

Prioritizing Factors on Construction Project Claims: A Comprehensive Review

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Received: 6 July 2024 / Accepted: 18 July 2024 / Published: 25 August 2024

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Abstract: The management of claims in construction projects is a critical aspect of project administration, particularly in the context of increasing complexity and scale of modern construction projects. This comprehensive review synthesizes recent research on factors influencing construction project claims, focusing on studies from various regions including Oman, Vietnam, and Bahrain, and employing methodologies such as fuzzy multi-criteria decision-making, structural equation modeling, and Semantic Network Analysis. Key findings highlight that external risks, client behavior, and unclear project definitions significantly impact claims. The review underscores the importance of proactive management practices and the need for effective documentation and evidence to mitigate claims. The studies collectively emphasize the diverse causes of claims and propose various strategies for improving claims management and reducing project disputes.

Keywords: Project risk factors, Claim mitigation strategies, Decision-making, Stakeholder analysis, Contract evaluation.

I. INTRODUCTION

In recent years, we have observed an increase in contracts between government organizations and foreign companies for infrastructure projects. These contracts involve various forms of foreign participation, including project financing, consulting and design services, management services, or project execution under modern engineering services. Entering these international construction contracts introduces both parties to the global construction market, which differs significantly from the domestic market. These projects, often backed by substantial contracts, are executed using modern management and contractual systems, which are more complex than traditional methods. Therefore, these projects hold special importance and require specific mechanisms (Odeh & Battaineh, 2002).

One of the most critical aspects of managing international construction projects is contract management, especially the legal issues involved, such as investment matters, registration and establishment of foreign companies, insurance, taxation,

guarantees, and dispute resolution (Murdoch & Hughes, 2002). Managing international construction contracts involves various activities of a technical, legal, commercial, and administrative nature (Gulezian & Samelian, 2003).

Timely notification of claims is crucial and a key factor in the success of a project. Failure to promptly inform the other party of a claim can result in the loss of the opportunity to assess it. This applies to both parties in the contract. It is essential to distinguish between a claim and a dispute. A claim is a contractor's request for an extension of time or additional payment, whereas a dispute arises when there is disagreement between the parties over the claims or other contractual aspects. Disagreements and disputes between the contracting parties can have detrimental effects on the project, including work stoppages, decreased motivation among project teams, strained relationships between the employer and contractor, and significant expenditures of time, money, and energy to resolve the claim. This can lead to overlooking important documentation, deepening conflicts, and even involving external, non-project-related parties (Clough et al., 2015).

Avoiding or minimizing these disputes can result in substantial economic savings for the projects. Executing construction projects without considering the potential for disputes and the ability of the parties to resolve them is challenging. Such projects require time, money, and other resources from the involved parties, and the expenditure of these resources creates certain rights for the parties (Clough et al., 2015). Inappropriate drafting of contracts and the unfair distribution of responsibilities and authority, coupled with traditional attitudes and prevailing cultural practices in dealing with contractors, have complicated the process of contractors obtaining their rightful claims (Aibinu & Jagboro, 2002).

In advanced countries, claims in contracts are recognized, and employers generally treat contractor claims at the end of a contract as a legitimate right, evaluating and adjudicating them accordingly (Clough et al., 2015). However, in several countries, where most contracts are one-sided and favor the employer, the employer has the discretion to accept or reject contractor claims (Love & Li, 2000). Consequently, employers often prefer to use their authority to ignore contractor claims, aiming to save on

project costs. This practice weakens contractors financially and diminishes their motivation to perform to standard, leading to frequent disputes and arguments during the project, sometimes resulting in work stoppages and project delays (Odeh & Battaineh, 2002).

During project execution, contracts often require amendments or addendums due to errors in the initial design, miscalculations in the preliminary estimates, mistakes in the preparation of tender documents, unforeseen market conditions, unexpected site conditions, or the need to adapt to new execution circumstances (Sambasivan & Soon, 2007). If both parties agree on the scope of new work, costs, and other conditions, and sign and exchange the necessary addendums, no significant issues arise. However, if there is no agreement on any of the factors influencing contractual changes, this disagreement can become the basis for claims and demands by contractors or bidders. In many cases, contractor claims are addressed at higher levels of the employer's management, such as the board of directors, where appropriate solutions are proposed (Halpin, 2010). However, if these claims are not resolved at these higher management levels, the claimant is often forced to seek legal or judicial remedies. This path, however, introduces challenges such as high litigation costs, lengthy legal processes, and the involvement of individuals unfamiliar with the project (Murdoch & Hughes, 2002). The numerous influencing factors, including high financial turnover, the specialized nature of the work, the volume of tasks, innovation, sensitivity, and diverse geographical locations, make construction projects complex, unique, and dynamic. Such conditions increase the likelihood of claims and disputes at various stages of project execution. However, the impact of differences in construction contracts on the type and extent of claims generated has been underexplored (Odeh & Battaineh, 2002).

