Print ISSN:2717-0454
Online ISSN:2783-2856
Quarterly Journal of Innovation and Entrepreneurship
Http://journalie.ir

Management Analysis of Claims Resulting from Delays in Construction Projects and Presentation of a Standard Claims Management Model

* Mehdi Fazilati ** Rasoul Shahbazi Garmetan

* Assistant Professor of Civil Engineering, Department of Civil Engineering, Najafabad Branch, Islamic Azad University, Najafabad, Iran.. fazilati2001@yahoo.com
** Department of Civil Engineering, Najafabad Branch, Islamic Azad University, Najafabad, Iran. rasoolshahbazi3@gmail.com

Received: 13.01.2026 Accepted: 28.04.2026

Abstract

The present research aims to reconstruct the institutional logic of the formation of claims arising from delays in Iran's civil projects and is based on the premise that delays, contrary to common belief, are not merely temporal or technical phenomena, but the result of a network interaction of legal, managerial, and process weaknesses. The main issue of the research is to explain how gaps in the division of responsibilities, deficiencies in documentation, and disruptions in the information cycle create the capacity to turn a simple temporal event into a complex legal conflict. To answer this issue, a qualitative-analytical approach has been employed, based on three-level thematic analysis, comparative legal analysis, reconstruction of the "delay-claim" process, and causal modeling with DEMATEL. The research data were collected from contractual documents, arbitration files, project reports, and international standards, and after open, axial, and selective coding, organized into three legal, managerial, and process axes. The final synthesis of the research presents the three-axis claim production model in which delay turns into definite dispute only when the three mentioned gaps are simultaneously active. This model provides a basis for developing a standard delay claims management model and shows that controlling temporal conflicts is possible only with integrated reform of legal, managerial, and process platforms..

Keywords: Project Delay Claims, Claim Proof Burden, Comparative Legal Analysis, Three-Level Thematic Analysis, DEMATEL Causal Modeling.

Corresponding Author: Mehdi Fazilati- Fazilati2001@yahoo.com

Introduction

Problem statement

Construction projects are inherently exposed to delay risk due to the multiplicity of stakeholders, the complexity of contractual relationships, and the interdependence of activities on resources, information, and mutual decisions. However, delay does not necessarily remain a purely temporal or operational issue; in the absence of clear contractual mechanisms, adequate documentation, timely notice, and an accepted method for analyzing delay impact, it may evolve into a contractual claim and then into a legal dispute. In Iranian construction projects, this transformation is often intensified by ambiguity in responsibilities, weak documentation practices, late notices, the absence of a valid baseline schedule, and the lack of mandatory standards for time-impact analysis. As a result, many disputes arise not only from the occurrence of delay itself, but from the structural and procedural weaknesses that prevent its proper management and resolution.

Purpose

The purpose of this research is to reconstruct the institutional logic underlying delay-induced claims in construction projects and to explain the causal relationships among the legal, managerial, and process dimensions of such disputes. The study also aims to compare the Iranian contractual environment with international standard practice in order to identify structural gaps and propose a standardized framework for the proactive management of delay claims.

Questions / Hypothesis

The main research question is: **How does the interaction of legal, managerial, and process weaknesses transform delay into claims and disputes in Iranian construction projects?**

The sub-questions are:

1.Which of the three axes plays the greatest causal role in initiating and intensifying the claim cycle?

2.What are the most vulnerable nodes in the delay–claim process?

3.To what extent does the Iranian contractual structure diverge from international standard practice in relation to the burden of proof, documentation, concurrent delay, and staged adjudication?

The conceptual hypothesis is that delay claims are not the direct product of the temporal event itself, but rather the result of the simultaneous interaction of three institutional gaps: legal ambiguity regarding responsibilities and the burden of proof; managerial weakness in documentation and scheduling; and process disorder in notice, analysis, and adjudication. A second hypothesis is that within this causal network, the managerial axis acts as the driving factor, the process axis as the transmitting factor, and the legal axis as the susceptible factor.

Background

Studies on Iranian construction projects have identified poor planning, design or scope changes, financial issues, resource shortages, and managerial deficiencies as major causes of delay (Pourrostam & Ismail, 2012; Alavifar & Motamedi, 2014; Abbasi et al., 2020; Heravi & Mohammadian, 2021). In parallel, legal and contractual studies have emphasized the importance of the burden of proof, contractual liability, and the quality of documentation in the acceptance or rejection of claims.

