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Examining the impact of social media use on team performance: evidence from construction projects in Australia

Rozi Karimi
Department of Civil Engineering, Monash University – Clayton Campus, Melbourne, Australia
Robert Moehler
The University of Melbourne – Parkville Campus, Melbourne, Australia
Yihai Fang
Department of Civil Engineering, Monash University – Clayton Campus, Melbourne, Australia, and
Saima Ahmad
RMIT University, Melbourne, Australia

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Abstract

Purpose – This study investigates how social media use (SMU) affects construction management practices (such as coordination (COO), knowledge sharing (KS), member support (MS), team feedback (TF) and team performance (TP) in Australia.

Design/methodology/approach – We surveyed 258 employees with relevant experience in SMU within the construction industry in Australia and analyzed the data using the SPSS PROCESS macro. Specifically, we employed multiple regression analyses and tested a moderated mediation model to examine the proposed hypotheses.

Findings – The findings reveal a segmented social media platform landscape in Australia's construction management practice with SMU positively impacting TF and KS practices and driving improved TP. The greatest impact on the overall construction management practice was the use of SM for COO and MS regarding TP.

Originality/value – This study advances contextual understanding of SMU within Australian construction teams by integrating insights from social exchange theory and the theory of communication visibility. It highlights how digitally mediated communication practices shape exchange relationships and visibility of work, and it encourages further research into how digital tools can be leveraged to optimize teamwork and COO in project-based industries.

Keywords Social media use, Knowledge sharing, Member support, Coordination, Team feedback, Team performance, Survey, Multiple regression, Process macro moderated mediation model, Construction site management

Paper type Research article

Introduction

In recent years, social media (SM) has become a critical communication tool across various industries, including construction, where project teams are often temporary and face

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challenges related to trust and effective KS (Jia *et al.*, 2021; Ren *et al.*, 2019; Wen and Qiang, 2016). The temporary and fragmented nature of construction project teams necessitates robust communication and COO mechanisms to ensure effective collaboration and project success (Karimi *et al.*, 2025; Lin and Wu, 2021; Sagar *et al.*, 2022).

SM platforms offer promising solutions by facilitating real-time and asynchronous communication, enhancing team interaction and supporting project COO (Anders, 2016; Karimi *et al.*, 2025). Work-oriented platforms such as Microsoft Yammer, Slack, DingTalk and WhatsApp Business are designed to support task-related information exchange and collaborative workflows (Etim *et al.*, 2016; Fabre, 2015), while socialization-oriented platforms such as Facebook, Twitter, WhatsApp and WeChat support interpersonal engagement, emotional support and informal exchanges (Jovanovic and Van Leeuwen, 2018). Despite this growing adoption of SM tools in construction, the extent to which SMU shapes team processes such as COO, KS, MS and TP remains underexplored through empirical investigation (Jia *et al.*, 2025; Karimi *et al.*, 2024). This lack of theoretical integration and empirical validation has contributed to unclear perceptions of the tangible benefits of SM, resulting in inconsistent and often fragmented implementation within construction settings (Etemadi *et al.*, 2020). Although the literature has acknowledged the potential of SM to enhance communication and collaboration across sectors (Karimi *et al.*, 2025; Wu *et al.*, 2016), few studies have employed integrated theoretical frameworks to systematically explain how SMU shapes construction team dynamics and outcomes (Jia *et al.*, 2025; Ma *et al.*, 2021a, b, 2022). While prior research has extensively examined SMU across various organizational and cultural contexts (McFarland and Ployhart, 2015; Sajid *et al.*, 2024), much of this work remains focused on general workplace communication or technology adoption without capturing how SMU interacts with team-level constructs such as TF, MS and COO (Cao and Ali, 2018; Etemadi *et al.*, 2020). This study advances construction management research by providing empirical evidence on how SMU shapes team performance through core team processes, including KS, feedback and MS, within construction projects. Although prior studies acknowledge SMU as a growing communication tool in construction, most research remains descriptive or focuses on general workplace settings rather than on construction team dynamics (Jia *et al.*, 2025; Ma *et al.*, 2021a, b, 2022). Recent studies emphasize that COO demands in construction environments are particularly high due to temporary team structures and interdependent tasks (Ren *et al.*, 2019; Lin and Wu, 2021), yet little is known about when and under what conditions SMU becomes most effective. By adopting a team-process and moderated-mediation perspective grounded in the Social Exchange Theory (SET, Cropanzano and Mitchell, 2005) and the theory communication visibility (TCV, Leonardi, 2014), this study offers a novel contribution by explaining how and when SMU translates into improved team outcomes in Australian construction settings, a perspective largely absent in prior construction management research.

To address these gaps, this study integrates SET and the TCV to examine the role of SMU in influencing TP, with a specific focus on the mediating roles of KS, TF and MS, and the moderating role of COO. SET conceptualizes interpersonal interaction as a reciprocal exchange process aimed at maximizing benefits such as recognition and support (Cropanzano and Mitchell, 2005; Jiang and Jia, 2026), while TCV underscores how SM platforms make team interactions more transparent and visible, thereby enabling better access to expertise and collaborative knowledge flows (Leonardi, 2014; Yang *et al.*, 2021).

This study is guided by the following overarching research questions: (1) How are SMU, construction management practices, TF and TP interrelated in construction project teams? (2) How do mediation and moderation processes shape these relationships?

To address these overarching questions, the study specifically examines: RQ1: How does SMU influence KS, MS, TF and TP in construction project teams? RQ2: Do KS, MS and TF mediate the relationship between SMU and TP? RQ3: Does COO moderate the relationship between SMU and KS, MSs and TF?

This study makes several contributions to the existing literature. First, it enhances the understanding of construction project teamwork by investigating the impact of SMU on various aspects such as team management practices, TF and TP. Building on the conceptual model advanced by Karimi *et al.* (2025), this study provides empirical evidence on how SMU influences TP through the mediating roles of KS, TF and MS, and the moderating role of COO. This model provides a comprehensive framework for understanding the mechanisms through which SMU contributes to improved team outcomes (Karimi *et al.*, 2024; Ma *et al.*, 2021a, b, 2022).

Second, this research enriches the literature on SM usage by exploring its diverse effects on team management practices within a single integrated model. Building on prior research that has typically examined SMU independently or within broader workplace communication contexts (Cao and Ali, 2018; Jia *et al.*, 2025), our study extends this work by analyzing how SMU relates to key team-level constructs (i.e. KS, TF, MS, and COO) within construction project environments. By doing so, it addresses gaps in the literature and offers a more nuanced understanding of SMU's role in construction management.

Third, by integrating insights from SET and TCV, this article demonstrates how SM platforms enhance communication visibility and facilitate KS, which are critical for improving TP. SET highlights the reciprocal nature of interpersonal exchanges, while CVT underscores how SM platforms make team interactions more visible and enable collaborative knowledge flows (Cropanzano and Mitchell, 2005; Leonardi, 2014; Yang *et al.*, 2021). This theoretical integration provides a novel lens for understanding the unique dynamics of SM adoption in the Australian construction industry, where digital tools are often segmented and nonintegrated (Etemadi *et al.*, 2020). Lastly, the study explores the unique role of TF in reinforcing social exchanges and aligning team efforts with performance goals.

