Cultural Embedding Through Social Media
Case Studies of Community Engagement in Four Megaprojects in India

Ninan, Johan

Cultural Embedding Through Social Media: Case Studies of Community Engagement in Four Megaprojects in India

Johan Ninan

Abstract Community engagement is pivotal for the success of infrastructure megaprojects, especially in the operations phase, where the community evaluates whether to use the service or boycott it. There is a need to understand what actions projects take for the cultural embedding of the project with stakeholders and how the community expresses their experiences in the modern era through social media. To bridge this gap, this study delves into social media exchanges during the operational phase of four metro rail projects in India—Chennai, Hyderabad, Kochi, and Nagpur—to understand their commonalities and inform future endeavors. The community in all four megaprojects accepted the focus on sustainability, cultural embedding, and inclusivity. The research underscores how attentively listening to the community via social media channels can facilitate the development of more effective megaprojects and generate greater societal value.

1 Introduction

Infrastructure megaprojects are ambitious undertakings aimed at rapidly achieving socio-economic goals in each area [1], as they are characterized by their large scale and potential for creating significant environmental, social, and political disruptions within the local community [2]. PMBOK 2021 [3] highlights that the successful delivery of these projects necessitates maintaining harmonious relationships with all members of the project community to proactively advance value delivery and achieve project objectives. By focusing on the economic and social purpose of creating and

J. Ninan (✉)
Faculty of Civil Engineering and Geosciences, TU Delft, 2628 CN Delft, The Netherlands
e-mail: J.Ninan@tudelft.nl

distributing value to all stakeholders, including the local community [4], project owners can enhance value of the effort, time, and resources invested in the project.

Poor community engagement in infrastructure megaprojects can significantly impact project success due to the unique characteristics of the project community, which lacks contractual relationships, accountability to detailed project reports, and operates within permeable boundaries [5]. Inadequate relationships with the community can lead to legal actions, protests, strikes, negative sentiments, vandalism, boycotts, and disengagement [6]. Additionally, counter-narratives from community members may prompt democratic governments to withdraw support from an infrastructure megaproject due to electoral concerns, such as in the case of the Melbourne East West link in Australia which became an election issue after community protests against the project. The party that formed government after the election cancelled the project which had spent around 1.1 billion AUD till then [7]. Consequently, despite the community's lack of formal authority, their resistance can severely disrupt or even terminate the project [8].

Understanding the project community is critical for the success of infrastructure megaprojects, particularly during the operations phase when the community decides whether to utilize or boycott the service. As long-term stakeholders, local community support is essential to avoid confrontations and costly delays while achieving the desired socioeconomic outcomes [9]. Effective management of community perceptions requires listening to their expressions through both traditional methods, such as townhall meetings, and modern means, such as social media platforms. Social media provides timely, naturalistic insights into local sentiments, offering a more efficient approach than traditional sentiment surveys and enabling better project planning [10]. Utilizing social media data can improve information sharing, engagement, and relationships within the project community, enhancing the overall viability and acceptance of the project [11]. There is a need to understand how the community expresses and communicate their experiences in the modern era through social media. Specifically, this research seeks to explore, (1) What are the community discourses during the operation phase of megaprojects, and (2) How can infrastructure megaprojects embed cultural insights to improve the acceptability during the operations phase?

To bridge this gap, the study delves into social media exchanges during the operational phase of four metro rail projects in India—Chennai, Hyderabad, Kochi, and Nagpur, aiming to discern their commonalities and disparities to inform future endeavors. All these projects are currently in their operation phase, have social media data available, and have different cultural backgrounds. Therefore, these projects were selected for this research to understand the community discourses during the operation phase and how megaprojects embed cultural insights to improve acceptability during the operations phase. The system lengths for these metro projects are 54.1 km, 72 km, 25.6 km, and 38.2 km, respectively making them comparable. Data from Twitter was used to collect information on these projects.

This chapter is divided into the following sections. The literature review in the second section critically evaluates existing work on community engagement, culture in megaprojects, and the role of social media in projects. The third section, which covers the research setting and method, highlights the rationale behind selecting the

multi-case study of four metro rail projects in India—Chennai, Hyderabad, Kochi, and Nagpur—along with the data collection and analysis methods. The fourth section summarizes the findings from the four megaproject cases. The fifth section discusses common themes across the cases, such as the focus on sustainability, cultural embedding, and inclusivity. The sixth and final section, the conclusion, summarizes the research, highlights the theoretical and practical contributions of this study, and discusses its limitations and scope for future research.

