



Mobile social media in inter-organizational projects: Aligning tool, task and team for virtual collaboration effectiveness

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Abstract

Inter-organizational projects face unique challenges and opportunities due to team diversities and task complexity. Mobile social media like WhatsApp and WeChat emerge as new-generation collaboration tools in such endeavors. Based on a literature review, this study posits that how well team-tool, task-tool and team-task relationships are handled shape virtual collaboration effectiveness. The conceptual framework, validated with the interviews from inter-organizational project team members in China and the USA, leads to a research model. The results of a larger-scale survey confirm that tool usability, task fit and team connectivity contribute to virtual collaboration effectiveness, which affects project management success and team appreciation. In addition, there are noticeable cross-country differences, especially the opposite moderating effects that degree of use imposes on the relationship between virtual collaboration effectiveness and project management success. Theoretical and practical implications of the findings are discussed.

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1. Introduction

Social media websites like Facebook not only revolutionize the way how people communicate with each other in their social lives but also bring about profound changes in workplace collaboration (Ou et al., 2013). Based on smartphone technology, mobile social media further provide a ubiquitous communication environment that enables people to stay connected and keep updated anytime and anywhere (Bingham

and Conner, 2015). This form of computer-mediated communication undergoes an explosive growth with the success of WhatsApp and WeChat, each of which reached the milestone of one billion active users in 2016 (Sutikno et al., 2016; Tencent, 2016). Such mobile applications allow people to form groups and interact with each other in a real-time manner (e.g., group chat), and boost social coordination and presence awareness (Ling and Lai, 2016; Wang and Reani, 2017).

In today's competitive environment, most business projects are time-sensitive and cognitively demanding, and involve intensive communication among team members (Heerwagen et al., 2016). Through computer-mediated communication, employees are able to work with each other on project tasks beyond time and space constraints. For instance, the use of enterprise social media (ESM) and enterprise instant messaging (EIS) enhances the collaboration among co-workers in terms of

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job performance and satisfaction (Ajjan et al., 2014; Kwahk and Park, 2016; Robertson and Kee, 2017).

Supporting flexible group formation and coordination, mobile social media facilitates teamwork within as well as across organizational boundaries (Romero and Vernadat, 2016). Also known as multi-organizational, inter-firm or multi-firm projects, inter-organizational projects require team members from different organizations to work together to achieve project success (Calamel et al., 2012; Jones and Lichtenstein, 2008; Leufkens and Noorderhaven, 2011; Ruuska et al., 2011; Söderlund, 2004; Sydow and Braun, 2018). In addition to formal team members, such projects may involve customers, suppliers and other stakeholders at different places in virtual teams through computer-mediated communication (Bhatti and Ahsan, 2017; Ehsan et al., 2008).

Compared with internal projects, inter-organizational projects encounter bigger challenges in terms of psychological connectedness among team members and knowledge sharing for task accomplishment (Alsharo et al., 2017; Mukherjee et al., 2012). Mobile social media provide unique technological capabilities for users to overcome such social and informational barriers in cross-organization collaboration (Wang et al., 2016). Therefore, people naturally and spontaneously adopted WhatsApp, WeChat and similar platforms (e.g., Skype) in inter-organizational projects.

This phenomenon contrasts the use of organization-sponsored collaboration tools (e.g., ESM and EIS) by employees in internal projects (Hung et al., 2007; Osch et al., 2015). The extant research on how employees use given technologies for workplace coordination is insufficient to comprehend the emergence of mobile social media as new-generation collaboration tools for inter-organizational projects, which feature voluntary tool adoption, diversified team composition and complex task requirement. As an attempt to fill in the research gap, this study addresses the question of how to align tool, team and task in virtual collaboration for optimal project outcomes.

The remainder of this article is organized as follows. First, it reviews the literature on virtual collaboration and the team-tool, team-task and task-tool relationships involved. This leads to the conceptualization of virtual collaboration effectiveness, which depends on tool usability, team connectivity and task fit. After a qualitative validation of the conceptual framework, hypothesized relationships in a research model are tested with survey observations. The findings are discussed in terms of theoretical and practical implications, followed by the conclusion.

2. Literature review

Virtual collaboration pertains to the extensive use of technological channels for team members to work with each other for the accomplishment of project tasks (Peters and Manz, 2007). It occurs in a virtual team when face-to-face meetings are largely impossible as part or all of its members are physically dispersed (Wainfan and Davis, 2004). The challenge is even bigger for an inter-organizational project in which the tasks require the joint effort of team members from different

organizations (Ahola, 2018). For cross-organizational task coordination, ad hoc team members adopt mobile social media as voluntary collaboration tools (Anders, 2016). In inter-organizational projects, therefore, task, team and tool have relatively large “degrees of freedom”, making their mutual alignment a prominent issue.

The stand-alone examination of three virtual collaboration elements is descriptive in nature (e.g., team composition, task complexity, and tool functionality), and it is the relationships among them that matter in terms of how well an inter-organizational project is carried out. Conceptual and case studies suggest that virtual collaboration outcomes depend on whether an appropriate collaboration tool is used to facilitate task accomplishment (i.e., task-tool relationship), how extensively team members adopt and utilize the collaboration tool (i.e., team-tool relationship), and how well team members coordinate with each other to work on the tasks (i.e., team-task relationship) (Argote and Fahrenkopf, 2016; Quan-Haase et al., 2005). In different fields, researchers have developed theoretical frameworks that focus on the relationship between two elements at a time.

The task-technology fit model suggests that task performance and technology utilization are enhanced when technology characteristics match task characteristics (Goodhue and Thompson, 1995). Such an alignment between project task and collaboration tool, or “task fit”, captures the task-tool relationship in virtual collaboration. For an inter-organizational project, the main consideration in choosing a collaboration tool is how helpful it is to task accomplishment. Mobile social media are welcome for their capabilities to support multimodal and multimedia communications that facilitate task coordination and knowledge sharing across organizational boundaries (Ling and Lai, 2016).

Project team members are the end users of collaboration tools, and the team-tool relationship can be translated into how they adopt the technologies in working with each other. The well-known framework that deals with user adoption is the technology acceptance model (TAM), which predicts intention to use with perceived usefulness and perceived ease-of-use (Davis et al., 1989). Mobile social media like WhatsApp and WeChat have rich functionalities and intuitive user interfaces, which enhance their usage by team members in inter-organizational projects. Together, usefulness and ease-of-use pair into the utility function of usability: the former represents the benefit side in terms of performance expectancy and the latter represents the cost side in terms of effort expectancy (Abran et al., 2003; Venkatesh et al., 2003). Therefore, the team-tool relationship may be summarized with “tool usability”, that is: how team members find a collaboration tool usable largely determines the extent to which they use it.

An inter-organizational project team is temporarily formed for particular project tasks (Bakker et al., 2011). The main managerial issue concerns how to organize employees from different organizations as well as other stakeholders like project sponsors, clients, suppliers and subcontractors into a cohesive virtual team to work on project tasks together (Sonnenwald, 2010; von Danwitz, 2018). Such group connections are

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