The research follows a quantitative design based on a positivist research paradigm, with a methodology focused on addressing the research questions and objectives. The questionnaire utilized a closed interval measurement scale, with careful attention to detail.

By concentrating on this aspect, the study aims to provide valuable insights that can inform better risk management strategies and enhance the effectiveness of project execution in the Libyan oil and gas sector. The findings are expected to contribute to the broader field of project management by demonstrating the significant role of soft communication skills in managing project risks, potentially guiding future training and development programs for project managers in similar contexts.

1.6 Significance of the Study

In the context of Libyan oil and gas businesses, there is an obvious dearth of research that specifically focuses on the managerial soft skills of managers in relation to project risk management. This dearth of research is a cause for worry. Following an in-depth analysis of the relevant literature, it becomes clear that the "soft skills" possessed by project managers have a considerable influence on the risk management of projects, ultimately contributing to the success of those projects. Thus, this study is poised to unveil the fundamental reasons behind project failures within the Libyan oil and gas sector. Delving into intricate project processes across various levels not only aids in comprehending risk origins and characteristics but underscores the criticality of

managing this process effectively. Recognizing the pivotal role of individuals in projects not only lends meaning to projects but also underscores the essence of optimal project risk management practices. This alignment closely resonates with the research objectives and foreshadows the outcomes.

Furthermore, this study explores communication skills and traits employed to bolster project managers' capabilities in achieving favourable project outcomes via project risk management practices within Libya's oil and gas projects. This thesis will also accentuate the significance of soft project management skills and how adept project managers should harness these skills to secure successful project results. Scrutinizing the definitional and analytical aspects of managerial communication soft skills among experienced project managers will contribute novel insights to the corpus of literature. This study will furnish comprehensive information about managerial skills that drive project risk management practices within Libyan oil and gas projects.

Consequently, the significance of this inquiry extends as a substantial contribution to the realm of project management, specifically benefiting project managers, academia, and policymakers. The findings will serve as a roadmap for project managers to identify key management proficiencies to cultivate over time for enhanced project management efficacy, ultimately elevating their projects' overall success rates. In the academic sphere, this research can heighten awareness about the importance of risk management through the lens of oil and gas companies. The framework employed herein to scrutinize the correlation between project managers' soft management skills, project risk management practices, and the moderating impact of experience can offer valuable insights. The study aims to bridge a gap often overlooked by risk managers and scholars, namely, the connection between project managers' soft management skills and risk management practices, with the added nuance of experience as a moderating factor, which this study aims to rectify.

1.7 Organization of the Thesis

This analysis is broken down into five chapters. Study chapters are presented in two distinct sections. The first section consists of two chapters related to developing and interpreting the understudy of the concept relevant to theoretical literature and meaning.

The last three chapters reflect on technique, its outcomes and effects. Chapter One offers an introduction to the study, which aims to discuss the research topic and explain its purpose. Study background, issue statement, study issues, research goals, scope, relevance, and contribution are addressed in this analysis. Chapter two provides an analysis of the variables in applicable literature. This chapter also discusses the growth of the basic ideas, theoretical context, and hypotheses. Chapter three reports on the study approach covering research design, population, surveys, and methods used to perform this investigation. This chapter also includes information about using quantitative research using PLS 3 tools for structural equation modelling. The findings of the data collection and interpretation are presented in Chapter four. The outcome section summarizes the data collection and discusses the study conclusions related to the hypothesis and test issues. The findings are descriptive; SEM is for the calculating model, and SEM is for the structural model. Chapter five summarises the study's results and establishes links between objectives, results and related literature. Conclusions and recommendations are given to the body of information, along with the research discussions. This chapter also provides a method for future study to address the limits of this thesis.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

In order to lay a solid groundwork for the subsequent research, this chapter will analyze previously published research, experimental efforts, and preconceived ideas. In addition to this, it sheds light on the theoretical foundation upon which the research model was created. The purpose of the literature review is to compile material gleaned from a wide variety of sources applicable to the topic at hand. The review does not seek to alter the truth but rather to get an all-encompassing comprehension of how things have developed within the relevant area of research. This chapter elaborates on key concepts encompassing the global Oil and Gas industry's landscape, the realm of Libyan oil and gas projects, the practice of project risk management within these projects, the independent variable of Managerial Communication Skills, the dependent variable of Project Risk Management practices, and the moderating variable of Experience. This chapter is organized logically, and the expository writing follows a logical progression. Additionally, the attribution theory provides support for this study and the conceptual framework aligned with the study's aims.

2.2 Overview of Global Oil and Gas Projects

The International Energy Agency (IEA) report from 2021 presents alternative scenarios based on varying assumptions about macroeconomic growth and crude oil prices. According to the report, liquid fuel consumption in 2050 is projected to be significantly higher than in 2020, increasing by 64% under a high economic growth scenario. In the reference case, liquid fuel consumption is expected to reach approximately 125 million barrels per day by 2050. However, under the high economic growth scenario, consumption could soar to around 151 million barrels per day, indicating substantial growth from current levels (IEA, 2021).

Figure (2.1) illustrates how oil production has risen from 81 million vessels per day to 86.7 million barrels of oil per day since 2010. This extension reflects economic development and oil supply demand. This demand is mirrored in the project volume and the estimate of improvements needed to satisfy the rise in output (International EnergyAgency, 2019). The comparable graph demonstrates how gas output rose over nine years from 259 trillion cubic feet per day to 353 trillion cubic feet per day, representing the rise in the sector and showing how this demand would bring further projects to the oil and gas sector to account for the shortfall and sustain energy supply (IEA, 2021). Natural Gas Plant Liquids (NGPLs) are a co-product of natural gas production. In our reference case as shown in Figure (2.2), NGPL production will grow by approximately 50% by 2050—a faster rate than crude oil production—driven by higher demand for NGPLs in the industrial sector.

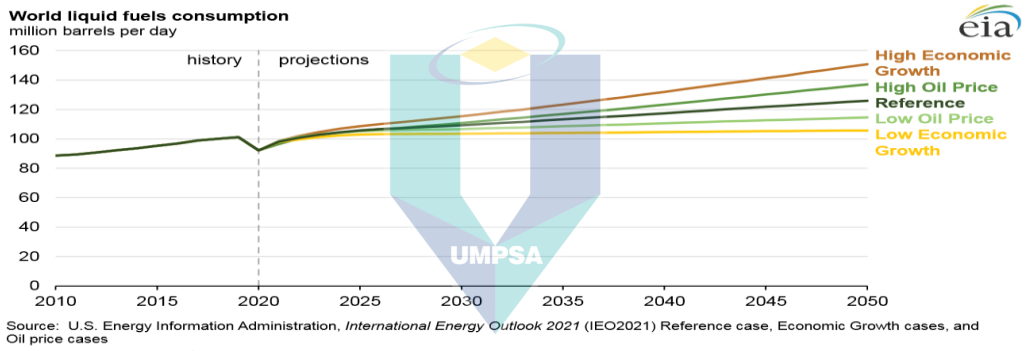

Figure 2.1 World Oil Production.

Source: International Energy Outlook (IEA, 2021)

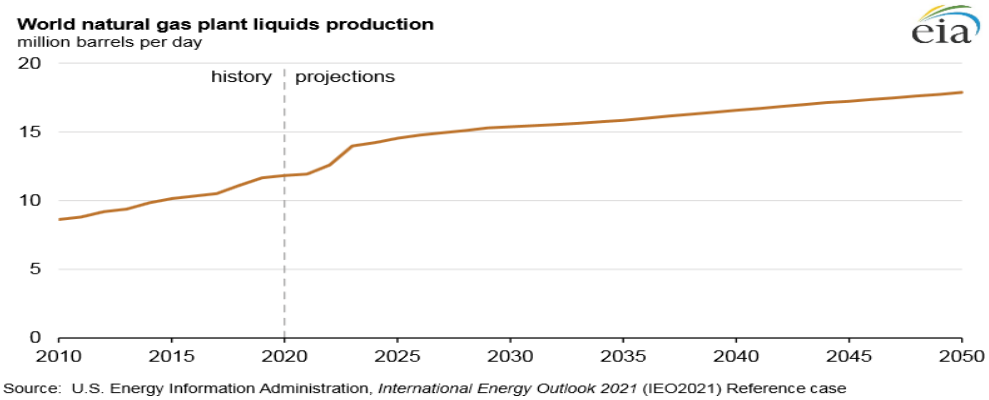

Figure 2.2 World Gas Production.

Source: International Energy Outlook (IEA, 2021)

Although oil is the main source of energy, hydrocarbons (oil and natural gas) often compose around 53 percent of the global range of energy supply (IEA, 2021). Deloitte (2015) illustrates the reversal of the pattern of hydrocarbon commodity imports by numerous developing nations. This, in turn, is forcing Middle Eastern oil-producing countries to pursue the latest customer marketplace and more competitive pricing to compete with the declining demand for oil (Deloitte, 2015). Even the IEA forecasts oil and gas demand development of just 0.9 MMbbl/d in 2015 (IEA, 2022). These dynamics may pose many questions about the economies of oil-consuming regions in exploring and developing new areas. The figure (2.3) demonstrates the confirmed capability of oil reserves in various parts of the globe.

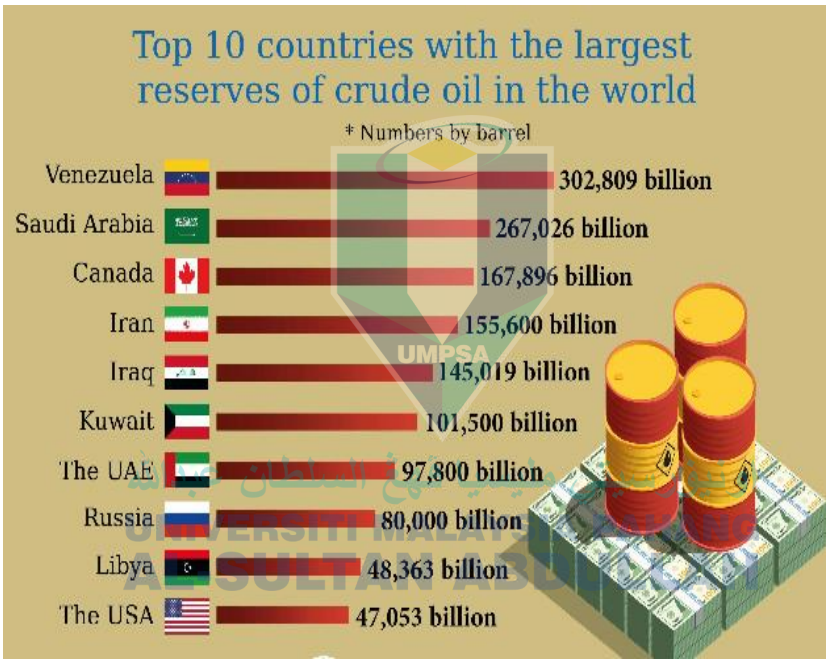

Figure 2.3 Proven Oil Reserves Worldwide.

Source: Statistical Review of World Energy (IEA, 2022)

The year 2022 was exceptionally profitable for many fossil fuel companies, with revenues soaring due to rising fuel prices. Net revenue from fossil fuel sales more than doubled compared to the average of recent years, with global oil and gas producers collectively earning around $4 trillion (IEA, 2021). Based on an analysis of the announced spending plans of all large and medium-sized oil, gas, and coal companies, the general expectation is that investment in the constant supply of fossil fuels will increase by more than 6% in 2023, reaching USD 950 billion (IEA, 2022). Most of this

total will go into upstream oil and gas, where investment is expected to increase by 7% in 2023 to over $500 billion, bringing this indicator as a whole back to 2019 levels. About half of this increase will likely be absorbed by cost inflation (IEA, 2022).

Many large oil and gas companies have announced higher spending plans thanks to record revenue. The oil and gas sector shows similar variability in response to high prices (IEA, 2022). Spending by Middle East National Oil Companies (NOCs) is now well above pre-crisis levels as major resource holders seek to bolster dwindling available capacity. Saudi Aramco and ADNOC have announced plans to increase investment spending by 15-30% in 2022. The size of this industry may be the largest in the world and one of the primary growth industries for some countries, as verified by different kinds of literature (IEA, 2022).

In a similar vein, Libya's oil sector has traversed multiple phases. During the 1970s, foreign oil companies (NOCs) claimed a substantial 85% share of global proven hydrocarbon reserves. However, this dynamic has drastically shifted, with their current stake dwindling to less than 10%, hovering between 6% and 8% (Beyazay-Odemis, 2016). This transformation emerged as Libyan governments, particularly amid the Arab embargo in 1973, asserted increased authority over hydrocarbon production and distribution, culminating in the establishment of NOCs (Asenso, Nagudi, & Aanyu, 2023). Contrarily, National Oil Corporations (NOCs) now retain complete ownership, or a significant percentage of shares affiliated with their respective governing bodies. While NOCs initially centred on domestic markets, their ambit has recently extended to encompass foreign markets. The oil and gas sector bears strategic significance within the global economy, influencing virtually every nation (Schwab, 2018).

Despite the emergence of alternative options, researchers assert that these companies will retain their prominence as the primary energy source for decades to come (Asenso et al., 2023). Projections indicate that hydrocarbons are poised to account for nearly 80% of the global energy supply by 2035, with the Middle East and North Africa (MENA) region emerging as a primary contributor (Agency, 2015; BP, 2022). The decrease in oil and gas product prices can be attributed to various factors, including shocks in unconventional oil production, the repercussions of the financial crisis and the

subsequent dip in global demand, the strengthening of the US dollar, the surge towards renewable energy sources in recent times, and geopolitical considerations (IEA, 2022). The relatively lower per-barrel oil prices have, paradoxically, spurred the development of more cost-efficient methodologies for extracting and sustaining production from mature fields. The oil and gas industry's ripple effect extends to a multitude of sectors globally, including manufacturing, hospitality, and finance. These industries are intricately interconnected with the oil and gas domain, rendering them sensitive to market fluctuations in oil and gas exploration and production. Any shifts in this realm significantly impact the prospects of these related sectors (Devold, 2013).

2.3 Libya Exploratory Overview

Libya occupies a strategic position along the Mediterranean Sea, nestled among the nations of Africa as shown in Figure 2.4. Regarding land area, it ranks as the fourth largest country globally and holds the seventh position on the global scale (Sowers et al., 2011). Libya identifies as an Arab nation, with Islam as its predominant religion. Its population hovers around the eight-million mark. The primary language spoken in Libya is Arabic, while English also holds a significant role in business communication (Gresh, 2020). Remarkably, Libya emerges as a prominent oil supplier to Europe from North Africa, enjoying geographical proximity that bestows it with an advantageous position compared to its Middle Eastern counterparts (John, 2023).

Figure 2.4 Libya Exploratory Overview.
Source: Map of Libya (BBC, 2020).

Libya holds significant geopolitical influence within North Africa, spanning a vast land area of over 1.7 million square kilometers. Notably, Libya's onshore oil fields are strategically positioned close to the shore and Europe, facilitating efficient oil transportation and rendering its oil production comparatively cost-effective (Kezeiri & Lawless, 2023). This advantageous geography has enabled Libya to become a noteworthy player in the global oil market, benefiting from reduced transportation expenses due to its proximity to Western developed and North African developing economies. However, this geographic advantage throughout its history has also made Libya vulnerable to foreign invasions. It experienced successive occupations, including the Ottoman Empire (1750-1911), Italian rule (1911-1945), and British and French influences. Libya achieved independence on December 24, 1951, marking a significant milestone (John, 2023).

Over the years, Libya's population has grown to over seven million, with individuals aged between 15 and 64 constituting 68% of the population. The average age in Libya is 25 for males and 24 for females. Life expectancy at birth for Libyan women was around 74.4 years, while for men, it stood at about 69.63 years in 2021. In the global context, Libya has a relatively low population density (John, 2023). The majority of the populace resides in urban areas, with less than 12% living in rural regions. The population distribution exhibits urban dominance, concentrated in major cities, such as the capital Tripoli, Benghazi, Beyda, and Misrata. Moreover, the proportion of individuals below fifteen years old is around thirty percent, displaying a decreasing trend over the past three decades. Libya's fertility rate has also experienced a substantial decline, dropping from seven children per woman in the 1980s to three children by 2005 (John, 2023).

Libya's population growth has been influenced by its political landscape, which has been marred by turmoil and conflicts, leading to loss of life and reduced life expectancy (Elmansouri et al., 2020). This has resulted in a slower population growth rate compared to other African nations. Despite its abundant oil reserves, political instability has relegated Libya to the status of a third-world country. Poor governance, warfare, and economic instability have deterred investor confidence and hindered economic progress. Arabic serves as the dominant language in Libya, while English, particularly among the younger generation and in corporate circles, is the prevailing international language.

Table 2.1 Libya Exploratory Overview (John, 2023)

Category	**Libya**	**Year**
Country's official name	Libya	___
Area	1.77milion sq. km	2022
Independence	24 December 1951	___
Population	7.5 million	2022
National day	24 December 1951	___
Languages	Arabic	___
Religions	Islam	___
Life expectancy	69 years (men), 75 years (women)	2022
Currency	Libyan Dinar	____

Despite the country's abundant natural resources, the Libyan population faces relative economic disparity compared to Western nations. With the resurgence of Western companies and businesses in Libya, a new wave of opportunities and investments accompanies them, holding the potential to usher in economic growth and an improved quality of life for the Libyan populace (Hamad et al., 2017). The cost of living in Libya is notably lower than that of major European cities. Libya, primarily a desert nation rich in oil and steeped in ancient history (John, 2023), harbours substantial potential for development. Libya boasts the largest proven oil reserves, illustrated in Figure 2.5, and Africa's fifth-largest natural gas reserves, depicted in Figure 2.6. As a member of OPEC since 1962, Libya has maintained its prominent position in the global energy landscape (EIA, 2022). The exploration of oil resources in Libya dates to 1955, with the enactment of Oil Law No. 25 occurring in the same year. The initial oil fields were discovered Nasser in 1959, marking the inception of Libya's oil exportation journey in 1961 (Shoib et al., 2022).

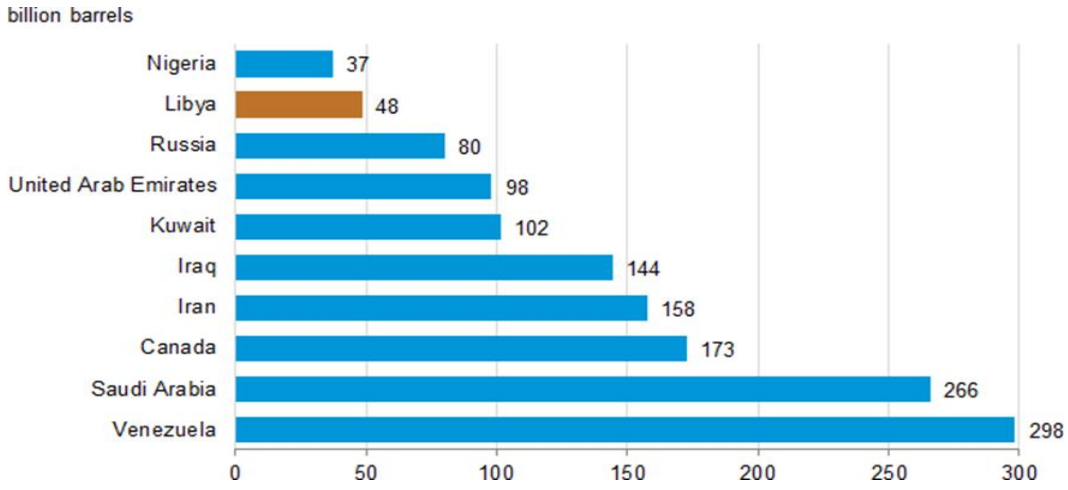

Figure 2.5 The World's Largest Oil Reserves.

Source: (EIA, 2022)

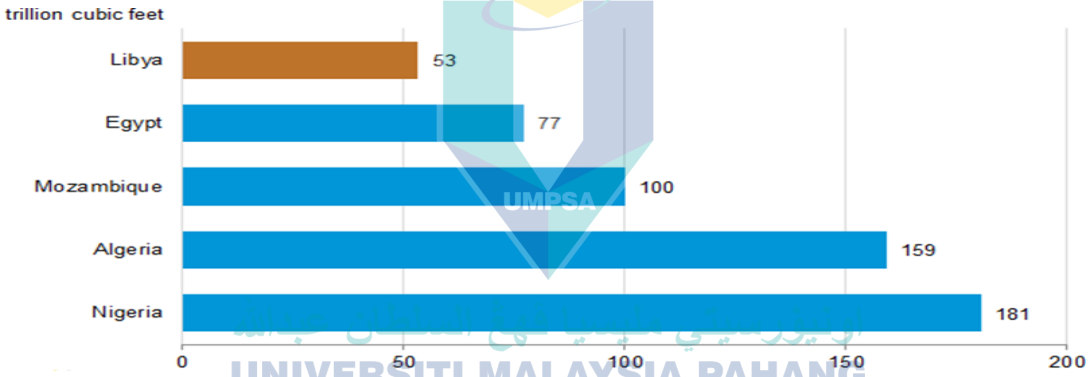

Figure 2.6 Africa's Largest Natural Gas Reserves.

Source: (EIA, 2022)

Furthermore, solidifying its position as the largest oil producer in Africa, Libya stands as a prominent oil supplier within North Africa, particularly to Europe. Leveraging its substantial oil reserves, the country generates a significant volume of oil to cater to both domestic needs and international exports (Claes & Garavini, 2020). Anchored in oil since the 1960s, the Libyan economy is intricately tied to this resource, with exports playing a pivotal role in contributing to the nation's overall revenue (OPEC, 2018).

Nonetheless, the progress of Libya's oil sector was hindered by sanctions and restrictions imposed from 1992 to 1999, severely limiting the country's access to technology and equipment (Brown, 2014; Hamad et al., 2017). The availability of cutting-edge exploration and production techniques in the oil industry was notably constrained, prompting Libya to rely on foreign direct investment to sustain the industry's ongoing growth.

2.3.1 Overview of Libya's Oil and Gas Production

During the late 1950s, foreign oil companies (FOCs) made the pivotal discovery of oil reserves in Libya. This discovery brought about a transformative shift in Libya's economic landscape, propelling the nation from a previously deprived status into considerable prosperity in terms of per capita GDP (Dhahri et al., 2023; Hamad et al., 2017). The core of Libya's national income and overseas trade is intricately linked to its oil sector, a prevailing phenomenon in numerous oil-producing countries, where oil plays a defining role in economic revenue (Hallett & Clark-Lowes, 2017).

Oil exploration activities were initiated in 1959, culminating in the discovery the first oil reserves at Zelten and Amal (Özgür & Wirl, 2020). Given Libya's need for external assistance, nearly 40 states were engaged to aid in oil exploration and identifying new oil fields. Libya commenced oil production in 1961, contributing approximately 3 million bbl./d, equivalent to around 17% of total oil output from all OPEC member states combined (Alsekily, 2021; Balhasan et al., 2013). In 1969, Libya implemented measures to regulate exploration, aiming to prevent depletion. Subsequently, in 2010, production diminished to 1.46 million bbl./d (Balhasan et al., 2013).

Before 1969, Libya's oil industry displayed limited progress. While the initial discovery of natural gas occurred in 1915, its potential remained untapped due to its lack of utility during that era (Abozed et al., 2009). Despite some interest during this period, the capacity for industry development was constrained. Before gaining independence, the Italian governance exercised authority over Libya (Twati, 2008). Following World War II, as Libya's leaders emerged and the Italian influence waned, there was a void in terms of an entity that could grant permits for oil exploration (Mohamed et al., 2010).

The period after gaining independence marked a turning point in Libya's oil industry. Leaders established a development strategy, collaboratively crafting regulatory guidelines with international oil companies (Borodin et al., 2023). Oil companies were granted performance-based contracts for exploration in allocated fields. This collaboration, initiated in 1952, sought to address transport challenges that arose from importing oil from Iran via the Suez Canal (Barltrop, 2019). These contracts outlined specific terms and conditions, leading to the drilling of wells and the discovery of oil reservoirs. Subsequent investments and surveys further expanded oil production. During this period, the oil industry displayed steady progress (John, 2023).

The oil extracted served both domestic and international needs through exports, bolstering the nation's economy. Collaborative efforts between oil exploration companies and Libyan authorities supported various sectors, such as agriculture. Infrastructure development, including constructing pipelines for export, notably enhanced the industry (Almaktar & Shaaban, 2021; Twati, 2008). The subsequent expansion of the oil industry facilitated the growth of the transport sector, which included the construction of roads for oil transportation. To address the arid climate, efforts were also directed toward drilling water wells, catering to irrigation needs, and supporting agriculture (Balhasan et al., 2013).The oil boom of Libya, spanning 1974 to 1981, marked a peak in production. During this period, Libya recorded unprecedented oil production levels, yielding substantial revenues amounting to billions of US dollars (Twati, 2008). This robust growth positioned Libya with a per capita GDP exceeding that of the United Kingdom and twice the average of developing nations (Nasef, 2023).

Oil and gas occupy a pivotal role in Libya's landscape, influencing its status as a prominent oil exporter in Africa and contributing significantly to the nation's economic strength (Almaktar & Shaaban, 2021). Despite the constraints of sanctions during the 1990s, Libya's reliance on oil and gas revenues remained pronounced. A substantial portion of the nation's government revenues, around 96%, are attributed to hydrocarbon sales. However, Libya's dependency on the oil and gas industry renders it sensitive to commodity price fluctuations, as highlighted by the sharp decline in production and exports due to civil unrest (Brown, 2014; IEA, 2021). Before the civil war in 2011, Libya produced approximately 1.6 million barrels of oil daily. Although initial recovery efforts

were made in 2012, production remained below pre-2011 levels. Figure 2.7 provides a visual summary of oil shipments and the impact of political instability on production (EIA, 2023).

Figure 2.7 Libya's Oil Production from January 2016 to October 2023.

Source: (EIA, 2023)

As depicted in the above illustration, it is evident that the nation encountered significant export challenges due to the closure of primary eastern ports by militias. This disruption persisted until mid-2015, following which oil production began to recover, rising to approximately 400,000 to 1,350,000 barrels per day by October 2019 (EIA, 2023). Numerous European nations expressed keen interest in investing in Libya's oil and gas sector, a sentiment warmly received by the Libyan government. In response, the government issued licenses to international oil companies, fostering foreign investments and bolstering government revenue and developmental efforts.

Recognizing the pivotal role of foreign investment, the government introduced favourable monetary terms to attract further investment. Libya's economic trajectory witnessed a significant boost due to collaborative ventures within its oil and gas sector (Elhoush & Kulatunga, 2017a). Given the government's limitations in managing a substantial oil and gas portfolio, foreign investment played a crucial role. More recently, with the National Oil Corporation (NOC) resuming control over export ports, daily crude oil production has surged to around 1.2 million barrels. These fluctuations underscore the

profound impact on Libya's economy, wherein the country's heavy reliance on hydrocarbon exports is a cornerstone of its income generation (EIA, 2023).

2.3.2 Overview and Importance of National Oil Corporation (NOC) in Libya

The National Oil Corporation (NOC) is a state-owned incorporated entity primarily engaged in the oil and gas industry, encompassing activities ranging from refining, production, transportation, and exploration of crude oil and natural gas to oil services (NOC, 2023). It also engages in the negotiation and execution of contracts and agreements with foreign oil and gas companies. The establishment of the NOC was recognized through Law No.24 in November 1970, succeeding Law No.13 issued in April 1968, which pertained to the General Libyan Petroleum Corporation (Mohamed & Kanbur, 2022). This transition allowed for the expansion of the NOC's authority by introducing new members to its structure. This adjustment facilitated the NOC's more effective management of the rapidly growing oil industry, enabling it to remain current with international industry changes (Imneisi et al., 2021).

Within Libya's oil and gas sector, the National Oil Corporation (NOC) serves as the country's administrative body, representing Libya in oil and gas exploration contracts (NOC, 2023). The NOC exercises oversight over government-owned oil enterprises and joint ventures and supervises joint ventures in oil exploration and production (Hassan et al., 2022). This encompasses various aspects such as project execution, licensing procedures, oil policy formulation, and negotiations of contracts on behalf of the Libyan government (Azubike, 2020). The NOC Committee is responsible for formulating government policy goals to augment oil production by developing and exploiting oil and gas reserves. The principal activities of Libya Oil Company, as summarized by Atamna (2013), encompass formulating and executing plans for oil and gas projects within Libya's oil and gas sector. The company provides approval and oversees the progress of various projects undertaken within the industry. It is responsible for monitoring and supervising the operations of both Libyan and foreign companies associated with the North Oil Company, ensuring adherence to all NOC standards and government policies by oil companies. Additionally, the company offers training and development programs

to the national workforce, enhancing their capability to contribute to Libya's oil and gas sector.

To fulfil these objectives, NOC possesses wholly owned Libyan oil companies that participate in exploration and production activities. In addition to other joint ventures, NOC collaborates with international oil companies through exploration and production sharing agreements (EPSA). Table 2.2 overviews fully owned companies, joint ventures, and EPSA companies operating within Libya's oil and gas industry.

