

# How do enterprise social media affordances affect social network ties and job performance?

Social network  
ties and job  
performance

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## Abstract

**Purpose** – The purpose of this paper is to investigate how four enterprise social media (ESM) affordances (visibility, association, editability and persistence) affect social network ties (instrumental and expressive), which, in turn, influence the in-role and innovative job performance of employees.

**Design/methodology/approach** – A survey of 251 ESM users in the workplace in China was conducted.

**Findings** – All four affordances are positively associated with instrumental ties, yet only the association and editability affordances are positively related to expressive ties. Although instrumental and expressive ties are positively related to in-role and innovative job performance, instrumental ties exert stronger effects on in-role job performance, whereas expressive ties show stronger effects on innovative job performance.

**Research limitations/implications** – First, additional relevant affordances should be included in an expanded model. Second, future research could examine how patterns of affordances use (unrelated, or hierarchically or sequentially related) affect organizational network ties. Third, there are likely (many) other exogenous factors affecting the model's relationships. Fourth, the data collected are self-reported.

**Practical implications** – This study advances the theoretical understanding of the role of ESM affordances in the workplace, especially through their influences on network ties. The findings can guide organizations on how to emphasize ESM affordances to foster instrumental and expressive ties to improve the job performance of employees.

**Originality/value** – First, it provides novel views on affordance theory in ESM contexts by empirically testing four central affordances, thereby further providing preliminary evidence for prior theoretical propositions by confirming that social media affordances might be associated with or influence relational ties. Second, the study integrates an affordance lens and a social network perspective to investigate employees' perceived performance behavior. Including social network ties can offer a more detailed understanding of the underlying processes of how ESM affordances can and do affect job performance. Third, it supports the validity of distinguishing instrumental and expressive ties in ESM contexts, thus offering a possible explanation for the inconsistencies in prior research on the impact of social networks on employee outcomes. Finally, it also shows how two kinds of organizational performance (in-role and innovative) are somewhat differentially influenced by affordances and network ties.

**Keywords** Affordance, Enterprise social media, Social network ties, Job performance

**Paper type** Research paper

## 1. Introduction

A new class of information and communication technologies, known as enterprise social media (ESM), has proliferated in organizations to support interpersonal communication, coordination and collaboration (Chen and Wei, 2019; Forsgren and Byström, 2018; Kane *et al.*, 2014; Rode, 2016). ESM consists of digital platforms that incorporate bundled social



media tools, such as microblogs, wikis and social networking services, thus facilitating information sharing and social interaction among employees within organizations (Chen and Wei, 2019; Rode, 2016). An increasing number of companies, including Microsoft, Google and IBM, are expending considerable resources on developing ESM (Lu *et al.*, 2015). Indeed, Leonardi *et al.* (2013, p. 6) noted that “the time seems ripe for researchers to examine how ESM are implicated in various processes that occur within organizations.”

However, the direction and strength of an association between ESM and job performance remains inconclusive. On the one hand, some researchers noted that ESM increases employees’ knowledge of “who knows what” and “who knows whom,” which positively affects job performance (Leonardi, 2014, 2015). On the other hand, some have argued that ESM may negatively influence job performance (Lu *et al.*, 2015). Hence, the objective of this study is to contribute to the debate on the productivity paradox of ESM use.

Kane *et al.* (2014) indicated that ESM enables users to act and interact with one another in novel ways by affording new social features that are difficult or impossible to attain in earlier online or offline settings. Therefore, several researchers have recently focused on theorizing the unique ESM functions by adopting an affordance lens (Gibson, 1986; Mettler and Winter, 2016; Pee, 2018). Affordances are “action possibilities afforded by a technology to users” (Karahanna *et al.*, 2018, p. 739). For example, Treem and Leonardi (2012) proposed four affordance types enabled by ESM technology (i.e. visibility, association, editability and persistence), and further highlighted that these four affordances were not as available in prior computer-mediated technologies, such as instant messaging, e-mail and teleconferencing.

Researchers have begun to theorize about, and test, how ESM affordances can aid organizational knowledge sharing and transfer (Leonardi, 2014; Leonardi and Meyer, 2014). For instance, Ellison *et al.* (2014) argued that ESM affordances can facilitate knowledge sharing by supporting how employees locate expertise and relevant content. Leonardi and Meyer (2014) proposed that ESM affordances can ease knowledge transfer by making the communications of coworkers visible to casual observers. These previous studies on the affordance lens have offered significant insights, but also have several limitations.

Central to the present study is the fact that, with a very few exceptions, these earlier studies excluded the role social network ties, a key component in the design, purpose and use of ESM (Ali-Hassan *et al.*, 2015; Leonardi, 2015; Wu, 2013), and one of the ways through which coworkers improve their job performance. Individuals must mobilize resources from their network contacts if they want to be successful (Burt, 2004; Podolny and Baron, 1997). One of the most relevant benefits of ESM is to improve the ability of employees to develop and maintain social network ties without face-to-face interaction (Wu, 2013). Ellison *et al.* (2014) suggested that ESM affordances may help build and strengthen social network ties because ESM enables communication between employees, provides identity information and offers online space for those with shared interests. In addition, social network studies show that such ties foster higher employee performance (Wu, 2013). One approach to categorizing these network ties is by their instrumental or expressive content (Ali-Hassan *et al.*, 2015; Wu, 2013). Distinguishing these types of ties, and thus possible differences in their relationships, can improve our understanding of the relationship between ESM affordances and outcomes.

This brief overview leads to the generation of the research question guiding our study:

*RQ1.* How do ESM affordances contribute to job performance through their influence on types of network ties?

Thus, we propose that, rather than the general use of ESM, it is their affordances that more specifically influence the awareness, development and maintenance of different types of network ties in the workplace, which subsequently affect different types of job performance.

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## 2. Literature review

### 2.1 Enterprise social media

Research into the way social media has been employed by organizations has focused on two communication domains: external and internal. The first and more widely studied approach involves an examination of external communication with stakeholders, such as vendors, customers and job candidates (Aral *et al.*, 2013; Rishika *et al.*, 2013; Shang *et al.*, 2017). For example, organizations can broadcast messages on microblogging sites such as Twitter, and maintain pages on public social networking sites such as MySpace and Facebook (Leonardi *et al.*, 2013).

This study focuses on the second approach, which involves internal communication, coordination and collaboration within the organization (Aral *et al.*, 2013; Kane *et al.*, 2014; Moqbel *et al.*, 2013). Organizations have increasingly implemented social network-based applications (e.g. Yammer, Jive, Atlassian Confluence and IBM Beehive) or integrated digital platforms that incorporate different social media tools (e.g. microblogs, blogs, wikis and social network services) for internal use (Chen and Wei, 2019; Kügler *et al.*, 2015; Majchrzak *et al.*, 2009; Moqbel *et al.*, 2013; Zhao and Rosson, 2009). According to Leonardi *et al.* (2013, p. 2), ESM consists of “web-based platforms that allow workers to (1) communicate messages with specific coworkers or broadcast messages to everyone in the organization; (2) explicitly indicate or implicitly reveal particular coworkers as communication partners; (3) post, edit and sort text and files linked to themselves or others; and (4) view the messages, connections, text and files communicated, posted, edited and sorted by anyone else in the organization at any time of their choosing.” Most ESM mimic popular social networking sites, such as Facebook or Twitter, in look, feel and functions (Chen and Wei, 2019; Rode, 2016).

Existing research on ESM mainly focuses on how ESM functions as organizational tools that support communication, collaboration and especially knowledge sharing (Rice *et al.*, 2017; Treem and Leonardi, 2012). For example, Wong *et al.* (2016) indicated that the use of social media at work can improve vertical and horizontal communication among employees. Huang *et al.* (2015) argued that enterprise blogs can increase the rate of problem solving, help employees gain access to knowledge experts and reduce the costs of internal communication.

However, although prior research proposed that employee job performance can be influenced by ESM use (Kuegler *et al.*, 2015; see also Table A1), previous research has not fully explained how specific ESM affordances, rather than a particular technology or platform, can exert more specific and significant effects on individual employee job performance. Thus, we take an affordance perspective, for three primary reasons. First, prior studies are somewhat technologically determinist because their models typically focus on an effect of the technology (ESM). Second, bringing to bear the concept and role of affordances provides one causal mechanism or process whereby ESMs may have effects (such as on job performance). Third, Chen *et al.* (2017) indicated that IT affordances can be used to holistically explain the interplay between IT usage and users’ action, thus providing a theoretical foundation (along with the foundational theorizing about ESM by Leonardi and colleagues).

