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Governing Risk for Project Performance: A Mechanism Based Systematic Review of Cost Overruns and Schedule Delays in Construction

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Abstract: Cost overruns and schedule delays continue to challenge construction projects worldwide, yet existing research has predominantly focused on identifying risk factors rather than explaining how those risks translate into performance outcomes. This study adopts a mechanism-oriented perspective to examine the managerial and governance systems that mediate the relationship between project risk exposure and cost and schedule performance. A Systematic Literature Review (SLR) was conducted and integrated with bibliometric keyword co-occurrence analysis using VOSviewer to synthesize and map the intellectual structure of the field. Fourteen studies meeting mechanism-based inclusion criteria were analyzed. The results indicate that project performance deterioration is not a direct consequence of risk occurrence alone, but is shaped by interacting governance mechanisms. Risk management emerges as the central coordinating system, financial governance functions as a stabilizing buffer that supports operational continuity, and project control systems serve as the execution-level interface translating governance strategies into performance monitoring and corrective action. Bibliometric mapping further reveals a shift in the literature from problem-oriented discussions of cost overruns toward governance-based performance regulation. These findings support a mechanism-based understanding of construction project performance, where cost and schedule outcomes are governance-dependent rather than purely risk-driven. Methodologically, the study demonstrates the value of combining systematic review rigor with bibliometric mapping to uncover structural knowledge patterns. Practically, the results highlight the importance of strengthening integrated governance systems—not only improving risk identification—to enhance construction project performance.

Keywords: Project Risk, Cost Overrun, Schedule Delay, Risk Management, Project Governance.

INTRODUCTION

Cost overruns and schedule delays remain among the most persistent performance challenges in construction projects worldwide (Assaad et al., 2020; Vacanas & Danezis, 2021). Despite advances in project management methodologies, digital technologies, and contracting strategies, a substantial proportion of construction projects continue to exceed planned budgets and timelines (Abdelalim et al., 2024; Tripathi, 2025). These performance failures not only undermine project feasibility but also affect financial sustainability, stakeholder confidence, and long-term infrastructure development. As projects become increasingly complex and uncertain, understanding the mechanisms that shape project performance has become a critical research and managerial priority (Abdelalim et al., 2024; Jane, 2025).

Extensive research has examined the direct causes of cost and schedule overruns (Hamad, 2023; Hussien, 2025). Prior studies have identified a wide range of risk factors, including design changes, scope uncertainty, financial constraints, contractor capability, market volatility, and external disruptions (Abdelalim et al., 2024; Worldailmi et al., 2024). This body of literature has significantly advanced the identification and classification of project risks (Afana et al., 2024; Hazır & Ulusoy, 2020). However, much of this research implicitly assumes a direct and linear relationship between risk factors and performance outcomes, often overlooking the managerial processes through which risks translate into actual project impacts (Afana et al., 2024; Worldailmi et al., 2024).

In practice, project risks do not automatically lead to cost or time overruns. Their effects are mediated by how projects are governed, controlled, and financially managed (Hussien, 2025; Pheng, 2018). Managerial decisions regarding risk allocation, monitoring systems, financial planning, contingency management, and performance control determine whether risks escalate into overruns or are successfully absorbed and mitigated (Hadad & Keren, 2025; Suciu et al., 2022). Despite this practical reality, the literature lacks a structured synthesis of the managerial mechanisms that mediate the relationship between project risks and project performance (Afana et al., 2024; Pegulescu, 2023). Consequently, the “black box” between risk occurrence and performance outcomes remains insufficiently understood (Ottaviani et al., 2024).

To address this gap, this study systematically identifies and synthesizes the managerial and governance mechanisms that mediate the relationship between project risk factors and cost and schedule overruns in construction projects. A Systematic Literature Review (SLR), integrated with bibliometric mapping using VOSviewer, is employed to reveal dominant thematic clusters and conceptual linkages within the literature. This dual approach enables both a qualitative synthesis of mediating mechanisms and a quantitative visualization of their relational structure across the research landscape.

This study contributes to the construction management literature in three ways. First, it shifts the analytical focus from isolated risk factors to the managerial processes that determine how risks influence project performance. Second, it integrates fragmented discussions on risk management, project control, and financial governance into a coherent mediation-based conceptual perspective. Third, it provides an evidence-based conceptual foundation for future empirical research aimed at modeling the mediating roles of managerial mechanisms—such as project risk management practices and financial and cash flow governance—in shaping cost and schedule performance in construction projects.

Literature Review

Cost and Schedule Performance in Construction Projects

Cost and schedule performance are widely recognized as the primary indicators of success in construction projects (Afana et al., 2024; Senghani et al., 2023). Cost overrun refers to the condition where actual project expenditures exceed planned or contracted budgets, while

schedule delay denotes project completion beyond the agreed timeline (Hamad, 2023; Mofleh Alshehhi, 2024). These two dimensions are closely interrelated: time overruns often trigger indirect costs, price escalation, contractual claims, productivity losses, and increased financing burdens.

A large body of construction management research has investigated the causes of cost overruns and schedule delays (Hamad, 2023; Peggy et al., 2025). Frequently cited drivers include design changes, estimation inaccuracies, unforeseen site conditions, resource shortages, and external disruptions (Abdelalim et al., 2024; Afana et al., 2024). While this literature has substantially advanced the identification and classification of performance drivers, many studies remain centered on cataloging risk factors rather than explaining the underlying causal pathways through which these factors translate into performance degradation. Consequently, a conceptual gap persists between the existence of project risks and their manifestation as measurable cost and time overruns (Abdelalim et al., 2024; Afana et al., 2024).

