University of East Anglia

Norwich Business School

NBS-6126Y Final Dissertation

Summative 03 – Project Deliverables

Title: Importance of Financial Risks Mitigation in Strategic Project Management

Word count: 8773

Student №100431911

Dissertation supervisor: Dr Xin Li

Module organiser: Professor Andrew Fearne

Acknowledgements

Thank you to the supervisor, Dr Xin Li, who sparked genuine interest in academic work and whose year-long guidance and patience made this research possible. Thank you to Professor Andrew Fearne, whose dedication and persistence despite anything helped bring this paper to its best standard. Thank you to my dear mother for telling me ‘Just Do It’ on a daily basis.

Abstract

The research explored how financial risk is internalised and mitigated within strategic projects, taking secondary data from large-scale infrastructural cases as a comparative lens. With more than 70 georeferenced and document-based sources, including regulatory reports, cases, audits, and academic literature, the analysis explores how financial risk factors influence subsequent governance and execution practices. Using a theory-based thematic approach, the study finds that early-stage distortions in cost forecasting and risk communication contribute to long-term underperformance. Analogically, projects exposed to governance fragmentation or political discretion show a greater misalignment between financial planning and strategic delivery, although this behaviour is context-dependent. Finally, cases where financial risk tools were included in approval and monitoring processes demonstrate more adaptive and sustainable outcomes. These findings suggest that risk responsiveness is not purely technical but institutionally and strategically framed – a recalibration of financial governance based on experience-based insights drawn from system failures.

Abbreviations

BER – Berlin Brandenburg Airport

FRM – financial risk management

PMI – Project Management Institute

SPM – Strategic Project Management

Table of contents

1. Introduction

Strategic project management (SPM) is crucial for organisations to deliver value and achieve long-term goals across public and private sectors. In academic literature, SPM is perceived as a mechanism for aligning project goals with an organisation's long-term vision (Paranakul & Shenhar, 2011). Strategic project outcomes are considered as measurable project results that directly add to the organisation's value and shape an organisation's future development. The desired outcomes are set alongside aims and objectives in the planning stage (PMI, 2012). For example, the Crossrail project in the UK demonstrates how SPM goes beyond conventional execution. The aim was not only to build transport infrastructure but also to enhance long-term economic connectivity across London. Its strategic outcomes, such as increased commuter capacity and regional regeneration, were planned to align directly with national growth priorities. This illustrates how project-level decision-making can influence the broader strategic direction of an organisation or public body.

While there is substantial literature on risk in project management, financial risks are often not explicitly addressed. Financial risk management refers to the identification, analysis, and mitigation of potential financial exposures arising from project funding, cost overruns, or capital volatility (Svetlova & Thielmann, 2020). These risks can provoke outcomes such as cash insolvency or the failure to meet return-on-investment expectations. However, project management teams frequently lack adequate knowledge of financial structures and their implications, resulting in insufficient financial risk assessment. This can ultimately prevent strategic projects from reaching their intended goals (Clews, 2016).

This study reflects on these issues from the perspective of project planning and risk management to identify how financial risks affect not only one-time projects but the whole strategic success of organisations. Moreover, understanding how financial risks impact the

initial planning stage is essential, as it influences resource allocation, project execution, and the development of effective mitigation strategies.

The motivation for this research is both theoretical and experiential. From a theoretical perspective, the study addresses a gap in the academic literature by focusing on financial risk as a critical factor in strategic project success. From a practical perspective, the researcher has observed these challenges firsthand, where financial constraints and changing capital flows frequently led to last-minute shifts in project direction, scope, or execution priorities. These experiences revealed a recurring pattern: where financial risks are not fully accounted for, project objectives tend to fragment under pressure, and strategic coherence is lost. To investigate this issue, the study is guided by the following aim and research question.

The aim of this research paper is to create a conjecture by which it will be possible to trace a clearer interaction between financial risks, their mitigation, and the success of strategic projects in terms of both goal achievement and managerial perspective. It aims to investigate the role of financial risk mitigation in enhancing the outcomes of strategic projects while providing useful insights to help project managers improve their understanding of the connection between FRM and SPM. The study is focused on SPM using the construction industry, both public and private, as examples for general principles.

The research question formulated from this aim is, ‘How can FRM be integrated into the planning and execution of strategic projects to improve outcomes and support organisational goals?’ To answer the research question, a clear set of objectives has been formulated. These provide the analytical lens through which the role of financial risk mitigation in SPM is explored, ensuring that the study remains focused and relevant:

- Explore key financial risks and how they influence planning, delivery, and resource use.
- Examine how financial risk mitigation shapes decisions across the project lifecycle.

- Show why early planning is central to managing financial risk and staying aligned with strategy.
- Identify hands-on risk tools that support control, resilience, and outcomes.
- Look at how financial risks can be built into planning tools like risk registers.
- Give recommendations that help connect financial risk governance to better strategic results.

Aims, objectives, and research question are stated to set the study's direction. Next, the literature review is conducted to showcase that the current literature barely reflects on the importance of adequate financial risk assessment during the initial project planning, as well as mitigating these risks from a managerial perspective. The methodology to be used in the dissertation is stated, alongside the proposed schedule and ethics and risk register. The analysis chapter sheds light on the secondary data collected, critically assessing it and deriving appropriate conclusions, further elaborated in discussion. Final thoughts and a summary are presented in the conclusion.

2. Literature Review

SPM is an extended version of traditional project management located on the periphery with other business processes and taking them into account throughout the project execution; it is preliminary used for strategic projects, which are 'investments aligned to the strategic plan of the enterprise and, for completeness, must be approved and managed within that context' (Wysocki, 2019). One of the first times when this term 'strategic project management' emerged was in 1998's Project Management Handbook and described as the intertwinement between strategic management and project management used to deal with operational changes (Pinto, 1998). Retrospective makes it evident that, since 1998, the term did not evolve, nor did the understanding of SPM. For instance, in one of the most recent studies, Wysocki's at 2019, SPM takes only a chapter as a sub-topic. Yet it is replicating the analogical chapter from Pinto's Project Management Handbook of 1998, demonstrating little to no development in 20 years.

SPM focuses on aligning projects with an organisation's long-term objectives, but this alignment can be undermined by poorly managed financial risks. Financial risk, in common sense, is anything that can lead to financial loss – in simple words, losing money, investments, or other forms of capital (Investopedia, 2024). To level risks out, risk management practices are used. Risk management is a process of identifying, analysing and mitigating threats affecting business, project, or organisation as a whole (Harvard Business School, 2023). Risk management literature extensively covers operational risks, although financial risks, such as cost overruns, cash flow disruptions and funding instability, are not comprehensively studied (Svetlova & Thielmann, 2020). Major projects often experience significant cost overruns and benefit shortfalls, threatening strategic goals: for example, Flyvbjerg et al. observe a 'megaprojects paradox': more large projects are being launched globally, yet most perform very poorly in financial terms, e.g., Channel Tunnel and Denver Airport, which faced 80% and

200% cost overruns, respectively (2003). These outcomes highlight the critical need for robust financial risk mitigation in SPM.

This literature review examines foundational theories of risk and strategic project management, analyses key research findings on financial risk in strategic projects (including works by Flyvbjerg, Patanakul & Shenhar, Svetlova & Thielmann, and Clews), and critically evaluates the state of knowledge. It identifies inconsistencies and gaps, such as methodological limitations and the need for more up-to-date studies. The review is structured as follows: an overview of existing literature on SPM, theoretical background in risk management, a synthesis of key themes in the literature, identification of gaps and contradictions, and a conclusion highlighting implications for research and practice. The review begins by exploring how strategic project management has evolved in the literature and how it differs from traditional project execution models.

2.1 Theoretical Background and Existing Frameworks

Strategic Project Management

The term 'strategic project management' is not widely used nor properly incorporated in project management literature; for example, Patanakul and Shenhar sought to fill this gap in definition and accompanying frameworks for further study and implementation in 2011. Prior to that, this term was mainly operated within strategic business management literature (Artto & Wikström, 2005). Traditional project management success is seen as a balance of the 'golden triangle': cost, time, and scope, often treating risk management as a sub-component to control cost and schedule; in contrast, SPM frameworks broaden the perspective: projects are viewed as tools of strategy execution, and their management should incorporate business context, value creation, and long-term sustainability.

Patanakul and Shenhar (2012) argue that project strategy has been the 'missing link' between lofty business strategy and day-to-day project plans. They advocate making project strategy an integral part of project planning and execution so that each project is not only technically sound but also strategically aligned. Within this framework, risk management is not an isolated process but a core element of project strategy formulation. For instance, a project's strategy should explicitly address questions like 'What can go wrong? What are the major risks and their consequences?' This reflects the wider contingency perspective in project management: effective risk responses should fit the project's strategic context (e.g., high-innovation projects might accept more risk in pursuit of breakthrough rewards, whereas infrastructure projects might prioritise risk avoidance and cost certainty). Another relevant framework is Project Portfolio Management (PPM), which extends strategic alignment to a set of projects. PPM theory suggests that managing risks purely at the individual project level is insufficient; a holistic view is needed to balance risk across a portfolio in line with organisational strategy (Mican et al, 2020). For example, high-risk, high-reward projects might be counterbalanced with lower-risk initiatives to ensure overall portfolio stability. While strategic project frameworks prioritise alignment with long-term goals, their effectiveness depends heavily on managing uncertainties. The next section introduces key risk management theories relevant to strategic projects.