Theoretical background and research hypotheses

To understand the dynamics of KS, COO and MS in collaborative virtual teams, the TCV (Leonardi, 2014) and SET (Seers, 1989) serve as the theoretical foundation for this study. Together, these theories explain how digitally mediated communication enables team members to access and interpret others' expertise (i.e. TCV) while shaping reciprocal expectations around information sharing and support (i.e. SET). In construction project teams, work is highly interdependent and expertise is distributed. Therefore, effective use of visible communication and reciprocal exchange relationships becomes vital for integrating diverse knowledge and coordinating complex project tasks.

SMU at work

SM has emerged as a key communication tool across various industries (Tajudeen *et al.*, 2018), including construction. Temporary construction site teams often face challenges such as low trust, limited KS and COO difficulties, particularly in interdependent construction activities (Ren *et al.*, 2019; Wen and Qiang, 2016). Work-oriented SM platforms improve KS, foster collaboration and streamline the flow of information, thereby enhancing employees' performance (Ibarra and Andrews, 1993; Jiang and Jia, 2026; Podolny and Baron, 1997; Song *et al.*, 2019). By supporting the rapid transfer of insights and updates, these tools cultivate a responsive work environment (Leonardi, 2014; Treem and Leonardi, 2013). Employees experience benefits such as expanded knowledge, clearer communication and improved task performance (Ali-Hassan *et al.*, 2015; Benitez *et al.*, 2018; Jarrahi and Sawyer, 2015; Lu *et al.*, 2015).

Conversely, socialization-oriented platforms primarily support the sharing of personal information and facilitate emotional connection and relationship building (Jiang and Jia, 2026). These platforms provide users with ways to cultivate social networks and exchange experiences, which can enhance well-being and team cohesion (Ellison *et al.*, 2007; Kaplan and Haenlein, 2010). By using social platforms, individuals can access emotional support, build informal networks, strengthen social ties and contribute positively to the atmosphere (Benitez *et al.*, 2018; Ellison *et al.*, 2014; Karimi *et al.*, 2024). Nevertheless, extensive use of these platforms for social purposes may occasionally shift focus away from professional tasks, highlighting the need for a balanced approach between professional and social interactions (Gibbs *et al.*, 2013).

While the benefits of SM in project settings are well documented, scholars have also highlighted several risks associated with its use in construction environments. Excessive or poorly regulated SM engagement can lead to information overload and distraction, reducing workers' cognitive capacity and job performance (Yu *et al.*, 2018). Constant connectivity has been shown to increase work pressure, emotional strain and even burnout among construction professionals (Wu *et al.*, 2024; Liao and Wu, 2024). Studies also report risks related to privacy, data security and the blurring of professional boundaries when informal digital channels are used for project communication (Ma *et al.*, 2021a, b, 2022). Furthermore, SM may unintentionally create competitive or pressurized team climates, where rapid responses and constant visibility increase stress and reduce collaborative efficiency (Jia *et al.*, 2021). These findings indicate that although SM offers communication advantages, its effectiveness relies heavily on proper governance, workload norms and structured usage policies to mitigate these negative outcomes.

Work-oriented platforms are typically implemented and controlled by organizations with strict policies (Jarrahi and Sawyer, 2015), whereas socialization-oriented platforms offer more flexibility, supporting both personal and professional activities. Both work-oriented and socialization-oriented SM platforms positively impact decision-making, KS and job satisfaction (Kwahk and Park, 2016; Robertson and Kee, 2017). Combining these platforms enhances team and employee performance by balancing efficient communication with emotional connections (Benitez *et al.*, 2018; Song *et al.*, 2019). To understand the impact of SMU on TF, it is crucial to consider how these platforms facilitate continuous and real-time communication (Jia *et al.*, 2025). This significantly improves feedback processes, which are essential for both individuals and TP (Anseel *et al.*, 2015; Majchrzak *et al.*, 2013). Next, we explore how TF is influenced by SMU.

The influence of SMU on KS, TF, MS and TP

TF is an essential element in maintaining effective operations and communication on construction sites. The feedback facilitated by SM platforms supports swift problem-solving, enabling team members to make prompt decisions and adapt to changing circumstances (Karimi *et al.*, 2024). The collaborative nature of construction work, often requiring swift responses to emergent issues, benefits from such communication channels (Jia *et al.*, 2025). SM platforms enable an immediate feedback loop that enhances both individual and TP (Anseel *et al.*, 2009). Research by Majchrzak *et al.* (2013) emphasizes that SM supports frequent, informal feedback mechanisms, which allow issues to be addressed promptly, fostering cohesion and elevating team performance (Jia *et al.*, 2025). Furthermore, by reducing hierarchical barriers, SM encourages an open communication culture that enables more egalitarian feedback exchanges, enhancing overall team dynamics (Gibbs *et al.*, 2013; Jiang and Jia, 2026).

In a social exchange context, the reciprocal exchange of feedback among team members on SM enhances trust and shared understanding, reinforcing collaborative practices (Seers, 1989). Feedback mechanisms on SM allow team members to respond to others' input, facilitating adjustments that benefit the team as a whole (Tang *et al.*, 2017). TF through SM also contributes to improved monitoring and adaptability on construction sites, as team members share solutions and guidance on task-specific challenges, strengthening the team's problem-solving capabilities (Marks *et al.*, 2001). Thus, it is hypothesized:

H1. SMU has a positive impact on TF on the construction site.

KS is central to effective collaboration and innovation in construction projects, where varied expertise needs to be continuously integrated and updated (Ma *et al.*, 2021a, b, 2022). SM platforms support this by providing spaces for team members to share both explicit and tacit knowledge, which fosters a culture of continuous learning and improvement (Leonardi, 2017). SET is relevant here, as it explains the reciprocal dynamics of KS (Cropanzano and Mitchell, 2005), where team members contribute insights and share best practices. SM is instrumental in facilitating these exchanges by offering a versatile platform that enhances the visibility and accessibility of knowledge that would otherwise remain isolated within individual teams or departments (Razmerita *et al.*, 2016). Etemadi *et al.* (2020) identified mechanisms for transforming intentions into effective SMU for KS in construction, emphasizing trust and privacy. Jia *et al.* (2025) also found that mobile SM groups in construction projects significantly enhance KS through role and group norms. These studies indicate the increasing reliance on SMU for KS in construction-specific contexts. The design of SM tools supports seamless communication, allowing team members to connect with others who have relevant expertise, enabling collective problem-solving and informed decision-making (Chai and Kim, 2012). Therefore, we hypothesize:

H2. SMU has a positive impact on KS on the construction site.

