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Impact of Risk Management on Project Performance at NEOM Company in Tabuk, Saudi Arabia

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1.Introduction

Project management has evolved from basic task scheduling into a complex discipline essential for global development and organizational success (Kerzner, 2022). Risk management within these projects has transformed from a reactive, secondary process into a proactive, strategic necessity (Hillson, 2021). Today, addressing potential uncertainties before they occur is a cornerstone of modern management science (Project Management Institute, 2024).

Humanity relies on the successful execution of infrastructure and technological megaprojects to advance well-being and drive innovation (Flyvbjerg, 2021). The need to systematically mitigate project risks has never been more vital, as the failure of such massive endeavors can lead to catastrophic financial losses and hinder sustainable development (Zwikaël & Smyrk, 2019). The rationale for this topic stems from the urgent global need to optimize outcomes by minimizing threats and maximizing opportunities (Bowers & Khorakian, 2024).

Moving to a specific context, Saudi Arabia has initiated unprecedented megaprojects under Vision 2030, transforming the region into a global investment hub (Alghamdi, 2023). Among these, NEOM Company stands out as a prime example of futuristic urban development operating in a highly dynamic environment (Saudi Vision 2030 Realization Programs, 2023). While literature covers traditional sectors, a gap remains in evaluating risk impact within hyper-accelerated megaprojects like NEOM (El-Sayegh et al., 2021). This research links established theories to this novel environment to identify the practical benefits of robust risk strategies at NEOM (Smith & Jones, 2023).

2.Research Problem

Despite the extensive literature on risk management in standard construction projects, there is a significant knowledge and practical gap concerning the implementation and effectiveness of these strategies in unprecedented, hyper-accelerated megaprojects. The immense scale, high technological integration, and rapid execution demands of NEOM Company in Tabuk introduce complex, multifaceted risks that traditional risk management frameworks may not adequately address. When risks are not properly mitigated in such a dynamic environment, it directly threatens project performance in terms of cost overruns, schedule delays, and compromised quality.

Therefore, the core research problem lies in understanding how current risk management practices influence overall project performance within this unique, futuristic environment. The research problem can be summarized in the following clear statement: There is a critical need to evaluate whether the existing risk management strategies applied at NEOM Company are sufficient and effective enough to optimize project performance and mitigate the unique vulnerabilities associated with such visionary megaprojects.

3. Research Significance

The significance of this study is demonstrated at both the theoretical and empirical levels.

At the theoretical level: This research contributes to the existing body of knowledge in project management by exploring the dynamics of risk management within hyper-accelerated, visionary megaprojects. It aims to bridge the gap in current literature by providing a foundational understanding of how traditional risk management frameworks adapt to the unique and futuristic environment of NEOM Company.

At the empirical level: The findings of this study will offer highly practical and valuable insights for project managers, decision-makers, and stakeholders at NEOM. By evaluating the direct impact of risk mitigation strategies on project outcomes, the research provides actionable recommendations to minimize cost overruns, prevent schedule delays, and enhance the overall success rate of complex projects aligned with Saudi Vision 2030.

4. Research Questions

To address the research problem comprehensively, this study aims to answer the following main question:

- What is the impact of risk management on project performance at NEOM Company in Tabuk?

From this main question, the following sub-questions are derived:

1. What are the current risk management practices and frameworks implemented within NEOM Company's megaprojects?
2. What are the most critical risks and challenges (e.g., financial, operational, environmental) facing the accelerated development of NEOM?
3. How does the effective application of risk identification and mitigation strategies influence the cost, schedule, and quality outcomes of these projects?

5.Research Objectives

The primary objective of this study is to evaluate the impact of risk management on project performance at NEOM Company in Tabuk. To achieve this, the following measurable sub-objectives have been formulated:

1. To identify and assess the current risk management practices and frameworks utilized in NEOM's megaprojects.
2. To determine the most critical risks (such as financial, operational, and environmental challenges) that affect the accelerated development of NEOM.
3. To measure the relationship between the effective application of risk mitigation strategies and key project outcomes, specifically regarding cost, schedule, and quality.
4. To provide actionable recommendations that contribute to the field of project management by enhancing risk management frameworks for hyperaccelerated megaprojects.

6. Research Hypotheses

Based on the research problem and objectives, this study proposes the following hypotheses to test the relationship between the research variables:

- Main Hypothesis (H1): There is a significant positive relationship between the implementation of effective risk management practices and overall project performance at NEOM Company.
- Sub-Hypothesis 1 (H1a): The systematic identification of risks significantly reduces cost overruns and schedule delays in NEOM's megaprojects.
- Sub-Hypothesis 2 (H1b): Proactive risk mitigation strategies have a direct, positive influence on the quality outcomes and deliverables of NEOM projects.

