

ANALYSIS OF FACTORS CAUSING DELAYS IN CONSTRUCTION PROJECT IMPLEMENTATION

Felisitas Sintia Empak¹; Patrisius Valdoni Sandi²; Maria Flaviana Ndeku³; Ewaldus Onesianus Kaur⁴; Maria Serliana Luru⁵

*¹⁻⁵ Civil Engineering Study Program, Faculty of Engineering,
Universitas Katolik Indonesia Santu Paulus Ruteng, Ruteng, Indonesia*

Corresponding authors: felisitasempak@gmail.com,
valdonisandi@unikastpaulus.ac.id

Abstract: Delays in the execution of construction projects are a common challenge that frequently result in budget overruns, conflicts among stakeholders, and reduced project standards. This research aims to identify and analyze the primary factors contributing to such delays. Utilizing a quantitative methodology, data were gathered through surveys distributed to professionals involved in construction, including contractors, consultants, and project owners. The collected data were processed using statistical techniques such as frequency analysis and factor ranking based on their level of impact. The analysis revealed that the most significant delay factors include delayed payments by project owners, inadequate planning, shortage of skilled workforce, frequent modifications in design, and late material delivery. Additionally, external elements like unfavorable weather and bureaucratic constraints also play a substantial role in postponements. The findings underline the importance of effective project management, timely coordination among stakeholders, and swift decision-making to mitigate delays. Understanding these critical delay contributors is essential to enhance the performance and success of future construction initiatives.

Keywords: *Construction delays, project execution, delay causes, project coordination, construction sector.*

INTRODUCTION

Managing construction projects involves balancing three core aspects commonly referred to as the triple constraint: time, cost, and quality. During implementation, these elements must be integrated efficiently by the project team to ensure that objectives are met. These factors are interdependent; disruptions in one area may negatively affect the others. Time management is often the most vulnerable component, as indicated by frequent project delays.

Such delays are prevalent across the global construction industry, not just in industrialized nations but also in developing countries like Indonesia, Nepal, Egypt, and Somalia. As highlighted in studies by Yalini & Alan (2015) and Turkar & Apte (2016), as cited in Edoghogho Ogbeifun and Harm C. Pretorius (2023), financial limitations are among the leading causes of delays. These issues include the client's inability to provide timely payments and inadequate contractor cash flow, hindering project progress on-site. Hence, sufficient financial resources are essential for smooth execution; however, delays may still occur even after financial problems are resolved.

According to Giri (2023), Rauzana et al. (2022), and Issa et al. (2023), delay factors can be classified as internal (such as client, consultant, contractor, or design-related issues) and external (such as weather conditions, government policies, and political factors). Although many studies have examined these causes, a comprehensive mapping of delay factors based on frequency and influence remains limited. Therefore, this study aims to systematically analyze the causes of construction project delays through a structured review of previous literature.

METHOD

This research utilizes a systematic literature review (SLR) approach to identify and synthesize the primary causes of delays in

construction projects. The SLR method was chosen to ensure a structured and comprehensive evaluation of peer-reviewed academic studies focusing on project delay factors. The process involved retrieving scholarly articles from selected reputable sources, all of which centered on the topic “Analysis of Factors Causing Delays in Construction Project Implementation.”

Construction project delays can result in extended timelines, increased costs, and diminished project outcomes. Therefore, to thoroughly assess the causes, the literature review included 18 scientific journals that are indexed in Scopus and recognized for their credibility. These studies were selected based on predetermined criteria, including the publication period (from 2020 to 2025), the robustness of the research methodologies used, the direct relevance to project delay issues, and their academic contributions to the field of construction management.

The selected journals represent diverse geographic and project contexts, encompassing both developed and developing nations. This variety offers a holistic view of delay factors from multiple perspectives. After thoroughly reviewing the selected publications, the researchers categorized and mapped the delay factors according to their characteristics and frequency of occurrence across the literature. This categorization helped develop the conceptual framework that underpins the study’s analysis of delay causes in construction project execution.