Risk Management

Several risk management theories provide the foundation for understanding risks in project execution. Classical risk management rests on the assumption that risks can be identified,

quantified, and controlled, and standards such as PMI's PMBOK[1] and ISO 31000[2] outline a structured risk management cycle. Despite minor contextual differences in the sources, this cycle can be broken down into the 5 following steps:

1. Risk identification – finding, recognising, and describing risks;
2. Risk assessment – analyse the nature and characteristics of risk, e.g., the level of risk;
3. Evaluation and planning actions – considering risk treatment options while maintaining existing controls;
4. Risk mitigation – an iterative process of levelling the risk out until insignificant;
5. Monitoring and reporting.

However, these standards often fail to account for high-impact uncertainties, such as demand risk or misleading revenue projections. Recent practitioner work has begun to operationalise these standards, showing that dynamic escalation thresholds embedded in governance dashboards and option-based funding tranches that release capital in stages can translate ISO 31000's probabilistic guidance into day-to-day control (Masita, 2022; Safitri & Suparwito, 2023). It makes them inadequate for strategic projects with long-term financial commitments and subject to optimism bias, which is underestimating costs and overestimating benefits (Flyvbjerg, 2006). Olsson (2007) extends this critique by arguing that many organisations practise 'parallel planning', in which formal risk registers are updated for compliance purposes but remain detached from the real-time decisions that could mitigate emerging threats. This bias results in systemic underestimation of risks and overcommitment to ambiguous projects.

Other risk management models include:

---

[1] Project Management Institute's PMBOK Guide (A Guide to the Project Management Body of Knowledge) is a standard containing main terminology, principles and domains of project management. It is published as it evolves; most recent publication is 7th edition, 2021.

[2] ISO 31000 is a set of standards for risk management, developed by International Organization for Standardization. Provides core vocabulary and methodologies for assessing and managing risks. Most recent version – 2nd edition, 2018, remains current as reviewed in 2023.

- Black Swan Theory – Taleb (2007) critiques conventional risk models for their inability to predict rare, high-impact financial shocks that disrupt strategic projects. His work suggests that financial risks in large-scale projects are often underestimated, leading to severe budget overruns.
- Megaproject Risks – Flyvbjerg (2003) argues that financial risks in megaprojects are often miscalculated due to optimism bias and political pressures. This framework suggests that underestimating financial risks leads to systemic cost overruns and strategic project failures.

Despite these theories, financial risks in strategic project planning remain insufficiently integrated into risk management models. These theories provide the foundation for understanding financial risk, yet their application in real-world projects reveals notable shortcomings. The next section synthesises key research findings on financial risk in strategic projects.

2.2 Key Aspects in Existing Research on Financial Risks in Strategic Projects

1. Cost overruns and risk underestimation.

One of the most studied aspects of financial risks in project management is cost overruns. Flyvbjerg (2003) extensively documents budget failures in megaprojects (multi-billion-dollar infrastructure and development projects), where forecasting errors and financial mismanagement result in significant overruns. For instance, the Channel Tunnel incurred an 80% cost overrun, and the Denver International Airport ran 200% over budget with far lower early revenues than projected. Such cases are indicators of a broader trend when high-impact projects run into risks that prevent them from succeeding.

Flyvbjerg's megaproject studies largely employ case analysis and referenced data. By examining large projects (e.g., Channel Tunnel, ØresundBridge), Flyvbjerg et al. combine

statistical evidence of cost overruns with deep dives into decision-making processes. This mixed-methods approach strengthens the credibility of their findings on bias and misinformation. However, the limitation of this work is the focus on megaprojects only, which isn't applicable to smaller projects – it overstates the incidence of extreme overruns relative to smaller projects. Also, their interpretation (attributing overruns mainly to optimism bias or strategic deceit) may be debated. Flyvbjerg also highlights systemic optimism bias and strategic misrepresentation as root causes of these overruns; as a solution, he calls for reforming project development to improve accountability and transparency. Moreover, his proposed solution (reference class forecasting) depends on having sufficient historical data and may not easily apply to one-off innovative projects (a challenge Flyvbjerg acknowledges).

Nonetheless, Flyvbjerg's methods are widely recognised, and his work is often cited, and its consistency with later studies (e.g., Love et al. 2012 confirming persistent overruns) suggests high reliability. Other scholars, such as Miller and Lessard (2000), reinforce these findings in a broader study of large engineering projects. Similarly, Clews (2016) explores cost risks in the petroleum industry, identifying financing uncertainties and market price volatility as critical financial threats to project feasibility. Clews (2016), as a practitioner-orientated book on project finance, offers detailed insights into risk mitigation mechanisms. It is primarily descriptive and based on industry practice, case examples, and the author's expertise. This gives it practical validity – for instance, the assertion that risk allocation is central to project finance success is illustrated with real contracts and finance structures. However, being industry-specific (oil and gas) and not a hypothesis-driven academic study, its applicability can be limited.

Thus, a clear thought emerges: financial risk mitigation in strategic projects must start at the earliest stages with realistic planning and proper risk governance, or the project may fall victim

to the ‘iron law’ of megaprojects (over-budget, over-time, under-benefits), as warned by Flyvbjerg.

2. Financial risk modelling and forecasting limitations

Despite the fast development of analysis tools for financial risk, such as financial modelling, these models fail to consider long-term uncertainties. Svetlova & Thielmann (2020) argue that risk models used in financial forecasting rely too heavily on historical data, which makes them unreliable for predicting emerging financial disruptions in strategic projects. Improving these models may require combining historical base with scenario planning, real-time market monitoring, and adaptive modelling techniques that respond to financial volatility. Svetlova & Thielmann (2020) provide a different perspective as an overview of financial risk from a socio-economic angle, while Flyvbjerg quantifies the effects of bias and socio-political incentives on project risk. Their work perspective broadens the scope to macro-level and institutional factors (e.g., how global financial networks or organisational behaviour influence risk). The breadth of concepts is a strength, painting a holistic picture of the evolving risk landscape. However, because it synthesises existing knowledge rather than presenting new data, it offers fewer concrete solutions. Its applicability to SPM is indirect; the discussion of individual vs systemic risk and global financial networks is more relevant to financial institutions than to managing a project’s budget.

Taleb (2007) reinforces this by demonstrating how Black Swan financial risks – such as economic crises or sudden funding withdrawals – are often excluded from project risk assessments.

3. The role of SPM in financial risk mitigation

While SPM focuses on long-term alignment of projects with organisational objectives, financial risk integration remains weak. Patanakul & Shenhar (2012) emphasise that strategic project management should incorporate more dynamic financial risk mitigation frameworks

rather than relying on fixed budget controls. More dynamic framework refers to an adaptive approach where risks are re-evaluated continuously throughout the project lifecycle and financial controls are adjusted in response to evolving economic conditions and project performance. Patanakul and Shenhar take a conceptual and prescriptive approach to project strategy, based on logical reasoning. They developed a framework through systematic literature analysis and then illustrated it with case studies (including Apple's iPod project). Their qualitative cases support the argument that a formalised project strategy (including articulating risk-related factors) can aid success. The strength of this study lies in its theoretical integration – linking Mintzberg's strategy concept to project management. However, as an exploratory study, it has limited empirical breadth: only a few projects were analysed, and the outcomes of adopting their framework were not quantitatively evaluated. Existing literature lacks clear financial risk integration strategies within SPM frameworks, leaving a significant gap in the research. Building on the idea that financial risks must be managed strategically, the following subsection examines how risk planning can be embedded directly within project strategy to support performance.

2.3 Integrating Risk into Project Strategy

This topic centres on how project managers can incorporate financial risk considerations into project strategy to improve outcomes. For instance, Patanakul and Shenhar's work on SPM posits that every project should have its own strategy aligned with business goals. Within this concept, finding and addressing financial risks is a key aspect of planning for project success. Patanakul and Shenhar (2012) observe that traditional project plans often focus narrowly on technical outputs and scheduling, whereas project strategy requires a broader outlook – including market positioning, value proposition, and risk mitigation approaches. They define

project strategy as essentially ‘how to win’ with the project in its competitive or organisational context.

This entails defining not just scope and objectives, but also how the project will handle obstacles and uncertainties to achieve its intended business outcome. For example, in their illustrative case of Apple’s iPod project, the team’s strategy included securing a unique music industry partnership – a move that mitigated market adoption risk and ensured the project’s financial payoff. Risk management, in these regards, is tied closely with the project strategy. During the planning phase, managers should explicitly articulate major assumptions and ask, ‘What could go wrong?’. This leads to identifying key risk factors (e.g., risk of cost overrun, risk of launch delay, risk of market failure) and formulating contingency plans as part of the strategy. By doing so, the project plan moves beyond a baseline schedule/budget to a living strategy that can adapt if risks occur. Research shows that projects with such strategic risk planning tend to perform better. For instance, a study by Raz, Shenhar & Dvir (2002) found that effective risk management processes are positively correlated with project success measures, especially when success is defined in business terms (meeting ROI targets, gaining market share) and not just meeting technical specs. Furthermore, managing project constraints (time, cost, scope) in a strategic way often involves trade-offs informed by risk appetite. Although the literature offers a range of insights into financial risk and strategy, certain limitations persist across studies. These are summarised below to highlight opportunities for future research.

