CHAPTER 9

Analysis of Interaction among the Critical Success Factor Affecting a Successful Claims Management

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ABSTRACT

The intricacy of projects, stakeholder disputes, and disparate legal systems present claims management difficulties for the construction sector in emerging countries like India. To handle contract modifications or compensation demands resulting from circumstances affecting schedule, scope, and time, effective claims management is crucial. Critical success factors (CSFs) for efficient claims management in construction contracts are identified and examined in this study, with a focus on methodical approaches to dispute resolution and lawsuit avoidance. Using systematic screening and Scopus database searches, the study examines literature to uncover trends, gaps, and areas for improvement. An exhaustive review of 187 research articles, filtered into 32 relevant publications, forms the basis of this research. Key themes were identified, and surveys of industry professionals, academics, and legal experts were conducted to refine the CSFs, focusing on organisational, technical, and legal dimensions. The study identified 10 CSFs, including adaptability, role clarity, communication effectiveness, conflict resolution skills, and strong leadership. Further ISM analysis is used to explore hierarchies and interdependencies among these elements, with categorising factors into autonomous, dependent and driving categories, resulting in a network chart. This investigation highlights the importance of proactive claims handling through systematic and collaborative methods. By leveraging identified CSFs, construction projects can achieve improved execution, reduced disputes, and successful outcomes.

Keywords: Claims Management; Construction Industry; Critical Success Factors; ISM

1.0 Introduction

The intricacy of projects, contractual ambiguities, and competing stakeholder interests present major claims management difficulties for the construction sector, especially in developing countries like India. To avoid disagreements, reduce financial risks, and guarantee efficient project execution, effective claims management is crucial.

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Contract misinterpretations, scope revisions, cost escalation, and delays frequently result in disputes that end up in arbitration or litigation. Decision Support Systems (DSS) and Alternative Dispute Resolution (ADR) techniques have become more popular in response to these problems. Compared to traditional litigation, alternative dispute resolution (ADR) methods like mediation and negotiation provide speedier, more affordable resolutions. Furthermore, risk assessment procedures and contractual adherence are essential for averting disputes before they become more serious. In order to examine the critical success factors (CSFs) in claims management, this study uses Interpretive Structural Modeling (ISM). The report highlights important components such stakeholder collaboration, communication, leadership, and flexibility, offering guidance on how professionals in the field can improve claims resolution techniques for more efficient construction project execution.

2.0 Need and Objective of the Study

The construction sector in India employs the second most number of people nationwide and contributes to 8-10 % annually to the country's GDP. Economic development depends heavily on the construction sector, and poor claims management can result in disputes, cost overruns, and project delays. Improving project efficiency and lowering legal conflicts require an understanding of the major elements impacting claims in the construction industry. The objectives of this study are twofold. First, the study aims to identify the critical factors influencing claims management in construction projects through a comprehensive literature review and expert opinion.

The majority of previous studies focused on the causes of claims, while our study is focused on CSF for claims management. Previous studies have focused on ranking these factors using conventional methods such as frequency index and relative importance index (RII), limited research has explored the interrelationship among these factors. To bridge this gap, this study employs the Interpretive Structural Modeling (ISM) approach along with network analysis to determine both the driving and dependent factors influencing claims management. This structured approach can help project stakeholders identify root causes and develop strategic solutions to improve claims handling and dispute resolution in construction projects.

3.0 Literature Review

Claims management is an essential component of project success in the construction sector because of the high level of uncertainty, multi-stakeholder collaboration, and intricate contractual agreements. Numerous studies emphasize how crucial it is to identify claims proactively, use structured dispute resolution procedures, and document effectively in order to avoid delays and financial losses.

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3.1 Importance of effective claims management

Prasad *et al.* (2019) and Aibinu & Jagboro (2002) stress that improperly handled claims can result in major cost overruns and project delays. Unexpected site conditions, poor contract interpretation, design modifications, and insufficient risk assessment are the main causes of construction disputes. Researchers like Dao & Chen (2021) contend that in order to increase the effectiveness of claims resolution, crucial success factors (CSFs) should be found rather than just concentrating on the reasons for claims.

3.2 Key elements of claims management

Stokes & Potts (2006) highlight that early claim identification, transparent notification, and proper documentation are critical for successful resolution. According to Hillebrandt (2000), incomplete or postponed paperwork reduces the veracity of claims and frequently leads to disagreements turning into legal challenges. According to Hossam *et al.* (2014), disputes are greatly decreased by creating a cooperative contractual environment, clearly outlining stakeholder roles, and making sure claim notifications are sent on time.

3.3 Modern approaches in claims management

Building information modeling (BIM) for real-time documentation, artificial intelligence (AI) for predictive claims analysis, and blockchain-based smart contracts to provide tamper-proof claim records are some recent innovations (Pishdad-Bozorgi & Beliveau, 2016). Machine-learning-powered adjudication models are suggested by Chen *et al.* (2023) as a substitute for conventional conflict settlement frameworks.