Table 2.1 NOC of Libya Companies.

Fully Owned	Joint Ventures	EPSA
Zallaf Libya Oil and Gas Company	Zueitina Oil Company	Eni North Africa Company
Sirte Oil Company	Mellita Oil & Gas Company	Amerada Hess Company
Arabian Gulf Oil Company	WAHA Oil Company	India oil Company
Ras Lanuf Oil and Gas Processing Company	Mabruk Oil Operation Company	Total E&P Company
Zawia Oil Refining Company	Harouge Oil Operation Company	Petro Canada Company
Brega Petroleum Marketing Company	Akakus Oil Operation Company	Polish Oil & Gas Company
National Oil Wells Drilling and Work over Company	Nafusah Oil Operation Company	OMV Company
Jowfe Oil Technology Company		OXY Company
National Oil Fields and Terminals Catering Company		BP Exploration Libya Limited Company
North Africa Geophysical Exploration Company		STATOIL Company
Taknia Libya Engineering Company		Gazprom Company
Petro Air Company		Repsol Murzuq Company
		Petrobras Company
		Chevron Libya LTD Company
		Shell Company
		RWE Company
		Sonatrach Company
		Turkish Petroleum Corporation
		Medco Energy Company
		Exxon Mobil Company
		ONGC Limited Company
		Tatneft Company
		Wintershall AG Company

Source: (Noc.ly, 2022)

The primary purpose behind the establishment of the NOC was to supervise and regulate the oil and gas production within the nation, all the while striving to enhance the profitability and efficiency of the NOC in collaboration with both Libyan and international oil companies (Balhasan et al., 2022). The overarching objective was to bolster the expansion of Libya's national economy. As stipulated by the laws, the NOC

fulfils its mandated responsibilities through its diverse array of wholly owned subsidiary entities (Isa, 2021). These subsidiaries encompass a spectrum of functions, from operational and production-focused enterprises to refining, processing, and entities operating on national and international scales, including various service-oriented companies (Kalifa et al., 2020). Additionally, NOC accomplishes a significant portion of its endeavours through its partnerships with foreign oil exploration and production companies (Elhoush & Kulatunga, 2017a).

2.3.3 Performance of Oil and Gas Projects in Libya

Drawing from earlier research on project delay factors by various authors, this section outlines the key elements that have been identified (Matoug et al., 2018). Linear projects with repetitive tasks often exhibit inadequate risk management practices, a common factor in delayed projects (Marhil et al., 2023). Issues such as design changes, design errors, poor communication, procurement delays, and approval issues have been observed in projects facing delays (Adafin et al., 2020; Ruqaishi & Bashir, 2015). The Iranian gas pipeline project, classified as both an oil and gas and a linear project, demonstrates several of these risk management shortcomings, including material challenges, unrealistic project timelines, client-related issues, land acquisition hurdles, change orders, and contractor selection methods (Abbasi et al., 2020).

A range of studies conducted in countries such as the USA, Canada, Iran, Libya, and Saudi Arabia have identified typical factors contributing to poor project performance (Eshtewi et al., 2019). These factors, encompassing design, execution, and inherent nature, are pervasive and dominant contributors to subpar outcomes. This global and common nature of oil and gas factors is underscored by their consistent presence in diverse regions (Almaktar & Shaaban, 2021). While not exhaustive, this list highlights the most frequently cited, high-priority factors that recur in literature.

Quality management-related factors have been scrutinized in studies focusing on Iranian oil and gas projects (Essa & Samikon, 2021). Factors like regular client engagement, timely document approval, managerial experience, change orders, client interference, teamwork, and coordination have emerged as key determinants of project

schedules (Ruqaishi & Bashir, 2015). Design challenges and project management issues have also been identified as significant contributors to poor project performance.

Scholars have categorized poor performance factors into excusable and non-excusable categories (Nikolaichuk et al., 2023; Ruqaishi & Bashir, 2015; Saidov, 2023). Non-excusable factors include a selection of incompetent subcontractors, poor management of project changes, and absence of mechanisms for recording and transferring project lessons, delays in material procurement, suboptimal subcontract award processes, and lack of proper subcontractor management. These factors have been found to have the maximum impact based on surveys (Viles et al., 2020). Another study ranked factors based on earlier research, highlighting delay in design, lack of communication and coordination, late material delivery, slow mobilization, damaged materials, poor planning, equipment breakdown, unreliable subcontractors, poor quality, and inadequate fund allocation as the highest-ranked contributors to delay (Durdyev et al., 2019).

In unique oil and gas projects in Alberta, Canada, it was revealed that projects achieving substantial engineering progress before construction initiation exhibited superior performance outcomes (Yousaf Hassin et al., 2023). Best project management practices, accurate labour productivity estimation, and significant engineering completion before construction onset were identified as key drivers of improved project results (Chanmeka et al., 2012).

Similarly, studies conducted in the UAE and Libya emphasize the significance of preparation and approval of drawings, prompt decision-making, and effective planning as crucial determinants of project delay (El-Sayegh et al., 2021; Tumi et al.,2009). Project management and client involvement have been underscored as pivotal factors influencing project performance (Kusakci et al., 2017). In Saudi Arabia, delays caused by utility projects were attributed to cash flow issues, work permit delays, and contract award practices (Seddeeq et al., 2019). Change orders were identified as the primary cause of the delay (Assaf & Al-Hejji, 2006), while financial difficulties, subcontractor conflicts, rework, and other contractor-related delays were identified in the Malaysian construction industry (Sambasivan & Soon, 2007; Udasi & Darade, 2018).

Finally, research in Egypt highlighted the importance of effective planning, variation orders, and engineering document approvals. Financing issues, fluctuations in cost, and payment-related challenges were also recognized as significant contributors to project delays (Abd El-Razek et al., 2008; Marzouk & El-Rasas, 2014). The implications of these factors extend to project management, design, and overall project performance.

2.4 Challenges of Political and Financial Within the Libyan Oil and Gas Industry

Kusakci et al., (2017) identified various factors contributing to poor project performance in the industry, including unstable security conditions, political system volatility, material shortages, funding deficiencies, contract disputes, internal issues, and improper site management. Within the National Oil Corporation, the primary cause of insufficient financial resources is linked to Libya's intermittently unstable security and political situation between 2011 and 2020 (Abushrenta, 2022). These periods of instability led to the closure of numerous oil and gas fields and ports, significantly impacting the country's overall economy (John, 2023). According to statements, the Libyan Audit Bureau (LAB) approximates the losses incurred due to oil and gas production disruptions from mid-2013 to the end of 2016 to be around $107.2 billion. The closure of oil and gas facilities curtails hydrocarbon output and indirectly influences Libya's financial inflow (John, 2023).

This is evident through reduced oil exploration activities, increased hydrocarbon production costs, and the ensuing challenges in sustaining developmental programs and recapturing global market share (Analytica, 2021). Constrained financial resources inevitably extend their influence across various industry aspects, encompassing training, development plans, and budget allocations for corporate activities. Effective project risk management, as emphasized by (Elhoush & Kulatunga, 2017a), is pivotal for detecting, assessing, monitoring, and controlling risks while identifying opportunities within the Libyan oil and gas sector. As stated by OPEC (2021), the Middle East and North Africa region holds more than 66% of the world's oil reserves. As a result, the region will play an essential role in addressing global energy demand in the future. Libya, a country that has seen significant security and political upheaval, plays an essential role in supplying

hydrocarbons to meet the needs of the world, particularly the European countries that correspond to Libya (Nakhle & Petrini, 2020).

Since 2020, Libya has achieved considerable security stability, politics, and finance. This can be attributed to the establishment of the Libyan unity government led by Prime Minister Abdul Hamid al-Dabaiba in Tripoli, Libya. The government has made concerted efforts to prevent the outbreak of conflicts, deliver essential services to citizens, and stimulate economic growth (Nakhle & Petrini, 2020). These efforts include increasing oil production, attracting international companies, facilitating the necessary conditions for oil companies to enhance production, and resuming suspended projects (Chapman et al., 2022). A stable and secure Libya will have positive regional repercussions on two continents, given its strategic location at the gates of Europe, Africa, and the Middle East. At the end of 2021, Libya ranked first among the top ten countries in terms of global proven oil and natural gas reserves, as it possesses nearly 3 percent of these reserves (Nakhle & Petrini, 2020). Additionally, in 2021, Europe imported approximately 71 percent of Libya's crude oil and condensate exports (mainly Italy, Germany, and Spain) (EIA, 2022). However, Libya's oil production has been far below its capacity due to the protracted conflict. Achieving stability and security could help Libya achieve its plans to nearly double oil production by 2025 while affecting global oil supplies.

In July 2023, the National Oil Corporation (NOC) released data indicating a further improvement in Libyan crude oil production. Based on the National Oil Corporation (NOC), the production of oil in Libya attained a daily average of 1.208 million barrels in July 2023 (NOC, 2023). Furthermore, within the identical temporal framework, condensate production hit 49,000 bpd during the same period. Due to the enhanced security measures and political stability witnessed in the country starting from 2021, the National Oil Corporation (NOC) made an announcement in August 2023 regarding the lifting of force majeure by three prominent foreign energy companies, namely Eni, BP, and Sonatrach. Consequently, these companies have resumed their exploration activities in Libya's oil fields (NOC, 2023).

To this end, there is a need to ensure effective project risk management is implemented to identify, assess, monitor, and control threats as well as identify opportunities within the NOC. Achieving stability and security could help Libya achieve its plans to nearly double oil production by 2025 while affecting global oil supplies (NOC, 2023).

2.5 Knowledge Areas for Project Management

The preceding section examined diverse definitions of project management, as presented by various prominent professional project management bodies. While the definitions may vary, there exists a shared recognition of project management's vital role in accomplishing project goals and objectives (Faghihi, 2022). Knowledge management, on the other hand, centers on enhancing organizational capability. The desired positive outcome entails fostering a new work environment conducive to the seamless sharing of knowledge and experience (Badiru & Osisanya, 2016). To achieve this, requisite processes and technologies must be implemented. A harmonious alignment of organizational behavior at operational, strategic, and project levels is crucial, facilitating the smooth flow of data and knowledge to relevant practitioners at opportune times, thereby enhancing productivity (Kerzner, 2018).

Effective knowledge management within the oil and gas sector must establish a connection between practitioners and information spanning a wide array of exploration and production disciplines (Sabri et al., 2017). This linkage should encompass processes and incentives that engender trust and utilization of available data and encourage practitioners to contribute to the global data repository (Hassan et al., 2019). The shift from physical to intellectual capital as a driving competitive force is underscored by Hassan et al., (2019). Investing in knowledge management solutions unlocks the potential of intellectual assets, translating them into tangible value. As highlighted by Styhre, (2016), a significant portion of the world's largest corporations, around 80%, have initiated some form of knowledge management endeavour, ranging from rudimentary to highly sophisticated. The oil and gas industry has witnessed substantial financial savings through adopting and promoting knowledge capture and sharing practices. Dyer &

Shafer, (2014) delineate four crucial aspects for the successful implementation of knowledge management programs: People, Technology, Process, and Content

Practitioners and stakeholders within the oil and gas sector concur that addressing issues concerning technology, process, people, and content is pivotal for achieving success (Kusakci et al., 2017). According to Ruqaishi & Bashir (2015), a certain level of technology proficiency is imperative for advancement, particularly in today's transformative business landscape. However, Durdyev & Hosseini, (2019) highlight that effective attention must also be directed towards the other facets. Real-world experience across various organizations has indicated that no more than one-third of the knowledge management budget should be allocated to technology (Durdyev & Hosseini, 2020). A fundamental organizational unit in knowledge management is community practice, comprising individuals with shared expertise collectively seeking solutions to mutual challenges. Application of project management processes and skills to projects offers manifold benefits, as exemplified by Kerzner (2018):

- Identification of analytical tools and techniques.
- Early detection of issues.
- Enhancement of estimating capabilities for future projects.
- Determination of feasibility or potential surpassing of objectives.
- Assessment of timeframes and accomplishments against schedules and plans.

The project management process encompasses various dimensions, including Project Integration Management, Project Cost Management, Project Quality Management, Project Time Management, Project Scope Management, Project Human Resources Management, Project Communications Management, Project Procurement Management, and Project Risk Management (PMI, 2013). Notably, stakeholder management emerges as an integral component of the project management process, a sentiment also emphasized by PMI (2013), expanding the number of areas of knowledge to ten. Within this context, project risk management, as explored in this study, constitutes one of the key domains within the project management process.

Management acknowledges the inescapability of risk while highlighting its manageable aspects. This balance between accident prevention and opportunity provision underscores the importance of risk management (Badiru & Osisanya, 2016). Risk management proffers a structured framework for recognizing and quantifying risks, fostering action plans, and reporting on risks identified (Hui Li et al., 2017). Moreover, the discernment of opportunities that influence decision-making substantiates risk management's significance. PMI (2013) underscores risk management's role in risk identification, measurement, assessment, and reassessment, linking risk experts with strategic planning. Therefore, as a pivotal facet of project management, risk management assumes a central role (Blomquist, 2015). Implementing effective risk management from project inception can prove challenging for project managers, underscoring their role in managing risk within oil and gas projects.

2.6 Research Gap of the Study

The Libyan oil and gas industry faces significant challenges, including project delays, cost overruns, and poor-quality delivery. Effective risk management is crucial to mitigate these risks and ensure successful project outcomes. However, there is a gap in understanding the nuanced influence of individual soft skills on project outcomes and risk mitigation strategies, particularly in the context of the oil and gas sector in Libya. Previous studies emphasize the significance of soft skills in project management (Singh Rajbanshi, 2023), but there is limited exploration into the specific soft skills critical for success in this industry. Soft skills like emotional intelligence and conflict management are essential for project managers in the oil and gas industry to navigate complex stakeholder relationships and mitigate project risks (Alam et al., 2010; Gruden & Stare, 2018). Similarly, Osei-Kyei & Chan (2017) highlighted the need for project managers to develop a diverse set of soft skills to effectively manage projects in developing countries, where political, economic, and cultural factors can significantly influence project outcomes. To bridge this gap, future research should focus on identifying and prioritizing key soft skills that can significantly impact project performance and risk management in Libya's oil and gas projects. This will enhance the understanding of how individual soft skills contribute to successful project outcomes and effective risk mitigation strategies.

Managerial communication skills are essential for project managers to effectively manage risks and ensure project success. However, there is a lack of research on the specific role of managerial communication skills in risk management practices in Libyan oil and gas projects. The moderating effect of experience on this relationship also remains underexplored. Broader research on the importance of soft skills in project management supports the need to identify and prioritize the key soft skills that can significantly impact project performance and risk management in Libya's oil and gas projects. Previous research has emphasized that soft skills, such as communication, leadership, and problem-solving, are critical in enhancing project outcomes across various industries (Carvalho & Rabechini Junior, 2015). However, the specific soft skills required for success in the oil and gas sector, particularly in the Libyan context, remain underexplored. Addressing this gap will provide valuable insights into how these skills can be leveraged to improve project performance and risk management practices.

Experience is a crucial factor that potentially moderates the relationship between managerial communication skills and project risk management practices. However, the moderating effect of experience has not been extensively studied in the existing literature. It is essential to explore how varying levels of experience among managers might influence the effectiveness of their communication skills in managing project risks. Salazar-Aramayo et al., (2013) highlighted the need for experienced project managers and the use of project management best practices, as well as the importance of following a coherent reference framework based on official project phases, stage gates, and the constant monitoring and reviewing of project risks. Investigating how experience affects the relationship between managerial communication skills and project risk management practices can provide deeper insights into how experienced managers can better leverage their communication skills to enhance risk management outcomes and how less experienced managers can be supported to develop these competencies.

There is a notable scarcity of empirical studies specifically examining the role of managerial communication skills in risk management within the Libyan oil and gas sector. Most of the existing studies are either theoretical or based on limited case studies, which do not provide a robust empirical foundation for understanding these relationships. For example, Elhoush and Kulatunga (2017b) explored the practical effectiveness of

project risk management practices within the Libyan oil and gas industry and emphasized the importance of establishing an organizational culture to support the creation of a written risk management guideline, project manager leadership, and familiarity with the project risk management concept. Previous research by Elhoush and Kulatunga (2017b) and Pena Munoz (2020) emphasized the need for further investigation into this specific area, highlighting the lack of comprehensive understanding regarding the relationship between managerial communication skills and risk management in oil and gas projects. Moreover, studies such as those by McCorry and Mason (2020) and Eberly et al. (2011) provide insights into the broader implications of interpersonal skills and the complexities of evaluating soft skills, respectively, but do not address the specific context of Libya's oil and gas projects. Tahir (2019) and Majid et al. (2019) discuss the significance of effective communication skills in project success, which can be further explored in the context of Libya's oil and gas projects.

In conclusion, this research aims to fill several critical gaps in the literature on risk management in Libyan oil and gas projects. By identifying key managerial communication soft skills, exploring their influence on risk management practices, and investigating the moderating effect of experience, this study seeks to contribute valuable insights and empirical evidence to the field. Addressing these gaps will enhance both theoretical understanding and practical applications, leading to improved risk management practices in the Libyan oil and gas industry.

2.7 Dependent Variable

In a straightforward manner, the dependent variable (DV) relies on or is influenced by an independent variable. Researchers often prioritise this dependent variable for comprehension and potentially for prediction (Losh, 2017). In this study, the dependent variable is Project Risk Management, encompassing the processes of identification, analysis, and response to risks that may emerge throughout a project's lifecycle, aiming to ensure project progress and goal attainment. Risk management assumes a critical role within project management, as unchecked or unresolved risks frequently underlie project failures. The project risk management strategy constitutes a comprehensive blueprint that integrates tools and techniques for recognizing, assessing,

and mitigating detrimental consequences while exploring beneficial outcomes that can enhance the project's potential.

2.8 Project Risk Management Implementation

Many versions of the risk management implementation have been published and utilized, but these share many common elements and standardized steps (Moshood et al., 2020). External and internal drivers of risk management can affect the final shape a risk management process will take. Ilmonen et al. (2016) have defined risk management implementation as a systematic process where risks are evaluated, controlled, and reported.

Prominent scholars such as Larson & Gray, (2011) and Calabrese, (2016) share this risk definition, encompassing opportunities, and threats within a single project. Hillson (2009) underscores the value of defining risk through the dual lens of opportunity and threat, bearing substantial implications for project cycle risk management. An opportunity refers to an event that can positively impact project objectives (Larson & Gray, 2021). The PMI, (2013) categorizes four distinct responses to opportunities: exploit, share, enhance, or accept. Cooper et al., (2005) further characterise risk management as the culture, processes, and structures to effectively manage potential opportunities and adverse effects. Conversely, Larson & Gray (2021) characterize risk management as a systematic approach to addressing risk,' and detail the elements a risk management system should encompass: establishing a relevant context, defining goals and objectives, identifying and analyzing risks, influencing risk decision-making, and monitoring and reviewing risk responses.

The risk facing any construction project depends on the construction type and methods, the construction stage, the type of contract and delivery system, the project type, and the complexity (Sabri et al., 2017). Similarly, the risk management technique that should be applied also depends on the above factors. According to Masoetsa et al. (2022), this is due to the uniqueness of every project, the uncertainties introduced by the project stakeholders, statutory or regulatory protocols, and other intrinsic and extrinsic constraints. The success or failure of business operations is due to management decisions.

Project management aims to keep the project within the predetermined time, maintain the required quality, and complete it within the controlled budget (Ochieng et al., 2018).

Risk management encompasses the discipline of preparing for potential adverse effects arising from future events (Tripathi & Jha, 2018). Its continuous application spans all project phases, and it's particularly crucial for oil and gas companies as they constantly confront various risks (Aven, 2016). While some companies can evaluate and manage risks, others must accept and hope for favourable outcomes amidst identified threats (Rostami & Ahangari, 2022). To comprehend oil and gas risk management, it's vital to grasp risk types, company relationships with them, and specific industry risks. Project risk management is gaining widespread adoption in various industrial and social settings because risks cannot be eliminated but can be controlled (Thekdi & Aven, 2019). This approach seeks to balance accident avoidance and opportunities (Wideman, 2022). Risk management's primary aim is to promptly identify risks, followed by clear assessment, action planning, and reporting. Identifying opportunities influencing decision-making is equally critical. PMI (2013) emphasizes risk management, including planning, monitoring, and control processes, to identify and reduce project risk levels.

Numerous experts consider risk management a paramount procedure in project management practice (Frefer et al., 2018). Thekdi & Aven, (2019) outline a logical sequence of steps for project risk management, including identification, measurement, assessment, and reassessment. This practice integrates with strategic planning and management, highlighting its importance in a project manager's role. Effective risk management, especially from the project's outset, is essential for project managers to navigate complex and unique projects involving various resources. Hillson et al. (2014) points out that many organizations seek ways to manage uncertainty, making project risk management a potential solution. Hillson et al. (2014) defines risk as an event with known possible outcomes and measurable probabilities but unpredictable precise outcomes. Kerzner (2017) considers risk the measure of the consequences of unmet project goals. Recognizing the inevitability of uncertainties, Ward & Chapman, (2011) stress the need to transform them into manageable risks (Hillson et al., 2014). Understanding project objectives, typically linked to time, cost, and quality/performance (Hillson et al., 2014), is paramount.

Project risk management substantially enhances project management practices, particularly when aligned with professional standards (Benta et al., 2011). This approach addresses challenges and contexts tied to complex global environments within a project (Alotaibi, 2019; Thamhain, 2013). The Project Management Institute (2009) defines Project Risk Management (PRM) as an efficient structured process encapsulating five official practices as shown in Figure 2.8. Traditional project risk management, as outlined by Cooper et al. (2005) and Hillson et al. (2014), typically involves five stages and aims to identify adverse risks or threats.

Figure 2.8 Project Risk Management.

Source: Hillson et al., (2014)

While scholars and professional bodies have nuanced perspectives, they generally agree on the essential components of project risk management, which encompass identifying, analyzing, responding, mitigating, and controlling risks. These distinct phases were further elaborated in the subsequent sections.

2.8.1 Risk Identification within Risk Management

Risk identification stands as a crucial phase in the risk management process. Its significance lies in the foundational principle that effective management of risks hinges on their accurate identification (Yang et al., 2018). Viewing risk management as the process of spotting unforeseen events underscores the limited perspective of those unable

to identify risks (Kutsch & Hall, 2010). As previously mentioned, various definitions of risk exist, and it is imperative to adopt a comprehensive approach, encompassing risks as uncertain events as well as any positive or negative occurrences that could impact a project, extending beyond events to encompass associated responses (Vora et al., 2021).

The success of the subsequent stages hinges on the efficacy of the identification phase, which serves as the cornerstone of the entire risk management process (Rahman & Adnan, 2020). A well-executed identification phase sets the groundwork for the rest of the process to unfold seamlessly. It's important to note that risk identification is not confined to a singular point in a project's life cycle; it's a continuous process where existing risks might evolve, and new ones emerge over time (Torres et al., 2016).

Contrasting this, Lyons & Skitmore (2004) argue that the accomplishment of the risk management process is contingent upon the analysis stage rather than the identification phase. Nonetheless, they acknowledge that the tools and techniques of the identification stage are more frequently employed (Al-Hemoud et al., 2019). This reinforces the idea that risk identification is an ongoing activity, with repetitive iterations taking place even in a project's later stages. Notably, both PMBOK and PRAM (Project Risk Analysis and Management) incorporate techniques for risk identification. These methods encompass checklists, brainstorming, surveys, questionnaires, interviews, expert evaluations, and database analysis. Each technique contributes to the comprehensive identification of potential risks (Aydin et al., 2022).

2.8.2 Risk Assessment and Analysis within Risk Management

Risk assessment and analysis primarily aim to elucidate and prioritise risk scenarios (Oke et al., 2023; Schieg., 2006). Within the literature, two principal classifications of risk assessment are recognized: qualitative and quantitative analysis. Qualitative assessment involves techniques such as interviews, brainstorming, and checklists, whereas quantitative analysis employs data-driven methodologies (Banaitiene & Banaitis, 2012). As outlined by Bergh et al. (2018), quantitative risk analysis quantifies the impact of each risk on a scale ranging from high to low while determining the likelihood of occurrence. Conversely, qualitative risk analysis often involves evaluating impact and creating lists that facilitate further scrutiny of highlighted risks. Risk

assessment under both classifications must be conducted individually, considering their interrelationships (AlNoaimi & Mazzuchi, 2021).

In essence, risk factors that can be forecasted need quantification and analysis. The potential effects of these risks might encompass project delays, reduced productivity, or increased project costs (Yang et al., 2018). Given that projects often share resources, disturbances in one project can trigger delays in others, including delays caused by subcontractors. Through this approach, project personnel can identify and communicate potential new risks that may influence the project. Furthermore, the project risk management team must thoroughly analyze the potential repercussions associated with newly identified project risks (PMI, 2013).

Although scholars have scrutinized each stage of the risk management process extensively, risk analysis remains a topic of debate in academic literature (Bjerga & Aven, 2015; Srivastava & Gupta, 2010). According to Okudan et al., (2021), attention has occasionally been fixated on quantitative risk analysis, despite the challenges of attaining objective probabilities and frequencies. Shehu & Wang (2020) concluded that, in practical contexts, project managers often rely on subjective probabilities. Risk handling frequently involves incorporating a rough estimate of possibilities, as asserted by Khadem et al., (2018). Thus, it's essential to facilitate risk assessment through individual experiences, knowledge, and intuitive judgment (Dikmen et al., 2007; Qazi et al., 2020).

2.8.3 Risk Register within Risk Management

The composition of the registry hinges on the organization's nature, the projects undertaken, and the individuals involved. It's imperative to tailor the registry to align with these factors, ensuring it becomes a functional asset rather than an additional burden (Kuchta & Ptaszyńska, 2017). A personalized registry form must be crafted to suit these specifics, guaranteeing effective utilization, as Rogers & Ethridge (2013) emphasised. Integration of the registry into a database is crucial to streamline the processes of registration, management, categorization, and storage of information.

This registry should encompass a comprehensive array of recognized risks, including the outcomes from their evaluation, associated action plans, and the present state of each specific risk (Uzulans, 2019). Continuous updates and assessments of the risk registry should occur throughout the project's lifecycle. The registry assumes a critical role by expediting the scrutiny and enhancement of risk mitigation strategies (Ryu et al., 2016). It aids in identifying emerging risks, revising ongoing risk evaluations, and closing risks that have become obsolete, as highlighted by Potts & Ankrah (2014). Redundant risks that have been averted or previously overlooked can be pruned from the registry, along with their detailed action plans. Regular reviews of individual risks and corresponding action plans, as advocated by Cooper (2005), must be diligently executed.

Isah & Kim (2023) underscore the necessity to augment the registry by incorporating additional risks, specifying risk statuses, and refining mitigation measures. Historical records of past risks and the extent of their impact should be meticulously documented. Isah & Kim (2023) further accentuate that effective risk monitoring hinges on a robust internal control framework, wherein the responsibility for overseeing early indicators is designated to designated managers. To execute this process seamlessly, project managers must establish a system for gathering project data and convening meetings with stakeholders. These sequential stages demand a blend of interpersonal soft skills and technical prowess to ensure their successful execution (Har et al., 2017).

2.8.4 Risk Response within Risk Management

Project risk management necessitates formulating a risk response strategy encompassing the delineation of thresholds, triggers, and strategies for emergencies and mitigation (Zhang, 2016). Risk managers often employ a risk response matrix as a tool to determine the most appropriate response actions and plans. Haimes et al., (2015) characterize this matrix-based approach as a means of ranking risks, aiding projects in selecting the fitting response strategy based on the risk's nature and its impact's magnitude. Additionally, a core practice in project risk management is consistently monitoring risk status and the corresponding response actions, as highlighted by Rigby & Bilodeau, (2015). Well-established standards underscore the significance of ongoing risk monitoring across the project's lifecycle, encompassing potential shifts in pre-

existing risks and gauging the effectiveness of executed risk response plans. The integration of technology, such as risk management logging software, facilitates monitoring (PMI, 2013).

Consequently, the conventional risk management process commences with a definitional phase to set the project's context (Zhang & Fan, 2014). Cooper (2005) and Hillson (2009) indicate this phase is important since it establishes shared comprehension and agreement on the project's objectives. A by-product of this phase is a definition document, often termed a Risk Management Plan (Hillson, 2009), documenting decisions pertaining to risk scope and particulars. Aligned with this perspective, Bakker et al., (2012) underscore risk identification as the most impactful process in terms of sheer volume and communication potency. It's succeeded by risk reporting, registration, allocation, analysis, and eventually, risk control (Sadeh et al., 2021). In congruence, the significance of sharing project risk information with stakeholders emerges as a pivotal management practice, contingent on project type (Shehu & Wang, 2020).

Common shortcomings in organizations' risk management approaches prevail. One recurring pitfall is the misconception among many organizations that their framework is practical and effective, even if they suspect its suboptimal alignment with best practices (Ward & Chapman, 2011). As posited by Hillson (2009), organisations need to evaluate their risk management stance through the lens of importance and efficacy. Both Chapman (2019) and Hillson (2009) highlight several common pitfalls prevalent in organizations' approaches to effective risk management.

