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How Social Media Can Enhance Access to Information through Transactive Memory Development

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Research Paper

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Abstract:

A key challenge for managing talent in organizations is locating and coordinating expertise. In this study, we propose that employees who use social media can help an organization locate knowledge workers who are vital to organizational growth and competitiveness. We draws on transactive memory (TM) theory to examine the relationship between social media use and knowledge workers' access to information as mediated by the formation of an organization-wide transactive memory. We conducted the research using a mixed-methods approach that combined insights from a qualitative investigation with a confirmatory large-scale survey in a multinational information technology firm. We empirically show that social media use had a positive but indirect relationship with knowledge workers' access to information via the mediation of the three dimensions of TM. We discuss our findings' implications for theory and practice, including human resource management, and directions for future research.

Keywords: Social Media, Transactive Memory, Access to Information, Human Resource Management, Mixed Methods Research

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1 Introduction

An important aspect of knowledge workers' performance is their ability to obtain advice and the right information needed to solve novel, challenging problems (Cross & Cummings, 2004; Sparrowe, Liden, Wayne, & Kraimer, 2001). Such information comes mainly from individuals or experts found through one's social network or networks of practice (Wasko & Faraj, 2005), though individuals often seek expertise outside of their established contacts (Davenport, 2008; Ehrlich, Lin, & Griffiths-Fisher, 2007; Helms, Diemer, & Lichenstein, 2011). Locating and accessing expertise in organizations is a pressing need; as such, many have developed a host of technologies for that purpose but with limited success (Nevo, Benbasat, & Wand, 2012a; Smith & McKeen, 2006; Lewis & Herndon, 2011). Current systems feature two key limitations: 1) a constant need for updates and 2) their inability to incorporate and convey experts' soft attributes, such as their level of expertise, trustworthiness, willingness to help, and communication skills (Nevo, Benbasat, & Wand, 2012b). Such attributes are important for locating and coordinating expertise (Lewis, 2004; Rulke & Rao, 2000; Smith & McKeen, 2006), and assessing experts' credibility. Consequently, in this paper, we propose that social media can address some of the limitations of traditional expertise location systems.

Broadly speaking, social media refers to technologies that allow individuals to create, share, exchange, and redistribute user-generated content (Gallaugher & Ransbotham, 2010). Social media applications facilitate collective action and social interaction (Parameswaran & Whinston, 2007), serve as a source of information (Tang, Gu, & Whinston, 2012), and facilitate diverse and broad participation and collaboration (Shneiderman, Preece, & Pirolli, 2011). Consequently, studying social media can provide a valuable window into behaviors of interest (Wilson, Gosling, & Graham, 2012).

Among many other uses, businesses use social media for managing knowledge and locating expertise both inside and outside of their organizations (Nath, Ganesh, Singh, & Iyer, 2010) and in the hiring and recruitment process (e.g., Black, Stone, & Johnson, 2015; Davison, Maraist, & Bring, 2011). They may use internally developed tools, such as the case of IBM's enterprise social networking system called SmallBlue, which helps individuals locate experts, communities, and networks inside IBM (Ehrlich et al., 2007), or they may use openly available applications such as LinkedIn, Twitter, and various Wiki and Blogging tools.

Whether organizations adopt external or internally developed applications, they still need to understand the relationship between using social media, with its diverse features, and locating and coordinating organizational expertise. They especially need to understand this relationship when locating expertise beyond the boundary of small groups and across the organization (Nevo et al., 2012b; Ren & Argote, 2011). Such research, to our knowledge, has been scarce thus far. In fact, little empirical research has been done in this context (Leonardi, 2015).

To address this gap in the literature, we draw on transactive memory theory to examine the impact of social media use on locating expertise in an organizational context. Note that we take a use-based rather than features-based view of social media. That is, we do not focus on what the media *can* do; rather, we focus on what the individual members of organizations use it for. The research model we develop and test links social media use to key dimensions of transactive memory development (i.e., identifying experts and assessing the credibility of their expertise and the availability of a shared context), which, in turn, impact individual worker's access to information[1].

This paper proceeds as follows. In Section 2, we review the relevant literature as it pertains to the development of our research model, which links social media use to transactive memory and access to information. We developed and tested the model in a mixed-methods study using first a qualitative exploration of social media use followed by a survey of knowledge workers in a large multinational organization. In Section 3, we presents our research model development and, in, Section 4, our research methodology. In Sections 5 and 6, we discuss our findings and insights. We propose that linking social media use to expertise location is an important step in understanding how technology can support the performance of knowledge workers by facilitating their access to information.

[1] In this paper, we use the term "locating expertise" to describe the phenomenon of interest and "identifying expertise" to describe one of the three dimensions of TMS, which we explain later.

