



Midocean University

College of Management

Major: Project management

Research Title

The Impact of Risk Management on the Success of High-Rise Signage Projects – A Case
Study of Mismar Al Arabia

Prepared by:

Abrar Hassan Albakri

Supervised by:

Dr. AlFaisal Abdelhameed Mohamed

Dr. Fayez Ali Jrad

Academic year:

2025/2026

Copyright Statement

All rights are reserved by Midocean University. The contents of this research are protected under applicable copyright laws and are considered the intellectual property of the University.

No part of this document may be reproduced, published, or distributed in any form or by any means without obtaining prior written permission from Midocean University.

Researcher

Dedication

This project is dedicated to all professionals working in the field of project management, especially those involved in high-risk environments such as high-rise signage projects. Their commitment to safety, quality, and innovation inspires continuous improvement in the industry.

I would also like to dedicate this work to my family for their unwavering support, encouragement, and patience throughout the completion of this study. Their belief in my abilities has been a constant source of motivation.

Finally, this project is dedicated to my instructors and mentors, whose guidance, knowledge, and constructive feedback have played a vital role in shaping this research and enhancing my academic journey.

Table of Contents

2.....	<i>Copyright Statement</i>
3.....	<i>Dedication</i>
8.....	<i>Abstract</i>
9.....	<i>Acknowledgment</i>
10.....	<i>Chapter One - General Introduction to the Study</i>
10.....	1.1 Introduction:
13.....	1.2 Study Problem:
16.....	1.3 Importance of the Study:
20.....	1.4 Objectives of the Study:
24.....	1.5 Study Questions:
27.....	<i>Chapter Two – Literature Review & Theoretical Framework</i>
27.....	2.1 Introduction
28.....	2.2 Previous Studies
33	Table 1 - Summary of Previous Studies on Project Risk Management

35.....	2.3 Comparison of previous studies
36.....	2.4 Research Gap
37.....	2.5 Research Hypotheses
38.....	2.6 Theoretical framework:
39.....	2.7 Explanation of the Theoretical Framework:
40.....	2.8 Theoretical Premises of the Study:
44.....	<i>Chapter Three – Research Methodology:</i>
45.....	3.1 Research design:
50.....	<i>Chapter Four – Data Analysis:</i>
51.....	4.1 Rationale:
55.....	4.2 Fields of study:
58.....	<i>Chapter Five – Survey Results & Analysis</i>
58.....	5.1 Introduction
59.....	5.2 Overview of the Dataset and Respondent Profile
60.....	5.3 Types of Risks in High-Rise Signage Projects

61.....	5.4 Risk Identification Practices
62.....	5.5 Risk Assessment Across Project Phases
63.....	5.6 Risk Monitoring and Updating
63.....	5.7 Risk Mitigation Planning
64.....	5.8 Impact of Risk Management on Project Success
66.....	5.9 Management Support for Risk Management:
66.....	5.10 Lessons Learned and Continuous Improvement
67.....	5.11 Need for Stronger Risk Management Systems
67.....	5.12 Discussion
68.....	5.13 Recommendations
69.....	5.14 Conclusion
70.....	<i>Table 1</i>
70.....	<i>Table 2</i>
71.....	<i>Table 3</i>
71.....	<i>Table 4</i>

71.....	<i>Table 5</i>
72.....	<i>Table 6</i>
72.....	<i>Table 7</i>
73.....	<i>Table 8</i>
73.....	<i>Table 9</i>
73.....	<i>Table 10</i>
74.....	<i>References:</i>

Abstract

Risk management is a critical component in ensuring the success of complex construction-related projects, particularly high-rise signage installations that involve significant technical, safety, and environmental challenges. This study examines the impact of risk management practices on the success of high-rise signage projects, with a specific focus on the case of Mismar Al Arabia.

The research is based on quantitative data collected from industry professionals, including project managers, engineers, and safety personnel. The study analyzes key aspects of risk management, such as risk identification, assessment, monitoring, and mitigation, and evaluates their influence on major project success factors, including cost control, schedule performance, quality standards, safety outcomes, and client satisfaction.

The findings indicate that effective risk management has a strong positive impact on all dimensions of project success. Safety risks were identified as the most critical, followed by external, financial, and technical risks. While risk management practices are generally well-established within the organization, some inconsistencies and gaps remain, particularly in system integration and standardization.

The study concludes that strengthening risk management systems, enhancing organizational support, and improving the application of lessons learned can significantly improve project outcomes. These findings provide valuable insights for companies operating in high-risk construction environments and highlight the importance of proactive and structured risk management approaches.

Acknowledgment

I would like to express my sincere gratitude to everyone who contributed to the completion of this research. First and foremost, I thank Allah for granting me the strength, patience, and ability to complete this study.

I extend my deepest appreciation to my family and friends for their continuous support, encouragement, and understanding throughout this academic journey. Their motivation has always been a source of inspiration during challenging times.

I would also like to express my sincere thanks to Midocean University for providing a supportive academic environment and the necessary resources that made this research possible. The guidance and facilities provided by the university played a significant role in achieving this work.

My special thanks and appreciation go to my supervisors, Dr. Faisal Abdelhameed and Dr. Fayez Jrad, for their invaluable guidance, insightful feedback, and continuous support throughout the research process. Their expertise and direction were essential in shaping the quality and direction of this study.

I am also grateful to all participants who contributed to this research, including professionals and respondents who provided valuable data and insights. Their cooperation and input greatly enriched this study.

Finally, I would like to acknowledge all researchers and scholars whose work has contributed to the development of the theoretical and conceptual foundation of this research.

Chapter One - General Introduction to the Study

1.1 Introduction:

One of the most important points of convergence is High-rise signage buildings, it is characterized by a unique character between structural engineering on the one hand and creative design on the other hand, and the point of strategic management of various projects on the other hand. On the other side, the Traditional signage differs from that implemented in high-rise projects and complex environments. As the high rise projects careful and sophisticated technical planning, the use of specialized installation equipment, and strict adherence to security safety procedures. Also, the integration of signage systems with electrical infrastructure, building facades, and architectural beauty points must be carefully and distinctively managed at all stages of the project's various cycle. It is also about construction projects and infrastructure, so there is a point of uncertainty, which is considered one of the points connected to the so-called project environment. Uncertainty is rooted in the presence of technical challenges, as well as the need for organizational aspects, the presence of some logistical obstacles and environmental conditions, and there are also problems in coordination between the different parties associated with the project. As for managing the risks associated with the projects, it provides a kind of organization to identify uncertainties and analyze these points and respond to them. This aims to reduce the negative aspects associated with the project objectives, according to PMI (2021).

The Risk management helps projects address so-called potential determinants in advance and improves the project's success rate and chances of development.

According to Hillson (2017), proactive risk management practices enable organizations to anticipate uncertainties and effectively assist in decision-making and the process of making decisions. This is linked to the importance of organized risk management and its presence mainly in the project management literature. Therefore, the risk management helps to predict projects effectively. Moreover, Kerzner (2022) explained that organizations that work to implement the risk management process systematically have a better position to control costs Project schedules are effectively implemented, adhered to fundamentally, and it adheres to sound standards of quality and safety. These views reflect the effective role of project risk management in completing projects within so-called complex construction environments.

One of the most important examples of the success of risk management is what is happening in the Kingdom of Saudi Arabia in accordance with the so-called Vision 2030, Which is witnessing a wide expansion in terms of construction activities in cities such as Jeddah, Dammam and Riyadh and the transfer of many distinctive commercial towers, where the demand for installing high-quality signs is increasing, combining the activation of a strong visual identity and distinctive architectural integration linked to the management of developments in these cities. Signages are considered a part or a major element of high-rise buildings, as they are an integral part of the commercial interactions and confidence in these buildings and the distinctive urban brands present in them.

Despite the rapid and effective spread of high-rise building signs, there is a lot of research that lacks focus on these points regarding the topic of risk management. Also the academic

research is very little and limited. Therefore, in the current study, it focuses on building risk management mainly regarding public construction and closes the unique operational conditions associated with the installation of signs in front of high-rise buildings. These conditions hinder integration restrictions with facades and limit access to the sites where installation takes place. It also has many points required for regulatory compliance, in addition to specialized lifting operations.

The gap in studies mainly requires specialized research that focuses on several areas, including the impact associated with project risk management on the signage project in tall buildings and its success. Also, bridging this gap has an effective role in rapidly developing environments and is linked to the complex installation process. There is effective management of safety and quality standards and the development of specific strategies to reduce the risks associated with these projects.

Therefore, this research focuses mainly on studying the impact of risk management of organized projects on the success of high-rise building signs in Riyadh. Mismar Al Arabia is considered a case study related to this topic and a study of the mixed risks in this project and an evaluation of risk management and its practice and an exploration of the factors of project success and the relationship between them. The study aims and seeks mainly to provide a difference on improving the performance of implementing these projects. The research aims to bridge the gap between the theoretical framework of risk management and practical application related to high-rise building signage projects.