Claim management is one of the most critical and challenging aspects of projects worldwide, with many stakeholders in the construction industry viewing it as one of the most destructive events in the field. There is an inverse relationship between the increase in claims and the achievement of the three main objectives of project management (e.i., time, cost, and quality). As claims increase, project timelines and costs tend to rise, while the quality of the project decreases. Although it is impossible to completely eliminate the potential for claims in any project, identifying the primary causes and understanding the relationships between them can significantly reduce the occurrence of claims in future projects (Halpin, 2010).

Most projects executed under the general conditions of contracts between executive bodies, whether public, cooperative, or private sectors, are structured in a three-party model: client, consultant, and contractor. The successful completion of any project within the agreed timeframe and conditions depends on various factors, subjects, and circumstances. Statistics show that almost all contracts across the country, signed and executed by executive bodies, face claims that extend beyond the contract's original terms. It can be said that the field of construction projects and contracting is intimately familiar with and frequently engaged in dealing with claims. The lack of precise understanding of claim-related issues, beyond the financial losses caused by disputes, has led to prolonged challenges among the

parties involved in construction projects such as client, consultant, and contractor (Halpin, 2010).

The construction industry is one of the main pillars of countries' economy, playing a crucial role in job creation and economic growth. The progress, welfare, and development of a nation heavily depend on the success of its infrastructure projects. These projects are inherently complex, characterized by unique sets of plans and technical specifications, and are executed by a primary contractor alongside several subcontractors, many of whom may not have worked together before (Murdoch & Hughes, 2002). The distinct nature of each project and the unique composition of every project team often lead to disagreements. Since every project is unique, it is unrealistic to expect the designer to foresee and account for every aspect. Consequently, errors and, at times, contradictions arise in the contract documents. Furthermore, there may be differing interpretations of the contract provisions among the various parties involved in the construction process (Zhi, 1995).

Disagreements in the construction industry are therefore common, and many professionals in the field feel that the frequency of disputes, along with the costs associated with resolving them, has increased. Disputes have become an inevitable part of construction projects in Iran, much like in other parts of the world. Given the prevalence of three-party contracts in Iranian projects, it is essential to investigate and identify the factors that lead to claims to minimize their impact or avoid them altogether (Amiri & Habibzadeh, 2015). The issue of claims in construction projects is of significant importance due to their considerable impact on project objectives (Clough et al., 2015). Claims are time-consuming and costly events that have caused substantial problems in the country's infrastructure projects (Samarghandi et al., 2016). Moreover, according to recent data, most of the country's construction projects are currently facing issues related to prolonged execution times and significantly increased costs. For instance, between 2009 and 2013, an average of 67.11% of national projects, accounting for 72.44% of the financial weight, was behind their planned schedules. Additionally, the average duration for completing national infrastructure projects increased from 12.7 years in 2009 to 15.4 years in 2013 (Saeb et al., 2021).

II. CONSTRUCTION CONTRACTS

Contracts vary across different countries, tailored to the laws and labor rights prevalent in each society (Murdoch & Hughes, 2002). In the Islamic economic system, there are various legal and religious contracts designed to facilitate work and promote rapid economic growth (Clough et al., 2015). In advanced societies, the workforce is typically employed through lease agreements, where workers are hired by businesses and factories to perform specific tasks in exchange for a set wage. The substantial profits of businesses, coupled with various theories about workers' entitlement to a share of these profits and the influence of socialist ideas among workers and labor unions, led to the concept of profit-sharing with the workforce. This approach aims to prevent economic crises, promote economic and social justice among workers, and spread fairness (Abbasi et al., 2020).