2 Literature Review

2.1 Community Engagement

Community engagement in megaprojects involves collaborating with individuals and groups physically close to the project, including those affected by land acquisition and construction-related disturbances [12]. Cyril et al. [13] define community engagement as a process of working collaboratively with communities, defined by geographic proximity, special interests, or similar situations, to address issues affecting their well-being. Effective community engagement requires the project management team to identify and address the community's problems and social concerns, developing strategies tailored to different phases of the project [14]. By understanding how community feelings shift over time, project teams can plan more effectively and make smarter decisions, ensuring their work aligns closely with the local culture and community values [15]. As infrastructure projects progress through various phases, the context of community engagement evolves dynamically, necessitating adaptive strategies throughout the project's lifecycle [16].

Community engagement during the operation phase of infrastructure megaprojects is crucial for maximizing usage and ensuring the seamless integration of the project with other local infrastructure. The development process for these projects is divided into three distinct phases: pre-construction, construction, and operation. Each phase presents its own set of challenges and requires specific strategies to address them [17]. The pre-construction phase involves all the activities necessary before actual building begins. This period focuses on planning the project, creating the design, obtaining necessary permits, signing contracts, and gathering resources. It's essentially the groundwork phase where project managers, along with design and engineering teams, lay out the blueprint for the project [18]. During the construction phase, the physical building of the project starts. This stage shifts the spotlight from the planning teams to the contractors and subcontractors, who are responsible for executing the construction plans. The construction phase is characterized by the highest level of risk and demands careful management of both time and cost to ensure the project is completed successfully [12]. During the operation phase, Ghalenoeei et al. [19] note that effective community engagement is essential to address concerns that can affect the long-term demand and productivity of the facility. Similarly, the

PMBOK [3] states that the projects consist of multiple stages from initiation, planning, execution, monitoring and control, and closing. At the closing stage is the handover stage leading to project operations. Research highlights that many issues in infrastructure projects manifest during the operational stage, where improper operations and maintenance can significantly reduce asset value and user satisfaction [20]. Traditionally, stakeholder engagement has been emphasized during the planning stages of megaprojects, but there is a growing consensus that it should extend through construction and operation phases as well [21]. Thus, each of these phases requires a tailored approach to handle their unique challenges effectively, ensuring the smooth progression from planning to execution to operation. This continuous engagement is necessary to manage evolving threats and opportunities effectively [14]. Additionally, addressing operational issues and restoring trust following service failures are vital for maintaining positive community relations and ensuring the project's long-term success [22]. Therefore, community engagement should be a sustained effort throughout the entire lifecycle of megaprojects, including the operations phase, to maximize their socio-economic benefits and operational efficiency [23].

2.2   Culture in Megaprojects

Understanding and integrating the cultural context of local communities is crucial for the success and acceptance of infrastructure megaprojects. Aaltonen and Kujala [24] emphasize the importance of focusing on community discourses and reactions, particularly the role of culture, which has often been overlooked in megaproject management. Zhou et al. [25] highlights the need to consider not only community sentiments but also the context and discourses surrounding these sentiments to improve project acceptability. Different cultures may have varying levels of acceptance towards megaprojects, suggesting the necessity for more culturally grounded approaches [26]. Identifying stakeholders, understanding their needs, and prioritizing them appropriately taking into consideration their cultural grounding, is a significant challenge for project managers, impacting stakeholder trust [27].

Cultural context is crucial for getting acceptance from the community for constructing infrastructure projects. For example, a subway project in Amsterdam, which though vital for urban development, faced strong resistance from locals aiming to protect the historic city. As a symbolic apology for the demolitions caused by the project, the city council exhibited artwork at the stations to memorialize the metro riots, with pieces dedicated to the violent history including a replica of a wrecking ball against a breaking wall, a photograph of a squatter behind a crumbling wall, and recreated graffiti, posters, and poems by activists. Thus, van Den Ende and van Marrewijk [28], ironically note that the metro now serves as an archival space for preserving what it once destroyed. In the case of a city rebuilding project in Australia, successful community engagement included cultural grounding of the project in a hospital agenda, planning schools, research facilities, etc., as part of the city rebuilding [5].

Lehtonen [29] underscores the importance of context awareness in managing stakeholder perspectives, asserting that understanding the cultural and social fabric of the community can provide a framework for more effective engagement. Shamai [30] notes that the cultural context for local people involves personal and social values such as knowledge, belonging, attachment, and commitment to a place. Gellert and Lynch [31] suggest that accommodating context-specific place-making processes that respect local culture and values can address contested megaprojects. By creating space for local cultural practices and values, project teams can foster a sense of ownership and acceptance among community members, which is vital for the long-term success of these projects. Effective community engagement, grounded in a deep understanding of cultural contexts, ensures that infrastructure megaprojects are not only technically successful but also socially sustainable.

