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Social media buzz: what matters to people around PPP and non-PPP infrastructure projects?

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Infrastructure projects are undertaken as public–private partnership (PPP) projects to increase the capacity for delivering multiple projects and to bring in the expertise of the private sector. There is a need to investigate whether the community perception of an infrastructure project delivered in PPP mode differs from a similar project delivered in non-PPP mode. To address this gap, we contrast the social media exchanges of the Hyderabad and the Kochi metro rail project in India. The community in both megaprojects was concerned about accidents, parking charges, and operational issues and accepted the focus on sustainability and inclusivity. Public perceptions on social media showed that the PPP project attracted more targeted criticism – particularly concerning fare structures and operational issues – often directed specifically at the private partner rather than the government. The research shows how listening to the community through social media can help structure better PPP and non-PPP megaprojects and create more societal impact.

Keywords: communications & control systems/community/megaproject/project community/public–private partnership (PPP)/social impact/social media/UN SDG 9: Industry, innovation and infrastructure/UN SDG 11: Sustainable cities and communities

1. Introduction

Infrastructure facilities such as roads, railways, and metro rails are required to increase other business sectors' productivity and seamless functioning (Deng, 2013). Building these infrastructure assets requires a massive sum of money, for which the participation of the private sector is necessary for financing these constructions, for the technical bandwidth for implementation, and for bringing about efficiency during the operation phase of these assets (Mahalingam, 2010). Thus, opting for financing by way of a public–private partnership (PPP) can expedite the completion or feasibility of a project.

Infrastructure projects wield significant societal impact, yet they also are captivating, complex, and controversial, with inherent control issues, all of which often bring inconveniences to the surrounding populace – the project community (Frick, 2008). The project community plays diverse roles in the realm of a megaproject, encompassing roles as embedders, resisters, and occasional celebrants of its impact. They embody various positions – they could be potential end users, contributing through funding as taxpayers, and holding the ultimate democratic authority as voters while also being most affected by inconveniences, bearing the brunt of noise, pollution, and disruption caused by the project (Ninan, 2022). In megaprojects, the extensive interactions between the project and the community necessitate the management of numerous community members (Chinyio and Akintoye, 2008). Negative perception toward the project might prompt stakeholders to actively oppose its implementation and even boycott its services during operation. The repercussions can be profound; the loss of public backing could culminate in project cancellations. Effectively handling these stakeholders becomes crucial, given that the perception of a project's deliverables by the communities affected significantly influences its success (Cornelissen, 2004). Community resistance issues can get aggravated for PPP projects, where profits are made for a private entity from a public asset. There is an ongoing debate in infrastructure research and practice regarding whether private organisations can deliver public infrastructure projects. There is a need to investigate whether the community perception of an infrastructure project delivered by private organisations, that is in the PPP mode, differs from a similar project delivered by government organisations, that is, in non-PPP mode.

This research seeks to understand how the project community perceives the performance of a PPP infrastructure project in contrast to a non-PPP infrastructure project and we focus on the

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operational phase of infrastructure, recognising it as the juncture where the public can articulate their satisfaction with the delivered outcomes. Thus, the following research question is addressed in this article: *how does the project community perceive the performance of a PPP megaproject in contrast to a non-PPP megaproject?* Lately, with the swift evolution of social media platforms, there is a digital opportunity for community to express their concerns from which officials and managers can extract valuable, up-to-date insights into the perspectives of project communities (Ninan, 2022). Therefore, we specifically ask how social media buzz varies for a PPP and non-PPP project and what this means for future projects.

This research is confined to a cross-case study focusing on a comparison between two specific projects: the Hyderabad metro rail, operating under a PPP structure, and the Kochi metro rail, which functions as a non-PPP project. The focus is on social media because the interaction between the project and its broad project community spanning a city is in the digital space. The article is structured as follows. First, an overview of the literature on the infrastructure and PPP projects, the importance of perception of PPP projects, and the use of social media for community perception is discussed in the literature review section. The research methodology section delves into the decisions made regarding the selection of the Hyderabad and the Kochi metro rail projects, elucidating the rationale behind these choices. It also outlines the instruments used for data collection and details the qualitative analysis methods employed in the study. The empirical findings on the social media discourse of both projects follow this. Then, the implications of the similarities and differences between strategies and community perception between the PPP and non-PPP projects are discussed. In the conclusion section, the research underscores its significant contributions, outlines the identified limitations, and presents recommendations for future studies in the field.