2 Theoretical Foundations

2.1 Transactive Memory Theory

Transactive memory (TM) is knowledge of the memory structure in a dyad or group of people and created when individuals store knowledge with other members of their group (Lewis, 2003; Wegner, 1986). TM comprises an individual's own knowledge and that individual's awareness of their fellow group members' knowledge in the form of directories of meta-memory (Wegner, 1986). Studies have shown that, once developed, TM leads to improved performance, coordination, and decision making (Liang, Moreland, & Argote, 1995; Moreland & Argote, 2003; Rulke & Rau, 2000).

TM develops through iterational processes of memory encoding, allocation, and retrieval (Rulke & Rau, 2000; Wegner, 1986). During the encoding stage, group members obtain information about each other and create directories of meta-memory that indicate who knows what in the group. Individuals label new knowledge that comes into the group according to its specific area or domain and allocate it to the group's labeled expert in that domain. Group members can retrieve knowledge by identifying the label (the subject) of the required knowledge, associating it with the relevant group expert, and locating this expert in the group. Studies have shown that TM develops well in the presence of face-to-face interactions, discussions, and feedback (Liang et al., 1995; Moreland, Argote, & Krishnan, 1998; Moreland & Myaskovsky, 2000; Rulke & Rau, 2000). In the case of virtual teams and technology-mediated environments, studies have shown TM to develop despite challenges such as limited shared experiences, lack of a common language, limited nonverbal cues, and lack of group members' familiarity with each other (Griffith, Sawyer, & Neale, 2003) as long as the team members have sufficient time and communication opportunities (Kanawattanachai & Yoo, 2007).

The term transactive memory system (TMS) refers to the already specialized division of labor in a team and the use of TM to locate and coordinate expertise (Lewis, 2003). TMS is a latent construct with three dimensions: specialization (or the differentiated structure of members' knowledge), credibility (or members' reliance on other members' knowledge), and coordination (or effective, orchestrated knowledge processing) (Lewis & Herndon, 2011).

Given its demonstrated benefits, researchers have suggested that studying how TM can help individuals locate expertise in larger groups and even across organizations, potentially with the help of information technology, could yield informative results (Jackson & Klobas, 2008; Nevo & Wand, 2005; Ren, Carley, & Argote, 2006). However, to develop a working transactive memory system, one first needs to encode relevant meta-memories. While one may be able to capture "who knows what" in an organization, developing a sense of familiarity with others and perceiving their credibility and friendliness (for example) represent key challenges for developing effective, technology supported, directories of meta-memory (Nevo & Wand, 2005). In this paper, we propose that one can use social media tools to help form such organization-wide meta-memory (i.e., TM encoding).

2.2 Social Media

Social media refers to technologies that allow individuals to create, share, exchange, and redistribute user-generated content (Gallaugher & Ransbotham, 2010). It encompasses several applications, such as blogs, online social networks (e.g., Facebook), wikis (e.g., Wikipedia), micro-blogs (e.g., Twitter), social tags and bookmarks (e.g., Delicious), multimedia sharing applications (e.g., YouTube) and many more. Organizations have increasingly used social media over the past few years, and some researchers predict it to grow further (Bughin, 2015) as firms seek to enhance sales and marketing, knowledge sharing, internal collaboration, and communication and socialization among their members (Bughin & Chui, 2013, Culnan, McHugh, & Zubillaga, 2010; Gallaugher & Ransbotham, 2010). In 2015, 88.2 percent of U.S. companies with 100 employees or more used social media for marketing purposes, a number that has been steadily growing and is expected to reach 89.4 percent in 2017 (eMarketer, 2015).

Social media is also becoming prevalent in human resource management predominately because it helps HR recruit personnel and acquire talent (Biro, 2015; Isaacson & Peacy, 2012). Social media further promotes learning and training throughout the organization, enhances community building and a trustful organizational culture via open communication, offers the opportunity for people to come together (particularly in large organizations), and helps quickly organize disparate groups (Hauptmann & Steger, 2013). Studies have shown social media and, in particular, social networking sites (SNS) as useful for

recruiting (i.e., bringing new expertise to the company) by helping one locate and identify potential workers (Davison et al., 2011), screen potential employees' information (Black et al., 2015; Brown & Vaughn, 2011), and evaluate the personality attributes of future employees (Kluemper & Rosen, 2009). Finally, companies are also using social media to stay connected with passive job seekers by creating talent communities that would engage them and promote its brand. They are also mining social media sites and networks and watching how their own talents are interacting online (Isaacson & Peacy, 2012).