2.3 Social Media in Projects

Social media has revolutionized the way stakeholders connect, share messages, and organize actions with minimal resources. This capability significantly reduces the cost of forming stakeholder alliances, providing an incentive for mobilization, especially for weaker stakeholders [32]. Social media plays a crucial role in providing emotional support, empowering, and mobilizing stakeholders, thus facilitating collective action. In the context of infrastructure megaprojects, social media offers a powerful platform for the project community to voice concerns and share opinions quickly and easily [33]. Despite its widespread use in various domains, leveraging social media effectively in megaproject settings remains underexplored.

Research indicates that social media can enhance various aspects of project management. For example, it can be used to improve project learning [34], foster collaboration and branding [35], and managing project community [36]. In infrastructure projects, specifically, social media enables the analysis of community opinions and concerns, providing valuable insights into what the project community deems essential. This understanding can lead to better-informed decisions and more effective stakeholder engagement strategies, ultimately contributing to the success and acceptance of megaprojects. Thus, there is a need for research to understand how social media can help project managers make sense of the cultural grounding of the project community during the operation phase of infrastructure megaprojects.

3 Research Setting and Method

Qualitative inductive research is especially effective for examining participants' perspectives shared on social media. This method enables researchers to identify patterns and generate insights based on these observations [37]. By exploring how experiences are formed and interpreted within social contexts, it offers a richer

comprehension of individuals' lived experiences, leading to more personal and empathetic insights, as highlighted by Pink et al. [38]. This method is especially effective for cultural research and community engagement, where understanding the nuances of social interactions and perceptions is crucial.

Utilizing a multiple case study design within qualitative research enhances the robustness, versatility, and generalizability of theoretical insights compared to single case studies [39]. This approach reduces potential biases that might arise from focusing on a single case and effectively captures the intricate and comprehensive nature of real-life events, such as discussions on social media during the operations phase of megaprojects [40]. By studying multiple cases, researchers can better contextualize findings and enhance their applicability across different scenarios, providing a comprehensive understanding that balances depth with breadth [41].

The cases were selected based on their ability to answer the research questions, such as them being metro rail projects in the same country, currently in their operation phase, and also the availability of social media data. Thus, the projects—Chennai, Hyderabad, Kochi, and Nagpur metro rail megaproject—were selected due to their similarities as shown in Table 1. The system lengths for the four metro projects are 54.1 km, 72 km, 25.6 km, and 38.2 km, respectively and the projects were operational from 2015, 2017, 2017, and 2019, making them comparable.

This research uses naturalistic inquiry, defined by Lincoln and Guba [42] as a qualitative research method, that examines the lived experiences of people naturally within their context. Traditionally in project management research, there is an over reliance on interview data rather than naturally occurring data, such as social media posts [43]. In this study, social media posts, specifically from Twitter, are utilized to understand community discourses and role of culture during the operations phase of the infrastructure megaproject. Twitter's concise format, limited to 140 characters per post, facilitates straightforward coding of individual messages. Tweets of different Twitter users on these metro stations are collected using a web crawler between 1 April 2019 and 30 September 2019. The keywords used were the specific titles of the metro projects under study—Chennai Metro rail, Hyderabad Metro rail,

Table 1 Comparison of four cases selected in this research

Name of project	Chennai metro rail megaproject	Hyderabad metro rail megaproject	Kochi metro rail megaproject	Nagpur metro rail megaproject
State in India	Tamil Nadu	Telangana	Kerala	Maharashtra
Regional language	Tamil	Telugu	Malayalam	Marathi
Start of operation	29 June 2015	29 Nov 2017	17 June 2017	8 Mar 2019
System length	54.1 km	72 km	25.6 km	38.2
Data collected tweets (1 April–30 Sept 2019)	2009	380	212	127

Kochi Metro rail, and Nagpur Metro rail. Although this method effectively captured a wide range of relevant tweets across the world, it is acknowledged that some tweets discussing these metro projects without explicitly mentioning the keywords may not have been retrieved. To ensure data integrity, a thorough check was conducted to remove duplicates by verifying the unique ID of each tweet. The collected data was then systematically stored in a comma-separated values (CSV) file for further analysis. Thus, data was gathered about these metro projects, providing valuable data for analyzing community engagement and discourses surrounding these infrastructure projects.

For analyzing qualitative data, qualitative content analysis and open coding is used to interpret the meanings conveyed in the tweets. Each tweet was carefully read and scrutinized, with a strong emphasis on understanding the contextual meaning. This involved a thorough and repetitive manual review process. This approach included analyzing dramatic discourses throughout the project lifecycle by studying 'critical incidents,' which are often revealing [44]. To ensure external validity, the constructs generated from this analysis were anchored in existing literature as noted by Eisenhardt [45].