In some countries, such as Japan, the practice of sharing a portion of profits with workers is implemented (Sayareh & Moodi, 2017). However, in many other countries, workers only receive a fixed wage (Fallahnejad, 2013). What stands out in this context is the diversity of employment contracts in the Islamic economic system, which reflects the strength and comprehensive nature of Islamic economics (Kazemi & Adiban, 2015). This diversity not only broadens the types and forms of employment but also provides an additional incentive for economic activity. In Iran, labor laws are primarily based on fixed-wage employment, with diverse contracts mostly limited to banking, where various agreements are used to provide financial services (Amiri & Habibzadeh, 2015).

Contracts can also be categorized into two main types based on the formalities required for their execution and their legal validity: official contracts and informal contracts. Additionally, some contracts require adherence to specific regulations and considerations, such as government contracts or private contracts (Shahsavand et al., 2018). Construction projects are generally organized under various forms, but they typically fall into one of the following categories (Bramble & Callahan, 2010; Burr, 2016):

Lump-sum contracts: In these contracts, the contractor agrees to complete the entire project for a fixed total price or a fixed price per unit of work. In some cases, the contract may include a clause that allows for price adjustments based on changes in the price index. The contractor is responsible for all costs related to materials, supplies, and other expenses. If the contractor's expenses are less than the amount paid by the client, the difference becomes the contractor's profit.

Cost-plus contracts: In this type of contract, the contractor is reimbursed for allowable or specified costs incurred during the project and are paid a fixed fee or a percentage of the total costs as their profit. One characteristic of construction projects is that their duration often extends beyond a single fiscal year. However, the duration should not be the primary factor in identifying a contract as a construction contract.

Management contracts: In these contracts, the costs of materials and supplies are paid to the contractor upon the submission of invoices, and a predetermined fee, agreed upon at the beginning of the contract, is paid upon project completion as the contractor's compensation. Unlike cost-plus contracts, where the fee is a percentage of the costs, in management contracts, the fee is a fixed amount and does not depend on the project's costs.

Fixed-price contracts: the contractor agrees to complete all defined work for a specific price. This amount is determined based on the design, project specifications, the quality expected by the client, and necessary site inspections. To estimate the initial price, the contractor must consider normal cost calculations, the risks involved, the state of the market, and the current workload. Payments are made based on the initial estimate, regardless of the actual costs, unless there are agreed-upon changes during the project.

Time-limited contracts: In this type of contract, the client requires the contractor to complete a specific task within a defined budget and time frame, typically between 12 to 24 months. The contractor's pricing is assessed based on invoices they submit. The client compares these invoices with the project plan and expenses incurred, paying amounts up to the agreed-

upon limit. This type of contract is useful for recurring tasks, such as periodic maintenance, where the cost is relatively low.

Measured contracts: The price in these contracts is initially estimated to give an idea of the scope of work, but the final cost is determined only after the project is completed and each component is measured. The project's cost is calculated based on pre-agreed metrics, such as the number of hours worked or the cost of consumed materials, as outlined in the contract at the start of the project.

Each of these contract types serves different purposes and is chosen based on the project's nature, complexity, and the specific needs of the parties involved (Clough et al., 2015).

III. CLAIMS ON CONSTRUCTION CONTRACTS

Claim is defined as a tool used by either the contractor or the client to request additional money or time beyond what was initially agreed upon in the contract (Hughes et al., 2015). The Association for Project Management (APM) in the UK provided a definition in 2006, describing a claim as "a demand for the recognition of a right or entitlement under the contract, typically resulting in a request for additional payment or an extension of the project duration" (Burr, 2016). In the construction industry, the term 'claim' is often used to describe a contractor's request for payment beyond what is outlined in the standard payment clauses of the contract. Generally, a claim is a demand for extra payment to assist the contractor, although this definition may not align perfectly with the dictionary definitions mentioned earlier. Those dictionaries describe a claim as an assertion of a right and a request for additional payment due to changes in the scope of work, based on the terms of the contract. The term is also used to describe a contractor's demand for an extension of time according to the construction contract (Hughes et al., 2015). So, claims generally fall into two categories: legitimate and illegitimate. A legitimate claim aligns with the terms of the contract and applicable common or civil law, while an illegitimate claim does not meet these criteria (Shahsavand et al., 2018).

