
STAKEHOLDER MANAGEMENT

Aiswarya. B¹, P. A. Prabhakaran²

¹P.G Student, Department of Civil Engineering Kumaraguru College of Technology Coimbatore, Tamil Nadu. India.

²Assistant Professor, Department of Civil Engineering Kumaraguru College of Technology Coimbatore, Tamil Nadu. India.

DOI: <https://www.doi.org/10.58257/IJPREMS32726>

ABSTRACT

This literature study reviews existing research on project governance, stakeholder management, and project performance in the context of public sector infrastructure projects, with a focus on the impact of Building Information Modelling (BIM). Stakeholder engagement is an undertheorized area of construction project management research. Often simplified as an act of corporate social responsibility, the complexity of the engagement concept means its processes and consequences evade closer scrutiny and analysis. The review explores the potential benefits of BIM in enhancing stakeholder satisfaction, communication, collaboration, and engagement, emphasizing its role in achieving project objectives. External management consultants have been increasingly employed by owners of complex construction projects (CCPs) to foster management innovation and improve their organizational capability. However, the dynamics of the owner-consultant collaboration process in such projects are still unknown. To bridge this gap, this paper explores the roles of external consultant involvement in fostering management innovation and developing an organizational capability in CCPs. The theoretical framework and empirical findings offer both project managers and policy makers with new insights into how to govern the diverse social responsibility issues in megaproject construction and management. This study aims to explore indirect pathways that external stakeholders normally pursue to affect construction projects and to develop a framework of stakeholder-influencing pathways. The study delves into the advantages of BIM in promoting effective stakeholder management, communication, and collaboration during the planning stage of projects in the Architecture, Engineering, and Construction (AEC) industry.

Keywords- Project Governance, Stakeholder Management, Project Performance, Building Information Modelling (BIM), Communication, Collaboration

1. INTRODUCTION

This literature study investigates the influence of BIM on stakeholder management and project management practices, particularly in the AEC industry. The PMI (2001) defines stakeholders as organizations and individuals that actively involved in the project and their interests would be affected by the results of project completion. The successful realization of megaproject social responsibility (MSR) relies heavily on the cooperation of a variety of stakeholders. However, the process of stakeholders conducting MSR exchanges reciprocally to achieve MSR goals has not been fully revealed, hindering the consistent implementation of inter-organizational and cooperative MSR. To bridge these gaps, based on social exchange theory (SET), stakeholder theory, and network theory, this study used the stakeholder value network (SVN) to unravel MSR exchanges with multiple types and their contribution to social value. Stakeholder influences are considered an important input for assessing stakeholder-related risks. Also, predicting stakeholder influence is one of the critical success factors for managing construction projects. The concept of stakeholder interests and influences is frequently addressed in the literature. Internal stakeholders are generally supportive of projects, whereas external stakeholders typically cover the spectrum with favourable, indifferent, or resistant attitudes. This paper aims to clarify stakeholder engagement in a construction context by revealing the multifaceted nature of Corporate Social Responsibility (CSR) in action. It explores how stakeholder engagement is a complex entwining of responsibility, actions of multiple parties (e.g., lead contractor and subcontractor), and work package requirements, so that engagement is theoretically lifted for a construction project setting. It underscores the importance of integrating key stakeholders in decision-making processes for effective stakeholder management. The purpose of this paper is to provide a method to measure stakeholder conflicts and to present a management guide toward the conflicts in the dynamic project environment. In detail, it intends to explore answers to three research questions: - what the dynamics of the critical stakeholder conflicts are, how the stakeholder relationships are affected by the changeable conflicts, and how to manage stakeholder conflicts in the dynamic project environment. To answer the questions, the study proposes the network-based framework to reveal the dynamics of critical conflict issues and their affected stakeholder relationships and to map stakeholder conflicts for presenting management strategies in different project phases. The aims of this study are to explore the pathways external stakeholders normally employ to exert indirect influence on construction projects

and to develop a framework of stakeholder influencing pathways .The review also addresses the impact of BIM on project performance, including improved communication, reduced change orders, increased return on investment, and enhanced risk identification and management. The research provides valuable insights into the role of BIM in stakeholder management, project management practices, and potential benefits in public sector infrastructure projects