4 Findings

This section summarizes the findings on community discourses during the operations phase from the four case studies—Chennai metro rail megaproject, Hyderabad metro rail megaproject, Kochi metro rail megaproject, and Nagpur metro rail megaproject. These are discussed below.

4.1 *Chennai Metro Rail Megaproject*

The Chennai Metro Rail project was initiated to tackle the challenges brought on by the city's rapid urbanization, such as the surge in private vehicle use, road congestion, and deteriorating air quality. The project sought to enhance connectivity with existing public transport networks and provide an eco-friendlier transportation option. It was launched in 2007, with construction starting in 2009 after securing funding approval. The first phase of the project became operational in 2015.

To engage the community, the Chennai metro rail project leveraged its social commitment and appealed to both national and regional sentiments. This approach ensured that the metro rail project's message reached all community segments. The organization demonstrated social commitment through various initiatives such as improving local services and church buildings, protecting trees, conducting rescue operations, and organizing medical camps and food carnivals. For instance, a tweet highlighted the repair and beautification of a church by the metro organization,

while another mentioned the Chief Minister of Tamil Nadu felicitating metro officers for their rescue operations in a local area. The project also undertook activities specifically aimed at benefiting the project-affected community. These included educational programs for children and the distribution of mosquito nets. Additionally, special programs were organized for women and college students, including a flash mob dance promoting women's empowerment. There was also an initiative to harvest rainwater at a metro station in the network to conserve water. The organization also emphasized that their services are inclusive and accessible to individuals with physical challenges, highlighting their commitment to social responsibility and community engagement.

4.2   Hyderabad Metro Rail Megaproject

The Hyderabad Metro Rail, a rapid transit system in Hyderabad, Telangana, India, includes 57 stations and ranks as the second-largest operational metro network in the country. Operating under a public–private partnership (PPP) model, the project features a minority equity stake from the state government. Larsen and Toubro (L&T) created L&T Metro Rail Hyderabad Ltd (L&TMRHL) specifically to develop this metro rail project, demonstrating a strong commitment to urban infrastructure development.

The community has warmly embraced the Hyderabad metro rail project for its role in addressing the city's social needs. For instance, during a fire outbreak, the metro allowed passengers to travel without tickets to evacuate the area, highlighting its dedication to public safety. A user tweeted acknowledging this as a wonderful gesture by the project to vacate people from the area and support the community during times of need.

Additionally, the project introduced several initiatives that resonated well with the public, such as promoting women metro train drivers, implementing innovative footpath designs, providing smart bikes, and offering free electric vehicle charging stations. These efforts have further solidified its positive impact on the community.

4.3   Kochi Metro Rail Megaproject

The Kochi Metro operates as a rapid transit system serving Kochi in Kerala, India, and stands out for its swift completion, opening to the public on 17 June 2017 after a remarkable four-year construction period. Managed by Kochi Metro Rail Limited, with equal shareholding between the Government of India and the Government of Kerala, the project has been recognized as one of India's fastest-completed metro rail initiatives.

The community has widely appreciated the Kochi Metro's services, particularly during challenging times such as the floods when it became a crucial mobility option.

A user tweeted that their father was stranded at a railway station with no vehicles available, however the metro rail services were available for the community during the time of the flash floods. The metro has also made cultural contributions, with certain stations dedicated to arts and murals—these cultural initiatives were well-received by the community. Additionally, initiatives like offering discount coupons in exchange for plastic bottles, promoting electric autos, and employing women drivers and transgender employees have been praised for reducing pollution and fostering inclusiveness, further enhancing the project's positive impact on the community.

4.4 Nagpur Metro Rail Megaproject

Nagpur, Maharashtra's third-largest district, faces significant pollution and traffic congestion challenges due to a high prevalence of motorized two-wheelers and other vehicles. To address the pressing need for a rapid public transportation system that is accessible, reliable, cost-effective, commuter-friendly, and pollution-free, the Nagpur Metro was conceived. This project aimed to cut travel time in half and facilitate seamless movement across the city, aligning with Nagpur's mobility and accessibility needs. Approved by the Maharashtra state government in February 2014 and the Indian central government in August 2014, the foundation stone was laid that same month. Construction began on May 31, 2015, with a trial run in September 2017, and the project was inaugurated on March 8, 2019. The action of symbolizing the "Majhi Metro" logo in local Marathi language fostered a sense of community ownership and belonging.