Most contract forms explicitly grant contractors the right to compensation for losses due to issues explicitly covered in the contract that is within the employer's control or responsibility. Therefore, legitimate claims usually do not pose a problem. However, illegitimate claims (those arising during the project or even during the bidding process), can lead to significant issues within the construction industry. Such claims can give the impression that the contractor is acting in bad faith. While labeling an illegitimate claim as fraud might not be universally accepted, the construction industry is perhaps uniquely tolerant of such behaviors (Shahsavari-pour, 2013). There are undoubtedly situations where the employer finds themselves compelled to make substantial payments due to circumstances that are nearly, but not entirely, beyond their control or the supervision authority (Khazadi et al., 2020). Standard contract forms like JCT assume that claims may arise during a project. In such cases, the contract clauses and their appendices help determine how risk is allocated between the parties (Shahsavand et al., 2018).

Claims for additional time or costs are inherent aspects of any construction project. The following questions are typically considered in any claim (Bramble & Callahan, 2010):

- What is the amount being claimed?
- Who is responsible for paying it?
- Why should the claimed amount be paid?

A simple claim can occur, but that doesn't mean it's straightforward. The burden of proof lies with the contractor, who must demonstrate that the claim is substantiated by the explicit or implied terms of the contract or relevant legal frameworks. The employer, on the other hand, is only obligated to address claims that are well-founded. When a claim is brought under the existing contractual processes, the contractor must show compliance with the contract's execution mechanisms in this regard (Balali et al., 2022). It's important to note that the contractor's financial loss does not automatically entitle them to compensation from the employer. The contractor must prove that the loss resulted directly from the employer's actions or negligence, or that certain explicit contract terms warrant payment. Claims for extensions of time, unlike financial compensation, should be addressed separately (Asgari et al., 2017).

Generally, claims arise from explicit provisions within a contract, such as clauses related to damages or direct costs, often found in standardized contract forms like JCT. These claims leverage the contract's framework to resolve disputes and seek remedies. The purpose of these contractual provisions is to reduce the need for litigation under common law, thus avoiding unnecessary costs for both parties involved. Most standard contract forms preserve the contractor's right to seek damages if the contractor is not adequately compensated under the contract (Harris et al., 2021).

Implied contractual claims: Implied contractual claims, sometimes mistakenly referred to as extra-contractual or supra-contractual claims, actually arise from higher principles governing the contract. These claims involve seeking damages due to a breach of contract under common (or civil) law or breaches of other legal obligations, such as torts or violations of legally enforceable exclusive rights. The validity of such claims and the contractor's right to pursue them are often acknowledged in forms like JCT. This practice is generally followed in most other contract forms as well (Harris et al., 2021).

Quantum meruit claims: the claims (meaning 'as much as deserved') are invoked in situations where the agreed price for work done is undefined. These claims arise in four scenarios (Shahsavarpour, 2013):

- When work is performed according to the contract, but no price agreement exists,
- When work is done under a contract that appears valid but is actually void,
- When there is an agreement to pay a reasonable but unspecified amount,
- When work is performed at the request of a project stakeholder without a formal contract, often referred to as quasi-contractual claims. Work done following a letter of intent is a common example of this situation.

Ex gratia claims: the claims, often referred to as 'goodwill claims', are claims where the employer is under no legal obligation to accept them. These claims are typically made by contractors but are rarely accepted unless there is a clear benefit to the employer. For instance, if hiring a new contractor to complete the remaining work would cost more than accepting the

ex gratia claim, it might be in the employer's best interest to pay the claim to prevent the original contractor from going bankrupt (Whitticks, 2013).

Cause-and-effect claims: Typically, the party filing a claim must demonstrate that the damages in question were caused by an event or circumstance that constitutes a breach of contract or that the damages are directly related to a specific clause in the contract that justifies payment. It's not uncommon for complex construction and engineering contracts to experience multiple concurrent delays, making it difficult to attribute specific damages to particular events or circumstances. To address this issue, a unified approach is often recommended, where all damages arising from interrelated causes are pursued as cause-and-effect claims (Harris et al., 2021).

This approach was challenged in a legal case involving a project that experienced a total of forty-six weeks of delay due to various factors. Of these, thirty-one weeks were documented by the arbitrator as eligible for compensation to the contractor. The arbitrator proposed a lump sum payment for the thirty-one-week delay, but the employer sought an appeal, arguing that the arbitrator should have assigned a specific amount to each component of the claim (Whitticks, 2013). The contract in question was based on the fourth edition of the ICE contract. The court ruled that as long as the arbitrator did not include any profit in the compensation calculation and ensured that each delay was accounted for only once, the arbitrator was justified in awarding lump sum compensation without detailing individual components. This was because the claim involved a highly complex interaction of various delays and changes, making it difficult or impossible to apportion the damages among multiple causative events (Surahyo, 2017).