2. Literature review

Infrastructure projects can be delivered using different business models. One such business model is PPP, which involves a collaborative setup between multiple public and private sectors, often established for the long term (Hodge and Greve, 2007). Essentially, PPP entails a joint effort between the government and private enterprises, aimed at project completion and service provision for the benefit of the population. In contrast, in non-PPP, the projects are constructed and managed only by the government (Caves, 2004). The expectation is that PPPs can better meet initially planned and agreed-upon budgets and schedules due to private sector efficiencies (Verweij and Van Meerkerk, 2021). Hence, PPPs are favoured for infrastructure projects in most countries since financing and management of infrastructure are problems for the government's limited capacity, and public funds are freed up for investments in sectors where private investment is impossible.

The social sustainability of PPPs has been under scrutiny as these projects experience challenges in achieving the intended social legitimacy and lack support from the community (Castelblanco *et al*., 2022). Social legitimacy is a precursor for social value creation in PPPs and involves the social appropriation and the desirability of projects by local users and communities (Montalbán-Domingo *et al*., 2019). Studies on PPPs have traditionally focused on value for the private sector and less on the importance of community and their legitimacy concerns. In PPP projects, challenges to social legitimacy, including issues related to social involvement, distrust among affected communities and the private consortium, and the absence of social criteria within toll tariff policies, are notable concerns (Castelblanco *et al*., 2022).

The sustainability of PPP projects hinges on their ability to generate value, signifying the accumulation of benefits for various stakeholders from both the public and private sectors, such as reducing public fiscal pressure and increasing life-cycle cost efficiency (Kivleniece and Quelin, 2012). Notably, the operations phase is critical for PPP projects since it lasts the longest (Ninan and Yadav, 2023), public sector role involvement is reduced (Castelblanco *et al*., 2022), the project community is sensitive to variations in tariffs and service levels (Levitt and Eriksson, 2016), and private sector profits are realised in this phase. In the context of PPP projects, the community plays a crucial role in assessing their social legitimacy. This assessment revolves around comparing the initial promises made by governments during the project planning phase against the actual fulfilment of these promises by the concessionaire throughout the project's implementation and operational stages (Boyer, 2019). The project community acts as constant evaluators, observing, perceiving, and judging whether the project organisation merits their support and resources often comparing the project with peers (Sergeeva and Ninan, 2023). They continuously assess whether the project activities conducted nearby align with their expectations. Tariff and pricing structures often become focal points eroding the social legitimacy of PPPs. Consequently, community concerns arising from these issues may lead to the early transfer of projects back to the public sector (Kivleniece and Quelin, 2012). Trust networks – informal or formal relationships among actors that facilitate co-operation and the sharing of resources – have been shown to significantly influence the agility and effectiveness of institutional responses (Warsen *et al*., 2018). These trust networks are especially relevant for understanding how public transport agencies collaborate with other stakeholders under conditions of uncertainty (Ninan *et al*., 2024). There is a need to explore how social involvement and distrust issues can be addressed in PPP projects, and social media is an effective means of doing so in the modern digital era.

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Social media data have emerged as a valuable resource for investigating customer sentiments, opinions, and relationships, holding significant potential beyond just entertainment (Mostafa, 2013). Its effective implementation in a business setting can substantially impact the sustainability of a business, particularly in economic and social aspects (Golden, 2010). The focus on social media over other forms of media stems from its unique ability to allow organisations direct engagement with the public whenever needed. It serves as a hub summarising interactions across various media channels and an avenue for project narratives operate (Sergeeva and Ninan, 2022). The benefits it offers to businesses are vast: faster and more frequent communication, broader outreach, increased brand visibility, improved awareness, better understanding of current issues, effective knowledge management, increased website traffic, enhanced online visibility, and a direct channel for consumer–company interaction (Mathur *et al*., 2021; Ninan and Yadav, 2023).

Published studies combining social media and project management have explored various facets. Some focus areas include leveraging social media for enhanced project learning (Rosa *et al*., 2016), fostering better intra-project communication or collaboration (Kanagarajoo *et al*., 2019), utilising social media as a branding platform (Ninan, 2022), and managing external stakeholders in megaprojects through social media (Mathur *et al*., 2021). Particularly in infrastructure projects, the use of social media to study the opinions and concerns of the community can help these projects understand what the project community considers essential (Williams *et al*., 2024). Hence, the swift evolution of social media platforms has become an avenue for communities to voice their concerns and express opinions offering officials and managers a valuable source of fresh perspectives regarding project communities, whether in PPP or non-PPP infrastructure projects.

3. Research setting and method

We have adopted a multiple-case study approach to delve into the varying dynamics of social media buzz between a PPP and a non-PPP project. This method allows us to deeply explore this phenomenon within its context, preserving real-life occurrences' comprehensive and authentic characteristics. Following the theoretical replication logick (Yin, 2009), we deliberately selected two cases – a PPP metro rail project in Hyderabad and a non-PPP metro rail project in Kochi, both in India. These cases were chosen for their likelihood to present different or even contradictory findings, functioning essentially as two distinct experiments. By comparing the emerging insights from these cases, akin to polar experiments described by Eisenhardt (1989), we aim to discern differences and uncover potential similarities.

