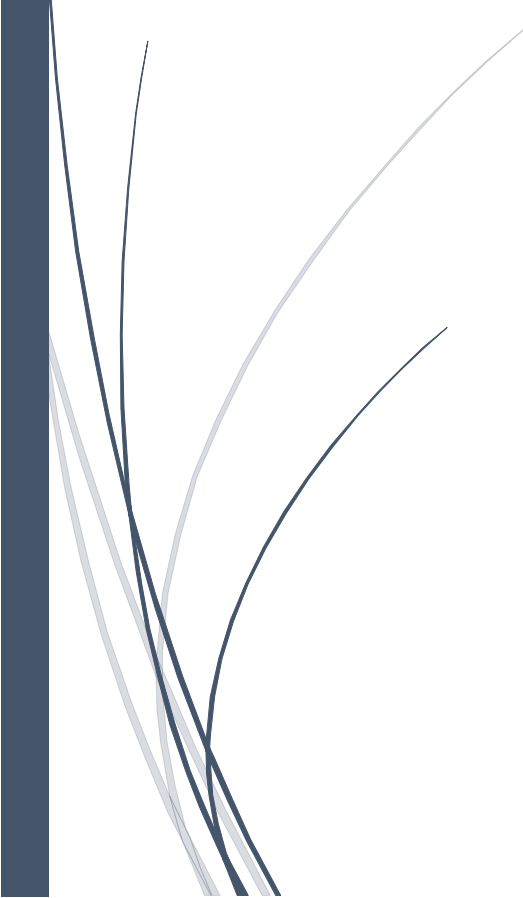




# Final Project 2

PMG 497

## Project Template



**Midocean University**

**Faculty of Management**

Department/ Specialization General Administration



## **An Assessment of the Impact of Project Risk Management on Project Success**

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## Abstract

This study examined the impact of project risk management on project success. The research focused on four dimensions of project risk management: risk identification, risk assessment, risk mitigation, and risk monitoring and control. Project success was examined through schedule, budget, quality, objective achievement, stakeholder satisfaction, and overall success indicators.

A quantitative survey design was used. Data were collected using a structured questionnaire based on a five-point Likert scale and analyzed using 46 complete and consenting responses. The analysis included data screening, descriptive statistics, reliability and validity diagnostics, Pearson and Spearman correlations, simple regression, and multiple regression. The actual administered questionnaire contained 22 analytical items: 16 items for project risk management and six items for project success.

The findings showed excellent internal consistency for the measurement scales. Cronbach's alpha was .982 for the total project risk management scale and .967 for the project success scale. Respondents reported high levels of project risk management and project success. Correlation analysis showed strong positive relationships between all risk-management dimensions and project success. The strongest bivariate relationship was between risk mitigation and project success ( $r = .936, p < .001$ ).

Regression analysis supported all five research hypotheses. Risk identification, risk assessment, risk mitigation, and risk monitoring and control each significantly predicted project success in separate models. The overall project risk management composite explained 85.6% of the variance in project success, while the collective multiple regression model explained 89.4%. In the simultaneous model, risk mitigation was the strongest unique predictor. The study concludes that project risk management is a critical contributor to project success, especially when risk analysis is translated into practical mitigation actions.

*Keywords: project risk management; project success; risk identification; risk assessment; risk mitigation; risk monitoring and control.*

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# 1. Chapter 1: Introduction

## 1.1. Research Background

In the modern business environment, organizations increasingly rely on projects as an essential tool to achieve strategic goals, implement innovation, and enhance organizational performance. Projects are widely used across various sectors, including construction, information technology, healthcare, humanitarian organizations, and public services.

However, despite the growing importance of projects in achieving organizational objectives, many projects still face significant challenges that affect their successful completion. These challenges often arise from uncertainties and risks that may occur during different stages of the project lifecycle, such as planning, implementation, monitoring, and evaluation (Khan, 2025).

Project risks refer to uncertain events or conditions that may have positive or negative effects on project objectives. These risks can arise from several sources, including technical issues, financial constraints, environmental factors, organizational changes, and human-related factors. If not properly identified and managed, such risks can lead to project delays, budget overruns, poor quality outcomes, or even complete project failure.

Therefore, risk management has become a critical component of modern project management practices, enabling organizations to anticipate potential problems and implement appropriate strategies to minimize their impact (Mandrah & Mishra, 2025).

Project risk management involves a structured and systematic process that aims to identify potential risks, analyze their likelihood and impact, and develop appropriate response strategies. This process typically includes several key stages such as risk identification, risk analysis, risk evaluation, risk mitigation, and continuous monitoring throughout the project lifecycle. Effective implementation of these processes helps project managers make informed decisions and respond proactively to uncertainties that may arise during project execution. As a result, organizations that apply structured risk management practices are better positioned

to control potential threats and enhance overall project performance (Wang et al., 2025).

Previous research has highlighted the strong relationship between risk management practices and project success. Effective risk management not only helps in minimizing negative consequences but also contributes to improving decision-making, communication, and coordination among project stakeholders. Carvalho and Rabechini (2015) emphasized that successful project risk management

requires not only technical tools and methodologies but also strong managerial competencies and soft skills, such as leadership, communication, and teamwork. These skills play a crucial role in identifying potential risks, facilitating collaboration among project teams, and ensuring effective implementation of risk response strategies.

Furthermore, the effectiveness of risk management practices has been widely examined in various industries. In the construction sector, for instance, projects are often exposed to high levels of uncertainty due to complex project environments, multiple stakeholders, and changing project requirements. Research conducted by Kallow et al. (2022) found that risk transparency and the ability of organizations to cope with risks significantly influence project success. Their study demonstrated that organizations that actively identify and communicate risks are more capable of implementing appropriate mitigation strategies and improving project outcomes.

Similarly, several empirical studies conducted in different contexts have confirmed the positive role of risk management in enhancing project success. For example, a field study conducted by Aldeen and Sarhan (2024) in humanitarian organizations revealed that effective risk management practices significantly improved project performance by enabling organizations to anticipate potential challenges and implement proactive solutions. Likewise, Rufus and De Dieu Dushimimana (2025) found that the application of structured risk management processes contributed significantly to the successful implementation of road construction projects, particularly by minimizing delays and controlling project costs.

In addition, the growing complexity of modern projects has increased the importance of adopting data-driven approaches to risk assessment and management.

Recent studies have highlighted the role of advanced analytical tools and systematic risk assessment methods in improving project decision-making. For instance, Goyal and Gupta (2025) emphasized that data-driven risk assessment techniques can enhance the accuracy of risk identification and help project managers develop more effective strategies to mitigate potential risks. Such approaches enable organizations to make more informed decisions and reduce uncertainties during project implementation.

Moreover, project success is often measured through multiple dimensions, including the ability to complete projects within the planned time, budget, and quality requirements. Effective risk management practices contribute significantly to achieving these dimensions by ensuring that potential threats are identified early and managed effectively throughout the project lifecycle. Studies have

shown that organizations that integrate risk management into their project management frameworks are more likely to achieve successful project outcomes and maintain long-term organizational sustainability (Vianney & Amolo, 2025; Chevalier- Karfis, 2024).

Given the increasing uncertainty and complexity of modern projects, project risk management has become a key factor in achieving project success. Organizations are therefore encouraged to adopt systematic risk management frameworks that allow them to identify potential threats, evaluate their impact, and implement appropriate mitigation strategies. Understanding the relationship between project risk management and project success is essential for improving project outcomes and ensuring effective utilization of organizational resources.

Therefore, this study seeks to assess the impact of project risk management practices on project success by examining how different risk management processes contribute to improving project performance and achieving project objectives. The findings of this research may provide valuable insights for project

managers, organizations, and policymakers seeking to enhance project success through effective risk management practices

## **1.2. Research Problem**

Despite the growing importance of project management in modern organizations, many projects still fail to achieve their planned objectives in terms of time, cost, and quality. Project environments are often characterized by uncertainty, complexity, and rapidly changing conditions, which increase the likelihood of risks occurring during different stages of the project lifecycle. If these risks are not properly identified, analyzed, and managed, they may significantly affect project performance and lead to project delays, cost overruns, or unsatisfactory outcomes (Mandrah & Mishra, 2025).

Project risk management has therefore become a critical component in modern project management practices. It provides a systematic approach to identifying potential risks, assessing their impact, and developing strategies to mitigate their negative consequences. Several studies have highlighted that organizations implementing effective risk management practices are more capable of improving project performance and increasing the probability of project success (Khan, 2025; Wang et al., 2025).

However, despite the increasing attention given to project risk management, many organizations still face difficulties in effectively integrating risk management practices into their project management processes. In some cases, risk management is applied in a limited or informal manner, which reduces its effectiveness in addressing project uncertainties.

Additionally, the lack of systematic risk identification and assessment procedures may prevent project managers from effectively responding to emerging risks during project execution (Carvalho & Rabechini, 2015).

Furthermore, previous studies have demonstrated that ineffective risk management practices can negatively influence project outcomes, particularly in complex and dynamic project environments. Organizations that fail to establish clear risk management frameworks often struggle to manage uncertainties and ensure successful project delivery

(Kallow et al., 2022).

Therefore, understanding how project risk management influences project success remains an important research issue that requires further investigation.

Based on the above discussion, this study aims to examine the impact of project risk management on project success and explore how effective risk management practices contribute to improving project performance and achieving project objectives.

### **1.2.1. Theoretical Gaps**

Although numerous studies have investigated project risk management and its relationship with project performance, there is still a need for further theoretical understanding of how different risk management practices influence project success. Many existing studies have focused primarily on specific aspects of risk management, such as risk identification or risk assessment, without comprehensively examining the overall impact of integrated risk management processes on project success (Goyal & Gupta, 2025).