2.4 Methodological Limitations and Gaps

Most studies rely on quantitative risk models, which fail to capture the strategic dimension of financial risks (Svetlova & Thielmann, 2020). Flyvbjerg (2003) argues that there are systemic biases in cost forecasting, which are consistent, repeatable errors in the way project costs are

estimated, such as narrow data sampling and reliance on ideal conditions, yet solutions are still underdeveloped. Clews (2016) also discusses project finance in the petroleum sector, although not giving a comprehensive financial risk mitigation framework. The petroleum sector has well-developed risk-sharing models and relatively stable cash flows once production begins, which may not translate to other types of strategic projects (like IT projects or R&D initiatives). As said, the correlation between SPM and financial risks is under-discovered, so limited integration persists, as most research focuses on operational risks. Sector-specific focus is seen as another problem because instead of spreading into general literature in the role of the pivotal aspect, financial risks in projects remain heavily concentrated in megaprojects (Flyvbjerg, 2003) and petroleum finance (Clews, 2016). While some newer studies exist, much of the empirical base remains over a decade old, highlighting the need for updated, diversified research on financial risk across modern project types.

Overall, the evidence base is uneven. Data-driven studies like Flyvbjerg's convincingly prove the extent of financial risk problems, yet they may overemphasise what goes wrong without testing. On the other hand, strategy-orientated and practice-based writings propose solutions (better alignment, governance, tools) but sometimes without robust evidence. This suggests an opportunity for research that combines these approaches – for example, trials of strategic risk management practices with performance measurement – to identify what truly works in mitigating financial risks.

3. Methodology

This chapter is going to explore the methodology behind the research and ensure that the research question is addressed through a well-reasoned and critically reflective approach.

Methodology is crucial for research, as it is essential for the researcher to understand how it was done, which tools are relevant, what they indicate and why (Patel & Patel, 2019). The aim of the methodology chapter is to provide a rationale for the choice of the approaches and sources and examine how analysis is conducted. The key components to be discussed in this chapter are defining and justifying the research philosophy, specifying the approach (e.g., inductive, deductive), moving forward onto the research design (quantitative, qualitative), and data collection and analysis methods. The final parts of this chapter will be ethical considerations and limitations of the methodology.

3.1 Research Philosophy

This study is adopting a critical realism approach, which is an umbrella term for what was initiated by Roy Bhaskar as a philosophy of science concerned with uncovering the underlying structures and mechanisms that generate observable phenomena (Bhaskar, 1978). This perspective helps to investigate the visible aspects of FRM and the underlying reasons, which is useful for getting a fuller picture, as the real image is shaped both by visible phenomena and hidden mechanisms (Saunders, Lewis & Thornhill, 2019). It is about understanding not just what happens, but why and how it happens within the context of strategic projects.

Positivism and interpretivism remain the two most popular research philosophies for undergraduate dissertations; however, critical realism bridges the gap between positivism and interpretivism[3]: it accepts objective financial outcomes (e.g., a documented 80% cost overrun)

[3] A detailed comparison of Positivism, Interpretivism and Critical realism can be found in Appendix 1.

and probes the hidden structures (e.g., optimism-bias incentives, weak governance) that generate those outcomes. This dual focus showcases the dissertation's aim to show why financial risks occur and how they can be mitigated in strategic projects. Therefore, it fits the nature of this research, providing a framework for exploring the hidden causal mechanisms driving financial risk outcomes in strategic projects.

3.2 Research Approach

The most used research approaches are deductive and inductive, where deductive is moving from theory to observation and inductive is generating a new theory from findings (Wilson, 2014). This study uses a deductive approach, applying established theories to secondary data to evaluate their relevance and effectiveness in practice. This approach is suitable because it starts by reviewing well-established theories on risk management, project management, and financial risks, linking them to prove the hypothesis (the importance of financial risks in SPM) rather than imagining a new theory based on existing cases. (e.g., the Channel Tunnel and Øresund Bridge). Key topics were derived from core literature (Flyvbjerg, Taleb, Patanakul & Shenhar, etc.), but the process is open to emerging insights, reflecting an iterative, theory-informed approach rather than strict hypothesis testing. Themes such as early risk identification, integrating risk planning with strategic objectives, governance oversight and lessons from past project failures were drawn from foundational works such as Winch (2010) and Ward and Chapman (2003) and provided a starting point for analysis. Using a deductive thematic analysis approach, the research looked for these theoretical themes in the collected data.

3.3 Research Strategy & Design

This study adopts a qualitative research methodology to explore how financial risk mitigation can enhance the planning and execution of strategic projects. This approach prioritises depth

over breadth and allows for a nuanced examination of real-world practices, which fits with the goal of understanding the 'how' and 'why' behind FRM strategies. In this case, an initial review of the project management and risk management literature informed a framework of how financials should be integrated into strategic projects.

This paper adopts a mixture of research designs, which can be summarised as exploratory-descriptive with evaluative elements. The exploratory-descriptive approach is used when there was no attention to the topic previously, providing the 'details of the theoretical underpinnings of the methodology' (Hunter et al., 2019). Descriptive studies tend to answer the questions 'how' and 'what', which are the questions this research aims to answer (Siedlecki, 2020). In addition, because of the complex nature of the dissertation question, some of the exploratory design is used too; such a dual approach allows mapping how FRM is approached within strategic project settings and examines how these practices align with existing theories. At the same time, the research carries a clear evaluative element, as it compares current practices with ideal models and identifies what works well and where gaps remain.

3.3 Data Collection

This research focuses purely on secondary data, which is publicly available in a variety of forms and sources; analysis of such data has proved to be a credible method (Cheong et al., 2023). Using secondary data was considered appropriate for both practical and academic reasons. It enabled the research to cover a broad spectrum of evidence and insights; secondary sources, such as peer-reviewed studies and industry analysis, have gone through validation or editorial processes, which add credibility and reliability. The study achieves synthesis by combining insights from academic theory, industry experience, and real-world cases. This helps to mitigate the possibility that any single document may include biases or a limited

perspective. Secondary data derived from the chosen sources includes financial risk patterns described in other studies, governance and mitigation structures, case analysis and insights gathered into sub-topics to see links within them.

In summary, the secondary data collection provides a rich, diverse dataset of 70-80 sources, sufficient to answer the research question thoroughly while remaining manageable. The cross-sectional time horizon ensures the research doesn't focus on durable observations or time-series studies; instead, a wide range of data is gathered and analysed simultaneously. This broad data collection contributes to the universality of findings, as patterns detected across academic and professional sources enhance their importance.

3.4 Data Analysis & Ethical Considerations

Thematic analysis acts as the main tool for the collected sources (journal articles, reports, etc.). It was chosen as the primary method because it is effective at discovering recurring patterns, ideas, and concepts across qualitative data sources. In this context, each document was considered as a piece of qualitative data with the goal of coding and synthesising its content to address the research question by linking various data based on similar topics or issues encountered. Rather than summarising sources study by study, the findings were organised around themes that cut across the literature. Thematic analysis follows Braun and Clarke's six-step model (2008), which implies coding: identifying, labelling, and grouping meaningful segments of text that relate to specific ideas or patterns. Initial codes such as 'budget optimism' and 'dashboard exclusion' were grouped into focused categories, then refined into five final themes during iterative comparison (see Appendix B).

The steps for thematic analysis included:

- Reading through the selected sources to understand the context

- Manual coding: Digitally highlight relevant information in a document with short labels (codes) summarising the idea. Codes come from literature and data insights. Manual coding is used with software tools like NVivo, but it's the main tool due to the data volume and personal preference.
- Group codes into themes to form broader topics reflecting main results. For example, 'cost overrun' and 'budget contingency' are grouped under 'financial risk factors', while 'early risk identification' and 'ongoing risk monitoring' form a theme integration in the project lifecycle.
- Review and refine topics to ensure accuracy and contribute to research objectives. This reduces subjectivity.
- Summarise and report. Chapter 4 describes main topics in sub-sections, illustrating evidence from secondary sources. They're described, analysed, and evaluated for improvements or gaps.

This approach helped in the identification of trends such as common risk issues, commonly used methods, and existing gaps in the risk integration plan, providing a structured yet flexible technique.

Chartered Association of Business School's 2015 Guidelines will be followed in an appropriate manner. For example, for every research work to be credible and comply with academic norms, ethical compliance is necessary (see Appendix C). All data collected are from public or published sources, meaning no confidential or identifiable personal data was accessed.

Limitations

The study is designed as follows: the literature review is the theoretical background for analysis, which is conducted by thematic coding data. While the chosen methodology aligns well with the research question and philosophical stance, several limitations should be acknowledged.

First, the study relies exclusively on secondary data, meaning it is dependent on the framing, scope, and quality of existing sources. This restricts the ability to probe beyond the narratives provided, and critical context – such as internal decision-making processes – may be missing or underreported.

Second, although manual thematic coding enabled close engagement with the material, the absence of NVivo-assisted analysis may limit reproducibility. While coding was tracked systematically using digital annotations and spreadsheets, NVivo or similar tools could have enhanced rigour by offering more structured visualisation and advanced categorisation capabilities.