Across the world, there are over 193 metro rail systems spanning approximately 17 000 km with 13 000 stations, and the presence of these metro systems indirectly influences the developmental landscape of regions (UITP, 2022). In India, the pursuit of development through metro rail initiatives commenced notably with the Kolkata Metro in 1972 and gained momentum with the Delhi Metro in 1998 (PIB, 2025). Inspired by the success of the Delhi Metro, several metro rail projects were subsequently initiated across the country, as outlined in Table 1.

Since we aim to compare the difference in community perception of a PPP metro rail project and a non-PPP metro rail project, we chose the system in Hyderabad and Kochi. Hyderabad metro rail is the world's largest PPP project in the metro rail sector (Ltmetro, 2025) and the only PPP metro rail project in India – therefore, it was the default choice providing a unique opportunity to study community perceptions in this mode. There are multiple non-PPP metro rail projects in the country, and for an adequate comparison, we required a similar non-PPP project to the Hyderabad metro rail. We looked at projects that started at a similar time as Hyderabad metro rail and considered projects such as Kochi and Lucknow metro rail. Of the two, Kochi metro had similar maturity as Hyderabad metro and was selected for this research. Kochi Metro Rail began operating in the same year as Hyderabad Metro Rail, that is, 2017 and both cities feature on the list of largest cities

Table 1. List of operational metro rail projects in India

Name of the metro rail	City, state	Operation begin date	Delivery model
Kolkata Metro	Kolkata, West Bengal	24 October 1984	Non-PPP
Delhi Metro	New Delhi, Delhi	24 December 2002	Non-PPP
Bengaluru Metro	Bengaluru, Karnataka	20 October 2011	Non-PPP
Mumbai Metro	Mumbai, Maharashtra	8 June 2014	Non-PPP
Jaipur Metro	Jaipur, Rajasthan	3 June 2015	Non-PPP
Chennai Metro	Chennai, Tamil Nadu	29 June 2015	Non-PPP
Kochi Metro	Kochi, Kerala	17 June 2017	Non-PPP
Lucknow Metro	Lucknow, Uttar Pradesh	5 September 2017	Non-PPP
Hyderabad Metro	Hyderabad, Telangana	29 November 2017	PPP
Noida Metro	Noida, Uttar Pradesh	25 January 2019	Non-PPP
Ahmedabad Metro	Ahmedabad, Gujarat	6 March 2019	Non-PPP
Nagpur Metro	Nagpur, Maharashtra	8 March 2019	Non-PPP

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in southern India, with more than 3.5 million population. Hence, Hyderabad and Kochi metro rail projects are contrasted in this study.

The Hyderabad Metro Rail stands as a rapid transit system catering to Hyderabad, Telangana, India, boasting 57 stations and ranking as the second-largest operational metro network in the country. This project operates under a PPP, where the state government holds a minority equity stake, indicating its role in oversight and partial financial backing, while the private partner, Larsen & Toubro (L&T), is responsible for Design-Build-Finance-Operate-Transfer (DBFOT) based on the contract (HMRL, 2025). In contrast, the Kochi Metro operates as a rapid transit system serving Kochi in Kerala, India. Notably, it was opened to the public within a remarkable 4-year construction period, earning recognition as one of India's fastest-completed metro rail projects. Commencing operations on 17 June 2017, the Kochi Metro is presently managed by Kochi Metro Rail Limited, with equal shareholding between the Government of India and the Government of Kerala. For a detailed comparison between the Hyderabad and Kochi metro rail projects, refer to Table 2.

We selected social media to study these projects, as, in contrast to existing traditional approaches such as opinion polls and surveys (Umar, 2019), data from social media can constitute an online naturalistic inquiry with unobstructed and retrospective data (Sergeeva *et al.*, 2022). Twitter was selected in this research due to its popularity in India in 2019, with over 34.4 million monthly active users (Jain, 2019). Worldwide, the Twitter platform is considered as the standard for capturing community perceptions due to its ability to offer real-time insights and diverse opinions (Steinmetz *et al.*, 2021). Tweets of different Twitter users on these metro rail projects were collected using a web crawler between 1 January 2019 and 31 December 2019. The selected keywords, 'Hyderabad Metro' and 'Kochi Metro', serve as the titles for both projects. It is recognised that certain tweets might not have been captured if they discussed these projects without directly using these specific keywords. Two primary Python libraries were employed for collecting tweets based on specific keywords and duration. The standard HTTP request library in Python was used to extract tweets by generating links through advanced search based on the selected keywords and hashtags. The get() method was used to send requests to the specified URLs. In addition, the Beautiful Soup Library facilitated web scraping by parsing the HTML responses obtained from Twitter. It allowed for systematic extraction and structuring of relevant tweets. To ensure data accuracy, the unique ID of each tweet was checked to eliminate duplicates. All the collected data were then organised and stored in a comma-separated values file for analysis and further examination. We retrieved 908 tweets from the Hyderabad metro rail project and 344 tweets from the Kochi metro rail project during this period. For data presentation in the findings sections, we have removed the source of information of social media data to protect the identity of the users following ethical guidance of using social media data following the guidance of Taylor and Pagliari (2018) who suggest the removal of Twitter usernames and direct links to tweets to protect personal identity information and address ethical challenges of using social media data.