### 2.2 Affordance theory

Affordance theory was initially proposed by Gibson (1977), who analyzed relationships between animals and their living environments. Gibson (1986) stated that an animal or a human perceives primarily what the object’s utility(ies) for action(s), which he called “affordances,” are. Gibson (1986) proposed that affordances are action possibilities independent of an actor’s perception and experiences, yet are relative to each actor’s perceptions and capabilities for action. Later, Norman (1999) emphasized the role of perception and user shaping of affordances, as well as the possibilities for designing affordances into objects.

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We follow Gibson's (1986) and Norman's (1999) view that affordances are constrained by materiality, but Norman's (1999) position that they are subject to users' perceptions (see also Fox and McEwan, 2017; Leonardi, 2014; Rice *et al.*, 2017).

Affordances are not exclusive properties of artifacts or people but rather are constituted in relationships between the materiality of the artifact, the person's goals and capabilities, and the context or environment (Ellison *et al.*, 2014; Hutchby, 2001; Leonardi, 2011). Different people can perceive that a given technology artifact provides distinct possibilities for action (Ellison *et al.*, 2014). There are at least three main merits of using an affordance approach (Hutchby, 2001; Koroleva and Kane, 2017; Treem and Leonardi, 2012). First, focusing on affordances rather than exclusively on either material determinism (where effects are primarily due to technology, as a general concept) or social determinism (where effects are primarily due to social construction and agency), researchers can develop theories of sociomaterial dynamics, which consider both material and social agency as two important components of the same phenomenon. Second, focusing on affordances overcomes the more detailed form of the material determinism approach of developing an argument about and testing of a specific technology (i.e. Facebook vs Twitter), aspects of which may change, or which may be soon replaced. Third, it grounds the technology affordances in a given organizational context, one way to emphasize the socio-dynamics of technology use.

Scholars have employed the affordance lens to explore how new technologies can be better designed (Norman, 1988), the dynamics of technologically induced social exchange (Orlikowski and Barley, 2001) and how different organizational media are associated with different affordances (Rice *et al.*, 2017; Treem and Leonardi, 2012). More specifically, prior research has identified several typologies of affordances in the context of ESM. Treem and Leonardi (2012) proposed that ESM affordances include visibility, association, editability and persistence. Majchrzak *et al.* (2013) proposed that ESM affordances consist of metavoicing, trigger attending, network-informed associating and generative role-taking. Rice *et al.* (2017) identified six organizational media affordances (pervasiveness, editability, self-presentation, searchability, visibility and awareness), while Fox and McEwan (2017) identified ten communicative affordances (accessibility, bandwidth, social presence, privacy, network association, personalization, persistence, editability, conversation control and anonymity). We apply Treem and Leonardi's (2012) typology, as their explications are foundational and widely cited, and, at the time of the study Rice *et al.* (2017) had developed explicit items for each of these affordances.

Visibility means that an ESM technology can provide employees with the capability to make their knowledge, preference, behaviors and network connections, that were once invisible or difficult to see or be aware of, more visible to other organizational members (Leonardi, 2014, 2015; Mettler and Winter, 2016). ESM affords association among users and content (Treem and Leonardi, 2012) and includes two forms. The first is between two or more people, which can be expressed through the friends of an individual on an ESM technology, such as those who follow a microblogger. The second is between a person and content, such as a microblog thread, a wiki contribution, or the tagging of a topic. Editability refers to the affordance of allowing employees to revise, add to, modify and change content that they have already communicated or which has been contributed by others, such as deleting content or editing a document (Mettler and Winter, 2016; Treem and Leonardi, 2012). Finally, persistence allows employees to permanently access content that has been created and published previously, providing a robust and useful mechanism for communicating, which is difficult to compromise or destroy (Mettler and Winter, 2016).

### 2.3 Social network ties

In general, network relations are crucial for individual and organizational performance. Social network ties can be associated with positive work performance because of the

valuable resources, information and knowledge shared through those networks (Ali-Hassan *et al.*, 2015; Aral *et al.*, 2012). For example, Zhang and Venkatesh (2013) found that employees' online and offline networks can interact to affect their job performance. Sykes *et al.* (2014) concluded that advice from network members concerning software and workflow influenced employees' job performance after enterprise resource planning systems implementation.

Previous studies distinguished two different types (among others) of social network ties based on the content that flows within a network: instrumental and expressive ties (Chang and Chen, 2017; Lin, 2007; Manev and Stevenson, 2001). Instrumental ties are work-related advice ties, through which workers seek and exchange necessary information, expertise, advice and informal, physical, or financial resources to accomplish a task (Lin, 2007; Zhong *et al.*, 2012). Instrumental ties allow employees to access diverse information efficiently and effectively (Burt, 2004; Wu, 2013). Instrumental ties are utilitarian oriented and as a result are relatively unstable (Chang and Chen, 2017; Lee *et al.*, 2001). On the other hand, expressive ties include both positive and negative interpersonal affect and norms (Huang *et al.*, 2013; Umphress *et al.*, 2003; Zhong *et al.*, 2012). Positive expressive ties can provide a sense of personal belonging and identity as well as serve as sources of social support (Chang and Chen, 2017). Although the primary content of these two types of ties is theoretically distinct (Balkundi and Harrison, 2006; Huang *et al.*, 2013), most social network ties among employees involve both instrumental and expressive features (Huang *et al.*, 2013; Lin, 2007).

Prior research on organizational instrumental and expressive ties mainly focuses on the knowledge management area (Huang *et al.*, 2013; Zhou *et al.*, 2010). Researchers have recently demonstrated the importance of investigating social network ties in the ESM context. For example, Lu *et al.* (2015) proposed that employees' involvement in instrumental and expressive networks via ESM can engender different effects on their performance. Ali-Hassan *et al.* (2015) examined the effect of ESM use on three dimensions of social capital (cognitive, structural and relational capital) which consequently affected employees' job performance. Luo *et al.* (2018) reported that nonwork-related ESM activities helped form an expressive network among employees, which, in turn, increased their affective organizational commitment. Ellison *et al.* (2014) argued that ESM affordances can provide employees with opportunities to exchange both task-related (instrumental) and social (expressive) information with others in organizations, which can help forge social network ties among employees. However, little research so far has focused on whether ESM affordances enable or support these two types of ties, which, in turn, influence job performance (for a related study, see Sheer and Rice, 2017). For an exception, Wu (2013) showed that the adoption of an ESM tool can change social networks in general over time within an organization, and such change can bring important economic benefits, such as improving worker productivity.

This study conceptualizes social network ties as general instrumental or expressive relationships with coworkers overall, not related to any particular coworker or subset of coworkers. Thus, as noted in the limitations section, this is neither a whole system network or ego-network analysis.

#### 2.4 Job performance

Job performance is a central research topic in organizational behavior. Previous studies suggested that job performance is a broad and complex construct including in-role and innovative components (among others) (Ali-Hassan *et al.*, 2015; Janssen and Van Yperen, 2004). In-role job performance represents "actions specified and required by an employee's job description and thus mandated, appraised, and rewarded by the employing organization" (Janssen and Van Yperen, 2004, p. 369). These sets of rules make work behavior predictable, and thus basic organizational tasks can be controlled and coordinated

in order to achieve organizational goals. An organization also needs to give employees the freedom to spontaneously innovate to adapt to new opportunities, problems and unusual situations (Jones, 2001). Innovative job performance is defined as “the intentional generation, promotion, and realization of new ideas within the organization” (Janssen and Van Yperen, 2004, p. 370). The innovation job performance of an employee is measured by the production of new and useful ideas and based on discretionary behavior that goes beyond the mandatory duties (Janssen and Van Yperen, 2004; Sparrowe *et al.*, 2001).

2.5 *ESM, affordances, network ties and job performance*

Though it is beyond the scope and page limits to present a full review of how these four issues interrelate, Table AI summarizes ESM affordances and the primary effects of ESM in 24 studies. While we justify and use the four primary affordances explicated early on by Treem and Leonardi (2012), Table AI shows a wide variety of related and additional ESM affordances, including several similar to affordances but referred to in other terms. The literature also proposes and tests a wide array of potential effects of ESM, primarily knowledge sharing, but also communication, collaboration, social capital, learning and absorptive capacity, and socialization. Relevant to our study, however, only a few analyze ESM affordance, organizational networks, interaction across boundaries and job performance.