Project Risk as a Source of Performance Disruption

Project risk is generally defined as an uncertain event or condition that may negatively affect project objectives (Afana et al., 2024; Andreea, 2024). In construction projects, risks arise from technical, managerial, financial, contractual, environmental, and institutional sources (Syakhertra et al., 2025; Worldailmi et al., 2024). These uncertainties introduce variability into project cost, duration, and quality outcomes, thereby threatening overall project performance (Putranto et al., 2025; Worldailmi et al., 2024).

Extensive research has focused on identifying, categorizing, and ranking construction risk factors (Putranto et al., 2025; Worldailmi et al., 2024). Although such studies improve understanding of what threatens project performance, they offer limited insight into how risk exposure evolves into cost overruns or schedule delays. In other words, the literature often emphasizes risk presence while insufficiently addressing the mechanisms that convert risk conditions into performance outcomes. This gap suggests the need for a mechanism-oriented perspective that goes beyond factor identification (Mofleh Alshehhi, 2024; Worldailmi et al., 2024).

Project Risk Management as a Mediating Mechanism

Project risk management (PRM) has emerged as a central managerial process that may bridge the gap between risk factors and project performance (Afana et al., 2024; Pegulescu, 2023). PRM encompasses structured activities such as risk identification, probability and impact analysis, response planning, monitoring, and organizational learning (George, 2020; Peggy et al., 2025). Through these processes, risks are not only recognized but also actively controlled before escalating into significant disruptions (Prikhodko & Stroganova, 2024; Soemanto et al., 2025).

Empirical studies indicate that projects implementing systematic risk management practices tend to achieve better cost and schedule performance (Afana et al., 2024; Chevalier-Karfis, 2024). Mechanisms such as early risk identification, contingency planning, risk allocation, and continuous monitoring function as managerial safeguards that reduce the likelihood of risk escalation. From this perspective, PRM operates not merely as a technical toolkit but as a governance mechanism that mediates the extent to which project risks translate into cost overruns and schedule delays (Afana et al., 2024; Chevalier-Karfis, 2024).

Project Financing and Cash Flow Governance Mechanisms

Beyond risk management processes, financial governance and project cash flow management play a critical role in shaping construction project performance (Afana et al.,

2024; Ali Alshehhi et al., 2025). Construction projects are highly dependent on stable cash flow to sustain labor payments, material procurement, subcontractor coordination, and supply chain continuity (Didar et al., 2025; Muñoz et al., 2025). Disruptions such as delayed payments, inadequate financing structures, or poor cash flow forecasting can amplify operational risks and transform manageable uncertainties into severe cost and time impacts (Ali Alshehhi et al., 2025; Asmi et al., 2025).

Prior research suggests that financial control systems, accurate cash flow planning, contingency reserves, and effective payment mechanisms enhance a project's resilience to uncertainty (Afana et al., 2024; Zhang et al., 2023). These financial mechanisms function as buffers that absorb shocks arising from technical or managerial risks. In the absence of sound financial governance, even minor disruptions may cascade into major overruns (Ali Alshehhi et al., 2025; Zarghami, 2024). Accordingly, project financing and cash flow governance represent a second key mediating pathway linking project risks to performance outcomes (Ali Alshehhi et al., 2025; Zhang et al., 2023).

Research Gap and Positioning of the Study

Although prior studies have addressed risk factors, risk management practices, and financial control systems, these elements are often examined in isolation (Ali Alshehhi et al., 2025; Anačkov, 2024). Few studies explicitly conceptualize managerial processes as mediating mechanisms that explain how project risks lead to cost overruns and schedule delays (Ali Alshehhi et al., 2025; Ayoade, 2025). As a result, the causal logic linking risk exposure to performance degradation remains fragmented across the literature (Ali Alshehhi et al., 2025; Su & Khallaf, 2022).

To address this gap, the present study positions project risk management and project financing and cash flow governance as two principal managerial mechanisms that mediate the relationship between project risks and cost and schedule performance. By employing a Systematic Literature Review combined with bibliometric mapping, this research develops a structured conceptual synthesis that clarifies the role of these mechanisms in shaping construction project outcomes.

METHODS

Research Design

This study adopts a Systematic Literature Review (SLR) integrated with bibliometric network analysis to identify and synthesize managerial and governance mechanisms that mediate the relationship between project risk factors and cost and schedule performance in construction projects (Abdelalim et al., 2024; Soemanto et al., 2025).

Unlike conventional reviews that primarily compile lists of risk factors, this study employs a mechanism-based perspective, emphasizing managerial processes, control systems, and governance structures as intermediary pathways through which risk influences project performance. This perspective enables the review to move beyond direct risk–outcome associations and instead examine how organizational and managerial systems shape the translation of risk into performance consequences.

The methodological design pursues three main objectives. First, it ensures a transparent and reproducible literature selection process (Asmi et al., 2025; Cao, 2024). Second, it captures process- and governance-based mechanisms rather than isolated risk variables. Third, it maps the intellectual structure of the field through keyword co-occurrence network analysis (Putranto et al., 2025; You et al., 2021). This dual strategy enables both conceptual synthesis and structural mapping of research streams related to risk mediation in construction project performance.