Once onboard, organizations can leverage social media to connect employees to interest groups, get them to share information about themselves to expert directories, and to provide real-time feedback and coaching. For example, electronic networks of practice, originally conceptualized as computer-mediated discussion forums (Wasko & Faraj, 2005), have evolved to include social media capabilities such as microblogging (Beck, Pahlke, & Seebach, 2014). These applications focus on a network model of knowledge sharing (Alavi, 2000) that involves direct exchanges among network members that depend on network structure characteristics (Whelan, 2007). Beyond these connections, social media as a broad class of tools can offer additional support for locating expertise by also supporting the repository model of knowledge management, which enables one to retrieve knowledge from various codified sources (Alavi, 2000).

The above studies on using social media to support the recruitment process and knowledge exchanges hint that one may achieve similar benefits when using social media to manage existing organizational expertise. Specifically, social media can help one locate expertise and to elicit information and perceptions about experts. In this paper, we study such use of social media and, in particular, how using social media can support information access, a key enhancer of job performance. To do so, we use the transactive memory theory. Due to the relatively scarce research in this area to date (De Hertogh, Viaene, & Dedene, 2011; Divol, Edelman, & Sarrazin, 2012; Leonardi, 2015), we adopt a mixed-methods approach; that is, a combined qualitative and a quantitative approach (Venkatesh, Brown, & Bala, 2013).

3 Research Model Development: A Mixed-methods Approach

Researchers have typically studied transactive memory at the dyad or group level and often looked at small teams and an interrelated task (e.g., Lewis, 2003; Rulke & Rau, 2000). Further, transactive memory systems are "a form of knowledge that is embedded in team members and in a team's structure and processes" (Lewis, 2013, p. 1519). Since we cannot assume that one can directly transfer the same processes that occur in small work teams to an open organizational environment as is the case with our study, we employ a mixed-methods approach that combines a qualitative exploration of whether and how transactive memory can develop through social media use and a quantitative investigation of the inferred relationships.

In this design, the qualitative exploration can better describe the phenomenon of interest, while the quantitative method helps generalize the insights obtained (Zachariadis, Scott, & Barrett, 2013). Researchers have recognized the mixed-methods approach as useful to address both exploratory and confirmatory questions, provide stronger inferences than a single method, and provide an opportunity for greater diversity of views (Venkatesh et al., 2013). We describe the qualitative exploration in Section 3.1 and the confirmatory quantitative study in Section 3.2.

3.1 From Social Media to Transactive Memory: A Qualitative Exploration

We first qualitatively explored the link between social media use and transactive memory development. To this end, we interviewed nine social media experts, all members of a LinkedIn social media interest group, about how they use social media to support TM. We initially contacted the interviewees through the group's facilitator and sent them a message afterwards. All those contacted agreed to participate in the study and offer insights on the topic. Our respondents were all in managerial positions in knowledge-intensive organizations across industries and actively used social media at work.

Because we focused on understanding the applicability of transactive memory theory in the social media environment, we relied on the theory to guide the interviews. Specifically, we used a semi-structured interview format that guided the interviewees to comment on how different forms of media can support different transactive memory dimensions. We first sent respondents open-ended interview questions to allow them time to contemplate their answers. Once they returned their answers, we followed up with a phone call to discuss and clarify answers and probe deeper for insights and examples. On average, the phone calls lasted approximately 30 minutes. We asked respondents to comment on how different social

media tools can support the three dimensions of transactive memory systems; namely, specialization, credibility, and coordination. The specific tools we asked respondents to consider were social networking sites, wikis, blogs, microblogs, tagging tools, and visual media (e.g., YouTube) since research has identified that organizations most commonly use these tools (Bughin & Chui, 2013). We recorded and transcribed the follow-up calls and analyzed the transcripts in conjunction with the written responses. Convergence among respondents emerged early on, and, thus, we conducted no further interviews.

Two main themes emerged from the interviews: 1) that social media can partially support transactive memory encoding and 2) that different social media tools support transactive memory in quite similar ways that are guided more by how one uses the tools than by their unique features and capabilities. We elaborate on these two themes below.

A working transactive memory system is one in which team members seamlessly allocate and retrieve knowledge from each other based on their directories of meta-memory (representing the specialization of group members) and on their perceptions of others' credibility. In transactive memory systems, expertise is efficiently coordinated based on task demands. Allocation and retrieval require that meta-memory is encoded in the TM development stage and that it spans not only "who knows what" but also perceptions of credibility and coordination ability. Respondents indicated, as shown in the quotes below, they could use social media to identify who knows what (specialization) in numerous ways. First, many applications allow one to create profiles that signal one's background, interests, and current knowledge domain.