Support among team members is a crucial factor in maintaining motivation, cohesion and morale in high-stress environments like construction sites (Wu *et al.*, 2024). SMU has proven effective in providing both emotional and professional support (Cao *et al.*, 2012; Liao and Wu, 2024). In line with SET, team members exchange emotional and professional support through these platforms, which strengthens trust and collective resilience (Cardon and Marshall, 2015). By creating an environment where members can readily offer and receive support, SM enhances interpersonal relationships and builds a supportive team climate for effective collaboration (Ellison *et al.*, 2014). Jia *et al.* (2021) confirm that SMU positively influences construction managers' performance via support mechanisms and knowledge exchange. Given these dynamics, we propose:

H3. SMU has a positive impact on MS on the construction site.

In the context of construction projects, where effective COO and communication are paramount, SM serves as a potent tool for enhancing TP. SM platforms improve information dissemination, facilitate accessibility and promote knowledge exchange, all of which contribute to enhanced TP (Kwahk and Park, 2016). Ma *et al.* (2021a, b, 2022) show that both work- and socialization-oriented SMU enhance project performance via knowledge acquisition and project social capital. Hasan *et al.* (2021) identify SM as an asset in construction project management, as it streamlines information management and strengthens collaboration, ensuring that team members remain informed and connected. Additionally, SM platforms allow construction teams to engage in synchronized, real-time communication for improved decision-making and responsiveness (Kaplan and Haenlein, 2010). Accordingly, we hypothesize:

H4. SMU has a positive impact on TP on the construction site.

Exploring TF as the mediator in the relationship between SMU and TP

TF is a key element in enhancing individual and TP in dynamic environments like construction projects (Jia *et al.*, 2025). Research has shown that effective teamwork thrives on feedback processes that facilitate the sharing of information, fostering an environment where members can build understanding, clarify expectations and collaboratively address disagreements (Rentsch *et al.*, 2010). Feedback mechanisms help identify areas of improvement and validate successes, ultimately driving performance enhancements (Gabelica and Popov, 2020; Rentsch *et al.*, 2010). SM platforms play a crucial role by enabling continuous, real-time communication within teams, which in turn fosters an immediate exchange of updates and feedback. This swift feedback mechanism is essential for promoting responsiveness to evolving project demands (Gabelica *et al.*, 2012; London and Smither, 2002).

Effective feedback promotes shared understanding, constructive dialogue and improved TP (Baker, 1995; Gabelica and Popov, 2020). SMU enhances these feedback processes by facilitating timely, interactive and transparent exchanges, making it easier for team members to provide and receive performance-related feedback (Parveen *et al.*, 2016).

Prior research indicates that receiving feedback on performance motivates individuals to align their efforts with collective goals and engage more collaboratively toward shared objectives (Walter and van der Vegt, 2013). TP is enhanced when feedback delivery and reception are fluid and continuous, which is supported by SM. SM platforms enable real-time feedback loops that are particularly relevant in construction environments (Al-Shehan and Assbeihat, 2021). Consequently, SM enhances these feedback processes, making it easier for team members to provide and receive feedback, thereby boosting overall TP (Parveen *et al.*, 2016). Therefore, we propose:

H5. TF mediates the relationship between SMU and TP on the construction site.

Exploring KS as the mediator in the relationship between SMU and TP

In construction projects, KS is essential, as project teams are inherently transitory and interdisciplinary, requiring high levels of COO and continuous exchange of expertise to achieve performance goals (Cheng *et al.*, 2023; Zhang and Ng, 2012). Site-based teams often comprise professionals from diverse disciplines who must collaborate under time constraints (Guofeng *et al.*, 2020; Ma *et al.*, 2021a, b, 2022). While SM provides a valuable channel for real-time knowledge exchange, the effectiveness of KS in improving performance depends on its integration into daily workflows and on-site decision-making processes (Gann and Salter, 2000; Manu *et al.*, 2015). Sharing information via digital platforms alone may not yield tangible improvements in TP unless the shared knowledge is contextualized, retained and practically applied within the specific constraints of construction activities (Alsharo *et al.*, 2017; Love *et al.*, 2010). For instance, knowledge related to safety procedures or scheduling challenges must be interpreted in light of project-specific conditions, such as labor availability, site constraints or material delivery timelines (Emmitt and Gorse, 2006; Huang *et al.*, 2020). Moreover, the extent to which KS contributes to performance also depends on the support and facilitation provided by team leaders, who play a critical role in translating shared insights into action-oriented decisions on-site (Ren *et al.*, 2019; Wen and Qiang, 2016). Therefore, the role of SMU in enhancing KS is most impactful when it is accompanied by structured mechanisms for applying that knowledge in on-site operations.

SM also fosters knowledge exchange by offering both formal and informal communication channels, enabling team members to seek (Jiang and Jia, 2026) and share knowledge. Platforms such as Facebook facilitate a networked environment that supports collective problem-solving and the application of diverse expertise within a team's capabilities (Ellison *et al.*, 2014; Panahi *et al.*, 2016a, b).

The effectiveness of KS in construction projects is largely determined by how well-shared knowledge is embedded into daily workflows and decision-making processes, rather than being limited to passive information exchange (Alsharo *et al.*, 2017; Love *et al.*, 2010). Research also suggests that SM enables KS in ways that go beyond simple information exchange. It fosters a collaborative team culture, where members feel empowered to contribute insights and benefit from one another's expertise (Chai and Kim, 2012). By supporting both structured and spontaneous exchanges, SM strengthens a team's collective knowledge base, thereby enhancing TP (Panahi *et al.*, 2016a, b). Therefore, we proposed:

H6. KS mediates the relationship between SMU and TP.

Exploring MS as the mediator in the relationship between SMU and TP

SM enhances MS by providing tools for emotional and professional support, essential for maintaining high morale and job satisfaction (Cao *et al.*, 2012; Ellison *et al.*, 2014). This support fosters team morale and cohesion, which are essential for productivity in construction (Cardon and Marshall, 2015; Liao and Wu, 2024). While excessive use can lead to social overload, appropriate use of SM remains effective in improving team support (Yu *et al.*, 2018). In addition, Jia *et al.* (2021) found that SM-enabled support mechanisms directly improve job performance in construction teams. Therefore, we proposed:

H7. MS mediates the relationship between SMU and TP on the construction site.

The moderating role of COO on the relationship between SMU and KS, TF and MS

COO among project team members is crucial for the effective management of interdependent tasks, particularly in dynamic and high-stakes environments like construction projects (Joseph Garcia and Mollaoglu, 2020). COO ensures that individual efforts align with broader project goals, enabling teams to synchronize activities and resolve dependencies. SM facilitates this process by creating digital spaces for task-based communities, where members can communicate, share updates, and collaboratively manage tasks, fostering a shared understanding of project objectives, schedules and responsibilities (Bond-Barnard *et al.*, 2018).

COO moderates the relationship between SMU and KS by providing a structured environment where shared knowledge becomes actionable. While SMU enhances the visibility of team members' expertise and facilitates informal interactions (Leonardi, 2014), COO ensures that this shared knowledge is systematically integrated into project workflows, fostering more effective problem-solving and innovation (Cao and Ali, 2018). This synergistic effect highlights the importance of pairing SM with strong COO practices to maximize its potential (Song *et al.*, 2019). Bond-Barnard *et al.* (2018) highlight that COO enhances SM's impact on communication and problem-solving in construction. Therefore, we formulate the following Hypothesis:

H8. COO moderates the relationship between SMU and KS on the construction site.