Literature Search Strategy

A structured search strategy was implemented across major academic databases, including Scopus, Web of Science, and Google Scholar, to ensure broad and relevant coverage of the literature.

The search process combined three thematic clusters reflecting the mechanism-based review logic (Table 1).

Table 1. Thematic Clusters Used to Structure the Literature Search Strategy

Cluster	Focus	Example Terms
Project Risk	Sources of uncertainty and disruption	"project risk", "risk factors", "uncertainty"
Managerial / Governance Mechanisms	Control, coordination, and decision systems	"risk management", "cash flow control", "project control", "governance", "coordination"
Project Performance	Outcome variables	"cost overrun", "schedule delay", "time overrun", "project performance"

Source: Research data

Search strings were iteratively refined to ensure that selected studies explain mediating mechanisms, rather than merely direct relationships between risk factors and project outcomes.

Study Selection Process

The screening and selection process followed a PRISMA-inspired structure to ensure transparency and methodological rigor (Afana et al., 2024; Ramasamy, 2022).

Table 2. PRISMA-based literature screening and selection summary

Stage	Description of Screening Step	Number of Studies	Rationale
Identification	Records identified through structured keyword search	50	Initial pool related to construction project risks, cost overruns, schedule delays, and managerial processes
Duplicate Removal	Duplicate and overlapping records removed	1	Same study found in multiple sources
Screening (Title & Abstract)	Records screened for relevance to construction project performance	49	Non-construction and purely technical topics excluded
Excluded at Screening	Records excluded after title & abstract review	4	Focused only on generic risk lists or unrelated domains
Eligibility (Full-Text Review)	Full texts assessed for mechanism logic relevance	45	Evaluated for governance or control mechanisms linking risk to performance
Excluded at Eligibility	Full-text articles excluded	31	Lacked process/governance pathways or cost/schedule linkage

Included in Final Synthesis	Studies used for qualitative synthesis and bibliometric mapping	14	Contain explicit managerial or governance mechanisms

Source: Research data

The selection process consisted of four stages: identification, screening, eligibility, and inclusion, ensuring that the final literature set aligns strongly with the mechanism-oriented review objective (Chen et al., 2024; Hall & Leeder, 2024).

Inclusion and Exclusion Criteria

To maintain conceptual consistency, inclusion and exclusion criteria were defined a priori (Table 3).

Table 3. Inclusion and Exclusion Criteria for Study Selection

Criterion Type	Description
Inclusion	Study conducted in construction or infrastructure project context
Inclusion	Discusses managerial or governance processes, not only risk factors
Inclusion	Explains causal pathways linking mechanisms to cost or schedule performance
Inclusion	Empirical study, modeling-based study, or structured conceptual framework
Exclusion	Purely technical engineering risk studies without management process perspective
Exclusion	Risk factor ranking studies without governance or managerial explanation
Exclusion	Studies outside the construction industry unless conceptually transferable

Source: Research data

This filtering ensured that the selected literature contributes to understanding mediating mechanisms, rather than merely identifying risk symptoms.

Mechanism Coding and Classification

Each included study was coded according to the type of mediating mechanism identified. Through iterative thematic synthesis, mechanisms were grouped into higher-order categories (Table 4) (Afana et al., 2024; Informed, 2022).

Table 4. Classification of Managerial and Governance Mechanisms Identified in the Literature

Mechanism Category	Description	Typical Concepts Identified
Risk Management Mechanisms	Processes for identifying, assessing, mitigating, and managing contingency	Risk analysis, mitigation planning, contingency management
Financial Governance Mechanisms	Systems ensuring financial stability and cash flow control	Payment management, financial planning, funding continuity
Project Control Systems	Monitoring, tracking, and corrective control mechanisms	Earned Value Management, progress monitoring, cost control

Source: Research data

These categories form the analytical foundation for interpreting bibliometric results and conducting conceptual synthesis.

Bibliometric Network Analysis

To complement the qualitative synthesis, keyword co-occurrence analysis was conducted using VOSviewer (Afana et al., 2024; Du et al., 2024). This analysis aimed to identify dominant conceptual clusters, reveal linkages between managerial mechanisms and project performance, and detect thematic concentrations within the literature.

Keywords were extracted from the titles and abstracts of the final included studies. A minimum occurrence threshold was applied to retain meaningful terms while reducing noise and ensuring analytical clarity (Afana et al., 2024; Ierardi et al., 2023).

Conceptual Review Framework

The review is guided by a mechanism-based logic rather than a direct cause–effect approach. The framework assumes that risk factors influence project performance through managerial and governance systems.



Source: Research Results

Figure 1. illustrates the conceptual logic guiding the review

Core pathway:

Project Risk Factors → Managerial & Governance Mechanisms → Cost Overrun / Schedule Delay

This framework ensures that the review remains focused on mediating systems, aligning with the study's objective of identifying how management processes shape project outcomes.

Methodological Contribution

By integrating systematic review rigor with bibliometric structural mapping, this methodology:

1. Moves beyond merely listing risk factors
2. Identifies governance-based pathways influencing project performance
3. Provides an evidence-based foundation for mechanism-oriented construction management research

This approach supports a shift from variable-centered research perspectives toward a deeper understanding of processes and systems in mediating project risk impacts.

