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# Information technology-enabled interactions, mutual monitoring, and supplier-buyer cooperation: A network perspective

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## ABSTRACT

This study, which integrates the literature on IT (information technology)-enabled interactions and governance mechanisms in interfirm relationships, proposes facilitated access to a network of partners as a key feature that distinguishes IT-enabled interactions from those that occur offline. Specifically, IT-enabled interactions improve interfirm network embeddedness, which in turn improves firms' perceived ability to mutually monitor each other. In contrast to the unilateral monitoring prevalent in prior research, the network-induced mutual monitoring, which reduces information asymmetry and improves power equity, improves cooperation performance without the backfiring "reactance" effect. Moreover, this study offers conceptual distinctions between formal and informal IT-enabled interactions and their different roles in supplier-buyer cooperation. A sample of 240 manufacturing firms in China contributes to this research, and the results strongly support the hypotheses. Overall, this study provides a better understanding of the role of IT-enabled interactions in supplier-buyer cooperation.

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## 1. Introduction

With the rapid development and widespread adoption of information technology (IT), interactions between suppliers and buyers have increasingly shifted from offline to IT platforms (Smock, Rudzki, & Rogers, 2007). With the aid of IT-mediated tools such as e-mail, enterprise resource planning (ERP), and videoconferences, firms can conduct contract-based activities through IT-mediated platforms more efficiently and effectively than they can offline (Kim, Umanath, & Kim, 2005). In addition to these formal IT-enabled interactions, firms also socialize informally with their partners on social media platforms, such as Facebook, Twitter, and WeChat, to reinforce social bonds (Fischer & Reuber, 2014). Prior research has highlighted the critical role of IT-enabled interactions in improving cooperation performance. For instance, using IT in supply chain management could improve cooperation efficiency via enhanced information processing capabilities and knowledge sharing (Bensaou, 1997; Chen, Preston, & Xia, 2013), reduce transactional costs by mitigating opportunism (Wang & Wei, 2007) and cultivating trust (Sinkovics, Jean, & Cavusgil, 2011).

Despite the important insights previous research provides, three limitations exist regarding how IT-enabled interactions affect supplier-buyer cooperation performance. First, most prior studies have focused

on the role of IT-enabled formal interaction in improving cooperation outcomes while largely ignoring the role of IT-enabled informal interaction (e.g., Bensaou, 1997; Chen et al., 2013; Wang & Wei, 2007). In practice, firms not only conduct transactions via business-related software and operation systems but also socialize with their partners via social media. Whether an IT-enabled interaction is formal or informal depends on the interaction's purpose. Formal interactions are business-oriented and use business-related IT platforms, such as groupwares and ERP. Their purpose is to complete business-related tasks, such as negotiating contracts or monitoring the contract completion process, and the involved parties are mostly bonded by current contracts. IT-enabled informal interaction, on the other hand, is relationship-oriented and often facilitated by social media. Informal interactions transmit socializing signals and reinforce the social bond and commitment, but common interests or profits do not necessarily bond the involved parties. The functions of IT-enabled interactions in supplier-buyer cooperation may depend on the type of interaction in question.

Second, unlike offline interactions, IT-enabled interactions occur through computer-mediated platforms open to third-party participation, such as other buyers or suppliers of a focal supplier-buyer dyad, third-party logistics in ERP, or informal interactions on social media. IT-enabled interactions may enhance a firm's connections with its partner's partners, thus making it possible for them to build contractual relationships and hence enlarge the network in which the focal partners are embedded. Prior research has proved that network embeddedness, or the extent to which the focal relationship between dyadic partners is

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embedded in a network of mutual contracts (Uzzi, 1997), may influence the focal partners' economic activities (Granovetter, 1985) and generate governance implications pertaining to safeguarding and coordinating these exchanges (Grewal, Lilien, & Mallapragada, 2006; Jones, Hesterly, & Borgatti, 1997). Most prior literature on IT-enabled interactions, however, has largely overlooked the role of network embeddedness in IT-enabled interactions to focus mostly on dyadic-level factors, including relational factors such as trust and information sharing (Chen et al., 2013; Sinkovics et al., 2011) and structural factors such as process integration and visualization (Wang & Wei, 2007). How IT-enabled interactions could regulate the focal dyadic relationship through network embeddedness has not received commensurate attention.

Third, a dense embedded network makes both parties' information more transparent not only to each other, but also to the third parties who are bonded within the same business network. Thus, the network may help regulate the focal dyadic relationship through a *mutual monitoring* mechanism, which refers to the perception that both parties are equally able to measure or "meter" the other party's contractual performance (Heide, Wathne, & Rokkan, 2007). Either party's engagement in opportunism, for example, will be quickly detected by the other via information transmission within the network, and punished collectively via short-term ostracism or sabotage (Jones et al., 1997). Concern for their own reputations and the danger of collective sanctions make firms less likely to engage in opportunism. In contrast to traditional unilateral monitoring, mutual monitoring functions as a shared norm in which partners perceive less information asymmetry and monitoring power inequity between them, and thus this may induce a satisfactory cooperation without backfiring effects. Previous research has paid scant attention to this new form of bilateral and equal monitoring mechanism.