IV. EVOLUTION OF CONSTRUCTION CONTRACTS

Engineering and construction contracts, primarily emerging in the 19th century, were a direct result of the transportation revolution, which saw the construction of waterways and railways. Early contracts typically included provisions related to pricing, contract duration, compensation for damages, and specifications for work. As infrastructure projects expanded, additional clauses covering health and safety were introduced to protect workers and communities, such as requiring contractors to provide shelter for workers in areas lacking adequate housing or paying wages in cash at specified times instead of through uncertain means (Whitticks, 2013).

As the engineering and construction sectors progressed and labor forces flocked to cities, there was an increased demand for factories, workshops, and hotels. This, in turn, exerted additional pressure to complete projects on time. Consequently, the content of construction contracts became more complex, incorporating new standards and specifications for modern materials like steel. Some contractual provisions were derived from statutory laws, while others were influenced by new professional institutions and industry associations that played a crucial role in industrial growth (Zhi, 1995).

Given the precision required in most construction contracts, early agreements often did not address the measurement of work performed, placing the risk of measurement errors based on plans squarely on the contractors. The high costs associated with

preparing bid proposals led participating contractors to jointly hire skilled estimators to measure quantities based on the plans, sharing the cost of their services. It soon became common practice for employers to hire an estimator themselves, listing the estimator's fee in the bill of quantities for contractors to see. This approach aimed to reduce bidding costs and measurement errors for contractors (Shahsavarpour, 2013). This method was widely used but proved problematic when bids failed or no winner emerged, as some employers did not feel obligated to cover the estimator's fee. In 2012, Clause 14 of the Royal Institute of British Architects (RIBA) contract form stipulated that the contractor was required to pay the estimator's fee promptly upon receipt of their services. This clause also gave the employer the right to deduct the estimator's fee from the contractor's claims if the contractor failed to make the payment, whether accidentally or deliberately (Harris et al., 2021).

Throughout the 19th century, many legal cases related to construction contracts were adjudicated, with interpretations continuing into the 20th century. During this time, both standard and non-standard contract forms were published. The first standard contract forms were likely issued by public companies. Revisions of many contract forms were often influenced by court rulings, and these interpretations occasionally became subjects of further legal cases, continuously affecting how new contract writers understood and implemented laws in construction contracts (Whitticks, 2013). The RIBA standard contract forms, developed in the early 20th century, became widely used and formed the basis for many subsequent construction contracts, including those of the 1963 and 1980 Joint Contracts Tribunal (JCT). The first edition of the Institution of Civil Engineers (ICE) contract was published in 1945 (Harris et al., 2021). A notable feature of these contract forms is their endorsement and acceptance by professional institutions and the contractor community. Several other standard forms, such as GC/works/1, were issued independently for public sector use (Asgari et al., 2017).

Internationally, standard contract forms evolved in countries influenced by British practices. In Cyprus, Jamaica, Gibraltar, Bahrain, Singapore, and Hong Kong, contract forms similar to RIBA and JCT were used. For example, in Cyprus, the first edition of the RIBA contract, used during World War I in Britain, was employed alongside another version of the JCT contract. The 1963 edition of the JCT contract was widely used in Hong Kong and Singapore until recently. However, since 1980, the Association of Engineers in Singapore adopted a new contract form, distinct from British standard contracts. The International Federation of Consulting Engineers (FIDIC) published an international standard contract, similar in format and content to the ICE contract. Various FIDIC editions are now used internationally, with the 1987 Fourth Edition being the last to follow the ICE format, and the 1999 edition representing a departure from it (Vidogah & Ndekugri, 1998).

Today, numerous standard contractual terms have been developed, sometimes by specific industries or specialized suppliers. Major construction and civil engineering institutions, along with governmental and affiliated organizations, have expanded these terms for broader public use. Utilizing standard terms is beneficial as it ensures a clear understanding of contractors' positions, provides greater certainty in practice, and

mitigates risks for both parties. Such contracts are often developed collaboratively by employers, contractors, consulting engineers, and experienced construction specialists. This collaborative approach helps distribute risk between the parties in a logical manner (Khazadi et al., 2020). Standard contract clauses are often interdependent, so any modifications must be made cautiously, as changes can lead to ambiguities in interpretation.