> *Most social platforms provide a free text search feature which then allows for a search on skills and expertise thus making it easier to locate such information quickly.*
>
> *I am approaching my response based on my interpretation of "social networking sites" as being (Internal) enterprise collaboration platforms which will promote open and transparent communication within an organization. Firstly, the basis of these platforms / sites is that each individual member is required create a profile of themselves. One of the main features of a profile is identifying one's skills, experiences, work and education history. Because these profiles can be viewed by everyone in the organization it means that every person in the organization has access to everyone's information.*

Further, topics chosen for discussions on social networking sites, blog posts and comments, wiki contributions, tweets, and videos and presentations all provide signals of one's areas of expertise. One can qualitatively assess such signals by reading the content or scan through them via text searches, tags, and hashtags, as one of our respondents noted:

> *Blogs can support specialization by providing a creative medium by which subject matter experts can express their thoughts, as well as create and share content.*

Finally, tagging enables one to track topics longitudinally (i.e., their development over time) or horizontally (link to other relevant topics that are tagged as similar) to identify areas of specialization.

In terms of credibility, observable social media behavior, such as choices of posts, updates, content shared, and comments, can help form perceptions concerning one's credibility on a topic as the quote below shows:

> *Observable behavior (in the form of tweets, LinkedIn updates, content shared, and other communications generated by an individual) forms impressions in observers of the person's characteristics. This impacts whether they are considered credible around a certain subject.*

The appropriateness of tagging also indicates credibility. Individuals expect experts to use tagging in the appropriate context and identify content and relevance. Wikis and blogs allow readers to directly evaluate the content itself, whereas social networks can provide trust through common ties. With wikis and blogs, readers' ratings of content quality and contributor quality further inform perceptions of credibility. The quotes below demonstrate these points:

> *By sharing one's specialist knowledge, recognizing that facts can be easily and quickly checked today and being open to questions about the content shared, a person is quickly able to improve or increase their credibility with their colleagues and others in their business eco-system. It comes down to how the blogger reacts to the comments which are made to his blog.*
>
> *Credibility is supported on other social media such as Twitter, Pinterest, LinkedIn, SlideShare by the responses which are received to posts and interactions.*

The interviewees also indicated that they inferred expertise via one's followers on blogs and microblogs (e.g., Twitter). As the quotes below show, if known experts read and comment on blog posts or follow Twitter posts, they perceived the writer as a credible expert in the field.

> *They associate with credible x,y,z hence he must be credible so it is the perception of being credible. Initially it is more the perception of credibility until validated with some checks that legitimize the credibility.*

> *A large number of comments for a blog post, page views, ranking in search engine results may signal to observers that a person or group is credible.*

Finally, non-verbal cues such as body language in visual content and content quality can also serve to signal credibility. As one respondent commented:

> *Creating and presenting videos establishes credibility due to the fact that non-verbal cues (e.g., body language of the presenter) may enable the viewer to establish a sense of trust in the presenter and, in turn, the information being presented.*

Unlike specialization and credibility, we did not identify many mechanisms that support coordination. A commonly observed mechanism, demonstrated in the quote below, was the transparency inherent in many social media tools, which can help organizations reinforce their mission and goals through social media policies and use.

> *Massively applying standard approaches to activities and capturing and sharing information can enable everyone to march in the same direction and latently and constantly reinforce the mission of the company.*

We note that this form of coordination is more in line with structured coordination by organizations (e.g., Van de Ven, Delbecq, & Koenig 1976) rather than task coordination through shared understanding in TMS. The latter can be somewhat supported through collaborative capabilities and coordination of authorship in wikis and through real-time access to information available in many tools as the quote below explains:

> *Emailing functionality for communication is restricted to choosing who should receive the communication and thus ultimately providing them with permission. This creates silos which are removed on a social networking site. Everyone is aware of what everyone is saying, doing, at any given time.*

One interviewee, however, noted that: "In my opinion, blogs are not well suited for coordination amongst team members. I would say that blogs can support collaboration more than coordination.".

Overall, the above insights indicate that using social media in the broader organizational context (not in the small team setting) can help an organization's members to encode meta-memories that help them form an understanding of who knows what and some perceptions of each other's credibility. It supports coordination of expertise to a much lesser extent.

The second theme that emerged out of the interviews is that different social media tools similarly support the three dimensions. While the features may differ (e.g., a wiki page versus a blog post versus a discussion forum), the support that they offer is similar in nature (e.g., one can read and evaluate expertise in all three content forms). As one respondent commented:

> *I think the key is not social media but the use of social media like tools in the enterprise can be powerful change agents.*

As such, a use-based rather than feature-based approach to studying social media's support in transactive memory development and encoding may be more suitable.

In summary, we can see that it seems that using social media can offer some support for the development of TM in organizations. Building on the above insights, we develop a theoretical model that links different social media uses to dimensions of transactive memory development in Sections 3.2 to 3.7. We extend the model to include an outcome variable to demonstrate that the link from social media use to TM development can translate into improved access to information and enable employees to find the knowledge they need effectively and efficiently. We develop these links and the conceptual model below.