Our approach involved content analysis coupled with open coding of the collected tweets, aiming to grasp the essence conveyed by each tweet. This method entailed meticulously examining each tweet to discern its underlying meaning or message. Rather than solely prioritising the frequency of specific message variables, we honed in on the contextual significance of the text (McTavish and Pirro, 1990) to capture deeper insights, as Braun and Clarke (2006) note that having more instances does not necessarily mean the theme is more crucial. Krippendorff (2018) argues that every content requires a context and therefore understanding the context is essential for making sense of the data. The process was highly iterative, demanding multiple readings of the tweets. Often, specific categories or themes only surfaced upon subsequent readings, emphasising our focus on content and meaning (Steger, 2007). For example, 'services during flash floods' addressed immediate mobility needs, complementing core services and therefore we categorise it as service complements. In contrast, 'free rides to evacuate people' demonstrated proactive community engagement, reflecting cultural values of social responsibility. These examples, while both requiring immediate action, were classified under different themes due to their distinct strategic orientations and the thematic differentiation was guided by the underlying intent and scope of the action, not solely the immediacy of the response. This iterative nature allowed us to uncover deeper layers within the tweets and

Table 2. Comparison of Hyderabad metro rail project and Kochi metro rail project

	Hyderabad metro rail project	Kochi metro rail project
Began operation	29 November 2017	17 June 2017
System length	72 km	25.6 km
Number of lines	3	1
Number of stations	57	22
Daily ridership	490 000	65 000
Delivery model	PPP	Non-PPP
Largest shareholder	Larsen & Toubro (private agency)	Government of India and Government of Kerala (government agencies)

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extract meaningful insights that might not have been immediately apparent.

4. Findings

The cross-case social media study of the Hyderabad and Kochi metro rail projects enabled us to understand how the community perceives the performance of both projects, as highlighted in the following.

4.1 Hyderabad metro rail project – the PPP project

The community complemented the project operations with multiple tweets recognising its facilities and services. In one instance, the metro rail staff even helped a commuter find their lost mobile within 15 min, and the user took to Twitter to express gratitude. There were also tweets of protests, such as when a 24-year-old woman died after a concrete slab from a surface wall of the Ameerpet metro rail station in Hyderabad metro rail fell on her. Many community members responded to the accident negatively, claiming that the accident was a severe issue and raised safety concerns for the passengers. A user tweeted, '*A human life is lost due to pure negligence and irresponsible maintenance by L&T. Who will take responsibility and what action is being taken*' (22 September 2019).

In another instance, there was community pushback on the high parking charges at the metro rail stations with users (Paul, 2024). One user explained this, '*@ltmetro L&T is a private entity. Their first priority will be the profitability of the venture, even if it means compromising on certain critical aspects. All other statements they make are purely PR gimmicks. They need to recover their investment asap. Sad!!*' (23 September 2019). There were also many negative tweets regarding technical glitches in which passengers were dissatisfied. Due to these technical glitches, there have been many issues on rainy days where passengers were asked to deboard from the trains. The community also deemed the station layout inadequate as a user noted, '*The entry, exit, washrooms, signboards, are poorly planned. Signboards are so confusing in some stations; we better not follow them*' (22 September 2019).

The community received the project's involvement in the city's social needs with open arms. The project allowed passengers to travel without a ticket and evacuate the area when a fire broke out in the city. A user tweeted, '*Great gesture by #HyderabadMetro to let people use the metro without tickets to vacate the Nampally area avoiding the traffic and chaos – thoughts and prayers with the people affected. God have mercy #hyderabadfire*' (30 January 2019). Other initiatives, such as encouraging women metro train drivers, innovative footpath designs, smart bikes, and free electric vehicle charging stations, were well received by the community (Manish, 2017).

4.2 Kochi metro rail project – the non-PPP project

The community complemented the Kochi metro rail's services, especially during the floods when the metro rail became a good mobility choice. A user tweeted, '*My father was stranded today morning at Ernakulam south railway station & no vehicles were available. With great difficulty & swimming skills, he managed to reach the metro station. Flash floods have affected a lot of commuters like my dad. Thanks to #kochimetro*' (21 October 2019). At the same time, there were issues with accidents in the Kochi metro rail, such as when a concrete slab from a metro rail station fell on a moving car. Fortunately, people inside the car survived without any serious injuries. A user said, '*She had a narrow escape. A concrete slab fell on her moving car while they were on the way to the airport. I would request @kochimetro and @KochiPolice to look into the matter and compensate the driver. Also, see to it that such things don't happen in the future*' (6 June 2019).