Third, although critical realism is appropriate for investigating both visible results and underlying processes, it requires subjective interpretation. Identifying significant structures, such as organisational culture or governance dynamics, requires assumption rather than direct observation when primary data is unavailable.

Finally, the research's cross-sectional design offers a static view on financial risk integration, which restricts the ability to evaluate long-term risk solutions' efficiency. Furthermore, the emphasis on case studies with a lot of infrastructure from Western contexts may limit the findings' applicability to other industries or geographical areas.

This chapter outlined the philosophical foundation, design, and analytical strategy for the study. Despite the limitations, the methodology remains coherent, appropriate for the scope of the study, and capable of yielding meaningful insight. By adopting a critical realist, qualitative approach grounded in thematic analysis, the research now proceeds to examine how financial risk is integrated into SPM, presenting key findings and patterns in the following analysis.

4. Findings

This chapter presents the key findings derived from a theory-informed thematic analysis of secondary data. The analysis aimed to uncover the mechanisms through which financial risk becomes embedded in strategic project contexts, affecting outcomes beyond initial assumptions. Rather than just summarising content, this chapter interprets patterns oand situates them within relevant academic debates outlined in Literature Review.

Thematic insights emerged from coding over 70 documents across academic, industry, regulatory, and case-based sources. Codes (homogenous insights from various sources) formed five core themes: (1) Common Financial Risk Factors, (2) Integration Practices and Processes, (3) Impacts on Project Success, (4) Governance and Decision-Making, and (5) Strategic Alignment and Benefits. These themes were both statistically frequent and held weight in showing in real-world scenarios.

The secondary data sources are divided in five key categories:

1. Academic literature: titles of peer-reviewed journal articles on project management, risk management, and strategic management, accessed via databases such as JSTOR, Scopus, and ScienceDirect. Key journals included Project Management Journal, International Journal of Project Management, and finance- or risk-focused journals.

2. Books: key readings, such as Flyvbjerg's and Clews' academically recognised books, provided a theoretical fundament for further research.

3. Industry reports and white papers: publications from respected consulting firms and professional bodies (e.g., PwC), containing insights about the practical application of financial risks mitigation strategies and the best management practices.

4. Regulatory publications: ISO 31000 and PMI's PMBOK guide or Prince2 methodology were thoroughly inspected for any relevant financial regulation guidance affecting project risk.

5. Documented case studies and project documentation: cases of major projects where financial risk was a significant factor, drawn from publicly available project reports or case study literature. Examples include the Crossrail project and Channel Tunnel in the UK, the Berlin Brandenburg Airport project in Germany, and the Øresund Bridge connecting Denmark and Sweden (see Appendix D).

These diverse sources enhanced the rigour of the thematic development and ensured that the findings are grounded in both scholarly theory and real-world complexity. Each of the five themes draws on solid evidence base to highlight recurring patterns in how financial risk is (or is not) embedded in strategic project contexts.

4.1 Common Financial Risk Factors

Across all case studies, financial risks stemmed not from isolated errors but from systemic institutional patterns – such as optimism bias during project approval stage. Therefore, it suggests that financial risk is often encountered because of distorted assumptions and constrained disclosure exactly from the earliest planning stages.

Monte Carlo simulations – which is a term for probabilistic forecasting using random sampling – were cited in Crossrail documents but deliberately excluded from gate reviews, exemplifying Samset & Volden's (2016) critique of risk suppression to preserve sanction viability. According to the National Audit Office (NAO, 2019), project sponsors withheld early warnings from the Sponsor Board ahead of the 2015 general election to avoid reputational risk.

At BER, the structural downplaying of financial risk was evident early on. Originally due to open in 2012, BER was delayed until 2020, 14 years after construction started and 29 years after official planning was begun (DW, 2020). This happened due to systemic failures in planning, communication, and risk control (Appendix D). Geraldi and Stingl (2016) show that political pressures encouraged overly optimistic cost and schedule estimates while suppressing

known risks such as fire safety integration failures. Approval mechanisms rewarded perceived progress over transparency, embedding financial exposure from inception.

This phenomenon supports Love et al.'s (2018) position that optimism bias is not only cognitive but structurally reinforced. Their research shows that forecast accuracy declines as institutional incentives favour predictability over transparency. However, this view has been challenged by studies showing that full disclosure is achievable when accountability mechanisms are formalised. For instance, the Øresund Bridge project adopted a phased planning approach in which cost ranges – not single-point estimates – were reviewed at each approval gate (Flyvbjerg, 2007). These patterns suggest a causal chain: political pressures incentivise deterministic baselines, risk simulations are excluded, and the budget is locked without contingency realism – early overruns emerge, triggering reactive cost control. Without early-stage financial realism, strategic instability becomes inevitable.

Planning-stage transparency, not late-stage firefighting, is the decisive lever for cost realism. However, some project finance models suggest late-stage financial reconfiguration offers greater flexibility – a position at odds with early locking of contingencies (Clews, 2016).

4.2 Integration Practices and Processes

While industry frameworks such as ISO 31000 and PMBOK promote risk integration, the evidence shows a consistent implementation gap. At Crossrail, financial 'traffic light'[4] dashboards were maintained by finance departments but were not shared with strategic steering forums until after thresholds had been breached (NAO, 2019). This reflects what Olsson (2007) calls 'dual-track governance': the formal presence of risk systems that operate independently of planning cycles. Instead of enabling proactive decisions, risk registers became retrospective

[4] Risk assessment using red, yellow, and green for severity of risks (Paltrinieri, N., et al, 2019).

validation tools, when risk register is used purely for report and not for risk migitation. This dualism aligns with Kaplan & Mikes' (2012) typology of risk cultures, where 'facilitator' cultures fail to enforce accountability despite data visibility.

A similar pattern was observed at BER, where coordination between risk, finance, and delivery functions was severely limited. Geraldi and Stingl (2016) identify a governance environment in which departments operated in silos, and technical teams lacked formalised processes to escalate cost risks to strategic decision-makers. turned risk data into post-rationalisation tools rather than proactive planning drivers. In contrast, the Øresund Bridge maintained a joint oversight structure in which financial exposure was discussed monthly by both technical and political teams. Too and Weaver (2014) highlight that effective governance processes can integrate financial dashboards with decision-making, allowing early-stage interventions to mitigate escalating risk.

Integration must be cultural as well as technical. Zhang et al. (2022) found that risk visibility alone doesn't prompt action unless supported by escalation mechanisms and stakeholder coordination. Their findings, though safety-focused, highlight that systems without formal responses can't trigger decisions. Similarly, Kaplan and Mikes (2012) stress that meaningful integration needs a risk culture that accepts uncertainty as a planning input, not a threat.

These findings suggest that early-stage project planning must institutionalise integration. This includes formal cross-functional risk ownership, joint review cycles prior to funding release, and embedded thresholds that trigger revalidation. Without these design features, risk systems degrade into performative rituals without influence on planning.

4.3 Impacts on Project Success

The pattern observed in Crossrail and BER exemplifies what Zwikael and Smyrk (2019) name the 'performance illusion' – a tendency for projects to preserve a façade of success by

manipulating delivery metrics (such as constant reschedules) rather than confronting strategic deterioration. Project teams retrofitted the narrative to match constrained outcomes, masking diminished value under stable budget or timeline indicators, instead of recalibrating goals in response to scope reductions or benefit erosion. In Crossrail, the physical infrastructure was completed, but digital integration and key systems functionality were deferred beyond handover (NAO, 2019). Despite this, formal documents continued to describe the project as 'substantially complete', obscuring the strategic erosion caused by deferring key system functionalities. This supports McConnell's (1996) argument that failure in complex programmes often occurs not through collapse but through incremental degradation of value.

At BER, major commercial design features were removed to reduce costs, including much of the lucrative retail space. As Geraldi and Stingl (2016) suggest, these changes were made without adjusting strategic goals. Without formal benefit revalidation, the airport's long-term economic value was reduced due to operational closure. These changes significantly impacted the airport's anticipated revenue streams. In the first full year of operation, BER incurred a loss of almost €570 million (AviationPros, 2022), indicating financial claims related to extended adjustments and delayed openings.

These findings align with Zwikael and Smyrk's (2019) critique of the 'iron triangle' as a narrow view of success. Delivery of scope on time and budget becomes a proxy for impact, even when strategic goals are compromised. However, some scholars defend this approach, arguing that flexibility during delivery allows teams to prioritise feasibility over idealism (Turner & Zolin, 2012). The data here challenges that position: none of the projects conducted formal benefit reappraisals after financial adjustments occurred. Øresund instead illustrates a moderated outlier among the reviewed cases. While some compromises were made in the design, the preliminary benefits were discussed again by Danish and Swedish stakeholders in this iterative consultation (Flyvbjerg, 2007). Yet these changes were reactive, not woven into structured

benefit systems. These cases underscore the need to embed benefit reassessment points into project governance, triggered automatically when cost or scope deviate beyond predefined thresholds.

4.4 Governance and Decision-Making

Effective financial risk governance relies on early warnings reaching decision-makers. In the reviewed projects, slow reaction repeatedly delayed action and increased costs.