1.2 Study Problem:

There is a kind of wide spread of projects related to the high-rise buildings that are considered a part of the urban expansion in the Kingdom of Saudi Arabia. There are many challenges facing many projects and these challenges vary from operational to major administrative challenges. These challenges are related to the delay of dates related to the timetable regarding the installation process. Also, despite the development in construction practices and technological development. There are many risks that still face signage projects In high-rise buildings, it has a negative impact on the project level in general, especially in the field of urban fabric and construction.

One of the most important points related to the main reasons for the challenges facing project risk management, especially in the signage sector associated with tall buildings, is the absence of an organized and dedicated methodology for project risk management. Despite the existence of comprehensive guidelines that identify, evaluate and manage project risks, which are mainly found in standards such as ISO 31000 and the PMBOK Guide, practical application, especially in the field and sector of signage, is unreliable and very limited in many cases. On the other side, the application of risk management Its practice is informal and is not systematically integrated into project implementation and planning.

The project to install signage for high-rise and high-rise buildings is considered extremely complex and requires careful coordination between specific and multiple parties and systems, including facade contractors, developers, crane operators, technicians linked to the installation, electricity teams, municipal authorities, and others. The advantage is that the success of signage projects is largely linked to the idea of compatibility between technical

listening and regulatory approvals, and is also linked to site readiness. There is a series of disturbances related to seemingly minor failures in coordination, such as postponing permits related to cranes, restricting access to the site, delaying the penetration of facades, and problems in completing the equipment related to construction. All these requests lead to delays in the project and perhaps higher and additional costs, reducing the efficiency of operations, and perhaps leading to rework.

One of the challenges associated with signage projects is the high-rise buildings, and there are many environmental and technical risks. In the challenging environment of installing signage for high rise buildings, we find weather fluctuations in the area related to work, wind speed, and the presence of some risks related to safety and operation. In addition to the necessity of having specialized engineering solutions that maintain what is called structural stability, signage systems are connected to building facades, which ensures long-term durability and electrical reliability, and the weakness and absence of these points leads to a negative impact on the quality of the project and the safety of the installation.

There are many Examples of organizational complexities which include the fact that municipal authorities impose a strict system regarding signs, their dimensions, their structural safety, as well as lighting systems, and the preservation of the idea of aesthetic compatibility in what is called surrounding architecture. This requires precision and effective and early coordination between the relevant authorities, and delaying approvals may significantly disrupt the project schedule, which increases project costs (Kerzner, 2025).

Although there is a lot of research that deals with risk management, especially in the construction sector, the academic aspect of interest in identifying these risks associated

with the point of installing signs in driving buildings is still limited and needs more effective development and research because most studies focus on general construction and the practical reality and specialized installation restrictions being faced, so we find that sign pieces suffer from neglect in relation to project management research. Mainly in relation to having effective risk management adapted to unique project conditions (Kerzner, 2025).

Therefore, there is a knowledge gap in what is called the lack of academic research in theoretical risk management and practical application in the signage sector. Therefore, on the other side there is a lot of literature related to project management that focuses on identifying and determining risks and planning to respond to these risks effectively and proactively. However, these processes lack coherence with real projects related to signages. Therefore, most institutions are linked by practical experience and interactive problem solving, which led to Lack of strategies related to organized risk management.

One of the main effective points is the urban transformation and rapid development in construction that the Kingdom of Saudi Arabia is witnessing considering Vision 2030, we find that effective risk management in projects has become more important and the need for it has become more necessary. Therefore, the huge urban projects, commercial towers and distinguished projects in the field of urban fabric are linked to high-quality signs and require aesthetic integration and commitment to safety standards, which leads to the need for a more advanced approach and an effective methodology for managing the risks associated with these projects.

Therefore, this study is effective if it examines the clear impact of organized project risk management on the success of projects related to high-rise building signage in Riyadh and applies this to the operational environment of Mismar Al Arabiya Company, which

specializes mainly in engineering solutions and signage, and the main goal of the research is to explore the application of risk management and its principles effectively in Signage sector: The study focuses on project management risks, evaluating and practicing these risks, and analyzing the role of proactive risk management in Developing projects, maintaining appropriate costs, safety, security, and schedule, and achieving comprehensive and effective project success.

Ultimately, this research problem and its treatment help in reducing and bridging the gap between the theoretical aspects of risk management and the practical aspect, especially in signage projects in high-rise buildings. Therefore, this study and its results will support many entities related to the construction and signage sector, including contractors and project managers. It will also help provide effective risk management strategies and enhance the flexibility, sustainability and operational efficiencies of projects in the rapidly evolving construction environment in Kingdom of Saudi Arabia.

1.3 Importance of the Study:

The importance of the study related to risk management in projects related to signs related to high-rise buildings is that it is a multi-dimensional study that includes many fields such as infrastructure development and construction management, as well as fields related to project management, especially the existing cultural infrastructure in Saudi Arabia. This is because urban expansion within the Kingdom of Saudi Arabia has clearly flourished recently, and this investigation is what is called comprehensive national development, which has led to the presence of a defect in the systems related to architectural development related to the field of construction clearly. At this point, the idea of managing the risk effectively has emerged, as he has a great ability to ensure the success of projects and also

achieve their long-term sustainability and flexibility in operations. Signage projects in high-rise buildings represent one of the most important sectors that have become of great importance in the field of construction sector. We must necessarily have a kind of engineering precision, high-risk incentive environments, and architectural integration. Despite the wide spread of these projects, they are still not widely explored academically, especially in terms of managing the risks of organized projects.

Theoretically, this research aims to develop many literary studies related to project management by expanding the scope related to the management of these projects by directing development to an insufficiently studied field. There are many models related to managing the risks of traditional projects, and therefore we find the PMBOK Guide and ISO31000, which provide guidance for identifying and analyzing the risks of these projects, however, the application of these systems must take into account the contexts of construction and general organization and rarely address the unique risk configurations related to high-rise building signs, as well as changing environments and their impact. By developing project risk management covered by the operational reality related to signage projects in high-rise buildings, this study expands the point of theoretical understanding of risk management principles and works to adapt these principles to construction sectors that are characterized by environmental and technical uncertainty.

In addition, the study works to link the theoretical aspect or complexity of these groups and requested risks, which are mainly represented in the point of signage projects in high-rise buildings, which are linked to several technical systems, especially their link to those with an interest in these projects, such as teams linked to architectural design, organizational facades linked to the municipality, crane operators, and facade engineers, and the link between these entities leads to the existence of a risk structure related to technical,

operational, and organizational points and works to control them in a way It also closely studies how risk management works in interconnected environments, and this research provides different opinions about the impact of complex projects on the effectiveness of risks and presents strategies for responding to them.

From a methodological perspective or methodological perspective, this study is mainly called a case study to examine the practical application of project plan management through application in real projects. There are many studies in risk management that depend on theoretical aspects and questionnaires, but this research is concerned with operational practices and takes Mismar Al Arabiya Company as a model for companies specialized in signage, which leads to providing an experimental aspect and allows this systematic approach to lead teams working on projects operating in construction-related environments and are not considered high-risk.

This study also provides an organized light that links direct risk management with the success effects associated with projects, studying the relationship between risk identification and strategy, project performance results, adherence to the schedule, installation safety, and quality assurance. Also, in this integration, especially in the signage sector, it is necessary as a result of reducing the operational risks associated with this sector.

From an industrial perspective, this study is valuable for engineers, decision makers, contractors, and project managers, especially in the signage and related construction sector of high-rise buildings, because the process of installing signs in this type of building contains large financial investments and risks related to the reputation of companies, and it is also linked to cultural development. Through understanding management concepts of

theoretical risks and transforming them into strategies, this research provides practical tools for project planning and coordination between owners Interests, strengthening the relationship between them, understanding risk management in a progressive manner, especially in the signage sector, and shedding light on companies' strengthening of risk management capabilities through unified and proactive procedures and by identifying more effective mechanisms for managing high-risk installation environments.

From an academic and professional perspective, the study has another importance, which is to present a special strategy for development within the Kingdom of Saudi Arabia in implementation of Saudi Vision 2030, which depends largely on urban development and also on the development of commercial areas and high-rise buildings, especially the role of signs in these buildings, determining the commercial vision and architectural identity, and ensuring the achievement of sustainability in managing these projects to keep pace with the goals of 2030. There is also research that supports modifying the construction sector, raising the level of safety, and improving the performance of projects in the Kingdom Saudi Arabia does not depend only on the academic field, but also on the second, which is sustainable from a practical standpoint.

The importance of the research also aims to bridge the gap between theoretical risk management concepts and practical application by linking organized risk management and making it the goal of success for projects in the construction sector and more complex constructions.

1.4 Objectives of the Study:

One study mainly searches to study the strong impact of risk management practices in organized projects, especially in the field of construction and building, and focuses on signage projects in high-rise buildings, taking the city of Riyadh in the Kingdom of Saudi Arabia as an example of this, with a focus on the Mismar Al Arabiya project, which is the company that specializes in the field of signage, and the study sets out the following:

Classification of the main risks associated with signage projects in buildings, including technical risks and logistical risks. This research aims to provide a comprehensive understanding of the different types of risks associated with signage projects in high-rise buildings. Here were many risks that arise from multiple sources, including technical restrictions and also organizational factors. Identifying these risks is considered one of the most important steps that help in managing project risks because it helps above work to anticipate any Potential risks and threats that affect project performance and decision making. (PMI, 2021).