Within the literature on project risk management, various definitions of risk pertain to managing opportunities. Two distinct approaches to integrating opportunities into the risk management process emerge. One stance, as per Ward & Chapman, (2011), suggests abandoning the term "risk" in Favor of "uncertainty management." Alternatively, opportunities can be assimilated within the existing risk management process through strategic adjustments, as advocated by Kassem et al., (2021) and Adafin et al., (2020). The overarching challenge lies in shifting organizational mindsets to perceive risk in encompassing both threats and opportunities.

2.9 The Relationship between Risk Management and Performance in Oil and Gas Projects

Numerous global oil and gas exploration and production firms have encountered challenges in executing large capital projects within stipulated time and budget limits (Bakaddour, 2022; Kraidi et al., 2019). The underperformance of oil and gas projects might be attributed to their complex and intricate nature in terms of both technological and managerial aspects, rendering them among the most demanding industries. In fact, Kassem et al. (2019) and Musina et al. (2020) underscore the high risk associated with such projects, necessitating a well-defined management system offering specific strategies for time, cost, and quality.

Considering these challenges within the oil and gas domain, the expertise of project managers and teams becomes paramount to ensure the effective execution of required project management practices. Nonetheless, Briel, (2014) argue that mere experience is insufficient; project managers should adopt a comprehensive reference framework encompassing continuous monitoring and review of project phases from initiation to completion. The establishment of integrated project teams is also crucial, contributing to superior management quality and minimizing project failures. Correspondingly, AlNoaimi & Mazzuchi, (2021) affirm that companies are embracing effective project management strategies to enhance competitiveness within the industry. This endeavour aims to elevate project performance, consequently achieving higher project delivery success rates.

Consequently, the consensus among Al Subaih, (2016), Urbański et al., (2019), and AlNoaimi & Mazzuchi, (2021) is that the oil and gas sector necessitates efficient time, cost, and quality management strategies as part of comprehensive management policies. This escalating demand for knowledge seeks to curtail project failure rates, with project risk management emerging as a highly effective strategy. Diligent assessment of risk factors can mitigate project failures (Zuo & Zhang, 2018). Nonetheless, despite the significance of project risk management, numerous industry projects still falter due to subpar implementation of this concept. A global study by Ernst &Young (2014) highlights that the principal factor contributing to project failure in multiple oil and gas

projects is inadequate management of project duration and budget, leading to compromised project delivery against industrial norms. Deficient project risk management practices and processes are identified as primary causal factors for these failures.

2.10 The Relationship between Risk Management and Performance in Libyan Oil and Gas Projects

The oil and gas industry is significant in the Libyan economy, contributing around 96% of hydrocarbon sales to government revenues. Recognizing this importance, the Libyan government has viewed the industry as a pivotal economic driver (IMF, 2023). Before the 2011 civil war and the 2013 oil sector crisis, several project initiatives were announced in Libya to augment oil and gas production. Libya's National Oil Corporation (NOC) aimed to invest in enhanced oil recovery (EOR) projects to bolster production. In this vein, NOC launched a development program to revamp and advance various oil and gas fields (EIA, 2023).

However, the prevailing unpredictable security landscape and political instability have thwarted endeavours to engage in capital-intensive projects within Libya (EIA, 2023). Ayvaz et al. (2017) scrutinized the root causes and repercussions of construction project delays in the Libyan oil and gas industry. Kusakcı et al. (2017) underscored the prevalence of project delays within the industry, resulting in failed timely and budgeted deliveries. Numerous projects have even been temporarily halted or abandoned. Kusakcı et al. (2017) attributed these performance lapses to unstable security, political systems, material shortages, funding deficiencies, contractual disputes, external influences, inadequate project management, and suboptimal construction methodologies.

Similarly, Elhoush & Kulatunga (2017b) documented analogous issues of poor project performance within Libya's oil and gas sector. Since 2010, approximately 519 NOC capital projects suffered from delays and cost overruns. Political and security unrest in the country contributed to these failures, leading to funding shortages, suspension of foreign oil company activities, and a decline in expertise due to widespread business closures. Elhoush & Kulatunga (2017a) conducted a crucial study on risk management in Libyan oil and gas projects, revealing a lack of awareness and cultural deficiency in

project and risk management. Insufficient financial resources, a dearth of experienced and qualified personnel, absence of a clear regulatory framework, and communication challenges further hindered risk management practices. They identified "Project Engineers" and "Project Managers" as key roles, emphasizing technical and project management skills, while highlighting a need for enhanced communication skills and coordination (Ahmadi et al., 2020).

Consequently, it is evident that Libyan oil and gas projects suffer from underperformance, marked by project delivery failures. The root of these failures is linked to project risk factors, underscoring the pivotal role of project risk management in enhancing performance. Kusakcı et al. (2017) emphasized the necessity of establishing a project management framework in Libya's oil and gas sector to address time delays and cost overruns.

The literature review reveals an array of risks faced by project teams working on oil and gas projects, often leading to budget overruns and diminished project quality. Addressing these risks necessitates not only the enhancement of project management skills but also the proactive cultivation of soft skills (Toader et al., 2010). While organizations focus on bolstering project managers' technical skills, their soft skills, such as communication and leadership, play an integral role in project success (Nixon et al., 2012; Peña & Muñoz, 2020). The competency of project managers in leveraging these soft skills is paramount to achieving project objectives (PMBOK, 2013; Toader et al., 2010). Ineffectively appointed personnel lacking the requisite skills can contribute to project failures (Peña & Muñoz, 2020; Toader et al., 2010). This underscores the significance of investigating these risk elements within Libyan oil and gas projects, accentuating the importance of this research in establishing an effective risk management process.

Elhoush & Kulatunga (2017a) identified a notable research gap regarding the effects of project manager's soft skills on project risk management practices within Libyan oil and gas industries. This gap has also been emphasized by Peña & Muñoz, (2020), further underscoring the need for this research endeavour.

2.11 The Soft Skills of Project Management.

According to Tahir (2019), the project management process necessitates project managers possessing a range of management skills. These skills encompass effective communication, problem-solving, conflict, and crisis resolution, stakeholder relationship management, and team collaboration. Magano et al. (2020) anticipate a growing demand for soft skills in workplaces, defining them as encompassing communication, technology, and interpersonal aptitudes.

Reviewing the literature on soft skills in project management reveals key proficiencies required by managers. These include active listening, communication, conflict management, human resource management, leadership, motivation, negotiation, political and cultural awareness, as well as professional and ethical conduct (Caeiro-Rodríguez et al., 2021). Each of these skills carries distinct value in assisting project managers in team management, influencing performance, and contributing to project risk management and overall project success. According to Wen (2023), soft skills such as teamwork, effective communication, cognitive abilities, managerial motivation, conflict resolution, and leadership are crucial for those engaged in construction projects.

Enhanced project success aligns with project managers who possess specific skills and competencies (Luțaș et al., 2020). Kirby (2023) contends that technical skills form the baseline requirements for project managers to plan and oversee projects of varying complexity and contexts effectively. Effective communication with a diverse range of internal stakeholders, including project sponsors, team members, functional managers, and the public, is vital for project managers (Gunter, 2020). El-Sabaa, (2001) identified and categorized essential project manager skills into three domains: human skills, conceptual and organizational skills, and technical skills, with human skills being paramount. However, a lack of crucial proficiencies like effective communication, leadership, and planning diminishes the likelihood of project success (Rush & Connolly, 2020). A consensus among researchers emerges that a project manager's soft skills significantly predict project success, particularly within the realm of project risk management (Hassan et al., 2019).

2.12 Managerial Soft Skills on Project Success in the Context of Project risk Management

The impact of soft skills on achieving project objectives, particularly within the context of project risk management, has garnered significant attention in the growing field of project management research (Matturro et al., 2019). The prevailing understanding underscores that project manager success demands more than technical expertise. While possessing technical skills is now considered fundamental for aspiring project managers, Wen, (2023) underscores the critical role of exceptional interpersonal skills, commonly referred to as soft skills, in achieving success.

Empirical evidence from Zuo et al. (2018), underscores the substantial influence of project managers' skill sets on factors contributing to the success of construction projects in Vietnam. The study scrutinizes project complexity, specifically focusing on the significance of project management's soft skills within the realm of project risk management as major contributors. Recognizing and comprehending these underlying factors is pivotal in enhancing project execution and influencing outcomes (Ram, 2022).

The presence of specific skills and abilities positively correlates with higher project success rates among project managers (Luţaş et al., 2020). Kirby (2023) maintains that technical skills serve as a baseline requirement for project managers to handle projects of diverse complexity and contexts. Effective communication with various internal stakeholders, including sponsors, team members, functional managers, and the public, is vital (Gunter, 2020). El-Sabaa (2001) categorizes essential project manager skills into three domains: human, conceptual, organizational, and technical skills, with human skills being paramount. Conversely, a lack of critical proficiencies like effective communication, leadership, and planning diminishes the likelihood of project success (Shi & Chen, 2006). Researchers tend to concur that project managers' soft skills significantly predict project success, especially in project risk management (Ozorhon et al., 2022).

Wen's (2023) findings indicate that project managers can enhance project performance in Malaysian construction through the adept application of personal and social skills. Among these, scholars and researchers widely consider effective

communication the cornerstone of project success (Olanrewaju et al., 2017; Ozorhon et al., 2022). Notably, efficient communication is pivotal in project management due to the wealth of information generated during typical construction projects, particularly in complex ones (Zuo et al., 2018a). Additionally, Gulati et al. (2020) assert that project managers' communication competence significantly impacts team productivity and satisfaction, fostering cohesiveness, mutual understanding, and ownership within the project (Yang et al., 2011). Scholars like Pham et al. (2020) highlight that deficient communication and delayed decision-making undermine project teams' performance. Thus, effective communication skills significantly contribute to project success.

Soft skills are pivotal in efficiently managing team members and stakeholders (Scott-Young & Samson, 2009). The literature indicates that a lack of soft skills in project managers is a dominant factor leading to project failure. A study by Stevenson & Starkweather (2010) identifies essential project manager skills, and over time, definitions of project success have evolved to incorporate strategic and holistic perspectives. However, project success is not solely reliant on frameworks; various project-related factors like objectives, stakeholders, work environment, and risk influence project outcomes (Cserháti & Szabó, 2014). Yap et al. (2021) underscore management capabilities like efficiency management, communication, financial management, risk management, and site management as factors affecting schedule delays in the Malaysian construction industry. Effective project risk management, driven by project manager communication, is crucial for success in oil and gas projects (Kassem et al., 2021).

Project managers significantly shape project success. Beyond technical skills, effective communication and collaboration are key contributors to project success (Kazemi et al., 2021). Effective communication and teamwork are pivotal for avoiding project time or cost overruns that hinder intended success (Kazemi et al., 2021). Technical skills empower project managers to select projects, manage resources, plan effectively, and use project management software. Yet, challenges arise in managing relationships with external entities (Ika & Pinto, 2022). Project failure often stems from deficient communication and leadership rather than project complexity or technical expertise (Kazemi et al., 2021). Soft skills gaps among top project managers contribute to project failure, especially within project risk management (Tahir, 2019).

In complex oil and gas projects, managerial communication soft skills play a pivotal role in ensuring successful execution, particularly in project risk management (Van Thuyet et al., 2019). These skills encompass interpersonal abilities that enable effective communication, collaboration, and leadership. In an industry characterized by high-stakes projects and multifaceted risks, these skills minimise risks and optimise project outcomes (Kassem et al., 2021). Diverse teams in oil and gas projects demand effective managerial communication for interactions, conflict resolution, and fostering a cohesive environment (Bakaddour, 2022). Open discussions leverage team knowledge to identify, assess, and prioritize risks.

2.13 Independent Variable

One of the major aims of research is to understand the causes of phenomena. The presumed cause in a cause-effect relationship is the independent variable, and the presumed effect is the dependent variable (Polit, 2010; Vogt & Johnson, 2011). In other words, an independent variable is a variable that is presumed to affect another variable (dependent variable). Effective project risk management, facilitated by project manager communication, is crucial for success in oil and gas projects. In these complex projects, the soft skills of managerial communication play a pivotal role in ensuring successful execution, particularly in the realm of project risk management.

2.14 Managerial Communication Soft Skills

According to Barrett (2006) and Datta et al. (2021), manager communication consists of layers, expanding skills from core strategy development and effective writing and speaking to using these skills in more complex organizational situations. As a project develops, the project manager will need to improve the core communication skills to become more effective in communication. Barrett, (2006) emphasizes that as a manager progresses to higher organisational levels, the more complicated communication demands become. Managerial communication capabilities are built on their core abilities. It is the capabilities more directly involved in managing others. It is the skills needed to interact with individuals and to manage groups (Datta et al., 2021).

The survival of any organized human activity depends largely on man's ability to communicate with others. Indeed, it is impossible to conceive of an organization in which individuals operate in isolation without the benefit of communication (Talukhaba et al., 2011; Shakeri & Khalilzadeh, 2020). It is essential to determine the skills needed to communicate effectively for the benefit of the project. Skills are divided into three sets: cognitive, technical, and communication skills. Cognitive skills relate to the knowledge base of the profession. Technical skills are the specialized practical and manipulative techniques essential to the profession (Hargie, 2021; Benita Zulch, 2014), especially in a project's planning and implementation stages (Elmezain et al., 2021; Odusami, 2002). Communication or social skills entail individuals interacting effectively with clients and other professionals (Hargie, 2021).

The project manager needs to establish cooperative relationships with the project team members, ensure a good communication climate, identify project participants to ensure commitment and adopt an appropriate leadership style (Datta et al., 2021; Odusami, 2002). Zulch (2014) adds two additional skills: interpersonal and emotional. Emotional skills are the ability to make the right decisions under challenging circumstances, to take responsibility, and to have courage. Interpersonal skills are having the self-confidence to communicate. Without emotional skills, interpersonal skills may not be used effectively, and without interpersonal skills, technical skills may be wasted. Elmezain et al. (2021) suggest that all project managers require the same competence in each skill. Datta et al. (2021) describe communication as an essential skill in life, and Elmezain et al. (2021) state that "the most important skills a project manager possesses are communication skills." These statements confirm that communication skills are essential.

Good communication is the ability to convey ideas and information clearly through an identified channel to ensure that the team progresses toward accomplishing a common goal. Communication skills in project management are the most important soft skills. Open, honest communication both ways, i.e., top-down and bottom-up, assists project managers in providing clarity and clear vision to the team members and stakeholders of the project (Alvarenga et al., 2019). A project manager develops a communication management plan to manage communications related to the project. This

plan comprises the mediums, frequency, and communication modes for respective stakeholders (Tian, 2020). The communication plan ensures that information, ideas, and decisions are transparently communicated to all the team members (Caggiano et al., 2020). Open and honest communications assist project managers in building trust within the team and prepare team members for unforeseen circumstances concerning changes, risks, and updates to the project implementation.

A project manager needs to carefully consider cultural differences in perspective and continuously communicate information to the team members (Gulati et al., 2020; Benita Zulch, 2014). PMI, (2013b) suggests a project manager should spend 90% of his/her time communicating with the team members and all involved stakeholders. Project meetings should be task-oriented and include group maintenance behaviours, allowing all participants to be up-to-date with current information, thus enhancing their understanding and commitment and allowing the project manager to make decisions transparently and on time (Peña & Muñoz, 2020). According to Hargie (2021), communication can be carried out in four ways: verbal (via public speaking, telephone, listening), written (via email, text messages, letters, and reports), non-verbal (via facial expressions, body language, and posture), and visual (via dress, personal hygiene).

At various stages of a construction project, people will have to explain, ask questions, and discuss issues and ideas with each other. According to Yap et al. (2021), construction project managers are engaged in oral communication about 76% of the time. Gorse & Emmitt (2003) and Kwofie et al. (2020), also states oral communication as the main method of communication and that it is good practice to record oral communication. The most common communication channel is speaking; it is immediate, spontaneous, direct, and used in various situations. However, verbal communication is most often misunderstood (Elder, 1994; Benita Zulch, 2014). Most of the communication during a construction project may be spent on speaking and listening and less time on reading and writing. Communication actions such as speaking, listening, reading, and writing need expertise to be used successfully (Beenen et al., 2021).

According to Zidane & Andersen (2018), found in their survey that poor communication is mentioned in 37 studies as one of the top 10 critical delay factors and

as the number one delay factor in a study done by Van et al. (2015) in Vietnam. So, these are leading from the point of view of the world that has been emphasized to have an impact on risk management practices. Managerial communication skills can be defined as specialized technical knowledge in specific jobs that managers should possess to perform their duties and roles through education, whereby people can be equipped with skills (Ahmad & Ahmad, 2021; Al-Madhoun & Analoui, 2002). Managerial skills are acquiring and learning abilities. By reading extensive literature, this study uses constructs of the independent variable and its dimensions of managerial communication skills (General Communication Skills, Verbal Communication Skills, Written Communication skills, and Project Communication Skills) (Mitchell et al., 2010; Gulati et al., 2020). The following subsection elaborates on General Communication skills.

2.14.1 General Communication Skills

Managerial communication skills encompass a distinctive array of traits and attributes within managers' personalities that enable them to adeptly oversee business operations, as per the definition provided by Khasawneh, (2021). Additionally, these skills can be characterized as specialized technical knowledge specific to managerial roles, essential for their effective performance, as defined by Mata et al., (2021).

Managerial skills are more than acquired competencies; they encompass a set of behaviours contributing to proficient job execution. In essence, these skills translate knowledge into actionable practices. Katz (2009) defines managerial skills as the capacity to convert information and expertise into practical application. In exploring the "Most common skills of effective managers," Katz categorizes managers' fundamental skills into personal and communication domains. This classification extends to three core groups: personal skills (self-awareness, stress management, problem-solving), interpersonal skills (communication, influencing, conflict management, motivation), and group skills (empowerment, team building, delegation of authority).

Peña & Muñoz (2020) affirm that all managers necessitate three core managerial skills, varying degrees based on managerial level and organizational context. Managerial skills, often called management capabilities, are pivotal in driving organizational development under the manager's guidance (Asbari et al., 2020). An organization's

triumph or downfall hinges on a manager's adeptness in effectively steering it toward its objectives. The three fundamental skills managers should possess include technical skills, soft skills, and conceptual skills (Gulati, 2021; Tian, 2020)

Considering managers' substantial engagement in communication throughout their day, Zuo et al. (2018b) highlight the indispensable value of robust communication skills for aspiring managers aiming for advancement. Ferreira & Sah, (2012) construct a model where managers endowed with broader competencies tend to ascend to higher organizational echelons as business complexity rises and communication technologies evolve. Their analysis underscores that managers with versatile proficiencies better comprehend information conveyed by subordinates with diverse expertise (Ojan et al., 2022).

Gamil & Abd Rahman (2023) emphasize the indispensability of clear and concise communication for global business success. Mitchell, (2013) underlines that effective communication permeates all facets of life and across disciplines. DuFrene et al. (2009) encompasses communication as "the process of a shared system of symbols, signs, and behavior." Other descriptors of the communication process encompass expressing feelings, conversing, speaking, corresponding, writing, listening, and exchanging. Fundamental communication skills encompass speaking, signaling, listening, writing, and reading, as Mitchell, (2013) expounded. Wu et al. (2017) further outline modes of communication, including attending meetings, writing reports, delivering presentations, explaining management procedures, coordinating employee efforts, and upholding the company's image.

2.14.2 Verbal Communication Skills

Verbal communication involves the use of words in the appropriate language. It can be categorized into two types: formal communication, which is planned and has specific goals, and informal communication, which occurs more frequently and is easy to prepare (Tahir, 2019). On the other hand, non-verbal communication, often referred to as body language, plays a crucial role. Non-verbal cues can be even more significant than verbal communication (Majid et al., 2019). This encompasses facial expressions (facial

muscle movements), kinesics (whole-body movements), haptics (meaning conveyed through touch), and more.

Empathy, the capacity and willingness to comprehend other individuals, their actions, behaviours, intentions, and so forth, is vital. Without this quality, establishing trust with others becomes challenging, and cooperation becomes elusive (Ravindranath, 2016). Communication skills are one of the most pivotal components of soft skills. Mastering the art of communication often translates into effective leadership or collaborative teamwork (Wikle & Fagin, 2015).

Effective communication stands as the cornerstone of a project manager's role. Thoughtfully planned communication endeavours define the informational requirements of project stakeholders (Pinkowska et al., 2011). Vital communication proficiencies encompass conflict resolution and negotiation skills. All team members necessitate specific information to fulfil their roles within the project, and it is incumbent upon the project manager to ensure that stakeholders possess this information (Datta et al., 2021).

Verbal communication, the most prevalent channel, boasts immediacy, spontaneity, directness, and broad applicability. However, verbal exchanges are frequently susceptible to misinterpretation (Elder, 1994; Vogel.et al., 2018). The project manager dedicates a significant portion of their day to interactions. Precision is paramount in verbal articulation, favouring succinctness—why utilize seven words when four suffice? In conveying project status to executives, verbosity finds little favour. Circumlocution can be even more irksome (Fanse & Shirbhate, 2022). When elucidating issues to executives, the project manager must gauge the optimal level of detail, crafting a comprehensible narrative that conveys the essence economically.

Scholars such as Hamidi & Barati (2011) and Zuo & Zhang (2018) underscored the insufficiency of verbal communication among managers. Hoggatt, (2006) affirmed that the workforce necessitates oral and communication skills as a cardinal attribute. James & Lippe (2005) and Gulati (2021) corroborate the indispensability of verbal and interviewing skills for individual accomplishment. Gonçalves et al. (2016) highlighted managers' need to address queries and concerns under pressure deftly. Kakepoto et al. (2012) emphasize the pivotal role of oral and written communication skills in workforce

success, particularly as novices enter the realm of employment. As one ascends the career ladder, adeptness in public speaking and presentation delivery becomes even more imperative (Benita Zulch, 2014). The anxiety tied to making oral presentations is a challenge many employees face.

Oral communication refers to verbal exchanges among individuals within an organization, often taking place during conferences, seminars, meetings, and interviews. This form of interaction is robust in content due to the high level of engagement between sender and receiver (Eagleson et al., 2016).

Communication apprehension, encompassing the dread of public speaking, stage fright, or speech anxiety, affects numerous individuals (Kakepoto, 2004). This apprehension necessitates acknowledgment, neither disregarded nor overemphasized (Stowers, 2004). Kyllonen (2013) highlights the significance of promptly and accurately responding to complex inquiries as a vital skill for business managers, fostering robust public relations. The notion that effective verbal communication is integral to project management triumph requires perpetual affirmation (Zulch, 2014).

2.14.3 Written Communication Skills

Written Communication involves utilizing letters, memos, bulletins, policy manuals, notices, and books to convey information within an organization (Escobar-Mamani & Gómez-Arteta, 2020). A project manager's written communication must embody conciseness. Emails, reports, and other written forms reach co-workers. An extensive 10-page email often results in eye rolls and diminished readership (Saenab et al., 2018). Clarity is equally vital. Proper grammar is pivotal, sparing readers from deciphering sentences. A robust vocabulary enhances communication, not through complex words, but by choosing apt words for each situation. Success in project management, as noted by Zuo et al. (2018), hinges on proficient written communication.

Christopher (2006) and Saenab et al. (2018) emphasize clear writing and the ability to assess, evaluate, and synthesize information as success catalysts. Furthermore, Jena & Satpathy (2017) highlight a deficiency in business writing skills among new managers. Kord & Thornton III (2020) stress the demand for employees with adept

writing skills. Christopher (2006) indicates companies increasingly request writing samples during interviews. Poor writing, as indicated by Folks et al. (2017), results in waste, errors, and reduced productivity. Reports plagued by disorganization and unnecessary verbiage impede understanding.

Prabavathi & Nagasubramani (2018) affirmed that subpar writing beyond professions, negatively impacts businesses, legal fields, and healthcare. The lack of clear and concise writing displeases customers, incurring organizational costs and project failures. Christopher (2006) and Kwofie et al. (2020) highlighting spelling errors, poor grammar, and vague expressions as characteristics of substandard documents. Johari & Jha (2021) asserted that grammatical errors negatively affect individuals or companies. Prabavathi & Nagasubramani (2018) advocated a focus on content, style, structure, and design to enhance understanding. The goal is to communicate accurately and coherently.

For project managers, effective communication skills enhance project management and professional competencies. Employing written and verbal/non-verbal messaging proficiencies positively impact team productivity (Saenab et al., 2018). This includes delivering easy to understand project status feedback, succinctly addressing team members' concerns, engaging technically diverse experts effectively, accessing pertinent information in a timely manner, and exhibiting interpersonal adeptness (Hoxha & McMahan, 2019).

2.14.4 Project Communication Skills

Project communication skills are integral to both projects and organizations, with project managers playing a pivotal role in their management (Drinkwater, 2007; Tian, 2020). Managing project communications presents challenges, as noted by Drinkwater (2007), in the continuous dissemination of project information to both internal and external stakeholders through various documentation methods throughout the project's lifecycle. Zuo et al. (2018) emphasize that an uninterrupted communication process is essential to avoid confusion among stakeholders and the project team regarding project status and decisions.

While the importance of project communications for stakeholder and team awareness is well-recognized, the literature on project management communications is relatively limited (Bourne, 2005) . This gap may be partly due to the historical focus on project success in the management industry, which has primarily centered on time and budget elements (Wideman, 2022; Zuo et al., 2018a) . Addressing the lack of research on project management communications (Bourne, 2006; Kassem et al., 2020) enriches the knowledge base for project managers and practitioners, particularly concerning stakeholder management and the soft skills aspect of project communications.

Past studies (LaLande, 2018; Verzuh, 2005) have identified four key aspects of project communication skills: audience (stakeholders), media (method), originator (or owner), and frequency. Historically, these skills included business letters, memos, reports, and telephone interactions. The digital age has introduced new methods, including cell phones, emails, text messages, instant messaging, voicemail, and faxes. Truell et al. (2005) highlight how the Internet and email have transformed modern communication, with websites, emails, blogs, podcasts, and text messages becoming vital communication tools. Websites, in particular, not only convey information but also impact a company's credibility and reputation. Flatley (2004) emphasizes the proper use of text messages in a business context.

Project managers' needs vary across the project lifecycle. Understanding their perspectives, expectations, and influence is crucial for project success (Gulati et al., 2019; Zuo et al., 2018). Timely distribution of project information among stakeholders is vital (Bakker et al., 2012). Previous studies argue that project success goes beyond hard factors (time, scope, budget, quality) and advocate for a focus on soft skills, such as relationship and communication management. Therefore, this study broadens the perspective on project success, shifting from fiscal and efficiency dimensions to acknowledging the importance of soft skills in project management, particularly in stakeholder and relationship management through effective project communications.

Previous research has predominantly focused on hard project management factors, sidelining soft skills (Anantatmula, 2010; Maqbool et al., 2017; Marando, 2012). While enhancing hard skills, the development of tools for soft skills, like relationship

management, has been neglected (Bourne, 2005). Bourne (2005) underscores those individuals, not techniques or hardware, achieve project objectives. Effective communication, integral to building relationships and garnering stakeholder commitment, remains under-researched (Bourne, 2006; Söderlund & Maylor, 2012; Tian, 2020; Zuo et al., 2018).

Effective communication entails the skill to convey concepts and information with clarity through a designated channel, driving the team towards shared objectives. Among soft skills, communication skills hold paramount importance in project management (Gulati et al., 2019; Zuo et al., 2018). Establishing open, candid communication in both directions—top-down and bottom-up—enables project managers to offer lucidity and a well-defined perspective to team members and stakeholders (Müller, 2003). In the realm of project management, a communication management plan is devised to oversee project-related communications. This plan outlines the mediums, frequency, and modes of communication tailored for respective stakeholders (Ahmed et al., 2007). Its purpose is to ensure that information, concepts, and decisions are disseminated transparently across all team members. Transparent and candid communication aids project managers in nurturing trust within the team, priming them for unforeseen contingencies like alterations, risks, and project updates.

Moreover, mindful consideration of cultural nuances is essential when conveying ongoing information to team members (El-Sabaa, 2001). Per the PMI's recommendations, a substantial portion, around 90%, of a project manager's time should be dedicated to communication with team members and stakeholders (PMBOK, 2013). Project meetings should be goal-driven and encompass group maintenance behaviours, ensuring participants stay updated with current information. This approach enhances comprehension commitment and allows the project manager to make well-informed decisions promptly (Wideman, 2022). Communication is manifest through various avenues: verbal (public speaking, telephone, active listening), written (email, text messages, letters, reports), non-verbal (facial expressions, body language, posture), and visual (attire, personal hygiene) (Zikmundet al., 2010).

2.15 Experience as a Moderator

According to Tesluk & Jacobs (1998), the conception of work experience is the accumulation of job-related information, skills, and abilities through time. Work experience takes into account the amount of time spent working on a task, a job, or within an organization (Huang & Liu, 2017). Work experience considers the number of times a duty or assignment has been done in addition to the length of time. Taking on new responsibilities, making changes, and conquering job demands from problems are all examples of key knowledge, skills, and abilities obtained via work experience (Pan et al., 2017). The experience of project managers in projects is relative to project initiations, the definition of project goals, planning project tasks, risk management, resource management, budgeting and communication, tracking issues and status, and evaluating the project performance. As well as experience, project managers require strong abilities in business, technology, behaviour, and leadership skills (LaLande, 2018). The insights and competencies cultivated through project management, even on a smaller scale, offer a microcosm of the challenges encountered in overseeing a complete organization. Therefore, projects serve as fertile ground for nurturing future leaders and honing managerial abilities.