The project was also criticised for high charges, such as parking charges. A user noted that these charges were not reasonable and it would be better to travel in a car than pay hefty parking fees as noted by a user '*3-hour parking fee 73 in #kochimetro. with the same price, we can travel the same in a car*' (20 November 2019). In another instance, a community member raised concerns that there is still no toilet facility in the central metro station of the network.

The community received the multiple innovations in the project well. Kochi metro rail focused on the ferry services as a feeder service to suburbs along rivers where transport accessibility is limited. The project also arranged air-conditioned accommodation facilities for visitors (Manorama, 2020), which a user appreciated, '*Not expensive, this dorm building is quite nice. The rooms are sanitary, very nice and worth the price. The amount of features at your service is fantastic, and never have I wished this building had this or that. The staff is great and very nice, and you simply feel at home here*' (16 January 2019). In another instance, a station in the network was dedicated to arts and murals to exhibit the area's culture. A user appreciated this, '*#Kochimetro, love how you have aptly dedicated "Changampuzha" park station to Arts, Navarasas, murals, manuscripts of the poets et al.! Smiling face with heart-shaped eyes*' (22 September 2019). In addition, several initiatives, such as discount coupons in exchange for plastic bottles and electric autos were taken to reduce pollution, and the project users were happy with the initiatives. The project also showed its inclusiveness by employing women drivers and transgender employees.

The different instances in the Hyderabad and Kochi metro rail are summarised in Table 3 for quick reference.

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Table 3. Comparison of findings from the Hyderabad and Kochi metro rail project

Themes	Examples from Hyderabad metro rail project	Examples from Kochi metro rail project
Service complements	Tracing lost mobile	Services during flash floods
Accidents	Death after concrete slab collapse	Concrete slab falls on moving car
Parking charges	High charges for passengers	Parking charges are comparable to travel costs by car
Maintenance issues	Technical glitches in service during rainy days	Toilet facility not available in central station
Responsibility for blame	Private agency (Larsen & Toubro) rather than the consortium	Consortium
Innovations	QR code–based e-ticketing system, shuttle bus services	Feeder service by ferries, accommodation for visitors at stations, I-card for all transport networks within the city
Cultural grounding	Free rides to evacuate people from fire-affected area	Dedicated station for arts and murals
Sustainability	Solar panels, smart bikes, and electric vehicle charging at stations	Discounts for plastic bottles, electric autos for feeder service
Inclusiveness	Women train operators	Transgender employees

5. Discussion

We examine the Hyderabad and Kochi metro rail projects through their case studies, highlighting both similarities and differences offering valuable guidelines and recommendations, such as focusing on customer experience, private partners experiencing criticisms, focusing on community-centric goals, and the role of social media. These insights can serve as valuable lessons for similar projects, aiding in enhancing community acceptance.

5.1 Focusing on customer experience

Both projects faced similar issues regarding high parking charges and poor operations. While technical glitches in service on rainy days were highlighted in Hyderabad metro rail, the lack of toilet facilities in the central station was highlighted in Kochi metro rail. A focus on customer experience was well received in both projects. They received compliments on service and their response in isolated events such as tracing lost mobiles and services during flash floods. Our findings support Henisz *et al*. (2012), who highlight that projects employ campaigns and communication strategies to influence users indirectly. We record that both PPP and non-PPP projects have to focus on customer experience for support from the community.

5.2 Private partners experiencing criticisms

Both Hyderabad and Kochi metro rail had accidents due to the collapse of a concrete slab during its operations phase and experienced pushback from the community. However, the accident was blamed on the private company L&T rather than the consortium in Hyderabad metro rail in contrast to Kochi metro rail. Similarly, the private company faced criticism in the PPP project for its fare and operational issues. Tweets on these issues tagged the private entity and stressed that their priority is the venture's profitability, even if it means compromising certain critical aspects. Our findings highlight that social legitimacy is a problem for PPP projects as accusations were pointed to private partners who have challenges getting community support (Castelblanco *et al*., 2022). This pattern of criticism reflect a broader public perception that private entities in PPPs prioritise profit over public welfare as private firms operate under profit-maximisation principles (Bergstrom *et al*., 1986). Due to this, there is also higher public expectations of accountability from the private entities. To enhance social legitimacy, PPP projects should adopt a communication strategy focusing on clear articulation of roles between public and private partners.