Additionally, some studies have emphasized technical tools and methodologies used in risk management, while giving less attention to other important factors such as managerial capabilities, communication, and organizational culture that may influence the effectiveness of risk management practices (Carvalho & Rabechini, 2015). This creates a gap in the theoretical understanding of how different organizational and managerial factors interact with risk management processes to influence project outcomes.

Moreover, the increasing complexity of modern projects requires more comprehensive theoretical frameworks that explain how risk management practices contribute to project success in different project environments and sectors.

Therefore, further research is needed to better understand the relationship between project risk management and project success and to expand the theoretical knowledge in this area.

### **1.2.2. Practical Gaps**

From a practical perspective, many organizations still face challenges in effectively implementing project risk management practices. Although risk management frameworks and tools are widely available, their application in real-world projects often remains limited or inconsistent. In many cases, project managers lack sufficient experience, resources, or organizational support to effectively identify and manage project risks (Khan, 2025).

Furthermore, empirical studies have indicated that inadequate risk assessment and weak risk mitigation strategies may negatively affect project performance and increase the likelihood of project failure (Mandrah & Mishra, 2025). In some organizations, risk management is treated as a formal requirement rather than an essential management process, which reduces its effectiveness in addressing project uncertainties.

Additionally, there is limited practical evidence on how risk management practices contribute to project success across different organizational contexts and project types. For example, studies conducted in construction, infrastructure, and humanitarian sectors have demonstrated the importance of structured risk management approaches in improving project outcomes (Aldeen & Sarhan, 2024; Rufus & De Dieu Dushimimana, 2025).

However, further empirical investigation is needed to better understand how project risk management practices can be effectively implemented to enhance project success.

Therefore, addressing these practical challenges and examining the role of project risk management in improving project success remains an important area for research and practical application.

#### **Main Research Question**

Based on the identified theoretical and practical gaps, the main research question guiding this study is:

What is the impact of project risk management on project success?

### **1.3. Research Significance**

Project risk management has become a critical aspect of modern project management due to the increasing complexity and uncertainty associated with contemporary projects. Organizations across various sectors rely on effective risk management practices to identify potential threats, reduce

uncertainties, and improve project outcomes. As projects continue to grow in scale and complexity, understanding the relationship between project risk management and project success has become increasingly important for both researchers and practitioners (Khan, 2025).

The significance of this research lies in its contribution to expanding knowledge about how project risk management practices influence project success. By examining the role of risk identification, assessment, and mitigation strategies in project environments, this study seeks to provide a clearer understanding of how organizations can effectively manage risks to achieve project objectives related to time, cost, and quality (Mandrah & Mishra, 2025).

Furthermore, the findings of this study may contribute to enhancing project management practices by providing insights into the importance of structured risk management processes. Effective implementation of risk management practices has been shown to improve project performance, support better decision-making, and strengthen communication among project stakeholders (Carvalho & Rabechini, 2015).

Therefore, this research is expected to provide both theoretical and practical value for project managers, organizations, and researchers interested in improving project success through effective risk management practices

### **1.3.1. At the theoretical level**

From a theoretical perspective, this study contributes to the existing body of knowledge in the field of project management by exploring the relationship between project risk management and project success. Although previous studies have examined different aspects of risk management, there is still a need for further research that integrates various

risk management processes and evaluates their collective impact on project performance (Goyal & Gupta, 2025).

This study also contributes to expanding the theoretical understanding of how risk management practices influence project outcomes in different organizational contexts. By examining the role of systematic risk identification, analysis, and mitigation strategies, the research provides insights into how effective risk management frameworks can enhance project success and improve overall project performance (Wang et al., 2025).

In addition, this research supports the development of theoretical frameworks related to risk management in project environments. It highlights the importance of integrating managerial

competencies, communication, and organizational support with technical risk management tools in order to effectively manage project uncertainties and achieve project objectives (Carvalho & Rabechini, 2015).

### **1.3.2. At the practical level**

At the practical level, this research provides valuable insights for project managers and organizations seeking to improve project performance through effective risk management practices. By identifying the impact of risk management processes on project success, this study can help organizations better understand the importance of adopting structured risk management frameworks in project planning and implementation (Kallow et al., 2022).

The findings of this study may also assist project managers in developing more effective strategies for identifying potential risks, assessing their impact, and implementing appropriate mitigation measures. Effective risk management practices enable organizations to minimize project delays, control project costs, and ensure that project deliverables meet the required quality standards (Mandrah & Mishra, 2025).

Moreover, the study may support organizations in strengthening their project management capabilities by encouraging the adoption of proactive risk management approaches. This

can enhance organizational readiness to deal with uncertainties and improve the overall success rate of projects across different sectors (Aldeen & Sarhan, 2024; Rufus & De Dieu Dushimimana, 2025).

Therefore, this research is expected to provide practical recommendations that can assist organizations and project managers in improving project outcomes and achieving sustainable project success through effective risk management practices.

### **1.4. Research Questions**

Based on the research problem and the main objective of this study, the following research questions were formulated to examine the relationship between project risk management and project success.

#### **Main Research Question**

What is the impact of project risk management on project success?

#### **Sub-Research Questions**

1. How does risk identification influence project success?

2. What is the effect of risk assessment on project success?
3. How do risk mitigation strategies contribute to improving project success?
4. To what extent does effective risk monitoring improve project performance in terms of time, cost, and quality?
5. How do integrated project risk management practices contribute to overall project success?

### **1.5. Research Objectives**

The main objective of this study is to assess the impact of project risk management on project success.

#### **Specific Objectives**

1. To examine the role of risk identification in achieving project success.
2. To evaluate the effect of risk assessment on project performance.
3. To analyze the impact of risk mitigation strategies on project success.
4. To investigate the role of risk monitoring and control in improving project outcomes.
5. To determine the overall relationship between project risk management practices and project success.

### **1.6. Research Hypotheses**

Based on the research objectives and previous literature, the following hypotheses are proposed:

H1: Risk identification has a significant positive impact on project success.

H2: Risk assessment has a significant positive impact on project success.

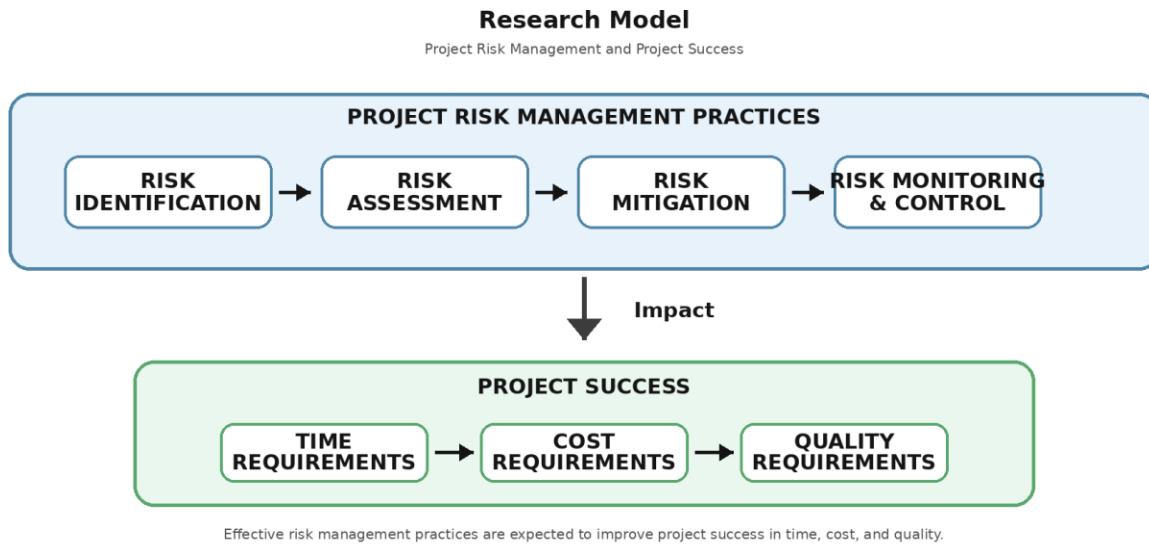
H3: Risk mitigation strategies have a significant positive impact on project success.

H4: Risk monitoring and control have a significant positive impact on project success.

H5: Project risk management practices collectively have a significant positive impact on project success.

### **1.7. Research Model**

The proposed research model explains the relationship between project risk management practices and project success. Project risk management practices represent the independent variable and include risk identification, risk assessment, risk mitigation, and risk monitoring and control. Project success represents the dependent variable and is measured through time, cost, quality, and overall project performance.



*Figure 1. Research model of the study*

## 1.8. Scope of the Study

The scope of this study will focus on examining the impact of project risk management on project success. The study will specifically investigate key practices of project risk management, including risk identification, risk assessment, risk mitigation, and risk monitoring, and how these practices influence project success indicators such as time, cost, and quality.

From the subject perspective, the study will concentrate on the relationship between project risk management practices and project success. It will explore how effective risk management processes contribute to improving project performance and achieving project objectives.

From the population perspective, the study will target individuals involved in project management activities, including project managers, project team members, and professionals working in project-based environments. These participants will be selected because of their experience and knowledge related to project management and risk management practices.

From the time perspective, the study will be conducted during the year 2026, during which the data collection and analysis processes will be carried out in order to examine the relationship between the study variables.

From the geographical perspective, the study will focus on organizations involved in project implementation within an organizational or institutional environment where project management practices are applied.