2. LITERATURE REVIEW

Amir Bahadorestani et al. (2019) presents a comprehensive project stakeholder typology model (PSTM) based on stakeholder salience attributes (SSAs). The author conducted a comprehensive review of existing stakeholder typology models and identified a lack of consistency in the attributes used to define stakeholder types. It shows that PSTM divides stakeholders into 15 different types based on four attributes, namely Potency, Legitimacy, Urgency, and Proximity. The purpose of this study was to develop a project stakeholder typology model based on SSAs in order to create an appropriate understanding of stakeholders and assist researchers and managers for successful research and actions. The author highlights the lack of consistency and overlap in SSAs used across different models, making it difficult to create a comprehensive and universally applicable stakeholder typology for construction projects.

Asadullah Khan et al. (2020) provides a valuable contribution to the field of infrastructure project management. This study is a significant attempt to explain the interrelated mechanism of project governance and stakeholder management for improving the performance of public sector projects. The paper highlights the critical roles of project governance and stakeholder management in improving project outcomes and offers practical insights for practitioners working on public infrastructure projects. The study emphasizes the importance of robust project governance structures, including clear roles and responsibilities, defined decision-making processes, and effective risk management practices. The paper offers a comprehensive analysis of the challenges faced by public infrastructure projects and proposes concrete solutions based on existing research and best practices.

Dongping Fang et al.(2022) investigates the complex relationship between leadership style, safety culture, and owner safety management behaviour. The study confirms that supportive leadership and a strong safety culture have the most significant positive impact on owner safety management behaviour. This research provides valuable insights into the multifaceted factors shaping owner safety behaviour in construction projects. The BN model offers a practical tool for predicting and optimizing interventions to improve owner safety management practices. It helps construction stakeholders understand the importance of fostering supportive leadership and strong safety cultures for achieving higher levels of safety performance. This study contributes to the Leadership–Culture Behaviour (LCB) approach and proposes a selection scheme for intervention measures to improve owners' safety management behaviour. This study contributes to the understanding of LCB to support future studies on the expansion of knowledge on LCB interactions among multiple stakeholders and LCB time series evolution, ultimately improving construction safety.

Elnaz Safapour et al. (2019) focuses on pinpointing effective communication indicators for construction projects, considering both primary and secondary stakeholders. The findings of this study will help practitioners and project managers evaluate the impacts of a project's characteristics on the quality of internal communication within the primary and secondary stakeholders, and adopt proactive strategies to prevent costly delays that are due to ineffective communication .The results also revealed that the EPCIs associated with stakeholder management, project resources, and project targets had the biggest effect on the internal communication within primary and secondary entities. If the project target is not clear, the project management team cannot prioritize the key tasks and project execution elements, resulting in added pressure to prevent schedule delays that seriously affects the quality of internal communication. He concluded that inexperienced project management teams seriously affect the quality of internal communication within all primary and secondary stakeholders

Fan Yang et al. (2018) analyzes the relationship between organizational justice and job burnout among construction project managers (CPMs).He suggests that fostering a culture of organizational justice within construction companies can be a valuable strategy for reducing job burnout among CPMs. The authors emphasize the need for construction organizations to prioritize CPMs' well-being by addressing the identified stressors and promoting organizational justice. He highlights evidence suggesting that perceived fairness in decision-making processes, resource allocation, and interpersonal interactions (organizational justice) can promote employee engagement, satisfaction, and reduce stress. The authors believe that by fostering a just and supportive work environment, construction organizations can reduce job burnout in CPMs, leading to improved employee well-being, project success, and organizational effectiveness.

Gabriel Castelblanco et al. (2021) offers a novel semantic network model that describes public-private partnerships (PPP) research topics and reveals the dynamics associated with the interrelations between them. He provides a valuable tool for understanding the landscape of PPP research and the key concepts shaping the field. It offers guidance for future research and informs best practices in PPP design, implementation, and stakeholder engagement. It uses Content

Analysis (CA) and Semantic Network Analysis (SNA) to expose relationships and trends in PPP research topics over the last two decades. This study is one of the first large-scale applications of SNA to the PPP literature. It offers a unique perspective on the field, complementing traditional review methods. Five main macro keywords are driving the main semantic network underlying the PPP body of knowledge: financing and economic aspects, road infrastructure, public sector management, risk management, and contract management, which are the bases of the PPP research agenda. The results show how five macro keywords relate to the majority of the main topics studied in the PPP body of knowledge.