International standard contracts and protocols such as FIDIC, NEC, AIA, and the Society of Construction Law Delay and Disruption Protocol provide clearer rules regarding party responsibilities, notice requirements and time bars, documentation obligations, the burden of proof, concurrent delay, and accepted delay-analysis techniques (D'Onofrio et al., 2018; Eggleston, 2019; Godwin, 2020). By contrast, reliance on traditional contracts in Iran, together with ambiguity in responsibilities and the absence of explicit concurrent-delay rules and mandatory delay-analysis standards, has made the resolution of many claims dependent on incomplete evidence or subjective interpretation by evaluators and arbitrators.

Shaikh et al. (2020) identify delay and extra-work claims as among the most common claim types in construction and emphasize the importance of documentation and standardized claim-management policies. Kikwasi (2023) shows that scope changes and delayed completion can generate chain effects on other causes and claim outcomes. Azzam et al. (2025) highlight the evidentiary role of time-impact and window analysis in proving entitlement. In addition, DEMATEL-based studies suggest that project problems are interrelated and that managerial factors often serve as driving causes (Hatefi & Tamošaitienė, 2019; Rostamzadeh et al., 2023).

Methodology

This research is applied–developmental in purpose and qualitative–analytical in nature. The research population comprises documents and data related to delay management and claims in construction projects, including domestic and international contractual documents, relevant regulations, arbitration files, project schedules and documentation, and scholarly literature on claim management and delay analysis. Samples were selected purposively according to five criteria: legal clarity, citability, currency, informational continuity, and analytical value. Standard instruments such as FIDIC, NEC, and AIA, Iranian contract conditions and regulations, and material on the English, American, and Australian legal systems constituted the comparative sample. Because the research centers on document analysis, the unit of analysis is not the individual or organization but the "legal–managerial textual unit"; that is, each contract clause, regulation, report, correspondence, or project record was treated as an independent unit of analysis.

The principal analytical technique was three-level thematic analysis. In open coding, 52 initial concepts were extracted, including excusable and non-excusable delay, employer and contractor default, concurrent delay, late notice, deficient documentation, change management, resource shortages, and information deficits. In axial coding, the concepts were classified into three axes—legal, managerial, and process—based on similarity of causal role and function. The legal axis covers liabilities, the burden of proof, and concurrent-delay rules; the managerial axis covers planning, documentation, and change management; and the process axis covers notice, time-impact analysis, response, and claim adjudication. In selective coding, the relationships among the three axes were examined and the conceptual model of claim formation was derived.

Subsequently, comparative analysis was conducted to establish the distance between the Iranian contractual structure and standard systems. The comparison covered five domains: extension-of-time criteria, notification obligations, concurrent-delay rules, burden of proof and documentation, and the adjudication process. Process analysis was then used to reconstruct the "delay–claim" cycle through its stages: event occurrence, preliminary notice, evidence gathering, time-impact analysis, counterparty response, claim submission, evaluation, and decision.

Finally, to quantify the relationships among the three axes, the DEMATEL method was employed. The legal, managerial, and process factors were denoted L, M, and P, respectively, and the direct-influence matrix among them was constructed. After normalization, the total-relation matrix was computed as $T=X(I-X)^{-1}$. Row sums of the matrix served as the prominence/influence index DDD, column sums as the susceptibility index RRR, and the difference D−R distinguished causal from effect factors: a positive D−R indicates a driving (dispatching) factor, while a negative value indicates a susceptible (receiver) factor. Coding reliability was ensured through repeated thematic review; internal validity through comparison of initial and final codes; external validity through triangulation with case files and international standards; and interpretive validity through continuous meaning-control.

Findings

The legal analysis showed that a substantial share of delay disputes in Iranian construction projects stems from ambiguity in the allocation of responsibilities, the absence of binding rules on concurrent delay, uncertainty in the burden of proof, and the lack of a legal standard for schedule documentation. In many case files, the occurrence of delay itself was not contested; rather, the identification of the responsible

party, the causal link between the event and the temporal effect, and the quantum of entitlement to an extension of time were the points of contention. Contractual ambiguity has therefore produced inconsistent decisions and heightened dependence on individual interpretation.

On the managerial axis, baseline schedules in a considerable proportion of projects lacked valid network logic, a discernible critical path, or defensible precedence relationships. A temporal gap also existed between the occurrence of events and their registration, and change management was not integrated with delay management. The data revealed that more than 60 percent of time claims were rejected for lack of credible evidence—even where the technical origin of the delay was attributable to employer performance. This finding indicates that the provability of a claim depends less on the mere occurrence of the event than on the quality of the baseline schedule, the timely registration of information, and the traceability of the cause–effect relationship.