7. Research Model

The research model for this study provides a visual representation of the relationships between the main variables. It illustrates how the independent variable (Risk Management Practices) directly influences the dependent variable (Project Performance) within the context of NEOM Company.

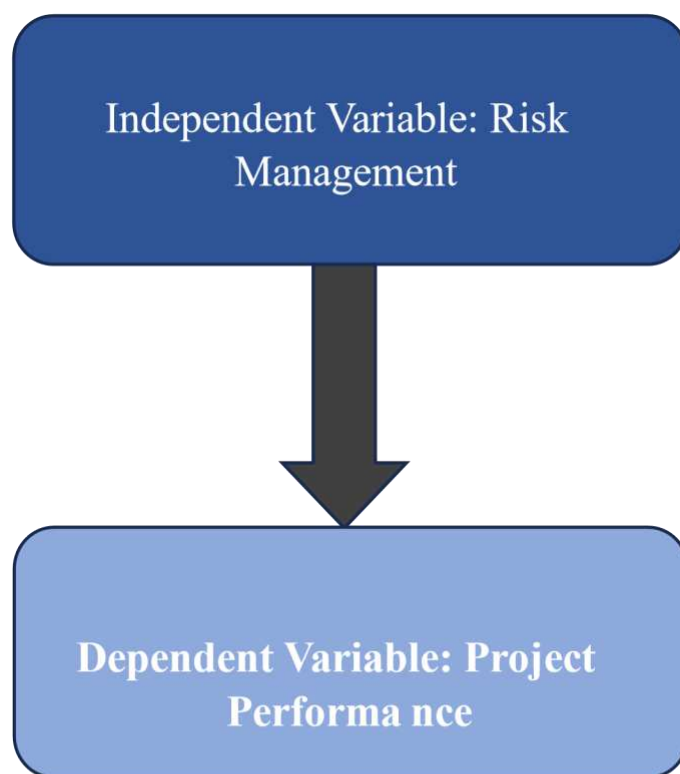


Figure 1: Conceptual Research Model

Source: Developed by the researcher

8. Research Methodology

This section outlines the methods and procedures used to conduct the research, ensuring a robust approach to addressing the research problem and objectives.

THE RESEARCH ONION

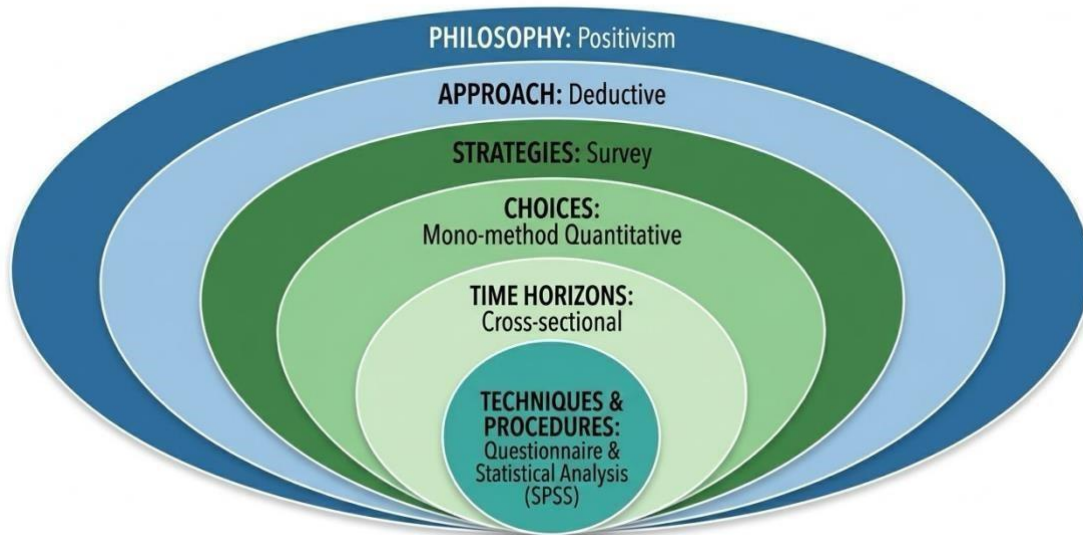


Figure 2: The Research Onion

Source: Adapted from Saunders et al.