3.2 From Social Media to Transactive Memory: A Quantitative Study

We propose that social media incorporates the functionality needed to allow one to encode organization-wide transactive memory by explicating who knows what and providing relevant meta knowledge about experts and their knowledge. One should not confuse the encoding of transactive memory directories with the *existence* of a working TMS (Lewis & Herndon, 2011). We focus on the former here. It entails how a shared understanding of who knows what in the organization and how employees' perceptions of each other arise. The latter describes a mechanism through which members of small work groups use the shared understanding they have developed to differentiate their knowledge from others in the group and to coordinate work and perform tasks better (Lewis & Herndon, 2011). In Sections 3.2 to 3.7, we focus on the individual components of our model and our research hypotheses.

3.3 Social Media Use

Our qualitative study highlighted that it is not necessarily the differentiated features of social media but rather how individuals use the media that supports transactive memory formation. This finding is in line with related literature that identifies that the value of social media does not come from the platforms or applications themselves but from the fact that individuals can use each for a variety of purposes (Culnan et al., 2010; Majchrzak, Cherbakov, & Ives, 2009). According to the uses and gratification (U&G) theory (Katz, Haas, & Gurevitch, 1973), which is an approach to understanding consumer motivations for and gratifications from accessing and using media (Stafford, Stafford, & Schkade, 2004; Ruggiero, 2000), using social media fulfills two key needs: 1) information, knowledge, and understanding (Katz et al., 1973); and 2) basic social contact (McQuail, 1994). Ali-Hassan and Nevo (2009) further explore and validate these two uses; as such, we apply them in the current study.

We define the first need, which we refer to as cognitive use, as creating and sharing content and accessing content that other individuals produce (Ali-Hassan & Nevo, 2009; Papacharissi & Mendelson, 2011; Raacke & Bonds-Raacke, 2008); for example, sharing opinions, stories, ratings, debates, personal photos, and videos (Leung, 2009; Papacharissi & Mendelson, 2011). We define the second need, which we refer to as social use, as using social media for building new social relations (i.e., making new friends), identifying individuals with shared interests, and staying in touch with existing friends and acquaintances (Ali-Hassan & Nevo, 2009; Papacharissi & Mendelson, 2011; Raacke & Bonds-Raacke, 2008). We hypothesize that one can link both of these social media uses to developing the three dimensions of transactive memory as we explain below.

3.4 Identifying Expertise

A key component of transactive memory encoding entails accurately identifying who knows what in the group and developing directories of meta-memory. Social media tools can support this process through, for example, increasing the number of ties in a person's network and providing access to a larger pool of resources and expertise on an employee's extended network (Constant, Sproull, & Kiesler, 1996; Ehrlich et al., 2007; Wellman, Quan Haase, Witte, & Jampton, 2001). These ties can span or bridge organizational units and become channels where knowledge flows and expertise can be located (Granovetter, 1973; Hansen, 1999).

Beyond this increase in network size and exposure to potential experts, social media use also plays a role in how individuals process information. To understand this link better, we build on the dual-process models of informational influence (e.g. Chaiken & Eagly, 1976; Petty & Cacioppo, 1986). These models hypothesize two paths through which individuals evaluate information. The peripheral path relies on message heuristics, such as its length, its language, or an author's profile. The central path involves elaborating on the actual content and evaluating its quality and relevance directly. We parallel these two paths to the social and cognitive use of social media and the evaluation of expertise. Specifically, social use enables employing heuristics based on profiles, social network attributes, and other similar features.

One can view the cognitive use of social media (e.g., by using wikis, blogs and internal videos to generate and to access content or using tags to flag knowledge) through the lens of the dual-process models as centrally processing, or elaborating, on content to identify expertise (Eagly & Chaiken, 1993). Reading and evaluating content published on wikis and blogs or created using visual media can help one form perceptions of who knows what by associating authors with content. Cognitive use can further support the association between experts and content through the use of tagging and social bookmarking.

As such, we hypothesize that:

H1a: There is a positive relationship between the social use of social media and expertise identification.

H2a: There is a positive relationship between the cognitive use of social media and expertise identification.

3.5 Perceptions of Credibility

Credibility refers to an individual's trust in another's expertise. Individuals build trust through social interactions (Granovetter, 1985; Gulati, 1995; Hsu, Ju, Yen, & Chang, 2007), such as exchanging personal experiences and advice (Blau, 1964; Whitener, Gosling, & Graham, 1998). Trust can emerge through socially using media in the context of computer-enabled communities of interest where sharing and mutuality can occur (Rousseau, Sitkin, Burt, & Camerer, 1998), where knowledge-based and identification-based trust can emerge when familiarity between parties leads to predictable behavior and reduced uncertainty, and where community members develop personal or emotional bonds (Hsu et al., 2007). Further, social network ties that lie between two individuals may lead to trust through common ties (Burt & Knez, 1995; Levin & Cross, 2004), also known as the friend-of-a-friend concept.