Overall, the scope of this study will be limited to examining the influence of project risk management practices on project success within the defined population and timeframe, in order to provide a clearer understanding of how risk management contributes to improving project outcomes

## 1.9. The Project Structure

This research will be organized into several chapters in order to present the study in a clear and systematic manner. The project structure is presented in the following table:

| Chapter       | Title                                                 | Main content                                                                                                                                                   |
|---------------|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chapter One   | Introduction                                          | Research background, research problem, significance, questions, objectives, hypotheses, model, scope, and project structure.                                   |
| Chapter Two   | Literature Review                                     | Theoretical discussion of project risk management, project success, and the relationship between the study variables.                                          |
| Chapter Three | Research Methodology                                  | Research design, population and sample, data collection method, research instrument, and statistical analysis procedures.                                      |
| Chapter Four  | Statistical Analysis and Findings Discussion          | Sample profile, reliability and validity tests, descriptive statistics, correlation analysis, regression-based hypothesis testing, and discussion of findings. |
| Chapter Five  | Research Limitations, Recommendations, and Conclusion | Research limitations, practical recommendations, recommendations for future research, and final conclusion.                                                    |

*Table 1. Project structure and plan*

## 2. Chapter 2: Literature Review

### 2.1. Introduction

Project management has become an essential discipline for organizations seeking to achieve strategic objectives and maintain competitiveness in increasingly complex and dynamic environments. As organizations continue to implement projects across different sectors, ensuring the successful completion of projects has become a major concern for project managers and decision-makers.

However, projects are often exposed to various uncertainties and risks that may affect their outcomes, making risk management a crucial component of modern project management practices (Khan, 2025).

Project risk management refers to the systematic process of identifying, analyzing, evaluating, and responding to potential risks that may influence project objectives. Effective risk management helps organizations anticipate possible threats and develop appropriate strategies to reduce their negative impact on project performance. Previous studies have emphasized that well-structured risk management processes play a significant role in improving project outcomes and increasing the likelihood of project success (Mandrah & Mishra, 2025).

In recent years, the importance of project risk management has gained considerable attention in academic research and professional practice. Many studies have highlighted that projects operating in complex and uncertain environments require effective risk management strategies to ensure that project goals are achieved within the planned schedule, budget, and quality standards. Organizations that actively implement risk management practices are generally better prepared to handle uncertainties and maintain project performance (Wang et al., 2025).

Furthermore, effective project risk management requires not only technical tools and formal procedures but also strong managerial competencies and communication among project stakeholders. Carvalho and Rabechini (2015) emphasized that the effectiveness of risk management depends largely on the ability of project managers to integrate technical

risk management methods with soft skills such as leadership, communication, and teamwork.

Additionally, empirical research across different industries has demonstrated that risk management practices play a significant role in enhancing project performance and ensuring successful project implementation. For example, Kallow et al. (2022) found that risk transparency and organizational capability to manage risks positively influence project success.

Similarly, studies conducted in various organizational contexts have confirmed that effective risk management practices contribute to improving project outcomes and organizational performance (Aldeen & Sarhan, 2024; Rufus & De Dieu Dushimimana, 2025).

Given the growing importance of project risk management in modern project environments, reviewing the existing literature on risk management practices and their relationship with project success is essential.

Therefore, this chapter aims to review the theoretical concepts related to project risk management as the independent variable and project success as the dependent variable. It also examines previous studies that explored the relationship between these variables in order to provide a comprehensive understanding of the role of risk management in enhancing project success.

## **2.2. The Independent Variable: Project Risk Management**

Project risk management is considered one of the most critical components of modern project management. It refers to the systematic process of identifying, analyzing, and responding to risks that may affect project objectives. Risks are generally defined as uncertain events or conditions that may have positive or negative impacts on a project's scope, schedule, cost, or quality.

Therefore, effective management of these risks is essential to ensure that projects are completed successfully and organizational objectives are achieved (Khan, 2025).

Project risk management provides a structured framework that enables project managers to anticipate potential uncertainties and develop appropriate strategies to reduce their negative effects. This process typically includes several key stages such as risk identification, risk assessment, risk analysis, risk response planning, and continuous risk monitoring throughout the project lifecycle. By implementing these processes, organizations are better able to manage uncertainties and improve overall project performance (Wang et al., 2025).

Risk identification represents the first and most important stage in project risk management. It involves systematically identifying potential risks that may arise during different phases of a project. These risks may originate from technical challenges, financial limitations, organizational changes, environmental conditions, or human-related factors. Identifying these risks at an early stage allows project managers to prepare appropriate mitigation strategies before they negatively affect project progress (Mandrah & Mishra, 2025).

Following risk identification, the next step is risk assessment and analysis, which involves evaluating the likelihood and potential impact of each identified risk. This process helps project managers prioritize risks according to their severity and determine which risks require immediate attention. Proper risk assessment enables organizations to allocate resources more effectively and develop appropriate response strategies to minimize the negative consequences of potential risks (Goyal & Gupta, 2025).

Another essential component of project risk management is risk mitigation, which involves developing and implementing strategies to reduce the probability of risk occurrence or minimize its impact on the project. Effective mitigation strategies may include revising project plans, allocating additional resources, improving communication among project stakeholders, or implementing preventive control measures. Research has shown that well-developed mitigation strategies can significantly improve project performance and reduce the likelihood of project failure (Kallow et al., 2022).

In addition, risk monitoring and control represent an ongoing process that ensures that identified risks are continuously tracked and managed throughout the project lifecycle. This stage involves monitoring existing risks, identifying new risks, and evaluating the effectiveness of implemented risk response strategies. Continuous monitoring allows project managers to adapt to changing project conditions and maintain effective control over project risks (Chevalier-Karfis, 2024).

Moreover, effective project risk management requires not only formal processes and analytical tools but also strong managerial competencies and organizational support. Carvalho and Rabechini (2015) highlighted that successful risk management depends on the integration of technical risk management methods with managerial and interpersonal skills such as leadership, communication, and collaboration among project stakeholders.

Overall, project risk management plays a crucial role in improving project outcomes by helping organizations anticipate uncertainties and implement appropriate strategies to manage them effectively. By systematically identifying, assessing, and controlling potential risks, organizations can enhance their ability to achieve project objectives and increase the likelihood of project success (Vianney & Amolo, 2025).

### **2.3. The Dependent Variable: Project Success**

Project success is considered one of the most important outcomes in project management and represents the ultimate goal of any project. It refers to the extent to which a project achieves its

predefined objectives and delivers the expected results within the planned constraints. Traditionally, project success has been measured based on the “iron triangle” of project management, which includes completing the project within the specified time, budget, and quality requirements. These three dimensions remain the most widely used criteria for evaluating project performance and determining whether a project can be considered successful (Mandrah & Mishra, 2025).

In modern project management research, the concept of project success has expanded beyond the traditional criteria of time, cost, and quality to include additional dimensions such as stakeholder satisfaction, organizational benefits, and long-term project impact.

However, time efficiency, cost control, and quality performance continue to represent the fundamental indicators used to measure project outcomes in many industries (Khan, 2025).

Time performance refers to the ability of a project to be completed within the planned schedule. Delays in project activities may lead to increased costs, reduced efficiency, and dissatisfaction among stakeholders.

Therefore, effective scheduling, proper resource allocation, and proactive management of potential risks are essential factors that contribute to maintaining project timelines and ensuring timely project completion (Wang et al., 2025).

Cost performance is another critical dimension of project success. Projects are typically planned with a specific budget, and exceeding this budget may negatively affect organizational resources and project feasibility. Effective financial planning and cost monitoring help project managers control expenditures and prevent unnecessary financial losses during project execution. Studies have shown that effective risk management practices play an important role in controlling project costs and preventing budget overruns (Goyal & Gupta, 2025).

Quality performance is also an essential indicator of project success. It reflects the extent to which project deliverables meet the required standards and satisfy stakeholder expectations. Maintaining high-quality outcomes requires proper planning, effective supervision, and continuous monitoring throughout the project lifecycle. Projects that fail to meet quality standards may require rework or corrective actions, which can increase project costs and delay project completion (Chevalier-Karfis, 2024).

Furthermore, project success is closely linked to the effectiveness of project management practices and the ability of organizations to handle uncertainties that arise during project

implementation. Research has shown that organizations that adopt structured management approaches and proactive decision-making processes are more likely to achieve successful project outcomes and improve overall project performance (Carvalho & Rabechini, 2015).

In addition, several empirical studies have demonstrated that project success is strongly influenced by how effectively organizations manage risks during project execution. Projects that integrate systematic risk management practices are more capable of maintaining project performance and achieving their intended objectives despite uncertainties and environmental challenges (Aldeen & Sarhan, 2024; Rufus & De Dieu Dushimimana, 2025).

Overall, project success represents a multidimensional concept that reflects the ability of a project to achieve its objectives within the planned constraints while delivering value to the organization and its stakeholders. Understanding the factors that contribute to project success, particularly the role of risk management practices, is therefore essential for improving project outcomes and enhancing organizational performance.

## **2.4. The Relationship Between the Study Variables**

The relationship between project risk management and project success has been widely examined in project management literature. Project risk management plays a critical role in improving project outcomes by enabling organizations to identify potential threats, assess their impact, and develop strategies to mitigate their effects. Effective implementation of risk management practices helps project managers reduce uncertainties and maintain control over project activities, which ultimately contributes to achieving project objectives (Khan, 2025).

Project risk management is closely linked to project success because risks, if not properly managed, may lead to significant problems such as schedule delays, budget overruns, and

reduced quality of project deliverables.

Therefore, adopting structured risk management practices allows project managers to anticipate potential problems and implement proactive solutions before these risks negatively affect project performance. As a result, projects that apply systematic risk management approaches are more likely to be completed successfully within the planned time, cost, and quality constraints (Mandrah & Mishra, 2025).

Several empirical studies have demonstrated the positive influence of risk management practices on project success. For instance, Carvalho and Rabechini (2015) found that effective risk management

improves project performance by enhancing decision-making processes and strengthening communication among project stakeholders. Their study emphasized that integrating risk management with managerial and interpersonal competencies contributes significantly to improving project outcomes.