5.3 Focusing on community-centric goals

The community applauded the cultural grounding in Hyderabad and Kochi metro rail, especially the initiative of Kochi metro rail, which dedicated a station for arts and murals. Both projects invested in sustainable initiatives such as smart bikes, solar panels, electric vehicle charging at stations, discounts for plastic bottles, and electric autos for feeder services. They also focused on inclusiveness initiatives such as women train operators and transgender employees. Investing in shared community-centric goals is an effective strategy for infrastructure projects since establishing high-level shared goals consistent with the project community's identities and interests would help reduce information asymmetry, enhance mutual trust, and motivate cooperative behaviours (Solheim-Kile and Wald, 2019). Trust networks are foundational for fostering collaboration and mitigating conflicts in infrastructure projects (Warsen *et al*., 2018). There is a need to consider the complex web of relationships between multiple stakeholders in PPP projects at a network level for project success (Wang *et al*., 2021). In addition, Wang *et al*. (2024) highlight the importance of considering the community around the project and their trust in the project as critical for achieving better performance and community acceptance. Innovations were also similar in both projects with QR code–based e-ticketing system, shuttle bus services, feeder service by ferries, accommodation for visitors at stations, I-cards for all transport networks within the city, and so on. It is often perceived that PPP projects are more innovative than non-

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PPP projects (Liu *et al*., 2024); however, our findings highlight similar innovations in both types of contracting.

5.4 Role of social media

The research also shows how social media effectively engages the community in the operations phase of PPP and non-PPP projects. Social media can help project developers understand issues concerning the community, such as high parking charges, technical glitches in services, and lack of toilet facilities in essential locations. Leveraging social media and listening to the voice of the dispersed project community enabled by social media can help structure better PPP and non-PPP infrastructure projects and create more impact. In addition, social media can also help dissipate campaigns and improve communications in the project regarding innovations, sustainability, and inclusiveness.

In summary, many similarities provided common strategies for dealing with PPP and non-PPP projects. The issues, innovations, sustainability, and inclusiveness focus were the same, although they differed in minute details. The main difference between the PPP and non-PPP projects was the responsibility of blame. Tweets on issues tagged the private entity and stressed that their priority is the venture's profitability, even if it means compromising certain critical aspects. We highlight that public support hinges on perceived alignment between institutional behaviour and societal values similar to social legitimacy theories (Suchman, 1995). In the PPP case, the attribution of blame to the private partner may reflect a perceived breach of the normative expectations associated with public service provision. Similarly, stakeholder engagement theory emphasises the importance of transparent, timely communication, and responsiveness to stakeholder concerns (Morsing and Schultz, 2006) – elements that resonated with both PPP and non-PPP project as they contribute to greater perceived legitimacy.

6. Conclusion

The goal of this study is to grasp how the community views the effectiveness of a megaproject operating under a PPP compared with one that does not use PPP, by analysing social media engagement. We seek to analyse the social media buzz in the Hyderabad and Kochi metro rail projects during their operation phase. With the rapid development of social media services, the community expresses their concerns on social media, and it can provide officials and managers with fresh perspectives on project communities in PPP and non-PPP infrastructure projects.

We add several valuable insights to both the theory and practical methods involved in handling infrastructure assets. First, we highlight the importance of customer experience for PPP and non-PPP projects. Similarly, we highlight the importance of focusing on community-centric goals such as innovations, inclusiveness, and sustainability. While existing literature records PPPs are more innovative, our findings show both projects focused on innovations to improve acceptability and social legitimacy. Second, we record the main difference between the PPP and non-PPP projects regarding the responsibility of blame. The private entity was tagged instead of the consortium in PPP projects, highlighting that their priority is the venture's profitability, which shows the lack of social legitimacy in PPP projects by default. To enhance social legitimacy, PPP projects should adopt a communication strategy focusing on clear articulation of roles between public and private partners. Finally, we highlight the importance of social media in understanding issues that matter to the community while dissipating campaigns and improving communications. This study also offers actionable insights for policy makers, metro rail operators, and urban planners by underscoring the importance of addressing community concerns, enhancing inclusiveness, and leveraging social media to improve project acceptability.

Several limitations exist that can guide future research endeavours. The keywords selected for data retrieval were the names of the project – Hyderabad Metro and Kochi Metro – and it is recognised that certain tweets might not have been captured if they discussed these projects without directly using these specific keywords. Social and demographic barriers impact how social media represents events related to the project, as certain groups, particularly younger generations, tend to be more active on platforms like Twitter. Our study exclusively focused on Twitter for assessing community perception within social media. To offer a more comprehensive understanding and validate our findings, future investigations could encompass platforms such as Facebook or YouTube and consider a longitudinal analysis. This expansion would diversify the data and provide deeper insights into various project events. In addition, our research concentrated solely on the operational phase of both PPP and non-PPP projects. Subsequent studies could compare social media engagement across the pre-construction and construction phases to broaden the scope of analysis. Also, the tweets were collected based on specific hashtags related to the metro rail project; therefore, the crawler used for extracting the tweets could not collect other valuable tweets that did not have those specific hashtags. Finally, considering the early stages of project approval and expectations of affected stakeholders can also enhance the understanding of the community in the operations phase and can be considered as a scope for future research.