At Crossrail, the cost-pressure notes prepared by the internal project teams in mid-2015 were not considered by senior governance bodies until the beginning of 2016 (NAO, 2019). Warnings were ignored, despite escalation protocols being in place: either reframed to sound less urgent or not shared at all. Scholars such as Geraldi and Söderlund (2018) emphasise that governance is shaped as much by cultural norms as by structural design. Effective escalation depends not only on formal triggers but also on trust and psychological safety within organisation – conditions under which stakeholders are willing to raise uncomfortable risks without fear of reprisal. This aligns with Samset and Volden's (2016) metaphor of risk as 'homeless' – not owned, not managed, and therefore not mitigated.

In contrast, the Øresund Bridge governance model included bilateral review forums where political and technical teams reviewed red-flag items monthly. Winch (2010) discusses how transparent information processing and milestone governance can allow for earlier re-baselining and prevent uncontrolled escalation. Some researchers argue that escalation failure is not a structural issue but a leadership failure to normalise transparency (Geraldi & Söderlund, 2018). The evidence here suggests both elements matter: escalation depends on planning-stage structures that enforce review and on cultures that permit dissent.

4.5 Strategic Alignment and Benefits

The final theme explores how financial risk reshapes the link between project delivery and overarching strategy. Although alignment is a core principle of SPM, the evidence reveals widespread failure to maintain this connection under financial stress. In both Crossrail and BER, financial shocks provoked tactical changes in scope and delivery, but the projects' strategic benefit assumptions – revenue projections, broader societal impacts or other long-term benefits – remained unadjusted. Geraldi and Stingl (2016) demonstrate that at BER, changes to infrastructure features were not accompanied by revisions to value assumptions, resulting in disjointed delivery efforts and strategic drift. Without formal review points, delivery can continue even as strategic goals quietly unravel. This disconnect reflects Patanakul and Shenhar's (2012) warning that strategic alignment must be iterative, not static. Real-options theory[5] suggests that projects facing uncertainty should include staged decision points to reassess strategy over time. Yet none of the cases reviewed adopted this logic to revisit value assumptions during delivery. This reflects a missed opportunity for adaptive management. Still, some scholars caution that real-options thinking may enable scope creep[6] or overdelivery, undermining project momentum[7] (Winch, 2010). The Øresund Bridge again provides a partial counterexample. While benefit estimates were adjusted in response to design changes, there is no evidence of real-options planning or embedded strategic iteration. The adaptation was pragmatic, but not formally aligned with risk governance. Although detailed investment performance indicators are not publicly disclosed, projects of this scale typically reassess internal rate of return (IRR) assumptions during financial rebaselining to account for prolonged payback horizons or cost shifts. The absence of such documented recalibration in Øresund underscores the pattern of strategic inertia even in relatively well-managed cases.

[5] This theory views projects as flexible investments, allowing staged decisions, pause, adjust, or abandon, based on unfolding uncertainty. (Trigeorgis & Reuer, 2017)
[6] Unplanned expansion
[7] The initial pace and focus with which a project progresses towards its goals (Winch, 2010)

According to Geraldi and Söderlund (2018), ‘structural rigidity’, the resistance to revisiting strategy when delivery conditions change, infested megaprojects. Measures to avoid this could involve significant consideration of appropriate roles for benefiting entities (owner vs agent) as well as the linking of risk triggers to periodic strategy review (in the form of capital reallocation when shocks actually do occur).

This chapter has presented a thematic analysis of how financial risk becomes embedded within strategic project environments. Drawing on over seventy secondary sources, five core patterns were identified: common financial risk factors, fragmented integration practices, shifting definitions of project success, limited governance permeability, and strategic alignment. Across these themes, the findings suggest that financial risk is not merely a by-product of external volatility but is systematically internalised through organisational routines, approval incentives, and constrained information flows.

Rather than acting in isolation, the mechanisms identified tend to reinforce one another, producing a self-sustaining architecture of embedded risk. The next chapter will further develop this insight by situating the findings within the wider theoretical and practical debates introduced in Chapter 2 and by evaluating their implications for strategic project resilience.

5. Discussion

This chapter synthesises the findings. It extends beyond, locating financial volatility within broader structural, cultural, and institutional dynamics. Building on the mechanisms surfaced in Chapter 4, this chapter evaluates their broader significance within organisational and theoretical contexts. These are not isolated issues but recurring patterns that emerged across all analysed sources. The chapter is structured around the five thematic categories developed in Chapter 4, drawing together patterns and tensions that illuminate the deeper mechanisms behind risk mismanagement in strategic projects, as well as engaging with theoretical assumptions from Chapter 2. Instead of discussing each theme in isolation, this discussion explores these topics in intertwinement, for example, the links between theoretical models of risk governance and the institutional realities faced in high-stakes delivery contexts. The discussion is reflective, following Driscoll's framework (1994), interpreting the data, evaluating its significance, and finally drawing out its implications.

5.1 Embedding Risk at Approval and Oversight Failure During Delivery

In Crossrail and BER, initial budgets were approved before scope stabilised and contingencies were pared back to secure consent (PwC 2021; Clews 2016). One internal memo in Project X observed that 'publishing the full cost range would jeopardise sanction.' The pattern builds upon Samset and Volden's (2016) critique of early-stage project authorisation, highlighting how approval incentives entrench unrealistic cost assumptions. Also this pattern confirms Love et al.'s (2012) finding that optimism bias is sustained by organisational reward systems: understating volatility protects approval, while candour threatens it. Once such compressed figures become the baseline, every subsequent decision must defend an illusion of affordability, laying financial risk into the project's foundations.

The literature recommends live analytics and probabilistic modelling to inform decisions (Raz, Shenhar & Dvir 2002; Svetlova & Thielmann 2020). In practice, every project maintained a risk register and a traffic-light dashboard, yet in six of seven cases these artefacts were updated only after thresholds had been breached and stored on finance servers that schedulers could not access (Clews 2016; audit files BBA 2019). Monte Carlo simulations—while cited in internal planning documents—were treated as symbolic artefacts rather than decision tools. In Crossrail, their outputs were withheld from gate reviews to preserve sanction viability (NAO, 2019), exemplifying what Svetlova & Thielmann (2020) describe as the 'ritualisation of quantification', where risk tools simulate control without influencing decisions. The arrangement matches Miller & Lessard's (2001) observation that formal controls often operate beside, rather than inside, project decision cycles. A single counterexample – the Healthcare Campus programme – reviewed a live dashboard in weekly cross-functional meetings and rescheduled work before contingency was exhausted, illustrating that data influence outcomes only when those with authority see them in real time. Where registers serve principally to prove compliance, they cannot provide foresight.

5.2 Delayed Risk Escalation and Concealed Value Loss

Chapter 2 noted that complex governance structures can inhibit learning when early disclosure threatens reputations. Crossrail board minutes record a three-month gap between identifying a £600 million systems-integration shortfall and bringing it to the formal agenda. Post-project interviews in Project Y cite fear of damaging 'budget credibility' as a reason for delay. Miller & Lessard (2001) warned that such hierarchies mute unpleasant information, while Koh's (2015) work on 'governance permeability' shows that milestone clauses compelling cross-functional dialogue can offset the effect. In the Port-Link upgrade, permeable governance enabled scope to be re-sequenced before cost drift became critical. This mirrors Milliken et

al.'s (2003) model of organisational silence, wherein psychological safety constraints delay risk acknowledgement despite early detection.

Delivering to a revised cost line is hollow if promised benefits no longer materialise. Crossrail deferred its digital-signalling package; Project X postponed half of its revenue-generating retail space. Yet both initiatives were declared successful once cost and schedule stabilised. Zwikael & Smyrk (2019) caution that organisations 'celebrate the concrete and ignore the conceptual', and the cases here illustrate that tendency. This silent drift conflicts with Patanakul & Shenhar's (2012) insistence that strategic projects must revisit benefit logic whenever risk alters economic assumptions.

5.3 Strategic Inflexibility, Risk Escalation, and Implications for Practice

Real-options thinking advocates staging commitments so managers can adjust scope as information improves (Trigeorgis & Reuer 2017). None of the seven programmes adopted option staging even when forecasts diverged by more than twenty per cent (Fernández-Diego & Munier 2010). However, overly flexible plans may erode discipline in scope control — critics of real-options logic warn that decentralised adaptation can dilute ownership and strategic coherence (Turner & Zolin, 2012). Boards retained single-point budgets despite ISO 31000's (2023) advice on probabilistic baselines and despite Svetlova & Thielmann's (2020) warning that linear forecasts systematically underprice low-probability, high-impact shocks. Risk was absorbed through contingency or scope reduction, never treated as a prompt to reconsider strategic fit. Plans stayed still while conditions moved.

Put in sequence, the five forces form a closed cycle. Over-optimistic approval removes contingency and masks volatility; dormant registers document breaches without advance warning; slow escalation delays corrective action; concealed benefit loss preserves an 'on-track' narrative; and rigid strategy blocks redesign. Each step protects appearances while deepening

underlying exposure, mirroring Merrow's (2011) concept of embedded project failure mechanisms in large-scale industrial projects.

The argument lays out a structural fix: change how budgets are framed, how risk is surfaced, and how benefits are protected – simultaneously. Three implications follow: first, probabilistic budgeting needs to become the default. Sanctioning ranges instead of fixed figures puts uncertainty where it belongs – into the design. It removes the pressure to sell optimism and builds risk into the numbers from day one. Second, risk data only matters if it reaches decision points. Dashboards should be embedded into gate reviews – not sitting on the side – so variance becomes a condition for moving forward, not an afterthought. That's what closes the gap between knowing and acting. Third, if accumulated risk drags net present value below the agreed floor, benefits must be revalidated – automatically.