Similarly, research conducted in the construction sector indicated that risk management practices such as risk transparency and risk coping capacity have a significant impact on project success. Kallow et al. (2022) showed that organizations that actively identify and communicate potential risks are more capable of implementing effective mitigation strategies and improving project performance.

Furthermore, recent studies have highlighted the importance of systematic risk assessment and data-driven risk management approaches in achieving successful project outcomes. Goyal and Gupta (2025) reported that data-driven risk assessment techniques improve the accuracy of risk identification and support better decision-making, which ultimately enhances project success. Likewise, Wang et al. (2025) emphasized that organizations that adopt structured risk management frameworks are better able to manage project uncertainties and achieve higher levels of project performance.

In addition, empirical evidence from different organizational contexts supports the positive relationship between project risk management and project success. For example, Aldeen and Sarhan (2024) found that implementing effective risk management practices

significantly improved project performance in humanitarian organizations.

Similarly, Rufus and De Dieu Dushimimana (2025) demonstrated that structured risk management processes contributed to the successful implementation of infrastructure projects by reducing delays and controlling project costs.

Overall, the literature indicates a strong and positive relationship between project risk management and project success. Effective risk management practices enable organizations to anticipate uncertainties, allocate resources more efficiently, and respond proactively to potential risks. Consequently, projects that integrate comprehensive risk management processes are more likely to achieve their objectives and deliver successful outcomes.

## **2.5. Conclusion**

This chapter reviewed the relevant literature related to the key variables of the study, namely project risk management as the independent variable and project success as the dependent variable.

The review highlighted the importance of project risk management as a fundamental component of modern project management practices. Effective risk management enables organizations to identify potential risks, assess their possible impact, and implement appropriate mitigation strategies to minimize uncertainties that may affect project outcomes (Khan, 2025).

The chapter also discussed the concept of project success and the main criteria commonly used to evaluate it. Project success is generally measured based on the ability of a project to achieve its objectives within the planned constraints of time, cost, and quality. These performance indicators remain the most widely accepted measures used to assess project outcomes and determine the overall effectiveness of project management practices (Mandrah & Mishra, 2025).

Furthermore, the literature reviewed in this chapter demonstrated that project risk management plays a significant role in improving project performance and increasing the likelihood of project success. Previous studies have emphasized that organizations that implement structured risk management processes are better able to manage uncertainties, improve decision-making, and maintain project performance throughout the project lifecycle (Wang et al., 2025).

In addition, empirical research conducted in different sectors has confirmed the positive relationship between project risk management practices and project success. Studies have shown that effective risk identification, assessment, mitigation, and monitoring processes contribute to minimizing project delays, controlling costs, and maintaining quality standards (Carvalho & Rabechini, 2015; Kallow et al., 2022).

Similarly, other studies highlighted that organizations that adopt systematic risk management frameworks are more capable of achieving successful project outcomes and enhancing organizational performance (Aldeen & Sarhan, 2024; Rufus & De Dieu Dushimimana, 2025).

Overall, the literature indicates that project risk management is a key factor influencing project success. The findings of previous research support the assumption that effective risk management practices contribute significantly to improving project outcomes.

Therefore, understanding the relationship between project risk management and project success is essential for organizations seeking to enhance their project management capabilities and ensure successful project delivery. The next chapter will present the research methodology used to examine this relationship and test the proposed research hypotheses.

## 3. Chapter 3: Research Methodology

### 3.1. Introduction

This chapter presents the research methodology used to assess the impact of project risk management on project success. It explains the procedures followed to define the study variables, select the research design, identify the research population and sample, collect data, and analyze the results. The chapter provides the methodological foundation required to test the proposed hypotheses and answer the research questions.

Since this study focuses on measuring the relationship between project risk management practices and project success, a quantitative methodology is appropriate. The chapter therefore emphasizes structured measurement, statistical testing, reliability and validity procedures, and objective interpretation of research findings.

### 3.2. Operational Definitions for Research Variables

Operational definitions clarify how each research variable is understood and measured in this study. The following table presents the main variables, their roles in the research model, their operational meanings, measurement dimensions, and questionnaire indicators.

| Variable                    | Role in the study              | Operational definition                                                                                               | Main dimensions / indicators                                                              | Measurement                               |
|-----------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------|
| Risk Identification         | Independent variable dimension | The process of recognizing potential events or conditions that may affect project objectives.                        | Identification of technical, financial, organizational, and external risks                | RI1-RI4 using a five-point Likert scale   |
| Risk Assessment             | Independent variable dimension | The process of evaluating the likelihood and impact of identified risks on project outcomes.                         | Risk likelihood, risk impact, prioritization, and evaluation                              | RA1-RA4 using a five-point Likert scale   |
| Risk Mitigation Strategies  | Independent variable dimension | Actions taken to reduce, transfer, avoid, or control the negative effects of project risks.                          | Risk response planning, preventive actions, contingency planning, and corrective measures | RM1-RM4 using a five-point Likert scale   |
| Risk Monitoring and Control | Independent variable dimension | The continuous tracking of project risks and implementation of corrective actions during the project lifecycle.      | Risk tracking, review, control actions, and reporting                                     | RMC1-RMC4 using a five-point Likert scale |
| Project Success             | Dependent variable             | The extent to which a project achieves its objectives in terms of time, cost, quality, and stakeholder satisfaction. | Time performance, cost performance, quality performance, and overall success              | PS1-PS6 using a five-point Likert scale   |

*Table 2. Operational definitions of research variables*

### 3.3. Research Design (Research Onion)

This study adopts a quantitative research design because it aims to measure the effect of project risk management practices on project success using numerical data. The study follows a deductive approach, starting from theoretical assumptions and hypotheses developed from previous literature and then testing them empirically.

The research design is descriptive and analytical. The descriptive part will summarize the characteristics of respondents and the level of risk management practices, while the analytical part will examine the statistical impact of risk identification, risk assessment, risk mitigation, and risk monitoring and control on project success.

| Research onion layer  | Selected option                                                                                 | Application in this study                                                                                     |
|-----------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Research philosophy   | Positivism                                                                                      | The study depends on objective measurement and statistical testing of relationships between variables.        |
| Research approach     | Deductive approach                                                                              | The study tests hypotheses developed from previous literature and theoretical assumptions.                    |
| Methodological choice | Quantitative mono-method                                                                        | Numerical data will be collected through a structured questionnaire and analyzed statistically.               |
| Research strategy     | Survey strategy                                                                                 | A questionnaire will be used to collect data from the target respondents.                                     |
| Time horizon          | Cross-sectional                                                                                 | Data will be collected at one point in time to examine the current relationship between variables.            |
| Sampling technique    | Purposive and convenience sampling                                                              | The technique is selected to access respondents who are familiar with project risk management.                |
| Data analysis         | Cronbach's alpha, descriptive statistics, Pearson correlation, and multiple regression analysis | These procedures will be used to test reliability, describe variables, and examine relationships and effects. |

*Table 3. Research design according to the Research Onion*

### 3.4. Research Population & Sampling Methods and Technique

The population of this study includes individuals who are involved in project management activities. This includes project managers, project team members, engineers, administrators, and professionals who have practical experience with project planning, implementation, risk management, and performance evaluation.

A purposive and convenience sampling approach will be used. Purposive sampling is suitable because the study requires respondents who understand project risk management practices, while convenience sampling supports practical access to available participants within the study timeframe.

### 3.5. Data Collection Method

Data will be collected through a structured questionnaire. The questionnaire will measure the main dimensions of project risk management, including risk identification, risk assessment, risk mitigation,

and risk monitoring and control. It will also measure project success in terms of time, cost, quality, and overall project performance.

The questionnaire will use a five-point Likert scale ranging from strongly disagree to strongly agree. This scale is appropriate for measuring respondents' perceptions and allows the collected data to be analyzed statistically.

### 3.6. Types of Data

The study will rely on primary data and secondary data. Primary data will be obtained directly from respondents through the questionnaire, providing measurable information about the implementation of risk management practices and their relationship with project success.

Secondary data will be collected from academic books, journal articles, previous studies, and research reports related to project risk management and project success. These sources will support the theoretical background and help compare the study findings with previous research.

### 3.7. Statistical Analysis Procedures

After the questionnaires are collected, the data will be coded and entered into statistical software such as SPSS. The analysis will include both descriptive and inferential statistical procedures. The purpose of these procedures is to summarize the sample profile, test the quality of the measurement instrument, and examine the research hypotheses.

| Statistical procedure       | Purpose                                                                   | Application in this study                                                                                       |
|-----------------------------|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Data coding and screening   | To prepare the dataset and identify missing or invalid responses.         | All questionnaire responses will be coded according to the five-point Likert scale and checked before analysis. |
| Frequency and percentage    | To describe demographic characteristics of respondents.                   | Used for gender, age, education, experience, and other categorical variables.                                   |
| Mean and standard deviation | To describe the level of each research variable.                          | Used to summarize respondents' perceptions of the main study variables.                                         |
| Cronbach's alpha            | To test internal consistency reliability.                                 | A value of 0.70 or above will be considered acceptable for the questionnaire scales.                            |
| Pearson correlation         | To examine the strength and direction of relationships between variables. | Used to test whether the main variables are positively and significantly related.                               |
| Regression analysis         | To test the effect of the independent variable on the dependent variable. | Used to examine the research hypotheses and determine the predictive power of the model.                        |

*Table 4. Statistical analysis procedures*

### 3.8. Conclusion

This chapter explained the methodological framework of the study. It described the operational definitions of the variables, the quantitative and descriptive-analytical research design, the target population, sampling method, data collection procedures, data types, and statistical analysis techniques. These procedures provide a systematic basis for analyzing data and evaluating the impact of project risk management practices on project success.