Gabriel Castelblanco et al. (2023) delves into the intricate world of managing stakeholders and risks in large-scale projects. This research proposes a novel approach for integrating stakeholder and risk management in complex megaprojects. The study paves the way for further research and development of MNA-based tools and techniques for managing complex projects. The multidimensional approach developed in this study is necessary to provide a more comprehensive understanding of stakeholder dynamics and their relationship with risks to facilitate better decision-making in project management. The study demonstrates the effectiveness of MNA in revealing hidden relationships between stakeholders and risks in a megaproject case study. It identified potential misalignments between stakeholder interests and risk allocation, which could lead to problems like cost overruns and project delays. The analysis also highlighted critical stakeholders who play a central role in both the economic and risk networks, providing valuable insights for targeted interventions.

Goodenough D. Oppong et al. (2021) explores an important aspect of construction project management - how effectively managing external stakeholders contributes to project success. The study also developed an evaluative process model (EPM) as a practical framework for practitioners to utilize. He identified seven key activity groups as crucial for successful external stakeholder management in construction. He highlights the fact that external stakeholders have become significant project members and they should be given due consideration early in project, presents the EPM, a formal and systematic framework that will guide practitioners to logically, comprehensively, and reliably manage external stakeholders in projects, it enhances practitioners understanding on how to properly distribute the limited managerial attention toward the external SM activities based on the relative weightings ,the evaluative property helps to conduct like-with-like comparison and benchmarking of SM in a practical, objective, and reliable manner. His study specifically examines the success factors for external stakeholder management in construction, focusing on the project planning stage. It takes a unique approach by analysing the issue from the perspective of developing countries.

Hanyang Ma et al. (2022) provides a valuable framework for understanding and navigating the intricate relationship between megaprojects, external stakeholders, and social responsibility. He analyses the multi-layered concept of megaproject social responsibility (MSR) using a pyramid framework. He examines the impacts of external stakeholders and project complexity on ascending this pyramid, aiming for higher levels of social responsibility. Provides a theoretical framework and empirical evidence to guide decision-making towards achieving higher levels of social responsibility in megaprojects. The study highlights the growing importance of social sustainability in megaproject development, alongside economic and environmental considerations. He paves the way for more effective and sustainable megaproject development.

Hemanta Doloi et al. (2018) argues that the needs and requirements of the community should be at the core in planning for infrastructure projects. This research introduced an integrated framework for evaluating the social value performance of infrastructure projects based on community input and efficient stakeholder management. The new social value performance assessment framework based on the application of the social network theory makes a significant step forward in streamlining the complex stakeholders' consultation process and enhancing the social performance of public projects with a deeper understanding in social relations across the community. The framework will be useful for supplementing the traditional stakeholder consultation practices and deriving an objective assessment of social value outcomes in public projects. The application of the framework for continuous assessment of social value outcomes will not only set a clear social benchmark but also optimize the traditional processes of project-development decisions in capital projects.

Hongjuan Wu et al. (2020) explores the major stakeholder perceptions toward Transaction Costs (TC)s in the transaction process of Prefabricated Housing (PH) in China and finds the potentials to lower TCs for stakeholders. The study differentiates three types of TCs in PH: due diligence, negotiation, and monitoring & enforcement. Each type arises from different challenges in the PH supply chain, like inexperienced workers and inefficient management. This study contributes to the theory by uncovering the TCs of PH projects from the perspectives of stakeholders. The study highlights the need for policy interventions to address TCs. This could involve standardizing design and production processes, improving information sharing, and fostering collaboration within the PH industry. It guides a direction for the private stakeholders to strategically lower TCs at specific phases of the process and improve the project efficiency.

Furthermore, the findings inspire policy makers to reduce TCs for both the private and public stakeholders, which will contribute to smooth transactions for future China's PH market.