The creation of trust can relate to the frequency and openness of the communication and to the adequacy of the explanations provided (Whitener et al., 1998). Cognitively using social media is characterized by open communication, personal conversation, in-depth feedback, and storytelling, all of which research has shown to help build trust in the context of virtual teams (Henttonen & Blomqvist, 2005; Jarvenpaa, Knoll, & Leidner, 1998). Content contribution, particularly when providing feedback or advice, is voluntary and benevolent, which further increases a contributor's perceived trustworthiness and credibility (Abrams, Cross, Lesser, & Levin, 2003; Majchrzak, Wagner, & Yates, 2013). A practical example of social media's impact on perceived trust and credibility comes from IBM, which developed a social tagging system called "Fringe". Fringe allows its employees to tag or bookmark their colleagues (as opposed to tagging content), which increases the trust in a person's capabilities by using the "wisdom of the crowd" (Jackson, 2011).

In summary, social media facilitates social interactions and allows employees to better know their colleagues, which leads to mutual understanding and a reduction of uncertainty about others' behaviors and intentions, which are pre-requisites for trust (Cao, Vogel, Guo, Liu, & Gu, 2012). As such, we hypothesize that:

H1b: There is a positive relationship between the social use of social media and trust.

H2b: There is a positive relationship between the cognitive use of social media and trust.

3.6 Coordination

Coordination refers to the degree that tasks and actions are coordinated in a smooth fashion with less effort and explicit planning (Nevo & Ophir, 2012). It also refers to the degree that knowledge is integrated in a coordinated and efficient fashion (Lewis, 2003). In working TMS, coordination is facilitated by awareness of the different group members' expertise that enables the group to plan work more sensibly, assign tasks to the people who will perform them best, and anticipate rather than simply react to each other's behavior (Brandon & Hollingshead, 2004; Moreland & Myaskovski, 2000). Hence, coordination requires individuals to encode knowledge concerning expertise but also work habits and practices. Building on our insights from the qualitative study (i.e., that social media may be more suitable to support a sharing of mission and vision across organizations) and in line with our focus on transactive memory encoding, we conceptualize coordination as shared understanding or the presence of a shared context. To develop a shared context (or shared meaning and understanding), individuals need to share contextual information such as vision, values, norms, culture, and narratives between themselves or in collectives. This can be achieved by a combination of group members' interactions such as communication, exposure to each other, and exchange of information (Cramton, 2001; Hinds & Mortensen, 2005). Social media allows for rich media and, hence, a higher ability to convey meaning (Daft & Lengel, 1986), provide a variety of important social cues (Otondo, Van Scotter, Allen, & Palvia, 2008), and transfer know-how and forms of tacit knowledge (Murray & Peyrefitte, 2007), which helps one to convey contextual information. It allows for feedback in the form of comments, replies, votes, and tags, which can potentially generate interactions and spontaneous communication, which helps in sharing context (Cramton, 2001; Hinds & Mortensen, 2005). Socially and cognitively using social media enable spontaneous communications,

interactions, and access to personal information and experiences, which, in turn, help individuals create a shared context (Cramton, 2001; Hinds & Mortensen, 2005) and coordinate tasks and knowledge (Kanawattanachai & Yoo, 2007). As such, we hypothesize that:

H1c: There is a positive relationship between the social use of social media and shared context.

H2c: There is a positive relationship between the cognitive use of social media and shared context.

3.7 Information Access

An important determinant of knowledge workers' performance is their ability to obtain advice and the right information so that they can solve problems (Cross & Cummings, 2004; Sparrowe et al., 2001). According to Cross and Borgatti (2004), employees in knowledge-intensive work, such as professional services or software development, must solve complex problems quickly, and those who can better find information perform better. Alavi (2000) conceptualizes two models of knowledge-management systems: a network model that connects sources to seekers and a repository model that stores codified knowledge. In the context of our paper, social media offers capabilities that support both models, and one can access information through both.

One can use social media tools directly as an information repository for sharing knowledge. For example, individuals sometimes use wikis explicitly for sharing knowledge in organizations (Majchrzak, Wagner, & Yates, 2006), videos on YouTube for training individuals and distributing knowledge (Kamel Boulos & Wheelert, 2007), blogs and microblogs such as Twitter for dispersing information (Efimova & Grudin, 2007), and mashups for aggregating and continuously updating information from external sources (Auinger, Ebner, Nedbal, & Holzinger, 2009). As such, we hypothesize that:

H3: There is a positive and direct relationship between the cognitive use of social media and information access.