## 4. Chapter 4: Statistical Analysis and Discussion of Findings

### 4.1. Introduction

This chapter presents the empirical analysis of the questionnaire data collected to examine the impact of project risk management practices on project success. The analysis follows the quantitative approach described in Chapter 3 and is organized around data preparation, sample characteristics, reliability and validity assessment, descriptive statistics, correlation analysis, regression-based hypothesis testing, and discussion of findings in relation to the literature.

The unit of analysis was the individual respondent. The Excel workbook contained 46 responses, and all respondents voluntarily agreed to participate. Therefore, the final analytical sample consisted of 46 complete and valid cases. All inferential tests were conducted using a two-tailed significance level of  $\alpha = .05$ .

### 4.2. Data Preparation and Analysis Strategy

The dataset was screened before analysis. No non-consenting responses were found, and no missing demographic or Likert-scale values were detected. All measurement responses were valid and fell within the permitted five-point Likert range from 1 (Strongly Disagree) to 5 (Strongly Agree). Composite scores were calculated by averaging the items belonging to each construct, which preserved the original response metric and allowed direct interpretation of the means.

The actual administered questionnaire contained 22 analytical Likert items. Four items measured risk identification, four items measured risk assessment, four items measured risk mitigation, four items measured risk monitoring and control, and six items measured project success. A total project risk management composite was also calculated using the 16 items covering the four risk-management dimensions.

| Construct                   | Codes     | No. of items | Score construction                    |
|-----------------------------|-----------|--------------|---------------------------------------|
| Risk Identification         | RI1-RI4   | 4            | Mean of four identification items     |
| Risk Assessment             | RA1-RA4   | 4            | Mean of four assessment items         |
| Risk Mitigation             | RM1-RM4   | 4            | Mean of four mitigation items         |
| Risk Monitoring and Control | RMC1-RMC4 | 4            | Mean of four monitoring/control items |
| Project Risk Management     | RI1-RMC4  | 16           | Mean of all risk-management items     |
| Project Success             | PS1-PS6   | 6            | Mean of six success items             |

*Table 7. Coding and analytical structure of the research variables*

For descriptive interpretation, mean scores from 1.00 to 1.80 were classified as very low, 1.81-2.60 as low, 2.61-3.40 as moderate, 3.41-4.20 as high, and 4.21-5.00 as very high. Reliability was evaluated using Cronbach's alpha. Internal construct validity was assessed through corrected item-total correlations, the Kaiser-Meyer-Olkin (KMO) measure, and Bartlett's test of sphericity. Pearson correlation, simple regression, and multiple regression were used to test the hypotheses. Spearman correlations and bootstrap confidence intervals were used as robustness checks where needed.

### 4.3. Sample Characteristics

Table 8 presents the demographic profile of the 46 respondents retained for analysis. Frequencies and percentages are based on the complete analytical sample.

| Characteristic                | Category           | Frequency | Percentage |
|-------------------------------|--------------------|-----------|------------|
| Gender                        | Male               | 28        | 60.9%      |
|                               | Female             | 18        | 39.1%      |
| Age                           | 25–34 years        | 20        | 43.5%      |
|                               | Under 25           | 11        | 23.9%      |
|                               | 35–44 years        | 9         | 19.6%      |
|                               | 45 years and above | 6         | 13.0%      |
| Educational Level             | Bachelor's Degree  | 28        | 60.9%      |
|                               | Diploma            | 15        | 32.6%      |
|                               | Doctorate          | 2         | 4.3%       |
|                               | Master's Degree    | 1         | 2.2%       |
| Project Management Experience | Less than 1 year   | 20        | 43.5%      |
|                               | 1–3 years          | 16        | 34.8%      |
|                               | More than 6 years  | 8         | 17.4%      |
|                               | 4–6 years          | 2         | 4.3%       |
|                               |                    |           |            |
| Role in Projects              | Other              | 28        | 60.9%      |
|                               | Team Member        | 10        | 21.7%      |
|                               | Project Manager    | 5         | 10.9%      |
|                               | Supervisor         | 3         | 6.5%       |

*Table 8. Respondent demographic profile (N = 46)*

Male respondents represented 60.9% of the sample, while female respondents represented 39.1%. The largest age group was 25-34 years (43.5%), followed by respondents under 25 years (23.9%). Most respondents held a bachelor's degree (60.9%), and the most common project-management experience

category was less than one year (43.5%). In terms of project role, 60.9% selected the broad category of Other, followed by team members (21.7%), project managers (10.9%), and supervisors (6.5%).

The profile indicates that the sample included respondents with different educational levels, project roles, and experience levels. However, the concentration in the Other role category and the relatively high share of respondents with limited project-management experience should be considered when interpreting the generalizability of the findings.

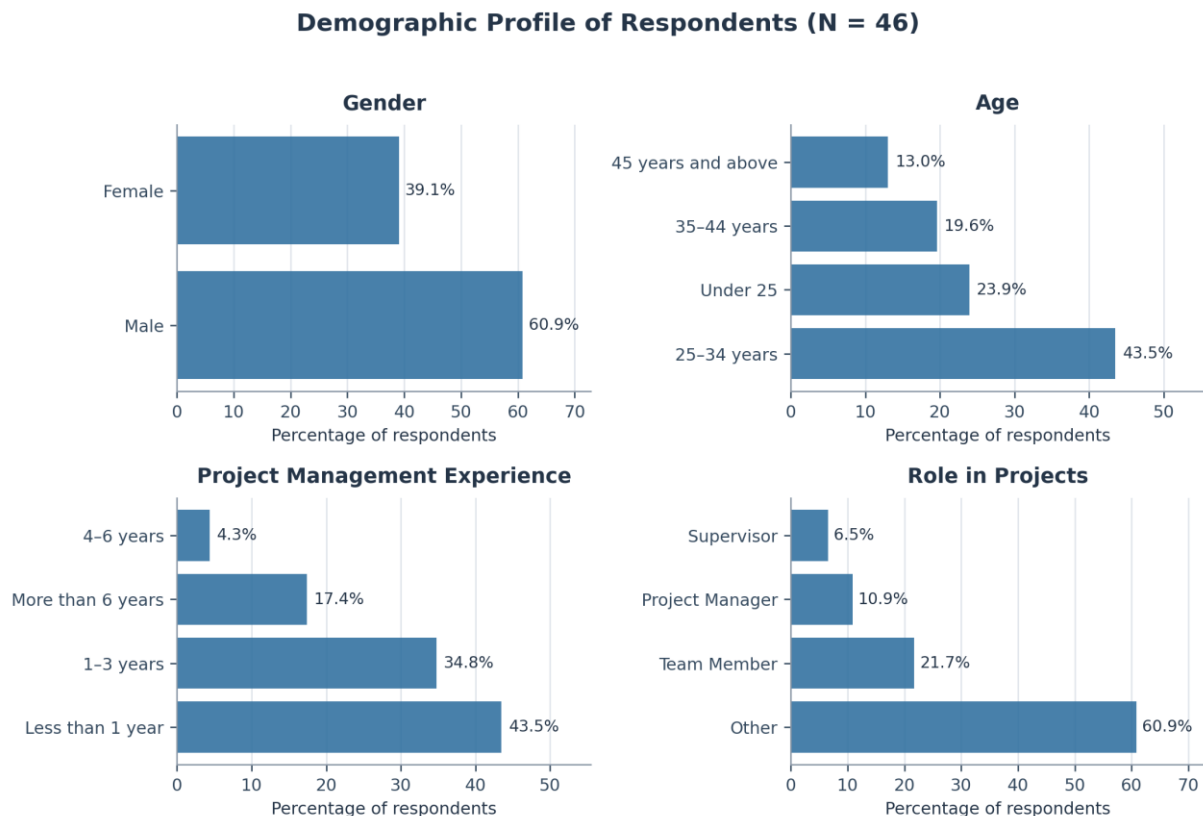


Figure 2. Demographic profile of respondents (N = 46)

Figure 2 summarizes the main demographic characteristics of the sample. It shows the dominance of male respondents, the concentration of respondents in the 25-34 age group, the high share of limited project-management experience, and the large Other role category.

## 4.4. Reliability and Validity Assessment

### 4.4.1. Internal Consistency Reliability

Cronbach's alpha was calculated for each scale. A coefficient of .70 or above was considered acceptable. As shown in Table 9, all scales exceeded .96, indicating excellent internal consistency.

| Scale               | Items | Cronbach's alpha | Interpretation |
|---------------------|-------|------------------|----------------|
| Risk Identification | 4     | 0.976            | Excellent      |

| Scale                       | Items | Cronbach's alpha | Interpretation |
|-----------------------------|-------|------------------|----------------|
| Risk Assessment             | 4     | 0.974            | Excellent      |
| Risk Mitigation             | 4     | 0.972            | Excellent      |
| Risk Monitoring and Control | 4     | 0.961            | Excellent      |
| Project Risk Management     | 16    | 0.982            | Excellent      |
| Project Success             | 6     | 0.967            | Excellent      |

*Table 9. Internal consistency reliability results*

The total project risk management scale achieved  $\alpha = .982$ , and the project success scale achieved  $\alpha = .967$ . The four risk-management dimensions also showed excellent reliability: risk identification  $\alpha = .976$ , risk assessment  $\alpha = .974$ , risk mitigation  $\alpha = .972$ , and risk monitoring and control  $\alpha = .961$ . These results support the use of composite scores for the subsequent analyses. At the same time, very high reliability coefficients may indicate closely related item wording, so reliability should be interpreted as evidence of consistency rather than proof that every item captures a fully distinct aspect of the construct.