Similarly, COO enhances the impact of SM on TF by ensuring that feedback exchanges are timely, relevant and goal-oriented. Without COO, feedback loops may lack direction or fail to align with project objectives (Song *et al.*, 2019). Coordinated feedback mechanisms allow teams to address issues proactively, resolve conflicts and adapt to changing circumstances more effectively, leveraging the immediacy and transparency of SM platforms (Ellison *et al.*, 2014; Wen and Qiang, 2016). Thus, we present the following Hypothesis:

H9. COO moderates the relationship between SMU and TF on the construction site.

The relationship between SMU and MS also benefits from COO, as it ensures that emotional and professional support is balanced and aligned with team and individual needs (Cao *et al.*, 2012; Liao and Wu, 2024). While SM enables team members to provide real-time encouragement and guidance, COO prevents social overload, where excessive interaction can become counterproductive (Yu *et al.*, 2018). Coordinated use of SM fosters a supportive environment that enhances team morale and cohesion, crucial for managing work stresses (Ren *et al.*, 2019; Wu *et al.*, 2024). Therefore, we proposed the following Hypothesis:

H10. COO moderates the relationship between SMU and MS on the construction site.

Integrating SM into construction project management enhances TP by improving KS, TF and MS (Ellison *et al.*, 2014; Song *et al.*, 2019). COO plays a crucial role, amplifying the positive impacts of SMU on these factors and ultimately boosting TP (Cummings and Cross, 2003; Joseph Garcia and Mollaoglu, 2020). This comprehensive approach highlights the significant potential of SM in optimizing project outcomes (Kwahk and Park, 2016; Ma *et al.*, 2021a, b, 2022).

Ma *et al.* (2021a, b, 2022) emphasize the importance of understanding intermediate factors such as COO in the effects of team processes on performance in the construction environment. Our study extends this line of inquiry by demonstrating that COO functions as a key team process that amplifies the positive effects of SM on KS, TF and MS. Based on the presented rationales, we present the following Hypothesis:

H11. COO moderates the indirect effects of SMU on TP through TF(a), KS (b) and MS(c) on the construction site.

Research methodology

Overview

This study investigates the relationships between SMU and key construction management practices, including KS, TF, MS and TP. Specifically, the study examined how KS, MS and TF intervene in the association between SMU and TP. The study also extends the literature by examining the conditional role of COO on the associations of SMU with KS, TF and MS.

Measures

The development of the measurement instrument followed a structured, multi-stage procedure to ensure content validity, contextual relevance and methodological rigor. The process began with the identification of potential questionnaire items through a systematic search of prior empirical studies. A total of 375 records were retrieved from Web of Science ($n = 165$) and Scopus ($n = 210$). After removing 72 duplicates, 303 unique articles remained for screening. Titles and abstracts were assessed, resulting in the exclusion of 231 studies that were unrelated to SMU, did not include validated scales or fell outside the scope of construction management research.

A full-text review of the remaining 72 articles led to the inclusion of 48 studies based on three criteria: (1) the presence of validated measurement items, (2) empirical relevance to communication, COO or team processes and (3) applicability to project-based environments. Items extracted from these studies were then adapted to reflect the operational realities of construction sites, where communication is fast-paced, fragmented and highly interdependent (Figure 1).

To further refine the instrument, nine industry experts participated in a structured review assessing clarity, terminology and contextual suitability. Based on their feedback, several items were reworded or removed to ensure practical relevance to construction project teams. A pilot test with 20 construction professionals was subsequently conducted to evaluate item comprehension and response consistency. Minor revisions were incorporated following the pilot, resulting in the final instrument. The validated instrument comprised 39 items across six constructs: SMU, KS, TF, MS, COO and TP. All items were measured using a 5-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”).

Sample and procedure

A convenience sampling technique was employed due to the accessibility and availability of participants within ongoing construction projects across Australia. Participants were construction professionals actively engaged on-site, and the questionnaire explicitly clarified that “SM platforms” referred to internal digital communication tools such as Microsoft Teams, Slack, WhatsApp and Google Chat – rather than public or recreational platforms. To ensure response quality and prevent duplication, each participant was restricted to a single submission, and IP addresses were monitored throughout the data-collection period. A total of 507 questionnaires were distributed, of which 298 were returned and 258 valid

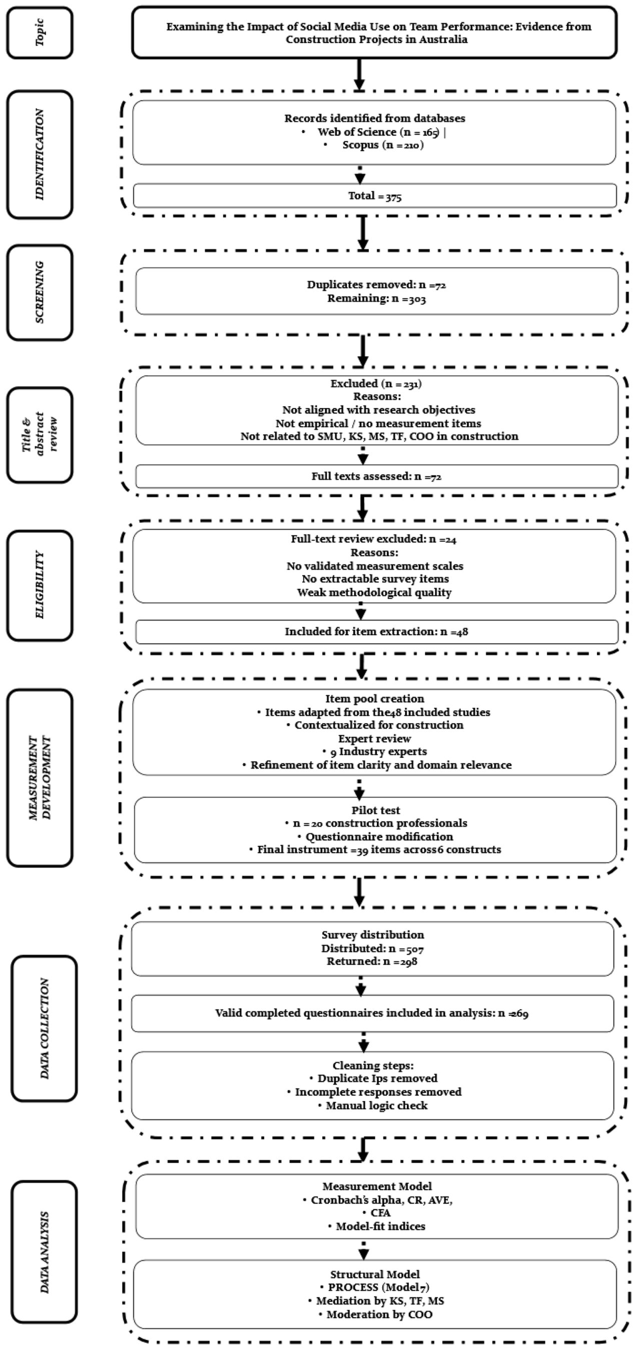

Figure 1. Methodological flowchart summarizing the stages of the study

responses were retained after data cleaning procedures. These procedures included removing duplicate IP submissions, excluding incomplete responses and performing manual logic checks to ensure data integrity.