To fill the gaps, this study integrates the literature on IT-enabled interactions and interfirm governance mechanisms and develops a conceptual model (See Fig. 1). The model hypothesizes that IT-enabled interactions improve network embeddedness of focal firms which in turn lead to an increase in their perceived ability to mutually monitor each other via third parties, and such mutual monitoring contributes to the success of their cooperation. Using data from senior managers at 240 different manufacturing firms in China, this study finds strong support for the hypotheses and contributes to the extant research on the role of IT in governing supplier-buyer relationships in three ways. First, the current study distinguishes the different types of IT-enabled interactions (i.e., formal and informal interactions) and investigates their underlying mechanisms for enhancing supplier-buyer cooperation performance. Second, by focusing on the role of the IT-induced network embeddedness, this study enhances prior research about how IT-

enabled interactions affect supplier-buyer cooperation performance from a dyadic perspective to a network perspective. Third, by integrating prior literature on interfirm governance mechanisms, this study introduces into literature this new concept of mutual monitoring, which serves as a new governance mechanism induced by dense embedded network.

## 2. Conceptual framework and research hypothesis

### 2.1. Conceptual framework

Interaction with business partners is an essential part of all business activities, it refers to "mutual or reciprocal actions where two or more parties have an effect upon one another" (Grönroos, 2011, p. 244). Connectivity is inherent to interaction, which means that the parties are in contact with each other in one way or another (Wagner, 1994). As IT has increasingly become vital to contemporary supply chain systems, supplier-buyer interactions have shifted toward IT platforms (Kim et al., 2005), resulting in changes in how business transactions are conducted. The present study defines *IT-enabled interactions* as mutual actions conducted by suppliers and buyers to exert influence upon one another through the use of IT (Grönroos, 2011), which may be further categorized into formal and informal types (Styles & Ambler, 2003), depending on the objectives of their interactions.

*IT-enabled formal interaction* refers to partners' IT-aided, contract-based bilateral activities aimed at negotiating and safeguarding contracts. It is business-oriented and includes all contract-related activities, such as negotiating orders or agreements over groupwares, signing contracts electronically, integrating business processes, and monitoring the extent to which the partner fulfills contracts via ERP and groupwares. In contrast, *IT-enabled informal interaction* refers to the partners' bilateral socialization tactics beyond official trade settings via various social platforms, such as following each other and chatting about private interests on WeChat (Fischer & Reuber, 2014). Instead of focusing on exchanging contract-related information, partners in informal interactions mainly transmit socializing signals to reinforce social bonds and commitments, thus establishing a foundation to coordinate and deliver a promise for future exchanges (Kraimer, 1998).

Both formal and informal IT-enabled interactions enhance a firm's connections with a network of partners, including both focal partners and third parties. Depending on which kind of interaction, the third parties represent connections of different types. Third parties connected through formal interactions are usually the existing partners of focal parties, such as a supplier's other buyers, a buyer's other suppliers, or a logistics company. Those connected through informal interactions, however, can be anyone connected to either party via social media,

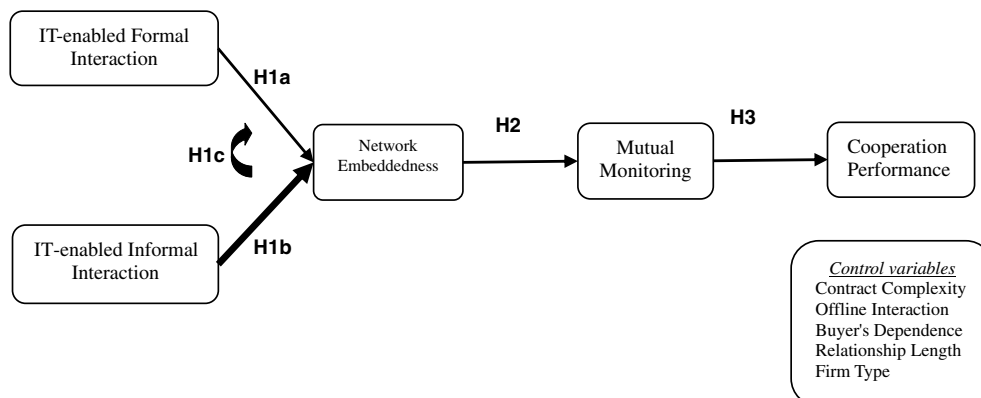


Fig. 1. Conceptual model.

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