3. Research framework and hypotheses

Figure 1 presents the study’s research model based on the above review. ESM affordances can expose employees to more diverse groups of contacts and types of information that are, in turn, useful to strengthen and improve both instrumental and expressive relationships, which should improve in-role and innovative employee job performance in general, but with differential effects.

3.1 *The effect of visibility affordance on instrumental and expressive ties*

Visibility affordance can foster instrumental ties by increasing the accuracy of the instrumental knowledge (i.e. knowledge on how to do something) and metaknowledge

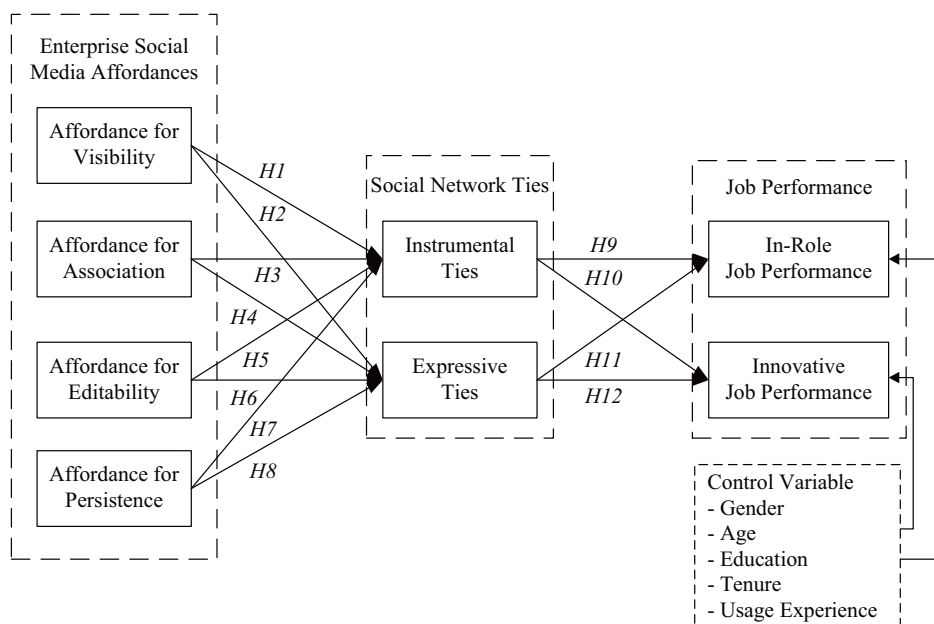


Figure 1. Research model

(i.e. knowledge of “who knows what” and “who knows whom”) of employees at work (Leonardi, 2014, 2015; Leonardi *et al.*, 2013). Direct exposure to instrumental knowledge is viewed as a significant mode of social learning in organizations (Huber, 1991; Leonardi *et al.*, 2013), which facilitates instrumental social relationship building among employees. Metaknowledge is an important source of building instrumental ties because it enables employees to be aware of topic experts, which increases the likelihood of employees seeking information and expertise from other coworkers.

Visibility affordance also fosters expressive ties. Visibility affordance can help employees identify other coworkers with similar backgrounds, interests and activities (Treem and Leonardi, 2012). Prior researchers argued (e.g. Zeng and Wei, 2013) that when similarities (e.g. common interests, similar values and shared experience) are observed among exchange partners, they are more likely to understand, be more attracted to and have empathy for, one another, and subsequently increase closeness, and thus grant more favors to one another (Lee *et al.*, 2001). Therefore:

*H1.* Visibility affordance is positively related to instrumental ties.

*H2.* Visibility affordance is positively related to expressive ties.

### *3.2 The effect of association affordance on instrumental and expressive ties*

Association affordance helps employees to get to know one another, to thus better locate experts inside an organization (Ellison *et al.*, 2014). Association affordance provides social context awareness, which is useful in staying up to date with the activities of coworkers and offers employees the opportunity to communicate task-related information (Ellison *et al.*, 2014), thus aiding instrumental ties. Association affordance also provides a means for employees to view the explicit connections among content and projects, which enables employees to access relevant information and understand relationships among organizational activities and members (Treem and Leonardi, 2012). Moreover, the possibilities provided by association regarding the source and usefulness of information can foster collaborative forms of working (Mettler and Winter, 2016), which increases the likelihood of establishing instrumental connections among employees.

Association affordance can also foster expressive ties. Ellison *et al.* (2014) indicated that it provides opportunities for employees to communicate more social information, which results in a more affective social connection, by revealing or providing access to others with associated interests or activities. The association afforded by the ESM can bridge individual employees, supplement existing relationships, form a broader sense of social interdependence and increase closeness among new and existing relationships (Treem and Leonardi, 2012). Therefore:

*H3.* Association affordance is positively related to instrumental ties.

*H4.* Association affordance is positively related to expressive ties.

### *3.3 The effect of editability affordance on instrumental and expressive ties*

Editability affordance allows employees to deliberate over what they want to convey and to clarify their points (Treem and Leonardi, 2012). In particular, it facilitates more purposeful sharing and engagement with task-related information with particular audiences, which enhances the quality of shared information (Arazy *et al.*, 2009; Mettler and Winter, 2016), and can result in better collaboration among employees (Treem and Leonardi, 2012). Thus, editability affordance, such as that implemented in open-editing wikis, helps employees control how their content is viewed by others, which increases instrumental ties.

Editability affordance can also facilitate better expressive ties. Ellison and Vitak (2015) argued that editability affordance increases opportunities for social relationship building in the workplace. Given that editability affordance helps improve the quality of shared information (Arazy *et al.*, 2009; Mettler and Winter, 2016), employees can better communicate social information with one another. Editability affordance encourages employees to focus on the form of the content they would like to convey (Treem and Leonardi, 2012). Thus, employees can strategically shape the ways in which personal feelings are shared with others (Treem and Leonardi, 2012). Hence, employees can receive social support and care from others, which might facilitate friendships among coworkers. Use of ESM can also develop more affective and trusting relations by allowing the open-editing of shared content. Therefore:

*H5.* Editability affordance is positively related to instrumental ties.

*H6.* Editability affordance is positively related to expressive ties.

#### *3.4 The effect of persistence affordance on instrumental and expressive ties*

Persistence fosters the transmission and retrieval of instrumental knowledge, task-related information and complex ideas among employees (Clark and Brennan, 1991). If previous communication is recorded and available, then related information can be properly contextualized, and employees can better understand ongoing or past conversations (Treem and Leonardi, 2012). Leonardi *et al.* (2013) also indicated that persistence affordance expands and maintains over time the instrumental networks of the employees from whom they can learn across the organization, thus leading to increased opportunities for social learning in organizations.

Persistence affordance is also useful to increase the expressive ties of employees. Choi *et al.* (2010) highlighted that persistence affordance supports socialization within an organization. This affordance leaves a trace that employees may access at various times, which provides a valuable channel for employees to appreciate and learn about the concerns and emerging issues of other coworkers. Thus, employees are more likely to give social support to each other. Treem and Leonardi (2012) also indicated that persistence affordance enables employees to reuse previous content created by other coworkers that they had friended on the ESM technology. The reuse of others' content in ESM also supports and strengthens the formation of tighter social relationships among employees (Treem and Leonardi, 2012). Therefore:

*H7.* Persistence affordance is positively related to instrumental ties.

*H8.* Persistence affordance is positively related to expressive ties.

We now turn to relationships between these types of ties and types of job performance.

#### *3.5 The effect of instrumental ties on in-role and innovative job performance*

Instrumental ties can facilitate the improvement of in-role job performance in three important ways. First, instrumental ties provide employees with access to valued work-related resources (Wu, 2013), necessary for in-role work performance (Ali-Hassan *et al.*, 2015; Sparrowe *et al.*, 2001). Second, employees with strong instrumental ties are more likely to know where to obtain expertise and useful resources to solve difficult work-related problems, and thus may produce higher-quality work (Cross and Cummings, 2004; Wu, 2013). Finally, the closer and stronger the instrumental network ties, the easier it is to access and observe normative work information and work behavior; making it easier to know how to perform their tasks and duties (Ali-Hassan *et al.*, 2015).