RESULTS AND DISCUSSION

Overview of the Included Studies

Following the PRISMA-inspired screening process, 14 studies were retained for final synthesis. These studies explicitly describe managerial or governance mechanisms influencing construction project performance, particularly cost overruns and schedule delays across the reviewed studies (Afana et al., 2024; Al Jarrah et al., 2022; Alshamayleh et al., 2024; Asmi et al., 2025; Hossen, 2013; Hu, 2025).

The included literature spans multiple domains, including risk management frameworks, contingency governance, project control systems, and organizational coordination mechanisms. Unlike studies that focus solely on listing risk factors, the selected articles

examine process-based pathways through which managerial systems influence performance outcomes.

Mechanism-Based Classification

Each study was coded according to the type of mediating mechanism described. Through iterative thematic synthesis, four dominant categories emerged.

Table 5. Classification of Managerial and Governance Mechanisms Identified in the Reviewed Literature

Mechanism Category	Description	Typical Concepts	Representative References
Risk Management Mechanisms	Processes that identify, assess, and mitigate uncertainty	Risk analysis, mitigation planning, contingency design	
Financial Governance Mechanisms	Systems that manage financial stability and funding flows	Cash flow control, payment timing, contingency budgeting	
Project Control Systems	Monitoring and corrective mechanisms linking plans to execution	Earned Value Management, progress monitoring	
Organizational Governance Mechanisms	Coordination and decision structures shaping implementation	Stakeholder communication, team coordination	

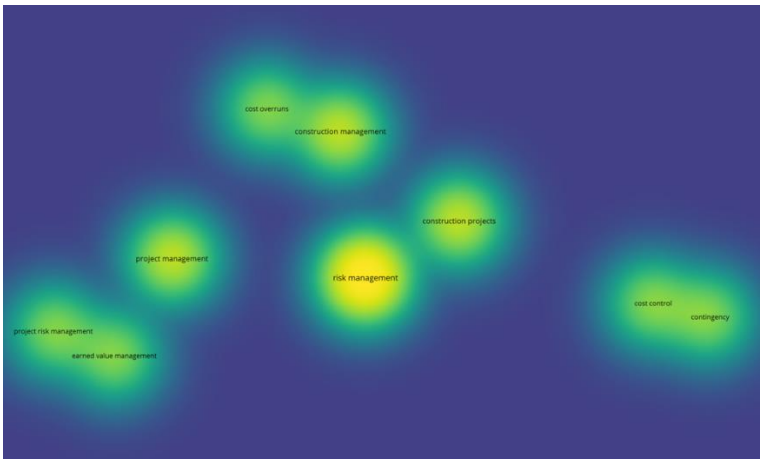
Source: Research data

The classification indicates that performance outcomes are commonly examined in relation to managerial response systems, rather than risk exposure alone, with prior studies highlighting the mediating roles of risk governance, financial control, and monitoring systems in shaping cost and schedule performance (De Marco et al., 2016; Guyolla, 2023; Hussein & Moradinia, 2023; Wilson et al., 2015).

Bibliometric Network Analysis

To complement the qualitative synthesis, a keyword co-occurrence analysis was conducted using VOSviewer. Keywords were extracted from the titles and abstracts of the final studies, and a minimum occurrence threshold was applied. Three visualizations were generated: density, network, and overlay maps.

Density Visualization



Source: Research Results

Figure 2. Keyword density visualization showing dominant conceptual concentrations

The density map reveals risk management as the most prominent conceptual concentration, reflecting its consistent role as the core managerial process linking uncertainty to performance outcomes in construction projects (Dikmen Toker & Birgönül, 2011; Guyolla, 2023; Hu, 2025). Additional dense areas include construction management, construction projects, and cost overruns. Financial and contingency-related concepts appear as secondary but connected regions.

Network Visualization



Source: Research Results

Figure 3. Keyword co-occurrence network illustrating thematic clusters

The keyword co-occurrence network reveals the intellectual structure of research examining how managerial and governance systems influence construction project performance. In the network, nodes represent frequently occurring keywords, while links indicate conceptual co-occurrence within the same studies. Larger nodes reflect higher frequency, and color groupings indicate thematic clusters identified through bibliometric clustering.

The network structure demonstrates that the literature is organized around three interconnected governance-oriented clusters, rather than isolated risk factors. These clusters represent complementary managerial pathways through which project risks influence cost and schedule outcomes. Table 6 summarizes the dominant keywords and thematic focus of each cluster.

Table 5. Classification of Managerial and Governance Mechanisms Identified in the Reviewed Literature

Cluster	Dominant Keywords	Thematical Meaning	Governance Role
Cluster 1	risk management, construction management, construction projects, cost overruns	Core relationship between risk governance and performance	Primary mediating mechanism
Cluster 2	project management, project risk management, earned value management	Monitoring and control systems	Operational performance regulation
Cluster 3	cost control, contingency	Financial buffering and budget stabilization	Financial governance mechanism

Cluster 1	risk management, construction management, construction projects, cost overruns	Core relationship between risk governance and performance	Primary mediating mechanism

Source: Research data

Cluster 1 forms the conceptual backbone of the field. It centers on risk management as the primary governance mechanism linking project uncertainty to performance outcomes, particularly cost overruns. Its central position and dense linkages indicate that risk governance is the dominant explanatory pathway in the literature (Dikmen Toker & Birgönül, 2011; Guyolla, 2023; Hossen, 2013).

Cluster 2 reflects project control systems, where tools such as Earned Value Management translate governance intentions into operational monitoring and corrective action. This cluster illustrates how managerial systems function as execution-level mechanisms that regulate time and cost performance (Hussein & Moradinia, 2023; Park et al., 2019).