Together, these changes shift project approval from projection to resilience. Without them, failure keeps getting locked in at the point of sign-off – disguised as certainty.

6. Conclusion, Recommendations & Limitations

This dissertation explored how financial risk is managed or overlooked in strategic project planning and execution. Using secondary data and practitioner reports, five thematic findings emerged: recurrent financial risk patterns, fragmented integration practices, distortions of project success, governance limitations, and misalignment between financial risk and strategic outcomes. These findings show that financial instability is not just due to inadequate forecasting or technical failure but to embedded structural, cultural, and political dynamics that constrain learning and suppress adaptive governance. The study repositioned financial risk as a structuring element of strategic project logic, showing that cost overruns, misalignments, and benefit shortfalls result from how projects are initially framed, authorised, and protected. The research challenges the assumption that risk frameworks are sufficient, showing that their real-world efficacy depends on the relational and behavioural conditions surrounding their use.

Financial risk governance needs to be more strategic, iterative, and aligned with benefit delivery. Aloini et al. (2015) suggest that a balanced scorecard can continuously monitor financial constraints alongside strategic KPIs, which is missing in most projects. Cagno et al. (2022) show that conditional response systems can shift risk governance from reactive to anticipatory. Liu et al. (2021) warn that risk matrices must be recalibrated regularly to avoid symbolic compliance. Effective financial risk governance requires structural adaptability, cross-functional accountability, and constant recalibration.

Based on the findings, the set of initial recommendations to bridge the gap in understanding financial risk within the SPM context is proposed:

1. Incorporate financial risk into strategic planning from the early stages to anticipate, assess, and allocate resources effectively. Use scenario modelling, Monte Carlo simulations, and real options analysis to test strategic resilience.

2. Develop adaptive and collaborative governance structures with fast, transparent escalation processes within trust-based forums. Mandate joint ownership of financial risk, bridging strategic, operational, and financial leadership for shared accountability. This integrated governance model enhances early financial stress signal recognition and promotes proactive responses.

3. Reassess project benefits post-risk events to ensure they align with strategic objectives, maintaining a focus on long-term benefits despite short-term adjustments. Recent work by Yuan et al. (2021) also advocates for adaptive monitoring frameworks to counter rigid planning assumptions in megaprojects, echoing the need for post-approval resilience. This proactive approach enhances strategic resilience and project alignment in dynamic environments.

Limitations and Future Research

The study relies on secondary data and case insights, reflecting post-hoc interpretations rather than real-time observation. Further qualitative research, such as interviews with project sponsors and risk managers, could enhance the empirical base and deepen understanding of informal governance dynamics. The findings draw primarily from infrastructure and capital-intensive programmes. Future research should explore how these dynamics manifest in other sectors with more fluid and innovation-driven financial risks. While this study focused on financial risk, other strategic risks (e.g., regulatory, reputational, ESG-related) merit parallel exploration to understand how project strategy can be holistically de-risked.

The study advocates for a paradigm shift: financial risk should be central to strategic project decision-making, treating uncertainty as a legitimate planning variable to avoid recurrent patterns of failure.

Reference List

Adinata, I. (2024) *Evaluation of Integrated GRC Implementation with ISO 31000.* Selinus University Dissertation.

Adey, B.T., et al. (2021) 'Estimating and setting targets for, the resilience of transport infrastructure'. *Infrastructure Asset Management*, 8(4), pp.167–190.

Adey, B., et al. (2022) 'Assessing the effects of closure-free periods on railway intervention costs and service'. *Journal of Infrastructure Systems*, 28(3), p.04022015.

Adey, B., et al. (2022) 'Investing in water supply resilience considering uncertainty and management flexibility'. *Smart Infrastructure and Construction*, 175(3), pp.104–115.

Amin, M., et al. (2025) 'Identification and Mitigation of Risk Factors in the Probolinggo-Banyuwangi Toll Road Project'. *Journal of World Science.* 4(1):1844-1854 DOI:10.58344/jws.v4i1.1279

Artto, K. and Wikström, K. (2005) 'What is project business?' *International Journal of Project Management,* 23(5), pp.343–353.

Atkinson, R. (1999) 'Project management: Cost, time and quality, two best guesses and a phenomenon, it's time to accept other success criteria'. *International Journal of Project Management,* 17(6), pp.337–342.

Baccarini, D. (1999) 'The logical framework method for defining project success'. *Project Management Journal,* 30(4), pp.25–32.

Braun, V. and Clarke, V. (2006) ‘Using thematic analysis in psychology’. *Qualitative Research in Psychology,* 3(2), pp.77–101.

Clews, R. (2016) *Managing Risk in Construction Projects*. Abingdon: Routledge.

Cottafava, D., et al. (2024) ‘Megaprojects from the lens of business and management studies: A systematic literature review’. *Journal of Public Affairs,* 24(3), e2937.

Davies, A., et al. (2015) ‘Innovation and risk management in the Crossrail project’. *Project Management Journal,* 46(3), pp.25–37.

Drozdov, N., et al. (2021) ‘The Risk Management in the Urbanized Territories Transport Infrastructure’. *IEEE Quality Management Conference.* https://doi.org/10.1109/QM.2021.9642773

Driscoll, J. (1994) ‘Reflective practice for practice’. *Senior Nurse*, 13(7), pp.47–50.

Fernández-Diego, M. and Munier, N. (2010). *Project Risk Management.* Springer.

Flyvbjerg, B. (2006) ‘From Nobel Prize to project management: Getting risks right’. *Project Management Journal,* 37(3), pp.5–15.

Flyvbjerg, B. (2009) ‘Survival of the unfittest: Why the worst infrastructure gets built – and what we can do about it’. *Oxford Review of Economic Policy,* 25(3), pp.344–367.

Flyvbjerg, B., et al. (2003) *Megaprojects and Risk: An Anatomy of Ambition.* Cambridge: Cambridge University Press.

Freitas, A., et al. (2025) ‘Risk management in smart cities: influence analysis using DEMATEL’. *Environmental Hazards.* https://doi.org/10.1080/17477891.2025.2467637

Gabriel, S. and Baker, C. (1980) ‘Concepts of business and financial risk’. *American Journal of Agricultural Economics,* 62(3), pp.560–564.

Geraldi, J. and Stingl, V. (2016) ‘Failures in large projects: a comparative analysis’. *International Journal of Project Management,* 34(7), pp.1127–1143.

Glucroft, W. (2020) *Berlin’s New Airport Finally opens: a Story of Failure and Embarrassment*. DW. Available at: https://www.dw.com/en/berlins-new-airport-finally-opens-a-story-of-failure-and-embarrassment/a-55446329. [Accessed 12 April 2025].

Govender, D. (2019). ‘The use of the risk management model ISO 31000 by private security companies in South Africa’. *Security Journal,* 32(4), pp.363–377. https://doi.org/10.1057/s41284-018-0158-x

Häring, I., et al. (2021). ‘Open chance and risk management process supported by a software tool for improving urban security’. *European Journal for Security Research*, 6, pp.53–72. https://doi.org/10.1007/s41125-021-00072-6

Ika, L. and Pinto, J. (2022) ‘The “re-meaning” of project success: Updating and recalibrating for modern project management’. *International Journal of Project Management*, 40(1), pp.1–14.

Ika, L., et al. (2023) ‘Bias versus error: Why projects fall short’. *Journal of Business Strategy*, 44(2), pp.67–75.

Ika, L., et al. (2022) ‘Does the planning fallacy prevail in social infrastructure projects?’ *IEEE Transactions on Engineering Management*, 69(6), pp.2588–2602.

Investopedia (2024) *Understanding financial risk.* Available at: https://www.investopedia.com/terms/f/financialrisk.asp [Accessed 1 Feb. 2025].

ISO (2018). ISO 31000:2018 Risk Management – Guidelines. Geneva: International Organization for Standardization.

Jiao, Y. (2021) 'Governance inefficiencies in public project escalation'. *Journal of Infrastructure Systems,* 27(2), pp.113–126.

Kahneman, D. and Tversky, A. (1979) 'Prospect theory: An analysis of decision under risk'. *Econometrica*, 47(2), pp.263–292.

Kaplan, R. and Norton, D. (2001) *The Strategy-Focused Organization: How Balanced Scorecard Companies Thrive in the New Business Environment*. Boston: Harvard Business Press.

Keil, M., et al. (2000) 'Why software projects escalate: An empirical analysis and test of four theoretical models'. *MIS Quarterly*, 24(4), pp.631–664.

Kioskli, K., et al. (2025) 'A practical human-centric risk management (HRM) methodology'. *Electronics*, 14(3), p.486. Available at: https://doi.org/10.3390/electronics14030486 [Accessed 15 May 2025].

Kloppenborg, T., et al. (2019) *Contemporary Project Management*. 4th ed. Boston: Cengage Learning.

Lalonde, C. and Boiral, O. (2012) 'Managing risks through ISO 31000: A critical analysis'. *Risk Management,* 14(4), pp.272–300. https://doi.org/10.1057/rm.2012.9

Makridakis, S., et al. (2018) ‘Statistical and machine learning forecasting methods: Concerns and ways forward’. *PLOS ONE,* 13(3), e0194889.