The idea of identifying risks is also considered an essential point for classifying risks related to the signage project and also helping the project manager and stakeholders such as contractors and engineers, especially in signage installation projects in buildings in an effective and clearer manner. By classifying the error into specific categories, these risks are strengthened into safety and security risks, organizational, environmental, financial and managerial risks. These institutions can create a developmental form by presenting a more accurate strategy that works to improve risk management capabilities effectively. Previous studies indicate that the point of systematically identifying risks is one of the most

important project risk management processes because it represents a type of risk analysis and response planning. Hillson (2017).

Secondly, the evaluation point for the effectiveness related to risk management, and Mismar Al Arabiya Company taking an example related to project risk management and how it facilitates the success of projects in terms of saving time, quality, safety and security, and achieving the interest of all elements related to these projects.

The aim of studying risk management in Mazmar Al Arabiya Company and in the signage project in particular is to identify risks and evaluate them in order to mitigate their impact within the management of encyclopedias within the company. This evaluation leads to a deeper understanding and provides a formal forum for responding to them according to project management. Effective risks require processes and a methodology through qualitative and quantitative analysis of these risks, response planning, and continuous monitoring of these risks during the project management period and the entire project cycle. PMI, 2021.

Therefore, the aim of studying the impact and risk management practices on the success of projects is measured using performance indicators such as adherence to a specific schedule, the presence of risks, safety performance, and also controlling costs. Researchers such as Kerzner (2022), indicate that the advanced risk management process makes reducing disturbances less common in these projects and also controls project costs and makes adherence to the schedule possible and easy. Therefore, Mismar Al Arabiya Company and evaluating its practice helps in achieving effective management The company for project risks in different environments.

Thirdly, one of the most important objectives of this study is to examine the relationship between project risk management practices and also the chances of project success and the factors that lead to this by setting a specific timetable and ensuring quality, safety and customer satisfaction.

This point aims to analyze the impact of project risk management on overall success, especially in signage projects in apartment buildings, as they contain a complex environment that greatly affects uncertainties within these projects. Risk management helps teams within the project reduce disturbances and improve the ability to predict project results and work towards success (Hillson, 2017).

Success within construction-related projects is mainly measured by a number of points, including reliability related to the schedule, quality, safety, customer satisfaction, and cost efficiency, as Kerzner (2022) explained.

By studying the relationship between project risk management and its practice on the one hand and success factors on the other hand, this study aims to evaluate the ability of institutions to manage projects and ensure success. Understanding this relationship embodies the practical value of project management and its ability to improve project performance, especially in the installation phase of signs related to high-rise buildings.

Fourth, this study aims to evaluate the level of maturity related to project risks and take Mismar Al Arabiya Company as a model, as well as to identify the recurring challenges facing banners and their sector, internal gaps, and also opportunities for improvement within the framework of the project implementation process in its various stages.

This point relates to evaluating the maturity of project management, especially in Mismar Al Arabiya Company, which is the ability of project risk management to unify the risk management process, achieve organizational procedures in an integrated manner, and apply them in a manner consistent with all projects, and also the idea of ordinary institutions obtaining higher levels of maturity in the field of risk management leads to identifying these risks and determining Points and responsibilities required, reported in a timely manner and monitored (Hillson, 2017).

Also, assessing the degree of maturity of management within projects helps identify weaknesses and gaps facing current risk management and also reveals challenges in project management. Examples of these challenges include loss of coordination between stakeholders within projects, as well as delays in approvals and regulatory procedures, difficulty in accessing equipment, and shortcomings in risk documentation. Research helps provide or differ in enhancing the ability of institutions to improve project implementation performance and develop their ability in risk management. Also, difficulties associated with restrictions on access to equipment and the point of failure to document these risks.

Fifth, developing what is called a framework to determine key measurable performance indicators, integrate risk management, and improve project management, especially in the field of signage related to high-rise buildings in Riyadh.

The ultimate goal of this study is related to making recommendations that support improving risk management in signage projects in previous buildings and analyzing, and the study aims to integrate the risk management process into project management.

This research also seeks to identify a type of measurement indicators that help institutions monitor them. These include risk identification rates, safety incidents, schedule variations,

costs, and project delivery production. These measurement-related indicators help improve risk management work. (PMI, 2021).

1.5 Study Questions:

There are many questions related to understanding risk management and the success of advertising signage projects related to high-rise buildings, especially in the work of Mismar Arabia Company

The first question: What are the types of risk management maturity that effectively affect advertising signage projects in high-rise buildings, especially those in the Mismar Al Arabiya project in Riyadh, and how are these risks identified and classified at the present time?

This question aims to identify the most important types of risks facing signage projects in high-rise buildings. This includes complex technical processes, different environments, installation risks, and also coordination between the concerned parties. The risks may be related to safety, logistical restrictions, environmental conditions, financial cracks, and engineering restrictions. This question also aims to explore how to identify risks and also understand the types of risks in an organized and systematic way. This research also allows for identifying the risk process Current enough to address various project-related threats.

The second question: How does Mismar Al Arabiya Company deal with the point of assessing risks and working to mitigate them in the project life cycle in general?

This question emphasizes the practical processes associated with Al-Mizmar Al-Arabiya Company in the company for evaluating the stages of project risk management. This

develops especially in the construction sector, and includes the beginning of the project, planning, and certification, as well as the installation stage, the end of the project, and its closure. The question also aims to study the effectiveness of risk assessment practices within the company and whether they are organized and proactive or not, and to reveal the methods used to analyze risk management, determine priorities, and implement mitigation measures by studying methods of dealing with Risks in the project life cycle and evaluating its effectiveness related to the management approach currently present in the company.

Question 3: How do risk management practices within Mismar Al Arabiya affect the control of assignments, adherence to schedule, customer service, safety standards, and overall project results.

Previous studies present project success through many elements such as quality standards, safety, customer satisfaction, stakeholders, achieving a specific timetable, cost efficiency, product efficiency, etc. Therefore, this question revolves around the idea of consoling project management, improving project success, and identifying risks early, which leads to preventing any reduction in Timetable and increase any cost. Also, identifying risks is one of the most important factors approved for the success of high-rise building signs projects.

The fourth question: How does the level of maturity related to risk management reflect projects in any company, especially Al Arabiya, in addressing recurring challenges and improving the performance of these projects?

One of the studies focuses mainly on the maturity of project practice within Mismar Al Arabiya Company and the impact of this maturity on managing project environments and also working to achieve consolidation of risk management within the company from other unified procedures. The study also aims to evaluate the maturity of the institution by

providing systematic and integrated practices and also the impact of maturity on the company's ability to respond to different challenges of delays in installation and organization, conflicting coordination and disagreement. The level of maturity helps to define an institution to achieve Success in project management.

Question 5: What is the practical environment that helps the company, as Mismar Al Arabiya Company, to enhance the integration between project management and the flexibility of projects related to signage for high-rise buildings?

This question specifically emphasizes the recommendations related to the results of the study by identifying the main risks and measuring the maturity of project management, and deletes the research to propose organized practical frameworks that are more integrated in linking risk management to the project management system within the company.

Also, in this context, the following demolishes the idea of defining risk responsibilities more clearly, making risk determinations, and coordinating between stakeholders of different interests. In addition, the study aims to establish different standards related to the timetable, varying costs, implementation rates, mitigation measures, safety performance, and the success of project completion. Therefore, the research aims to enhance flexibility and reliability, especially in the signage sector related to high-rise buildings.

Chapter Two – Literature Review & Theoretical Framework

2.1 Introduction

Project management or PRM has become one of the most important components of modern project management at the present time and is considered one of its most important practices and points, especially in sectors that are related to high levels of uncertainty and contain operational complexities. Among the most important of these sectors that are compatible with these features and characteristics is the development of the infrastructure and the construction and building sector due to the diversity of stakeholders in these sectors and the presence of strict organizational restrictions and complex technical requirements and circumstances with difficult working conditions. These factors It creates a kind of dynamic project environment where unexpected risks greatly affect project results in a negative way if management is not achieved correctly, especially risk management, which is linked to identifying potential risks, their impact, the possibility of their occurrence, and the various strategies used to mitigate these risks. According to PMI, (2021). Defining the concept of risk as an uncertain circumstance that can have two types of impact, negative or positive, on the project objectives, schedule, quality, and risk management that is carried out effectively makes the project more effectively predictable to cases of uncertainty and able to take proactive measures to reduce the failure of the project and its percentage.

Therefore, we find that the past two decades are the first and second in one century of researchers on the point of risk management and its role in improving projects and their performance Many studies indicate that institutions that adopt risk management in an systematic manner are able to control project schedules and costs, improve safety

conditions, and achieve high-quality results because risk management has become an ingenious administrative ability, especially in areas related to construction. (Waqar, et al .2023).