3.4 Literature review trends

- Claims Management in Construction Contracts
- Key Aspects of Claims Management
- Strategies for Effective Claim Management
- Dispute Resolution Techniques
- Legal Considerations in Construction Projects

4.0 Research Methodology

The authors identified 32 critical success factors (CSFs) based on an extensive literature review on claims management in construction contracts. A panel of experts critically examined each of these 32 factors to determine their relevance and significance. After detailed evaluation, the experts narrowed the list down to 10 key factors, identified as the most critical for effective claims management. The methodology followed is similar to the one used by El-Razek *et al.* (2008).

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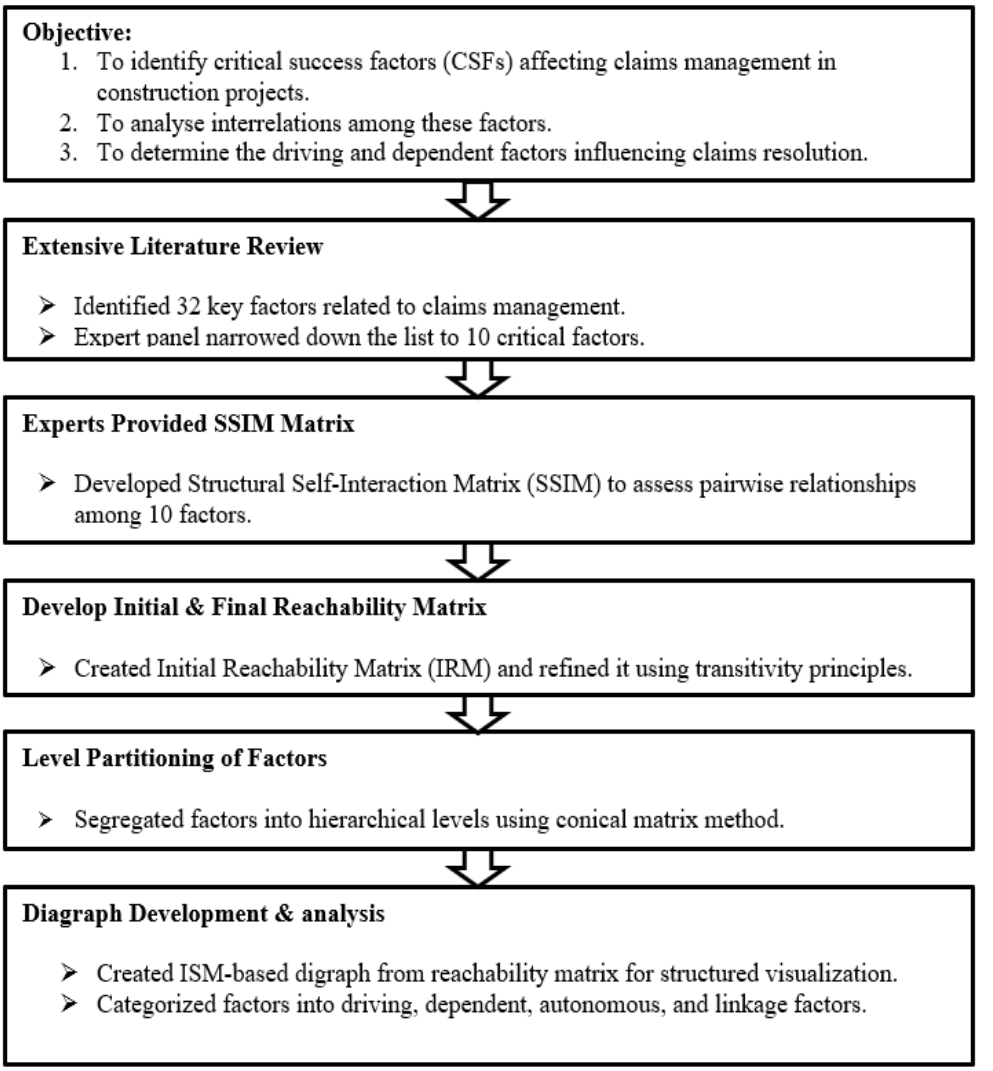
Figure 1: Flow Diagram for Preparing ISM Model



Source: Self made

The panel of experts was interviewed using semi-structured questions. Some of the key questions framed for experts included: “From your expert opinion, do you think this factor plays a significant role in claims management?” “Are there any additional factors you believe should be considered?” “Are there any factors that have similar meanings and should be grouped together?” The panel of experts included academic experts, legal professionals, and industry experts in the construction sector.

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The final list of 10 critical success factors affecting claims management is given below:

- Adaptability to changes
- Clarity of roles and responsibilities
- Communication and feedback mechanisms
- Conflict resolution capability
- Management support and leadership
- Mutual trust and confidence among stakeholders
- Problem-solving and decision-making efficiency
- Project team experience and technical expertise
- Teamwork and collaboration among stakeholders
- Transparent tendering and procurement methods

5.0 Interpretive Structural Modeling (ISM)

5.1 ISM framework for claims management

ISM is a structured approach used to analyze interdependence among factors influencing claims management. It is used when there is not much information available regarding the subject matter but there are experts available which help in research development. It enables the development of a hierarchical model representing relationships among CSFs.