Hong Xue et al. (2022) delves into the fascinating world of off-site construction, where collaboration and organizational elements play a crucial role in project success. Our study focuses on collaborative organizational citizenship behaviour (COCB), viewed as a form of extra role behavior. The study offers practical recommendations for strengthening project management, human resource management, inter-organizational relationships, and organizational culture to create an environment that encourages COCB. This study contributes to the literature on organizational citizenship behaviour and stakeholder management theories and provides practical implications for policymakers, managers, and stakeholders to improve project team members' COCBs. The study also revealed that the interaction and configuration of these elements play a crucial role in shaping COCB. The configurational approach provides a novel perspective on understanding the complex dynamics of COCB in off-site construction projects.

Jingyu Yu et al. (2018) aimed to investigate the complicated relationships between stakeholders' power, interests, and PE outcomes through a questionnaire survey. An integrated model for stakeholder power, interest, and PE outcomes was developed using a structural equation model. Five types of stakeholder power (i.e., reward, coercive, legitimate, expert, and referent power), two types of stakeholder interest (i.e., affected and affecting interest) and three PE outcome factors (i.e., project performance, stakeholder satisfaction, and social capital) were identified. The results showed that different forms of power and interest influenced final PE outcomes either directly or indirectly. A decision-making process such as the value management approach is suggested to be used in PE to help stakeholders understand the discrepancies between their power and interests and identify specific interests and objectives of construction development projects.

Jin Xue et al. (2020) established a network-based framework to analyze the dynamics of stakeholder conflicts by detecting the critical conflicts and the affected relationships among stakeholders with a 16-year case study of the Hong Kong-Zhuhai-Macao Bridge project. A stakeholder-conflict map was proposed to provide management strategies considering the conflict criticalness and stakeholder participation of each stakeholder conflict. Through the stakeholder-conflict map analysis, the Mirror Z approach is proposed to manage the stakeholder conflicts by measurement of the conflict criticalness and stakeholder participation. The changes of stakeholder relationships in the project duration are discussed by five stakeholder groups: local industry, green group, supervision group, construction group, and governmental organizations. The Mirror Z strategies of stakeholder conflicts are proposed in the phases of planning, construction, and handover.

Kobra Gharouni Jafari et al. (2021) proposes a framework to determine the most appropriate project manager (PM) to enhance the performance of occupational groups (POGs) in large, medium, and small road construction projects in warm regions. The results showed that in small projects, a PM with strong communication skills is needed to maximize the performance of all three OGs, whereas negotiation skills in medium projects and project management knowledge in large projects are the most critical PMCs that a PM should possess to increase engineers' performance. This proposed decision-making model is the first attempt made to choose the most appropriate PM in road projects with the aim of improving workforce performance, taking into account the project size. Another strength of the current research is its focus on PMCs and their importance in improving the POGs that all three stakeholders, i.e., owner, consultant, and contractor, agree on, whereas past research focused on one of these parties, considering a specific domain.

Lufeng Wu et al. (2019) helps to close the gap in knowledge on how to measure the effectiveness of public participation in PIMs and the methods to improve it. The study proposes a novel approach using game theory and social utility equations to measure the effectiveness of public participation. This allows for a quantitative assessment of stakeholder behaviours and their impact on project outcomes. By identifying key stakeholders and their interests, the model recommends a tailored governance framework that facilitates inclusive participation and minimizes power imbalances. It also provides a quantitative method to identify the direction of substantive public participation and guarantee the success of PIMs. The policy implication of PIMs for the global community is that high effectiveness of public participation entails responsible behaviours among stakeholders by perfecting institutional arrangements and cultivating SR-PIMs to reduce game space and expand social effects.

Nandun Welege et al. (2022) identify and analyze the common constraints hindering the delivery of low-carbon buildings (LCBs) in high-rise, high-density cities. Propose strategies for engaging stakeholders to effectively overcome these constraints and promote LCB adoption. The proposed stakeholder engagement strategies serve as a practical guide for promoting LCB adoption and contributing to sustainable urban development. This research provides valuable insights for policymakers, industry practitioners, and researchers working towards sustainable urban development. By understanding the complex web of stakeholder interactions and their influence on LCB delivery, the study informs

strategies for more effective stakeholder engagement and collaboration, ultimately paving the way for wider adoption of low-carbon building practices in high-density cities.