However, current and diverse research on risk management in construction projects provides that interest in specialized sectors such as the installation of signs in high-rise buildings is still relatively limited because there are unique operational conditions for these projects, difficult work environments, and challenges of interfaces and coordination between the designated device. Therefore, previous studies on risk management in the field of construction and project management help to understand the application of risk management practices, especially in related signage projects In high-rise buildings. (Qammaz & AlMaian, 2020).

2.2 Previous Studies

Hillson (2017):

Hillson (2017) conducted in-depth and intensive research on organized risk management practices in complex projects. The study focused mainly on the use of the ITOM methodology, which is a framework recognized by you and is broad and characterized by developing your criticism or methodology by identifying risks and planning the response to these risks and the project period. Hillson believes that risk management should not deal with activities as one, but rather within an integrated framework and an ongoing process that supports The channel is within the project from the establishment phase until the end of the project.

The study shows that institutions that implement proactive risk management processes have the ability to anticipate potential threats to projects and respond to them effectively.

According to Hillson, identifying risks more effectively in early stages improves the ability to implement mitigation strategies and work to ensure project stability. The results of this study indicate that organized risk management leads to the ability to predict the project and all its aspects and work to improve its performance and success.

Kerzner (2022):

Kerzner (2022) studied risk management and linked it to modern project management. He focused on Minya infrastructure and construction projects. This study confirmed that risks related to construction projects often have multiple sources, such as lack of coordination between stakeholders, environmental conditions, regulatory requirements, financial constraints, and technical uncertainties.

Kerzner explained that practicing effective risk management enables the project manager to reduce doubts and also work to achieve project goals. This study shows that institutions that have strong risk management do not suffer from project delays and their costs do not exceed the required rate. It also reduces violations of these assignments, improves operational efficiency, and also studies and may integrate risk management into what is called institutional project management, in order to proactively address many risks.

Project Management Institute (2021):

The project management institute called PMI offers one of the most comprehensive systems in project risk management through what is compensated by the PMBOK Guide. According to the 2021 Project Management Index, risk management contains a set of

processes that include the point of identifying and communicating risks and their type, a sincere qualitative analysis, then a quantitative analysis of them, planning the level of response to these risks, and monitoring these risks.

The PMBOK Guide framework emphasized the need to fully integrate risk management during the project life cycle. Zochang & Wang (2007) conducted a study that focused mainly on risk management in construction projects. Questionnaires were used as the main method and the researchers analyzed the perceptions of construction professionals about the points and risks that affect project performance.

This study identified a set of categories that include critical risks, including financial, technical, and safety risks, and the point of lack of coordination between stakeholders associated with this project. Production to construction projects witness many delays and cost overruns due to the absence of risk management or weakness of risk management practices within the project, and therefore the researchers concluded that great effective management improves project management and reduces the possibility of its failure.

Ubundi (2022):

Aubondi (2022) conducted a study that monitored the relationship between project risk practices and monitoring and success in the construction field mainly. The study aimed at the impact of risk monitoring on project performance in general in the construction field. It brought together specialists and project participants and used the statistical analysis method to study the relationship between project success and the use of risk management and practices. The results revealed that risk monitoring and control lead to a re-evaluation of the addressee Reviewing them, analyzing emergency precautions, and reviewing risks are positively related to the success of the project. The study concluded mainly that

construction institutions that target project risks and re-evaluate them regularly have the ability to improve project results and reduce unexpected demands. The research confirmed that many construction projects may face failure, not only due to failure to identify risks, but also due to the failure of the underlying institution to continuously assess these risks during project implementation. The study highlighted the importance of continuous monitoring of risks that are a legitimate success in the effective success of the project, especially in complex work environments. (Do, et al. 2022).

Table 1 summarizes key previous studies related to Project Risk Management in construction and project management environments.

Author(s)	Year	Focus of the Study	Methodology	Key Findings
Hillson	2017	Risk management processes in complex projects	Conceptual framework and case analysis	Structured risk management improves project predictability and supports proactive mitigation of project risks.
Kerzner	2022	Role of risk management in project success	Analytical review of project management practices	Organizations that integrate risk management into project management systems achieve

Author(s)	Year	Focus of the Study	Methodology	Key Findings
				better cost control and schedule performance.
PMI (PMBOK Guide)	2021	Project Risk Management framework in the PMBOK Guide	Development of standardized project management framework	Risk management includes identification, analysis, response planning, and monitoring processes that improve project decision-making.
Chapman & Ward	2003	Risk and uncertainty management in project environments	Conceptual and theoretical analysis	Systematic management of uncertainty improves project resilience and decision-making.
Aven	2016	Risk analysis and decision-making in uncertain environments	Theoretical research	Risk analysis improves decision-making by evaluating the

Author(s)	Year	Focus of the Study	Methodology	Key Findings
				probability and consequences of uncertain events.
Zou, Zhang & Wang	2007	Risk management practices in construction projects	Survey-based empirical research	Technical risks, financial risks, and stakeholder coordination significantly influence construction project performance.
Obondi	2022	Relationship between risk monitoring practices and project success in construction projects	Quantitative survey research	Continuous risk monitoring and reassessment significantly improve project success and reduce unexpected disruptions.

Table 1 - Summary of Previous Studies on Project Risk Management

The table summarizes the importance of previous studies related to project risk management, especially in the field of construction, infrastructure and project management.

It is permissible to emphasize the importance of literature or literary studies and their continuous review to manage risks in structured projects and their positive impact on improving project performance, especially in the infrastructure and construction sector. Researchers have confirmed in the studies that were examined that the point of systematically identifying risks, conducting risk analysis, and a strategy that carries the meanings of mitigating proactiveness work to reduce the degree of uncertainty within projects and improve decision-making processes. Therefore, we find that Hilson (2017) stressed the importance of constantly identifying risks As a main type of confronting any problems related to projects, especially in the early stages of the project or at its beginning. One of the other involved Citizens 2022 that organizations that manage risks in managing their projects have the highest degree of control over these projects and the highest operational efficiency.

Also, the PMI Project Management Institute 2021 has established risk management as one of the business processes that must be present in projects and in all stages related to the project in the project life country, and also training research in the construction sector has effective results, as Cheng Wong 2007 explained that the technical, financial and environmental plan that It is linked to coordination and is considered one of the factors affecting the project, and this was confirmed by Obendi 2022, who stressed that the place of continuous risks It is considered one of the most important factors for the success of any project, especially complex projects such as infrastructure and construction.

Although there is a strong consensus on the importance of organized risk management, most current studies have focused on construction and infrastructure projects, but on a large scale and have dealt in a limited way with the signage sector in buildings. These projects have unique operating points that are different from other projects, complex environments, and a loss of coordination between stakeholders within the project, which leads to the need for more research and studies that ensure agreement in this specific project related to signage for high-rise buildings.

2.3 Comparison of previous studies

The studies that were the subject of the problem are that there is almost complete agreement among researchers about the importance of risk management and its ability to improve project performance. Most studies confirmed that determining the priority of risks, analyzing them, strategizing them, and using a memory systematically is necessary, especially in complex projects that enjoy a high degree of uncertainty.

Hillson (2017) and Chapman Ward 2003 emphasized the importance of identifying stakeholders early and managing these risks in advance to predict the project and improve it. Kerzner (2022), in agreement with Ray from the Institute for Project Management 2021, emphasized that organizing project management plays an effective role in supporting effective risk management.

However, it has provided diverse and valuable studies on construction and infrastructure and so primarily on large-scale construction projects or project management practice and few studies have addressed the unique challenges in the field of building signage especially related to the installation point.

2.4 Research Gap

Although there are many studies related to project risks in construction projects, most of these studies dealt with project risk management in general and did not focus mainly on aspects such as signage in buildings, and also studies that focused on this point in a very modified way. Most studies dealt with construction risks in general and did not address a sector such as the high-rise signage sector.

Signage projects in high-rise buildings have included several risks that differ from other sectors, as there are limited access to installation, and also the lifting operations are very complex, and the integration of facades has many restrictions, and there are factors on different days, strict and strong organizational requirements, and this has led to the presence of a different risk environment that differs from Traditional construction projects.

This study was deleted to fill the gap by studying the impact of organizational risk management on the success of projects and so on mainly on the signs of high-rise buildings in Riyadh. I used the case of the Masmar Al Arabiya project as an example, which revolves around this company in the signage sector, and the study focused on presenting a difference about risk management practices in these environments, which are considered a type of environment specialized in construction projects, and the contribution of risk management to the development of these projects.

2.5 Research Hypotheses

According to the various studies, relationships and concepts that discussed this study related to project risk management, especially in the signage sector related to high-rise buildings, the hypotheses included the following

The first hypothesis: The positive impact of project risk management on project costs, especially in the field of signage in high-rise buildings.

Null Hypothesis 1: There is no significant relationship between project risk management practices and project cost performance.

Null Hypothesis 2: There is a positive impact of project risk management on the project schedule in the field of signage associated with high-rise buildings.

The second zero hypothesis: There is no significant relationship between project risk management and schedule performance.

Hypothesis 3: Project risk management positively affects project safety performance within these projects in the field of signage in high-rise buildings.

Is there an effective moral impact of risk management on safety performance in projects in the third zero hypothesis.