REFERENCES

Bergstrom T, Blume L and Varian H (1986) On the private provision of public goods. *Journal of Public Economics* **29(1)**: 25–49.

Boyer EJ (2019) How does public participation affect perceptions of public–private partnerships? A citizens' view on push, pull, and network approaches in PPPs. *Public Management Review* **21(10)**: 1464–1485.

Braun V and Clarke V (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology* **3(2)**: 77–101.

Castelblanco G, Guevara J, Mesa H and Hartmann A (2022) Social legitimacy challenges in toll road PPP programs: analysis of the

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Colombian and Chilean cases. *Journal of Management in Engineering* **38(3)**: e05022002.

Caves RW (2004) *Encyclopedia of the City*. Routledge, London.

Chinyio EA and Akintoye A (2008) Practical approaches for engaging stakeholders: findings from the UK. *Construction Management and Economics* **26(6)**: 591–599.

Cornelissen J (2004) *Corporate Communications: Theory and Practice*. SAGE Publications, London.

Deng T (2013) Impacts of transport infrastructure on productivity and economic growth: recent advances and research challenges. *Transport Reviews* **33(6)**: 686–699.

Eisenhardt KM (1989) Building theories from case study research. *The Academy of Management Review* **14(4)**: 532–550.

Frick KT (2008) The cost of the technological sublime: daring ingenuity and the new San Francisco–Oakland Bay bridge, In: *Decision-Making on Mega-Projects: Cost–Benefit Analysis, Planning and Innovation* (Priemus H, Flyvbjerg B, van Wee B, (eds.)). Edward Elgar, Cheltenham, pp.239–262.

Golden M (2010) *Social Media Strategies for Professionals and Their Firms: The Guide to Establishing Credibility and Accelerating Relationships*. Wiley, Hoboken, NJ.

Henisz WJ, Levitt RE and Scott WR (2012) Toward a unified theory of project governance: economic, sociological and psychological supports for relational contracting. *Engineering Project Organization Journal* **2(1–2)**: 37–55.

HMRL (2025) About HMRL, Hyderabad Metro Rail Limited. See https://hmrl.co.in/about-hmrl/ (accessed 7/01/2025).

Hodge GA and Greve C (2007) Public–private partnerships: an international performance review. *Public Administration Review* **67(3)**: 545–558.

Jain S (2019) Twitter Stats and Facts [2019 update with Infographic], Digital Marketing Case Study. See https://soravjain.com/twitter-stats-facts-2019-infographic/ (accessed 24/12/2024).

Kanagarajoo MV, Fulford R and Standing C (2019) The contribution of social media to project management. *International Journal of Productivity and Performance Management* **69(4)**: 834–872.

Kivleniece I and Quelin BV (2012) Creating and capturing value in public-private ties: a private actor's perspective. *Academy of Management Review* **37(2)**: 272–299.

Krippendorff K (2018) *Content Analysis: An Introduction to Its Methodology*, 4th edn. Sage Publications, Thousand Oaks, CA.

Levitt RE and Eriksson K (2016) Developing a governance model for PPP infrastructure service delivery based on lessons from Eastern Australia. *Journal of Organization Design* **5(1)**: 1–8.

Liu LX, Clegg S and Pollack J (2024) The effect of public–private partnerships on innovation in infrastructure delivery. *Project Management Journal* **55(1)**: 31–49.

Ltmetro (2025) About Hyderabad Metro Rail (HMR), L&T Metro Rail (Hyderabad) Limited. See https://www.ltmetro.com/about-hmr/ (accessed 07/01/2025).

Mahalingam A (2010) PPP experiences in Indian cities: barriers, enablers, and the way forward. *Journal of Construction Engineering and Management* **136(4)**: 419–429.

Manish K (2017) Woman steers Hyderabad to the metro age, *The Times of India*. See https://timesofindia.indiatimes.com/city/hyderabad/woman-steers-hyderabad-to-the-metro-age/articleshow/61842581.cms (accessed 07/01/2025).

Manorama (2020) Enjoy air-conditioned stay at Kochi Metro's MG Road station for Rs 395, *Manorama Online*. See https://www.onmanorama.com/travel/kerala/2019/11/26/air-conditioned-stay-rooms-hostel-kochi-metro-mg-road.html (accessed 07/01/2025).

Mathur S, Ninan J, Vuorinen L, Ke Y and Sankaran S (2021) An exploratory study of the use of social media to assess benefits realization in transport infrastructure projects. *Project Leadership and Society* **2**: 100010.