As the study relies on cross-sectional, self-reported data, the potential for common method bias (CMB) was carefully considered. Consistent with the procedural remedies recommended by Podsakoff *et al.* (2003), several steps were taken to mitigate this risk. Survey items were designed using clear and neutral wording to reduce social desirability bias, and respondents were assured anonymity to limit evaluation apprehension. Furthermore, the research team applied Harman's single-factor test, and the first factor was noted to explain 48.14% of total variance (less than the criteria of 50%) (Podsakoff *et al.*, 2024). While these procedural remedies cannot entirely eliminate CMB, they substantially reduce its likelihood and impact on the observed relationships.

The majority of respondents in the study (see Table 1) were male, representing 65.5% of the sample, with females accounting for 32.9%. The most common age group was 31–40 years, comprising 39.1% of participants. In terms of educational background, the majority of responders (40.7%) had an undergraduate degree. Regarding work experiences, 45.7% of participants reported having 1–4 years of experience, with those with more than 10 years of experience coming in second (27.5%). Team sizes varied, with 35.3% of respondents working

Table 1. Respondents' demographic characteristics

Measure	Items	Frequency	Percent (%)
Gender	Female	85	65.5
	Male	169	32.9
	Nonbinary	4	1.6
Age	15–20	14	5.4
	21–30	90	34.9
	31–40	101	39.1
	41–50	38	14.7
	50+	15	5.8
Level of education	Did not complete VCE	16	6.2
	Completed VCE	86	33.3
	Undergraduate degree	105	40.7
	Master's degree or above	51	19.8
Working experience	<1 year	8	3.1
	1–5 years	115	45.7
	6–10 years	61	23.6
	>10 years	71	27.5
Team size	5 or below	28	10.9
	6–10	48	18.6
	11–20	91	35.3
	21–30	30	11.6
	30 or above	61	23.6
Contract category	Contractor	113	43.8
	Sub-contractor	51	19.8
	Consultant	40	15.5
	Trades	51	19.8
	Other (please specify)	3	1.2
Job category	Managers/ Supervisors	110	42.6
	Professionals/ Administrative Workers	38	14.7
	Technicians and Trades Workers	84	32.6
	Machinery Operators and Drivers	5	1.9
	Laborers	11	4.3
	Answered Not Sure/ Unrelated Job	10	3.9

Source(s): Authors' own work

in teams of 11–20 members, 23.6% in teams of 30 or more, and 18.6% in teams of 6–10 members. Smaller teams of 5 or fewer members made up 10.9% of the sample. Contract categories were diverse, with 43.8% of participants identifying as contractors, 19.8% as subcontractors and another 19.8% working in trades. Consultants accounted for 15.5%, and 1.2% specified other roles. Lastly, the job category distribution showed that 42.6% of respondents were managers or supervisors, 32.6% were technicians or trades workers and 14.7% were professionals or administrative workers. Smaller percentages were machinery operators and drivers (1.9%) and laborers (4.3%).

The study categorized SM platforms into six types. Most participants primarily use categories one (15.68%) and category two (53.18%) for workplace communication. In terms of job titles, the most represented job category was managers/ supervisors with 42.6%, followed by Technicians and Trades Workers with 32.6%. The job categories were sourced from the Australian Bureau of Statistics' classification system (Baldassari, 2021).

Analysis strategy

The analytical procedures were conducted using IBM SPSS Statistics (Version 27) and AMOS (Version 24). Specifically, the study fulfilled basic assumptions in SPSS and then, following Hair *et al.* (2019), structural equation modeling (SEM) was applied in two stages. First, it examined the measurement model for model fit and validity concerns. Second, it examined the structural model using bootstraps at 5,000 re-samples with 95% confidence, as this helps minimize errors and provide a robust analysis (Streukens and Leroi-Werelds, 2016).

Results

Measurement model

In the first stage of SEM, the study examined the measurement model to assess model fit, validity and internal consistency of the scales. As the study used validated scales from past studies, it preferred confirmatory factor analysis (Hair *et al.*, 2019). The study used "normed chi-square ($\chi^2/df \leq 3$), comparative fit indices (CFI $\geq$ 0.90), Tucker-Lewis Index (TLI $\geq$ 0.90), standardized root mean square residual (SRMR $\leq$ 0.08) and root mean square error of approximation (RMSEA $\leq$ 0.06) model fit indices" (Hu and Bentler, 1999), with factor loading of more than 0.50 (Hair *et al.*, 2019). Factor loading values below the threshold values (i.e. SMU2, SMU3, TF1, TF7, TF9) were removed, and the four factor model was found fit, i.e. χ^2/df [941.710/449] = 2.10, TLI = 0.90, CFI = 0.91, RMSEA = 0.065 and SRMR = 0.057. Further, the factor loading values of all the items range between 0.577 and 0.848 (see Table 2).

Following Fornell and Larcker (1981), the values of composite reliability ranged between 0.806 and 0.890 (greater than 0.70), ensuring internal consistency. Finally, the values of average variance extracted were noted between 0.512 and 0.628 (greater than 0.50), which confirms the convergent validity of the scales (Flynn and Goldsmith, 1999).

Descriptive and correlational analysis

The values in Table 3 show that the respondents were agreed regarding MS (M = 3.92), TP (MS = 3.88) and COO (M = 3.78); whereas, neutral about SMU (M = 3.47), KS (M = 3.40) and TF (M = 3.34). Further, the study observed that SMU positively correlates with KS (r = 0.77, $p < 0.01$), TF (r = 0.74, $p < 0.01$), MS (r = 0.66, $p < 0.01$) and TP (r = 0.62, $p < 0.01$). These values confirm that the data is ready for further analysis. We observed that all correlations were statistically significant at the $p < 0.01$ level. Although significance is commonly reported at $p < 0.05$, our findings were aligned with the more conservative threshold, which can reduce the likelihood of Type I error (Field, 2024; Tabachnick and Fidell, 2019). This approach strengthens confidence in the robustness of the observed relationships.

Table 2. Results of measurement model

Items	Loading	AVE	CR	Reliability
Social media use				
SMU1	0.577	0.512	0.806	0.804
SMU4	0.701			
SMU6	0.787			
SMU7	0.778			
Knowledge sharing				
KS1	0.734	0.542	0.855	0.850
KS2	0.678			
KS3	0.816			
KS4	0.648			
KS5	0.792			
Team feedback				
TF2	0.745	0.540	0.890	0.862
TF3	0.572			
TF4	0.641			
TF5	0.740			
TF6	0.749			
TF8	0.848			
TF10	0.813			
Member support				
MS1	0.690	0.530	0.871	0.869
MS2	0.722			
MS3	0.776			
MS4	0.724			
MS5	0.803			
MS6	0.643			
Team performance				
TP1	0.749	0.595	0.880	0.879
TP2	0.725			
TP3	0.811			
TP4	0.777			
TP5	0.793			
Construction management practices (coordination)				
COO1	0.814	0.628	0.894	0.893
COO2	0.807			
COO3	0.781			
COO4	0.782			
COO5	0.778			

Source(s): Authors' work

The direction and strength of these correlations align with the proposed hypotheses, suggesting consistent patterns across the study's constructs.