While individuals can find information in repositories such as the ones describe above, knowledge workers also rely heavily on other people (Cross & Borgatti, 2004; Granovetter, 1973). Studies have shown that knowledge workers' most valuable information actually comes from other people in their social network (Davenport, 2008) and that employees prefer asking a direct colleague for information and expertise over searching documents and electronic repositories (Helms et al., 2011). A Forrester study found that 50-75 percent of employees obtain their information directly from other people (Ehrlich et al., 2007). The extent to which workers use others' knowledge depends on four variables: knowing the expertise of others, the value of the expert's knowledge, access to that expert, and the cost involved in asking for assistance (Borgatti & Cross, 2003). At the team level, the most critical resource for performance is locating expertise or the ability to identify and access expertise (specialized skills) and knowledge (Faraj & Sproull, 2000). In large organizations with multiple locations, the company size and the limited number of personal contacts in a dispersed workforce form a barrier to locating expertise, and personal networks often are augmented with technology (Ehrlich et al., 2007; Helms et al., 2011).

Studies have shown that, with a well-developed TMS, employees can effectively pull and push knowledge from and to other members of their team based on the knowledge of who knows what (Choi, Lee, & Yoo, 2010). At the organization level, transactive memory can help individuals locate expertise and develop perceptions of trust and credibility in their peers, which reduces the potential risk and cost of asking for information. Being able to locate expertise, trusting others' knowledge, and sharing a context for better understanding all enable groups to better use the knowledge their members possess and reach higher levels of performance than they would otherwise (Griffith et al., 2003; Kanawattanachai & Yoo, 2007; Katz & Te'eni, 2007; Lewis, 2004; Majchrzak, Malhotra, & john, 2005). As such, we hypothesize that:

H4a: There is a positive relationship between expertise identification and access to information.

H4b: There is a positive relationship between trust and access to information.

H4c: There is a positive relationship between shared context and access to information.

4 Research Methodology

We conducted a cross-sectional survey among individual knowledge workers who use social media tools in their organization. In this section, we present the survey's design and implementation.

4.1 Measures

We initially reviewed the literature to identify relevant scales and/or items. Subsequently, we developed the scales and conducted a card-sorting exercise. We adapted measurement scales from existing scales when available or we developed them specifically for this study. We adapted the items for identifying expertise from Kanawattanachai and Yoo (2007) and Lewis (2003) TMS scales. We developed the trust scale items from Lewis (2003) and Leana and Pil (2006). We adopted the shared context scale from Hinds and Mortensen (2005). We kept the original scale that measures unshared context and then reverse-coded it as Hinds and Mortensen (2005) did. We adapted the access to information scale from Spreitzer's (1996) access to resources scale and Yuan, Fulk, and Monge's (2007) individual access to information. We developed measurement scales for the two social media uses from scratch, though we adapted some items from closely related scales. For social use, we developed four items from scratch to reflect the meaning of the construct, and we took two from Chiu, Hsu, and Wang's (2006) social interaction ties. We based the cognitive use scale on Bock, Zmud, Kim, and Lee's (2005) intention to share implicit knowledge scale and Van den Hooff and Huysman's (2009) knowledge sharing instrument, though we added additional items added to reflect the consumption and collaborative generation of content.

To validate all scales, we solicited seven university professors from different disciplines (marketing, MIS, and strategy) experienced in scale development and well versed in social media to help identify potential problems resulting from ambiguous or poorly defined operationalizations, particularly with the new scales. After we re-worded or removed some items to ensure the instruments' content validity, clarity, and parsimony, we next conducted a card-sorting exercise (Moore & Benbasat, 1991). The card-sorting procedure included multiple rounds, and 20 respondents completed it. Participants were PhD and MBA students and social media users from the community of interest (see Section 4.2)[2]. Card sorting helps obtain construct validity and domain coverage and to identify ambiguous items (Moore & Benbasat, 1991). We used the first two rounds to ensure face validity of the constructs, to modify or remove unclear or confusing items, and to ensure similar categorizations of items, an early sign of convergent and discriminant validity (Moore & Benbasat, 1991). In the second sorting stage, we provided a brief definition of each construct to participants, who we again asked to sort items into groups. The overall percentage of the items properly sorted in the final round was above 90 percent, while inter-rater agreement, measured using Cohen's kappa, was 0.81 ($p < 0.0001$). These results provide support for face, convergent, and discriminant validity of the items in the survey instrument.

Following the development of scales, we designed a Web-based survey questionnaire following Dillman's (2007) and Andrews' (1984) guidelines for conducting Internet surveys. We measured all items on a seven-point scale ranging from 1 ("strongly disagree" or "never") to 7 ("strongly agree" or "all the time") with an anchor in the middle at 4 ("neutral" or "sometimes"). We randomly ordered items ordered to minimize order effect bias (Dillman, 2007). We also measured demographic and relevant control variables in the survey.