The Nagpur Metro project incorporated several green initiatives to promote sustainability. One key component was the installation of bio-digesters or mini sewage treatment plants at all stations and buildings, achieved in collaboration with the Defense Research and Development Organization (DRDO). A tweet reflecting the project's vision stated that the project is a pollution-free alternative. The community members also claimed that the metro rail project was not just a mode of transport, but an effort to bring together different transportation options in the city. Additionally, 65% of the project's energy requirements are met by solar panels, making it the greenest metro system in India. Other energy-saving measures included the use of a geothermal AC system. Furthermore, the project's commitment to inclusiveness was evident through initiatives such as employing women train operators and introducing a special women's coach in each train.

5 Discussion

From the case study findings of the four cases, insights can be generated for improving the cultural grounding of infrastructure megaprojects during the operations phase such as a focus on sustainability, cultural embedding, and inclusivity. These are discussed below.

5.1 Sustainability

The case studies of Nagpur, Hyderabad, Kochi, and Chennai metro rail projects underscore the multifaceted benefits of incorporating sustainability into large-scale infrastructure projects. A notable advantage of such an approach is the significant reduction in operational costs. For instance, the Nagpur Metro's reliance on solar energy for 65% of its energy needs resulted in expenditures that were less than half of what would have been incurred if sourced from the State Electricity Board. This economic benefit was further amplified by the project's receipt of a loan from a German development bank, which prioritizes funding for green projects. The path of sustainability not only provides financial rewards but also fosters a deeper sense of commitment among employees, thereby enhancing project attachment and motivation.

The emphasis on sustainable initiatives across these projects has also bolstered community engagement and support. Both the Nagpur and Kochi Metro projects invested in eco-friendly practices such as smart bikes, solar panels, electric vehicle charging stations, and discount schemes for recycling plastic bottles. These initiatives align with Ottman et al.'s [46] assertion that sustainability can enhance consumer appeal. The Nagpur Metro's integration of bio-digesters and a geothermal AC system, along with its significant reliance on solar energy, exemplifies a comprehensive approach to sustainability. Additionally, the community's positive reception of the Kochi Metro, especially during emergencies like floods, highlights the critical role of sustainable and reliable public transport in urban resilience. The Hyderabad Metro's initiatives, such as allowing free travel during emergencies and promoting gender inclusivity by encouraging women train drivers, further demonstrate the social dividends of sustainability. Collectively, these examples illustrate how sustainable practices not only address environmental and economic goals but also foster a strong, positive relationship with the community, enhancing the overall impact and success of infrastructure projects [47].

5.2 Cultural Embedding

The cultural embedding of metro rail projects in Nagpur, Hyderabad, Kochi, and Chennai demonstrates the impact of integrating local culture and social values into

urban infrastructure development. In Nagpur, the "Majhi Metro" logo, symbolizing a sense of belonging, effectively connected the community to the project. This cultural alignment was also evident in Kochi, where a metro station dedicated to arts and murals celebrated the region's cultural heritage, garnering widespread community appreciation. The Hyderabad Metro project received praise for its culturally sensitive initiatives, such as allowing free travel during emergencies, showcasing its commitment to addressing the city's social needs. These strategies highlight how embedding cultural elements can enhance community pride and foster a sense of ownership, as noted by Clegg [48], thereby facilitating smoother cooperation with the project community.

Language played a nuanced role in the cultural embedding of these projects. Although English was predominantly used in social media communications, reflecting its widespread use in India post-independence [49], balancing it with regional languages could enhance local engagement. The incorporation of local cultural practices and the understanding of community values, as emphasized by Zenker [50], are crucial for effective community branding. The metro rail projects aimed to instill metro usage as a lifestyle choice, promoting specific disciplines and rituals [51]. The Chennai Metro project exemplified this approach by engaging the community through social commitments and regional appeals, improving local services, and conducting culturally relevant programs. These initiatives not only addressed practical needs but also resonated deeply with local cultural identities, fostering inclusiveness and community support.

5.3 Inclusivity

Inclusivity initiatives in metro rail projects across Nagpur, Kochi, Hyderabad, and Chennai have contributed to the acceptability and success of these infrastructures. By employing women train operators and transgender employees, these projects have set a precedent for gender equality and inclusiveness. Melton and MacCharles [52] argue that inclusivity in aspects such as accessibility and gender equality enhances the overall acceptance and operational success of projects. These metro projects have demonstrated that investing in shared community-centric goals not only builds mutual trust and reduces information asymmetry but also motivates cooperative behavior [53]. The inclusive practices within these metro systems are a testament to their commitment to creating a supportive and equitable environment for all community members.