Hypothesis testing

The results of hypothesis testing are presented in Table 4. The values show that SMU positively affects TF ($\beta = 0.74$, $p < 0.01$), KS ($\beta = 0.77$, $p < 0.01$), MS ($\beta = 0.66$, $p < 0.01$) and TP ($\beta = 0.62$, $p < 0.01$) on the construction site. These results support H1–H4 of the study. For the mediation, the study examined direct and indirect paths (Hair *et al.*, 2019). The study multiplied the beta coefficients of the independent mediator with the beta coefficients of the mediator-dependent variables to identify indirect paths. First, the direct effect of SMU on TP

Table 3. Descriptive and correlational analysis

	Mean	SD	1	2	3	4	5	6
1- SMU	3.47	0.92	1					
2- KS	3.40	0.91	0.77**	1				
3- TF	3.34	0.91	0.74**	0.79**	1			
4- MS	3.92	0.71	0.66**	0.68**	0.72**	1		
5- TP	3.88	0.77	0.62**	0.63**	0.72**	0.70**	1	
6- COO	3.78	0.85	0.74**	0.76**	0.75**	0.77**	0.69**	1

Note(s): $^{**}p < 0.01$, SMU = social media use, KS = knowledge sharing, TF = team feedback, MS = member support, TP = team performance, COO = coordination

Source(s): Authors' work

Table 4. Result of direct, mediation and moderation analysis

	β	SE	CR	p			Hypothesis
Model-1							
SMU → TP	0.62	0.041	12.517	0.000			H4 is accepted
SMU → KS	0.77	0.040	19.175	0.000			H2 is accepted
SMU → MS	0.66	0.036	13.988	0.000			H3 is accepted
SMU → TF	0.74	0.042	17.598	0.000			H1 is accepted
Mediation analysis					Bootstraps @ 95% LLCI	ULCI	
The mediation of TF between SMU and TP (Model-2)							
Direct effect	0.18	0.053	17.598	0.027	0.026	0.334	
Indirect effect	0.43	0.060	–	0.000	0.314	0.547	H5 is accepted
The mediation of KS between SMU and TP (Model-3)							
Direct effect	0.32	0.061	4.360	0.002	0.141	0.483	
Indirect effect	0.30	0.072	–	0.000	0.157	0.447	H6 is accepted
The mediation of MS between SMU and TP (Model-4)							
Direct effect	0.27	0.047	4.787	0.001	0.144	0.394	
Indirect effect	0.35	0.052	–	0.000	0.246	0.450	H7 is accepted
Moderation analysis							
COO moderates SMU and KS (Model-5)							
SMU → KS	0.46	0.053	8.616	0.000	0.318	0.588	
COO → KS	0.42	0.057	7.953	0.000	0.280	0.554	
SMU × COO → KS	0.56	0.037	2.409	0.009	0.142	1.137	H8 is accepted
COO moderates SMU and TF (Model-6)							
SMU → TF	0.42	0.055	7.461	0.000	0.296	0.529	
COO → TF	0.44	0.060	7.867	0.000	0.330	0.554	
SMU×COO → TF	0.72	0.039	2.968	0.001	0.308	1.259	H9 is accepted
COO moderates SMU and MS (Model-7)							
SMU → MS	0.20	0.045	3.497	0.003	0.074	0.335	
COO → MS	0.62	0.048	10.685	0.001	0.481	0.735	
SMU×COO → MS	−0.26	0.032	−1.074	0.495	−0.850	0.663	H10 is rejected

Note(s): SMU = social media use, KS = knowledge sharing, TF = team feedback, MS = member support, TP = team performance, COO = coordination; CR = critical ratio, SE = standard error, LLCI = lower level confidence interval, ULCI = upper level confidence interval

Source(s): Authors' work

was significant (β = 0.18, p = 0.027, SE = 0.053), and the indirect effect through TF was also significant (β = 0.43, p = 0.000, SE = 0.060) with any zero between lower (LLCI = 0.314) and upper (ULCI = 0.547). This result confirms H5 of the study. Second, the direct effect of SMU on TP was significant (β = 0.32, p = 0.002, SE = 0.061), and the indirect effect through KS was also significant (β = 0.30, p = 0.000, SE = 0.072) with any zero between lower (LLCI = 0.157) and upper (ULCI = 0.447). This result confirms H6 of the study. Similarly, the direct effect of SMU on TP was significant (β = 0.27, p = 0.001, SE = 0.047), and the indirect effect through MS was also significant (β = 0.35, p = 0.000, SE = 0.052) with any zero between lower (LLCI = 0.246) and upper (ULCI = 0.450). This result confirms H7 of the study.

The study computed the interactional term between the independent and moderating variable (i.e. SMU×COO) before moderation analysis. The moderation was performed through a two-step hierarchical regression using AMOS. In the first step, both independent and moderating variables were regressed with the dependent variable, and in the second step, the interactional term was regressed with the dependent variable to see its significant effect.

For the moderation of COO between SMU and KS, the effect of both SMU (β = 0.46, p = 0.000, SE = 0.053) and COO (β = 0.42, p = 0.000, SE = 0.057) on KS were significant. Similarly, the effect of interactional term (SMU × COO) of KS was also significant (β = 0.56, p = 0.009, SE = 0.037) and there was no zero between its lower (LLCI = 0.142) and upper (ULCI = 1.137) interval, which confirms H8 of the study. For the moderation of COO between SMU and TF, the effect of both SMU (β = 0.42, p = 0.000, SE = 0.055), and COO (β = 0.44, p = 0.000, SE = 0.060) on TF were significant. Similarly, the effect of interactional term (SMU × COO) of TF was also significant (β = 0.72, p = 0.001, SE = 0.039) and there was no zero between its lower (LLCI = 0.308) and upper (ULCI = 1.259) interval, which confirms H9 of the study. Finally, the study noted that both SMU (β = 0.20, p = 0.003, SE = 0.045) and COO (β = 0.62, p = 0.001, SE = 0.048) positively affect the construction side's MS. However, the interaction term's (SMU × COO) effect on MS was also insignificant (β = −0.26, p = 0.495, SE = 0.032), which rejects H10 of the study.

The study further examined moderation slopes and noted that COO strengthens the associations of SMU with KS (see Figure 2), and TF (see Figure 3) such that high COO is more likely to strengthen the positive associations of SMU with KS and TF, respectively.