#### 4.4.2. Internal Construct Validity

Corrected item-total correlations were positive and statistically significant for all measurement items. For the 16-item project risk management scale, corrected item-total correlations ranged from .819 to .927. For project success, they ranged from .807 to .935. These values are well above the commonly used minimum of .30, indicating that the items contributed meaningfully to their respective constructs.

| Scale                   | Corrected item-total r | KMO   | Bartlett's chi-square | df  | p      |
|-------------------------|------------------------|-------|-----------------------|-----|--------|
| Project Risk Management | .819-.927              | 0.727 | 1073.00               | 120 | < .001 |
| Project Success         | .807-.935              | 0.881 | 351.88                | 15  | < .001 |

*Table 10. Internal construct validity diagnostics*

The KMO value was .727 for project risk management and .881 for project success, indicating acceptable to strong sampling adequacy for construct-level analysis. Bartlett's test was significant for project risk management,  $\chi^2(120) = 1073.00$ ,  $p < .001$ , and for project success,  $\chi^2(15) = 351.88$ ,  $p < .001$ . These results indicate that the correlation matrices were suitable for scale-based analysis in the present sample.

#### 4.5. Descriptive Analysis of Research Variables

Table 11 summarizes the descriptive statistics for the main research constructs. All constructs were rated at a high level. The highest mean was recorded for risk identification ( $M = 3.91$ ,  $SD = 1.31$ ),

while the total project risk management composite had a mean of 3.80 (SD = 1.18). Project success also recorded a high mean (M = 3.79, SD = 1.19).

| Construct                   | Mean | SD   | 95% CI for mean | Level |
|-----------------------------|------|------|-----------------|-------|
| Risk Identification         | 3.91 | 1.31 | [3.52, 4.30]    | High  |
| Risk Assessment             | 3.76 | 1.18 | [3.41, 4.11]    | High  |
| Risk Mitigation             | 3.78 | 1.29 | [3.40, 4.16]    | High  |
| Risk Monitoring and Control | 3.76 | 1.29 | [3.37, 4.14]    | High  |
| Project Risk Management     | 3.80 | 1.18 | [3.45, 4.15]    | High  |
| Project Success             | 3.79 | 1.19 | [3.44, 4.15]    | High  |

*Table 11. Descriptive statistics for the research constructs (N = 46)*

| Code | Item                                                             | Mean | SD   | Level |
|------|------------------------------------------------------------------|------|------|-------|
| RI1  | Project risks are identified before implementation begins        | 3.96 | 1.37 | High  |
| RI2  | Clear methods are used to identify potential risks               | 3.91 | 1.38 | High  |
| PS5  | Stakeholders are satisfied with project outcomes                 | 3.96 | 1.26 | High  |
| PS6  | Effective risk management contributes to overall project success | 3.87 | 1.31 | High  |
| RMC2 | Risk plans are updated when new risks appear                     | 3.65 | 1.39 | High  |
| PS2  | Projects are completed within the approved budget                | 3.67 | 1.28 | High  |

*Table 12. Selected item-level descriptive results*

At the item level, the strongest ratings were associated with identifying risks before implementation (RI1, M = 3.96), using clear methods to identify risks (RI2, M = 3.91), stakeholder satisfaction with project outcomes (PS5, M = 3.96), and the contribution of effective risk management to overall success (PS6, M = 3.87). The comparatively lower but still high ratings were project completion within budget (PS2, M = 3.67) and updating risk plans when new risks appear (RMC2, M = 3.65). These results suggest that the respondents perceived risk management practices positively, while also indicating room for improvement in budget control and adaptive risk-plan updating.

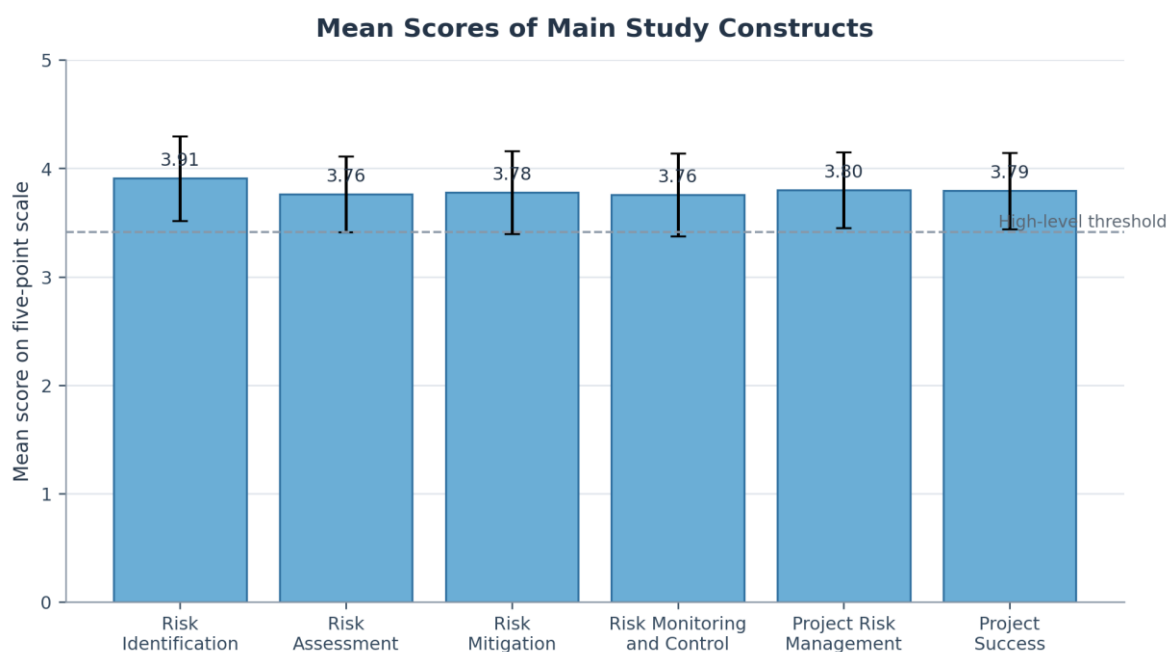


Figure 3. Mean scores of the main study constructs

Figure 3 confirms that all project risk management dimensions and project success were evaluated at a high level. The confidence intervals also show that the constructs cluster within a broadly similar positive range.

#### 4.6. Correlation Analysis and Assumption Checks

Pearson correlations were calculated between each risk-management dimension and project success. All relationships were positive, strong, and statistically significant at  $p < .001$ . Spearman correlations led to the same substantive conclusion, supporting the robustness of the findings.

| Predictor                   | Pearson r | p      | Spearman rho | p      | Interpretation  |
|-----------------------------|-----------|--------|--------------|--------|-----------------|
| Risk Identification         | 0.767     | < .001 | 0.758        | < .001 | Strong positive |
| Risk Assessment             | 0.847     | < .001 | 0.763        | < .001 | Strong positive |
| Risk Mitigation             | 0.936     | < .001 | 0.916        | < .001 | Strong positive |
| Risk Monitoring and Control | 0.885     | < .001 | 0.811        | < .001 | Strong positive |
| Project Risk Management     | 0.925     | < .001 | 0.861        | < .001 | Strong positive |

Table 13. Correlations with project success

The strongest bivariate relationship was between risk mitigation and project success ( $r = .936$ ), followed by risk monitoring and control ( $r = .885$ ), risk assessment ( $r = .847$ ), and risk identification ( $r = .767$ ). The total project risk management composite was also strongly associated with project success ( $r = .925$ ). Breusch-Pagan tests were nonsignificant across the regression models, indicating no evidence of heteroscedasticity. The residual normality assumption was acceptable for most models; the risk assessment model showed imperfect residual normality, so interpretation emphasizes effect sizes, bootstrap intervals, and the supporting Spearman result.

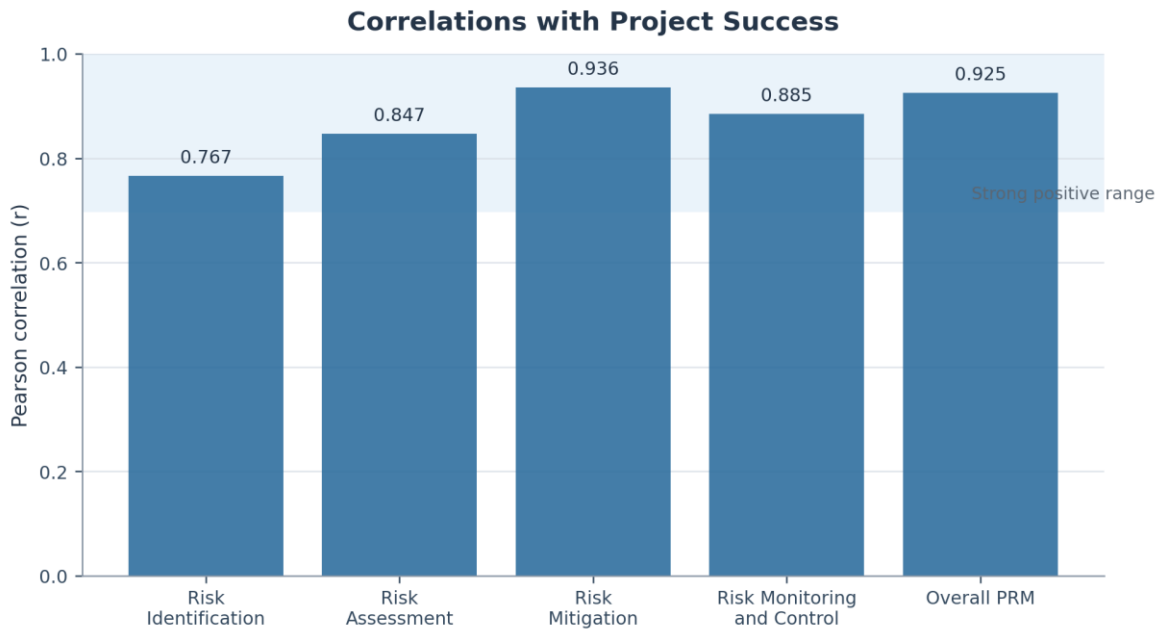


Figure 4. Pearson correlations between risk-management practices and project success

Figure 4 illustrates the strength of the positive relationships between risk-management practices and project success. Risk mitigation produced the strongest correlation, followed by overall project risk management.

