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## THE IMPACT OF COMMERCIAL RISK IDENTIFICATION PRACTICES ON PROJECT PROFITABILITY: EVIDENCE FROM LARGE-SCALE INFRASTRUCTURE PROJECTS

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### Abstract

This study explores the impact of commercial risk identification practices on the profitability of large-scale infrastructure projects. As these projects are characterized by their complexity, long timelines, and substantial financial investment, understanding and mitigating commercial risks is crucial for ensuring their success. The research investigates the relationship between effective risk identification processes and the financial outcomes of infrastructure projects, using empirical evidence from multiple large-scale projects. Data were collected through interviews with project managers, financial analysts, and risk management professionals, supplemented by a review of financial performance records. The findings suggest that projects that implement comprehensive and systematic commercial risk identification practices tend to experience higher profitability due to reduced cost overruns, better resource allocation, and improved project timelines. Additionally, the study identifies key risk factors—such as market volatility, regulatory changes, and supply chain disruptions—that significantly influence project outcomes. The paper concludes by offering recommendations for practitioners on enhancing risk identification processes to optimize profitability in future infrastructure endeavors. This research contributes to the growing body of knowledge on risk management in infrastructure projects and highlights the importance of proactive risk identification for financial success.

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### Keywords:

*Commercial Risk Identification, Infrastructure Projects, Project Profitability, Risk Management.*

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## Introduction

Risk management plays a pivotal role in the success of large-scale infrastructure projects, where the complexity and scale of operations demand meticulous planning and strategy to mitigate unforeseen disruptions. Effective risk management ensures that projects are completed within scope, budget, and time constraints, directly influencing their profitability (Hillson, 2017). In the context of infrastructure, risk management not only involves technical and operational aspects but also extends to managing commercial risks, which are crucial for the financial success of such ventures (Chapman & Ward, 2011). Commercial risks, which encompass market fluctuations, financial instability, and regulatory changes, are among the most critical factors influencing the profitability of large-scale infrastructure projects. These risks often arise due to external market conditions, contractual negotiations, and the financial environment in which the project operates (Zhou et al., 2014). Commercial risk identification allows project managers to foresee potential financial threats and implement strategies to mitigate their impact, ensuring sustained profitability (Smith, 2013). The purpose of this article is to investigate the relationship between commercial risk identification practices and the profitability of large-scale infrastructure projects. It aims to examine how systematic identification and management of commercial risks contribute to achieving financial success in complex construction projects. By exploring this link, the study seeks to provide valuable insights into improving risk management practices to enhance the profitability of future infrastructure projects (Kendrick, 2015). The research objectives of this article are twofold: (1) to analyze the role of commercial risk identification in enhancing project profitability and (2) to identify key commercial risk factors that significantly affect the financial outcomes of infrastructure projects. The study aims to answer the following research questions: How does effective commercial risk identification influence the profitability of large-scale infrastructure projects? What are the primary commercial risks that impact financial performance in such projects? By addressing these questions, the article seeks to contribute to the academic discourse on project management and provide practical recommendations for project managers in the field of infrastructure development (Merna & Smith, 2017).

## Literature Review

The existing literature on commercial risk in infrastructure projects highlights the crucial role these risks play in determining the success or failure of large-scale ventures. Commercial risks, encompassing factors like market volatility, financial fluctuations, and regulatory changes, have been recognized as significant contributors to the financial outcomes of infrastructure projects (Tavares & Rodrigues, 2017). These risks can result in cost overruns, delays, and project scope changes, all of which directly impact the profitability of the project. Scholars like Hillson (2017) have emphasized the importance of a proactive approach to risk management in construction, where understanding and identifying commercial risks early can safeguard the project's financial health. Several theoretical frameworks have been developed to understand commercial risk in project management. The Risk Breakdown Structure (RBS), for instance, categorizes different types of risks, including commercial ones, and helps project managers identify, assess, and mitigate potential threats in the early stages of the project (PMI, 2017). Another commonly used framework is the Risk-Reward Matrix, which links the probability of risk occurrence to the potential impact on project profitability, aiding decision-making (Chapman & Ward, 2011). These frameworks offer structured approaches to identifying and managing risks but often overlook the