Tan Hai Dang Nguyen et al. (2019) explores a preliminary mechanism that transmits stakeholder influences to a project via multiple causally ordered actors. This study provides a deeper understanding of the multifaceted nature of stakeholder influence in construction projects. Project managers can utilize this knowledge to anticipate, manage, and mitigate potential negative influences. Effective stakeholder engagement, transparency, and proactive conflict resolution become even more critical in light of these indirect pathways. He offers valuable insights into the hidden mechanisms of stakeholder influence. By recognizing these pathways and their complexities, construction professionals can navigate stakeholder relationships more effectively and contribute to successful project outcomes.

William Collinge et al. (2020) provides an in-depth analysis of stakeholder engagement to reveal its theoretical and practical complexity; two complimentary models of stakeholder engagement are mobilized to analyze empirical data from a hospital case-study project. It shows that how it is possible to theorize a more complex relationship between stakeholder engagement and agency (i.e., the ethical, responsible treatment of stakeholders) in a construction project context. By modelling and theorizing the implementation of stakeholder engagement in construction, the paper makes a contribution to an area of stakeholder management scholarship that is in need of more attention. The framework of analysis itself provides a potential referential tool for AEC companies and contractors assessing stakeholder management issues ahead of and during project work so that stakeholder engagement is better understood as an evolving, complex process with shifting and multiple inter-organizational effects.

Xian Zheng et al. (2023) examines the complex relationships between social responsibility and stakeholder engagement in megaprojects through the lens of social exchange theory. He study employs a social network analysis (SNA) approach to analyze the network of stakeholder interactions within a specific megaproject case study. He suggested that stakeholders should pay particular attention to political MSR to guarantee a stable environment for reciprocal MSR exchanges among primary stakeholders. This research intends to guide the efforts of stakeholders to engage in effective MSR to satisfy their partners mutually, contributing to realizing high megaproject social value. The study's findings can help project managers and stakeholders develop more effective strategies for coordinating and implementing social responsibility initiatives in megaprojects. It also contributes to the broader understanding of social exchange theory and its application in project management contexts.

Xin Hu et al. (2019) provides a critical analysis of existing research on stakeholders in off-site manufacturing (OSM). The paper provides a comprehensive overview of existing knowledge on OSM stakeholders and proposes a helpful framework for future research and practice. He proposed a research framework to systematically articulate developments and gaps in OSM stakeholder research. This framework can guide future research efforts towards addressing critical knowledge gaps and improving stakeholder management practices in OSM projects. He offers valuable insights into the complex ecosystem of stakeholders in OSM projects. By recognizing their diverse perspectives and fostering effective engagement, project teams can navigate challenges and unlock the full potential of this promising construction method.

Yi Hu et al. (2021) investigates the role of external management consultants in enhancing organizational capability and fostering management innovation in complex construction projects (CCPs). This study provides valuable insights into the dynamics of consultant involvement in CCPs and highlights the importance of inter-organizational learning for enhancing organizational capability and achieving successful project outcomes. The study reveals a positive correlation between external consultant involvement and both management innovation and organizational capability building in complex construction projects. The findings offer practical guidance for both consultants and project owners to optimize knowledge transfer and capability building within complex construction settings. By promoting knowledge transfer and inter-organizational learning, consultants can contribute significantly to organizational capability building and project success.

Yilong Han et al. (2021) analyzes the collaborative networks formed for building skyscrapers between 1990 and 2010. It provides valuable insights for corporate practices and decision-making within the sector. This study sheds light on the intricate dynamics of collaboration within the global network of skyscraper construction. By leveraging SNA, it offers valuable knowledge for stakeholders involved in such projects, potentially leading to improved project delivery and outcomes. The research focuses on completed projects, and further studies could explore the dynamics of collaboration during the planning and construction phases. The study primarily analyzes large-scale skyscrapers, and future research could investigate collaboration patterns in smaller or more diverse construction projects. This study not only contributes to a holistic understanding of the status quo and development trends of the skyscraper industry integrating network theory with megaproject management, but also provides a reference for corporate practices and decision making in the specific megaproject field.