#### 4.7. Hypotheses Testing

Simple regression models were first estimated for H1-H4, using each risk-management dimension as a predictor of project success. A total project risk management model was also estimated as a composite-level test. The results are presented in Table 14.

| Hyp.       | Predictor                   | B     | SE    | beta  | R2    | F      | p      | Bootstrap 95% CI for B |
|------------|-----------------------------|-------|-------|-------|-------|--------|--------|------------------------|
| H1         | Risk Identification         | 0.694 | 0.088 | 0.767 | 0.588 | 62.75  | < .001 | [0.450, 0.901]         |
| H2         | Risk Assessment             | 0.850 | 0.080 | 0.847 | 0.718 | 111.84 | < .001 | [0.719, 0.951]         |
| H3         | Risk Mitigation             | 0.863 | 0.049 | 0.936 | 0.877 | 312.41 | < .001 | [0.752, 0.967]         |
| H4         | Risk Monitoring and Control | 0.812 | 0.065 | 0.885 | 0.782 | 158.28 | < .001 | [0.680, 0.917]         |
| H5 overall | Project Risk Management     | 0.933 | 0.058 | 0.925 | 0.856 | 262.51 | < .001 | [0.835, 1.021]         |

Table 14. Simple regression results for H1-H4 and the overall composite model

H1 was supported because risk identification significantly predicted project success,  $B = .694$ ,  $\beta = .767$ ,  $p < .001$ , explaining 58.8% of the variance. H2 was supported because risk assessment significantly predicted project success,  $B = .850$ ,  $\beta = .847$ ,  $p < .001$ , explaining 71.8% of the variance. H3 was supported because risk mitigation significantly predicted project success,  $B = .863$ ,  $\beta = .936$ ,  $p < .001$ , explaining 87.7% of the variance. H4 was supported because risk monitoring and control significantly predicted project success,  $B = .812$ ,  $\beta = .885$ ,  $p < .001$ , explaining 78.2% of the variance.

At the composite level, project risk management significantly predicted project success,  $B = .933$ ,  $\beta = .925$ ,  $p < .001$ , and explained 85.6% of the variance. This provides strong evidence that risk-management practices as a whole are positively associated with project success in the present sample.

To test H5 more directly, a multiple regression model was estimated with the four dimensions entered simultaneously. This model assesses the collective predictive power of risk identification, risk assessment, risk mitigation, and risk monitoring and control.

| Predictor                   | B     | SE    | beta  | t    | p      | VIF  | Bootstrap 95% CI for B |
|-----------------------------|-------|-------|-------|------|--------|------|------------------------|
| Risk Identification         | 0.088 | 0.083 | 0.098 | 1.06 | = .295 | 3.27 | [-0.046, 0.379]        |
| Risk Assessment             | 0.099 | 0.123 | 0.099 | 0.81 | = .424 | 5.76 | [-0.241, 0.349]        |
| Risk Mitigation             | 0.614 | 0.119 | 0.666 | 5.17 | < .001 | 6.39 | [0.265, 0.876]         |
| Risk Monitoring and Control | 0.116 | 0.122 | 0.126 | 0.95 | = .346 | 6.75 | [-0.140, 0.431]        |

Table 15. Multiple regression results for the collective model (H5)

The multiple regression model was statistically significant,  $F(4, 41) = 86.16$ ,  $p < .001$ , and explained 89.4% of the variance in project success ( $R^2 = 0.894$ , adjusted  $R^2 = 0.883$ ). Within the simultaneous model, risk mitigation remained the only statistically significant unique predictor,  $B = 0.614$ ,  $\beta = 0.666$ ,  $p < .001$ . The other dimensions were positive but not statistically significant after controlling for the overlap among the four risk-management dimensions. VIF values ranged from 3.27 to 6.75, indicating moderate multicollinearity. Therefore, H5 is supported at the overall model level, while the individual unique coefficients should be interpreted cautiously.

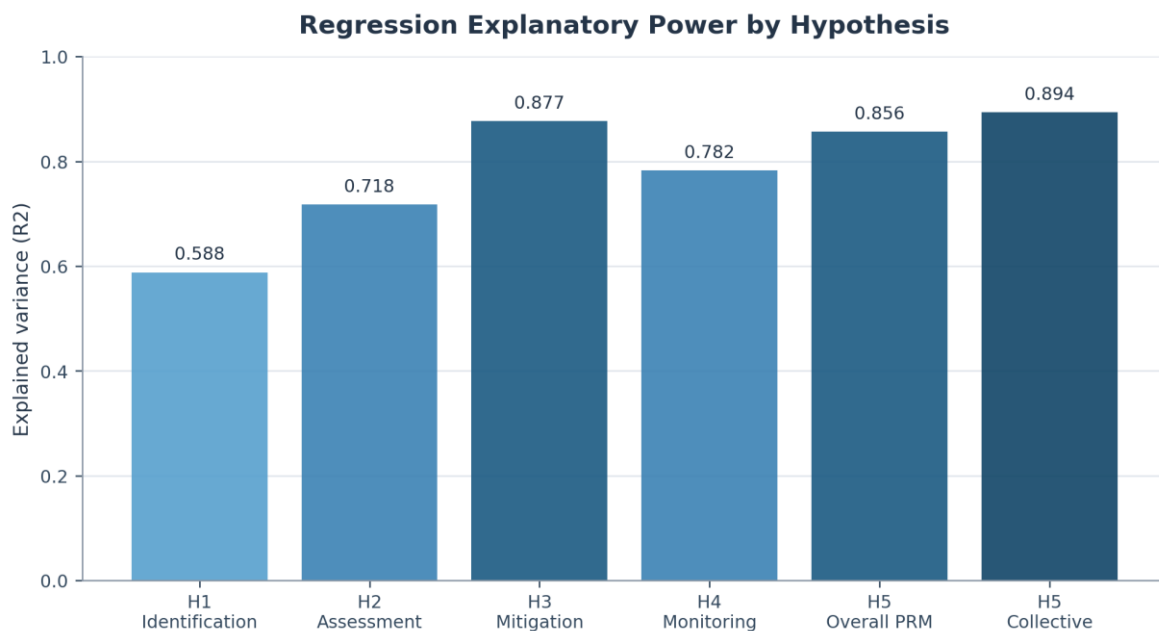


Figure 5. Regression explanatory power for the research hypotheses

Figure 5 shows the proportion of variance in project success explained by each regression model. The collective H5 model produced the strongest explanatory power, followed closely by the risk mitigation model and the overall project risk management composite.

| Hypothesis | Statistical decision       | Conclusion                                                                 |
|------------|----------------------------|----------------------------------------------------------------------------|
| H1         | Reject the null hypothesis | Supported: risk identification positively predicts project success         |
| H2         | Reject the null hypothesis | Supported: risk assessment positively predicts project success             |
| H3         | Reject the null hypothesis | Supported: risk mitigation positively predicts project success             |
| H4         | Reject the null hypothesis | Supported: risk monitoring and control positively predicts project success |
| H5         | Reject the null hypothesis | Supported at the collective model level                                    |

*Table 16. Summary of hypothesis-testing decisions*

## 4.8. Discussion of Findings

The findings show that project risk management was perceived at a high level and was strongly related to project success. This supports the central argument of the study and is consistent with Aldeen and Sarhan (2024), Khan (2025), Mandrah and Mishra (2025), and Wang et al. (2025), who emphasize that systematic risk management contributes to improved project outcomes.

Risk identification showed a strong positive relationship with project success. This means that identifying risks before implementation and involving stakeholders in the identification process may help project teams prepare for uncertainty and reduce the likelihood of disruptive events. This finding is consistent with the literature that positions risk recognition as the starting point of effective project risk management.

Risk assessment also had a strong positive relationship with project success. Assessing likelihood, impact, and priority helps project teams make better decisions about which risks require immediate attention. This finding aligns with Goyal and Gupta (2025) and Wang et al. (2025), who highlight the importance of data-driven risk assessment for project performance.

Risk mitigation produced the strongest bivariate and unique effects. This suggests that project success is most directly strengthened when risk analysis is translated into practical actions, such as mitigation plans, resource allocation, and strategies that reduce delays and unexpected costs. The result is consistent with Kallow et al. (2022) and Carvalho and Rabechini (2015), who connect risk response capability with stronger project performance.

Risk monitoring and control was also strongly associated with project success. Continuous tracking, updating risk plans, maintaining project performance, and taking corrective actions appear to support time, cost, quality, and stakeholder satisfaction outcomes. This finding is compatible with Chevalier-

Karfis (2024) and Vianney and Amolo (2025), who emphasize the value of ongoing risk monitoring during project execution.

The multiple regression results add an important interpretation. Although all four risk-management dimensions were strongly related to project success in separate models, risk mitigation was the only significant unique predictor when all dimensions were entered together. This does not mean the other dimensions are unimportant. Rather, it indicates that the four dimensions overlap substantially and that mitigation may represent the point at which identification, assessment, and monitoring are converted into concrete performance benefits.

The findings should still be interpreted within the limits of the research design. The study used a modest nonprobability sample, relied on self-reported data, and measured all variables at one point in time. Therefore, the results provide strong evidence of association, but they should not be presented as definitive proof of causation.

#### 4.9. Conclusion

This chapter analyzed 46 complete questionnaire responses. The instrument demonstrated excellent reliability and satisfactory internal validity. Respondents rated project risk management and project success at high levels. Correlation and regression analyses showed that risk identification, risk assessment, risk mitigation, risk monitoring and control, and the overall project risk management composite were positively and significantly associated with project success. All five hypotheses were supported, with H5 supported at the overall model level. The results indicate that project risk management is a major contributor to successful project outcomes in the present sample.