McTavish DG and Pirro EB (1990) Contextual content analysis. *Quality and Quantity* **24(3)**: 245–265.

Montalbán-Domingo L, García-Segura T, Sanz MA and Pellicer E (2019) Social sustainability in delivery and procurement of public construction contracts. *Journal of Management in Engineering* **35(2)**: e04018065.

Morsing M and Schultz M (2006) Corporate social responsibility communication: stakeholder information, response and involvement strategies. *Business Ethics: A European Review* **15(4)**: 323–338.

Mostafa MM (2013) More than words: social networks' text mining for consumer brand sentiments. *Expert Systems with Applications* **40(10)**: 4241–4251.

Ninan J (2022) The past, present and future of social media in project management, In: *Social Media for Project Management* (Ninan J (ed.)). CRC Press, Boca Raton, pp.1–16.

Ninan J, Clegg S, Mahalingam A and Sankaran S (2024) Governance through trust: community engagement in an Australian city rebuilding precinct. *Project Management Journal* **55(1)**: 16–30.

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

Paul SS (2024) Hyderabad Metro Parking Fee Sparks Protests, *Deccan Chronicle*. See https://www.deccanchronicle.com/southern-states/telangana/hyderabad-metro-parking-fee-sparks-protests-1820540 (accessed 07/01/2025).

PIB (2025) 1,000 Kms of Metro 3rd Largest in the World, Ministry of Housing & Urban Affairs. See https://pib.gov.in/PressReleasePage.aspx?PRID=2090364 (accessed 07/01/2025).

Rosa DV, Chaves MS, Oliveira M and Pedron C (2016) Target: a collaborative model based on social media to support the management of lessons learned in projects. *International Journal of Managing Projects in Business* **9(3)**: 654–681.

Sergeeva N and Ninan J (2022) *Narratives in Megaprojects*. Routledge – Taylor & Francis Group, London.

Sergeeva N and Ninan J (2023) Comparisons as a discursive tool: shaping megaproject narratives in the United Kingdom. *Policy and Society* **42(2)**: 197–211.

Sergeeva N, Ninan J and Oswald D (2022) Call for papers for the special paper collection: novel research methodologies, methods and data in project studies. *Project Leadership and Society* **3**: 100060.

Solheim-Kile E and Wald A (2019) Extending the transactional view on public–private partnership projects: role of relational and motivational aspects in goal alignment. *Journal of Construction Engineering and Management* **145(5)**: e04019030.

Steger T (2007) The stories metaphors tell: metaphors as a tool to decipher tacit aspects in narratives. *Field Methods* **19(1)**: 3–23.

Steinmetz C, Rahmat H, Marshall N *et al.* (2021) Liking, tweeting and posting: an analysis of community engagement through social media platforms. *Urban Policy and Research* **39(1)**: 85–105.

Suchman MC (1995) Managing legitimacy: strategic and institutional approaches. *The Academy of Management Review* **20(3)**: 571–610.

Taylor J and Pagliari C (2018) Mining social media data: how are research sponsors and researchers addressing the ethical challenges? *Research Ethics* **14(2)**: 1–39.

UITP (2022) World Metro Figures 2021, Advanced Public Transport. See https://cms.uitp.org/wp/wp-content/uploads/2022/05/Statistics-Brief-Metro-Figures-2021-web.pdf (accessed 24/12/2024).

Downloaded from http://www.emerald.com/jmuen/article-pdf/179/2/94/11729505/jmuen.24.00004en.pdf by Delft University of Technology user on 21 July 2026

Umar T (2019) Developing Toolkits and Guidelines to Improve Safety Performance in the Construction Industry in Oman. Doctoral dissertation, Kingston University.

Verweij S and Van Meerkerk IF (2021) Do public-private partnerships achieve better time and cost performance than regular contracts? *Public Money & Management* **41(4)**: 286–295.

Wang X, Yin Y, Deng J and Xu Z (2021) Opportunistic behavior governance in PPP projects: an analysis based on trust networks. *Advances in Civil Engineering* **2021(1)**: 8899338.

Wang X, Yin Y and Xu Z (2024) The influence of trust networks on public–private partnership project performance. *Proceedings of the Institution of Civil Engineers—Management, Procurement and Law* **177(2)**: 65–74.

Warsen R, Nederhand J, Klijn EH, Grotenbreg S and Koppenjan J (2018) What makes public-private partnerships work? Survey research into the outcomes and the quality of cooperation in PPPs. *Public Management Review* **20(8)**: 1165–1185.

Williams N, Ninan J and Kwak YH (2024) Online firestorms in twitter: exploring risks to large infrastructure projects from digital communities. *IEEE Transactions on Engineering Management* **71**: 13963–13974.

Yin RK (2009) *Case Study Research: Design and Methods*. 4th ed. Thousand Oaks, CA: Sage.

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