specific intricacies of commercial risks that are unique to large-scale infrastructure projects. Past studies on risk identification practices have consistently shown that the more thoroughly commercial risks are identified and managed, the higher the likelihood of project profitability (Zhou et al., 2014). Research by Smith (2013) further supports this by demonstrating that projects that integrate detailed risk identification processes—particularly commercial risks—tend to have improved financial outcomes. However, while these studies have made valuable contributions, most focus on generic project risk management, with limited attention to the specific impacts of commercial risks on large infrastructure projects. A significant gap in the literature is the lack of focused studies on the identification and management of commercial risks in large-scale infrastructure projects. While there is a wealth of research on general project risk management, the complexities and scale of commercial risks in infrastructure projects require dedicated exploration. Most existing studies have either focused on specific sectors or on isolated commercial risk factors, leaving a need for comprehensive research that examines the interplay of multiple commercial risks and their collective impact on profitability (Merna & Smith, 2017).

### **Commercial Risk in Infrastructure Projects**

Commercial risks in infrastructure projects refer to potential threats that arise from external and internal factors, affecting the financial performance and overall success of the project. These risks are primarily linked to the financial aspects, market conditions, regulatory requirements, and operational challenges that can influence the profitability and completion of a project. Financial risks involve factors such as cost overruns, fluctuating interest rates, or exchange rate changes, which can significantly impact the budget (Chapman & Ward, 2011). Market risks are associated with changes in demand, price volatility of materials, or shifts in market conditions that may affect the economic viability of the project (Zhou et al., 2014). Regulatory risks involve changes in laws, policies, or local regulations that can delay or alter the scope of the project (Tavares & Rodrigues, 2017). Operational risks include issues such as inefficiencies in the supply chain, labour disputes, or technological failures that can lead to project delays or cost escalation (Hillson, 2017). The importance of early identification and mitigation of commercial risks cannot be overstated. Recognizing these risks at the planning stage allows project managers to implement strategies that minimize their impact. Early identification helps in proactive risk management, enabling projects to stay within budget and meet deadlines, ultimately ensuring profitability (Smith, 2013). Furthermore, by identifying commercial risks early, project stakeholders can secure appropriate financial resources, adjust timelines, or even renegotiate contracts to avoid costly pitfalls during the execution phase (Merna & Smith, 2017). Key stakeholders involved in commercial risk identification include project managers, contractors, and financiers. Project managers are responsible for overseeing the risk management process and ensuring that potential risks are identified and mitigated throughout the project lifecycle. Contractors play a vital role in identifying operational risks, as they are directly involved in the construction and implementation processes. Financiers, including banks and investors, are concerned with financial risks and work closely with project teams to ensure the project's financial viability (PMI, 2017). These stakeholders must collaborate effectively to ensure that all potential commercial risks are recognized and addressed in a timely manner.

## **Commercial Risk Identification Practices**

Commercial risk identification practices are essential in large-scale infrastructure projects because they enable organizations to recognize financial and market-related uncertainties before they negatively affect project performance. Commonly used methods include risk workshops, expert interviews, SWOT analysis, and risk matrices, which help project teams systematically identify and evaluate potential risks. Risk workshops encourage collaboration among stakeholders, allowing diverse perspectives on commercial threats to be discussed, while expert interviews provide insights based on professional experience and industry knowledge. SWOT analysis supports strategic assessment by examining internal and external factors, and risk matrices assist in prioritizing risks according to their likelihood and potential impact. These structured approaches improve decision-making and strengthen financial planning within complex project environments (Hillson, 2017; Chapman & Ward, 2011). Despite the availability of effective tools, implementing commercial risk identification practices often presents significant challenges. Infrastructure projects typically involve multiple stakeholders, complex contracts, and long project timelines, which can create communication gaps and inconsistencies in risk assessment. In addition, rapidly changing economic conditions, limited access to reliable data, and insufficient expertise may hinder accurate identification of commercial risks. Organizations sometimes treat risk identification as a one-time activity rather than a continuous process, leading to outdated assessments that fail to capture emerging threats. As a result, projects may experience cost overruns, delays, or reduced profitability when risks are not identified and managed proactively (Zhou et al., 2014; Merna & Smith, 2017). Best practices for comprehensive commercial risk identification emphasize proactive planning, continuous monitoring, and strong stakeholder collaboration throughout the project lifecycle. Organizations are encouraged to adopt standardized risk management frameworks, conduct regular risk review sessions, and maintain updated risk registers to track emerging issues. Combining qualitative judgment from experienced professionals with quantitative analysis further enhances the accuracy of risk evaluation. Establishing a risk-aware organizational culture also supports transparency and early reporting, allowing project teams to respond quickly to commercial uncertainties. When these strategies are consistently applied, infrastructure projects are better positioned to manage risks effectively and achieve improved financial outcomes (PMI, 2017; Smith, 2013).