Jin et al. (2017) highlight that a project manager's expertise significantly influences risk management. Experienced project managers excel in identifying and addressing external, such as market forces and internal risks encompassing planning and experience-related risks (Yang et al., 2011). As Javani & Rwelamila (2016) noted that formal risk management processes bolster project success rates. Risk identification and management proficiency improve under seasoned project managers (Yim et al., 2015) contributing to cost-effective risk mitigation (Herteliu & Despa, 2014).

When internal personnel undertake projects, knowledge dissemination through project risk communications enhances long-term risk management (Marcelino et al., 2014). Wang et al. (2016) underline how experienced project managers possess a nuanced understanding of risk scenarios, facilitating sound decision-making. In complex projects, experienced managers prove pivotal in mitigating stakeholder-related risks

(Aaltonen & Kujala, 2016). However, Fabricius & Büttgen (2015) contest the impact of experience on project managers' overconfidence.

On the other hand, Rubin and Seelig (1967) contend that project managers' experience doesn't necessarily correlate with project success. Success stems more from robust organizational support than solely from experienced managers (Rubin & Seelig, 1967). Mazzaferro et al. (2022) concur, showing that project managers' years of experience don't predict project success. Nevertheless, ample literature asserts the positive impact of experienced project managers on project success (Haan et al., 2018; Moreno et al., 2017). Leveraging seasoned project managers' knowledge and experience increases the likelihood of success (Vicente et al., 2015). However, some studies highlight that less experienced project managers prioritize technical skills over soft skills (Hoxha & McMahan, 2019). As such, novice project managers should commence refining soft skills early on.

Prior research has considered working experience as a moderating factor in the relationship between independent and dependent variables (kling et al., 2010; Purani & Sahadev, 2008; Shi & Chow, 2015). For instance, Earley et al. (1990) establish experience as a moderating force in technology adoption, impacting performance capabilities. Building on this, experience moderates the relationship between independent and dependent variables in various contexts, such as social commerce websites (Shi & Chow, 2015) and brand loyalty (Bennett.et al., 2005). Consequently, this study proposes experience as a moderator variable, scrutinizing its influence on the connection between managerial soft skills and project risk management.

2.16 The Relationship between Managerial Communication Skills, Project Risk Management Practice, and Experience of Manager in Libyan Oil and Gas Projects

There have been extensive dialogues within the project management community, where professionals and researchers alike have endeavoured to discern pivotal components influencing project managers' successes. These encompass risk management, project techniques, and experience (Hijazi, 2021; Shenhar & Dvir, 2007). In the corporate landscape, numerous projects are executed, yet not all reach fruition.

Factors contributing to project failures include scope creep, political influences, underestimated risks, cost overruns, resource constraints, project complexity, and environmental variables (Kassem et al., 2019). Furthermore, it is recognized that project managers' lack of soft skills can determine project failure (Gulati et al., 2020).

Less experienced project managers, as highlighted by Dulaimi & Langford, (1999) and Hijazi (2021), often prioritize technical expertise over soft skills, emphasizing the need for early soft skills cultivation (Dulaimi & Langford, 1999). As Sadeghi et al. (2014) pointed out, selecting a proficient project manager ranks among the critical success factors. Soft skills encompass interpersonal aptitudes required to apply technical knowledge. Project managers' experience in various facets, such as project initiation, goal definition, task planning, risk management, resource allocation, budgeting, communication, issue tracking, and performance evaluation, is essential. Additionally, well-rounded business, technology, behavioural, and leadership proficiencies are vital (Baloyi, 2013). The skills and insights garnered from managing projects, even smaller ones, offer a microcosmic view of organizational operations, nurturing future leaders and managerial adeptness. The project manager's role necessitates proficiency not only in hard skills but also in soft skills to achieve success (Tian, 2020).

The significance of project managers' experience in risk management has been underscored by Jin et al., (2017). Experienced project managers exhibit heightened efficiency in risk detection and management (Herteliu & Despa, 2014; Warditoet al., 2021). They categorize risks into external and internal domains, with market forces and planning inexperience being key exemplars (Yang et al., 2014). A formal risk management process elevates project success rates (Javani & Rwelamila, 2016). The crux of risk management lies in risk identification, which benefits from seasoned project managers (Yim et al., 2015). This experience-driven prowess aids in identifying potential risks cost-effectively (Herteliu & Despa, 2014). Conversely, inexperienced project managers amplify internal risks. When internal personnel lead projects, knowledge dissemination through project risk communications bolsters long-term risk management (Araújo et al., 2020; Marcelino et al., 2014). Experienced project managers' insights enhance risk comprehension and decision-making (Wang et al., 2016; Zhang et al., 2019). In intricate projects, experienced managers play a pivotal role in risk alleviation

(Aaltonen & Kujala, 2016). Contrary to this, Fabricius & Büttgen (2015) find no correlation between experience and project manager overconfidence.

Oil and gas projects globally grapple with delivering substantial capital projects within time and budget confines (Seddeeq et al., 2019). Due to their complexity, these projects, deemed among the most challenging, warrant meticulous management (AlNoaimi & Mazzuchi, 2021). Kassem et al. (2019) and Musina et al. (2020) highlight the risk-laden nature of such projects, necessitating robust management strategies. Developing effective time, cost, and quality management strategies, underpinned by project risk management, is pivotal for success (Crispim.et al., 2019; Rogers & Ethridge, 2013; Veiga & Silva, 2020). While project manager selection garners attention, the significance of their soft skills, particularly those impacting project success and risk management, is equally crucial. Soft skills encompass leadership, communication, negotiation, expectation management, problem-solving, and decision-making. Baloyi (2013) distinguishes these from technical, tool-assisted hard skills. Addressing gaps in understanding the importance of specific soft skills and their influence on project manager success and risk management warrants exploration (Eva & Afroze, 2021; Weber et al., 2009).

In effective project management, communication plays a paramount role. Good communication, achieved through a defined channel, guides teams towards shared objectives (PMBOK, 2013). Open, transparent, top-down, and bottom-up communication fosters clarity and vision among project team members and stakeholders (Turner & Müller, 2005). Effective communication positively impacts team cohesion, understanding, and project ownership (Pham et al., 2020; Yang et al., 2011). A communication management plan specifying mediums, frequencies, and modes for stakeholder engagement is imperative (Hargie, 2021).

Moreover, adhering to task-oriented project meetings and embracing various communication modalities enhances transparency and decision-making (Ahmed et al., 2021). Therefore, the evolving field of project management calls for a deeper understanding of soft skills' significance and their role in shaping project success and risk management. This study aims to address this void, shedding light on the specific soft

skills that wield the most impact and exploring their ramifications on project outcomes. With this perspective, project management practice is perceived as a form of social behaviour and interaction that takes place among individuals collaborating to achieve a common goal.

2.17 Underpinning Theory

The significance of soft skills has grown in the realm of project management. The aim is to bolster personal growth and proficiency through soft skills development. Assessing these skills is widespread, but there's a dearth of research on the efficacy of such assessments. A dual approach of theory development and a research agenda is vital to critically appraise soft skills assessment. This entails advancing theories that elucidate how cognitive, emotional, and social dimensions interplay in shaping learner behaviour, employing established theories like attribution theory. An assimilative integration approach rooted in attribution theory, which merges self-regulation and socially situated elements, emerges as a promising avenue (Kluger & DeNisi, 1996).

Attribution theory, as posited by Heider (1958) and Kelley (1973), offers insights into how people perceive reasons and causes of others' behaviours akin to amateur scientists. Heider's categories of internal (personal disposition) and external (situational) causes for behaviour are central to this theory. This study uses attribution theory to establish theoretical foundations for the relationship between managerial soft skills, project risk management implementation, and managerial experience as a moderator.

However, it's important to note that there's no single unified attribution theory; instead, various attribution theories exist within a larger framework (Rickard, 2014) . The present study aligns with the perceptions of the causality stream with Kelley, (1973) and building on Heider's initial work. Kelley explored the characteristics guiding attributions, while Weiner (2006), examined how attributions impact emotions and behaviours, especially in the context of leadership and organizational studies.

The attribution theory offers a lens to comprehend the link between managerial soft skills, project risk management implementation, and the oil and gas industry (Martinko & Mackey, 2019). Project managers tend to attribute firms' motives during

project risk management implementation to altruistic intentions or strategic/financial goals (Martinko & Mackey, 2019). Attribution theory simplifies how individuals attribute the causes and responsibility for events, whether to internal traits or external factors (Graham, 2020). This theory has been applied to risk causation attributions, but this study bridges the gap between accident causation and risk management responsibility attributions.

This study attempts to integrate these previously distinct approaches, expanding attribution theory's understanding on both individual and social levels. It delves into the influence of sociocultural variables, soft skills communication, and the effects of different information sources on project risk management. Attribution theory also explains why people misinterpret others' actions due to internal communication, which can lead to misunderstandings and assumptions about behaviours. Attribution theory's framework suggests that experience can moderate the relationship between managerial communication skills and project risk management, with empirical support from the theory's foundations. As such, it is hypothesized that project managers' experience can influence the occurrence of project risks.

2.18 Research Framework

The conceptual framework outlines the interrelationships between various variables, including independent, dependent, and moderator variables. In this context, the independent variable influences and dictates the impact of another variable, mediated by the moderator variable. Specifically, the independent variables explored in this study encompass the constituents of managerial communication soft skills, namely General Communication Skills, Verbal Communication Skills, Written Communication Skills, and Project Communication Skills possessed by managers. On the other hand, the dependent variable is focused on project risk management practices. On this premise, some researchers suggest that the factors influencing construction projects can be influenced by the managerial communication soft skills of the managers, with experience serving as a moderating factor that enhances this relationship. In essence, the research framework of this study as shown in Figure 2.9, seeks to evaluate the connection between

the factors influencing project risk management practices, considering the moderating impact of experience among professionals engaged in Libyan oil and gas projects.

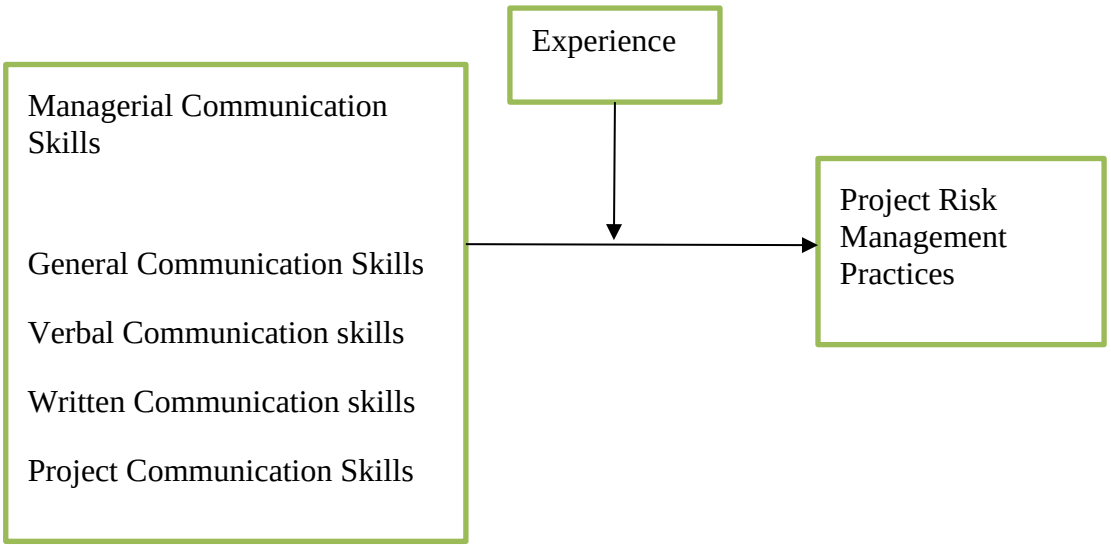

Figure 2.9 Conceptual Framework

With the literature review highlighting the key to managerial communication skills in project management, the next section develops hypotheses to test the influence of these factors on project risk management practices to achieve successful project outcomes. This approach allows for a systematic examination of the relationship

2.19 Hypotheses Development

A hypothesis can be characterized as a tentative portrayal of an informed conjecture regarding an anticipated outcome of the research issue or a plausible outcome of the study (Kechagias, 2011). Alternatively, the hypothesis can be defined as a proposition put forth as an observation or understanding, yet to be verified or refuted. With this perspective, project management practice is perceived as a form of social behaviour and interaction that takes place among individuals collaborating to achieve a common goal (Jankelová & Joniaková, 2021).

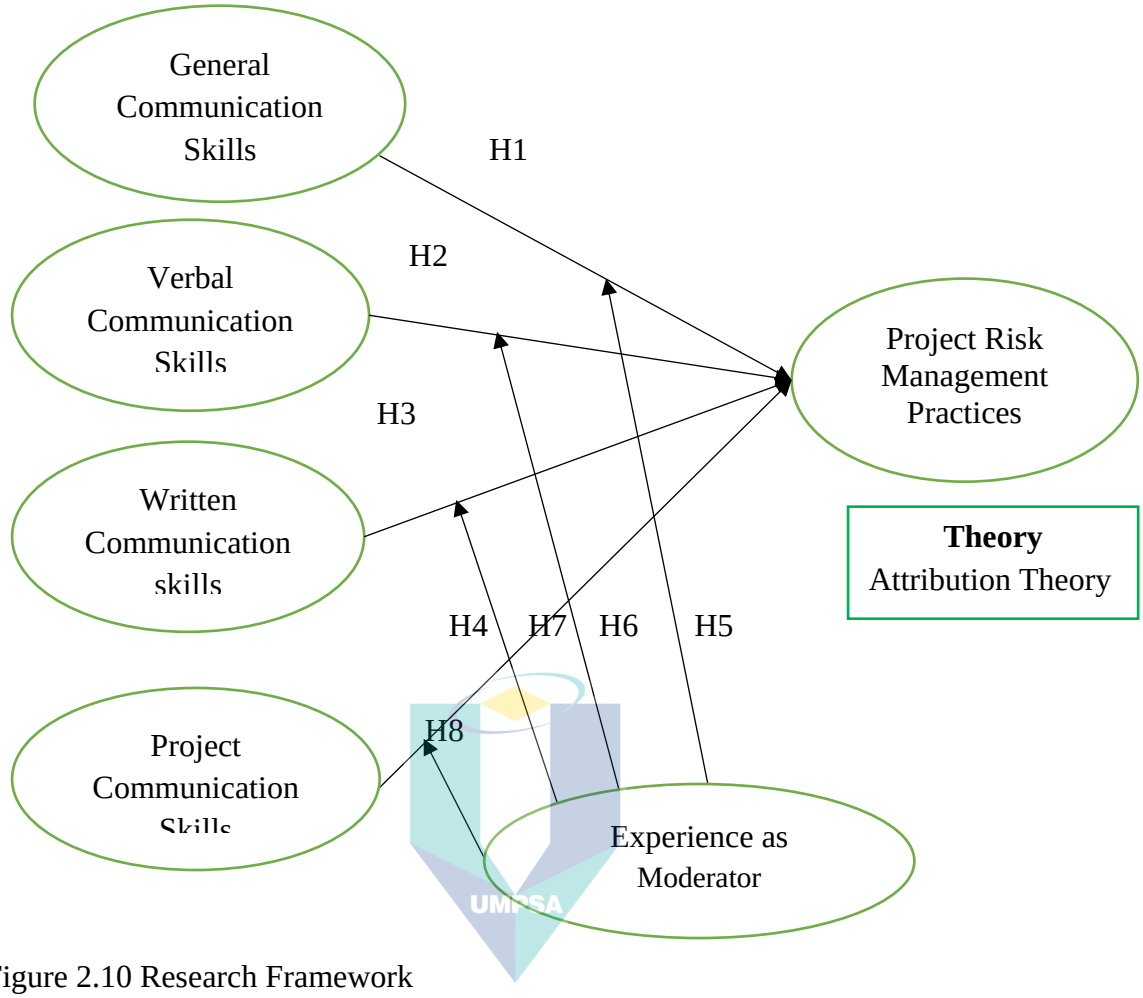

Figure 2.10 Research Framework

Consequently, the ensuing hypothesis has been formulated considering compelling insights offered by existing literature, which underscores the impact of Managerial Communication Soft Skills on Project Risk Management practices within Libyan oil and gas projects.

H1: There is a positive effect of general communication skills on project risk management practices in the Libyan oil and gas construction projects.

H2: There is a positive effect of verbal communication skills on project risk management practices in the Libyan oil and gas construction projects.

H3: There is a positive effect of written communication skills on project risk management practices in the Libyan oil and gas construction projects.

H4: There is a positive effect of project communication skills on project risk management practices in the Libyan oil and gas construction projects.

H5: Experience of the manager play a moderating role between general communication skills and project risk management practices in the oil and gas projects in Libya.

H6: Experience of the manager play a moderating role between verbal communication skills and project risk management practices in the oil and gas projects in Libya.

H7: Experience of the manager play a moderating role between written communication skills and project risk management practices in the oil and gas projects in Libya.

H8: Experience of the manager play a moderating role between project communication skills and project risk management practices in the oil and gas projects in Libya.

2.20 Summary

This chapter explored the definitions of risk, risk management, project management, and project risk management. It reviewed existing literature on the implementation and strategies for handling project risks, outlining various tools and techniques for the project risk management process. The concept of project success and its correlation with project risk management practices were examined, along with critical success factors that could enhance effective project risk management. The chapter also provided insights into the performance of oil and gas projects, highlighting how deficiencies often stem from inadequate project risk management practices.

Furthermore, prior research on project risk management within the oil and gas sector was summarized. The chapter discussed managerial soft skills and their impact on effective project risk management in the oil and gas industry. Findings indicated the importance of communication skills for managers, which include conveying information, expressing emotions, and sharing information about organizational goals, tasks, and decision-making. Effective project control, staff participation in decisions, and building a positive organizational image were also noted.

The literature highlighted that a communication-focused soft skills approach has received more attention and validation than the contingency approach. Scholars consistently emphasize the influence of communication-oriented soft skills on strategic capabilities and overall organizational performance. However, a significant gap in the literature was identified. Previous studies do not sufficiently explore how soft skills, such as communication and leadership abilities, specifically influence the implementation of risk management strategies in construction projects within the oil and gas sector in Libya, considering the experience of managers as a moderating factor. This gap underscores the need for further research in this area. By addressing this gap, the present study aims to provide valuable insights into project management, particularly regarding the challenges faced by the oil and gas industry in Libya and how enhancing soft skills can improve risk management practices. After reviewing the literature, the following sections present the research methodology and critically examine the findings. The next chapter will detail the research methodology adopted for this study.

CHAPTER 3

METHODOLOGY

3.1 Introduction

A research methodology encompasses a structured approach guiding researchers to achieve their research objectives (Creswell, 2009). Researchers should identify the most effective techniques for crafting research methods that align with their research goals and objectives (Joyner et al., 2018). The selection of an appropriate research methodology hinges on crucial factors, including the nature of the issue under investigation, the research question, and the availability of adequate sources (Remenyi et al., 1998).

The previous chapter highlighted the synthesis presented in the literature review. This chapter outlines the research methods employed to address the research questions and hypotheses formulated in the preceding chapter. This chapter begins by exploring the philosophy of research, setting the theoretical foundation for the study. It then outlines the research design, providing an overview of the research approach. Following this, the chapter delves into the sampling methods and defines the target population, including a discussion on the unit of analysis. Next, the decisions made during the pilot study are explained, with a focus on the reliability of the questionnaires.

The chapter proceeds to detail the data analysis techniques employed in the study. Finally, a brief conclusion summarizes the chapter. Figure 3.1 illustrates the flowchart of the research methodology.

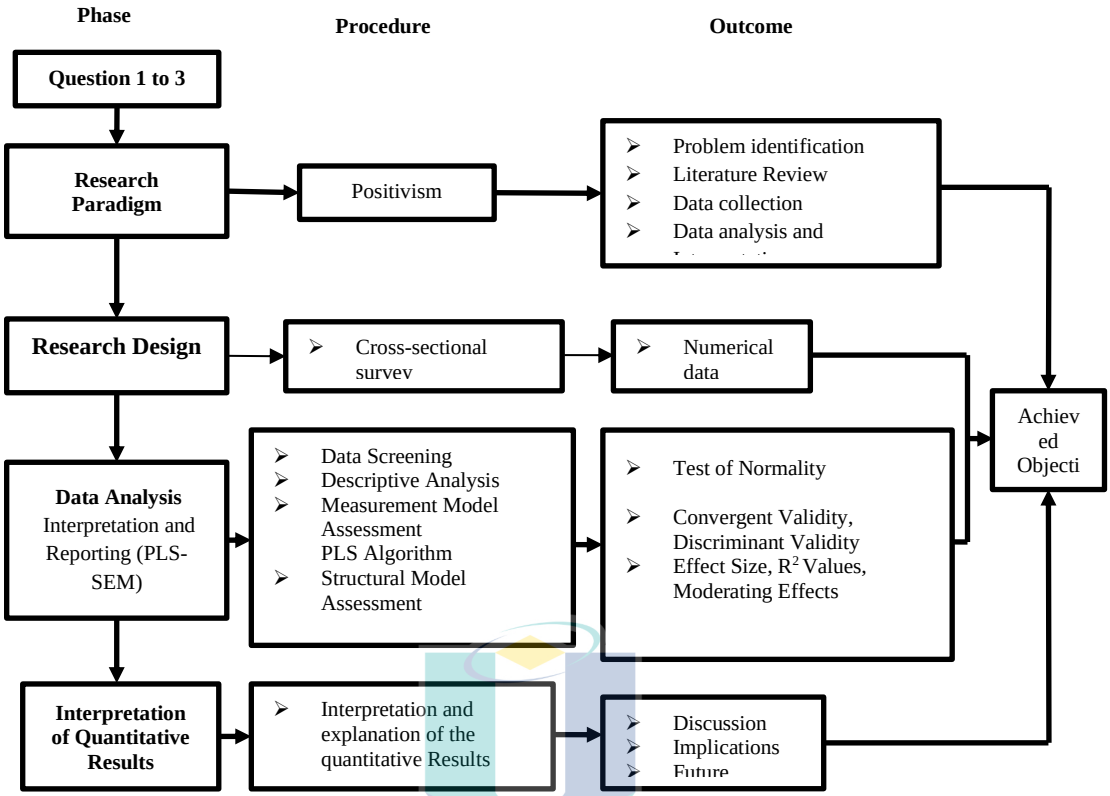

Figure 3.1 Research Methodology Flow Chart.

Source: by The Author

3.2 Research Philosophy

Different scholars classify philosophical worldviews of research paradigms in different ways, for example, Creswell (2014) classifies them as constructivist, post-positivist, pragmatic, and transformative, while Denzin & Lincoln (2012) recognise them as post-positivism, constructivist, positivism, critical theory, and participatory action frameworks. On the other hand, Wahyuni (2012) lists them as being positivism, transformative, post-positivism, pragmatism and interpretivism. The current researcher adopts the categorisation by Wahyuni, (2012). The positivism paradigm was used in this study. The positivist paradigm originated from the work of early social scientists, such as, who attempted to model natural sciences in the social sciences (Humphrey, 2013). A positivist theory asserts that knowledge is pure and empirical and that regardless of individuals, there is a single objective truth. It has its roots in the natural sciences, but it is increasingly used in the social sciences. It is mostly based on quantitative approaches,

such as tests and surveys, where data is mostly in the form of numbers and measurements, and statistical techniques are used for research. The positivist model's principle is that the results are accurate and free from the researcher's biases to the degree that other researchers will reproduce those findings. In short, a positivist approach deals with abstract deductive statistical testability and uses quantitative measurements to obtain research data (Chen & Hirschheim, 2004; Denzin & Lincoln, 2012; Wahyuni, 2012).

This study uses the positivist approach, starting with an existing theory to create hypotheses that will be tested and either confirmed or disproved. Positivism focuses on observable facts to generate valid data based on these hypotheses. It relies on measurable observations that can be analyzed statistically. In positivism, the researcher remains independent from the study, and the research does not consider personal interests (Humphrey, 2013; Oates et al., 2012).

3.3 Research Design

A research design is the systematic arrangement of research tasks aimed at achieving specific objectives through a structured approach to data collection and analysis. It is fundamentally guided by the research question and the conceptual framework of the problem, which together dictate the most appropriate design (Creswell et al., 2018). The design is crucial as it aligns with the nature of the research question and outlines the methodology for acquiring the desired knowledge. This study investigates how managerial communication skills impact project risk management practices, with a particular focus on the moderating role of experience in Libyan oil and gas projects. The research design serves as a comprehensive plan for selecting and utilizing resources to address research questions, connecting variables and providing a roadmap from hypothesis formulation to data analysis. As Creswell (2008) notes, quantitative research designs can be either cross-sectional or longitudinal.

In this study, a cross-sectional design will be employed due to its suitability given the research objectives and time constraints. This design allows for the comparison of various population groups at a single point in time, facilitating the simultaneous examination of multiple variables, although it does not offer precise insights into cause-

and-effect relationships as it captures data from only one moment without considering temporal changes (Kelloway & Francis, 2013).

This study employs a quantitative research approach which offers significant potential for addressing dynamic problems across multiple levels. Quantitative designs enhance the types of information obtained and improve the validity of the study by focusing on numerical data to represent and analyze variables. This approach assumes that characteristics of social systems can be objectively observed and remain relatively stable across time and contexts (Gall et al., 1996). By gathering numerical data on measurable participant actions and performing mathematical interpretations, the study aims to clarify aspects of the research problem.

The quantitative approach in this study centers on using statistical data to represent theoretical constructs, providing robust scientific evidence about phenomena. Surveys, which can be conducted via telephone, mail, or online, are employed to gather data from managers, focusing on emotions, perceptions, and viewpoints relevant to the research objectives (Al-Kinani & Adavi, 2014). In this study, data is collected through closed-ended survey questions, which facilitates a more precise and valid assessment of variables. This method allows for the triangulation of observations, complementing results from different sources and enhancing the validity of the research outcomes. The study is guided by positivist epistemology, favoring structured data collection techniques and aligning with experimental and survey methodologies (Creswell et al., 2018; Saunders et al., 2012).

A combination of correlational and descriptive strategies is used in this study. The correlational aspect examines the impact of managerial communication skills on project risk management practices in Libya's oil and gas industry, incorporating a moderating effect of managerial experience. Descriptive analysis provides insight into existing issues and challenges by characterizing the traits and behaviors of the sampled population, as highlighted by Fox and Bayat, (2008).

3.4 Population and Sampling

The term "population" refers to the collection of individuals or occurrences under investigation by the researcher. To provide clarity, the population concept is divided into two distinct levels: target population and sample population (Aliyu et al., 2014). The former denotes the population to which the researcher aims to generalize the study's findings. Conversely, the sampled population may or may not align with the target population and represents the individuals or events from which the researcher intends to draw a sample.

The National Oil Corporation (NOC) presides over various fully managed Libyan oil industry operations spanning both local and international projects. As stipulated within the exploration and Production Sharing Agreements (EPSA), the NOC collaborates with International Oil Companies (IOCs) and oversees other cooperative ventures. Notably, IOCs operating under EPSA agreements remain subject to the national regulations and statutes of the host country, which is Libya in this instance. Additionally, the department responsible for project management and maintenance holds paramount importance within oil and gas companies, as it bears responsibility for the majority of projects in Libyan oil and gas firms. Considering this, the unit of analysis for this study encompasses managers within Libya's oil and gas enterprises, constituting the study's population.

3.4.1 Unit of Analysis

The unit of analysis refers to the level at which data is collected, processed, and analyzed in a study. To illustrate, if the research question focuses on enhancing employee motivation overall, the specific methods to enhance motivation need to be identified. In this context, data collected from each manager would be examined, with individual responses contributing to the employee data pool (Aliyu et al., 2014).

In the context of this study, the unit of analysis pertains to managers engaged in oil and gas projects in Libya. Respondents completing the questionnaire were tasked with providing insights based on their perspectives regarding the impact of managerial communication soft skills on project risk management practices. This section elucidates

the rationale behind selecting managers from Libya's oil and gas industry as the focus of analysis. The researcher personally conducted the survey using the questionnaire as a tool, approaching managers as representatives who make decisions pertaining to strategic project management policies within the oil and gas sector. The choice of the oil and gas industry for the study stems from its significant contribution to Libya's economic growth. This industry encompasses both domestic and multinational companies as part of the population.

Kling & Lamb (2003) underscore the significance of individual end-users as the unit of analysis in studies related to the adoption of information and communication technologies. The managerial level is chosen as the unit of analysis in this research due to managers' extensive experience in project handling and decision-making. Through examining these units, the researcher aims to uncover and acknowledge the influence of managerial communication soft skills on project risk management practices.