## 5. Chapter 5: Research Limitations, Recommendations and Conclusion

### 5.1. Introduction

This chapter concludes the study by presenting the main limitations, recommendations, and final conclusion. It builds on the statistical findings reported in Chapter 4, which showed strong positive relationships between project risk management practices and project success.

The chapter translates the empirical results into practical implications for project managers and organizations while also identifying directions for future research. Because project environments are uncertain and frequently constrained by time, cost, quality, and stakeholder expectations, the findings have direct relevance for improving project performance.

### 5.2. Research Limitations

First, the study used a modest sample size of 46 respondents. Although this was sufficient for the statistical procedures used in this project, a larger sample would provide stronger generalizability and more stable estimates.

Second, the sampling method was nonprobability-based. Respondents were reached through accessible channels, which means the results may reflect the characteristics of the available respondents rather than the entire population of project practitioners.

Third, the data were cross-sectional. The questionnaire measured risk management and project success at one point in time. Therefore, the findings demonstrate statistical association, not definitive causation. Longitudinal research would be needed to examine whether improvements in risk management lead to later improvements in project success.

Fourth, the study relied on self-reported questionnaire data. Respondents evaluated both the independent and dependent variables, which may increase common-method bias. Future research could combine survey responses with project records, budget reports, schedule performance data, quality records, or stakeholder evaluations.

Fifth, the sample included a high share of respondents with less than one year of project-management experience and a large proportion who selected the broad role category of Other. These sample characteristics should be considered when applying the findings to more experienced project managers or specific professional roles.

Finally, the four risk-management dimensions were strongly related to each other. This produced moderate multicollinearity in the multiple regression model. As a result, the total model is highly informative, but the unique effect of each dimension should be interpreted with caution.

## 5.3. Recommendations

### 5.3.1. Recommendations for Project Managers and Organizations

Project managers should institutionalize risk identification before implementation begins. Risk workshops, stakeholder consultations, lessons-learned reviews, and risk checklists can help teams detect technical, financial, organizational, and external risks early.

Organizations should strengthen risk assessment practices by evaluating both likelihood and impact. Risks should be prioritized using clear criteria so that management attention and resources are directed toward the most serious threats to project objectives.

Risk mitigation should receive particular managerial attention. The results showed that mitigation was the strongest unique predictor of project success. Project teams should therefore prepare contingency plans, assign risk owners, allocate resources for preventive actions, and monitor whether mitigation responses are implemented on time.

Risk monitoring and control should continue throughout the project lifecycle. Risk registers should be updated regularly, new risks should be added as they appear, and corrective actions should be documented when risks affect progress. Regular reporting can help management respond before risks become major performance problems.

Project success indicators should be linked directly to risk-management activities. Time, cost, quality, objective achievement, and stakeholder satisfaction should be reviewed together with the risk register so that teams can see how risk-management decisions affect project outcomes.

### 5.3.2. Recommendations for Future Research

Future studies should use larger and more diverse samples from different sectors and project types. This would make it possible to compare whether risk-management practices have different effects in construction, technology, humanitarian, service, and public-sector projects.

Longitudinal research is recommended to examine causality. Tracking projects over time would help determine whether risk identification, assessment, mitigation, and monitoring lead to measurable improvements in schedule, cost, quality, and stakeholder satisfaction.

Future research should also include objective project-performance indicators where possible. Combining survey responses with actual schedule variance, budget variance, quality measures, or stakeholder satisfaction records would strengthen the validity of the findings.

Mixed-method research could deepen the analysis. Interviews with project managers and team members may explain how risk mitigation is actually implemented and why it appears to be the strongest predictor of project success in the present study.

Researchers may also examine mediating and moderating variables, such as leadership support, communication quality, organizational risk culture, project complexity, team capability, and digital risk-management tools.

## 5.4. Conclusion

This study examined the impact of project risk management on project success. The findings showed that risk identification, risk assessment, risk mitigation, and risk monitoring and control were all positively and significantly related to project success. The overall project risk management composite was also a strong predictor of project success.

The results support the view that successful projects depend not only on planning and execution, but also on the ability to anticipate, evaluate, respond to, and monitor risks. Among the four dimensions, risk mitigation appeared to be especially important because it translated risk awareness into practical actions that can reduce delays, unexpected costs, and performance problems.

In practical terms, project teams should treat risk management as a continuous and integrated process. Identifying risks is necessary, but it must be followed by assessment, response planning, resource allocation, monitoring, and corrective action. When these practices are applied consistently, they can improve schedule performance, cost control, quality achievement, objective completion, and stakeholder satisfaction.

In conclusion, project risk management is a critical contributor to project success. The study provides empirical support for strengthening risk-management practices in project environments while also highlighting the need for future studies with larger samples, objective performance indicators, and longitudinal designs.

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## Appendix A: Questionnaire for Research Variables

This questionnaire is designed to collect data about project risk management practices and project success. Respondents should answer each item based on their experience with project environments.

### A.1. Response Scale

|                       |              |             |           |                    |
|-----------------------|--------------|-------------|-----------|--------------------|
| 1 = Strongly Disagree | 2 = Disagree | 3 = Neutral | 4 = Agree | 5 = Strongly Agree |
|-----------------------|--------------|-------------|-----------|--------------------|

### A.2. Demographic Information

D1. Gender: Male / Female

D2. Age: Less than 25 / 25-34 / 35-44 / 45 and above

D3. Educational level: Diploma / Bachelor / Postgraduate

D4. Project management experience: Less than 1 year / 1-3 years / 4-6 years / More than 6 years

D5. Role in projects: Project manager / Team member / Engineer / Administrator / Other

### A.3. Questionnaire Items

| Variable                    | Code | Item                                                               | Response scale |
|-----------------------------|------|--------------------------------------------------------------------|----------------|
| Risk Identification         | RI1  | Project risks are identified before implementation begins.         | 1 2 3 4 5      |
| Risk Identification         | RI2  | Clear methods are used to identify potential risks.                | 1 2 3 4 5      |
| Risk Identification         | RI3  | Stakeholders are involved in identifying risks.                    | 1 2 3 4 5      |
| Risk Identification         | RI4  | Risk identification prepares the team for unexpected events.       | 1 2 3 4 5      |
| Risk Assessment             | RA1  | Risks are assessed by likelihood.                                  | 1 2 3 4 5      |
| Risk Assessment             | RA2  | Risks are assessed by impact on objectives.                        | 1 2 3 4 5      |
| Risk Assessment             | RA3  | Risk assessment prioritizes important risks.                       | 1 2 3 4 5      |
| Risk Assessment             | RA4  | Risk assessment supports better decisions.                         | 1 2 3 4 5      |
| Risk Mitigation             | RM1  | Clear strategies are developed to reduce risks.                    | 1 2 3 4 5      |
| Risk Mitigation             | RM2  | Mitigation plans are implemented when risks are expected or occur. | 1 2 3 4 5      |
| Risk Mitigation             | RM3  | Resources are allocated effectively to manage risks.               | 1 2 3 4 5      |
| Risk Mitigation             | RM4  | Mitigation strategies reduce delays and unexpected costs.          | 1 2 3 4 5      |
| Risk Monitoring and Control | RMC1 | Risks are monitored throughout the project lifecycle.              | 1 2 3 4 5      |
| Risk Monitoring and Control | RMC2 | Risk plans are updated when new risks appear.                      | 1 2 3 4 5      |
| Risk Monitoring and Control | RMC3 | Risk monitoring helps maintain project performance.                | 1 2 3 4 5      |

| Variable                    | Code | Item                                                              | Response scale |
|-----------------------------|------|-------------------------------------------------------------------|----------------|
| Risk Monitoring and Control | RMC4 | Corrective actions are taken when risks affect progress.          | 1 2 3 4 5      |
| Project Success             | PS1  | Projects are completed within the planned schedule.               | 1 2 3 4 5      |
| Project Success             | PS2  | Projects are completed within the approved budget.                | 1 2 3 4 5      |
| Project Success             | PS3  | Deliverables meet required quality standards.                     | 1 2 3 4 5      |
| Project Success             | PS4  | Project objectives are achieved successfully.                     | 1 2 3 4 5      |
| Project Success             | PS5  | Stakeholders are satisfied with project outcomes.                 | 1 2 3 4 5      |
| Project Success             | PS6  | Effective risk management contributes to overall project success. | 1 2 3 4 5      |

*Table 5. Questionnaire items for the research variables*

## Appendix B: Table of Research Tools

The following table summarizes the research tools used to measure the study variables and support the statistical analysis procedures.

| Variable                    | Role in the model              | Main dimensions                                        | Questionnaire items | Scale                   | Main supporting sources                                     |
|-----------------------------|--------------------------------|--------------------------------------------------------|---------------------|-------------------------|-------------------------------------------------------------|
| Risk Identification         | Independent variable dimension | Risk recognition and documentation                     | RI1-RI4             | Five-point Likert scale | Khan (2025); Mandrah & Mishra (2025)                        |
| Risk Assessment             | Independent variable dimension | Likelihood, impact, and prioritization                 | RA1-RA4             | Five-point Likert scale | Goyal & Gupta (2025); Wang et al. (2025)                    |
| Risk Mitigation             | Independent variable dimension | Response plans, contingency plans, and control actions | RM1-RM4             | Five-point Likert scale | Kallow et al. (2022); Carvalho & Rabechini (2015)           |
| Risk Monitoring and Control | Independent variable dimension | Continuous tracking and corrective actions             | RMC1-RMC4           | Five-point Likert scale | Chevalier-Karfis (2024); Vianney & Amolo (2025)             |
| Project Success             | Dependent variable             | Time, cost, quality, and overall achievement           | PS1-PS6             | Five-point Likert scale | Mandrah & Mishra (2025); Rufus & De Dieu Dushimimana (2025) |

*Table 6. Research tools and measurement sources*

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