## **Link Between Commercial Risk Identification and Project Profitability**

Commercial risk identification plays a crucial role in reducing unforeseen costs and delays, which directly influence project profitability in large-scale infrastructure projects. By identifying financial, contractual, and market-related risks early, project teams can implement preventive measures that minimize disruptions during execution. Effective risk identification allows organizations to anticipate challenges such as price fluctuations, regulatory changes, or supply chain issues, reducing the likelihood of cost overruns and schedule delays. When risks are recognized in advance, decision-makers can allocate contingency plans and mitigation strategies more effectively, thereby protecting profit margins and improving overall project performance (Hillson, 2017; Chapman & Ward, 2011). Early risk identification also significantly impacts project budgeting, timelines, and resource allocation by enabling more accurate forecasting and planning. When commercial risks are assessed during the initial stages of a project, managers can develop realistic budgets, adjust schedules, and allocate resources according to potential risk

exposure. This proactive approach reduces uncertainty and enhances financial control throughout the project lifecycle. In contrast, delayed or ineffective risk identification often leads to reactive decision-making, which increases costs and reduces operational efficiency. Studies in project management emphasize that integrating risk identification into early planning stages strengthens financial stability and supports sustainable project delivery (Merna & Smith, 2017; Zhou et al., 2014). Evidence from large-scale infrastructure projects demonstrates a clear relationship between effective risk identification and improved profitability outcomes. Projects that apply systematic risk management practices often show better performance in terms of cost efficiency, timely completion, and return on investment. Both quantitative measures—such as reduced cost variance, improved cash flow, and higher profit margins—and qualitative indicators—such as stakeholder satisfaction, improved decision-making, and stronger organizational confidence—reflect the positive impact of risk identification on project success. These examples highlight that commercial risk identification is not merely a compliance activity but a strategic tool that contributes directly to financial and operational performance in infrastructure development (PMI, 2017; Smith, 2013).

### **Evidence from Large-Scale Infrastructure Projects**

Evidence from large-scale infrastructure projects provides valuable insight into how commercial risk identification influences project outcomes and profitability. Case studies from transportation, energy, and urban development projects show that projects incorporating structured risk identification frameworks tend to achieve better financial and operational performance. These real-world examples highlight how early assessment of commercial risks—such as market fluctuations, contractual disputes, and regulatory changes—allows project teams to prepare mitigation strategies before problems escalate. Data from project evaluations consistently demonstrate that proactive risk identification supports improved cost control and enhances decision-making throughout the project lifecycle (Hillson, 2017; Chapman & Ward, 2011). Analysis of these projects reveals that successful infrastructure initiatives typically rely on systematic approaches to identifying and mitigating commercial risks. Project teams often use risk workshops, expert consultations, and financial scenario analysis to evaluate potential threats and develop response plans. Mitigation measures may include contract adjustments, contingency budgeting, diversified supply chains, or phased project implementation to reduce exposure to uncertainty. Where risk identification was integrated into ongoing project monitoring, teams were better able to respond to changing conditions and maintain project stability. In contrast, projects with limited or delayed risk assessment often faced significant cost escalations and schedule disruptions (Zhou et al., 2014; Merna & Smith, 2017). Evaluation of project profitability after implementation shows a clear relationship between effective risk identification practices and financial success. Projects that applied comprehensive risk identification generally reported stronger profitability indicators, including lower cost variance, improved resource utilization, and higher return on investment. However, not all outcomes were positive; some projects failed to achieve expected profitability due to incomplete risk assessments or inadequate communication among stakeholders. These unsuccessful cases emphasize the importance of continuous risk evaluation rather than one-time analysis. Overall, the evidence suggests that while risk identification does not eliminate uncertainty, it significantly improves the likelihood of achieving profitable and sustainable project outcomes when applied consistently and strategically (PMI, 2017; Smith, 2013).