3.4.2 Sampling Techniques and Sample Size

The process of sampling in this study is guided by G*power analysis. Sampling can be understood as a research approach involving the selection of representative participants from a given population for a specific study (Sekaran, 2006). In this regard, the method chosen is simple random sampling under the probability sampling technique. As noted by Sekaran (2006), this type of sampling ensures that each member of the population has an equal chance of being included in the survey process. The determination of the sample size was carried out using the calculations outlined below.

3.4.3 Power Analysis

A power analysis helps determine the necessary sample size to identify an effect or impact in study data, ensuring results are accurate. Larger sample sizes are generally preferred, but sample size alone doesn't guarantee confidence in outcomes (Hill, 1998; Lin, et al., 2010). The goal is to use a sample size that is relevant and representative, avoiding unnecessary distress, risks, and resource waste (Burmeister & Aitken, 2012). Too small a sample can lead to inaccurate findings, while an excessively large sample wastes resources and may introduce errors (Green & Salkind 2003; Sekaran, 2006).

Research funding agencies require evidence for appropriate sample sizes to ensure reliable results (Brzeziński, 1996). Methods like statistical power tests are essential for determining accurate sample sizes (Ticehurst, 1999).

In particular, Jacob Cohen (2013) underscored that the sample size should align with the statistical test's capacity. In this study, determining the appropriate sample size involved considering the test's capacity. The statistical test's capacity refers to the likelihood of rejecting a null hypothesis or detecting a specific effect size with a given sample size and alpha level (0.05). G*Power software was utilized for statistical power analyses, including various tests such as t-tests, F-tests, z-tests, and more. G*Power can also calculate effect sizes and visually display power analysis outcomes (Faul et al., 2009).

To establish the sample size for this study, a power analysis was conducted using G*Power 3.1.9.4 software (Faul et al., 2009). Six predictor variables were considered in determining the sample size. Adhering to Jacob Cohen, (2013) recommendations, the following criteria guided the sample size determination: effect size (f2= 0.15); alpha level (α= 0.05); desired statistical power (1-β = 0.85); and a total of six predictors. Figures 3.2 and 3.3 illustrate the outcomes of the statistical test for the multiple regression-based analysis.

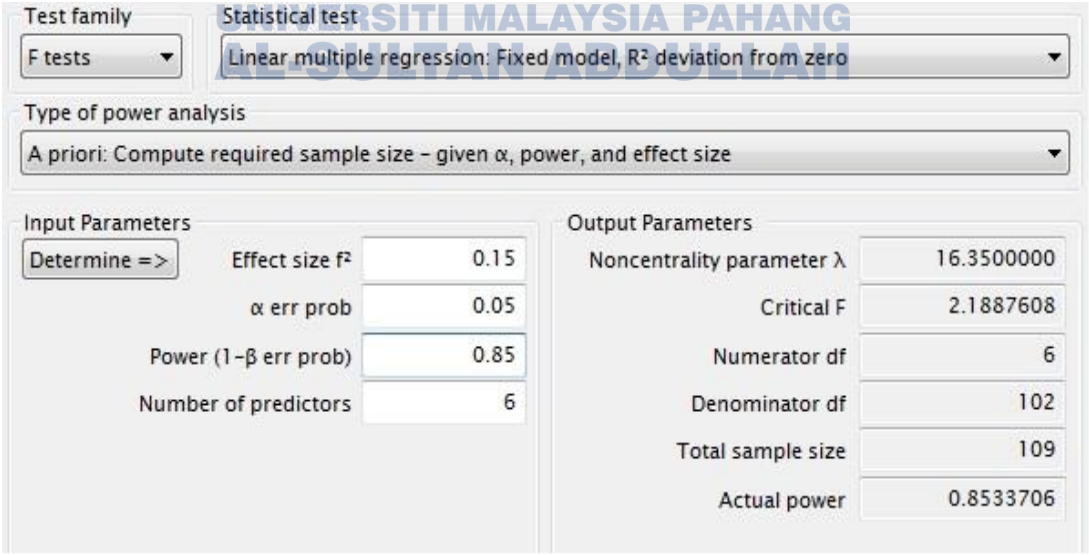

Figure 3.2 Power Analysis for Medium Effect.

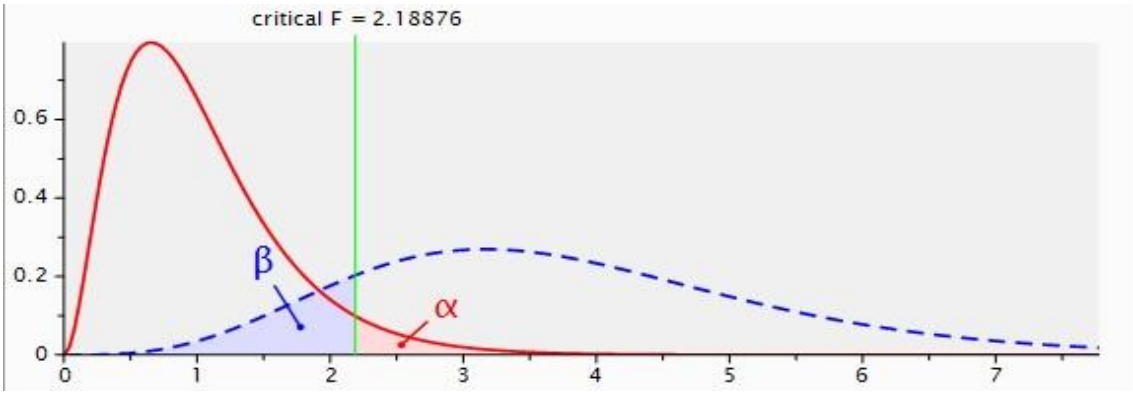

Figure 3.3 X-Y Plot for Medium Effect Power Analysis.

The sample size determination in this study was guided by Roscoe, (1975) rule of thumb. Roscoe's guideline is particularly suited for research involving sample sizes greater than 30 and fewer than 500. In alignment, Hair et al. (2011) emphasized that for multivariate research, the sample size should be considerably larger (preferably at least ten times) than the number of variables in the study. To ensure an appropriate and efficient sample size calculation, the more comprehensive approach advocated by Grover & Vriens (2006) was employed in this study. Consequently, with a population size of 109, a minimum sample size of 109 was utilized in this survey based on G*Power 3.1.9 calculations.

The study utilized a simple random under probability sampling technique, which involves identifying all individuals within the population and providing each an equal chance of being selected. Through a random process, the sample was drawn from the list of all companies within the population, ensuring a representative selection.

3.5 Data Collection Techniques

The questionnaires, utilizing a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), were distributed via mail for this study. This approach was chosen due to its convenience in reaching many respondents who could provide answers. Employing mail distribution helps mitigate potential bias that could arise in the presence of an investigator. Questionnaires prove particularly valuable when primary

data is necessary for areas that lack readily available secondary data, addressing specific aspects relevant to unexplored research domains (Aliyu et al., 2014).

Quantitative data was collected to categorize and describe population characteristics, attitudes, and behaviors. It is imperative that data collection is impartial and rigorous, adhering to the principles of research methodology. In line with Robson (2014) perspective, a researcher should adopt the simplest and most effective approach for data collection to obtain responses to the research question, without gathering excessive data beyond the study's scope.

The data collection tool chosen for this analysis is a questionnaire, in compliance with these criteria. The researcher is the right person in the present study to implement the questionnaire to the intended participants. Distributing the questionnaire survey requires many phases in quantitative research. Firstly, the survey kit (including the application, introduction note, and other associated documents) is distributed straight to the workers at their convenience. The key informant approach was determined as the participant is being recognized by their status in the organization and was supposed to give understandable and valid viewpoints in the role of a chief decision-maker in the company (Li et al, 2002).

To encourage active participation, the design of the questionnaire ensured simplicity in answering by allowing participants to mark their choices on a numerical scale. In an additional effort to boost response rates, a copy of their responses could be shared with respondents upon their request. Following the approach of Kamaruddeen et al. (2012), the questionnaire is presented within a booklet adorned with the logo of University Malaysia Pahang, utilizing both Arabic and English languages as the mediums of communication across these institutions. Hence, the sketched questionnaire booklet included the below items.

1. The cover letter is shown on the front page.

2. Subsection 1: General knowledge concerned the participants and the corporation.

3. Subsection 2: Knowledge about managerial communication soft skills.

4. Subsection 3: Knowledge about project risk management practices.

5. Subsection 4: Knowledge about the manager's experience.

Questionnaires also include a variety of styles of questions that obtain details regarding evidence, perceptions, and values. Questions can be direct or indirect. Consideration must be proffered to the phrasing of the questions themselves to improve reliability. According to Somekh & Lewin (2011) when designing a questionnaire, the following should be taken into account:

1. To be explicit and clear and not use technical terms or wordings that are improper for the participants.

2. Avoid guiding the participants to precise responses

3. Be straightforward, and not complicated

4**.** Ignore double-barrelled questions

5. Ignore the usage of misleading and double negatives

6**.** Make sure that all classifications are mutual in multiple-choice questions and rating scales (if one response is needed)

7. Ignore questions that may resentment or annoyance participants or might be viewed as challenging

Additionally, the close-ended questions were selected above the open-ended questions to assist the participant in grasping the intent of the questions, to enhance the consistency of the data, and for the evaluation (Sekaran & Bougie, 2016). For this research, there would be one construct for independent variables (IVs), with one construct for the dependent variables (DVs) and one dimension for the moderator.

3.5.1 Questionnaire Design

To formulate the study instruments, a combination of existing validated measurements was employed, drawing from extensive literature. These measurements were slightly adapted to suit the sample of this study. This approach is well-regarded for its advantages: the pre-existing instruments already demonstrate validity and reliability, and it facilitates comparisons between the latest findings and prior results from various studies that employed these instruments (Saris & Gallhofer, 2014). Employing a survey as a method provides a suitable means of evaluating sampled information and generating conclusions about the overall trends from a subset of responses within the population (Creswell & Creswell, 2017). Conversely, this technique can be particularly beneficial for studies with a substantial sample size (Brass et al., 2004), as surveys are known for their efficiency, cost-effectiveness, and ease of administration (Iacobucci & Churchill, 2009; Sekaran, 2006). In essence, a survey probes respondents' viewpoints, judgments, and thoughts, while also collecting data pertaining to motivations, attitudes, and beliefs (Burns & Bush, 2006; Pelegrín et al., 2012).

In this study, constructs were adapted from prior research. According to Brass et al., (2004), individual items with standardized loadings above 0.50 are considered reliable. Thus, item selection adhered to these criteria when drawing from previous studies. Moreover, these items aligned well with the study's theme. Likewise, the survey strategy has been widely employed in previous research. When constructing survey questionnaires, it is important for them to be easily comprehensible, straightforward, and concise (Frazer & Lawley, 2000). This study encompassed several standardized sections to measure concepts and variables. The questionnaire was structured into four key sections. Demographic information about the participants constituted Part A, followed by managerial (communication) soft skills in Part B. Part C represented project risk management practices, while Part D addressed participants' experience.

3.5.2 The Scale of the Questionnaire

Questionnaire formulation can take various formats, contingent on the researcher's objectives. It is advised that the chosen format should be standardized and easily comprehensible. The language used must be familiar to participants (Warwick &

Lininger 1975), avoiding confusion (Kothari, 2004). However, the most effective approach should be pursued to enhance item efficacy, minimize respondent burden, and optimize data collection costs. In this context, a Likert scale questionnaire format is employed for this study.

Likert scales are widely recognized for attitudinal measurement (Kulatunga.et al., 2007). These scales gauge responses across a spectrum from low to high. For this analysis, scale points were numerically assigned from 1 to 5 to evaluate managers' project risk management practices in oil and gas projects. The scale reflects participant perceptions, ranging from "strongly disagree" (1) to "strongly agree" (5). The Likert scale serves as a psychometric tool to gauge respondents' agreement or disagreement with statements. Originally a five-point scale ranging from "strongly disagree" to "strongly agree," it often includes intermediate options. Researchers may opt for longer or shorter scales, with (Martin & Green, 1995) highlighting respondents' comfort in selecting from the researcher's provided choices. However, Schieg (2006) argue that a neutral option can compromise validity. Participants might passively contemplate items before responding.

Table 3.1 Scale and Range.

Scale	Range
1	Strongly disagree
2	Disagree
3	Neither agree nor disagree
4	Agree
5	Strongly agree

In this study, the choice of a five-point scale was deemed appropriate to enhance data consistency and reduce perceived quality bias (Krosnick & Fabrigar, 1991). Participants indicated their agreement level using this scale. The five-point scale was chosen to enable nuanced responses, facilitating agreement/disagreement differentiation. This approach is supported by prior research. Values ranged from 1 to 5, as shown in Table 3.1, an arrangement recommended in previous literature (Krosnick & Fabrigar, 1991). Table 3.2 summarizes the assessed indicators. Sources for each measurement instrument in the questionnaire survey are outlined in Table 3.3.

Table 3.2 Summary of Variables and Measurement of Indicators.

Constructs	Variable & Dimensions	Scale	Number of indicators
Managerial Soft Skills Elements	General Communication Skills	5-points	5
	Verbal Communication Skills	5-points	5
	Written Communication Skills	5-points	5
	Project Communication Skills	5-point	5
Project Risk Management practices	Project Risk Management practices	5-point	7
Experience	Experience	5-point	5

Table 3.3 The Source of Each Measurement Instrument that was used in the Questionnaire Survey

S/N	Variables	Sources	Remarks
1.	General Communication Skills	Mitchell et al.,(2010)	Adapted
2.	Verbal Communication Skills	Desrosier Pierrette, (1999) & Mitchell et al., (2010).	Adapted
3.	Written Communication Skills	Mitchell et al., (2010).	Adapted
4.	Project Communication skills	Mitchell et al., (2010).	Adapted
5.	Project Risk Management practices	Lyons & Skitmore (2004b).	Adapted
6.	Experience	Wang & Yuan (2011)	Adapted

3.5.3 Variable Measurements

This segment is dedicated to variable measurements, with each variable being positioned distinctively within the questionnaires. For gauging the key study concepts, a 5-point Likert scale was adopted. The comprehensive set of questions and the specifics of the instrument measurement can be found in Appendix A.

3.5.4 The Validity of Research Instruments

Before conducting the pilot study, the research instrument underwent face and content validity assessment. As defined by Babbie (2004), content validity refers to how well an instrument aligns with its intended purpose by encompassing specific concepts. This process entails seeking insights from a select group of experts or potential panels regarding the wording and phrasing of items within the survey questions (Hair et al., 2021; Sekaran, 2010). The complete questionnaire items are provided in Appendix A. To ensure content validity, five (5) experts in the field of project management research were approached to review and validate the questionnaire before the primary pilot test. The questionnaire was distributed in hard copy format to these five academicians at Libyan Universities. Their feedback was utilized to refine the questionnaire, resulting in modifications to Sections 1 to 5, including the addition and removal of words. The comments and suggestions provided by these experts were carefully integrated into the questionnaire's content restructuring, encompassing the phrasing of questions, and refining the overall wording as advised. The expert validators' profiles for this study are presented in Table 3.4 below.

Table 3.4 Validators Profile.

S/N	Area of Experts	Years of Experts	Location
1.	Senior manager in storage tanks project	24	WAHA Oil Company
2.	Senior manager in pipeline project	20	Harouge Oil Company
3.	Senior manager in Liquefaction project	17	Mellita Oil and Gas Company
4.	Senior Lecturer in Civil engineering	15	University of Tripoli, Libya
5.	Senior Lecturer in industrial management	11	University of Al Zawia, Libya

Source: (Author, 2024)

The following section illustrates the precision and dependability of the pilot study questionnaire. This verification process ensures that each item within the instrument accurately represents the underlying concept of each variable.

3.6 Pilot Study and Results

In the realm of social science research, pilot study serves distinct purposes, and here, it is applied in a specific manner. It pertains to a pre-testing of the study instrument rather than conducting feasibility trials or scaled-down versions of the primary research (Van et al., 2001). The pilot study in this context serves to validate the instruments developed for the study. It plays a crucial role in identifying any potential limitations within the survey questionnaire. The objectives of the pilot study encompass several aspects: (1) evaluating the time required to complete the survey to ensure its length is reasonable; (2) examining the validity, reliability, and context of the instrument; and (3) making necessary refinements to the instruments. Additionally, the pilot study gauges the respondents' comprehension of the measurement items. As emphasized by Vaus (1995), "Pilot first, do not take the risk" (Van et al., 2001). This phase can also yield unexpected insights, ideas, and approaches unforeseen during the planning stage.

For this pilot study, the focus was on mid and lower-level managers within Libyan oil and gas companies as the respondents. A total of sixty (60) questionnaires were distributed among these organizations. This quantity was determined based on Malhotra (2006) recommendation to mitigate the risk of low response rates. Ultimately, 46 completed questionnaires were returned, resulting in a response rate of 76.6%. To ensure accuracy, the data recorded in the pilot study questionnaires underwent thorough verification.

Reliability was established as a marker of data dependability and accuracy. The measurement tool employed a five-point scale, ranging from "strongly disagree" to "strongly agree." The analysis of internal consistency was conducted using SPSS 20, focusing on the Cronbach's alpha coefficient. According to Sekaran (2006), a value exceeding 0.6 indicates satisfactory internal consistency. The outcomes of the reliability analysis, as presented in Table 3.5, demonstrate that all Cronbach's alpha coefficient values exceeded 0.6, aligning with the criteria for good internal consistencies (Fassott et al., 2016; Hair et al., 2011; Saunders et al., 2007; Tully, 1998). Thus, it can be concluded that the measurement tools exhibited usability, consistency, and reliability, rendering them suitable for gathering data in the survey.

Table 3.5 Number of Survey Items and Reliability Statistics.

Variable	Item	Cronbach's Alpha
General Communication Skills	5	.840
Verbal Communication Skills	5	.910
Written Communication Skills	5	.821
Project Communication skills	5	.860
Project Risk Management practices	7	.783
Experience	5	.826

The Cronbach's alpha coefficient, selected as the measure for internal consistency reliability testing, was computed using SPSS, aligning with the approach outlined by Sekaran, (2010). The results, as illustrated in Table 3.5, underscore the achievement of robust reliability coefficients across all criteria, ranging from .783 to .910. Notably, in the assessment of research experts, a reliability coefficient of .60 is deemed acceptable, while a coefficient of .70 or higher signifies high reliability (Hair et al., 2006; Sekaran & Bougie, 2010). In this study, the obtained outcomes comfortably meet the established threshold for reliability, affirming the soundness of the research's findings.

3.7 Data Analysis Technique

The utilization of a quantitative research approach facilitated the exploration of managers' informed perspectives concerning the interplay between soft managerial skills and project risk management. In tandem, the analytical tools of SPSS 20.0 and Smart-PLS 3 were harnessed for Structural Equation Modelling (SEM), thereby furnishing compelling statistical substantiation for the interrelationship between soft managerial skills, project risk management, and the moderating influence of managers' experience within Libyan oil and gas enterprises. Notably, the adoption of Smart-PLS 3 in scrutinizing the study's hypotheses stands out as a noteworthy and methodologically significant contribution.

3.7.1 Descriptive Statistics

Descriptive statistics serve as a method of analyzing data to provide an illustrative overview. Acquired data is structured and grouped based on the categories outlined in the survey questionnaire. This type of analysis is directed at the data that is quantifiable, systematically arranged, and visually presented. The collected data is compiled into tables or graphs, which enhance comprehension (Burns & Bush, 2006). Descriptive statistics involve the consolidation, collection, and organization of raw scores to render them more interpretable. Additionally, this method encompasses techniques employed to assess a subsection of a larger population, typically known as a sample, aiding in understanding the broader population by means of probability theory (Huitema, 2011). The application of descriptive statistics is primarily geared towards indicating the numerical values of scale variables used within the questionnaires, thereby capturing pertinent insights related to managerial communication soft skills and project risk management.

3.7.2 Data Screening: Normality Test

The assessment of normality, a crucial aspect in most multivariate analyses, pertains to the distribution of data within a variable (Hair et al., 2010; Tabachnick et al., 2007). Quantitative researchers emphasize the importance of conducting normality tests as a fundamental step in multivariate analysis to facilitate accurate inferences (Hair et al., 2010). Conducting a normality test before final data analysis is essential, as severely skewed datasets can lead to inflated bootstrapped standard errors, potentially undermining the statistical significance of hypothesized relationships (Hair et al., 2012).

In this study, a graphical method was employed to assess the normality of the dataset. Following the guidance of Tabachnick & Fidell (2007), the graphical approach is chosen to validate the data's normality. Field (2009) recommendation supports the use of graphical distribution for measures when dealing with relatively large sample sizes, as it offers a more informative assessment than relying solely on skewness and kurtosis statistics. This approach is advantageous in larger samples, as graphical distribution can mitigate potential standard error inflation that skewness and kurtosis statistics might encounter. Consequently, employing graphical distribution to depict normality is deemed more sensible than relying solely on traditional statistical methods.

3.7.3 Common Method Variance (CMV)

Common method variance (CMV) can be seen as a massive issue in psychological research; CMV is characterized as the frequently reasonably applicable variance to the measurement system than the key constructs indicate the measurements (Podsakoff et al.,2003). There has been an essential concern about how system biases can be removed because it is one of the crucial trends of measurement error found in behavioural research. For this study, the CMV was checked using full collinearity test. In Smart PLS, the VIF (variance inflation factor) values were checked for all constructs included in the study. According to the standards, the value of VIF must be lower than 3.0 (lower bound) or 5.0 (upper-bound). If the VIF values are below 3.0 or 5.0, it will imply that the research study has no issue of common method bias. The following section provides an introduction to Structural Equation Modelling (SEM).

3.8 Data Analysis: Introduction to Structural Equation Modelling (SEM)

Structural Equation Modelling (SEM) has evolved as a second-generation multivariate data analysis approach extensively employed in marketing and management research. Within SEM, researchers can simultaneously assess the structural model and the overall fit of the model (Chin, 1998; Tully, 1998; Wong et al., 2005). This methodology not only enables the evaluation of hypothesized structural relationships between variables but also permits the estimation of associations between specific measures and their corresponding variables. Furthermore, SEM offers the capacity to ascertain both direct and indirect associations among multiple independent and dependent latent variables (Baumgartner & Steenkamp, 2001).

SEM serves as a versatile modelling tool that accommodates a range of multivariate statistical analyses, including growth curve analysis, regression analysis, factor analysis, path analysis, and canonical correlation analysis modelling (Ringle et al., 2012; Urbach & Ahlemann, 2010). Two primary techniques prevail in SEM: covariance-based (CB-SEM) and component-based (PLS-SEM). These techniques differ in the fit statistics they generate and the underlying statistical assumptions (Hair et al., 2011; Leguina, 2015).

3.8.1 Reason for Using PLS-SEM

To explore the connections between managerial soft skills (X), experience (Z), and project risk management practices (Y), this study employed Partial Least Squares Structural Equation Modelling (PLS-SEM) to assess the study model. The approach taken here aligns with theoretical insights (Baumgartner & Steenkamp, 2001), aiming to examine relationships grounded in established theory. PLS-SEM emerged as the appropriate methodology due to its capacity to gauge correlations between residuals and assess their impact on the model. Additionally, PLS-SEM is well-suited to prediction-oriented objectives, requiring a smaller sample size and not mandating the distributional assumptions necessary for Covariance-Based SEM (CB-SEM), which necessitates a larger sample size (usually > 400) (Chin, 1998; Tully, 1998; Wong et al., 2005).

A noteworthy advantage of PLS-SEM is its provision of R^2 values, indicating the significance of relationships among constructs and offering comprehensibility regarding the model's performance. In contrast, CB-SEM primarily presents path coefficients and critical ratios (CR). While PLS-SEM excels in prediction-focused studies, CB-SEM is more centered on model fit. Notably, PLS-SEM can adeptly handle multiple independent variables simultaneously, even when multicollinearity concerns arise (Baumgartner & Steenkamp, 2001). In situations where the characteristics outlined above align with the research objectives, PLS-SEM emerges as a robust alternative to CB-SEM (Hair et al., 2011; Hair et al., 2012). The distinctive traits of PLS-SEM include its suitability for smaller sample sizes, applications with limited available theories, and a predominant focus on predictive accuracy. It is particularly advantageous when suitable model specifications cannot be secured, and it performs well with non-normal data and complex models.

3.8.2 Partial Least Square (PLS)

Partial Least Squares (PLS) is a statistical analytical approach utilized for modeling intricate relationships between latent variables and observed outcomes (Ringle et al., 2005). Originally introduced by a notable econometrician, PLS was conceived as a soft modeling technique to estimate Structural Equation Modelling (SEM) (Van et al., 2001). Furthermore, PLS serves as a method enabling the formative measurement of

constructs, offering an advantageous avenue for obtaining accurate predictive modelling outcomes. Its appeal lies in its capability to accommodate complex models with a reduced number of constraints, thereby enhancing statistical power. Researchers are inclined towards the utilization of PLS due to its proficiency in handling interaction terms, facilitating theory development, supporting exploratory research, and emphasizing predictive prowess.

PLS path models consist of two groups of linear equations which include the outer and inner model. Furthermore, the outer model identifies the relationship between the observed variables and its construct (latent). Observed variables can describe as indicators while a factor is known as the latent variable. Moreover, the structural model identified the relations among the constructs (Henseler et al., 2016). Additionally, the structural model is made up of endogenous (IV) and exogenous (DV) constructs with the relations between them. In general, the relationships between the constructs can be linear. Sometimes the relationships of the model can be more composite with the mediation or moderation relationships (Henseler et al., 2016). This study adopted the moderating effects of experience role between communication soft skills and project risk management practices.

3.9 Evaluating Measurement and Structural Models using Partial Least Square

The assessment of the research model in this study followed a two-step process, encompassing the outer model and the inner model. This approach to model validation aimed to determine the extent to which the measurement and structural models adhered to the necessary criteria for empirical investigation (Urbach & Ahlemann, 2010).

3.9.1 Measurement Model

As mentioned earlier, confirming the validity of a reflective measurement model involves assessing its internal consistency, indicator reliability, convergent validity and discriminant validity (Henseler et al., 2016).

3.9.1.1 Internal Consistency

In general, the internal consistency of a measurement item is evaluated using Cronbach's alpha (CA). Constructs with higher CA values exhibit a consistent range and purpose among the items within the construct (Cronbach, 1971). The application of CA emphasizes reliability by focusing on the inter-correlations between indicators. In contrast, in the context of Partial Least Squares (PLS), internal consistency is assessed using composite reliability (CR) (Chin, 1998). This distinction arises because both CA and CR (measuring internal consistency) address the same concept, but CR accounts for indicators having distinct loadings. CA can result in a significant underestimation of the internal reliability when assuming that all variables are measured similarly and that is comparable across measures (Hair et al., 2012; Hair et al., 2019). Regardless of the specific reliability coefficient used, internal consistency is considered satisfactory when the value is at least 0.7 in the initial stages, and values exceeding 0.8 or 0.9 in more advanced stages of testing. Conversely, a value below 0.6 indicates inadequate reliability (Hair et al., 2012; Hair et al., 2019).

3.9.1.2 Indicator Reliability

When assessing the reliability of indicators, scholars scrutinize the extent to which a variable or a set of variables accurately measures its intended concept (Urbach & Ahlemann, 2010). The reliability construct remains separate from other constructs and is evaluated independently. As outlined by Chin (1998), indicator loadings should ideally exceed 0.5, and they are even more favorable when surpassing 0.7. This is because, with a loading of 0.707, a latent variable (LV) is capable of explaining at least 50 percent of its indicator's variance. To gauge the significance of indicator loading, resampling methods like bootstrapping or jack-knifing can be employed. As cautioned by Jörg Henseler et al. (2009) in consideration of PLS's precision characteristics, careful consideration should be given before excluding a predictor. It is justifiable to remove an indicator only when its reliability is notably low, and its removal leads to a substantial improvement in composite reliability (CR).

3.9.1.3 Convergent Validity

Convergent validity refers to the degree to which individual items collectively depict a construct as opposed to items measuring different constructs (Urbach & Ahlemann, 2010). The assessment of convergent validity can be executed using PLS by considering the average variance extracted (AVE). In accordance with Fornell & Larker,(1981), satisfactory convergent validity is achieved when a construct's AVE value exceeds 0.5.

3.9.1.4 Discriminant Validity

Discriminant validity serves to differentiate the magnitudes of distinct constructs. Unlike convergent validity, its purpose is to ensure that items do not unintentionally measure other constructs (Urbach & Ahlemann, 2010). In PLS analysis, two common tests are employed to assess discriminant validity: cross-loading and Fornell-Larcker criterion (Chin, 1998; Fornell, & Larker, 1981). According to Chin, (1998), cross-loading involves comparing each latent variable's loadings with every other item. When each indicator's loading is higher for its intended construct than for any other constructs, it implies that the indicators of different constructs are not interchangeable. The Fornell-Larcker criterion ensures that a latent variable exhibits more variance than any other latent variable using its assigned indicators. Therefore, the Average Variance Extracted (AVE) of each latent variable must exceed the square of its highest correlation with every other latent variable. A summary of the validity assessment criteria for evaluating a reflective measurement model is provided in Table 3.6.