Specifically, the Nagpur Metro's initiatives, such as introducing a special women's coach and employing women train operators, have been well-received, reflecting a broader commitment to inclusivity. The Kochi Metro's employment of transgender individuals and women drivers has similarly been praised for promoting social inclusiveness and reducing discrimination. In Hyderabad, the metro's response to social needs during emergencies and its encouragement of women metro train drivers underscore the project's dedication to inclusiveness and public welfare. Chennai Metro's

various programs aimed at benefiting specific community segments, including educational initiatives and special programs for women, further highlight its focus on inclusivity. These efforts collectively illustrate how embedding inclusivity within urban infrastructure projects not only meets practical mobility needs but also fosters a sense of belonging and community pride, thereby enhancing the project's positive impact and acceptance.

6 Conclusion

This research underscores how attentively listening to the community via social media channels can facilitate the development of more effective megaprojects and generate greater societal value. Social media has proven to be an invaluable tool for engaging with the community, gathering feedback, and responding to the public's needs and concerns in real-time. The analysis of tweets and social media interactions related to the metro rail projects in Nagpur, Kochi, Hyderabad, and Chennai highlights the significant impact of these digital platforms in shaping project outcomes and enhancing community satisfaction. For instance, the Kochi Metro's responsiveness to community needs during the floods, as evidenced by a user's tweet about the metro providing a crucial mobility option during the crisis, demonstrates the value of real-time engagement and feedback. Similarly, Nagpur Metro's promotion of sustainability initiatives through social media not only informed the public but also fostered a sense of shared responsibility and community involvement. Hyderabad Metro's proactive communication during emergencies, allowing free travel to evacuate people during a fire, showcased the project's commitment to public safety and garnered positive public sentiment. By attentively listening to the community through social media, these projects have been able to address specific local concerns, promote inclusivity, and incorporate cultural elements that resonate with the public. This approach has not only improved the functional aspects of the projects but also enhanced their societal value by building trust, fostering community pride, and ensuring that the projects align with the values and needs of the community. Thus, this research highlights the critical role of social media in creating more responsive, inclusive, and socially valuable megaprojects.

The research contributes to theory by highlighting common strategies employed by organizations for community engagement during the operations phase of megaprojects such as a focus on sustainability, cultural embedding and inclusivity. By identifying these common strategies, the study provides a more unified framework for understanding how consistent communication and engagement practices can sustain project momentum and community support during the operations phases of a megaproject. Furthermore, the research underscores the critical role of social media in enhancing the effectiveness and societal value of megaprojects. This highlights the importance of attentively listening to the community through digital channels, thereby extending existing theoretical perspectives on stakeholder engagement and community relations. The findings suggest that continuous, real-time feedback loops

facilitated by social media can help organizations remain responsive and adaptive, ultimately leading to more successful project outcomes and heightened societal benefits. For project managers, this research highlights the need to focus on themes such as sustainability, cultural embedding and inclusivity, however, they should adapt these to local cultural settings. For policy makers, this research highlights the need to improve the cultural embedding in the case of the infrastructure megaprojects.

One limitation of this study is the reliance on social media data, particularly from platforms like Twitter, which is predominantly used by younger demographics [54]. Future research could explore the impact of social media engagement on different demographic groups, including older age groups and marginalized communities, to ensure a more inclusive approach to stakeholder engagement. There is a need for more research combining social media data with other types of data sources such as interviews and surveys to offer valuable insights for more inclusive project management approaches. This chapter focuses on a short study period and it can be expanded to a longer duration to understand how community engagement and cultural embedding evolve throughout the project lifecycle. Investigating the long-term effects of social media interactions on project success and community satisfaction would also provide valuable insights for project managers and policymakers. Additionally, this research exclusively considered Twitter for analyzing community discourses. Future studies should expand their scope to include other social media platforms such as Facebook and YouTube to provide a more holistic understanding of community discourses and sentiments. By doing so, researchers can gain more comprehensive insights into the multiple discourses surrounding megaprojects, validate existing findings, and enhance the diversity of data sources. Including these additional platforms will help capture a broader spectrum of community voices and provide a more nuanced understanding of public engagement and sentiment.

References

1. Söderlund, J., Sankaran, S., Biesenthal, C.: The past and present of megaprojects. Proj. Manag. J. **48**(6), 5–16 (2017)
2. Parmar, B.L., Freeman, R.E., Harrison, J.S., Wicks, A.C., Purnell, L., De Colle, S.: Stakeholder theory: the state of the art. Acad. Manag. Ann. **4**(1), 403–445 (2010)
3. PMBOK: A Guide to the Project Management Body of Knowledge: PMBOK, 7th edn. Project Management Institute (2021)
4. Clarkson, M.E.: A stakeholder framework for analyzing and evaluating corporate social performance. Acad. Manag. Rev. **20**(1), 92–117 (1995)
5. Ninan, J., Clegg, S., Mahalingam, A., Sankaran, S.: Governance through trust: community engagement in an Australian city rebuilding precinct. Proj. Manag. J. **55**(1), 16–30 (2024)
6. Jones, T.M., Harrison, J.S., Felps, W.: How applying instrumental stakeholder theory can provide sustainable competitive advantage. Acad. Manag. Rev. **43**(3), 371–391 (2018)
7. Sergeeva, N., Ninan, J.: Narratives in Megaprojects. Routledge, Milton Park, UK (2023)