3. CONCLUSION

The literature study provides valuable insights into the multifaceted relationship between Building Information Modelling (BIM), stakeholder management, and project performance. The majority of respondents were found not to follow established external stakeholder management practices, indicating a need for improvement in formal and systematic stakeholder management in Ghana. Notably, the study emphasizes the applicability of findings at the planning stage of projects and the importance of proper modelling methods for data objectification. The study recommends further research directions, including investigations into logical project evaluation processes, comparative studies on stakeholder management practices across different countries, and longitudinal case studies to compare variables before and after stakeholder management implementation. Qualitative case studies are suggested to verify study results, and the application of multi - criteria decision-making techniques for stakeholder identification and sampling is proposed. The study underscores the positive impact of stakeholder engagement on project performance, stakeholder satisfaction, and social relationships, advocating for systematic methods to determine the optimal number of stakeholders. The literature study also explores the use of topic models in uncovering hidden structures, discussing traditional models like PLSA and LDA and their applications in document classification, recommendation, and transfer learning. The study identifies 50 project characteristics influencing internal communication and proposes a seven-step research methodology to address gaps in knowledge about communication indicators. Theoretical understanding of stakeholder engagement in construction is deemed immature, with communication channels identified as crucial mechanisms for engagement, particularly in hospital projects. Additionally, the literature contributes to stakeholder and risk management by emphasizing the importance of integrating multilayer networks and considering the interconnections between various layers of complex systems.

4. REFERENCE

- [1] Amir Bahadorestani (2019),” A Comprehensive Stakeholder-Typology Model Based on Saliency Attributes in Construction Projects” *Journal of Construction Engineering and Management*, Volume 145, Issue 9, [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001684](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001684)
- [2] Asadullah Khan (2020) “Improving the Performance of Public Sector Infrastructure Projects: Role of Project Governance and Stakeholder Management” *Journal of Management in Engineering*, Volume 37, Issue 2, DOI: 10.1061/ (ASCE) ME.1943-5479.0000886.
- [3] Dongping Fang (2022),” Construction of a Bayesian Network Based on Leadership-Culture-Behaviour Model to Improve Owner Safety Management Behaviour” *Journal of Construction Engineering and Management*, Volume 149, Issue 3, <https://doi.org/10.1061/JCEMD4.COENG-12465>
- [4] Elnaz Safapour (2019) , “Identifying Effective Project-Based Communication Indicators within Primary and Secondary Stakeholders in Construction Projects” *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction* ,Volume 11, Issue 4 , [https://doi.org/10.1061/\(ASCE\)LA.1943-4170.0000332](https://doi.org/10.1061/(ASCE)LA.1943-4170.0000332)
- [5] Fan Yang,(2018),” Job Burnout of Construction Project Managers: Considering the Role of Organizational Justice” *Journal of Construction Engineering and Management*, Volume 144, Issue 11, [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001567](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001567)
- [6] Gabriel Castelblanco,(2021),” Semantic Network Analysis of Literature on Public-Private Partnerships” *Journal of Construction Engineering and Management*, Volume 147, Issue 5, [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0002041](https://doi.org/10.1061/(ASCE)CO.1943-7862.0002041)
- [7] Gabriel Castelblanco (2023),” Combining Stakeholder and Risk Management: Multilayer Network Analysis for Complex Megaprojects” *Journal of Construction Engineering and Management*, Volume 150, Issue 2, <https://doi.org/10.1061/JCEMD4.COENG-13807>
- [8] Goodenough D. Oppong (2021),” Fuzzy Evaluation of the Factors Contributing to the Success of External Stakeholder Management in Construction” *Journal of Construction Engineering and Management* , Volume 147, Issue 11 , [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0002155](https://doi.org/10.1061/(ASCE)CO.1943-7862.0002155)
- [9] Hanyang Ma (2022),” Climbing the Pyramid of Megaproject Social Responsibility: Impacts of External Stakeholders and Project Complexity” *Journal of Construction Engineering and Management*, Volume 148, Issue 11, [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0002395](https://doi.org/10.1061/(ASCE)CO.1943-7862.0002395)
- [10] Hemanta Doloi,(2018),” Community-Centric Model for Evaluating Social Value in Projects” *Journal of Construction Engineering and Management*, Volume 144, Issue 5,[https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001473](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001473)
- [11] Hongjuan Wu,(2020),” Stakeholder Perceptions of Transaction Costs in Prefabricated Housing Projects in China” *Journal of Construction Engineering and Management*, Volume 147, Issue 1,[https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001947](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001947)