At the same time, instrumental ties can lead to greater innovative job performance of employees. Ali-Hassan *et al.* (2015) proposed that instrumental ties promote innovation because they expose employees to a larger amount of external new ideas that may vary from the current knowledge and to the identification of coworkers with complementary knowledge (see also Burt, 2004). Therefore:

*H9.* Instrumental ties are positively related to in-role job performance.

*H10.* Instrumental ties are positively related to innovative job performance.

### *3.6 The effect of expressive ties on in-role and innovative job performance*

Expressive ties can help build stronger personal relationships (Wu, 2013), through which employees are more likely to provide support or assistance to each other to solve problems and avoid work crises (Zhong *et al.*, 2012). Employees with dense expressive ties also engage in social communication, emotional intimacy and attachment that may generate friendship (Gibbons, 2004). Friends can offer information that helps employees increase the quality of their (in-role) work performance (Wu, 2013).

Expressive ties may also foster innovation, as high-performing employees have effective friendship and business networks (Davenport, 2008), and are exposed to diverse information through frequent social interactions and familiarity with other coworkers (Ali-Hassan *et al.*, 2015). Socialization encourages employees to share their mental models and intricate technical experience through observation, imitation and practice (Ali-Hassan *et al.*, 2015; Amar and Juneja, 2008), and increases the potential to encounter new ideas and opportunities serendipitously (Wu, 2013), leading to positive outcomes such as increased innovative work performance. Therefore:

*H11.* Expressive ties are positively related to in-role job performance.

*H12.* Expressive ties are positively related to innovative job performance.

## **4. Research methodology**

### *4.1 Measurement development*

A survey was designed to collect data to test the proposed model. All measurement items were adapted from existing validated scales, though some items were slightly changed to fit the current research context. All survey items were measured on a seven-point Likert scale. Table I lists the measurement items and their sources.

Our instrument development process involved the translation committee approach (Van de Vijver, 1997), because we collected data in China. The questionnaire was first translated from English to Chinese by three researchers from different backgrounds (i.e. management, information systems and computer science). These three individuals were briefed on the research purpose and construct definitions. Each researcher independently translated the questionnaire. When they completed the translation, these three researchers and the research team discussed each item to achieve consensus on how it should be translated most accurately. Next, to ensure that the Chinese questionnaire was equivalent to the English version, a professional translator, who was unfamiliar with this research, was hired to translate the Chinese questionnaire back to English. After comparing the translated questionnaire and the original English version, no significant semantic discrepancies were found. Finally, the original Chinese questionnaire was analyzed by two professionals in the surveyed companies for further comments and suggestions. They were then interviewed, each providing valuable feedback on the instrument, including the length of the questionnaire, wordings and appropriateness, and sensitivity of the questions. These provided the basis for a final set of several modifications, resulting in the final survey.

Constructs	Items
Affordance	Enterprise social media enables me to...
Visibility	1. see other coworkers' answers to other coworkers' questions 2. see who has interactions with particular coworkers 3. see the number of others who have linked to the same content
Association	1. use (web)links from information I know or am aware of, to find new information I did not know or was not aware of 2. use (web)links from coworkers I know or am aware of, to find new coworkers I did not know or was not aware of
Editability	1. edit coworkers' information after they have posted it 2. edit my information after I have posted it 3. create or edit a document collaboratively
Persistence	1. find information about prior projects 2. maintain relations with others at my company despite changes in activities, work or location 3. have my information or comments stay available after I post them
Ties	
Instrumental	1. I am often involved with coworkers for receiving or sending information for coordination, control, planning or evaluation 2. I am often involved with coworkers for receiving or sending technical assistance 3. The contacts among my coworkers and me are important for my work 4. My coworkers and I are involved with each other for work-related advice and suggestion
Expressive	1. I am well acquainted personally with my coworkers 2. I talk with coworkers about things beyond work 3. I consult my coworkers for personal matters 4. My coworkers and I build good friendships with each other
Job performance	
In-role	To what extent do you agree or disagree with the following? 1. I always complete the duties specified in my job description 2. I always meet all the formal performance requirements of my job 3. I always fulfill all responsibilities required by my job 4. I never neglect aspects of the job that I am obligated to perform 5. I always perform essential duties
Innovative	How often do you perform the following work activities? 1. Creating new ideas for improvements 2. Mobilizing support for innovative ideas 3. Searching out new working methods, techniques or instruments 4. Acquiring approval for innovative ideas 5. Transforming innovative ideas into useful applications 6. Generating original solutions to problems 7. Introducing innovative ideas in a systematic way 8. Making important organizational members enthusiastic for innovative idea 9. Thoroughly evaluating the application of innovative ideas

**Table I.**  
Measurement items

**Sources:** Affordances: Rice *et al.* (2017); ties: Manev and Stevenson (2001), Zhong *et al.* (2012); job performance: Janssen and Van Yperen (2004)

#### 4.2 Data collection

The context of the study was Chinese Software (a pseudonym), a large software development firm with over 7,000 employees headquartered in Southern China. In late 2011, Chinese Software started to implement an ESM technology for internal communication among employees, called "Circle," which closely resembles publicly available social media technologies such as Twitter and Weibo. It contains news feeds, algorithms for suggesting new contacts and profile pages. Unlike public social media technologies, it also includes a shared document repository where items can be edited, tagged and linked to a user's news feed.

The survey was promoted for two months through a user list provided by Chinese Software. We randomly selected and sent out our online survey hyperlink to 1,000 users on

the list. To encourage responses, a payment of RMB 15–20 (approximately \$2.17–\$2.89) was provided as an incentive for each respondent. This process produced 280 useable responses. Respondents needed to answer all the questions before submitting the questionnaire; therefore, no missing or incomplete responses were obtained. However, 29 questionnaires were dropped from the pool because all the items were answered with the same value. Thus, 251 valid responses were received. Table II shows the respondent demographics.

A test for nonresponse bias, following the suggestions by Armstrong and Overton (1977), used two-tailed *t*-tests to compare responses between the early (first 25 percent) and late (last 25 percent) respondents for all constructs including the control variables. No significant differences were found.

## 5. Data analysis and results

### 5.1 Data analysis technique

Partial least squares (PLS) was used to test the research model. PLS is a preferred technique for several reasons. First, PLS can evaluate the loadings on constructs and assess the causal relationships among those constructs (Sun *et al.*, 2012). Second, PLS depends on a component-based strategy instead of requiring interval scales or multivariate normal

Variable	Percentage
<i>Gender</i>	
Male	54.6
Female	45.4
<i>Age</i>	
18–25	40.2
26–30	36.7
31–35	18.7
36–40	2.0
41 and above	2.4
<i>Education</i>	
High school or below	12.7
College	26.7
University	54.7
Graduate school or above	6.4
<i>Position</i>	
Non-management employee	69.7
Manager	20.3
Senior or executive manager	4.0
Others	6.0
<i>Tenure (years)</i>	
Under 1	14.7
1–2	22.3
3–5	39.4
6–10	16.8
Over 10	6.8
<i>ESM usage experience (years)</i>	
Under 1	44.2
1–2	37.8
3–4	15.6
Over 4	2.4

**Note:** *n* = 251

**Table II.**  
Demographics of  
respondents

distributions (Teo *et al.*, 2003). Third, the model variance can be maximally explained through the constructs; thus, it is robust with fewer statistical identification issues (Teo *et al.*, 2003). Fourth, it is suitable for smaller samples (Hair *et al.*, 2012).

### 5.2 Common method bias

Common method bias can occur when the data of a study are collected from a single source at the same time and through the same form (here, perceptual survey responses). Two tests were conducted to examine this issue. Harman's single-factor evaluated the study's eight conceptual variables (Podsakoff and Organ, 1986). Seven constructs had resulting eigenvalues higher than 1.0, explaining 63.6 percent of the total variance, while the first construct accounted for only 14.0 percent of the variance, suggesting that the results were not contaminated by common method bias.

Second, following the suggestions of Podsakoff *et al.* (2003) and Williams *et al.* (2003), a common method factor comprising all the principal indicators of the constructs was included in the PLS model. The average substantive construct indicator explained 63 percent of the variance, whereas the average method-based variance of the indicators explained was 1 percent. In addition, most of the method factor loadings were insignificant, again suggesting that common method bias was not a concern.