8. Mok, K.Y., Shen, G.Q., Yang, J.: Stakeholder management studies in mega construction projects: a review and future directions. Int. J. Proj. Manag. **33**(2), 446–457 (2015)

9. Cuganesan, S., Floris, M.: Investigating perspective taking when infrastructure megaproject teams engage local communities: navigating tensions and balancing perspectives. Int. J. Proj. Manag. **38**(3), 153–164 (2020)

10. Tang, L., Zhang, Y., Dai, F., Yoon, Y., Song, Y., Sharma, R.S.: Social media data analytics for the US construction industry: preliminary study on twitter. J. Manag. Eng. **33**(6), 04017038 (2017)

11. Daemi, A., Chugh, R., Kanagarajoo, M.V.: Social media in project management: a systematic narrative literature review. Int. J. Inf. Syst. Proj. Manag. **8**(4), 5–21 (2020)

12. Liu, B., Hu, Y., Wang, A., Yu, Z., Yu, J., Wu, X.: Critical factors of effective public participation in sustainable energy projects. J. Manag. Eng. **34**(5), 04018029 (2018)

13. Cyril, S., Smith, B.J., Possamai-Inesedy, A., Renzaho, A.M.: Exploring the role of community engagement in improving the health of disadvantaged populations: a systematic review. Glob. Health Action **8**(1), 29842 (2015)

14. Jawahar, I.M., McLaughlin, G.L.: Toward a descriptive stakeholder theory: an organizational life cycle approach. Acad. Manag. Rev. **26**(3), 397–414 (2001)

15. Jiang, H., Lin, P., Qiang, M.: Public-opinion sentiment analysis for large hydro projects. J. Constr. Eng. Manag. **142**(2), 05015013 (2016)

16. Morris, P.W.G.: Project organizations: structures for managing change. In: Kelley, A.J. (ed.) New Dimensions of Project Management. Arthur D, Lexington, MA (1982)

17. Turner, J.R.: The Handbook of Project-Based Management—Improving the Processes for Achieving Strategic Objectives, 2nd edn. McGraw-Hill, London (1999)

18. Yong, H.K.: Public-Private Partnerships Policy and Practice. Commonwealth Secretariat, London, UK (2010)

19. Ghalenoeei, N.K., Saghatforoush, E., Nikooravan, H.A., Preece, C.: Evaluating solutions to facilitate the presence of operation and maintenance contractors in the preoccupancy phases: a case study of road infrastructure projects. Int. J. Constr. Manag. **21**(2), 140–152 (2021)

20. Edwards, P., Shaoul, J., Stafford, A., Arblaster, L.: Evaluating the Operation of PFI in Roads and Hospitals, vol. 84. Association of Chartered Certified Accountants, London (2004)

21. Ninan, J., Mahalingam, A., Clegg, S.: Asset creation team rationalities and strategic discourses: evidence from India. Infrastruct. Asset Manag. **9**(3), 114–122 (2021)

22. Hess, R.L., Ganesan, S., Klein, N.M.: Service failure and recovery: the impact of relationship factors on customer satisfaction. J. Acad. Mark. Sci. **31**(2), 127–145 (2003)

23. Ninan, J., Yadav, R.: Megaproject and the city: theorizing social media discourses across the lifecycle of an infrastructure project. City Environ. Interact. **20**, 100123 (2023)

24. Aaltonen, K., Kujala, J.: A project lifecycle perspective on stakeholder influence strategies in global projects. Scand. J. Manag. **26**(4), 381–397 (2010)

25. Zhou, Z., Zhou, X., Qian, L.: Online public opinion analysis on infrastructure megaprojects: toward an analytical framework. J. Manag. Eng. **37**(1), 04020105 (2021)

26. Delphine, D., Witte, P., Spit, T.: Megaprojects—an anatomy of perception: local people's perceptions of megaprojects: the case of Suramadu, Indonesia. disP Plann. Rev. **55**(2), 63–77 (2019)

27. Pirson, M., Martin, K., Parmar, B.: Formation of stakeholder trust in business and the role of personal values. J. Bus. Ethics **145**(1), 1–20 (2017)