Cluster 3 represents financial and contingency governance, emphasizing the stabilizing role of cost control and contingency budgeting. This indicates that financial buffering mechanisms serve as an additional layer of governance that mitigates deviations when risk events materialize (De Marco et al., 2016; Shamshiri et al., 2023; Thaheem et al., 2013).

Together, the clusters reveal a layered governance structure in which project performance is shaped through coordinated managerial systems. Rather than being driven directly by risk exposure, cost overruns and schedule delays are mediated through risk governance, operational control systems, and financial stabilization mechanisms. This structure provides bibliometric support for the mechanism-based conceptual framework guiding the review.

Overlay Visualization (Temporal Evolution)



Source: Research Results

Figure 4. Overlay visualization showing temporal evolution of research themes

Earlier studies are associated with cost overruns and project management, while more recent publications emphasize risk management and governance-oriented control mechanisms.

Summary of Empirical Patterns

The combined synthesis reveals three observable patterns:

1. Risk management appears as the most frequently occurring managerial mechanism.
2. Project control systems form a secondary cluster linked to monitoring and execution.
3. Financial and contingency mechanisms appear as specialized governance tools associated with cost stabilization.

These patterns demonstrate that research in this domain concentrates on managerial systems connected to project performance outcomes.

From Risk Factors to Governance Mechanisms

The findings reveal a conceptual shift in understanding cost overruns and schedule delays in construction projects. Rather than being viewed as direct outcomes of isolated risk factors, project performance is increasingly framed as the result of how risks are governed through managerial and organizational systems (Dikmen Toker & Birgönül, 2011; Guyolla, 2023; Hu, 2025; Hussein & Moradinia, 2023).

Bibliometric and thematic evidence consistently position risk management processes as the central mechanism linking uncertainty to performance (Guyolla, 2023; Hossen, 2013; Hu, 2025). This indicates that risk exposure is not inherently deterministic; its impact depends on the presence and effectiveness of structured processes such as risk identification, mitigation planning, and contingency design (Abdelalim et al., 2024; Chevalier-Karfis, 2024). In this sense, poor performance reflects weak governance of risk, rather than risk alone.

This transition marks a movement from a risk-factor paradigm toward a process-governance paradigm, where emphasis shifts from identifying threats to understanding how organizations manage uncertainty (Fischer & Weißmüller, 2026; Lande & Chandekar, 2025).

Risk Management as the Governance Backbone

The network structure shows that risk management functions as the backbone of the governance system, connecting project management, monitoring, and cost-related domains. Its centrality suggests a meta-governance role, aligning technical, financial, and organizational processes under uncertainty (Abdelalim et al., 2024; Fischer & Weißmüller, 2026).

Projects with structured risk governance frameworks appear better equipped to absorb disruptions and maintain performance stability (Guyolla, 2023; Hu, 2025; Hussein & Moradinia, 2023). Consequently, cost and schedule performance can be interpreted not only as operational metrics but also as indicators of governance effectiveness (Welde & Engebø, 2024).

Financial Governance as a Performance Stabilizer

Financial governance mechanisms—particularly those related to cash flow stability, payment systems, and contingency budgeting—form a distinct cluster linked to cost performance. Although less central than risk management, these mechanisms act as stabilizers, moderating how operational disruptions translate into measurable overruns (Lande & Chandekar, 2025; Zhang et al., 2023).

Payment delays, funding gaps, and weak cost control amplify risk impacts, whereas strong financial governance provides buffering capacity (Asmi et al., 2025; De Marco et al., 2016; Thaheem et al., 2013). This suggests that risk mitigation without financial resilience is incomplete, highlighting the interdependence of anticipatory planning and financial control.

Project Control Systems as the Operational Interface

Project control systems represent the operational interface between governance strategies and project execution. Monitoring and performance tracking mechanisms convert strategic governance into actionable feedback (Hossen, 2013; Hussein & Moradinia, 2023; Park et al.,

2019). Their position as a connected but distinct cluster indicates that control systems bridge governance intent and field operations.

Without systematic monitoring, even robust risk and financial governance may fail to prevent performance deterioration, reinforcing the view that outcomes emerge from interacting governance layers rather than isolated interventions (Agnese & Capuano, 2021).

Toward a Mechanism-Based Theory of Project Performance

Collectively, the findings support a mechanism-based conceptualization in which: Project risks influence cost and schedule outcomes indirectly through interacting managerial and governance mechanisms.

This explains why projects with similar risk exposure may display different performance outcomes: the variation lies in the quality and integration of governance structures, not solely in risk levels (Gamlath et al., 2024; Musawir, 2023).

This perspective advances construction management theory by

1. Moving beyond descriptive risk-factor approaches,
2. Emphasizing systemic and process-based explanations, and
3. Reframing cost and time performance as governance-dependent outcomes.

Implications for Future Research

The review highlights three directions for future research:

1. Integration studies examining dynamic interactions among risk management, financial governance, and control systems
2. Mechanism effectiveness research identifying governance combinations that enhance performance resilience
3. Context-sensitive governance studies exploring how institutional and organizational environments shape mechanism effectiveness
4. Future empirical work can test these pathways, strengthening the theoretical link between governance processes and project performance.