### 5.3 Measurement model

To evaluate the measurement model, analyses tested the reliability and validity of the constructs (Carmines and Zeller, 1979). Cronbach's  $\alpha$  and composite reliability assessed reliability (Fornell and Larcker, 1981). As Table III shows, Cronbach's  $\alpha$  ranged from 0.72 to 0.89 and composite reliability ranged from 0.86 to 0.91, all exceeding the 0.7 threshold. The validity of the constructs was tested through convergent and discriminant validities. Convergent validity was assessed by checking the loadings and average variance extracted (AVE). Table III shows that the values of AVE ranged from 0.52 to 0.78, higher than the threshold of 0.5. In addition, the values of all the loadings of the items were above the recommended score of 0.6 (Carmines and Zeller, 1979). These results demonstrated good convergent validity.

Multiple techniques were used to assess discriminant validity. First, the  $\chi^2$  difference test confirmed that the correlations between each pair of constructs were significantly different from unity (i.e. 1.0) (Jöreskog, 1993). Second, the square roots of AVEs for all constructs were greater than the correlations among the constructs (Fornell and Larcker, 1981) (see Table IV). Further, the largest correlation was 0.59, less than the criterion value of 0.71 (MacKenzie *et al.*, 2011). These all indicated good discriminant validity of the measurement model.

### 5.4 Structural model

PLS was used to test the structural model. We assessed the path significance through the bootstrapping resampling method with 500 resamples and 251 cases per sample. The model explained 45 percent of the variance in instrumental ties, 35 in expressive ties, 38 in in-role job performance and 32 in innovative job performance (see Figure 2). Overall, the  $R^2$  values for all dependent variables and the high factor loadings yielded an adequate goodness of fit for the research model.

**5.4.1 Affordances and social network ties.** Visibility affordance ( $\beta = 0.16$ ,  $p < 0.05$ ), association affordance ( $\beta = 0.20$ ,  $p < 0.05$ ), editability affordance ( $\beta = 0.17$ ,  $p < 0.05$ ) and persistence affordance ( $\beta = 0.30$ ,  $p < 0.01$ ) each had positive and significant influences on instrumental ties. Thus, *H1*, *H3*, *H5* and *H7* were supported. In addition, association affordance ( $\beta = 0.18$ ,  $p < 0.05$ ) and editability affordance ( $\beta = 0.31$ ,  $p < 0.001$ ) had positive and

Constructs	Items	Loadings	Cronbach's $\alpha$	Composite reliability	Average variance extracted	Social network ties and job performance
<i>Affordance</i>						<b>373</b>
Visibility	3	0.85	0.79	0.87	0.70	
		0.81				
		0.85				
Association	2	0.89	0.72	0.88	0.78	
		0.88				
Editability	3	0.79	0.79	0.88	0.71	
		0.85				
Persistence	3	0.89	0.76	0.86	0.68	
		0.81				
		0.82				
<i>Ties</i>						
Instrumental	4	0.83	0.82	0.88	0.65	
		0.82				
		0.80				
Expressive	4	0.77	0.81	0.88	0.64	
		0.81				
		0.78				
		0.81				
<i>Job performance</i>						
In-role	5	0.78	0.83	0.88	0.59	
		0.77				
		0.76				
		0.81				
Innovative	9	0.73	0.89	0.91	0.52	
		0.69				
		0.73				
		0.69				
		0.75				
		0.72				
		0.76				
0.70						
		0.71				
		0.75				

**Table III.**  
Results of  
confirmatory factor  
analysis

significant influences on expressive ties, supporting *H4* and *H6*. However, neither visibility nor persistence affordances positively affected expressive ties, not supporting *H2* or *H8*.

*5.4.2 Social network ties and job performance.* Instrumental ties significantly affected in-role job performance ( $\beta = 0.46$ ,  $p < 0.001$ ) and innovative job performance ( $\beta = 0.280$ ,  $p < 0.001$ ), supporting *H9* and *H10*. The paths from expressive ties to in-role job performance ( $\beta = 0.20$ ,  $p < 0.01$ ) and to innovative job performance ( $\beta = 0.34$ ,  $p < 0.001$ ) were also positive and significant, supporting *H11* and *H12*.

*5.4.3 Control variables.* None of the control variables had significant effects on in-role or innovative job performance.

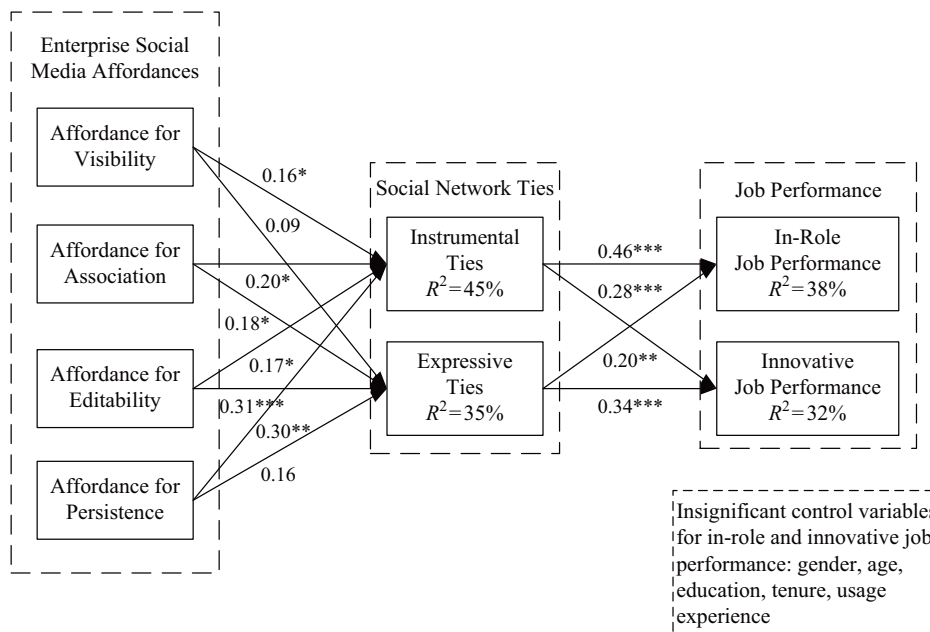
## 5.5 Post hoc analyses

*5.5.1 Comparing the strength of social network tie influences.* Extending *H9–H12*, a post hoc analysis used the method suggested by Pavlou and Dimoka (2006) to compare the PLS path coefficients from instrumental and expressive social network ties to in-role and innovative

**Table IV.**  
Means, standard  
deviations and  
correlations

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Visibility	5.68	0.82	<i>0.84</i>												
2. Association	5.64	0.84	0.56	<i>0.89</i>											
3. Editability	5.46	0.98	0.40	0.55	<i>0.84</i>										
4. Persistence	5.66	0.82	0.52	0.57	0.47	<i>0.82</i>									
5. Instrumental	5.71	0.76	0.50	0.56	0.49	0.58	<i>0.80</i>								
6. Expressive	5.60	0.77	0.39	0.49	0.52	0.45	0.60	<i>0.80</i>							
7. In-role	5.77	0.68	0.37	0.34	0.27	0.40	0.59	0.48	<i>0.77</i>						
8. Innovative	5.66	0.63	0.34	0.34	0.42	0.36	0.48	0.51	0.59	<i>0.72</i>					
9. Gender	na	na	-0.08	-0.03	-0.02	0.02	0.04	0.00	-0.02	-0.07	<i>na</i>				
10. Age	na	na	-0.05	-0.02	-0.01	-0.01	-0.08	-0.10	-0.14	-0.08	-0.04	<i>na</i>			
11. Education	na	na	0.15	-0.04	-0.03	0.05	0.02	-0.00	0.04	-0.05	-0.05	-0.11	<i>na</i>		
12. Tenure	na	na	-0.02	-0.03	-0.04	0.02	0.02	-0.01	0.00	-0.04	-0.08	0.68	<i>na</i>	<i>na</i>	
13. Usage experience	na	na	0.01	-0.11	-0.14	-0.08	-0.07	-0.08	-0.04	-0.07	0.06	0.22	-0.01	-0.06	<i>na</i>

**Note:** The shaded and italicized numbers in the diagonal are the square root of the AVE



Notes: \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

Figure 2. Research model results

job performance. Instrumental ties exerted a stronger effect on in-role job performance ( $t = 4.97, p < 0.001$ ) than did expressive ties; however, expressive ties exerted stronger effects on innovative job performance ( $t = 6.60, p < 0.001$ ) than did instrumental ties.