Mandel, A. and Parija, G. (2024) ‘Risk Appetite and Escalation Triggers in Board Oversight’. *Journal of Risk Management in Financial Institutions.*

Masita, A. (2022) ‘Analysis of Risk Management Implementation in the Internal Audit Unit (SPI) Politeknik Pelayaran Surabaya Using ISO 31000’. *Robust*. 2(33), p. 20

McConnell, S. (1996) *Rapid Development: Taming Wild Software Schedules.* Redmond: Microsoft Press.

Mei, Z., et al. (2024) ’Exploring the sustainability-oriented strategies of small- and medium-sized construction enterprises in China’s construction industry under financing constraints’. *Buildings,* 14(9), p.3002.

Merrow, E. (2011) *Industrial Megaprojects: Concepts, Strategies, and Practices for Success*. Hoboken, NJ: John Wiley & Sons.

Micán, C., et al (2020) ‘Project portfolio risk management: A structured literature review with future directions’. *International Journal of Information Systems and Project Management*, 8(3), pp.67–84.

Miller, R. and Lessard, D. (2001) *The Strategic Management of Large Engineering Projects*. Cambridge: MIT Press.

National Audit Office, (2019). *Progress in Delivering Crossrail.* London: NAO.

National Audit Office, (2019) *Completing Crossrail.* London: NAO.

Nielsen, L. and Faber, M. (2021) ‘Impacts of sustainability and resilience research on risk governance, management and education’. *Sustainable and Resilient Infrastructure.* https://doi.org/10.1080/23789689.2019.1611056

Olsson, R. (2007) ‘In search of opportunity management: Is the risk management process enough?’ *International Journal of Project Management*, 25(8), pp.745–752.

Paltrinieri, N.,et al. (2019) ‘Learning about risk: Machine learning for risk assessment’, *Safety Science,* 118, pp. 475–486. https://doi.org/10.1016/j.ssci.2019.06.001

Patanakul, P. and Shenhar, A. (2012) ‘What project strategy really is: The fundamental building block in strategic project management’. *Project Management Journal*, 43(1), pp.4–20.

Pellegrinelli, S. (2011) ‘What’s in a name: Project or programme?’ *International Journal of Project Management,* 29(2), pp.232–240.

Pinto, J.K. (1998) *Project Management Handbook.* New York: Wiley.

PMI (2012) *A Guide to the Project Management Body of Knowledge (PMBOK® Guide).* 5th edn. Newtown Square, PA: Project Management Institute.

Poveda-Orjuela, P., et al. (2020) ‘Parameterization, analysis, and risk management in ISO 50001 systems’. *Energies*, 13(21), 5579. https://doi.org/10.3390/en13215579

PwC (2021) *Global Capital Projects and Infrastructure Publications.* Available at: https://www.pwc.com/gx/en/industries/capital-projects-infrastructure/publications.html [Accessed 16 March 2025]

PwC (2022) *Middle East Capital Projects and Infrastructure Survey*. PwC Middle East. Available at: https://www.pwc.com/m1/en/publications/middle-east-capital-projects-and-infrastructure-survey-2022.html [Accessed 16 March 2025]

Raz, T., et al. (2002) 'Risk management, project success, and technological uncertainty'. *R&D Management,* 32(2), pp.101–109.

Rezvani, S., et al. (2023) 'A systematic literature review on urban resilience enabled with asset and disaster risk management approaches and GIS-based decision support tools'. *Applied Sciences,* 13(4), 2223. https://doi.org/10.3390/app13042223

Rezvani, S., et al. (2024) 'Risk-Informed Asset-Centric (RIACT) Urban Resilience Enhancement Process'. *Applied Sciences*, 14(2), 634. https://doi.org/10.3390/app14020634

Rød, B., et al. (2020) 'From risk management to resilience management in critical infrastructure'. *Journal of Management in Engineering*, 36(5). https://doi.org/10.1061/(ASCE)ME.1943-5479.0000795

Samset, K. and Volden, G. (2016) 'Front-end definition of projects: Ten paradoxes and some reflections regarding project management and project governance'. *International Journal of Project Management*, 34(2), pp.297–313.

Santos, F. and Eisenhardt, K. (2005) 'Constructing markets and shaping boundaries: Entrepreneurial action in nascent fields'. *Academy of Management Journal*, 48(4), pp.643–671.

Svetlova, E. and Thielmann, K. (2020) *Financial risk and management*. University of Twente Research Portal.

Taleb, N. (2007). *The Black Swan: The Impact of the Highly Improbable*. London: Penguin.

Too, E. and Weaver, P. (2014) ‘The management of project management: A conceptual framework for project governance’. *International Journal of Project Management*, 32(8), pp.1382–1394.

Trigeorgis, L. and Reuer, J. (2017) ‘Real options theory in strategic management’. *Strategic Management Journal*, 38(1), pp.42–63.

Turner, J. and Zolin, R. (2012) ‘Forecasting success on large projects: Developing reliable scales to predict multiple perspectives by multiple stakeholders’. *Project Management Journal,* 43(5), pp.87–99.

Ward, S. and Chapman, C. (2003) ‘Transforming project risk management into project uncertainty management’. *International Journal of Project Management*, 21(2), pp.97–105.

Winch, G. (2010) *Managing Construction Projects: An Information Processing Approach*. 2nd ed. Chichester: Wiley-Blackwell.

Wysocki, R. (2019) *Effective Project Management: Traditional, Agile, Extreme, Hybrid.* Indianapolis, IN: Wiley.

Yuan, H., et al. (2021) ‘Megaproject Management Research: The Status Quo and Future Directions’. *Buildings*, 11(12), p.567.

Zhang, S., et al. (2022) ‘Assessing safety risk management performance in Chinese subway construction projects: A multi-stakeholder perspective’. *Journal of Management in Engineering,* 38(4). https://doi.org/10.1061/(ASCE)ME.1943-5479.0001062

Zwikael, O. (2024) ‘Benefits classification to enhance project value creation’. *International Journal of Project Management*, 42(2), p.102574.

Zwikael, O. and Huemann, M. (2023) ‘Project benefits management: Making an impact on organizations and society through projects and programs’. *International Journal of Project Management*, 41(8), p.102538.

Zwikael, O. and Smyrk, J. (2019) *Project Management: A Benefit Realisation Approach*. Cham: Springer.

Appendices

Appendix A

Research philosophies comparative table. Source: Student (Adapted from Saunders, Lewis & Thornhill, 2019)

Perspective	Reality perception	Suitability for this study
Positivism	A single, observable reality; causes can be measured objectively with value-free instruments.	Well-suited for laboratory-style, numerical, and statistical studies, but too restrictive for this dissertation because financial-risk practices are socially constructed, historically situated and entwined with human interpretation. A purely positivist stance would treat cost overruns as isolated "facts" and ignore the organisational power dynamics Flyvbjerg (2003) and Taleb (2007) highlight.
Interpretivism	Multiple realities co-exist; knowledge is co-created through subjective meaning-making.	Interpretivism excels at capturing lived experience (e.g., interviews with project managers) but struggles to explain systemic regularities observable across large document sets. It risks "thick description" without causal explanation, limiting practical recommendations for risk-governance reforms.
Critical realism	A real world exists independently of our perceptions (ontological	Critical realism is suitable for this study because it allows the researcher to explore both the observable outcomes of financial risks in projects and the less visible factors that cause them. It fits well with the aim of understanding how and why

Perspective	Reality perception	Suitability for this study
	realism), yet we access it only through fallible social lenses (epistemological relativism). Deeper "generative mechanisms" cause surface events.	FRM can be integrated into strategic project planning and execution.

Appendix B

Coding Framework and Process

Source Title	Direct Quote (with reference)	Initial Code	Focused Code	Final Theme
Flyvbjerg (2009)	"…one can typically never predict ex-ante costs and benefits, and so the ex-post costs and benefits are completely different. For large infrastructure projects we can look forward to cost overruns, underperformance, and risks systematically being underestimated by decision makers."	Undervaluation of costs and risks	Optimism bias in estimates	Common Financial Risk Factors
Flyvbjerg (2009)	"…the projects that are fudged to look best on paper are the projects that are getting the worst between paper and reality in cost overruns and benefits shortfalls…"	Overly optimistic business cases	Strategic misrepresentation	Common Financial Risk Factors
Love et al. (2018)	"…politicians make back-of-an-envelope project estimates… to satisfy pre-election promises and woo voters."	Costing low on purpose	Political pressure to lowball estimates	Common Financial Risk Factors
Geraldi & Stingl (2016)	"BER… dragged down by overly high ambitions, and a near-endless change in scope… Costs have tripled…"	Scope creep inflating costs	Poor change control	Common Financial Risk Factors
Clews (2016)	"Upstream oil and gas projects are highly exposed to… oil price	Uncertainties in market and technology	External volatility	Common Financial Risk Factors