CONCLUSION

This study advances understanding of construction project performance by shifting the analytical focus from isolated risk factors to the governance mechanisms that mediate how risks translate into cost overruns and schedule delays. Through a mechanism-oriented systematic literature review combined with bibliometric network analysis, the findings show that performance deterioration is not an automatic consequence of risk exposure, but rather the result of how effectively risks are governed through interacting managerial systems.

The review identifies three interrelated mediating domains: risk management as the central coordinating mechanism, financial governance as a stabilizing buffer, and project control systems as the operational interface linking governance to execution. Together, these mechanisms form a layered governance structure through which uncertainty is absorbed, regulated, or amplified. This perspective reframes cost and schedule outcomes as governance-dependent performance variables, explaining why projects with similar risk exposure can experience markedly different results.

Methodologically, the study demonstrates the value of integrating systematic review rigor with bibliometric mapping to uncover both conceptual themes and their structural relationships within the research landscape. The approach provides a replicable pathway for mechanism-oriented synthesis in construction management research.

Practically, the findings suggest that improving project performance requires strengthening integrated governance systems rather than focusing solely on risk identification.

Aligning risk management, financial stability mechanisms, and monitoring frameworks enhances a project's capacity to withstand uncertainty.

Future research should empirically test the interaction effects among governance mechanisms, examine their context-specific effectiveness, and develop quantitative models that capture the mediating pathways identified in this review.

REFERENCES

Abdelalim, A. M., Salem, Maram, Salem, Mohammed, Al-Adwani, M., & Tantawy, M. (2024). *An Analysis of Factors Contributing to Cost Overruns in the Global Construction Industry*. https://doi.org/10.20944/preprints202412.0362.v1

Afana, O., Al Zubaidi, R., Abu Dabous, S., & Ibrahim, F. (2024). Categories and Factors of Cost Overrun in Construction Projects: A Systematic Review. *Engineering, Technology & Applied Science Research*, *14*(6), 18330–18347. https://doi.org/10.48084/etasr.9006

Agnese, P., & Capuano, P. (2021). The culture of risk governance in financial institutions. *Journal of Risk Management in Financial Institutions*, *14*(3), 301. https://doi.org/10.69554/VMGP3063

Al Jarrah, M., Jarah, B., & Altarawneh, I. (2022). Toward successful project implementation: Integration between project management processes and project risk management. *Problems and Perspectives in Management*, *20*(3), 258–273. https://doi.org/10.21511/ppm.20(3).2022.21

Ali Alshehhi, H. S. M., Sidik, R., & Rozali, E. A. (2025). Evaluating Risk Management Concepts and Their Applications in the Context of Construction Projects. *International Journal of Environmental Sciences*, 996–1005. https://doi.org/10.64252/jy1xsd52

Alshamayleh, H. Z., Abu Raje, H. M. T. A., Amlus, M. H. Bin, & Bataineh, M. J. (2024). Towards Efficient Construction Projects: Addressing Team Coordination and Risk Management in Jordan: Higher Model Imperial Study. *Journal of Ecohumanism*, *3*(8). https://doi.org/10.62754/joe.v3i8.5421

Anačkov, D. (2024). Efficiency of internal controls in financial managament: A review from the audit perspective. *Ekonomija: Teorija i Praksa*, *17*(3), 109–127. https://doi.org/10.5937/etp2403109A

.Andreea, P. I. (2024). Types of risks within projectsManagement & Marketing, *22*(1), 61–67. https://doi.org/10.52846/MNMK.22.1.05

Asmi, A., Rahmadi, M. G., & Djamaris, A. (2025). Risk Analysis of Construction Delays in High-Rise Projects. *International Journal of Multidisciplinary Research and Analysis* , *08*(08). https://doi.org/10.47191/ijmra/v8-i08-28

Assaad, R., El-Adaway, I. H., & Abotaleb, I. S. (2020). Predicting Project Performance in the Construction Industry. *Journal of Construction Engineering and Management*, *146*(5). https://doi.org/10.1061/(ASCE)CO.1943-7862.0001797

Ayoade, O. (2025). Integrating risk management with financial analysis: A Project Manager's approach. *International Journal of Science and Research Archive*, *14*(1), 072–082. https://doi.org/10.30574/ijsra.2025.14.1.2657

Cao, L. (2024). Review Objectives, Questions and Methods. In Data analytics *(pp. 13–24). https://doi.org/10.1007/978-981-99-9915-6_2*

Chen, Y., Kho, M., & Mohamed, O. (2024). Developing a Conceptual Model for Promoting Risk Management for Public–Private Partnerships Projects. Sustainability, *16*(18), 8221. https://doi.org/10.3390/su16188221

Chevalier-Karfis, A. (2024). Understanding the Impact of Project Risk Management on Project Performance: A Technical and Empirical Perspective. *Business & IT*, *XIV*(2), 33–40. https://doi.org/10.14311/bit.2024.02.04

De Marco, A., Rafele, C., & Thaheem, M. J. (2016). Dynamic Management of Risk Contingency in Complex Design-Build Projects. *Journal of Construction Engineering and Management*, *142*(2). https://doi.org/10.1061/(ASCE)CO.1943-7862.0001052

Didar, E., Bazargan, A., & Bagherpour, M. (2025). Cash flow risk management across multiple construction projects using value at risk. *Engineering, Construction and Architectural Management*. https://doi.org/10.1108/ECAM-07-2024-0975