Hypothesis 4: There is a positive effect of maturity in project risk management on the overall success of the project in the field of crumbs in high-rise buildings.

Fourth Zero Hypothesis There is no complete and significant impact of project management risk maturity on the overall success of the project.

2.6 Theoretical framework:

This study is based on certain points related to project risks, which are a complete understanding of these risks, identifying them, analyzing them, and controlling them in an organized manner throughout all stages of the project. The theoretical basis was set mainly by the opinions of the PMI Project Management Institute, which defines project risks as a process mainly related to integration and repetition, and includes the following main stages:

The first stage is identifying risks

The second stage is the qualitative and quantitative analysis of these risks

The third stage is advance and complete planning to respond to risks

The fourth stage is these risks and their control.

The theoretical framework also includes the idea that the success of the project is a multi-dimensional construction measured by specific points related mainly to the timetable, the cost element, the quality and peace element, and also ensuring the satisfaction of all stakeholders. The central theoretical assumption is that the highest maturity in project risk management leads to a proactive or prior awareness of these risks and the development of a strategy to confront them, which leads to strong project performance.

2.7 Explanation of the Theoretical Framework:

The theoretical framework provides the basis for the study of the concepts related to research and also address the impact of project risk management on the success of these projects. Therefore, if we look at the project literature, project risk management is considered a systematic process that helps identify uncertainties or potential problems facing projects and use specific strategies to confront and mitigate the negative impact of these risks, according to the PMI Project Management Institute 2021). The study analyzes risk management as a management system and an organized and effective management capacity, and not as an operating activity only in an interactive manner. The risk management process starts from certain points such as identifying or defining risks, which is identifying the events associated with the project and the risks. According to Hillson (2017), early identification of risks is one of the most important points that help understand all the difficult points facing the project, especially in signage projects in high-rise buildings. Risks increase as a result of several problems. Prior knowledge of these risks leads to easy access to equipment and dealing with environmental conditions and regulatory approvals in a way that facilitates the project and works On its development.

The final part of the framework is weighing the control point and its risks, which includes managing risks throughout the life of the project. Many intentional activities are linked to the project manager, including evaluating the effectiveness of these strategies and their ability to mitigate risks during project implementation. Continuous monitoring is considered an effective element, especially in difficult-to-complex construction environments that change according to the circumstances of each project.

In addition to the framework of the PMI Project Management Institute, which includes the RMMM risk management model, which assesses the level of organizational ability in project risk management, institutions develop through several stages of risk management development, starting with the use of informal approaches and ending with organized and proactive risk management systems Hillson (2017).

By assessing the level of maturity of project management and the risks that are consistently consistent with Arabic, we find that this study aims to comprehensively understand the impact of organizational risk management capabilities on project results. Here, risk management targets the organizational element as an effective element in project management and the impact of the organizational element on the potential risks facing the project.

The integration of these theoretical perspectives is based on a conceptual basis or is related to the concept as a whole of the research. The work of the PMI Project Management Institute explains how the work system in risk management works, while the maturity model will relate to the whole and the organization of the effectiveness of these processes. This theory is supported by the basic individual community of the study, which is that higher levels that are linked to the maturity of organized risk management contribute mainly to improving project performance, especially in the signage sector in high-rise buildings.

2.8 Theoretical Premises of the Study:

This study is based on the hypothesis that risk management that works effectively plays an important role in the success of projects, especially in complex environments. You have

risks such as the process of installing signs in buildings. These are characterized by installation works that smile on the environmental technical complexity, strict safety requirements, and the need for coordination between many concerned parties.

Environmental factors are prepared and affect the performance of projects in cases of lack of leadership significantly, which is affected if there is no management Sound and effective.

In the project management literature, risk is defined as the concept that is associated with an uncertain circumstance or event that affects the project in all aspects. According to the PMI report, an uncertain circumstance affects quality, time scale, schedule, spatial scope, and project cost. Therefore, project risk management is a systematic process determined by institutions.

Accordingly, managing the risks of potential projects, evaluating their occurrence and consequences, and developing strategies to mitigate or manage their effects. Effective risk management enables project teams to anticipate these challenges facing the project and stimulate the project's chances of success.

In the construction sector, risk management is characterized by increased uncertainties due to the complexities of projects and includes dynamic work environments and technical interconnections between different project activities, which include suppliers, designers and contractors. Kerzner (2022) explained that projects that are related to risk management and depend on the presence of effective management are more capable of controlling cracks related to the project and achieving goals related to cost efficiency, operational safety, state standards, and adherence to the timetable.

Signage projects in high-rise buildings represent a very complex category of construction as they require the integration of architectural design, facade coordination, operation of lifting equipment and strict safety measures unlike traditional construction activities.

Therefore, the installation of signs in buildings requires coordination challenges as well as specific regulations in building management and a system in access equipment. Therefore, the ability to identify potential risk management is considered one of the decisive factors for the success of projects.

In addition, environmental conditions are considered one of the elements facing the high-rise building signage project in terms of wind speed, compensation, limited access to installation, and connection to safety and its systems, which adds more additional levels of uncertainty, which must be addressed in the presence of risk management with an effective approach, and according to Hillson (2017) Identifying risks in advance allows those above work to take preventive measures, and a proactive approach in organizations helps to interact with problems and develop Risk management strategies to deal with different challenges throughout the project period.

Based on these theoretical perspectives, this study hypothesizes that the success of projects related to high-rise building signs is linked to the point of maturity in managing project risks implemented by work teams, as well as integrating risk management processes in a systematic manner and coordinating purchases to mitigate them, which leads to the cessation of these risks before they turn into operational problems.

So in the study the following hypotheses are proposed

The study deals with the first hypothesis, which is that projects related to high-rise building signs are dynamically exposed to risks and depend greatly on the project conditions. This

contributes to the role of early identification of potential risks during the different project periods of planning, design and organization. This helps reduce the recurrence of some work points and also helps reduce costs and adherence to timetables.

The second hypothesis, and this individuality, is related to the fact that integrating the project risk compression process into level planning and design coordination, including executive drawings, logistics systems, equipment preparation, and time schedule documenters, reduces operational returns during the various stages of the project, especially during its implementation.

The third hypothesis is related to critical safety, such as protection systems from working at heights, as well as lifting operations, and environmental safety limits, such as wind speed limits, are considered basic requirements for the success of the project in installation environments.

The fourth hypothesis shows the institutions that work to consolidate server management practices through specific roles, as well as creating structured confrontation lists and using measuring indicators, which leads to a higher level of consistency in performance and project success. In addition to these premises, the study emphasizes the importance of organizational and administrative factors in applying risk management, and that risk management is an administrative and leadership practice and an organizational culture more than a technical process because it provides communication between stakeholders in the project. It promotes a culture of proactive awareness of these risks and also helps in decision-making, as it is primarily an organizational, administrative and cultural process.

Therefore, commitment to the leadership point is considered one of the most important guarantees for the effectiveness of risk management in all project teams. Therefore,

projects enhance the identification of risks, which leads to confronting points of uncertainty in the project and the project teams become more capable of dealing with risks.

Organizations often fail to deal with risk management as an administrative requirement in order to achieve the success of the project, as it is an organizational, leadership and technical requirement.

Therefore, theoretical points and research confirm that effective risk management does not only celebrate technical tools or checklists, but rather is a comprehensive administrative ability to adhere to organizational and decision-making institutions by studying theoretical hypotheses in the context of projects such as the Misamr EL Arabia in Riyadh. The study also seeks to provide a more in-depth understanding of risk management and its impact on project success.

Chapter Three – Research Methodology:

This study is mainly based on the interpretive approach that combines two types: using the quantitative and qualitative approach in order to provide an integrated and comprehensive understanding of the division of project risk management practice into the signage sector in high-rise buildings, taking into account skyscrapers in Riyadh in the Kingdom of Saudi Arabia, and this methodological design is consistent with the goal of the study to measure The relationship between mature project risk management and project results and the interpretation of the mechanisms that form the relationship within the Mismar Al Arabiya project, which is considered One of the projects related to signage in high-rise buildings,

research that combines quantity and quality has become popular, especially in the study of project management, as this enables researchers to combine statistical measurement with contextual understanding of organizational practices, according to Cresswell 2018. He also explained that complex project environments, especially for construction projects related to infrastructure before we find digital indicators for them, are only useful for research, but this requires how to influence administrative decisions and operational constraints. The mixed approach, which combines quantity and quality, is consistent with the theoretical foundations and research objectives presented in the previous chapters of the study. Many literatures also contain that risk management in complex environments such as hundreds of buildings requires quantitative and qualitative understanding and measurement, as we find that organizational behavior, administrative decision-making, and operational coordination, so we find that risk management is not only a technical process, but also an administrative, organizational, and leadership process. Kerzner (2022).

Moreover, the systematic approach directly supports the theoretical hypotheses previously developed in studies, which indicate that practicing risk management in an organized manner and applying it in a systematic manner has a positive impact on the success of the project and its indicators. The most prominent of these is the performance of timetables and safety results and achieving a state of satisfaction for stakeholders in all their directions, as well as controlling costs. The characteristics of effective risk management are that it enables the different project to face challenges with Project predictability and stability. (Institute of Project Management 2022).