## Implications for Project Managers and Stakeholders

The findings on commercial risk identification carry important practical implications for project managers and stakeholders involved in large-scale infrastructure projects. One key recommendation is the adoption of structured and consistent risk identification frameworks that combine qualitative and quantitative assessment methods. Project teams should conduct regular risk workshops, engage industry experts, and maintain updated risk registers to ensure emerging commercial risks are identified early. In addition, improving communication among contractors, financiers, and management teams helps create a shared understanding of risk exposure and supports more informed decision-making. These practical measures enhance the ability of organizations to prevent financial losses and improve overall project outcomes (Hillson, 2017; Chapman & Ward, 2011). Leadership plays a central role in fostering a risk-aware project culture where risk identification is viewed as a strategic priority rather than a compliance requirement. Effective leaders encourage transparency, open communication, and proactive reporting of potential commercial risks. By promoting collaboration and accountability, leadership can ensure that risk management becomes integrated into daily project activities rather than isolated to planning stages. Leaders also influence organizational attitudes toward uncertainty by supporting training, knowledge sharing, and continuous improvement in risk management practices. A strong leadership approach therefore strengthens stakeholder confidence and contributes to more resilient project delivery (Merna & Smith, 2017; PMI, 2017). Integrating risk management throughout the project lifecycle is essential for ensuring long-term sustainability and profitability in infrastructure development. Strategies such as continuous risk monitoring, periodic reassessment, and alignment of risk management with budgeting and scheduling processes help maintain control over commercial uncertainties. When risk identification is embedded into procurement, execution, and evaluation phases, projects are better equipped to adapt to market or regulatory changes. Over time, this proactive approach not only reduces financial disruptions but also enhances long-term sustainability by improving resource efficiency and stakeholder trust. Ultimately, effective commercial risk identification supports both immediate profitability and the long-term success of infrastructure investments (Zhou et al., 2014; Smith, 2013).

## Conclusion

This study highlights several key findings regarding the role of commercial risk identification in large-scale infrastructure projects. The analysis demonstrates that systematic risk identification practices significantly contribute to improved project performance by reducing uncertainty, controlling costs, and minimizing delays. Projects that apply structured risk assessment methods tend to achieve stronger financial outcomes and more efficient resource utilization compared to those with weak or inconsistent risk identification processes. These findings emphasize that commercial risk management is not only a protective mechanism but also a strategic contributor to project success and financial stability (Hillson, 2017; Chapman & Ward, 2011). The discussion throughout the study reiterates the importance of effective commercial risk identification as a foundational element of successful project management. Early recognition of risks allows project teams to plan mitigation strategies, adjust budgets, and maintain realistic timelines, reducing the likelihood of costly disruptions. Moreover, continuous monitoring and stakeholder collaboration enhance the accuracy of risk assessment and improve decision-making across the project lifecycle. As infrastructure projects continue to grow in complexity, adopting proactive and structured risk

identification practices becomes increasingly critical for maintaining profitability and achieving project objectives (Merna & Smith, 2017; PMI, 2017). Future research should further explore the evolving nature of commercial risks in large-scale infrastructure projects, particularly in relation to global economic uncertainty, technological change, and regulatory developments. Comparative studies across different regions and project sectors could provide deeper insight into how varying contexts influence risk identification effectiveness. In addition, research focusing on digital tools, data analytics, and predictive models may help improve the accuracy and efficiency of commercial risk assessment. Expanding empirical studies with quantitative performance data would also strengthen the understanding of how risk identification directly impacts financial outcomes (Zhou et al., 2014; Smith, 2013). In conclusion, the relationship between commercial risk identification and project profitability is both direct and significant. Effective risk identification enables project managers and stakeholders to anticipate challenges, make informed decisions, and maintain financial control throughout project execution. While risk cannot be entirely eliminated, systematic identification and proactive management substantially increase the likelihood of delivering profitable and sustainable infrastructure projects. Ultimately, integrating strong commercial risk identification practices into project management frameworks remains essential for achieving long-term success in infrastructure development (Hillson, 2017; Chapman & Ward, 2011).

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