Dikmen Toker, İ., & Birgönül, M. T. (2011). *Tracing Risk Paths in International Construction Projects: A Case Study*. https://open.metu.edu.tr/handle/11511/82283

Du, Q., Zhao, R., Wan, Q., Li, S., Li, H., Wang, D., Ho, C. W., Dai, Z., Chen, Y., & Shan, D. (2024). Protocol for conducting bibliometric analysis in biomedicine and related research using CiteSpace and VOSviewer software. *STAR Protocols*, *5*(3), 103269. https://doi.org/10.1016/j.xpro.2024.103269

Fischer, C., & Weißmüller, K. S. (2026). Navigating Uncertainty: Risk Governance in Complex Organizations. In *International Encyclopedia of Business Management* (pp. 493–498). Elsevier. https://doi.org/10.1016/B978-0-443-13701-3.00318-2

Gamlath, G. R. M., Nanthagopan, Y., Williams, N. L., & Kengatharan, L. (2024). Optimizing organisational value: crafting a constructively aligned thematic framework for project governance enhancement. *Sri Lanka Journal of Social Sciences*, *46*(02), 145–158. https://doi.org/10.4038/sljss.v46i02.8771

George, C. (2020). The Essence of Risk Identification in Project Risk Management: An Overview. *International Journal of Science and Research (IJSR)*, *9*(2), 973–978. https://doi.org/10.21275/SR20215023033

.Guyolla, Y. H. (2023)Effective Risk Management as *a Mediator to Enhance the Success of Construction Projects* (pp. 168–191). https://doi.org/10.1007/978-3-031-25274-7_15

Hadad, Y., & Keren, B. (2025). Risk–Response Budgeting: A Financial Optimization Approach to Project Risk Management. *Journal of Risk and Financial Management*, *18*(3), 160. https://doi.org/10.3390/jrfm18030160

Hall, S., & Leeder, E. (2024). Narrative reanalysis: A methodological framework for a new brand of reviews. *Research Synthesis Methods*, *15*(6), 1017–1030. https://doi.org/10.1002/jrsm.1751

Hamad, S. M. (2023). Cause of delay and cost overrun in infrastructure projects. *Journal of Global Economics and Business*, *4*(15), 11–24. https://doi.org/10.58934/jgeb.v4i15.201

Hazır, Ö., & Ulusoy, G. (2020). A classification and review of approaches and methods for modeling uncertainty in projects. *International Journal of Production Economics*, *223*, 107522. https://doi.org/10.1016/j.ijpe.2019.107522

Hossen, F. A. (2013). Cost Risk Appraisal: An Application of Project Risk Management Process in Libyan Construction Projects. *Journal of Civil Engineering and Architecture*, *7*(5). https://doi.org/10.17265/1934-7359/2013.05.009

Hu, N. (2025). Cost Control and Risk Management of Civil Engineering Construction Projects. *Applied and Computational Engineering*, *172*(1), 217–222. https://doi.org/10.54254/2755-2721/2025.GL24902

Hussein, A. R., & Moradinia, S. F. (2023). Mitigating Time and Cost Overruns in Construction Projects: A Questionnaire Study on Integrating Earned Value Management and Risk Management. *Journal of Studies in Science and Engineering*, *3*(2), 37–51. https://doi.org/10.53898/josse2023323

Hussien, A. (2025). *Explore the reasons for the time and costoverruns in the projects under construction*. https://doi.org/10.21203/rs.3.rs-7133432/v1

Ierardi, E., Eilbeck, J. C., van Wijck, F., Ali, M., & Coupar, F. (2023). Data mining versus manual screening to select papers for inclusion in systematic reviews: a novel method to

increase efficiency. *International Journal of Rehabilitation Research*, *46*(3), 284–292. https://doi.org/10.1097/MRR.0000000000000595

Informed, I. N. (2022). *Evidence from the Literature to Answer Specific Research Questions*.

Jane, I. M. (2025). Building success: A systematic review of the importance of project management in construction. *International Journal of Science and Research Archive*, *15*(2), 1315–1319. https://doi.org/10.30574/ijsra.2025.15.2.1415

Lande, S. U., & Chandekar, P. (2025). Cross-National Analysis of Construction Project Cost Overruns: Risk Factors, Contractual Governance, and Mitigation Strategies. *Journal of Progress in Civil Engineering*, *7*(5), 9–14. https://doi.org/10.53469/jpce.2025.07(05).02

Mofleh Alshehhi, H. S. (2024). The impact of risk management on the performance of .construction projects2024: Proceedings of Social Science and Humanities Research Association (SSHRA), 114–115. https://doi.org/10.20319/icssh.2024.114115

Muñoz, I. J., Moreno, D., & Suárez, F. A. (2025). Financial Risks in Building Planning: A Literature Review. *Ingeniería y Competitividad*, *27*(2). https://doi.org/10.25100/iyc.v27i2.14476

Musawir, A. U. (2023). Governance of projects and project governance: enabling strategy implementation through projects. In *Research Handbook on the Governance of Projects* (pp. 91–102). Edward Elgar Publishing. https://doi.org/10.4337/9781802208078.00015

Ottaviani, F. M., De Marco, A., Rafele, C., & Castelblanco, G. (2024). Risk Perception-Based Project Contingency Management Framework. *Systems*, *12*(3), 93. https://doi.org/10.3390/systems12030093