Finally, the results of moderated-mediation are presented in Table 5. The study noted that the effect of COO on the indirect effect of SMU on TP through TF was significant (β = 0.42, p = 0.000, LLCI = 0.172, ULCI = 0.791), which confirms H11a of the study. Similarly, the moderating effect of COO on the indirect effect of SMU on TP through KS was also significant

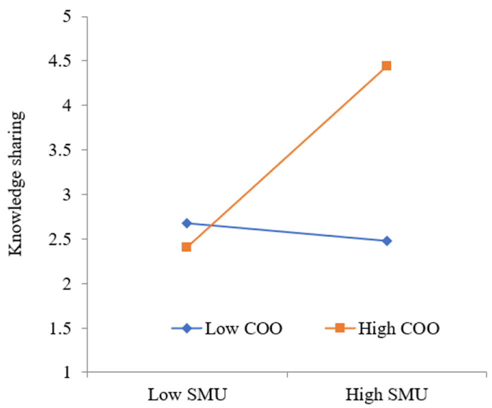

Figure 2. Moderation slope of COO between SMU and KS. Source: Authors' work

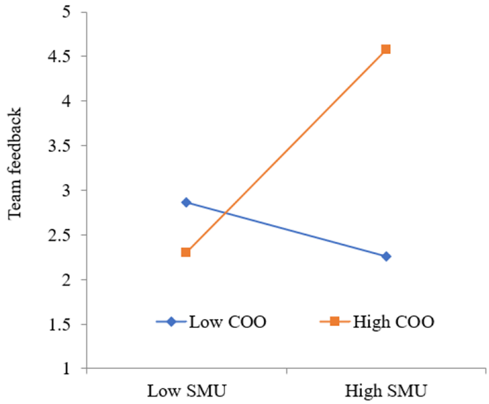

Figure 3. Moderation slope of COO between SMU and TF. Source: Authors' work

Table 5. Results of moderated-mediation

β	SE	*p*	Bootstraps @ 95% LLCI	ULCI	Hypothesis
The moderation of COO on the indirect effect of SMU on TP through TF					
0.42	0.159	0.000	0.172	0.791	H11a is accepted
The moderation of COO on the indirect effect of SMU on TP through KS					
0.22	0.122	0.006	0.049	0.528	H11b is accepted
The moderation of COO on the indirect effect of SMU on TP through MS					
−0.15	0.200	0.457	−0.456	0.329	H11c is rejected

Note(s): SMU = social media use, KS = knowledge sharing, TF = team feedback, MS = member support, TP = team performance, COO = coordination; CR = critical ratio, SE = standard error, LLCI = lower level confidence interval, ULCI = upper level confidence interval

Source(s): Authors'

($\beta = 0.22$, $p = 0.006$, LLCI = 0.049, ULCI = 0.528) without a zero value between the lower and upper intervals, hence confirming H11b of the study. However, the moderating effect of COO on the indirect effect of SMU on TP through MS was insignificant ($\beta = -0.15$, $p = 0.457$, LLCI = −0.456, ULCI = 0.329), which rejects H11c of the study.

Discussion and implications

This study examined how SMU influences TP in the construction industry, with particular attention to the mediating roles of KS, TF and MS, and the moderating effect of COO. This study advances theoretical understanding of SMU within construction project teams by providing evidence from the Australian context, thereby extending prior research conducted predominantly in other cultural and organizational settings such as China and the United States. We highlight unique insights that broaden the applicability of SET (Cropanzano and Mitchell, 2005) and CVT (Leonardi, 2014) by situating the study within the Australian construction industry. Unlike the integrated tools like WeChat commonly used in China, SM applications in Australia are less centralized. Our findings reveal that even these segmented platforms effectively enhance reciprocal exchanges of knowledge, feedback, and support among construction teams.

The present study offers important insights into the mechanisms through which SMU enhances TP in construction project environments. Consistent with prior research (Song *et al.*, 2019; Ma *et al.*, 2021a, b, 2022), the findings demonstrate that SMU exerts a significant positive direct effect on TP. This suggests that SMU, when effectively embedded within team workflows, can directly facilitate coordination, communication efficiency and responsiveness, thereby contributing to improved team outcomes. At the same time, the results reveal that this relationship is further strengthened through multiple mediating team processes, indicating that both direct and indirect pathways are instrumental in explaining how SMU translates into performance gains.

Specifically, the study provides evidence for the mediating roles of TF, KS and MS. In contrast to earlier assumptions that emphasized uneven or limited mediating effects, the present findings indicate that all three team processes significantly transmit the positive impact of SMU on TP. The significant mediating role of TF reinforces prior research highlighting the importance of adaptability and responsiveness in dynamic project environments (Chen and Wei, 2020; Martín-Rojas *et al.*, 2021). SMU appears to enhance teams' ability to adjust to changing project demands by facilitating timely information exchange and coordination.

Importantly, the results also establish KS as a significant mediator, offering a more optimistic view of its role than previously suggested. While some studies emphasized the role of SMU in facilitating KS (Ellison *et al.*, 2014; Jiang and Jia, 2026), and others cautioned that KS may not always translate into performance outcomes without effective integration (Ren *et al.*, 2019; Wen and Qiang, 2016), the present findings indicate that, within the context of construction teams, SM-enabled KS contributes meaningfully to TP. This suggests that the nature of task interdependence and real-time problem-solving in construction projects may enhance the practical utility of shared knowledge, enabling its direct application to task execution.

Similarly, the significant mediating role of MS underscores the importance of relational dynamics in digitally enabled work environments. In line with prior studies by Cao *et al.* (2012), Cardon and Marshall (2015), and Liao and Wu (2024), SMU facilitates the development of supportive team climates, which in turn enhance TP. While concerns about social overload (Yu *et al.*, 2018) have been raised in other contexts, our findings suggest that Australian construction teams benefit from SM-based support without experiencing noticeable drawbacks. These findings suggest that SM platforms not only serve as information-sharing tools but also improve social cohesion and collective efficacy, both of which are vital for effective team functioning. The study further advances understanding by examining the moderating role of COO. The findings indicate that COO strengthens the relationships between SMU and both KS (H8) and TF (H9), supporting the view that structured coordination mechanisms enhance the effectiveness of digital communication tools (Ellison *et al.*, 2014). When coordination is high, SMU becomes more effective in facilitating both knowledge exchange and adaptive team behaviors, highlighting the complementary role of formal COO structures in leveraging digital technologies.

However, contrary to expectations, COO does not significantly moderate the relationship between SMU and MS (H10 not supported). This suggests that MS may be driven more by informal interpersonal dynamics than by formal coordination structures. This finding aligns with the notion that supportive behaviors often emerge organically through social interactions rather than being shaped by formal COO mechanisms, thereby extending prior work that has assumed a stronger linkage between coordination and team support (Liao and Wu, 2024).

The moderated mediation results provide further nuance to these relationships. Specifically, COO significantly conditions the indirect effects of SMU on TP through TF (H11a) and KS (H11b), indicating that the strength of these mediating pathways depends on the level of coordination within the team. These findings reinforce the argument that coordination acts as an enabling condition that amplifies the benefits of SMU by facilitating the effective transformation of communication into actionable team processes. In contrast, the indirect effect of SMU on TP through MS is not contingent on COO (H11c not supported), further supporting the view that MS operates through more socially embedded and less structurally dependent mechanisms.