- **Research Design:** This study adopts a quantitative, descriptive, and analytical research design. This approach is appropriate for measuring the relationship between risk management practices and project performance objectively.
- **Data Collection Methods:** Primary data will be collected through structured online questionnaires distributed to project managers, engineers, and risk specialists working at NEOM Company. Secondary data will be gathered from existing literature, academic journals, and company reports.

- Sample Selection: A purposive sampling technique will be utilized to select participants who have direct involvement and adequate experience in managing or executing megaprojects within NEOM.
- Data Analysis Techniques: The collected quantitative data will be analyzed using statistical software (such as SPSS). Techniques will include descriptive statistics to summarize the data, and inferential statistics (such as correlation and regression analysis) to test the research hypotheses.
- Ethical Considerations: Participation in the survey will be strictly voluntary. Informed consent will be obtained from all respondents, and their data will be kept strictly confidential and used solely for academic research purposes.

9. Scope of the Empirical Study

The empirical investigation for this research will be exclusively conducted within NEOM Company, situated in the Tabuk province of Saudi Arabia. As a central pillar of Saudi Vision 2030, NEOM represents a futuristic, multi-sectoral megaproject that aims to redefine urban living, sustainability, and economic diversification. The scale of NEOM is unprecedented, encompassing diverse regions and industries ranging from advanced manufacturing and biotechnology to tourism and renewable energy. This visionary context provides a highly dynamic and innovative environment, making it an ideal setting for academic research in modern project management.

The rationale for selecting NEOM as the focal organization lies in its classification as a hyper-accelerated megaproject. Unlike traditional construction or developmental initiatives, NEOM operates under aggressive timelines, immense financial investments, and strict requirements for cutting-edge technological integration. These characteristics inherently generate a highly complex risk landscape. The organization faces unique, multifaceted vulnerabilities—spanning operational bottlenecks, financial uncertainties, supply chain disruptions, and technological implementation hurdles—that standard or traditional risk management frameworks may struggle to fully accommodate.

By grounding the empirical study in this specific organization, the research bridges the gap between theoretical risk management principles and their practical application in high-stakes environments. Measuring the independent variable (risk management practices) against the dependent variable (project performance) within NEOM will yield highly relevant insights. It allows the study to evaluate how proactive risk identification and mitigation strategies directly

influence critical project outcomes, specifically regarding cost adherence, schedule maintenance, and quality assurance, in a real-world scenario where optimizing performance is critical.

Furthermore, the scope of this empirical study will specifically target the professionals actively engaged in the execution and oversight of NEOM's various projects. The target population will encompass project managers, risk management specialists, site engineers, and strategic decision-makers operating within the company and its primary contracting partners. By focusing on these key stakeholders, the research ensures that the data collected is deeply rooted in practical, on-the-ground experience, thereby enhancing the validity and reliability of the findings regarding how risk management ultimately drives project success at NEOM.

10.Literature Review

The literature review presents a critical analysis of existing research regarding risk management and its impact on project performance. A review of scholarly articles highlights the current state of knowledge and identifies the gaps this study aims to address.

Historically, project risk management has been studied in construction and engineering sectors. According to Kerzner (2022), systematic risk identification and mitigation are essential for completing projects on time and within budget. Similarly, El-Sayegh et al. (2021) emphasized that proactive risk management improves quality and reduces disruptions.

In recent years, focus has shifted to megaprojects, characterized by complexity, high budgets, and long durations (Flyvbjerg, 2021). Studies by Zwikaël and Smyrk (2019) show these projects face unique uncertainties, making traditional frameworks less effective.

There is a gap in applying risk management to advanced megaprojects like those in Saudi Vision 2030 (Alghamdi, 2023). This research addresses that gap by evaluating adapted strategies in the context of NEOM.

11. Suggested Project Structure

To comprehensively cover the research objectives and address the problem statement, the final graduation project will be organized into the following proposed chapters:

- Chapter 1: Introduction: This chapter will provide the background of the study, outline the research problem, specify the objectives and questions, and detail the research significance and hypotheses.
- Chapter 2: Literature Review: This chapter will critically review existing academic literature related to project management, risk mitigation strategies, and their application within megaprojects, highlighting the research gap.
- Chapter 3: Research Methodology: This chapter will describe the research design, data collection methods, target population, sampling technique, and the statistical tools used for data analysis.
- Chapter 4: Data Analysis and Findings: This chapter will present the empirical results gathered from the questionnaires, testing the hypotheses and interpreting the data in the context of NEOM Company.
- Chapter 5: Conclusion and Recommendations: The final chapter will summarize the key findings, discuss their implications, and provide actionable recommendations for improving risk management practices, along with suggesting areas for future research.

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