In this study, the measurement model’s validity is considered acceptable if certain criteria are met. Firstly, the Composite Reliability (CR) should be above 0.7. Secondly, each item’s loading should be above 0.7, with a minimum threshold of 0.5. Thirdly, the Average Variance Extracted (AVE) value for each construct must be higher than 0.50. Additionally, the loading of each indicator should be highest for its respective construct. Finally, the square root of the AVE of a construct must exceed the correlations among the construct and other constructs in the model, as suggested by Henseler et al. (2016).

Table 3.6 Summaries of Validity Principles for Evaluating Reflective Measurement Model.

	Validity type	Criterion	Guidelines
1.	Internal consistency	CR	CR > 0.7 (for exploratory study CR > 0.8 (advance research) CR < 0.6—lack of reliability
2	Indicator Reliability	Indicator loadings	Item's loading > 0.7 and significant at least at the 0.50 level
3	Convergent Validity	AVE	AVE > 0.50
4	Discriminant Validity	Cross loading, Fornell and Larcker Heterotrait-monotrait ratio of correlations (HTMT)	Item's loading of each indicator is at greatest for its designated construct. The square root of the AVE of a construct should be above the correlations between the constructs and other constructs in the mode.

3.9.2 Structural Model

The validation of the structural model aids researchers in thoroughly assessing whether the hypotheses proposed by the model align with the data (Urbach & Ahlemann, 2010). Typically, the evaluation of the structural model follows the successful validation of the measurement model. In PLS analysis, the structural model is assessed through the coefficient of determination (R^2) and path coefficients. An initial critical criterion for evaluating the PLS structural model is examining the coefficient of determination (R^2) for each endogenous latent variable (LV). R^2 quantifies the proportion of an LV's explained variance to its total variance. According to Chin, (1998), R^2 values around 0.67 are considered substantial, values near 0.333 are average, and values of 0.19 or lower are considered weak. Furthermore, assessing the path coefficient values enables researchers to comprehend the strength of the relationship between two latent variables. In investigating the connection between two latent variables, researchers should confirm the algebraic sign, significance, and strength of path coefficients. According to Huber & Arceneaux (2007), path coefficients should exceed 0.100 to signify a meaningful effect within the model and be statistically significant at the 0.05 level. In the context of PLS analysis, the structural model is evaluated employing effect size (f^2), the coefficient of determination (R^2), path coefficients, and cross-validated redundancy (Q^2).

3.9.2.1 Coefficient of Determination (R^2)

The coefficient of Determination ($R^{2)}$ is employed to assess the predictive accuracy of the model. Another approach to interpreting R^2 is by examining the influence of exogenous variables on endogenous variables. These effects fall within the range of 0 to 1, with 1 indicating complete predictive accuracy. R^2 is also applicable across various disciplines, and adherence to the established rule of thumb for acceptable R^2 values is crucial. The thresholds for weak, moderate, and substantial levels of predictive accuracy are represented by R^2 values of 0.25, 0.50, and 0.75, respectively (Hair et al., 2012; Hair et al., 2019).

3.9.2.2 Effect Size (f^2)

To determine the effect size of each path within the model, Cohen's f^2 is employed. This involves calculating the change in R^2 when particular constructs are omitted from the model. The effect size, denoted by f^2, is categorized as large, medium, or small based on values of 0.35, 0.15, and 0.02, respectively (Tully, 1998).

3.9.2.3 Predictive Relevance (Q^2)

Q^2 is commonly employed to evaluate the predictive relevance of the structural model. This evaluation relies on the technique of sample reuse, which involves estimating model parameters, making forecasts for omitted sections, and iteratively removing portions of the data matrix. As the discrepancy between the original and predicted values diminishes, Q^2 increases, indicating enhanced predictive accuracy of the model. Additionally, a Q^2 value greater than 0 for specific endogenous constructs signifies the predictive relevance of the partial model for those particular constructs (Rigdon et al., 2014; Sarstedt et al., 2014).

3.9.2.4 Path Coefficients and Test Hypothesis

A path coefficient signifies a postulated connection between constructs. This coefficient's value falls within the range of -1 to +1. Proximity to +1 indicates a robust positive relationship, while proximity to -1 denotes a strong negative relationship.

Research indicates that a path coefficient should surpass 0.100 to have noticeable impacts within the model and should not fall below 0.05 to attain statistical significance (Grover et al., 2006).

3.9.2.5 Testing the Moderating Effect

The present study utilized the orthogonalization technique within the framework of PLS-SEM to assess the strength of the moderating effect on the connection between managerial communication soft skills factors and project risk management practices in the context of Libyan oil and gas construction projects. This approach was chosen due to the continuous nature of the moderating variables (Rigdon et al., 1998). According to Henseler & Chin (2010), the results obtained through the orthogonalization method are typically equivalent to or superior to those from the group comparison method, making the orthogonalization method preferable.

In this study, for evaluating the moderating effects of experience on the relationship between managerial communication soft skills factors and project risk management practices in Libyan oil and gas construction projects, the orthogonalization indicator method was applied. This entails establishing orthogonalization terms between the indicators of the latent predictor variable and the indicators of the latent moderator variable. These orthogonalization terms then function as the indicators for the interaction term in the structural model (Kenny & Judd, 1984). Orthogonalization, a process used in statistics and linear algebra, helps improve the interpretability of path coefficients in path analysis or structural equation modelling (SEM). Path coefficients quantify the relationships between variables in a model, indicating the strength and direction of one variable's influence on another. When variables are correlated, path coefficients can become difficult to interpret due to the confounding effects of correlations with other variables. By transforming the variables to be orthogonal (uncorrelated), each path coefficient can be interpreted as the unique effect of one variable on another, without confounding influences.

This simplifies the interpretation of the model, leading to a more straightforward and accurate understanding of the relationships between variables. Table 3.7 shows the

research objectives achieved in this study and the analytical techniques that were used to analyze each of the objectives.

Table 3.7 Summary of Objectives and Analytical Technics.

NO	Objectives	Analytical Technics
1.	RO1. To identify key managerial communication soft skills for the practices of project risk management in Libyan oil and gas projects.	Literature Review
2.	RO2. To evaluate the influence of key managerial communication soft skills on the project risk management practices for the Libyan oil and gas projects.	PLS-SEM
3.	RO3. To investigate the moderating effect of experience between managerial communications, soft skills, and project risk management practices.	PLS-SEM

3.10 Summary

This chapter has addressed an explanation of the research methodology. Figure 3.1 shows a research outline of this methodology. Along with the epistemological and ontological perspectives, it described the quantitative research procedures of the study, next by the descriptions of the factors and scrutinized research designs, including the methods and systems required. The chapter also reviewed the techniques used to analyze the data collected. The next segment in this research will interpret the analysis of the whole thesis.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the analysis and findings from the data collected in this study. It specifically emphasizes the main steps involved in data analysis starting with a discussion of the demographic profile of respondents by descriptive statistics related to the primary study and a comprehensive analysis of sample characteristics. In addition, the chapter examines and evaluates the proposed theoretical model by applying structural equation modeling (SEM). The analytical process consists of two stages: the measurement model and the structural model. The primary objective of this research is to evaluate the impact of critical managerial communication skills on project risk management practices in the context of Libyan oil and gas projects. Furthermore, it seeks to examine the potential moderating effect of experience on the relationship between managerial communication skills and project risk management practices. Finally, the chapter concludes by presenting the results of the hypothesis testing, engaging in a discussion about these results, and providing a brief summary of the results.

4.2 Descriptive Analysis

For the descriptive analysis, IBM SPSS Statistics version 23 was used. This tool was specifically chosen due to its widespread adoption among researchers in the social sciences, particularly for analyzing frequency data and determining respondents' background characteristics.

4.2.1 Response Rate

In the realm of survey research, the response rate denotes the proportion of individuals who were invited to partake in the study and subsequently completed the survey instrument. It's important to note that there are no universal standards for expected

response rates, as they tend to vary across different surveys. To achieve a robust response rate for this study, a total of 260 questionnaires were randomly distributed to various oil and gas companies located in Tripoli, Libya. Among these, 6 questionnaires were not returned, accounting for a percentage of 2.3%. On the other hand, a total of 254 questionnaires were successfully received, constituting 97.7% of the distributed questionnaires. However, it's worth noting that 8 questionnaires were deemed unusable due to missing data, representing 3.1% of the total received. As a result, an impressive 94.61% of the received questionnaires were deemed usable, ultimately yielding an effective sample size of 246 respondents. Consequently, a response rate of 96.9% is considered satisfactory for the analytical purposes of this study. Notably, Sekaran & Bougie (2016), suggest that a response rate of 30% is sufficient for surveys is considered as depicted in Table (4.1).

However, it's imperative to highlight that the adequacy of the response rate isn't just governed by a fixed percentage, but it also pertains to the practicality of data validation for the research model used in PLS-SEM. In this context, the general rule of thumb dictates that the minimum number of data cases requires at least ten times the number of predictors involved (Chin, 1998).

Table 4.1 Responses to Questionnaires.

Response	**Frequency**	**Percentage**
Unreturned sets	6	2.30%
Completed sets received	254	97.7%
Unusable sets	8	3.1%
Usable sets	246	96.9%

Out of the total 260 sets of questionnaires distributed, a minor fraction of 2.3 percent (six sets) was not returned. On the other hand, a substantial 97.7 percent (254 sets) of the questionnaires were successfully received. However, within this received pool, approximately 3.1 percent (eight sets) were considered unusable due to missing data. This culminated in a commendable 94.61 percent of the received sets being deemed usable, ultimately resulting in a robust effective sample size of 246 sets. This noteworthy response rate of 96.9 percent is considered sufficient for the analytical purposes of this study. It's important to highlight that this response rate surpasses the minimal benchmark,

which recommends a response rate of at least 30 percent for surveys conducted through SmartPLS 3 and structural equation modeling (SEM). This higher response rate enhances the reliability and credibility of the study's findings.

4.2.2 Demographic Distribution of the Respondents

When constructing the demographic profile of respondents, it's imperative to account for both similarities and differences within the unit. These encompass factors like position, gender, age, years of experience, qualifications, specialization of the company, and the geographic location of the company.

Utilizing a five-point Likert scale, this study involved surveying managers within the oil and gas industry in Tripoli, Libya. They were presented with questions that included inquiries about their perceptions of the influence of key managerial communication soft skills on project risk management practices within the Libyan oil and gas sector. Out of the 260 distributed surveys, 254 responses were received and ultimately analyzed, excluding those with insufficient information. Table 4,2 shows the final count comprised of 246 surveys, reflecting a response rate of 96.9 percent. The demographic data collected from respondents is tabulated below for reference.

4.3 Data Screening: Normality Test

Validating normality is an essential step in data screening and must be done before selecting any statistical method for data analysis. Previous research suggests that PLS-SEM can provide accurate model estimates even in highly abnormal conditions (Cassel et al., 1999). Therefore, this study uses a graphical approach to check the normality of the collected data.

Instead of relying on statistical tests for normality, this study follows Field's (2009) recommendations and uses histograms and normal probability plots. These methods help ensure that the normality assumptions are not violated. Figure 4.1 shows that the collected data in this study follow a normal pattern, as most bars on the histogram fall within a normal range. Thus, Figure 4.1 confirms that the normality assumptions were satisfied.

Table 4.2 Profile of Respondents.

NO.	Profiles Items	Frequency	Percentage%
	Gender		
Q1	Male	214	87.0%
	Female	32	13.0%
Q4	**Years of Experiences**		
	Below 5years	58	23.6%
	5-9 years	42	17.1%
	10-14 years	68	27.6%
	15-19 years	55	22.4%
	Above 20 years	23	9.3%
Q5	**Academic Qualifications**		
	Diploma	19	7.7%
	Bachelor	86	35.0%
	Masters	102	41.5%
	Doctorate	39	15.9%
Q6	**Department**		
	Construction Department	53	21.5%
	Maintenance Department	45	18.3%
	Project Department	62	25.2%
	Safety Department	52	21.1%
	Exploration Department	34	13.8%
Q7	**Language used to Communicate with Colleagues**		
	English	186	75.6%
	Arabic	53	21.5%
	Others	07	2.8%
	Total	**246**	**100%**

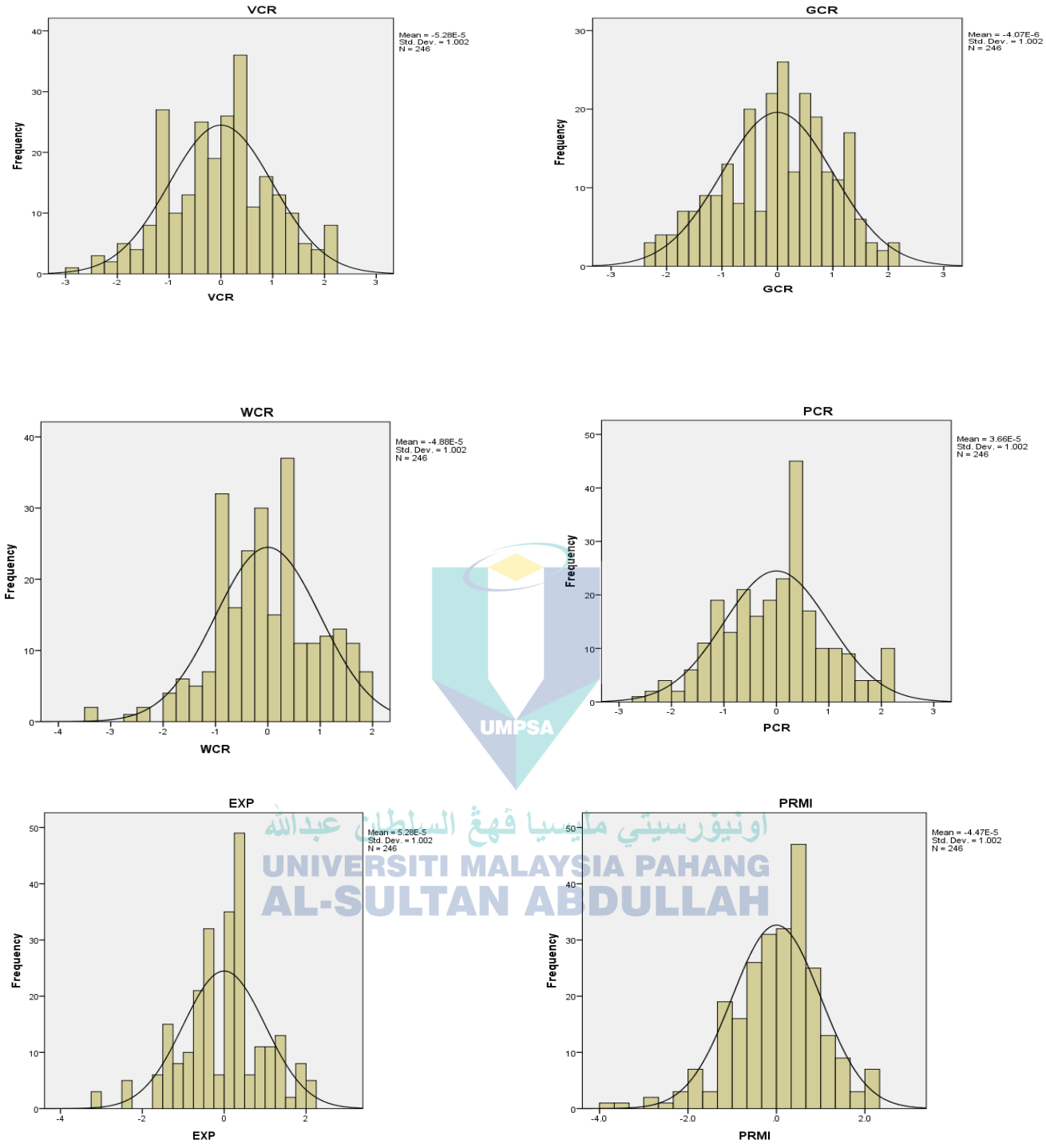

Figure 4.1 Normality Curve of the Collected Data.

4.4 Common Method Variance (CMV)

To assess both the measurement and structural model, the researcher employed partial least squares (PLS) modelling, utilizing the SmartPLS 3 version as the statistical

tool. This approach is advantageous as it doesn't necessitate the assumption of data normality, particularly relevant in survey research which often doesn't adhere to normal distribution patterns. Given that the data originated from a singular source, an initial investigation into Common Method Bias was undertaken, aligning with recommendations by Kock, (2015), advocating for a comprehensive assessment of collinearity.

This investigation involved regressing all variables against a common factor. A variance inflation factor (VIF) below 3.5 was considered indicative of the absence of bias arising from the single-source nature of the data. The results of this study's analysis demonstrated a VIF below 3.3, signifying that the data is not significantly affected by single-source bias. The outcomes detailed in Table 4.3 support the conclusion that common method bias did not exert an impact on respondents' responses.

Table 4.3 Full Collinearity Testing.

GCS	VCS	PCS	PRMP	EXP
2.432	1.873	2.25	2.142	2.391

Note: General Communication Skills, Verbal Communication Skills, Written Communication Skills, Project Communication skills, Project Risk Management practices, Experience.

4.5 Assessment of PLS-SEM Path Model Result

PLS-SEM stands out as a superior method for achieving favorable outcomes in predictive modeling. Researchers prefer PLS due to its capability to handle intricate models with fewer limitations, resulting in improved statistical power. Moreover, PLS is effectively employed in various contexts such as interaction terms, theory development, exploratory research, and prediction-focused analyses. The assessment of PLS path models encompasses two sets of linear equations as shown in Figure 4.2, outer and inner model assessment.

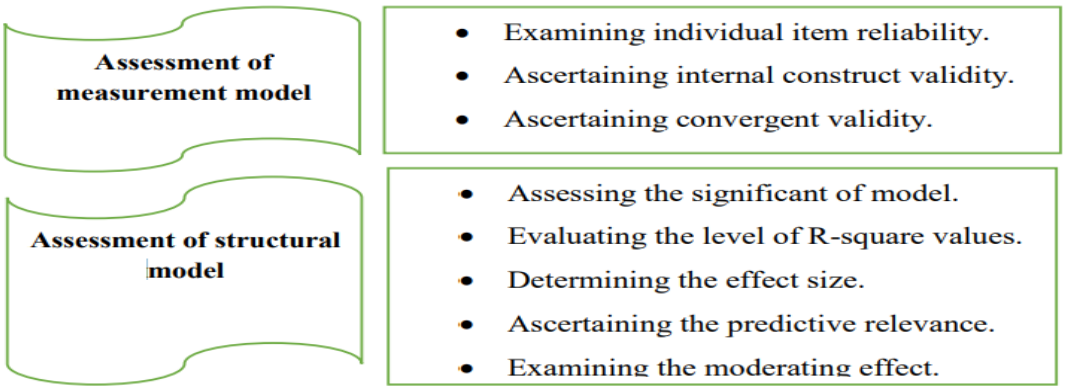

Figure 4.2 Assessment of PLS-SEM Path Model.

The current study adopts a two-step methodology to assess and present the results of the PLS-SEM approach, as outlined by Henseler et al., (2015). This process includes two main stages: (1) the evaluation of the measurement model and (2) the evaluation of the structural model, among other considerations.

4.5.1 Assessment of Measurement Model (Outer Model)

The estimation of the hypothesized model was carried out using the PLS-SEM approach along with the statistical software SmartPLS 3. PLS-SEM, a non-parametric multivariate technique was chosen for route models with latent variables. Several factors justified the use of PLS-SEM in this study. Firstly, the research was exploratory in nature, aiming to assess the impact of managerial communication soft skills on project risk management in Libyan oil and gas projects. Given its capability to handle intricate frameworks (Hair et al., 2016). PLS-SEM was suitable, especially for the inclusion of moderating models. The assessment of the measurement models encompassed various aspects, including internal consistency, indicator reliability composite reliability, average variance extracted (AVE for convergent validity), and discriminant validity evaluated through cross-loading, Fornell-Larcker criterion, and Heterotrait–Monotrait ratio of correlations.

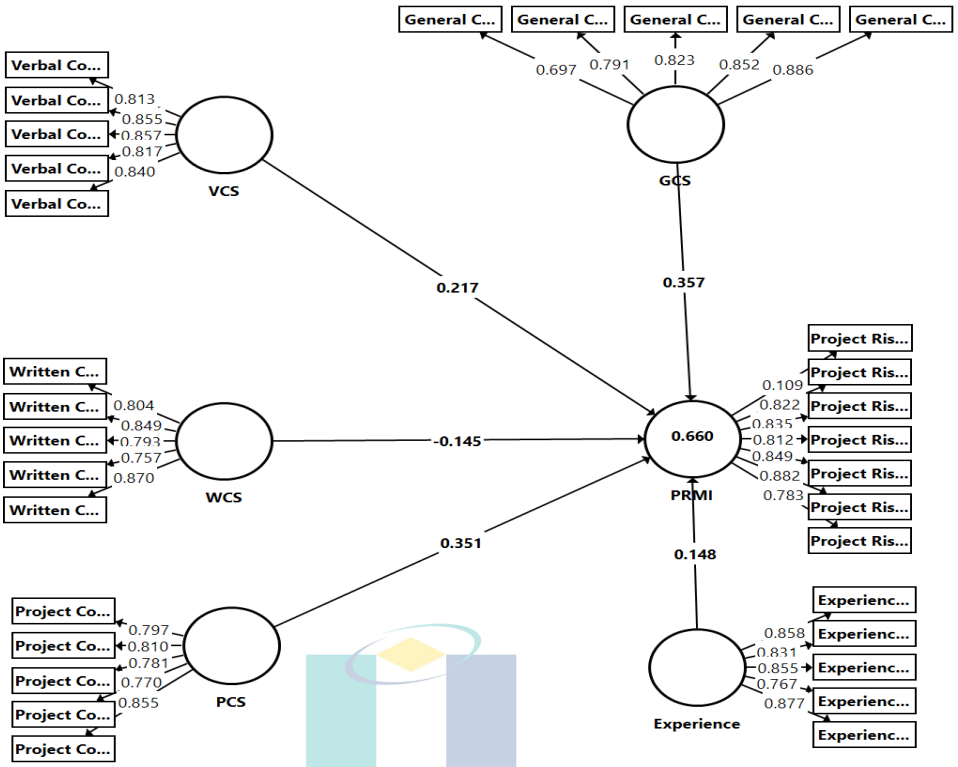

Figure 4.3 Evaluation of Measurement Model through PLS Algorithm (Initial PLS Path Model).

This study as illustrated in Figure 4.3 employed a total of five items each to measure independent variables (general communication skills, verbal communication skills, written communication skills, and project communication skills), seven items for dependent variables (Project Risk Management practices), and five items for the moderator variable (experience).

4.5.1.1 Internal Consistency

The internal consistency of a measurement item is evaluated using Cronbach's alpha (CA). The application of CA emphasizes reliability by focusing on the inter-correlations between indicators. In contrast, in the context of Partial Least Squares (PLS), internal consistency is assessed using composite reliability (CR). This distinction arises because CA and CR (measuring internal consistency) address the same concept, but CR accounts for indicators having distinct loadings. CA can result in a significant

underestimation of the internal reliability when assuming that all variables are measured similarly, and that tau is comparable across measures. A Cronbach's alpha coefficient of 0.70 or greater indicates that the instrument meets the criterion for high reliability (Hair et al., 2021). They suggest that the composite reliability coefficient is a minimum of 0.70 or higher. A value approaching one signifies greater reliability and consistency of the instrument, reflecting enhanced internal consistency.

Table 4.4 Construct Reliability and Validity.

Factors	Items	Out Loading	Cronbach's Alpha	CR	AVE
Experience	Exp 1	0.858	0.894	0.922	0.703
	Exp 2	0.831			
	Exp 3	0.855			
	Exp 4	0.767			
	Exp 5	0.876			
General Communication Skills	GCS 1	0.697	0.869	0.906	0.660
	GCS 2	0.791			
	GCS 3	0.823			
	GCS 4	0.852			
	GCS 5	0.886			
Project Communication Skills	PCS 1	0.797	0.864	0.901	0.645
	PCS 2	0.810			
	PCS 3	0.781			
	PCS 4	0.770			
	PCS 5	0.855			
Project Risk Management	PRM 1	0.824	0.910	0.931	0.691
	PRM 2	0.837			
	PRM 3	0.812			
	PRM 4	0.848			
	PRM 5	0.883			
	PRM 6	0.780			
Verbal Communication Skills	VCS 1	0.813	0.894	0.921	0.700
	VCS 2	0.855			
	VCS 3	0.857			
	VCS 4	0.840			
	VCS 5	0.817			
Written Communication skills	WCS 1	0.804	0.875	0.908	0.665
	WCS 2	0.849			
	WCS 3	0.793			
	WCS 4	0.757			
	WCS 5	0.871			

A measurement model of this study is considered to have adequate internal consistency reliability when the composite reliability of each construct exceeds the

threshold value of 0.7. Table 4.4 displays Cronbach's alpha values for the variables utilized in this study, which ranged from 0.864 to 0.910. Additionally, the CR scores for all constructs, including Experience (0.922), General Communication Skills (0.904), Project Communication Skills (0.901), Project Risk Management (0.931), Verbal Communication Skills (0.921), and Written Communication Skills (0.908), surpassed the recommended threshold of 0.7, indicating strong internal consistency and appropriate scale usage in this study.

4.5.1.2 Indicator Reliability

The primary goal in determining the reliability of an indicator is to evaluate individual items that converge to form a given construct. Since this research study included only reflective indicators, the reliability of an individual item was assessed by analyzing its loadings on the intended construct. Therefore, examining the measurement model ensures that the questionnaire items specifically measure those constructs they were intended to measure, which subsequently confirms that the instrument used in the survey is reliable. To determine the reliability of individual items, item loadings for the intended constructs were examined respectively.

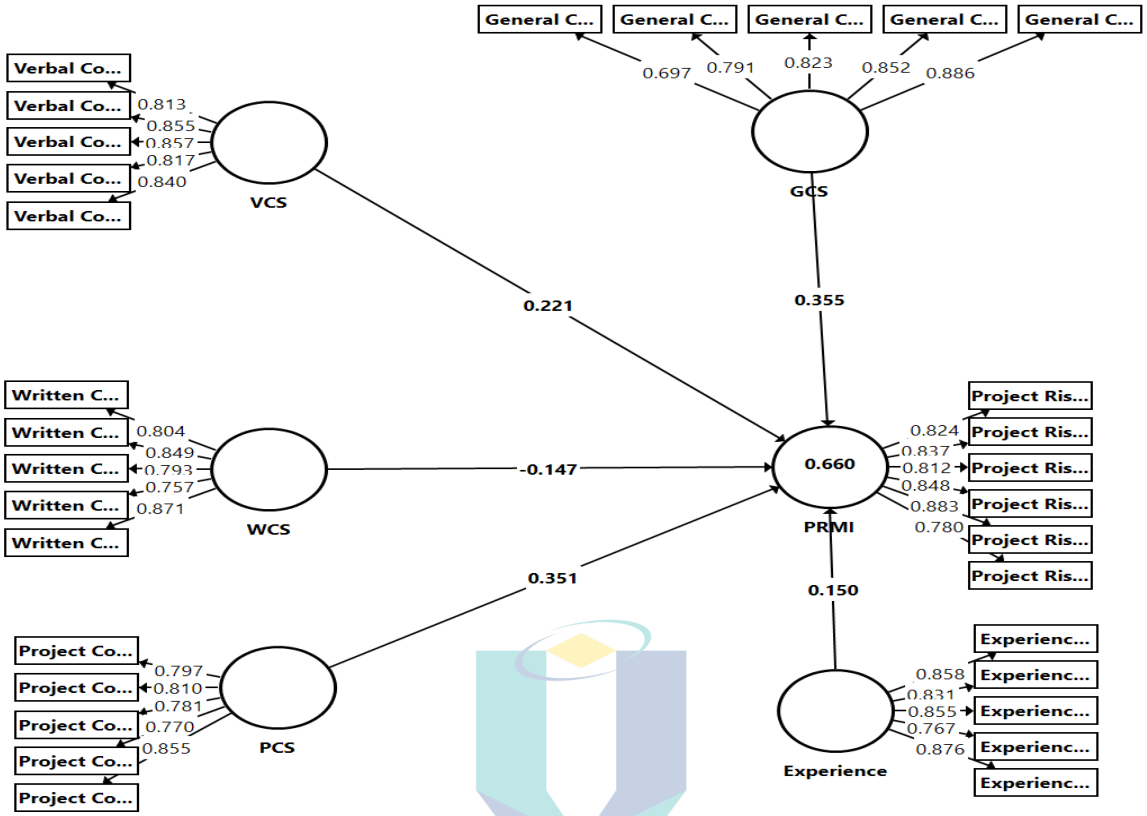

Figure 4.4 Evaluation of Measurement Model through PLS Algorithm (Modified PLS Path Model).

According to various exploratory studies (Fassott et al., 2016; Standing et al., 2012), loading scores should ideally be equal to or greater than 0.50. Therefore, indicators with outlier loadings below the threshold of 0.50 were excluded from the analysis. Due to insufficient loading levels, one item was removed from the original 32. The measurement of independent variables involved five items each, while seven items were used for dependent variables and five for the moderator variable. Consequently, the complete model retained 31 items with loadings ranging from 0.697 to 0.886, as depicted in Figures 4.4 and Table 4.4.