The study classifies delay factors into two major categories: internal and external. Internal factors include challenges such as miscommunication, ineffective delay mitigation strategies, issues related to material delivery and equipment, technical or managerial inefficiencies, and problems arising from contractors, subcontractors, designers, or project leaders.

Conversely, external factors cover political instability, rising material costs, extreme weather events, environmental and social concerns, and inflation. These classifications were derived from

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recurring patterns and common findings identified across the reviewed academic sources.

Research Process:

1. Problem Identification

Define the core issues related to construction delays, establishing the foundation of the study.

2. Journal Selection

Conduct a systematic search for relevant academic journals from reliable databases to ensure the credibility of data.

3. Literature Review

Analyze and synthesize key findings and trends from selected studies to uncover factors linked to delays.

4. Variable Classification

Organize identified variables into three risk categories – internal, external, and project-related – using a structured conceptual model refined from the literature.

5. Findings and Conclusion

Present the study's key results and offer conclusions regarding the most influential causes of delays, along with their implications for future project management.

RESULT

Based on the review of eighteen Scopus-indexed journals, the researchers categorized the factors causing project delays into two main groups internal factors and external factors. The indicators of project delay causes within the internal factors are represented as follows: information and communication (denoted by the letter A), lack of methods to overcome delays (B), delays in delivery and material-equipment issues (C), management and technical processes (D), and issues related to contractors, subcontractors, designers, or project managers (E).

Meanwhile, the indicators for external factors include political influences (F), rising material costs (G), weather conditions (H), social and environmental factors (I), and inflation (J).

Each journal was assigned a score of 1 for every indicator present from the list above, and the scores were then summed. This scoring system aims to identify the factors that have the greatest influence and responsibility for project delays.

The following table presents the results of the analysis conducted by the researchers on the sixteen selected journals.

Table 1: Internal Factors

Research Journal Titles	A	B	C	D	E
Investigation of Project Delays: Towards a Sustainable Construction Industry	1			1	
AnOverarching Review on Delay Analyses in Construction Projects		1			1
Evaluation of critical risk factors in the implementation of modular construction	1	1		1	1
Critical Factors Influencing the Performance of Highway Projects: An Empirical Evaluation	1	1			1
Risk factors causing cost overruns in road network	1			1	1
Exploring the significant factors that influence delays in construction projects in Hargeisa	1		1	1	1
Stakeholders' issues as a source of project delays: a meta-analysis between building and road projects		1	1	1	1
Investigation of factors responsible for delays in the execution of adequately funded construction projects		1			1

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Research Journal Titles	A	B	C	D	E
Analysis of risk factors affecting the main execution activities of roadways construction projects	1	1	1	1	1
Perception-Based Assessment of the Factors Causing Delays in Construction Projects	1			1	1
Analysis of risk factors affecting the main execution activities of roadways construction project	1	1	1	1	1
Investigating the causes of construction delay on the perspective of organization-sectors involved in the construction industry of Bangladesh			1	1	1
The Impact of Climate Change on Construction Activity Performance	1	1			
Investigation of Project Delays: Towards a Sustainable Construction Industry	1		1	1	1
Analysing delay factors in construction projects using Z-number approach: Insights from Pakistan	1			1	1
Extraction of Underlying Factors Causing Construction Projects Delay in Nigeria	1		1	1	
Underlying causes and mitigation measures of delays in construction projects				1	1
Influencing factors indicating time delay in construction projects: impact of firm size and experience				1	1
Causes of Delay in Smart and Complex Construction Projects	1	1		1	
Identifying and prioritizing delay factors in Iran's oil construction projects		1		1	