5.2 ISM model development steps

- VAXO Table Development: Establishes interdependence between CSFs.
- Direct Relation Matrix Formation: Converts relationships into a structured binary format.
- Reachability Matrix: Identifies direct and indirect relationships among CSFs.
- Level Partitioning: Categorizes CSFs based on their hierarchical influence.
- Canonical Matrix Refinement: Arranges factors logically, eliminating redundant dependencies.
- Final Structuring & Analysis: Classifies factors into autonomous, dependent, linkage, and driving categories.

6.0 Table Analysis and Interpretation

VAXO Interdependency Matrix: The VAXO matrix captures relationships among CSFs using the following classifications:

- V (Driving Factor) – The row factor influences the column factor.
- A (Dependent Factor) – The column factor influences the row factor.
- X (Bidirectional Relationship) – Both factors influence each other.
- (No Relationship) – No direct impact.

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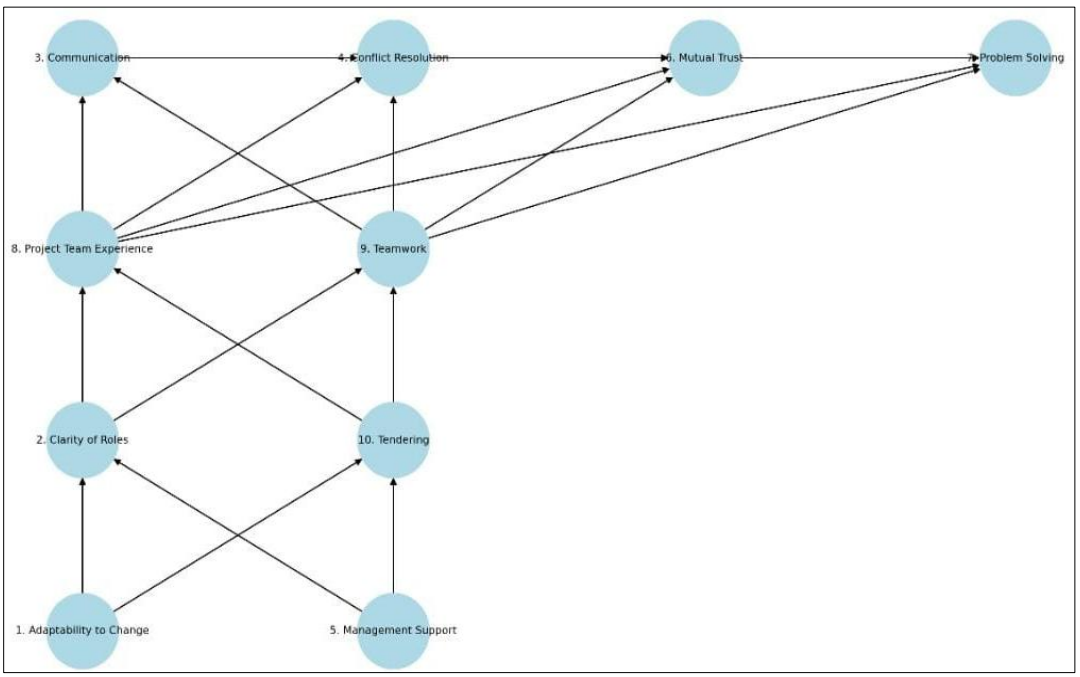
Network Analysis Results

- Driving Factors: Management Support, Adaptability to Change
- Linkage Factors: Tendering & Procurement, Clarity of Roles
- Dependent Factors: Teamwork, Project Team Experience, Problem-Solving
- Autonomous Factor: Communication & Feedback

Figure 2: Interpretive Structural Modeling (ISM) Diagram Showing the Interrelationships Among Key Factors in Claims Management



Source: Self made

7.0 Conclusion and Key Takeaways

This study provides a structured approach to claims management by identifying CSFs and their interdependence using ISM. Key takeaways include:

Independent Variables (IDV):

- 1 (Adaptability to Change) and 5 (Management Support) are ultimate independent variables, meaning they influence other factors but are not influenced by themselves.
- These factors act as the driving force behind the system, impacting team performance and project execution.

Dependent Variables (DV):

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- 3 (Communication), 4 (Conflict Resolution), 6 (Mutual Trust), and 7 (Problem Solving) are ultimate dependent variables.
- These outcomes are shaped by multiple preceding factors in the model.

Intermediary Factors:

- 2 (Clarity of Roles), 8 (Project Team Experience), 9 (Teamwork), and 10 (Tendering) serve as connecting elements.
- Project Team Experience (8) and Teamwork (9) play a crucial role in bridging independent and dependent variables.

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