4.5.1.3 Convergent Validity

Convergent validity assessment can be performed using PLS by looking at the average variance extracted (AVE) Convergent validity refers to the "extent to which a measure positively correlates with alternative measures of the same construct" (Hair et

al., 2019). Furthermore, the AVE values for the constructs ranged from 0.645 to 0.703, all exceeding the threshold value of 0.50. This suggests that the measures can account for over 50% of the variance in the constructs. Additionally, most of the outer loadings for the constructs comfortably exceeded the minimum threshold of 0.70 (Table: 4.4). Indicators with outer loadings below the 0.5 threshold were eliminated. Therefore, this study is exploratory research, a loading score of at least 0.50 or higher is recommended. The results show that the measurement model of this study has established an adequate convergent validity.

4.5.1.4 Discriminant Validity

Discriminant validity of a construct can be described as "the extent to which it stands out distinctively from other constructs based on empirical criteria" (Hair et al., 2017). In this study, discriminant validity was assessed through cross-loadings, the Forner-Lacker criterion, and the Heterotrait-Monotrait (HTMT) ratio.

These assessment criteria were advocated by Forner and Lacker (Hair et al., 2017).When examining cross-loadings, it is recommended that the outer loading of an indicator on its intended latent variable surpasses the cross-loadings of the same indicator on other latent variables. The results in Table 4.5 demonstrate that the outer loading for each indicator on its specific latent variable exceeded the cross-loadings of these indicators on any other latent variables.

The evaluation of the second method of discriminant validity was carried out using the Fornell-Larcker criteria (Fornell & Larcker, 1981). According to this criterion, discriminant validity is established when the square root of a construct's Average Variance Extracted (AVE) is greater than the correlation between the construct and other latent variables in the model. As indicated in Table 4.6 significant correlations between variables were observed, and upon calculating the square root of the average variances, it becomes evident that all diagonal values surpass the correlations between variables. This observation confirms the presence of appropriate discriminant validity among the variables.

Table 4.5 Cross Loading.

Items	Experience	GCS	PCS	PRMP	VCS	WCS
Experience 1	**0.858**	0.580	0.541	0.549	0.497	0.541
Experience 2	**0.831**	0.530	0.545	0.486	0.457	0.512
Experience 3	**0.855**	0.553	0.519	0.513	0.451	0.514
Experience 4	**0.767**	0.567	0.628	0.588	0.453	0.523
Experience 5	**0.876**	0.621	0.591	0.618	0.526	0.564
General Communication Skills 1	0.589	**0.697**	0.604	0.569	0.412	0.458
General Communication Skills 2	0.655	**0.791**	0.578	0.549	0.466	0.512
General Communication Skills 3	0.446	**0.823**	0.495	0.547	0.348	0.315
General Communication Skills 4	0.528	**0.852**	0.517	0.64	0.384	0.388
General Communication Skills 5	0.561	**0.886**	0.532	0.631	0.369	0.366
Project Communication Skills 1	0.489	0.517	**0.797**	0.535	0.501	0.511
Project Communication Skills 2	0.572	0.507	**0.810**	0.512	0.530	0.573
Project Communication Skills 3	0.566	0.532	**0.781**	0.482	0.556	0.622
Project Communication Skills 4	0.547	0.512	**0.770**	0.640	0.432	0.441
Project Communication Skills 5	0.554	0.610	**0.855**	0.708	0.446	0.447
Project Risk management 1	0.624	0.599	0.624	**0.824**	0.526	0.532
Project Risk management 2	0.497	0.532	0.494	**0.837**	0.484	0.431
Project Risk management 3	0.474	0.576	0.547	**0.812**	0.426	0.377
Project Risk management 4	0.486	0.576	0.562	**0.848**	0.400	0.376
Project Risk management 5	0.602	0.680	0.622	**0.883**	0.490	0.440
Project Risk management 6	0.590	0.631	0.750	**0.780**	0.492	0.472
Verbal Communication Skills 1	0.451	0.336	0.436	0.405	**0.813**	0.702
Verbal Communication Skills 2	0.480	0.370	0.478	0.408	**0.855**	0.702
Verbal Communication Skills 3	0.495	0.462	0.502	0.539	**0.857**	0.640
Verbal Communication Skills 4	0.493	0.401	0.548	0.436	**0.840**	0.819
Verbal Communication Skills 5	0.466	0.435	0.547	0.546	**0.817**	0.644
Written Communication skills 1	0.538	0.413	0.610	0.496	0.690	**0.804**
Written Communication skills 2	0.549	0.454	0.439	0.425	0.685	**0.849**
Written Communication skills 3	0.466	0.351	0.486	0.394	0.674	**0.793**
Written Communication skills 4	0.455	0.327	0.428	0.304	0.586	**0.757**
Written Communication skills 5	0.563	0.466	0.578	0.497	0.738	**0.871**

Table 4.6 Discriminant Validity Results Based on Fornell-Larker Criterion.

Items	Experience	GCS	PCS	PRMP	VCS	WCS
Experience	0.838					
GCS	0.684	0.812				
PCS	0.678	0.670	0.803			
PRMP	0.663	0.726	0.730	0.831		
VCS	0.571	0.486	0.604	0.568	0.837	
WCS	0.635	0.500	0.633	0.531	0.732	0.816

Note: General Communication Skills (GCS), Verbal Communication Skills (VCS), Written Communication Skills (WCS), Project Communication skills (PCS), Project Risk Management practices (PRMP), Experience.

Moreover, the Heterotrait-Monotrait Ratio of Correlations (HTMT) offers a novel approach for assessing discriminant validity in variance-based Structural Equation Modeling (SEM). Henseler's perspective emphasizes the suitability of the Heterotrait-Monotrait Ratio of Correlations (HTMT) technique for establishing Discriminant Validity (DV) among constructs (Henseler et al., 2015). To achieve DV, HTMT values should not exceed the threshold of HTMT.85 value of 0.85 (Clark et al., 1995) or the

HTMT.90 value of 0.90, as suggested by prior studies (Javed Memon et al., 2013). Analyzing Table 4.7 reveals that none of the values meet both the HTMT.85 and HTMT.90 criteria, indicating that the demonstration of discriminant validity has not been achieved.

Table 4.7 Discriminant Validity Results Based on the Heterotrait-Monotrait Ratio of Correlations (HTMT).

Items	Experience	GCS	PCS	PRMP	VCS	WCS
Experience						
GCS	0.775					
PCS	0.767	0.772				
PRMP	0.721	0.809	0.797			
VCS	0.634	0.546	0.692	0.614		
WCS	0.710	0.569	0.730	0.576	0.740	

Note: General Communication Skills (GCS), Verbal Communication Skills (VCS), Written Communication Skills (WCS), Project Communication skills (PCS), Project Risk Management practices (PRMP), Experience.

4.6 Assessment of Structural Model (Inner Model)

The evaluation of the structural model aimed to establish the causal relationships among managerial communication soft skills, the moderating impact of experience, and the employed project risk management strategies. The evaluation of the structural model aimed to establish the causal relationships among managerial communication soft skills, the moderating impact of experience, and the employed project risk management strategies. The next stage addresses the valuation of the structural model results by examining the model's predictive capabilities and the relationships between endogenous and exogenous constructs. The results of the structural model are reported using a systematic approach as suggested by Hair et al. (2017) as shown in Figure 4.5 and Table 4,8. This comprises assessing the significance of structural relationships or path coefficients β, level of R^2, effect size $f^{2,}$ and the predictive relevance Q^2.

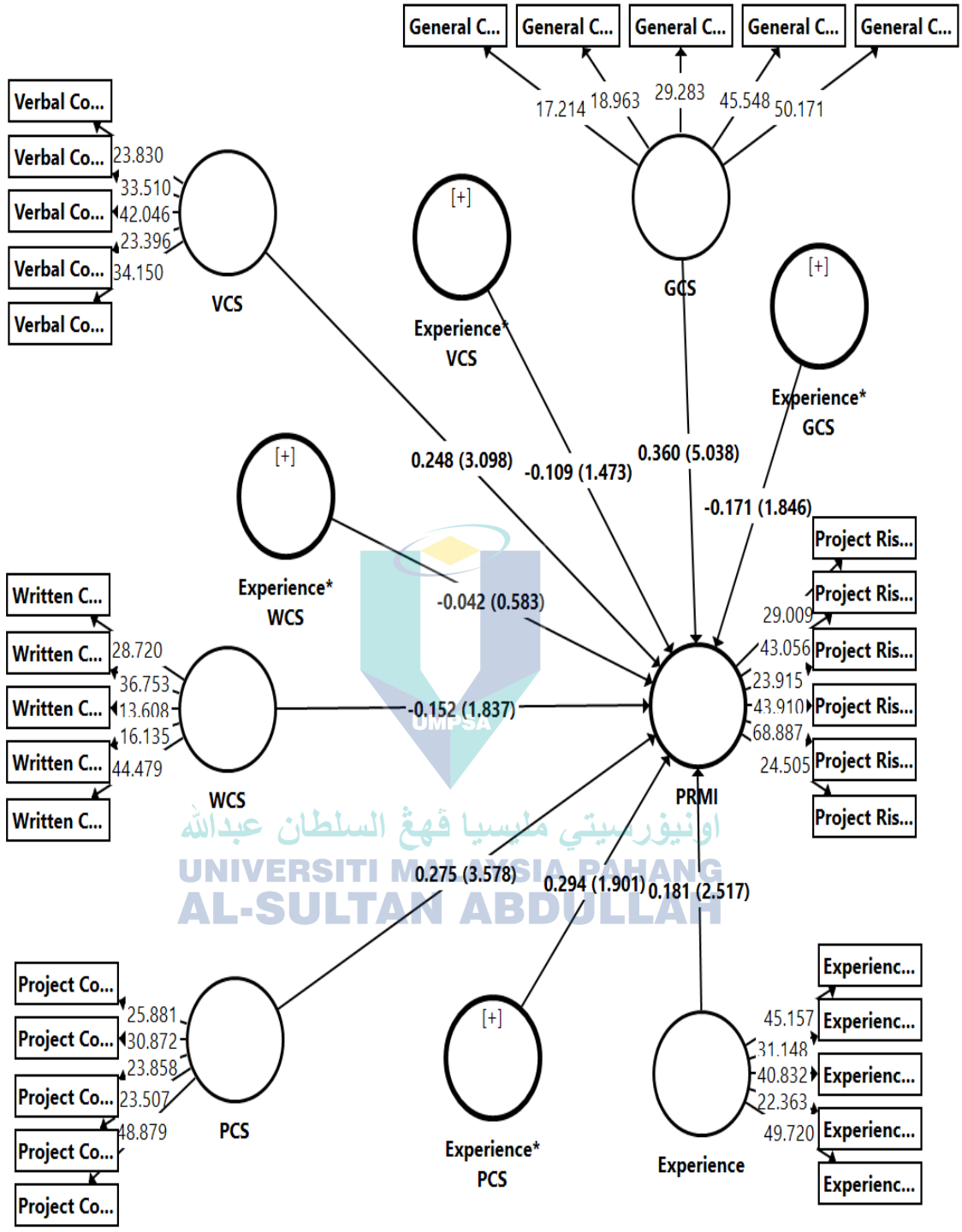

Figure 4.5 Evaluation of Structural Model through PLS Bootstrapping

Table 4.8 Results of Bootstrapping for Structural Model Evaluation.

Hypotheses	Path	Std. Beta	std. Error	t-value	Bias	Confidence Interval		Findings
						5.00%	95.00%	
H1	GCS -> PRMP	0.360	0.071	5.038	0.026	0.272	0.495	**Significant ****
H2	VCS -> PRMP	0.248	0.080	3.098	0.005	0.122	0.389	**Significant ****
H3	WCS -> PRMP	0.152	0.083	1.837	0.009	0.275	0.012	**Significant ****
H4	PCS -> PRMP	0.275	0.077	3.578	0.041	0.110	0.368	**Significant ****
H5	Experience*GCS -> PRMP	0.171	0.093	1.846	0.069	0.325	0.084	**Significant ****
H6	Experience*VCS -> PRMP	-0.109	0.074	1.473	0.038	-0.222	-0.003	**Not Significant**
H7	Experience*WCS ->PRMP	-0.042	0.071	0.583	0.033	-0.250	0.028	**Not Significant**
H8	Experience*PCS -> PRMP	0.294	0.155	1.901	-0.106	0.216	0.457	**Significant ****

Note: **Significant at 0.05 (p-value), **significant at 1.65 (t-value).
Note: General Communication Skills (GCS), Verbal Communication Skills (VCS), Written Communication Skills (WCS), Project Communication skills (PCS), Project Risk Management practices (PRMP), Experience.

4.6.1 Effect Size (f^2)

Hair and his colleagues also addressed the effect size related to predictive relevance, denoted as f^2, in addition to the core parameters (Hair et al., 2013). In line with the criteria outlined by Cohen, (1988), effect sizes are categorized as follows: less than 0.02 (small), 0.10 – 0.14 (medium), and 0.15 and above (high). These guidelines, as proposed by Cohen, (1988), were employed to evaluate the f^2 values. Specifically, the results indicate a high effect for general communication skills (f^2=0.202), a small effect for verbal communication skills (f^2= 0.064), a small effect for written communication skills (f^2= 0.021), and a medium effect for project communication skills (f^2=0.104).

4.6.2 Predictive Relevance (Q^2)

Blindfolding was used while assessing the Q2. When a Q value greater than zero, Fornell and Cha concluded that the model had predictive validity for a particular dependent construct (Hair et al., 2016) . In addition, the Stone–Geisser test of predictive relevance for the research model was used in the current investigation, which involved blindfolding procedures. Using the Stone–Geisser test for predictive significance is standard practice to measure the fit quality in the PLS-SEM procedure (Hair et al., 2013). Therefore, because all the endogenous latent variables in the present study were reflected in character, a blindfolding technique was used primarily on the endogenous latent variables in the current study. The construct cross-validity redundancy (Q2) of project risk management implementation is equal to 0.440, more than zero, which is acceptable.

4.6.3 Coefficient of Determination (R^2)

After thoroughly evaluating the significance and importance of the path coefficients, the structural model's ability to explain variations was ascertained. This explanatory capability was assessed using the coefficient of determination, represented by R^2 values. Within the context of PLS-SEM, another critical gauge for evaluating the structural model is the utilization of R-squared values, also known as the coefficient of determination. In the literature, R-squared (R^2) serves as an indicator that quantifies the extent to which the variance in the endogenous variable can be elucidated by the

corresponding exogenous variable. This R-squared value reflects the robustness of the variables incorporated within the model.

Nevertheless, various criteria can be employed as benchmarks to gauge the magnitude of R-squared. For instance, following Chin, (1998) criterion, an R-squared value equal to or exceeding 0.67 is deemed substantial, within the range of 0.33 to 0.20 indicates a moderate level, and from 0.19 to 0.05 is considered weak. To delve into specifics, Table 4.9 outlines the R-squared values of the endogenous latent variable—project risk management practices.

Table 4.9 Variance Explained in the Endogenous Latent Variable.

Latent Variable	**Variance Explained (R^2)**
Project Risk Management practices	0.660

As illustrated in Table 4.9 the research model accounts for 0.660 of the overall variances observed in project risk management practices. Consequently, in alignment with the criteria established by Chin, (1998), the R-squared values for the endogenous latent variable are within acceptable bounds and can be deemed as substantial.

4.6.4 Path Coefficients and Hypothesis Testing

The study's findings indicate a strong connection between the latent constructs of both exogenous and endogenous variables within the model and the implementation of Project Risk Management (PRM) practices. The researchers adopted a comprehensive one-stage analysis approach, which began with the establishment of the measurement model through construct reliability and discriminant validity assessment. Subsequently, Structural Equation Modeling (SEM) was utilized to estimate the hypothesized model based on the provided dataset.

In terms of statistical significance, the researchers considered a P-value of 0.05 and a t-value of 1.65. These criteria were employed to determine the significance of the relationships between dependent and independent variables. The independent variable in this study was represented by the dimensions of managerial communication soft skills,

while the dependent variable was the project risk management practices. The analysis aimed to capture the substantial variations in project risk management practices attributable to the dimensions of managerial communication soft skills. To evaluate the hypothesis, the researchers conducted regressions involving factors associated with independent, dependent, and moderating variables.

Hypothesis 1: There is a positive effect of general communication soft skills on project risk management practices in the Libyan oil and gas construction projects.

Hypothesis one asserts that there is a substantial impact of general communication soft skills on project risk management practices within the context of Libyan oil and gas construction projects. As outlined in Table 4.8, the analysis reveals a significant influence of general communication skills on project risk management practices (β=0.360, t=5.038). These general communication soft skills were further categorized into three distinct groups: personal skills encompassing self-awareness, stress management, and problem-solving abilities; interpersonal skills including effective communication, influential capabilities, conflict resolution, and motivational expertise, and group skills that involve empowerment, team cohesion, and delegation of authority. The effectiveness of an organization hinges on a manager's aptitude in skilfully steering the organization toward its objectives. Consequently, the study's hypothesis H1 was corroborated.

Hypothesis 2: There is a positive effect of verbal communication soft skills on project risk management practices in the Libyan oil and gas construction projects.

Hypothesis 2 of this research posited that there exists a significant impact of verbal communication soft skills on project risk management practices within the context of Libyan oil and gas construction projects. As indicated in Table 4.8, the results affirm a favorable correlation between verbal communication soft skills and project risk management practices, with a coefficient of (β = 0.248, t = 3.098). The findings underscore the direct linkage between verbal communication soft skills and effective project risk management practices in Libyan oil and gas construction projects. This outcome is not unexpected, considering that proficient verbal communication is a fundamental expectation for managers. Verbal communication holds significant importance as it serves as the predominant channel for interaction – being immediate,

spontaneous, and direct – across a spectrum of situations. Given the project manager's frequent need to communicate, particularly through speaking, the ability to convey information succinctly is vital. Thus, this study's Hypothesis H2 garners empirical support.

Hypothesis 3: There is a positive effect of written communication soft skills on project risk management practices in the Libyan oil and gas construction projects.

Moreover, hypothesis 3 posited that written communication soft skills would exert a significant influence on project risk management practices in the realm of Libyan oil and gas construction projects. The findings presented in Table 4.8 corroborate this proposition, revealing a favorable correlation between written communication soft skills and project risk management practices ($\beta = 0.152$, $t = 1.837$). Written communication skills are widely recognized as a pivotal factor in the success of managers involved in project management. This skill encompasses the adept use of letters, memos, bulletins, procedure manuals, notices, and written resources to convey information within an organizational context. As highlighted by Christopher, (2006), the ability to write with clarity and proficiency, as well as to critically evaluate, synthesize, and analyze information, holds intrinsic value for achieving success. Thus, the findings align with Hypothesis H3, providing empirical support for its premises.

Hypothesis 4: There is a positive effect of project communication soft skills on project risk management practices in the Libyan oil and gas construction projects.

Hypothesis 4 posited that project communication soft skills would wield a substantial impact on the project risk management practices in the context of Libyan oil and gas construction projects. The analysis of Table 4.8 furnishes validation for this assertion, elucidating a noteworthy correlation between the project communication soft skills component and project risk management practices ($\beta = 0.275$, $t = 3.578$). Project communication soft skills stand as the lifeblood of projects and organizations, with the project manager serving as a linchpin in the orchestration of communication dynamics. Managing project communications entails a persistent endeavor to facilitate the flow of project-related information amidst both external and internal stakeholders, a process perpetuating throughout the project's lifecycle. The vital role of the project manager in

navigating the challenges inherent in project communications is underscored by the need to consistently manage and circulate project information through diverse channels. Consequently, Hypothesis H4 finds empirical substantiation, reinforcing its premises.

Lastly, let's delve into Hypotheses 5, 6, 7, and 8. These hypotheses postulate a significant interplay between Experience and the impact of managerial communication soft skills on project risk management practices within the Libyan oil and gas construction realm. The findings within Table 4.8 also come to the fore, spotlighting the moderating role of experience amidst the interplay of managerial communication soft skills and project risk management practices in the Libyan oil and gas construction domain. Remarkably, while Hypotheses H5 and H8 exhibit statistical significance in accordance with bootstrapping, Hypotheses H6 and H7, by contrast, do not bear significant implications.

The dynamic known as orthogonalization, wielded to fortify the relationship between managerial communication soft skills and their influence on project risk management practices, substantiates the positive linkage as shown in Figures 4.6 and 4.7. Within the realm of project management, the experience of project managers holds profound implications, spanning various domains such as project inception, goal definition, task planning, risk management, resource allocation, budgeting, communication, issue tracking, status evaluation, and overall project performance assessment.

However, aside from experience, the competencies that project managers must embody extend into diverse realms, including business acumen, technological adeptness, behavioral understanding, and, notably, robust leadership skills. This multifaceted skill set is essential for effectively navigating the intricacies of project management, thereby ensuring optimal project outcomes.

4.6.5 Testing the Moderating Effect of Experience

The present study utilized the orthogonalization technique within the framework of PLS-SEM to assess the strength of the moderating effect on the connection between managerial communication soft skills factors and project risk management practices in

the context of Libyan oil and gas construction projects. This approach was chosen due to the continuous nature of the moderating variables (Rigdon et al., 1998).

In this study, for evaluating the moderating effects of experience on the relationship between managerial communication soft skills factors and project risk management practices in Libyan oil and gas construction projects, the orthogonalization indicator method was applied. This entails establishing orthogonalization terms between the indicators of the latent predictor variable and the indicators of the latent moderator variable. These orthogonalization terms then function as the indicators for the interaction term in the structural model (Kenny & Judd, 1984). Orthogonalization, a process used in statistics and linear algebra, helps improve the interpretability of path coefficients in path analysis or structural equation modeling (SEM). Path coefficients quantify the relationships between variables in a model, indicating the strength and direction of one variable's influence on another. When variables are correlated, path coefficients can become difficult to interpret due to the confounding effects of correlations with other variables. By transforming the variables to be orthogonal (uncorrelated), each path coefficient can be interpreted as the unique effect of one variable on another, without confounding influences. This simplifies the interpretation of the model, leading to a more straightforward and accurate understanding of the relationships between variables.

As a result, Figure 4.6 illustrates that experience enhances the positive correlation between verbal communication soft skills and project risk management practices within the context of Libyan oil and gas construction projects. Specifically, the influence of verbal communication soft skills on project coordination was found to be statistically significant for managers with substantial experience in verbal communication. This significance was less pronounced for managers with limited experience in oil and gas construction projects. In this study, two hypotheses are not significant but by using strengthening methods it is statistically significant. This means if the managers have extensive experience in a particular work, it will influence their skill.

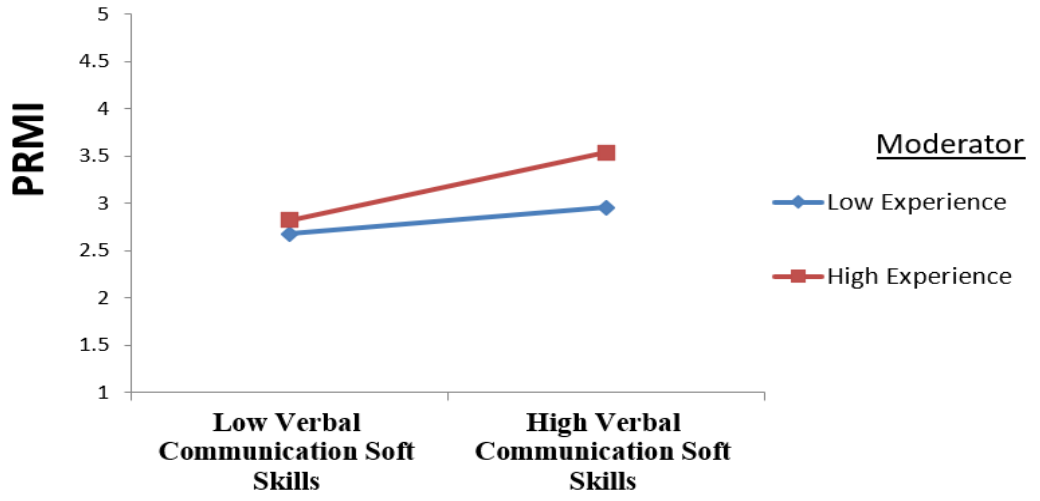

Figure 4.6 Interaction Effect of Experience on Verbal Communication Soft Skills and Project Risk Management Practices.

Similarly, Figure 4.7 demonstrates that experience amplifies the favourable association between written communication soft skills and project risk management practices within the domain of Libyan oil and gas construction projects. The outcome indicates that the impact of written communication soft skills on project coordination is statistically significant for managers who possess extensive experience in written communication. However, this significance is comparatively lower for managers with limited experience in the realm of oil and gas construction projects. Notably, while two hypotheses in the study were initially not significant, they became statistically significant after applying strengthening methods. This finding underscores that managers with high experience in a particular area are more likely to exhibit enhanced skills.

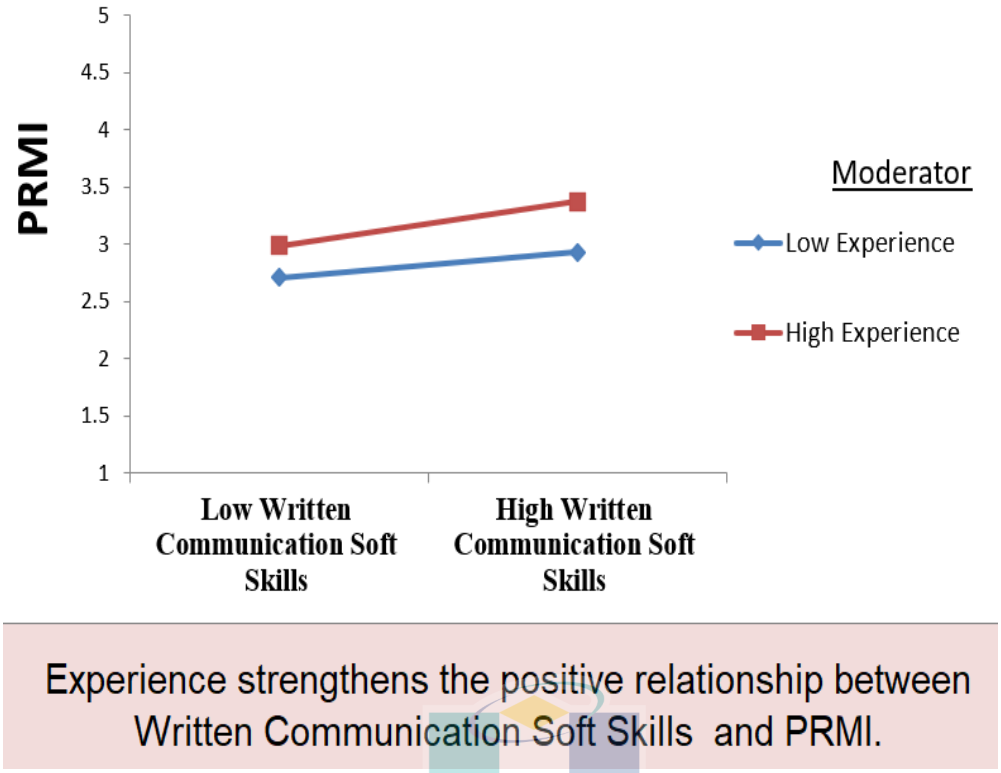

Figure 4.7 Interaction Effect of Experience on Written Communication Soft Skills and Project Risk Management Practices.

4.7 Discussions of Findings

The outcomes of this study validate the role of experience as a moderating factor, intensifying the connection between managerial communication soft skills and project risk management practices in Libyan oil and gas construction projects. This aspect underscores the significance of experience within the domain of oil and gas construction projects. In summary, existing research has consistently demonstrated that managers possessing a higher degree of experience tend to exhibit better performance and alignment with organizational goals. The findings are aligned with the research objectives, addressing the research questions through the lens of the proposed hypothesis. The implications of the outcomes are discussed and contextualized in relation to pertinent prior research.

4.7.1 To Identify Key Managerial Communication Soft Skills for the Project Risk Management Practices in Libyan Oil and Gas Projects

The primary aim of this study is to identify key managerial communication soft skills relevant to project risk management practices within Libyan oil and gas projects. An essential component of research projects, the literature review serves as a foundation for future investigations. It aids in comprehending the issue at hand, mapping prior research in the field, and detecting emerging trends (Saunders et al., 2007). A pivotal objective of this review is to establish a framework for the study's first goal, recognize common themes, and position the study. The researcher sourced pertinent data on the subject of crucial managerial communication soft skills, particularly within the context of project risk management practices in Libyan oil and gas projects, to conduct this study. The bulk of information extracted from articles, books, journals, and evaluation reports directly pertained to the research's defined problem and objective.

Based on the literature review, this study's variables encompass factors influencing managerial communication soft skills: General Communication Skills, Verbal Communication Skills, Written Communication Skills, and Project Communication Skills of managers. Accordingly, it is hypothesized that the factors influencing construction projects can be shaped by managerial communication soft skills and the moderating effects of experience, which strengthen these relationships. Thus, the research framework (Figure 2:10) models the relationships between factors influencing project risk management practices and the moderating variable of experience within Libyan oil and gas projects.