Overall, this study extends the literature on digital collaboration in construction project settings by demonstrating that SMU contributes to TP through multiple, interrelated pathways that are both direct and indirect, as well as contextually contingent. Unlike prior studies that emphasized either direct effects or isolated mediating mechanisms (Chen and Wei, 2020; Wen and Qiang, 2016), the present findings highlight the importance of integrating team processes and COO structures into a unified explanatory framework. Moreover, the results suggest that the effectiveness of SMU is not solely determined by platform availability but by how it is embedded within team processes and supported by appropriate coordination mechanisms. These insights contribute to a more refined understanding of how digital tools can be leveraged to enhance team performance in complex, project-based environments.

Implications for practice

This study provides several valuable implications for construction project management. First, the positive impact of SMU on key team processes (such as TF, KS and MS) highlights the potential of SM platforms as effective tools for improving communication and collaboration in construction teams. Construction companies should encourage the use of SM among team members to foster transparent, real-time communication, which can streamline feedback loops and enhance the overall team dynamics. Such platforms allow for a more immediate and flexible flow of information, essential for timely decision-making and problem-solving in fast-paced project environments (Song *et al.*, 2019).

Furthermore, this study underscores the COO's role in magnifying SM's benefits on team interactions. Construction project managers should therefore focus on fostering a coordinated environment where SMU is seamlessly integrated into project workflows. By establishing clear COO protocols and guidelines for SMU, managers can enhance team cohesion and ensure alignment with project goals, especially when tasks are interdependent (Bond-Barnard *et al.*, 2018; Jia *et al.*, 2025).

The study also highlights that SMU is positively associated with KS and MS within construction teams, suggesting its role in supporting knowledge exchange and collaborative interactions. Rather than broadly advocating training, organizations may consider establishing clear usage guidelines and protocols to support effective and secure SMU practices, particularly when facilitating KS and team support. This is especially important in project-based environments where team compositions are temporary and vary in digital proficiency (Ellison *et al.*, 2014; Jia *et al.*, 2025). At the same time, given the open and potentially insecure nature of some SM platforms, managers should exercise caution in sharing sensitive or critical project information and ensure alignment with organizational data governance and cybersecurity policies.

Finally, construction companies should be mindful of the diverse needs of different team members and adjust their SM strategies accordingly. For instance, promoting both work-oriented platforms (e.g. Slack, Microsoft Teams) and socialization-oriented platforms (e.g. WhatsApp, WeChat) can help balance task-related communication with interpersonal relationship building (Jia *et al.*, 2025). However, the selection and use of such platforms should be aligned with organizational policies, particularly regarding data security, confidentiality and project sensitivity. This is vital not only for maintaining high morale and job satisfaction (Tajudeen *et al.*, 2018) but also for ensuring responsible and secure communication practices in construction project environments.

Educational and training implications

Beyond industry practice, the findings offer several implications for construction education and professional training. Since SMU enhances feedback quality, transparency and knowledge exchange, educational programs can incorporate structured SM-enabled communication protocols, such as feedback channels, critique workflows and issue-resolution templates, to teach students how to operationalize real-time digital COO (Anseel *et al.*, 2015; Leonardi, 2014). Embedding these practices in capstone projects, teamwork assessments and studio-based activities can help learners develop digital collaboration capabilities that mirror modern construction environments. Additionally, microlearning modules on communication visibility, digital etiquette and collaborative problem-solving can strengthen students' readiness for industry contexts where hybrid communication is the norm (Ellison *et al.*, 2014; Ma *et al.*, 2021a, b, 2022). Training future professionals in these skills supports a more digitally competent construction workforce and bridges the gap between academic preparation and emerging industry communication practices.

Limitations and future research

While this study contributes valuable insights into the impact of SMU on construction management practices and TP, several limitations should be acknowledged.

First, the study relies on self-reported survey data, which raises the potential of CMB. Although we sought to mitigate this risk, we used validated measurement scales and careful survey design. Podsakoff *et al.* (2003) caution that self-report measures can inflate observed relationships due to sources such as consistency motifs or social desirability bias. Future research could adopt mixed-methods approaches, combining surveys with semi-structured interviews (Plano Clark, 2017) or direct observations to triangulate findings and enhance the robustness of the results (Venkatesh *et al.*, 2013).

Second, this study focuses on the Australian construction industry, which is characterized by segmented and nonintegrated digital communication platforms (Etemadi *et al.*, 2020). While this localized focus enhances contextual relevance (Hossain *et al.*, 2023), the findings may not be directly generalizable to other regions or industries with more integrated digital systems or different organizational cultures. Cross-cultural comparative studies are recommended to examine how variations in digital adoption influence team dynamics, KS and performance (Hadoussa and Louati, 2023).

Third, the cross-sectional design of the study limits our ability to establish causal relationships between SMU and TP. As suggested by Wang *et al.* (2021), longitudinal research can uncover how these relationships evolve over different project phases. To enhance causal inference, future research could adopt experimental or quasi-experimental designs, allowing researchers to manipulate key variables under controlled conditions (Imbens and Rubin, 2015; Morgan and Winship, 2014), thereby offering stronger evidence of SMU's impact on team dynamics.

Fourth, this study employed a quantitative design, which may limit the depth of insight into the underlying mechanisms of SMU within team settings. Future research is encouraged to adopt mixed-methods approaches that combine statistical rigor with in-depth qualitative insights (Plano Clark, 2017). Finally, future research should also examine the risks associated with SMU, including data security and information sensitivity in project-based environments.

Conclusion

This study examined the impact of SMU on TP within construction project environments, with particular attention to the mediating roles of KS, TF and MS, and the moderating role of COO. The findings provide evidence that SMU directly and indirectly enhances TP, highlighting its central role in improving COO, communication efficiency and overall team functioning. Specifically, SMU was found to positively influence TF, KS, MS and TP, demonstrating that digital communication tools are deeply embedded in both task-related and relational dimensions of team performance. This research also extends contextual knowledge of SMU within Australian Construction teams and highlights that, even in the absence of centralized, integrated platforms, teams adopt decentralized platforms (e.g. WhatsApp) to enable the exchange of rich media.

The mediation results further reveal that TF, KS and MS serve as significant mechanisms through which SMU translates into improved TP. This study demonstrates that, within construction contexts, KS plays a meaningful and performance-enhancing role, likely due to the high levels of task interdependence and the need for real-time problem solving. COO emerged as a critical boundary condition shaping the effectiveness of SMU. The results indicate that COO significantly strengthens the impact of SMU on TF and KS, as well as the indirect effects of SMU on TP through these pathways. This highlights the importance of structured COO mechanisms in enabling teams to fully leverage the benefits of SMU. However, COO did not significantly moderate the relationship between SMU and MS, suggesting that supportive team dynamics are driven more by informal interpersonal interactions than by formal coordination structures.

Overall, this study contributes to a more nuanced understanding of SMU in construction project settings by demonstrating that its effectiveness lies in the integration of digital communication tools with team processes and coordination structures.

Data availability statement

The corresponding author will provide data created or analyzed during the study upon reasonable request.

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Corresponding author
Robert Moehler can be contacted at: robert.moehler@unimelb.edu.au