**5.5.2 Indirect (mediation) effects.** These analyses tested whether social network ties mediated the effects of affordances on job performances. Specifically, following recommendations by MacKinnon *et al.* (2004), the bootstrapping sampling method ( $n = 5,000$ ) was used to generate asymmetric confidence intervals (CIs) for the indirect effects. Compared with traditional approaches such as the Sobel test, the bootstrapped CIs method generates a more accurate estimation of the indirect effect because it can produce asymmetric CIs for the indirect effect using the respective distribution of the two regression coefficients making up the product term. Preacher and Hayes (2008) note that an indirect effect is significant when the 95 percent CI does not contain zero.

As the effect sizes and CIs in Table V show, instrumental ties mediated the positive effects of all four affordances (visibility, association, editability and persistence) on both in-role and innovative job performance. Expressive ties mediated the positive effects of association and editability affordances, but not of visibility and persistence, on both in-role and innovative job performance. Thus, each type of tie has its own same pattern of

Affordance	DV: in-role job performance				DV: innovative job performance			
	Instrumental ties		Expressive ties		Instrumental ties		Expressive ties	
	Indirect	CI	Indirect	CI	Indirect	CI	Indirect	CI
Visibility	0.048	<i>0.009/0.110</i>	0.011	-0.008/0.042	0.023	<i>0.002/0.071</i>	0.013	-0.012/0.053
Association	0.062	<i>0.018/0.147</i>	0.026	<i>0.002/0.078</i>	0.029	<i>0.003/0.089</i>	0.032	<i>0.004/0.085</i>
Editability	0.049	<i>0.005/0.107</i>	0.046	<i>0.018/0.091</i>	0.023	<i>0.001/0.072</i>	0.057	<i>0.020/0.120</i>
Persistence	0.084	<i>0.030/0.180</i>	0.023	-0.003/0.068	0.040	<i>0.003/0.101</i>	0.028	-0.003/0.087

Notes: Indirect, indirect path effect size; CI, confidence interval (lower, upper). Significant indirect (mediation) effects are indicated by italicized confidence intervals, as they do not include 0.0

Table V. Bootstrapping method test of indirect effects

mediating effects across the two types of job performance, but differs somewhat in its relationship to the performance types.

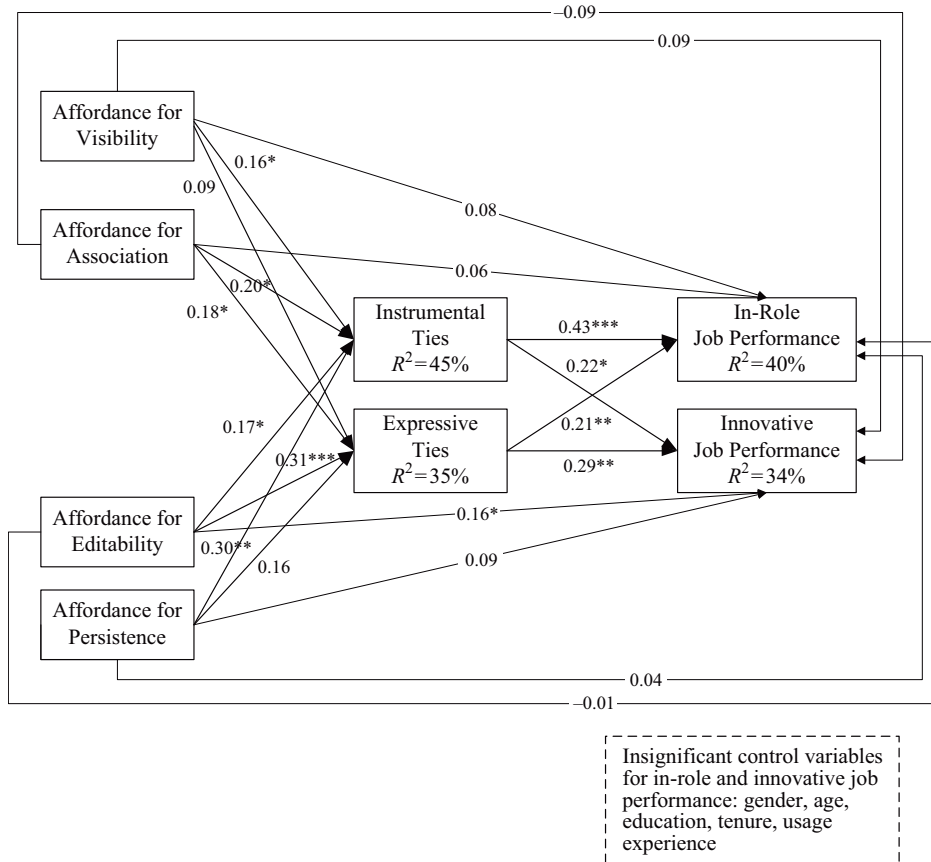
*5.5.3 Direct effects.* Though not hypothesized, it is possible that the four ESM affordances have a direct and positive effect on the two types of job performance, apart from the role of the two types of social network ties. Therefore, these relationships were tested (see Figure 3). However, only editability affordance had a significant positive direct effect, and only on innovative job performance.

## 6. Discussion and implications

### 6.1 Discussion

The objective of this study was to explore the association of different ESM affordances (i.e. visibility, association, editability and persistence) with different social network ties (instrumental and expressive), and, in turn, their influence on different aspects of job performance (in-role and innovative). Most of the proposed hypotheses were supported. The results included several key findings.

First, qualifying the prior research suggesting a direct effect of ESM affordances on employees' behavior (Ellison *et al.*, 2014; Leonardi, 2014; Leonardi and Meyer, 2014), this study demonstrated that the influence of different types of ESM affordances on employees' in-role and innovative job performance was accomplished indirectly through enabling and supporting instrumental and expressive ties (except for the one direct influence of editability on innovative job performance). This result emphasized the socio-dynamic roles of



**Figure 3.**  
Additional test results

**Notes:** \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

affordances: engaging in ESM potentials for action provided resources or abilities to engage in social relations, which themselves were processes and resources for job performance. The rich organizational network research provided extensive evidence for the latter (Balkundi and Harrison, 2006; Burt, 2004; Podolny and Baron, 1997), but this study showed how aspects of the “social” nature of social media were manifested in such ties.

Second, visibility affordance exerted a significant effect on instrumental ties, but, surprisingly, not on expressive ties. Expressive or affective ties may be often based on the social exchange of personalized information and support, which are more likely available through offline interactions (Lee *et al.*, 2001). Additionally, the visibility afforded by ESM may also exacerbate differences that induce conflict among employees, which may foster a group of their own and reduced social interaction among some individuals or groups of coworkers (Leonardi *et al.*, 2013).

Third, persistence affordance was also positively related to instrumental ties but not to expressive ties. Awareness of the persistence affordance may lead to more selective self-presentation (Ellison *et al.*, 2014; Walther, 2007), as a response to more possible surveillance activities as social-related information is stored, aggregated, searched and retrieved by known and unknown others in the growing attention economy (Rice and Hoffman, 2018; Treem and Leonardi, 2012).

Fourth, although both instrumental and expressive ties positively affected in-role and innovative job performance, instrumental ties exerted stronger effects than did expressive ties on in-role job performance, whereas expressive ties exerted stronger effects than instrumental ties on innovative job performance. This is likely because instrumental ties are often used to exchange work-related information (necessary to accomplish one’s job), whereas expressive ties may provide more emotional support, which may be more helpful in encouraging risk-taking innovation (Ali-Hassan *et al.*, 2015).