On the process axis, the preliminary notice and time-impact analysis stages emerged as the most vulnerable links in the "delay–claim" cycle. In a significant share of projects, notices were issued beyond contractual deadlines, without supporting documentation, or without articulation of the event's prospective impact. Moreover, in over 60 percent of cases, no time-impact analysis was performed, or the analysis lacked the technical rigor required for legal acceptance. The absence of a staged mechanism—notice, preliminary response, supplementary review, and final decision—and the lack of coordination among legal, technical, and planning units increased the likelihood of dispute escalation.

The comparative analysis identified five principal gaps in Iran's delay-claim structure: no formal concurrent-delay rules; no clear burden-of-proof criteria; no accepted delay-analysis standards; a weak integrated documentation system; and no staged, preventive dispute-resolution mechanism. By contrast, the English, American, and Australian contractual systems pre-define responsibilities, deadlines, evidentiary requirements, and analysis methods through standard contracts and protocols, thereby achieving greater predictability and decisional stability.

Discussion and Conclusion

The findings demonstrate that delay-claim management cannot be achieved through isolated reform of the contract or the schedule; it requires the coordinated redesign of the three legal, managerial, and process axes. It is recommended that concurrent-delay and burden-of-proof rules be clarified; an integrated, digital documentation and schedule-update system be institutionalized; and notices and time-impact analyses be standardized within a staged procedural framework. Implementation of this tri-axial model would transform delay-claim management from a reactive to a proactive approach, enhancing predictability, decision quality, and contractual stability in construction projects.

References

1. Abbasi, O., Noorzai, E., Gharouni Jafari, K., & Golabchi, M. (2020). Exploring the causes of delays in construction industry using a cause-and-effect diagram: Case study for Iran. *Journal of Architectural Engineering, 26*(3), 05020008. https://doi.org/10.1061/(ASCE)AE.1943-5568.0000431

2. Alavifar, A. H., & Motamedi, S. (2014). Identification, evaluation and classification of time delay risks of construction project in Iran. In *International Conference on Industrial Engineering and Operations Management* (pp. 919–929).

3. Antoniou, F., & Tsioulpa, A. V. (2024). Assessing the delay, cost, and quality risks of claims on construction contract performance. *Buildings, 14*(2), 333. https://doi.org/10.3390/buildings14020333

4. Azzam, O. M., Saleh, A. M., & Eleshmawy, N. (2025). Delay analysis in construction contracts: Assessing claims and legal implications. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction, 17*(1), 04524032. https://doi.org/10.1061/JLADAH.LADR-1198

5. D'Onofrio, R., Frame, S., & McEwen, L. (2018). Delay analysis: A comparison of the UK and US approaches. *Construction Law International, 13*, 52.

6. Eggleston, B. (2019). *The NEC4 engineering and construction contract: A commentary*. John Wiley & Sons. https://doi.org/10.1002/9781119478737

7. Godwin, W. (2020). *The 2017 FIDIC contracts*. John Wiley & Sons. https://doi.org/10.1002/9781119514619
8. Hatefi, S. M., & Tamošaitienė, J. (2019). An integrated fuzzy DEMATEL–fuzzy ANP model for evaluating construction projects by considering interrelationships among risk factors. *Journal of Civil Engineering and Management, 25*(2), 114–131. https://doi.org/10.3846/jcem.2019.8280
9. Heravi, G., & Mohammadian, M. (2021). Investigating cost overruns and delay in urban construction projects in Iran. *International Journal of Construction Management, 21*(9), 958–968. https://doi.org/10.1080/15623599.2019.1605967
10. Iyer, K. C., Chaphalkar, N. B., & Joshi, G. A. (2008). Understanding time delay disputes in construction contracts. *International Journal of Project Management, 26*(2), 174–184. https://doi.org/10.1016/j.ijproman.2007.05.002
11. Kikwasi, G. J. (2023). Claims in construction projects: How causes are linked to effects? *Journal of Engineering, Design and Technology, 21*(6), 1710–1724. https://doi.org/10.1108/JEDT-06-2021-0312
12. Pourrostam, T., & Ismail, A. (2012). Causes and effects of delay in Iranian construction projects. *International Journal of Engineering and Technology, 4*(5), 598. https://doi.org/10.7763/IJET.2012.V4.441
13. Rostamzadeh, S., Abouhossein, A., Chalak, M. H., Vosoughi, S., & Norouzi, R. (2023). An integrated DEMATEL–ANP approach for identification and prioritization of factors affecting fall from height accidents in the construction industry. *International Journal of Occupational Safety and Ergonomics, 29*(2), 474–483. https://doi.org/10.1080/10803548.2022.2052479
14. Shaikh, H. H., Zainun, N. Y., & Khahro, S. H. (2020). Claims in construction projects: A comprehensive literature review. *IOP Conference Series: Earth and Environmental Science, 498*(1), 012095. https://doi.org/10.1088/1755-1315/498/1/012095