Managers' abilities span various facets that shape their leadership capabilities. Managerial communication skills encompass advanced expertise in specific domains, which managers must possess to execute their roles effectively. Individuals require adept preparation (El-sawalhi & Lafy, 2021). Managerial skills involve the acquisition and assimilation of new abilities. In essence, managerial skills comprise behaviors that contribute to job efficiency and productivity. According to Katz & Aakhus, (2002), managerial skills pertain to a manager's capacity to translate their knowledge and expertise into practical application. These skills can be categorized into personal and

communication skills. Personal skills encompass self-awareness, anger management, and problem-solving abilities, while communication skills encompass interpersonal dynamics such as influencing, conflict resolution, and motivation. Community skills, including empowerment, team building, and delegation, also fall under this category. Effective communication strategies, such as speaking, listening, reading, and writing, are essential for project managers, as their work revolves around communication with stakeholders.

4.7.2 To evaluate the influence of key managerial communication soft skills on the project risk management practices for the Libyan oil and gas projects.

The second objective of this study focuses on examining the impact of key managerial communication soft skills on project risk management practices within Libyan oil and gas projects. Hypotheses H1 to H4 confirm significant relationships between these skills and project risk management practices. This alignment with existing literature supports the notion that effective managerial communication soft skills positively influence project outcomes. Specifically, verbal communication skills (H2) and written communication skills (H3) are noted to have significant relationships with project risk management. Effective communication is pivotal for project managers, ensuring coordination, conflict resolution, and stakeholder engagement (Kord & Thornton III, 2020; Shammas, 2019). Furthermore, project communication skills (H4) have a considerable effect on project risk management practices, indicating their role as a foundation for successful project execution

In essence, these hypotheses underscore the value of managerial communication soft skills in influencing project risk management practices. They highlight the importance of these skills in enhancing stakeholder engagement, mitigating conflicts, and ensuring project success. This recognition signifies a shift towards prioritizing soft skills within the project management domain.

In conclusion, this study has demonstrated that managerial communication soft skills have a significant impact on project risk management practices in Libyan oil and gas projects. The findings corroborate the critical role of communication in the project management context, emphasizing the need for effective communication strategies to achieve project objectives. The results align with the objectives of this research and

provide valuable insights for project managers aiming to enhance their communication skills to drive project success.

4.7.3 To investigate the Moderating Effect of Experience between Managerial Communications Soft Skills and Project Risk Management practices

To address the inquiries outlined in this study and achieve the research objectives, the researcher delved into the moderating effect of experience on the nexus between managerial communication soft skills and project risk management practices. This constitutes the third objective of this study. Hypotheses 5, 6, 7, and 8 posited that experience wields a significant influence within Libyan oil and gas construction projects, shaping the impact of managerial communication soft skills on project risk management practices.

The bootstrapping results, as presented in Table 4.8, unveiled the moderating role of experience amid managerial communication soft skills and project risk management practices across Libyan oil and gas construction projects. Hypotheses H5 and H8 showcased the significant moderating influence of experience, while H6 and H7 did not yield the same effect. This dynamic was enhanced through the application of the orthogonalization term methodology, intensifying the connection between managerial communication soft skills and their impact on project risk management practices (Figures 4.5 and 4.6).

In the realm of project management, the experience of project managers encompasses critical facets like project inception, goal setting, task planning, risk management, resource allocation, budgeting, communication, issue tracking, status evaluation, and performance assessment. In addition to experience, project managers necessitate profound proficiency in domains such as business, technology, behavior, and, naturally, leadership traits.

Notably, the conceptual phase of a new construction project is widely acknowledged as the most precarious, as choices made during this juncture significantly influence aspects like project cost, quality, timeline, safety, and environmental considerations. This phase also presents the greatest uncertainty about the future, owing

to the intricate and unpredictable nature of oil and gas projects, which often deviate from their initial feasibility projections. This complexity exposes projects to various uncertainties and risks during execution. Hence, project managers with substantial experience are adept at navigating these potential pitfalls, bolstering the likelihood of successful project completion.

Previous research has illuminated the role of industry experience, particularly among contractors, in enhancing project risk management (Taofeeq et al., 2020; Wang & Yuan, 2011). This experience is deemed crucial in addressing the challenges that can lead to project delays and budget overruns, which are not uncommon in the oil and gas sector.

Additionally, Suda et al. (2015) conducted an examination of risks and project risk management within the oil and gas sector. They discovered that many upstream oil and gas projects frequently fail to meet deadlines and budgets, often due to inadequate project risk management practices. Similarly, Elliott (2005) identified a myriad of factors contributing to subpar project performance in the Canadian oil and gas sector, many of which can be traced back to insufficient project risk management procedures. These include factors such as a dearth of experienced personnel, improper contractor selection, ill-suited contractual arrangements, unclear role delineation, inadequate risk analysis expertise, and unfamiliarity with company standards and practices. Furthermore, Fazlali et al., (2011) conducted a study investigating the main barriers to the successful implementation of oil and gas projects in Iran, identifying inadequate risk management as a significant contributor to project failure.

The concept of working experience has been frequently utilized as a moderator variable in prior research, often in the context of the relationship between independent and dependent variables. Earley et al., (1990) posited that experience moderates the adoption of technology, shaping the approaches, methods, and skills that foster advancements in performance capabilities. Shi & Chow, (2015) similarly established that experience moderates the link between independent and dependent variables in social commerce web research. Bennett et al., (2005) reported that experience moderates the relationship between independent factors and brand loyalty. Building upon this discourse,

it is recommended that experience be employed as a moderator variable to comprehensively assess the influences of managerial soft skills and their interaction.

4.8 Summary

This study utilized Partial Least Square Structural Equation Modeling (PLS-SEM) as the chosen analytical technique. In this specific chapter, an in-depth exploration of the PLS-SEM methodology was presented, as PLS 3 represents a novel analysis approach in the realm of construction studies. Prior to subjecting the research model to testing, a series of crucial steps were meticulously followed to establish the reliability and validity of the outer model, adhering to the standard protocol of SEM data analysis reporting. Following the verification of the measurement model's validity and reliability, the hypothesized relationships were subjected to empirical testing. Subsequently, the model's predictive prowess was evaluated and subsequently reported. The final stage entailed an in-depth examination of the structural model, and the ensuing results were expounded upon comprehensively. By presenting the comprehensive array of outcomes, encompassing both moderating and primary effects in the preceding sections.

CHAPTER 5

CONCLUSION

5.1 Introduction

This is the concluding chapter of the research project. Based on the preceding chapters, a conclusion is formed. Furthermore, this chapter is the essential portion of this publication since it places the current study findings in the perspective of previous research findings. The current investigation findings were discussed in this chapter of the dissertation in light of the existing literature. Furthermore, the reader will understand the distinctive characteristics of the current investigation, as well as direct and indirect theoretical rationale. As a result, all the study's hypotheses were discussed in the order specified in the model. The following discussion highlights the significance of research, its limits, the consequences of practices, and the need for more research.

5.2 Recapitulation of the Study

The purpose of this study was to investigate the effects of several dimensions of essential managerial communication soft skills on the implementation of project risk management in Libyan oil and gas projects and the moderating effects of project experience on these outcomes. The primary goal of this study was to identify critical managerial communication soft skills that would be useful in the execution of project risk management in Libyan oil and gas projects and other countries. The investigators also wanted to look at the function of experience in mediating the relationship between essential managerial communication soft skills and the execution of project risk management in Libyan oil and gas projects. Furthermore, this study investigates the statistically significant relationship between key managerial communication soft skills (general communication skills, verbal communication skills, written communication skills, project communication skills) and project risk management practices among Libyan oil and natural gas projects. In light of the problem identified in Chapter 1 and

the extensive evaluation of relevant literature conducted in Chapter 2, the research set out to accomplish the following primary objectives:

RO1. To identify key managerial communication soft skills for implementing project risk management in Libyan oil and gas projects.

RO2. To evaluate the influence of key managerial communication soft skills on the project risk management practices for the Libyan oil and gas projects.

RO3. To investigate the moderating effect of experience between managerial communications soft skills and project risk management practices.

This study's objectives were established by a thorough literature evaluation, which was carried out in Chapter 2. According to previous literature, managerial communications soft skills have been found to be important in project risk management practices in Libyan oil and gas projects. However, there has been little research into the impact of managerial communications soft skills on project risk management practices in Libyan oil and gas projects, specifically. As previously noted, the bulk of prior studies on managerial communications skills found that they had a favourable impact on the execution of project risk management and the performance of construction enterprises in general (Carvalho et al., 2015). On the other hand, the application and practice of soft communication skills were not always successful in all situations. As a result, several authors devoted a significant amount of time and effort to investigating the reasons behind the failure of these techniques (Zuo et al., 2018). On the other hand, other scholars believe that a complete explanation and conclusions about the correlations of these variables would benefit from the inclusion of certain other relevant variables.(Tseng et al., 2019).

It was established and backed by attribution theory, as explained in Chapter 2, which served as the theoretical basis for this study as well. The theoretical framework that underpinned the investigation was built based on attribution theory. Because of this, Attribution Theory leads academics in their efforts to explore the link between soft managerial skills and project risk management practices in the oil and gas sector through the use of managerial soft skills communication. When it comes to project risk

management implementation, project managers tend to attribute corporations' motivations to the other-serving motives, in which they believe that the firm has either altruistic and honest motives (e.g., to help people in need, support environmental protection, or assist with non-profit organisations) or simply self-serving motives that correlate to strategic or financial aims (e.g., to improve firms' reputations, or to increase profits) (Habel et al., 2016).

In light of the objectives of this study, which are discussed in Chapters 1 and 2, variables are determined that was employed, and the framework for this study is developed. The quantitative methodological approach that was outlined in Chapter 3 has therefore been used to evaluate and assess the theoretical framework that has been constructed. The hypotheses for this study have been generated according to the issue description, research questions, research objectives, and literature evaluation, and they are suitable for empirically testing in the field. To gather data that reflected the components of the study, a survey questionnaire was developed in accordance with the research methodology and research design of the investigation. All the questions in the questionnaire were either altered from or borrowed from prior and diverse resources to ensure that the questionnaire had content validity. In addition, all the items were evaluated using a Likert scale.

After conducting a thorough systematic literature analysis, the previously adopted scale items from earlier research were changed to fit the needs of this present study. Initial pilot research was conducted, in which 60 copies of the questionnaire were disseminated based on a 5-point Likert scale that had been verified by numerous statistical measures (item's reliability and validity), followed by a larger study. Furthermore, information was gathered from the managers who worked for these oil and gas businesses, and the information was reviewed before use. The significance of the content validity factor loading and the convergent and discriminant validities under the PLS-SEM outer model requirement was determined with the assistance of the Smart-PLS 3.2.8 SEM software.

As a result, the measurement model, independent variables (key managerial communication soft skills), and dependent variables (project risk management practices) were established as latent constructs, necessitating a further examination of effect sizes

and predictive relevance of the model developed in this study. As soon as these statistical measures were found to be adequate, the inner model specification (structural model), which was utilised to test the hypothesised routes, was assessed. As suggested by Chin, (1998), R^2 values of 0.67, 0.33, and 0.19 are deemed "substantial," "moderate," and "poor" for project risk management practices in this study (see Table 4.9). The assumptions that were selected were comprised of both direct and moderating pathways. They were estimated with the use of PLS-SEM statistical analyses to determine the significance of their conclusions. Specifically, the bootstrap approach was used to examine the moderating effects of experience on the correlations between important managerial communication soft skills and project risk management practices. The discussion in this part is therefore based on applied theory as well as findings from past research, as indicated by the title. The subsections are organised in accordance with the objectives of the study.

5.3 Research Implication

The findings of this study have several implications for essential managerial communication soft skills in the execution of project risk management in Libyan oil and gas projects, with the moderating effects of experience playing a role in these implications. There is a very strong and significant association between managerial communication soft skills, project risk management practices, and project experience in Libyan oil and gas projects, as demonstrated in this study. Because it confirmed the existence of this association in a Libyan setting, this study helped to bring older studies into line with current findings. According to the findings of this investigation, the body of information that has been provided has been expanded as a result of the contribution made by this study. This study adds fresh information to the existing body of literature, particularly in the area of management communication soft skills, which has hitherto been underrepresented. An empirical study conducted on Libyan oil and gas projects found a direct relationship between important managerial soft skills (such as verbal communication abilities, written communication abilities, and project communication abilities) and project risk management implementation during the construction phase. This study represents the initial effort to assess the direct impact of key managerial communication soft skills and project risk management practices, using experience in

Libyan oil and gas projects as a moderating factor. In light of the fact that Libya's oil and gas sector makes a significant contribution to the country's economic growth, the findings of this study will have significant consequences for general management as well as engineering, project management, and academia.

Furthermore, the skills and expertise of project stakeholders, both at the individual and group levels, can have an impact on the outcome of all risk procedures. As a result, project professionals must continue to improve their abilities since they directly impact the efficacy of risk management. Additionally, a manager with extensive and education will always be more linked to the sectors in which he or she works. Therefore, it is predicted that skills and experience will act as a buffer between the links among important management communication soft skills in Libyan oil and gas projects, in accordance with the empirical data and theoretical viewpoint offered in this study.

As a result, this study yields valuable and fascinating insights into essential managerial communication soft skills that consistently influence manager risk attitudes in oil and gas projects. Communication soft skills are essential in determining decision-makers attitudes toward risk management practices, and managers should keep this in mind when developing communication strategies. As a result, managers should hire team members who have high levels of team competency, working experience, and educational background among their employees, as this will help to improve the overall quality of the work and allow employees to gain a better understanding of the risks associated with oil and gas projects. Furthermore, team members be urged to participate in training and courses on executing project risk management strategies.

Aside from that, human capital is a valuable asset for every firm. Management must thus have a clear grasp of the appropriate method and approach to use to encourage employees to get involved in and commit to safety practices. Improvements in safety behavior cannot be achieved without this. The hiring process should be the primary focus of the management of the oil and gas sector, which should begin with selecting the most qualified candidates for the positions based on their educational background, work experience, and professional competence from the beginning of the recruitment process.

Even though the communication soft skills affecting project risk management practices investigated in this study are easy to control during the recruitment of new workers, project managers should try to adopt the findings of this study when dealing with the communication soft skills of managers in the oil and gas sector The research also offers strategies for general managers, project managers, team members, and clients to address project risk management practices in Libyan oil and gas projects.

5.4 Contribution to the Study

This study has made numerous contributions to understanding the relationship between communication soft skills and project risk management practices. The research outcome from the relationships between IV and DV with their moderating variables has created new relationships between communication soft skills and project risk management practices elements, with the moderating role of experience in Libyan oil and gas projects. Furthermore, this research contributes to a better understanding of how these variables influence the risk experiences of project managers in Libyan oil and gas projects.

5.4.1 Theoretical Contribution

Theoretically, this present study has offered fresh knowledge evidence that is connected to construction risk management strategies. The attribution theory shows people's perceptions of the reasons and causes of others' actions (Fritz Heider, 1958; Kelley, 1973), which is similar to how naive scientists view the reasons and causes of their own actions. Individuals like discussing the motivations of others' behaviour in two categories: internal causes (e.g., personal disposition) and external causes (e.g., environmental factors) (e.g., one situation). The purpose of this study is to develop some theoretical foundations to validate the association between managerial soft skills and project risk management implementation, with the experience of managers serving as a moderator. Attribution theory was used to do this. According to the definition of the term "attribution theory," it is a branch of social psychology that seeks to understand why people explain events in specific ways.

The current research has the potential to significantly advance our understanding of novel construction risk management strategies and practices. The attribution theory is

the hypothesis under consideration in this study. The basic premise of the attribution theory revealed various assumptions. It illustrated how individuals view explanations and causes of others' behaviour as naive scientists, which is essential to remember. Heider, (1958) discovered that individuals like discussing the causes of others' behaviour in two categories: internal causes (e.g., personal disposition) and external causes (e.g., environmental factors) (e.g., one situation). The purpose of this study is to develop some theoretical foundations to validate the association between managerial soft skills and project risk management practices, with the experience of managers serving as a moderator. Attribution theory was used to do this. According to the definition of the term "attribution theory," it is a branch of social psychology that seeks to understand why people explain events in specific ways.

As a result, the current study seeks to determine the direct and indirect effects of a manager's previous experience on the relationship between the managerial soft skills component and the implementation of project risk management in Libyan oil and gas projects. Following the publication of these data, it has been possible to throw light on how the attribution theory is being implemented in the context of the Libyan oil and gas construction projects. Due to the foregoing, the findings of this current study, when compared to the existing body of knowledge on the practice of construction risk management in the Libyan construction industry, have provided valuable insights into the practice of construction risk management in the Libyan construction industry.

This study makes an important contribution by providing a detailed description of all three dimensions of the variables: managerial communication skills (general communication skills, verbal communication skills, written communication skills, project communication skills), experience, and the implementation of project risk management. All the variables listed above support the assumptions of the attribution theory that have been underlined. According to the data thus far, it is clear that the organization's decision to include project management expertise into its oil and gas construction projects had a positive impact on construction risk management procedures in Libyan oil and gas construction projects.

Finally, this study will contribute to the advancement of the attribution theory research by broadening the scope of knowledge within the construction industry sector to cover the new relationships that have an impact on construction risk management techniques. This research also provided transparency and extensions to the aspects of managerial communication skills in the construction sector by examining the links that were discovered to affect an organization's accomplishment in important areas. Results of this study show that the relationship between these variables and those values that are important for the reduction of construction risk management practice in Libyan oil and gas construction projects has been broadened to include not only these variables but also the characteristics that contribute to the development of those values in the organizational capital pool.

5.4.2 Practical Implications

In terms of practical implications, the current study findings have provided a range of contributions to project managers, stockholders, and team members involved in the Libyan oil and gas construction projects, among other things. The study on communication soft skills affecting project risk management practices elements in Libyan oil and gas projects, with the moderating role of experience, is vital to the academic world and the employer who is required to manage risk in every construction industry. All construction sectors must register their businesses with the appropriate regulatory agency to guarantee that all safety aspects are met and required in the workplace. Additionally, according to the same source, positive results in improving construction risk management in the construction industry have emerged as the most significant component of the construction business in recent years.

Furthermore, this can help the industry achieve their profit goals more effectively. Construction businesses can use the information from this study to design a useful risk management plan. A project manager's communication and listening skills must be excellent to effectively manage the risks that arise during a construction project. Moreover, poor communication is one of the issues that have been identified in the construction industry, and it has the potential to cause significant production challenges as well as an increase in the amount of risk. Everyone involved in the building process

must have excellent communication skills to reduce the risks associated with the project. As a result, this research is necessary to evaluate the effect of communication soft skills on project risk management practices aspects, with the function of experience playing a moderating role in Libyan oil and gas projects.

Not only would disclosing information of risk activities through public reports or a trustworthy database allow academics to evaluate the implementation of risk management, but it would also improve awareness of risk among shareholders and enterprises. This means that performance in the Libyan oil and gas projects will be enhanced if chief executives, managers, and other stakeholders use their soft communication skills and take these efficiency aspects seriously. Based on the findings of this research, the construction industry should support the soft communication skills of workers and the availability of resources that will allow for effective risk management in the construction sector in Libyan oil and gas projects.

In conclusion, it is crucial to emphasize the significance of various dimensions of communication soft skills in driving the growth of any company. Additionally, findings from the current study imply that individual elements should receive significant attention in the building business, in addition to the criteria. It has been shown that experience significantly influences the level of commitment exhibited by employees in a company. This, in turn, can lead to a decrease in the risks encountered during construction projects. During the recruitment process, project managers should make certain that employees who are willing to learn more about lean are carefully chosen. To be able to pick the most qualified employees, tests that will identify employees whose measurements are aligned with the organizational value should be administered to them. This research has also offered a classic example of excellent risk management techniques within the Libyan construction sector, particularly for future risk management procedures during building projects, which may be applied to other industries.

5.5 Limitations and Future Research Directions

This study has been able to provide valuable insights and contributions, and however while analyzing the findings of the study, it is crucial to keep in mind that there are certain limitations. First and foremost, the current analysis's scope was confined

solely to the Libyan oil and gas building projects. This constraint is related to the generalization of the findings of the investigation. Aside from that, the unit of analysis in this study consisted of project managers as well as team members in the firms who potentially take over the duty of project managers. However, because of technological innovation and leadership support, although the construction sector is a significant business in Libya, the outcomes cannot be applied universally to other public and private companies in the country.

In addition, a cross-sectional study design was used in the methodological component to examine the predicted associations at a particular moment in time, and this was considered a limitation. A variety of changes in human psychological features and responses to challenges might be implemented at any point in time. A longitudinal research approach rather than a cross-sectional research methodology might have resulted in a different conclusion for this study, as a consequence. Third, only a quantitative research approach was used in this study. The respondents were asked to translate their opinions expressed in the survey questionnaire into numerical values using a Likert scale, which was provided in the survey questionnaire. A mixed study design should be used in future research, and it is advised (quantitative and qualitative research designs).

Furthermore, there were difficulties with the data gathering procedure. Six questionnaires were not returned from a total of 260 questionnaires given, accounting for 2.3% of all questionnaires distributed. A total of 254 questionnaires were received, accounting for nearly 100% of all questionnaires distributed. In contrast, eight surveys were determined to be worthless owing to missing data, accounting for 3.1 percent of all questions. As a result, 94.61 percent of the total number of questionnaires received were useable, resulting in an effective sample of 246 surveys. Thus, a response rate of 96.9 percent is deemed appropriate for the purposes of this study's analysis because Sekaran recommended that a response rate of 30 percent is suitable for surveys. The response rate that was chosen subsequently proved to be sufficient for the minimal number of data instances necessary for the validation of the study's model, which was mandated.

Lastly, given the limitations of this study, future research should consider some other moderating variables in the relationship between managerial communication skills,

and project risk management practices because this moderator has a less significant moderating effect on some of the hypothesised variables. Additionally, this study is being conducted to explore the impact of communication soft skills elements on project risk management practices in Libyan oil and gas construction projects in particular. As a result, future studies were able to assess the effectiveness of construction risk management and its adoption in other industries, increasing the dependability of the application of effective communication in the construction industry. Furthermore, it would have been more complete to examine personality as an independent variable in addition to the communication soft skills variables, which was not done before.

5.6 Conclusion

Overall, this study contributed to growing awareness of the moderating role of experience in the relationship between managerial communication skills (general communication skills, verbal communication skills, written communications skills, project communications skills), experience, and project risk management practices. The findings of this study were able to support the main theoretical proposal, which was supported by the results of the other studies. It effectively addressed all the questions that were raised on the field, and despite certain limits, it achieved all of the objectives that were set.

Despite the fact that various studies have investigated several fundamental risk management variables in the construction sector. While employing experience and management communication skills as major assessment variables, the current research has addressed the theoretical gap identified in the previous research findings. This study also supported the theoretical and empirical function of managing experience in the relationship between managerial communication skills and project risk management practices, as demonstrated by the findings. It also aimed to estimate the extent to which possibly indigenous and exogenous latent variables are modified by the project manager's prior experience in the field. When it came to analysing the influence of managerial communication skills on risk management practices in the process of Libyan oil and gas construction projects, the framework of this study was able to provide a significant contribution to the Attribution theory field once again. In addition to making a theoretical

contribution, the findings of this study have had some practical ramifications for the building industry and other parties involved. Furthermore, considering the limitations of this study, several potential future research areas have been recommended.

This research is unique in that it is an observational study that has never been done before. The model has never been tested in Libyan oil and gas development projects divided up across different construction sectors. Second, the research makes use of concepts and practices that are already in existence while imbuing them with new and diverse meanings. The study presented new insights into the risk management strategy employed in Libyan oil and gas construction projects. Fourth, the study investigates a hitherto unexplored facet of managerial communication skills in the context of Libyan oil and gas construction projects risk management activities that academics had not considered before in the construction sector.

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APPENDICES

Appendix A:

Title: Full items of the questionnaire

Dear participant,

I am a doctorate student at the Universiti Malaysia Pahang Al-Sultan Abdullah (UMPSA). I am currently conducting a research project as a part of the requirement to complete my doctorate program. This research aims to investigate the impact of a project manager's communication soft skills on risk management practices in Libyan oil and gas projects: the moderating role of experience.

Your cooperation and support are needed to complete the questionnaire, which takes about 10 minutes. No information that identifies you personally will be revealed. Your participation will be anonymous, and all the information will be kept confidential and will be used for the academic purpose only.

We hope that you will find completing the questionnaire enjoyable. If you have any questions or would like to have further information regarding this research study, please do not hesitate to reach me at the contact given below.

Thank you once again for your precious time and assistance.

Researcher
Mohamed Omar Elkbuli
Faculty of Civil Engineering Technology
Email: a_kabole@yahoo.com

Full items of the questionnaire

SECTION A: Respondent Background

Please, Tick (√) as appropriate as follow:

1- Respondent Gender:

Male ☐ Female ☐

2-Experience Working:

Less than five years ☐ 5- 9 years ☐

10 – 14 years ☐ 15 – 19 years ☐

20 and above ☐

3- Academic Qualification:

Diploma ☐ Bachelor ☐

Master ☐ Doctorate ☐

Others, please specify……

4- Department:

Construction Department ☐ Maintenance Department ☐

Project Department ☐ Safety Department ☐

Exploration Department ☐

5- Language used to communicate with colleagues

English ☐ Arabic ☐ Others ☐

SECTION B: MANAGERIAL SOFT SKILLS ELEMENTS

This section focuses on elements of (Communication) SOFT SKILLS which may be appropriate for you as a manager. On the following scale, please circle the appropriate number which best reflects your perception.

1. General Communication Skills

(1) Strongly Disagree	(2) Disagree	(3) Neutral	(4) Agree	(5) Strongly Agree

No.	Items/Questions	Scale				
		1	2	3	4	5
1	I listen effectively and present information accessibly.	1	2	3	4	5
2	I share my point of view to other people	1	2	3	4	5
3	I have the ability to work in a team and share information with others.	1	2	3	4	5
4	I establish criteria and make classifications	1	2	3	4	5
5	I am able to easily find information on a given topic	1	2	3	4	5

2. Verbal Communication Skills

(1) Strongly Disagree	(2) Disagree	(3) Neutral	(4) Agree	(5) Strongly Agree

No.	Items/Questions	Scale				
		1	2	3	4	5
1	I give heed to other people's nonverbal signs	1	2	3	4	5
2	I'm trying to grasp thoughts that are distinct from mine	1	2	3	4	5
3	I consider feedback from those people I operate with	1	2	3	4	5
4	I urge people to explain what they think	1	2	3	4	5
5	I freely confess my mistakes	1	2	3	4	5

3. Written Communication Skills

(1) Strongly Disagree	(2) Disagree	(3) Neutral	(4) Agree	(5) Strongly Agree

No.	Items/Questions	Scale				
		1	2	3	4	5

1	I formulate a plan specifically for decision making	1	2	3	4	5
2	Tasks assigned are always measurable	1	2	3	4	5
3	Tasks are relevant and appropriate	1	2	3	4	5
4	Tasks are challenging but achievable	1	2	3	4	5
5	Tasks include time reference to formulate plans	1	2	3	4	5

4. Project Communication Skills

(1) Strongly Disagree	(2) Disagree	(3) Neutral	(4) Agree	(5) Strongly Agree

No.	Items/Questions	Scale				
		1	2	3	4	5
1	I am an active listener that improve my ability to understand others	1	2	3	4	5
2	I build a connection centered on reliance and esteem	1	2	3	4	5
3	I set clear priorities to fulfil project tasks	1	2	3	4	5
4	I enable collaboration with others to fulfil project tasks.	1	2	3	4	5
5	I convey the tasks as per the establishment's vision	1	2	3	4	5

5. Project Risk Management practices

(1) Strongly Disagree	(2) Disagree	(3) Neutral	(4) Agree	(5) Strongly Agree

No.	Items/Questions	Scale				
		1	2	3	4	5
1	Organization commence a risk sympathetic and distribution procedure most of the period	1	2	3	4	5
2	Managers are unable to understand the risk analysis approach	1	2	3	4	5
3	There is a more potent and classy system that requires more data and period	1	2	3	4	5
4	Industry perceived risk as an unforeseen event that might potentially impact on the completion of the project.	1	2	3	4	5
5	Risk management performance in the conceptual system is comparatively poor	1	2	3	4	5

6	Brainstorming is the most frequently used risk management tool.	1	2	3	4	5
7	The firm has approach risk management in aspect of individual experience	1	2	3	4	5

6. Experience

(1) Strongly Disagree	(2) Disagree	(3) Neutral	(4) Agree	(5) Strongly Agree

No.	Items/Questions	Scale				
		1	**2**	**3**	**4**	**5**
1	In our company, lack of experience leads to poor relation and disagreements with a partner.	1	2	3	4	5
2	In our company, no past experience in similar projects affect our manager's attitude	1	2	3	4	5
3	In our company, improper project planning and budgeting caused by lack of managers experiences	1	2	3	4	5
4	Lack of training program affect our company	1	2	3	4	5
5	Manager's experience affects the effectiveness of coordination in our company.	1	2	3	4	5