Park, K., Lee, H. W., Choi, K., & Lee, S.-H. (2019). Project Risk Factors Facing Construction Management Firms. *International Journal of Civil Engineering*, *17*(3), 305–321. https://doi.org/10.1007/s40999-017-0262-z

Peggy, T. R., Suryani, F., & Dinariana, D. (2025). Risk Management on Schedule Performance in the Construction of Baros–Petir Provincial Road, Banten Province, Indonesia. *Journal of Architecture and Civil Engineering*, *10*(8), 116–119. https://doi.org/10.35629/8193-1008116119

.*Pegulescu, I. A. (2023). The influence of risk management on project performance* Management & Marketing, *21*(2), 259–265. https://doi.org/10.52846/MNMK.21.2.05

Pheng, L. S. (2018). *Project Risk Management* (pp. 159–176). https://doi.org/10.1007/978-981-10-6992-5_11

Prikhodko, A. *,A., & Stroganova, M. V. (2024). Project risk management: risks identification .analysis, control and minimization*Scientific Journal of the Academy, *15*(2), 19–23. https://doi.org/10.36683/nz50.19-23

Putranto, A., Jayady, A., & Nurjaman, H. N. (2025). Why Contracts Fail: Financial Risk Factors in Urban Pedestrian Bridge Construction in Indonesia. *Engineering and Technology Journal*, *10*(08). https://doi.org/10.47191/etj/v10i08.06

Ramasamy, A. (2022). PRISMA 2020: Key Changes and Implementation Aspects. *Journal of Oral and Maxillofacial Surgery*, *80*(5), 795–797. https://doi.org/10.1016/j.joms.2021.12.018

Senghani, H. D., Bhavsar, A. N., Pitroda, J. R., & Patel, Ar. D. H. (2023). Project's Success Factor in the Building Construction: A State of Art Review. *INTERANTIONAL JOURNAL OF SCIENTIFIC RESEARCH IN ENGINEERING AND MANAGEMENT*, *07*(03). https://doi.org/10.55041/IJSREM18138

Shamshiri, A., Ryu, K. R., Park, J. Y., & Choi, K. (2023). Project Phase–Based Contingency Adjustment Framework for Infrastructure Renewal Projects. *Journal of Construction Engineering and Management*, *149*(2). https://doi.org/10.1061/JCEMD4.COENG-12311

Soemanto, H., Salim, M. N., Permana, D., & Johanes Lo, S. (2025). The Effect of Risk Management, Schedule Performance, and Cost Efficiency on the Feasibility of Infrastructure Project Investment. *Eduvest - Journal of Universal Studies*, *5*(9), 11457–11470. https://doi.org/10.59188/eduvest.v5i9.52148

Su, G., & Khallaf, R. (2022). Research on the Influence of Risk on Construction Project Performance: A Systematic Review. *Sustainability*, *14*(11), 6412. https://doi.org/10.3390/su14116412

Suciu, C., Tulpan, M., Cucăilă, M., Offenberg, A., & Sărăcuț, M. (2022). Methodological tools for project risk management. *MATEC Web of Conferences*, *373*, 00082. https://doi.org/10.1051/matecconf/202237300082

Syakhertra, E., Sudarsa, M. D. F., & Saputra, P. D. (2025). Identifikasi Faktor Penyebab Keterlambatan Proyek Konstruksi: Studi Literatur. *Menara Ilmu*, *19*(2), 502–524. https://doi.org/10.31869/mi.v19i2.6632

Thaheem, M. J., Marco, A. De, & Narbaev, T. (2013). *Risk-Adjusted Contingency Management in Construction Projects (pp. 191–195).*

Tripathi, A. (2025). Strategic Approaches of Project Managers to Enhance Cost Efficiency and Timeliness in Construction Projects. International Journal for Research in Applied Science and Engineering Technology, *13*(9), 88–97. https://doi.org/10.22214/ijraset.2025.73987

Vacanas, Y., & Danezis, C. (2021). Determination of Effective Delay-Avoidance Practices in Construction Projects. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, *13*(1). https://doi.org/10.1061/(ASCE)LA.1943-4170.0000438

Welde, M., & Engebø, A. (2024). Cost and schedule performance in large government projects. *IOP Conference Series: Earth and Environmental Science*, *1389*(1), 012027. https://doi.org/10.1088/1755-1315/1389/1/012027

Wilson, C. R., Tran, D., & Molenaar, K. R. (2015). Program Risk Management Approach to Reducing Cost Uncertainty in Highway Projects. *Transportation Research Board 94th Annual Meeting*.

Worldailmi, E., Wulandari, S., & Prawibowo, S. T. (2024). *A literature review: Identification of risk factors in construction projects*. 070018. https://doi.org/10.1063/5.0200991

You, T., Yoon, J., Kwon, O.-H., & Jung, W.-S. (2021). Tracing the evolution of physics with a keyword co-occurrence network. *Journal of the Korean Physical Society*, *78*(3), 236–243. https://doi.org/10.1007/s40042-020-00051-5

Zarghami, S. A. (2024). Resilience to disruptions: a missing piece of contingency planning in projects. *International Journal of Production Research*, *62*(17), 6029–6045. https://doi.org/10.1080/00207543.2024.2306474

Zhang, Liting, Zhang, Lingyun, & Ning, Y. (2023). A Resilience Approach to Project Cost Contingency Estimation. *Proceedings of the 11th IPMA Research Conference "Research Resonating with Project Practices,"* 293–301. https://doi.org/10.56889/eeqw5020