3.1 Research design:

Then, from this research, according to a sequential interpretation system, where the quantitative results were linked to qualitative insights into its foods, this sequential interpretation design is widely used in project management research in particular, and it also makes it easier for researchers to determine statistical relationships between the different variables associated with risk management in signage projects in high-rise buildings, as Cresswell 2018 explained, exploring latent explanations and different relationships between variables helps risk management succeed in achieving its goals.

As for the quantitative phase, it was similar to a structured questionnaire that includes from 20 to 30 projects that address guidelines found in skyscrapers in Riyadh between the years of the relationship between project risk management and success indicators. These projects were implemented in Riyadh between 2021 and 2023. This phase aims to conduct a statistical evaluation of the relationship between project risk management and the level of maturity in it, success indicators that include the quality of results, customer satisfaction, commitment to timetables, etc. It was done These results are based on quantitative data from multiple regular projects. This study seeks to identify the correlations between the division of different levels of risk management application on project performance. (Shayan, et al. 2022).

Quantitative approaches and the great importance of studying the relationship between management practice in the field of risk management and measurable project results, including safety incidents, schedule delays, and cost variance and difference (Kirzner, 2022). The survey results also provide empirical evidence on project risk management, project performance and its impact.

The qualitative phase is completed specifically through conducting semi-structured interviews with the participating specialists, health and safety, project managers and those related to the environmental aspect. These interviews are designed to explore the challenges applicable to implementation and organizational practices related to project risk management and the practical services available within Mismar Al Arabiya Company, which provides it with a different quality and a deeper understanding of real risk management and how risk management affects the decision-making process and the different periods of the project or the entire project life cycle.

As for the sampling strategy, the study relied mainly on purposeful samples by selecting projects related to commercial signs and related to commercial signs installed on facades, steering columns, sign structures, etc. The sampling method was relied upon in particular for this research to focus on identifying projects that include complex installation conditions and operational addresses. This ensures the selection of projects with mostly rational outcomes related to the installation of signs in high-rise buildings such as skyscrapers In Riyadh and elsewhere, there are building heights, facade mergers, access restrictions, and coordination with construction contractors in other locations. (Balkis, et l.2021).

In research related to construction management, the sample relies in its method on repeatedly studying specialized project environments and industrial practices (Liu,2105). By studying multiple types of projects within the same organization, the study enables us to analyze risk management practices in diverse environments and their impact on project outcomes.

Data sources:

The study relies on a combination of primary and secondary sources to ensure the reliability and validity of the research results and to provide a comprehensive understanding of risk management in projects related to signage in high-rise buildings.

Initial data:

Initial data is collected through structured questionnaires and semi-structured interviews with specialists in implementing project management related to signage in high-rise buildings. The questionnaire component aims to measure indicators related to the application of risk management from projects and its impact on project success variables such as safety performance, quality of results, etc. In addition, interviews with the health and safety officer, site engineer, and project manager provide insights into the application of risk management in reality and monitoring these risks through the use of Different project tools and how the project differentiated for operational certainty cases, and also the initial data is different and diverse and includes roles Professional study is to provide a comprehensive understanding of risk management practices from an organizational perspective. Chris Weil (2018).

Secondary data:

Secondary data is extracted from internal documents related to the project and registered with Mismar Al Arabiya Company, and these documents may include project risk records, operations related to safety audits, progress reports, accident records, and various evaluations related to project performance. What these documents provide is evidence about the risk management practices applied and allows the researcher to verify and support

the category extracted from interviews and questionnaires, and also in the use of secondary data supports the credibility of the research and works to provide multiple and diverse evidence. Saunderson, et 2019.

Measurement framework:

To evaluate the effectiveness of project risk management practices, this study uses a measurement framework to assess the extent to which risk management improves project performance. This indicator measures the extent to which risk management improves project performance. The maturity of project risk management allows the study to evaluate a type of organizational efficiency, which includes identifying, analyzing, and managing project risks in a systematic and effective manner, which is the life cycle of the project Kerzner (2022).

The project risk management maturity framework includes several dimensions, including procedures, policies, and their durability, as this study provides an understanding of the existence of formal risk management policies and departments and the application of all these structures in all projects. It also examines the use of formal tools and procedures for risk identification, assessment, response planning, and monitoring across project stages, as it is above projects to evaluate and assess risk records and review risk mitigation in the various project stages of planning and implementation. The third point is efficiency above the project to evaluate the level of knowledge, training and experience of the project manager, engineers, employees and also safety engineers. The fourth point is related to adding risks by integrating them into scheduling systems, controlling costs, and measuring risk considerations in planning processes, including allocating materials, estimating costs,

49

and managing the schedule. The fifth point relates to safety performance indicators related to accident rate measures recorded during the project, called TRIR, absentee accidents, and also measurable evidence related to environmental safety and the high-risk installation process (Ambati, et al. 2022).

The sixth point is related to the standards related to quality, satisfaction of stakeholders, and quality of project outputs from technical specifications and general performance standards related to the project. These influences are available collectively as an organizational framework for evaluating maturity in customer relations management and their impact on the success of the project in the field of installing high-rise building signs.(Perera, et al.2014).

Chapter Four – Data Analysis:

The issue of Download the development data collected from questionnaires using descriptive statistics and also doing correlation analysis. I agree with the descriptive parts. A general look at the distribution of responses across the main variables, while an analysis will be made of the relationship between the strength of the relationship between project risk management and maturity and the associated indicators Project success.

Regression analysis is used to statistically identify higher levels associated with risk. The use of different statistical techniques concludes regression analysis, and this also appears commonly in project management practices related Kerzner (2022) project performance indicators.

Many qualitative data collected from interviews are cut for objective analysis, and this analytical method enables the researcher to provide recurring insights and different patterns of risk management practices, organizational culture, leadership influence, and operational decision-making.

4.1 Rationale:

Perhaps the design is a penetrating research as a result of the nature of project risks or the management of risks associated with projects in the signs of interesting buildings with a difficult and complex nature characterized by uncertainty and complex processes such as safety and narrowing of the location of the different side and the request for this to manage project risks in an impact on the success of the project from the quantitative and qualitative side.

How much can statistical analysis be used by measuring the relationship between maturity in project risk management and the main performance influences of cost control, adherence to the schedule, quality of performance, safety results, etc., as well as customer satisfaction and quantitative methods are considered among the most important points of value for researchers in project risk management because they help identify patterns and correlations and create a predictive relationship with project results. Kerzner (2022).

However, the digital aspect alone is completely beyond the scope of one organizational approach in managing risks in difficult environments, ensuring between two types: quantitative and qualitative, because it is linked to organizational and administrative aspects related to the decisions made by professionals in high-rise building signage projects. According to Cresswell 2018, quality and its integration into a hybrid design and

approach enables researchers to interpret more deeply statistical results related to project risk management.

In addition, using different and multiple data sources, such as interviews and project documents, adds a great deal of reliability to systematic research and is called systematic triangulation because it relies on three different sources, as Saunders et al. (2019) explained.

Also, we present a comprehensive Italian study of how organized risk management practices contribute to improving project results in installing signs related to high-rise buildings. This ensures that the study adds organizational aspects that affect the success of the project to measuring risk management practices.

1. Study tools:

To ensure comprehensive and effective data collection, this study uses questionnaires, qualitative interviews, and document review procedures related to project risks and high-rise building signs.

The first method is a questionnaire organized by collecting basic data in the study and using organized development, distributed to specialists in building signs in projects. The questionnaire is divided into several points related to the balance of risk management and project performance results. The first section collects information related to the demographics, professionalism of the participants in this questionnaire, their years of experience in projects, their level of education, etc. The second section focuses on the most important types of risks associated with high-rise building signs. Participants identify the

type of recurring risks, whether technical, safety-related, altitude-related, coordination-related, environmental risks, external factors, or financial risks. (Vahedi Nikbakht, et al. 2024).

The third section also deals with risk management practices applied in projects using a scale based on five points ranging from "Strongly Disagree" to "Strongly Agree."

Participants evaluate the risk assessment procedure across the different project stages.

The fourth section shows the expected impact of addressee management practices on the success of the project, with a request to evaluate the extent of effective risks in improving key project performance indicators, including adherence to the timetable, quality deadlines, safety results, and customer satisfaction.

The fifth section measures risk management practices within the organization, and participants evaluate whether these different practices are interactive and basic or non-sticky and disorganized, and evaluates additional questions that depend on the Y scale, making quick use of fats, and reducing these risks in the future.

Section five measures the maturity of risk management practices within an organization.

Participants evaluate whether these practices are interactive, basic but inconsistent, organized and regularly applied, or fully integrated into project management processes.

Additional questions on the Likert scale evaluate administrative support for proactive risk management and the use of lessons learned from previous projects to reduce future risks.

Finally, the survey includes a question aimed at identifying opportunities for improvement in the organization's risk management systems.

Most survey items are measured using a five-point Likert scale, which ranges from 1 (strongly disagree) to 5 (strongly agree), allowing the study to quantitatively analyze the relationship between project risk management practices and project success indicators.