Research Journal Titles	A	B	C	D	E
Total	12	9	6	15	14
Grand Total	56				

Table 2: External Factors

Research Journal Titles	F	G	H	I	J
Investigation of Project Delays: Towards a Sustainable Construction Industry	1		1		
AnOverarching Review on Delay Analyses in Construction Projects	1				
Evaluation of critical risk factors in the implementation of modular construction	1				
Critical Factors Influencing the Performance of Highway Projects: An Empirical Evaluation	1		1		
Risk factors causing cost overruns in road network	1				
Exploring the significant factors that influence delays in construction projects in Hargeisa					1
Stakeholders' issues as a source of project delays: a meta-analysis between building and road projects	1		1		
Investigation of factors responsible for delays in the execution of adequately funded construction projects	1				
Analysis of risk factors affecting the main execution activities of roadways construction projects	1				
Investigating the causes of construction delay on the perspective of organization-sectors involved in the construction industry of Bangladesh	1		1	1	1

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Research Journal Titles	F	G	H	I	J
The Impact of Climate Change on Construction Activity Performance			1		1
Investigation of Project Delays: Towards a Sustainable Construction Industry	1	1	1		
Analysing delay factors in construction projects using Z-number approach: Insights from Pakistan			1	1	1
Extraction of Underlying Factors Causing Construction Projects Delay in Nigeria	1		1		1
Underlying causes and mitigation measures of delays in construction projects	1				
Influencing factors indicating time delay in construction projects: impact of firm size and experience				1	
Causes of Delay in Smart and Complex Construction Projects		1			
Identifying and prioritizing delay factors in Iran's oil construction projects		1	1		1
Total	13	3	11	2	7
Grand Total			36		

DISCUSSION

Based on the analysis of 18 peer-reviewed journals, the delay factors in construction projects were grouped into internal and external categories. The internal delay indicators accumulated a total of 56 points, distributed as follows:

1. A (Information and communication issues) – 12 points
2. B (Lack of strategies to address delays) – 9 points
3. C (Delays in materials and equipment delivery) – 6 points
4. D (Technical and management-related issues) – 15 points

5. E (Challenges involving contractors, subcontractors, designers, or project managers) – 14 points

On the other hand, external delay indicators accounted for a total of 36 points, broken down as:

1. F (Political influences) – 13 points
2. G (Rising cost of materials) – 3 points
3. H (Weather conditions) – 11 points
4. I (Social and environmental concerns) – 2 points
5. J (Inflation) – 7 points

These findings clearly suggest that internal factors have a greater overall impact on project delays compared to external ones. In particular, the highest-scoring internal factor was technical and managerial deficiencies, which recorded 15 points. This reflects how significant planning, supervision, and execution are in maintaining project timelines.

Nevertheless, external factors should not be underestimated. Political conditions, for instance, were among the most cited external contributors, earning 13 points. This indicates that policies, administrative delays, and political instability can considerably affect project schedules regardless of how well internal operations are managed.

The comprehensive breakdown provided by the journal review allows us to understand the relative weight of each factor, both internal and external. Recognizing these issues can aid stakeholders in making informed strategic decisions to reduce the likelihood and severity of delays. By addressing the dominant internal challenges and preparing for external risks, construction project teams can improve efficiency and deliver projects more reliably.

CONCLUSION

The results of this study indicate that internal project-related factors are the primary contributors to delays in construction project

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implementation. Among these, technical and management issues were found to have the most substantial impact. Effective planning, organized execution, and resource optimization are key elements in mitigating such delays. When internal systems are inefficient, project schedules are more likely to be disrupted.

However, external factors also present serious challenges. Political instability, in particular, was identified as a major external contributor to delay, as it can lead to policy shifts, regulatory uncertainties, or administrative obstacles that directly affect construction timelines. Even with well-managed internal processes, such external conditions can significantly hinder project progress.

Therefore, to minimize delays and improve project delivery outcomes, stakeholders must pay equal attention to strengthening internal project management systems and actively anticipating and preparing for external risks. A strategic, well-coordinated approach is essential to ensure that both predictable and unpredictable factors are addressed effectively.

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