## 6.2 Theoretical implications

The current study provides several important theoretical implications. First, the present research offers a more fine-grained insight into affordance theory in ESM contexts by providing quantitative empirical evidence. Affordance theory has been used by researchers to better understand different organizational information and communication technologies (Grgecic *et al.*, 2015; Koroleva and Kane, 2017; Sheer and Rice, 2017). Researchers have recently found that affordance theory contributes to an in-depth understanding of the ESM usage behavior of employees in the workplace (Leonardi *et al.*, 2013; Treem and Leonardi, 2012) and has gained increasing popularity in the IS literature (Koroleva and Kane, 2017; Leonardi, 2011; Sheer and Rice, 2017). For instance, Treem and Leonardi (2012) proposed, but did not test, that social media affordances (i.e. visibility, association, editability and persistence affordances) are positively associated with central organizational communication processes including knowledge sharing, socialization and power relations. The results of this research offer preliminary evidence for their theoretical propositions by confirming that social media affordances are associated with organizational network relationships.

Second, previous research often considered only an affordance (e.g. Mettler and Winter, 2016; Pee, 2018) or a social network perspectives (e.g. Beck *et al.*, 2014), representing either technology or social features, to explain employees’ behavior in ESM contexts. Each of these perspectives offers valid, yet partial, insights. Previous research has identified that social networks can generate benefits that ultimately affect employee job performance (Wu, 2013). Including social ties (instrumental and expressive ties) provides a more detailed understanding of the underlying processes of how ESM affordances may be associated with or influence job performance. Rather than each having separate influences, affordances and social ties can both support a knowledge environment where job performance

might improve. This approach is novel in the ESM context and addresses a recent call to augment the affordance lens with a social network perspective (Leonardi, 2013).

Third, previous research on the effect of ESM use on job performance has some mixed findings (Leonardi, 2014, 2015; Lu *et al.*, 2015). Our results provide support for the nomological validity of distinguishing instrumental and expressive social network ties in ESM contexts (Ali-Hassan *et al.*, 2015). Specifically, the four ESM affordances are related to instrumental and expressive ties somewhat differently, and these two types of social network ties have different relative influences on in-role and innovative job performance. The distinction between different types of social network ties can provide a possible explanation for the inconsistent findings in the extant ESM literature, as well as identifying possible different pathways for the relationship between ESM use (affordances) and organizational outcomes (job performance).

Furthermore, this study extends the work of researchers such as Ellison *et al.* (2014) by demonstrating that ESM affordances are primarily associated with job performance through the extent to which they enable or support instrumental and expressive ties. The exponential growth in ESM provides an unprecedented opportunity for employees to actively manage their work and social connections (Wu, 2013); this study supports that conclusion but extends it through specific types of affordances, network ties and job performance.

### 6.3 Practical implications

This research also provides some practical implications. Building and maintaining social network ties is an important way to improve employee job performance (Ali-Hassan *et al.*, 2015). Leveraging the power of ESM can enhance those network ties among employees.

First, even if employees have only a limited amount of energy and time to devote to social network ties, they can determine whether to invest that energy in an instrumental or expressive relationship (Kane *et al.*, 2014). Instrumental ties are the (somewhat) better choice to strengthen instrumental job performance, while expressive ties are (somewhat) better for strengthening innovative job performance. So emphasizing one or the other types of tie depends on which job performance type is more salient in a given context (e.g. project, goal or group).

Second, managers could strategically improve the awareness and use of ESM affordances according to their (and their employees') different foci on instrumental or expressive ties. To improve instrumental ties among employees, managers and training programs could encourage the use of ESM visibility, association, editability and persistence affordances. For example, managers should make allowing the maximum use of visibility and association affordances the default settings for an organization's ESM, thereby allowing users to see any other coworker's profile and view communications occurring between any other coworkers (within reasonable limits). In addition, given the importance of editability, managers may enable the system-wide permissions to revise content on the ESM (linking those revisions to rationales or related resources, a form of association affordance). Managers can help emphasize the persistence affordance of ESM by allowing the retrieval or display of previous activities of employees on the ESM. To develop expressive ties among employees, managers may consider promoting the association and editability affordances of ESM, both of which provide users with the experience of being exposed to shared interests and a sense of collaboration and trust. Furthermore, managers can work with ESM designers to offer other features that expand affordances. For example, visibility could be adapted through choices in listing information priority, or varying privacy controls for the two different types of social network ties.

Third, to improve their in-role job performance, users should become aware of and be familiar with the ESM's visibility, association, editability and persistence affordances. This may involve explicit training in and discussion about the nature of those affordances.

Taking advantage of these affordances could increase the strength and/or frequency of their instrumental ties with their coworkers. For example, employees can use ESM to see other coworkers' answers to other coworkers' questions, or to find information about prior projects. For employees who want to improve their innovative job performance, they could emphasize the use of association and editability affordances to improve their expressive ties with their coworkers. For example, employees can use (web)links on ESM from information they already know to find the new information they did not know, or use ESM to create or edit a document collaboratively with their coworkers.

We do note, however, that emphasizing particular ESM affordances is more difficult and abstract than encouraging specific uses. For example, Schlagwein and Hu (2017) identified, on the basis of interviews with 20 key informants, five categories of use types (broadcast, dialogue, collaboration, knowledge management and sociability). The use types and affordances are of course related, in that given social media uses are facilitated or constrained by the medium's affordances.

#### 6.4 *Limitations and suggestions for future research*

The results should be interpreted by taking several limitations, and related interesting research opportunities, into consideration. First, this research examines four ESM affordances proposed by Treem and Leonardi (2012). However, as noted above (and in Table AI), prior literature has identified a wide range of media affordances, synthesized by Rice *et al.* (2017) to six distinct ones, and by Evans *et al.* (2016) to 10. Thus, additional and relevant affordances, with corresponding justifications, could be included in an expanded model.

Second, this research focuses on the paths from four ESM affordances to social network ties. Related to the first point, these four affordances may also influence, or be associated with, each other (McGrenere and Ho, 2000). For instance, Flyverbom *et al.* (2016) argued that visibility affordance may be a significant predictor of persistence, editability and association affordances. The measurement model in Rice *et al.* (2017) shows that indeed their six affordances are intercorrelated, although there was no significant, more general, second-order factor. Therefore, future research could examine how patterns of affordances use (unrelated, or hierarchically or sequentially related) in particular contexts, for different social media, differentially affect instrumental or affective organizational network ties.

Third, as with all studies, there are likely (many) other exogenous factors affecting the model's relationships. Future research can examine additional possible explanations for the relationships among ESM affordances, social network ties and job performance (e.g. knowledge sharing norms and motivations; see Rice *et al.*, 2019). Furthermore, although we have distinguished different positions (non-management, manager, senior or executive manager and others) in the data collection, there is no information as to what kinds of roles or tasks each position is engaged in. The effect of ESM on job performance may depend on what kind of roles the person occupies.

Fourth, the data collected in this study are self-reported. However, some studies show that subjective measures of job performance or social network ties are as reliable as objective-based measures (Ali-Hassan *et al.*, 2015; Kuegler *et al.*, 2015). Further, there was little evidence of bias from using a common data source. Also, we do not measure specific network relations (as opposed to our measures of extent of the two kinds of ties), as respondents were from different organizations. Thus, future studies should test the model using data from different sources, in objective forms, and with bounded network ties (e.g. supervisor evaluations of employees' job performance, or actual ESM-based social network linkages among employees).

Finally, some of the relationships had small effects and/or were marginally significant. Thus, future research should be cautious in interpreting these results, and should further replicate and test these effects in other conditions.

## 7. Conclusion

The findings of this study are crucial in elaborating the nuances of debating about the role of ESM in the workplace. Some organizations may ban or restrict ESM use, thereby missing out on the benefits obtained from these tools. This study bolsters the body of knowledge surrounding the positive effect ESM may have on employee job performance, particularly through the causal path from affordances through social network ties. Our findings should encourage managers to develop policies and use strategies toward ESM, which can help reduce managerial fears about loss of employee productivity, as well as employee concerns about possible loss of potential networks of informational and emotional exchange within the workplace. This research also provides a starting point for future studies and practice to consider the importance of using affordance and network perspectives in ESM contexts.