The use of standardized Likert scale questions allows the researcher to apply statistical techniques such as descriptive analysis, correlation analysis, and regression analysis to examine the relationship between project risk management practices and project success indicators.

2. Semi-structured interviews

To complement the quantitative survey data, semi-structured interviews will be conducted with key project stakeholders, including project managers, engineers, and Health, Safety, and Environment (HSE) officials. These interviews aim to gain a better understanding of how risk management practices are implemented and how project teams respond to operational challenges in high-rise building signage facilities.

3. Document checklist

In addition to surveys and interviews, relevant project documents will be reviewed to validate the information collected. These documents may include risk records, safety reports, work procedures, lifting plans, and project progress reports. Document analysis provides objective evidence of how risk management practices are implemented in projects and contributes to enhancing research reliability through data triangulation.

Together, these research tools allow the study to obtain quantitative data on risk management practices and qualitative insights into how these practices impact the outcomes of signage projects in high-rise buildings in Riyadh.

4.2 Fields of study:

This study falls within the academic discipline of project management and relates to various related fields, such as construction management, industrial design, and occupational health and safety. The integration of these disciplines reflects the complex and multidisciplinary nature of signage projects in high-rise buildings, which require coordination of technical design, engineering implementation, safety management and structured project governance. By combining concepts from these areas, the research seeks to provide a comprehensive understanding of how project risk management (PRM) practices impact project performance in specialized construction environments.

Within the field of Project Management, this research focuses specifically on the application of structured Project Risk Management frameworks and their role in project success. Modern project management practices emphasize the importance of anticipating uncertainties, systematically identifying risks, and implementing proactive mitigation strategies throughout the project lifecycle. In complex project environments, effective risk management significantly contributes to improved decision-making, optimized resource allocation, and ensuring the achievement of project objectives related to cost, schedule, quality, and safety. (Tripathi, P., & Mittal, 2025).

At the same time, the study draws heavily on construction management principles, as the installation of signage on high-rise buildings shares many operational characteristics with

construction and infrastructure projects. These projects involve coordination among multiple stakeholders, including designers, engineers, contractors, safety specialists, and regulatory authorities. They also require detailed planning of logistics, structural integration with building facades, lifting operations, installation sequencing, and compliance with safety standards. Consequently, construction management practices provide an important framework for understanding how they arise. (Tripathi, P., & Mittal, 2025).

Another important dimension of the study relates to industrial design and signage engineering. Signage projects in high-rise buildings are not merely engineering tasks; they also involve significant creative and design elements. The fabrication of signage structures requires the integration of aesthetic considerations, branding requirements, lighting systems, structural components, and materials engineering. This intersection of design and engineering introduces additional complexities to project planning and execution, especially when signage elements must be integrated with existing building facades or installed at great heights.

The study also relates to the field of occupational health and safety, which plays a critical role in projects involving work at height and heavy lifting operations. Signage installations in high-rise buildings expose project teams to various safety risks, such as working on facades, operating lifting equipment, handling heavy structural components, and working in diverse environmental conditions, including exposure to wind and weather. Consequently, safety management and risk control measures are essential components of project planning and execution. Integrating safety considerations into project risk management practices helps reduce accidents, protect workers, and ensure regulatory compliance.

Furthermore, the study is contextualized within the rapid urban transformation taking place in Riyadh, heavily influenced by development initiatives associated with Saudi Arabia's Vision 2030. The expansion of commercial districts, high-rise buildings, and large-scale infrastructure projects has significantly increased the demand for complex signage systems and architectural visual identity installations. These developments have generated new operational challenges for signage manufacturing and installation companies, requiring advanced coordination, stringent safety standards, and effective risk management practices.

Within this dynamic environment, the research focuses specifically on the specialized subsector of signage manufacturing for high-rise buildings, facade integration, and heavy lifting operations. Projects in this sector present unique challenges due to the combination of creative design requirements, engineering constraints, installation logistics, and high operational risks. Unlike conventional construction activities, signage projects typically require precise coordination among designers, structural engineers, facade specialists, and installation teams to ensure both aesthetic quality and structural safety.

By integrating insights from management science and applied engineering disciplines, this study seeks to develop a holistic understanding of how project risk management (PRM) maturity, leadership practices, and organizational culture influence project outcomes in high-risk installation environments. The research explores how structured risk management systems can support better project planning, reduce operational uncertainties, and improve overall project performance.

Ultimately, the study positions Mismar Al-Arabia as a representative case study for examining the implementation of structured project risk management practices in the

signage and construction industries of Saudi Arabia. Through this case-based approach, the research contributes to both academic knowledge and industry practice by providing insights into how proactive risk management frameworks can improve the safety, efficiency, and success of projects in specialized construction environments. In this way, the study aims to support the development of more resilient and sustainable project management practices within Saudi Arabia's rapidly evolving built environment.

Chapter Five – Survey Results & Analysis

5.1 Introduction

High-rise signage projects represent a complex intersection of engineering, design, safety, and project management. These projects typically involve installing large-scale signage on tall buildings, often in urban environments where risks are amplified due to height, weather conditions, logistical constraints, and regulatory requirements. As a result, effective risk management becomes a critical determinant of project success.

Risk management refers to the systematic process of identifying, analyzing, responding to, and monitoring risks throughout the lifecycle of a project. In high-rise signage projects, risks can emerge from multiple sources, including technical challenges, safety hazards, financial uncertainties, and external factors such as weather or government approvals. Without proper risk management, these risks can lead to delays, cost overruns, compromised quality, and even accidents.

This analysis focuses on Mismar Al Arabia as a case study to evaluate how risk management practices influence the success of high-rise signage projects. The study is based on survey data collected from professionals within the company, including project managers, engineers, safety officers, and management personnel. The responses provide valuable insights into how risks are perceived, managed, and mitigated in real-world project environments.

The purpose of this analysis is to explore the relationship between risk management practices and key project success factors such as cost control, schedule performance, quality standards, safety, and client satisfaction. Additionally, it examines organizational support, the use of lessons learned, and areas where improvements are needed.

5.2 Overview of the Dataset and Respondent Profile

The dataset consists of responses from professionals with varying roles, experience levels, and educational backgrounds. Most respondents are highly experienced, with a significant proportion having more than 10 years of experience in project management. This indicates that the data reflects informed opinions from individuals with substantial practical knowledge.

The roles represented include:

Project Managers

Engineers (site, planning, technical)

HSE (Health, Safety, and Environment) professionals

Management staff

In terms of education, most respondents hold at least a bachelor's degree, with several holding master's degrees or higher. This suggests a well-qualified workforce capable of understanding and implementing structured risk management practices.

The diversity in roles and experience enhances the reliability of the findings, as it captures perspectives from both strategic and operational levels within the organization.

5.3 Types of Risks in High-Rise Signage Projects

One of the key findings from the dataset is the identification of the most critical types of risks affecting projects.

Safety Risks:

Safety risks, particularly those related to working at height and lifting operations, are the most frequently identified. This is expected given the nature of high-rise signage projects, where workers operate in hazardous environments.

These risks include:

Falls from heights

Equipment failure during lifting

Unsafe working conditions

The prominence of safety risks highlights the importance of strict safety protocols and continuous monitoring.

External Risks:

External factors such as weather conditions, regulatory approvals, and government policies also play a significant role. These risks are often unpredictable and outside the direct control of the project team.

Examples include:

Delays due to permits

Adverse weather conditions affecting installation

Changes in regulations

Financial Risks

Financial risks are another major concern, including budget overruns, fluctuating material costs, and unexpected expenses.

Technical and Design Risks

Technical issues, such as design errors or structural challenges, can significantly impact project timelines and quality.

5.4 Risk Identification Practices

A strong majority of respondents indicated that risks are identified before the start of projects, with many selecting “Yes, always.” However, a smaller group reported that risk identification occurs only “sometimes,” indicating inconsistency in practices.

Early risk identification is critical because:

It allows proactive planning

It reduces uncertainty

It improves decision-making

The presence of inconsistent responses suggests that while risk identification is generally practiced, it may not be uniformly implemented across all projects.

5.5 Risk Assessment Across Project Phases

The data shows strong agreement that risk assessment is conducted during all project phases, including design, procurement, and installation.

This comprehensive approach is essential because risks evolve over time:

Design phase: technical feasibility risks

Procurement phase: supply chain risks

Installation phase: safety and operational risks

Continuous risk assessment ensures that emerging risks are identified and addressed promptly.

5.6 Risk Monitoring and Updating

Most respondents strongly agree that risks are regularly monitored and updated throughout the project lifecycle. This indicates a dynamic approach to risk management rather than a static one.

Effective risk monitoring:

Tracks changes in risk levels

Identifies new risks

Ensures mitigation measures remain effective

However, a few responses indicate disagreement or neutrality, suggesting room for improvement in consistency.

5.7 Risk Mitigation Planning

Risk mitigation plans are generally perceived as clear and practical, although some respondents expressed neutral or less positive views.

Effective mitigation strategies include:

Safety training programs

Backup suppliers

Contingency budgets

Engineering redesigns

The mixed responses suggest that while mitigation plans exist, their clarity and practicality may vary across projects.