V. BACKGROUNDS

Al-Mohsin (2012) conducted a study analyzing construction claims in Oman. The study aimed to highlight the impact of claims within Oman's construction industry and the factors influencing these claims, particularly in light of the construction boom. By conducting a field study involving owners, consultants, and contractors across 45 projects, they gathered data showing an average of 2.6 claims per project. Their analysis revealed that owners were the primary source of claims, accounting for 42% of the sample, compared to consultants, contractors, and contract documents.

Hatami et al. (2015) prioritized the key factors affecting contractor claims in three-party contracts using fuzzy multi-criteria decision-making methods. This study examined the reasons for claims in construction projects conducted under three-party contracts in their country. Given the complexity of decision-making regarding the nature and quality of contractor claims, the research identified and ranked the primary causes of claims. Criteria and sub-criteria were determined and prioritized using various decision-making methods.

Shen et al. (2017) explored the factors and reasons behind contractor claims in EPC (Engineering, Procurement, and Construction) contracts using structural equation modeling. Their findings indicated that external risks (such as political, social, economic, and natural risks), client organizational behavior (including irregular payments, changes, and inefficient processing), and project definitions in contracts (like unclear scope and technical specifications) significantly influenced the emergence of claims from contractors.

Zarei et al. (2018) investigated the causes of delays in complex construction projects. Their study adopted the Semantic Network Analysis (SNA) method as an alternative approach for analyzing delays. The research, focusing on construction projects in the oil, gas, and petrochemical sectors, highlighted SNA's capacity to identify and rank the causes of delays, providing valuable insights for managers to select appropriate measures. The study argued that SNA offers a comprehensive understanding of the root causes of delays in large and complex projects, facilitating better identification and mapping of relationships between these discrete factors.

Hai (2019) evaluated contractor claims in construction projects in Vietnam. The goal of their study was to examine claim practices in Vietnam's construction industry by collecting data from contractors and consultants. Their results indicated that a lack of awareness among on-site personnel was a primary issue in managing claims. Additionally, inadequate supporting evidence due to personnel ignorance and inappropriate documentation systems were significant problems that undermined the chances of recovering damages. The study

proposed solutions to these issues, emphasizing effective claims management to reduce unnecessary losses.

Abdel-Khalek et al. (2019) focused on preparing and analyzing claims in construction projects using Primavera contract management methods. Their research aimed to identify how to use PCM and Primavera P6 software for preparing claims quickly and efficiently with minimal effort. The study demonstrated how users could perform delay analysis using Primavera's contract management tools. It also assessed PCM's effectiveness in streamlining and managing construction projects.

Al-Malki et al. (2020) assessed construction claims, their types, and causes in the private construction industry in Bahrain. The study aimed to quantitatively identify the causes and types of construction claims and highlight those with the most significant impact on project performance in Bahrain. Data were collected from contractors, consultants, owners, and engineering experts involved in construction projects in Bahrain. The results revealed that about 87% of claims were due to 'changes or alterations in work orders'. The study suggested that preventive measures taken before agreements could significantly reduce the volume of claims.

VI. CONCLUSION

This review of recent research on construction project claims reveals several critical factors influencing the frequency and nature of claims across different regions and methodologies. The studies consistently point to external risks, client-related issues, and ambiguities in project definitions as major contributors to claims. Effective management of these claims necessitates a multifaceted approach, including the adoption of advanced decision-making tools, comprehensive documentation practices, and proactive claim management strategies. The findings suggest that implementing preventive measures and improving awareness among project stakeholders can significantly mitigate the occurrence of claims and enhance project performance. Future research should continue to explore innovative solutions and methodologies to further refine claim management practices and address emerging challenges in the construction industry.

ACKNOWLEDGMENT

We extend our thanks to the reviewers for their meticulous attention to detail and constructive suggestions that greatly improved the quality of this manuscript. Your contributions have been instrumental in shaping this work.

AUTHORS' CONTRIBUTIONS

Elham Rezaie and Ishak Tapan conducted the main data analysis, contributed to the data collection, preprocessing, and interpretation, and were responsible for drafting the initial manuscript. Ishak Tapan performed checks, provided supervision, conceptual guidance, and critical revision of the manuscript. All authors read and approved the final manuscript.

CONFLICT OF INTEREST

The authors have not disclosed any competing interests.

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