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Reference	ESM affordances	Primary effects of ESM
Ellison, N.B., Gibbs, J.L. and Weber, M.W. (2015), "The use of enterprise social network sites for knowledge sharing in distributed organizations: the role of organizational affordances", <i>American Behavioral Scientist</i> , 59, 103-123	Persistence, replicability, scalability/visibility, searchability	Knowledge sharing; blurring of social and work uses and goals
Ford, D.P. and Mason, R.M. (2013), "A multilevel perspective of tensions between knowledge management and social media", <i>Journal of Organizational Computing and Electronic Commerce</i> , 23(1-2), 7-33	General social media affordances	Shifts in roles, ownership and roles, hierarchies, boundaries, bases of value in knowledge, knowledge sharing
Fulk, J. and Yuan, Y.C. (2013), "Location, motivation, and social capitalization via enterprise social networking", <i>Journal of Computer-Mediated Communication</i> , 19(1), 20-37	Awareness via push and notifications; cues about unknown others; ways to locate expertise; ongoing maintenance and updating of location cues	Three challenges to organizational knowledge sharing: location of expertise; knowledge sharing motivation; develop social capital via ties to foster knowledge sharing; in forms of connective (direct connection between people) and communal (knowledge repositories) resources
Gibbs, J.L., Rozaidi, N.A. and Eisenberg, J. (2013), "Overcoming the 'ideology of openness': Probing the affordances of social media for organizational knowledge sharing", <i>Journal of Computer-Mediated Communication</i> , 19(1), 102-120	Visibility (streams and updates); editability; persistence; pervasive awareness	Knowledge sharing
He, W. and Yang, L. (2016), "Using wikis in team collaboration: a media capability perspective", <i>Information and Management</i> , 53(7), 846-856	Reprocessability	Collaboration (convergent information processing vs just transmission)
Hemsley, J. and Mason, R.M. (2013), "Knowledge and knowledge management in the social media age". <i>Journal of Organizational Computing and Electronic Commerce</i> , 23(1-2), 138-167	Potential continuous connection, so faster dissemination; posts broadcast simultaneously to everyone in the network; develop and maintain many weak ties; reduces degrees of separation compared to offline	Better knowledge sharing; nature of work and organizing; characteristics of knowledge and knowledge management models
Hogberg, K. (2018), "Organizational social media: a literature review and research agenda", paper presented at the 51st Hawaii International Conference on	Transparency or ambient awareness; visibility or leaky knowledge	Knowledge sharing; internal communication; social capital; innovation; policies; interaction among knowledge seekers and contributors; transactive memory (who knows what and whom); job

(continued)

**Table AI.**  
Literature relating to  
ESM affordances and  
ESM effects

Reference	ESM affordances	Primary effects of ESM
System Sciences (HICSS), Hawaii, pp. 3832-3841		performance: routine and innovative job performance; blurred work-social boundaries; career development; external activities (stakeholders, customers, clients, brand engagement, online communities but also negative word of mouth, user-generated content)
Hwang, E.H., Singh, P.V. and Argote, L. 2015, "Knowledge sharing in online communities: Learning to cross geographic and hierarchical boundaries," <i>Organization Science</i> , 26, 1593-1611	Awareness (of expertise and others' expertise similarity)	Knowledge and expertise sharing across geographic and hierarchical boundaries, especially with those who have similar expertise attributes, which, in turn, strengthen expertise-based boundaries and weaken category-based boundaries
Jarrahi, M.H. and Sawyer, S. (2013), "Social technologies, informal knowledge practices, and the enterprise", <i>Journal of Organizational Computing and Electronic Commerce</i> , 23(1-2), 110-137	5 knowledge practices involving social media that support knowledge sharing: expertise locating (find particular information); expert locating (person with relevant expertise); reaching out (to find answer); instrumental socializing (developing and maintaining ties and community); horizon broadening (broader perspectives and interests)	Informal knowledge sharing and interactions in the workplace across boundaries
Lazar, T., Ribak, R. and Davidson, R. (2018), "Mobile social media as platforms in workers' unionization", <i>Information, Communication and Society</i> , 1-17	Portability Visibility	Use of mobile social media for union organizing; mobilization of workers; recognition by management
Leonardi, P.M. (2015). "Ambient awareness and knowledge acquisition: using social media to learn 'who knows what' and 'who knows whom'", <i>MIS Quarterly</i> , 39(4), 747-762	Ambient awareness	Increased knowledge acquisition, via increased accuracy of employees' "metaknowledge" (who knows what and who knows whom)
Leonardi, P.M. and Meyer, S.R. (2015), "Social media as social lubricant: how ambient awareness eases knowledge transfer", <i>American Behavioral Scientist</i> , 59(1), 10-34	Ambient awareness (of others' communications)	Improve access to, and satisfaction with, knowledge from previously unknown others
Leonardi, P.M. and Vaast, E. (2017), "Social media and their affordances for organizing: a review and agenda for research", <i>Academy of Management Annals</i> , 11(1), 150-188	ESM uses as affordances for organizing: network articulation; social transparency and metaknowledge; user-generated content	Changes in organizational processes of communication, collaboration and knowledge sharing; in turn, affecting nature of work (types, and network structures), time (current and new connections); constant availability; boundaries, and surveillance and control

Reference	ESM affordances	Primary effects of ESM
Leonardi, P.M., Huysman, M. and Steinfield, C. (2013), "Enterprise social media: definition, history, and prospects for the study of social technologies in organizations", <i>Journal of Computer-Mediated Communication</i> , 19(1), 1-19	Visibility (of communication activities, both the content and the connections; thus metaknowledge about communicative activities in the organization); persistence (content remains available to others, in same form and context, thus also enabling visibility of past content and connections)	Reinforce or change organizational processes of social capital formation; boundary work; attention allocation; social analytics
Majchrzak, A., Faraj, S., Kane, G.C. and Azad, B. (2013), "The contradictory influence of social media affordances on online communal knowledge sharing", <i>Journal of Computer-Mediated Communication</i> , 19(1), 38-55	Metavoicing; triggered attending; network-informed associating; generative role-taking	Making knowledge publicly visible and available for use, including by linking, recommending and associating, by others, with both intended and unintended implications
McFarland, L.A. and Ployhart, R.E. (2015), "Social media: a contextual framework to guide research and practice", <i>Journal of Applied Psychology</i> , 100(6), 1653	Discrete ambient stimuli: physicality; accessibility; latency; interdependence; synchronicity; permanence; verifiability; anonymity	Change relationships among cognitive, affective, behavioral constructs and processes; benefits and risks for recruitment; selection; training, development and knowledge management; leadership, teamwork and culture; socialization; management
Ollier-Malaterre, A. and Luneau-de Serre, K. (2018), "Connecting with coworkers on social network sites: Strategies, social norms and outcomes on work relationships", paper presented at the 51st Hawaii International Conference on Systems Sciences (HICSS), Hawaii, pp. 441-450	Connecting; transparency; especially within and across boundaries	Positive and negative effects on interpersonal relationships at work
Oostervink, N., Agterberg, M. and Huysman, M. (2016), "Knowledge sharing on enterprise social media: practices to cope with institutional complexity", <i>Journal of Computer-Mediated Communication</i> , 21(2), 156-176	Associating notified/triggered attention; selectivity; visibility; persistence; reviewability; metavoicing	Practices for coping with tensions between profession and corporation logics, through managing affordances
Schlagwein, D. and Hu, M. (2017), "How and why organizations use social media: five use types and their relation to absorptive capacity", <i>Journal of Information Technology</i> , 32(2), 194-209	5 types of social media use (not explicitly associated with affordances): broadcast; dialogue; collaboration; knowledge; management; sociability	Exploitative and transformative learning, affecting Absorptive capacity (capability to understand and apply new knowledge, in turn create and apply other resources); and Job performance (especially through dialogue)
Treem, J.W. and Leonardi, P.M. (2012), "Social media use in organizations: exploring the affordances of visibility, editability, persistence, and association",	Visibility persistence editability association	Organizational communication processes of socialization; information sharing; and power processes

(continued)

Table AI.

Reference	ESM affordances	Primary effects of ESM
<p><i>Annals of the International Communication Association</i>, 36(1), 143-189</p> <p>Wu, L. 2013, "Social network effects on productivity and job security: evidence from the adoption of a social networking tool", <i>Information Systems Research</i>, 24, 30-51</p>	<p>Information rich networks increase social communication; diverse information</p>	<p>Social media can change employees' networks, and thus work performance and job security</p> <p>Information-rich networks (low cohesion, high in structural holes) positively influence work outcomes</p> <p>Productivity more associated with information diversity than with social communication; job security more influenced by social communication than information diversity. Thus, there is a tradeoff between using social media for social communication or diverse information</p>

Table AI.

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