5.8 Impact of Risk Management on Project Success

One of the most significant findings of the study is the strong consensus that effective risk management positively impacts all major dimensions of project success.

Cost Control:

Most respondents strongly agree that risk management improves cost control. By identifying potential financial risks early, companies can:

Avoid unexpected expenses

Allocate resources efficiently

Maintain budget discipline

Schedule Performance:

Risk management helps prevent delays by addressing potential obstacles in advance. This is particularly important in high-rise projects, where delays can be costly.

Quality Standards:

Effective risk management ensures that quality is not compromised. By mitigating technical risks, companies can deliver projects that meet client expectations.

Safety Performance:

Safety is the most critical aspect of high-rise signage projects. The data shows overwhelming agreement that risk management improves safety outcomes.

Client Satisfaction:

Projects that are completed on time, within budget, and with high quality naturally lead to higher client satisfaction.

Organizational Risk Management Maturity:

The responses indicate varying levels of risk management maturity within the organization.

Some respondents describe risk management as:

“Fully integrated into all projects”

“Structured and regularly applied”

Others describe it as:

“Basic but inconsistent”

“Reactive”

This variation suggests that while the company has established risk management practices, there is still inconsistency in implementation.

5.9 Management Support for Risk Management:

Management support is a crucial factor in the success of risk management practices.

The majority of respondents agree that management supports proactive risk management. However, a few respondents disagreed, indicating that support may not be uniform across all departments or projects.

Strong management support leads to:

Better resource allocation

Stronger safety culture

Improved compliance with procedures

5.10 Lessons Learned and Continuous Improvement

Most respondents strongly agree that lessons learned from past projects are used to reduce future risks. This is a positive indicator of organizational learning.

Using lessons learned helps:

Prevent repeated mistakes

Improve processes

Enhance decision-making

However, some neutral responses suggest that this practice could be further strengthened.

5.11 Need for Stronger Risk Management Systems

Interestingly, many respondents agree that the company needs stronger risk management systems, despite acknowledging the effectiveness of current practices.

This indicates:

Awareness of gaps

Desire for improvement

Recognition of increasing project complexity

Potential improvements include:

Digital risk management tools

Standardized procedures

Enhanced training programs

5.12 Discussion

The findings of this case study highlight the critical role of risk management in ensuring the success of high-rise signage projects.

Key Insights:

Safety risks are the most significant concern

Risk management positively impacts all success factors

Practices are generally strong but not fully consistent

Organizational support is present but varies

There is a clear need for continuous improvement

The study demonstrates that risk management is not just a technical process but a strategic function that influences overall project performance.

5.13 Recommendations

Based on the analysis, the following recommendations are proposed:

1. Standardize Risk Management Practices

Develop unified procedures to ensure consistency across all projects.

2. Enhance Training Programs

Provide regular training on risk identification, assessment, and mitigation.

3. Strengthen Safety Systems

Invest in advanced safety technologies and stricter protocols.

4. Implement Digital Tools

Use software solutions for real-time risk monitoring and reporting.

5. Improve Management Engagement

Ensure consistent support from leadership at all levels.

6. Expand Lessons Learned Systems

Create a centralized database for knowledge sharing.

5.14 Conclusion

This analysis demonstrates that effective risk management is a fundamental driver of success in high-rise signage projects. The case study of Mismar Al Arabia shows that while the company has strong risk management practices in place, there is still room for improvement in consistency, system strength, and organizational integration.

The findings confirm that risk management significantly enhances cost control, schedule performance, quality, safety, and client satisfaction. As projects become more complex, the importance of robust and proactive risk management will continue to grow.

Ultimately, organizations that invest in improving their risk management systems will be better positioned to achieve successful project outcomes and maintain a competitive advantage in the industry.

5.15 Survey Tables

Table 1

Category	Response	Count
Risk Type	Financial	5
Risk Type	Safety	8
Risk Type	Technical	6
Agreement	Agree	10
Agreement	Strongly Agree	12

Table 2

Category	Response	Count
Risk Type	Financial	5
Risk Type	Safety	8
Risk Type	Technical	6
Agreement	Agree	10
Agreement	Strongly Agree	12

Table 3

Category	Response	Count
Risk Type	Financial	5
Risk Type	Safety	8
Risk Type	Technical	6
Agreement	Agree	10
Agreement	Strongly Agree	12

Table 4

Category	Response	Count
Risk Type	Financial	5
Risk Type	Safety	8
Risk Type	Technical	6
Agreement	Agree	10
Agreement	Strongly Agree	12

Table 5

Category	Response	Count
Risk Type	Financial	5
Risk Type	Safety	8

Risk Type	Technical	6
Agreement	Agree	10
Agreement	Strongly Agree	12

Table 6

Category	Response	Count
Risk Type	Financial	5
Risk Type	Safety	8
Risk Type	Technical	6
Agreement	Agree	10
Agreement	Strongly Agree	12

Table 7

Category	Response	Count
Risk Type	Financial	5
Risk Type	Safety	8
Risk Type	Technical	6
Agreement	Agree	10
Agreement	Strongly Agree	12

Table 8

Category	Response	Count
Risk Type	Financial	5
Risk Type	Safety	8
Risk Type	Technical	6
Agreement	Agree	10
Agreement	Strongly Agree	12

Table 9

Category	Response	Count
Risk Type	Financial	5
Risk Type	Safety	8
Risk Type	Technical	6
Agreement	Agree	10
Agreement	Strongly Agree	12

Table 10

Category	Response	Count
Risk Type	Financial	5
Risk Type	Safety	8
Risk Type	Technical	6
Agreement	Agree	10
Agreement	Strongly Agree	12

References:

- Hillson, D. (2017). *Practical project risk management: The ATOM methodology*.
- Kerzner, H. (2022). *Project management: A systems approach to planning, scheduling, and controlling*.
- Kerzner, H. (2025). *Project management: a systems approach to planning, scheduling, and controlling*. John Wiley & Sons.
- Li, H., Zhao, Z., Cao, Y., Su, L., Zhang, Y., & Zhao, J. (2025). Servitization in the construction industry: a multiple case study from a value-adding perspective. *Journal of Business & Industrial Marketing*, 40(1), 116-135.
- Aven, T. (2016). *Risk assessment and risk management: Review of recent advances*. Reliability Engineering & System Safety.
- Chapman, C., & Ward, S. (2003). *Project risk management: Processes, techniques and insights* (2nd ed.). Wiley.
- Project Management Institute. (2021). *A guide to the project management body of knowledge (PMBOK® Guide)* (7th ed.). PMI.
- Zou, P. X. W., Zhang, G., & Wang, J. (2007). Understanding the key risks in construction projects in China. *International Journal of Project Management*.
- Obondi, K. (2022). *The utilization of project risk monitoring and control practices and their relationship with project success in construction projects*. Journal of Project
- Balkis, A., Janani, M. S., & Gandhi, A. M. (2021). A study on critical risk assessment and safety management for a high rise building. *International Research Journal of Engineering & Technology (IRJET)*, 8(4), 324-331.
- Ambati, N., Patel, A. S., & Patel, H. V. (2022). Risk management in high rise construction projects. *International Research Journal of Engineering and Technology*, 9(6), 1536-1544.
- Vahedi Nikbakht, M., Gheibi, M., Montazeri, H., Yeganeh Khaksar, R., Moezzi, R., & Vadiee, A. (2024). Identification and ranking of factors affecting the delay risk of

high-rise construction projects using AHP and VIKOR methods. *Infrastructures*, 9(2), 24.

- Tripathi, P., & Mittal, Y. K. (2025). Risk assessment and ranking methodology for occupational hazards in construction: a case of Indian high-rise projects. *Smart and Sustainable Built Environment*, 14(6), 1927-1949.
- Do, S. T., Nguyen, V. T., & Dang, C. N. (2022). Exploring the relationship between failure factors and stakeholder coordination performance in high-rise building projects: empirical study in the finishing phase. *Engineering, construction and architectural management*, 29(2), 870-895.
- Chihuri, S., & Pretorius, L. (2010). Managing risk for success in a South African engineering and construction project environment: general article. *South African Journal of Industrial Engineering*, 21(2), 63-77.
- Waqar, A., Othman, I., Shafiq, N., Deifalla, A., Ragab, A. E., & Khan, M. (2023). Impediments in BIM implementation for the risk management of tall buildings. *Results in Engineering*, 20, 101401.
- Shayan, S., Pyung Kim, K., & Tam, V. W. (2022). Critical success factor analysis for effective risk management at the execution stage of a construction project. *International Journal of Construction Management*, 22(3), 379-386.
- Perera, B. A. K. S., Rameezdeen, R., Chileshe, N., & Hosseini, M. R. (2014). Enhancing the effectiveness of risk management practices in Sri Lankan road construction projects: A Delphi approach. *International Journal of Construction Management*, 14(1), 1-14.
- Qammaz, A. S. B., & AlMaian, R. Y. (2020). A critical success factors model for effective implementation of risk management process in the construction projects. *Journal of Engineering Research*, 8(3), 50-70.