- [12] Hong Xue,(2022),” Organizational Elements and Collaborative Organizational Citizenship Behaviour in Off-Site Construction Projects: Configurational Approach” Journal of Construction Engineering and Management, Volume 148, Issue 10, [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0002379](https://doi.org/10.1061/(ASCE)CO.1943-7862.0002379)
- [13] Jingyu Yu (2018), “Structural Stakeholder Model in Public Engagement for Construction Development Projects” Journal of Construction Engineering and Management, Volume 144, Issue 6, [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001462](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001462)
- [14] Jin Xue(2020),” Dynamic Network Analysis of Stakeholder Conflicts in Megaprojects: Sixteen-Year Case of Hong Kong-Zhuhai-Macao Bridge” Journal of Management in Engineering , Volume 36, Issue 6 , [https://doi.org/10.1061/\(ASCE\)ME.1943-5479.0000845](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000845)
- [15] Jin Xue (2020),” Dynamic Stakeholder-Associated Topic Modelling on Public Concerns in Mega infrastructure Projects: Case of Hong Kong–Zhuhai–Macao Bridge” Journal of Construction Engineering and Management, Volume 146, Issue 9, [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001895](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001895)
- [16] Kobra Jafari (2021),” Selecting the Most Appropriate Project Manager to Improve the Performance of the Occupational Groups in Road Construction Projects in Warm Regions” Journal of Construction Engineering and Management, Volume 147, Issue 10, [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0002151](https://doi.org/10.1061/(ASCE)CO.1943-7862.0002151)
- [17] Lufeng Wu (2019),” Case Study on Improving the Effectiveness of Public Participation in Public Infrastructure Megaprojects” Journal of Construction Engineering and Management, Volume 145, Issue 4, [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001623](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001623)
- [18] Nandun Welege (2022),” Engaging Stakeholders to Overcome the Common Constraints for Delivering Low Carbon Buildings in High-Rise High-Density Cities” Journal of Construction Engineering and Management, Volume 149, Issue 1,<https://doi.org/10.1061/JCEMD4.COENG-12327>
- [19] Sulakshya Gaur (2021)” Investigating the Role of BIM in Stakeholder Management: Evidence from a Metro-Rail Project” Journal of Management in Engineering, Volume 38, Issue 1 , [https://doi.org/10.1061/\(ASCE\)ME.1943-5479.0000979](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000979)
- [20] Tan Nguyen (2019),” Stakeholder Influence Pathways in Construction Projects: Multi-case Study” Journal of Construction Engineering and Management, Volume 145, Issue 9, [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001680](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001680)
- [21] William Collinge(2020)” Stakeholder Engagement in Construction: Exploring Corporate Social Responsibility, Ethical Behaviours, and Practices” Journal of Construction Engineering and Management, Volume 146, Issue 3, [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001769](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001769)
- [22] Xian Zheng (2023),” Understanding the Megaproject Social Responsibility Network among Stakeholders: A Reciprocal-Exchange Perspective” Journal of Construction Engineering and Management, Volume 149, Issue 11,<https://doi.org/10.1061/JCEMD4.COENG-13444>
- [23] Xin Hu (2019),” Understanding Stakeholders in Off-Site Manufacturing: A Literature Review” Journal of Construction Engineering and Management ,Volume 145, Issue 8 , [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001674](https://doi.org/10.1061/(ASCE)CO.1943-7862.0001674)
- [24] Yi Hu (2021),” External Consultant Involvement for Organizational Capability Building in Complex Construction Projects: A Perspective from Inter organizational Learning Process” Journal of Construction Engineering and Management, Volume 148, Issue 1, [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0002216](https://doi.org/10.1061/(ASCE)CO.1943-7862.0002216)
- [25] Yilong Han (2020),” Global Collaborative Network of Skyscraper Projects from 1990 to 2010: Temporal Evolution and Spatial Characteristics” Journal of Construction Engineering and Management, Volume 147, Issue 8, [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0002096](https://doi.org/10.1061/(ASCE)CO.1943-7862.0002096)