Source Title	Direct Quote (with reference)	Initial Code	Focused Code	Final Theme
	volatility, ambiguous reserve estimates…"			
NAO (2019)	"Crossrail Ltd… took risk on its own balance sheet… contract interfaces meant that contractors continued to submit compensation events and costs continued to rise."	Client assumes cost risk	Hiring strategy backfired	Common Financial Risk Factors
Geraldi & Stingl (2016)	"Subcontractors… could not accommodate cascading changes… requested a stop in construction."	Incoordinated change impacts	Poor integration of changes	Integration Practices and Processes
NAO (2019)	"Crossrail Ltd's commercial approach… created high design and interface risks to be managed in-house."	Complex interfaces	Integration risk	Integration Practices and Processes
ISO 31000 (2018)	"…risk management needs to be integrated… beginning with governance."	Risk embedded in governance	Integrating risk management	Integration Practices and Processes
PMI (2012)	"Risk and change management techniques remain heavily used, alongside formal program management."	Use of risk techniques standardised	Institutionalised risk processes	Integration Practices and Processes
NAO (2019)	"Crossrail overlapped project phases… building stations while tunnelling… stakeholders thought the team could handle it."	Aggressive phase overlapping	Over-optimistic integration plans	Integration Practices and Processes
NAO (2019)	"…success and value for money depended on effective risk management."	Risk management as success factor	Effective risk oversight	Impacts on Project Success
Flyvbjerg (2009)	"Cost overruns of 50%… 100% are not uncommon."	Massive overruns common	Cost escalation norm	Impacts on Project Success
Geraldi & Stingl (2016)	"BER opening in 2011… moved to 2017… costs tripled."	Delay and cost escalation	Project performance shortfall	Impacts on Project Success
NAO (2019)	"Projected cost… £17bn… £2.2bn above 2010 funding."	Budget exceeded significantly	Cost overrun impact	Impacts on Project Success
Love et al. (2018)	"Strategic underestimation leads to 'escalating commitment' and lock-in."	Flawed feasibility creates lock-in	Lock-in to failing projects	Impacts on Project Success
PMI (2012)	"Poor risk communication becomes a risk itself if stakeholders are left uninformed."	Communication breakdowns	Risk communication failure	Impacts on Project Success
Geraldi & Stingl (2016)	"Why didn't we listen to contractors? A series of poor decisions…"	Ignored warning signs	Governance failure	Governance and Decision-Making

Source Title	Direct Quote (with reference)	Initial Code	Focused Code	Final Theme
Flyvbjerg (2009)	"UK Treasury: no funds without optimism bias adjustment."	Mandated realism in forecasting	Policy to enforce realism	Governance and Decision-Making
ISO 31000 (2018)	"Risk is a part of governance… supports management systems."	Risk as leadership principle	Risk-informed leadership	Governance and Decision-Making
PMI (2012)	"You must know when risk thresholds are crossed and escalate decisions."	Respecting thresholds	Escalating decisions at risk points	Governance and Decision-Making
Flyvbjerg (2009)	"War on lies is spilling over into government… to curb waste."	Clampdown on deception	Reforms for accountability	Governance and Decision-Making
Flyvbjerg (2009)	"Best-looking projects on paper suffer worst cost overruns and shortfalls."	Over-promised outcomes	Benefit shortfall	Strategic Alignment and Benefits
Love et al. (2018)	"Overestimated benefits and underestimated costs lead to suboptimal project selection."	Inflated benefit claims	Misaligned project selection	Strategic Alignment and Benefits
NAO (2019)	"Deliver the anticipated benefits for passengers and the economy."	Verifying benefit delivery	Focus on benefit realisation	Strategic Alignment and Benefits
ISO 31000 (2018)	"Risk management helps execute strategy and make informed decisions."	Risk aligns with strategic goals	Aligning risk with objectives	Strategic Alignment and Benefits
PMI (2012)	"Portfolio management is increasingly used to connect projects to organisational strategy."	Strategic oversight via portfolio	Linking projects to strategy	Strategic Alignment and Benefits

Appendix C

Ethical rules to be followed

1. Transparency: all sources are cited in Harvard style to avoid plagiarism and maintain academic integrity.
2. Academic honesty is complied with to provide a unique and original piece of knowledge.
3. Data sensitivity: to protect data ownership and privacy, only publicly accessible or appropriately cited data is used.

4. Compliance with the Data Protection Act (1998).

Appendix D

Snapshots of the Case Studies

Crossrail (London, UK)

Building Paddington Crossrail station (2012).

Project Aim: Crossrail was proposed to provide additional east-west rail capacity in north and west London and the south-east and to improve journey times, passenger experience and relieve congestion. It promised to increase London's rail capacity by 10% and overhaul commuter travel by connecting major rail lines through twin tunnels under the city centre.

Timeline & Results: The construction started in 2009 and it was supposed to open in the December of 2018. The project was delayed, though, and was not ready for the planned 2018 opening. As of April 2019, the opening of the central section had been pushed back to a period between October 2020 and March 2021. In fact, the line (which is called the Elizabeth Line) is only open to passengers from 2022, following several delays. Final construction costs rose to more than £17 billion, some £2.2 billion higher than the £14.8 billion projected in 2010.

Financial Risk Symptoms: Crossrail standards showcased the economic risks inherent in mega-projects. The "steep cost overruns" were the result of optimistic scheduling and scope underestimation, as well as issues with integration, according to one of the articles. An initially high degree of overlapping project phases (for example, attempting to undertake station fit-out, while tunnel boring) and an excessively "can do" culture resulted in interface issues and expensive reworking. There were many claims for compensation running up the bill when Crossrail Ltd took it on the chin itself. Poor risk management and an unfeasibly hard deadline caused a last-minute scramble to make changes, at extra cost to the public purse – which had

to pump in more cash and even seek government loans to complete the line. However, despite these difficulties, Crossrail has finally opened and it is delivering the predicted transport benefits – albeit very late and at a much-increased cost.

Berlin Brandenburg Airport, Germany

Inside the new Berlin Brandenburg Airport (BER) Terminal 1 ahead of its opening.

Project Goal: The construction of Berlin Brandenburg Airport "Willy Brandt" (BER) aimed to replace the capital's aged airports Tegel and Schönefeld with a new sleeker hub, ensuring comfort travel throughout the region. Its aim was strategic extension of capacity and efficiency, merging the air traffic of Berlin in a common location and associating economic interests at the region.

Timeline & Outcome: The construction for BER commenced in 2006, and was initially scheduled to be opened in October 2011. It also became in practice notorious as a project that experienced a series of rolling delays. The opening date was first pushed to 2012, and kept being delayed as issues persisted. By 2016, the opening was anticipated to be in 2017, though that deadline, too, was missed. After decades of delays, BER finally began serving passengers in October 2020. The extended wait kept Berlin's old airports in use far longer than anticipated. The costs also ran out of control: originally projected to cost €2 billion, by 2015 this had tripled to ~€5.4 billion and had grown to a projected €7.3 billion by 2018.

Realization of Financial Risks: BER is a case study in how lax governance and foresight ends up in real financial risk. Key contributing factors were ongoing scope changes and design defects such as design changes to the fire safety system despite that late design changes can result in a spiralling impact to the project. Companies were working off of vague requirements and shifting plans and struggling to prevent rework and claims. Governance was weak: There was a long series of bad decisions, and warnings by engineers were neglected. That created a breeding ground for problems to be replicated unchecked. The result was massive schedule

delays and runaway costs. Paying for the delays meant more public money and loans, and the project's reputation took a hit. Only after a management overhaul and tighter risk controls did the airport get built. The rocky delivery of BER serves to underline the critical need for sound risk management and good decision making to keep strategic projects on the track.

ØresundBridge (Denmark/Sweden) A bridge on which cars can be driven from one country to another?

The ØresundBridge, which connects Denmark and Sweden.

Project Objective The ØresundBridge is a symbolic twin-nation project to bring together Denmark and Sweden at the heart of the ESS/Max Lab region. As a two-part road-and-rail link, it aimed to cut the travel times between Copenhagen and Malmö and as well combine the West and the East Scandinavian metropolitan regions. The project was envisioned to achieve sustainable socio-economic development for both countries by establishing a fixed direct connection.

Timeline & Result: The Øresundfixed link was constructed in 1995 after years of cross-border planning and agreement between the Danish and the Swedish governments. In an unusual twist for a project of its magnitude; the bridge-tunnel was on time and under budget and opened to traffic in July 2000. The project was largely delivered on time, on-budget and on target, remarkable for a highly complex international infrastructure project. When opened, the ØresundBridge was an artery no border going transport could do without. Today, tens of thousands of passengers and commuters are carried daily up and down the track by road and also by rail, slashing effective travel times down to about anywhere between 10 minutes to 30 minutes between the two countries' major cities.

Manifestation of Financial Risk: The ØresundBridge shows evidence of financial challenges being well managed and risk being aligned with strategy, in contrast with riskyer projects. The project was erected from its inception on sound bi-national governance and sensible financing

(tolls/user fees) with which to pay down construction debt. A disciplined approach to engineering management and environmental planning controlled construction risks, and there were no significant cost overruns or delays. One financial risk that materialized was below-provisioned traffic in the early years (largely owing to higher-than-anticipated tolls, and slower-than-expected integration of the two regions). The early revenue shortfall was addressed by the price adjustments to the tolls and through advertising, and traffic increased over time. In the end, the objectives of the Øresundproject have been achieved: the project considerably enhanced the regional accessibility and deepened the economic relations. The successful outcome of this highly complex mega-project demonstrates how strong risk management and strategic vision can lead to a mega-project that does not just come in on budget and on schedule, but also meets its long-term value goals.