28. van Den Ende, L., van Marrewijk, A.: Teargas, taboo and transformation: a neo-institutional study of community resistance and the struggle to legitimize subway projects in Amsterdam 1960–2018. Int. J. Proj. Manag. **37**(2), 331–346 (2019)

29. Lehtonen, M.: Evaluation of 'the social' in megaprojects: tensions, dichotomies, and ambiguities. Int. J. Archit. Eng. Constr. **3**(2), 98–109 (2014)

30. Shamai, S.: Sense of place: an empirical measurement. Geoforum **22**(3), 347–358 (1991)

31. Gellert, P.K., Lynch, B.D.: Mega-projects as displacements. Int. Soc. Sci. J. **55**(175), 15–25 (2003)

32. Frooman, J., Murrell, A.: Stakeholder influence strategies: the roles of structural and demographic determinants. Bus. Soc. **44**(1), 3–31 (2005)
33. Jacobson, J., Gruzd, A., Hernández-García, Á.: Social media marketing: who is watching the watchers? J. Retail. Consum. Serv. **53**, 101774 (2020)
34. Rosa, D.V., Chaves, M.S., Oliveira, M., Pedron, C.: Target: a collaborative model based on social media to support the management of lessons learned in projects. Int. J. Manag. Proj. Bus. **9**(3), 654–681 (2016)
35. Ninan, J., Clegg, S., Mahalingam, A.: Branding and governmentality for infrastructure megaprojects: the role of social media. Int. J. Proj. Manag. **37**(1), 59–72 (2019)
36. Mathur, S., Ninan, J., Vuorinen, L., Ke, Y., Sankaran, S.: An exploratory study of the use of social media to assess benefits realization in transport infrastructure projects. Proj. Leadersh. Soc. **2**, 100010 (2021)
37. Gephart, R.P.: Qualitative research and the academy of management journal. Acad. Manag. J. **47**(4), 454–462 (2004)
38. Pink, S., Tutt, D., Dainty, A., Gibb, A.: Ethnographic methodologies for construction research: knowing, practice and interventions. Build. Res. Inf. **38**(6), 647–659 (2010)
39. Kessler, I., Bach, S.: Comparing cases. In: Edwards, P.K., O'Mahoney, J., Vincent, S. (eds.) Studying Organizations Using Critical Realism: A Practical Guide, pp. 168–184. Oxford University Press, Oxford (2014)
40. Dyer, W.G., Wilkins, A.L.: Better stories, not better constructs, to generate better theory: a rejoinder to Eisenhardt. Acad. Manag. Rev. **16**(3), 613–619 (1991)
41. Saunders, M., Lewis, P., Thornhill, A.: Research Methods for Business Students, 5th edn. Pearson Education Limited, Harlow (2009)
42. Lincoln, Y.S., Guba, E.G.: Naturalistic Inquiry. Sage Publications, Newbury Park, CA (1985)
43. Ninan, J. (ed.): Social Media for Project Management. CRC Press, Boca Raton (2022)
44. Flanagan, J.C.: The critical incident technique. Psychol. Bull. **51**(4), 327 (1954)
45. Eisenhardt, K.M.: Building theories from case study research. Acad. Manag. Rev. **14**(4), 532–550 (1989)
46. Ottman, J.A., Stafford, E.R., Hartman, C.L.: Avoiding green marketing myopia: ways to improve consumer appeal for environmentally preferable products. Environ. Sci. Policy Sustain. Dev. **48**(5), 22–36 (2006)
47. Ninan, J., Sergeeva, N.: Battle of narratives: interaction between narratives and counter-narratives in megaprojects. Proj. Leadersh. Soc. **3**, 100069 (2022)
48. Clegg, S.: Governmentality. Proj. Manag. J. **50**(3), 266–270 (2019)
49. Parameswaran, R.: Western romance fiction as English-language media in postcolonial India. J. Commun. **49**(3), 84–105 (1999)
50. Zenker, S.: Who's your target? The creative class as a target group for place branding. J. Place Manag. Dev. **2**(1), 23–32 (2009)
51. Foucault, M.: Discipline and Punish: The Birth of the Prison (Trans. Sheridan, A.). Penguin Books, London (1977)
52. Melton, E.N., MacCharles, J.D.: Examining sport marketing through a rainbow lens. Sport Manag. Rev. **24**(3), 421–438 (2021)
53. Solheim-Kile, E., Wald, A.: Extending the transactional view on public–private partnership projects: role of relational and motivational aspects in goal alignment. J. Constr. Eng. Manag. **145**(5), 04019030 (2019)
54. Kaplan, A.M., Haenlein, M.: Users of the world, unite! The challenges and opportunities of social media. Bus. Horiz. **53**(1), 59–68 (2010)