4.2 Data Collection

We collected data from a social media community of interest of 1,700 members in an international information technology company. Members of the community were employees who were interested in social media and wanted to discuss and share information about it. With more than 350,000 employees in over 150 countries, the company believes in the need to foster communication, collaboration, and information-sharing internally. As such, it has allowed and even encouraged its employees to use social media inside the organization. The company has, over the past few years, made available several internally developed social media tools but also allowed external social media use to grow organically with minimal guidance or supervision. Some members of the community were heavy users of social media, while others joined the community to better learn about various media and its capabilities. The advantage of surveying that specific community is that its members came from diverse backgrounds, levels of education and expertise, rank, age, and gender. Some community members were involved in designing and developing social media tools, others promoted it in client organizations, and some just shared the interest in learning more about it. Their extent and type of use provided the variance needed to test our model.

[2] We asked these respondents not to fill out the final survey questionnaire later on in order to minimize any risk of bias.

To learn more about their characteristics and background, we asked about demographics and general technology use. Responding to the question on the extent of their social media use outside of work (we measured using social media at work via the social and cognitive survey scales), 25.2 percent of respondents indicated they were heavy users, 45 percent were intermediate users, 28.4 percent were casual users, and 1.4 percent indicated they did not use social media outside of work. The respondents had a wide variety of jobs, with an average of 5.2 years' experience in their current position, 9.7 years in the organization, and 18.8 years' work experience in general. Table 1 shows respondents' demographic information.

Table 1. Respondent Demographics (N = 307)

		Percent
Gender	Male	75.5
	Female	24.5
Age	18-24	1.4
	25-36	32.6
	37-48	47.2
	49-64	18.8
Education	Did not complete high school	0.4
	High school degree	1.8
	Incomplete college or university	6.0
	Bachelor's degree	50.9
	Master's degree	39.1
	Doctoral degree	1.8
Region	North America	55.8
	Europe	29.3
	South America	1.6
	Asia	9.7
	Australia	3.6
Professional Involvement in social media*	Development	28.6
	Technical support	28.2
	Sales consultancy	31.8
	Consultancy	39.2
	Other	23.3
* Respondents could select more than one category		

A total of 80 members of the community responded to the pilot survey and 307 to the final survey. Overall, of the 1,700 members of the community, 387 responded to either the pilot or full survey, with a total response rate of 22.76 percent. For the full survey alone, a more conservative figure of 307 responses from a community of 1,620 (total members minus pilot responders) yields a response rate of 18.95 percent. We used the pilot data only to validate and refine the instruments and did not include them in the final analysis.

5 Analyses and Results

5.1 Measurement Model

After checking the data, we removed 49 incomplete and invalid responses, which left a final data set of 258 usable responses. To check for potential bias, we compared the means of all constructs and the demographic measures of the removed and retained responses and did not find any significant differences. Prior to testing the model, we verified the construct validity of the survey instrument using exploratory factor analysis in SPSS. The results of this exploratory factor analysis were six factors

corresponding to our six constructs, with a lowest Eigenvalue of 1.08. These six factors explained 69 percent of the total variance. We dropped two items with high cross-loadings, while all remaining items loaded significantly on their respective factors indicating a general unidimensional structure of the instrument (Hair, Black, Babin, Anderson, & Tatham, 2010). Appendix A shows the output of the exploratory factor analysis.

Normality tests have shown that the skewness and kurtosis of the trust and cognitive use constructs were slightly outside the -1 to +1 range, which indicates a minor deviation from normality (Hair, Hult, Ringle,& Sarstedt, 2013). For our analysis, we used partial least squares (with SmartPLS 2.0.M3), which allows one both to model latent variables and to simultaneously assess measurement and structural models. Partial least squares (PLS) has the advantage of a high tolerance for deviation from normality and is convenient for developing theory (Chin, 1998a, 1998b). We examined the internal consistency of the six scales in the model, and all Cronbach's alphas and composite reliabilities were above 0.82 and 0.88, respectively (Table 2), which indicates the scales were reliable (Fornell & Larcker, 1981; Hair et al., 2010).

Table 2. Item-Total Correlations and Coefficient Alphas (N = 258)

	Mean	Standard deviation	Cronbach alpha	Composite reliability
Social use	4.5	1.4	0.89	0.92
Cognitive use	5.5	1.2	0.90	0.93
Identifying expertise	5.2	1.0	0.86	0.91
Trust	6.0	0.9	0.90	0.95
Shared context	4.6	1.0	0.82	0.88
Information access	5.3	0.9	0.89	0.92

We further conducted tests of both "classic" and "lateral" multicollinearity, and the variance inflation factors (VIF) in all models examined were much lower than 3.3, which indicates the absence of any critical levels of collinearity (Kock & Lynn, 2012).

We then conducted convergent and discriminant validity tests of all scales. The cross-loading outcome showed that all items loaded significantly on their respective constructs (all above 0.70 with t-values significant at $p < 0.001$, 2-tailed) and with no cross-loading with other constructs. The exception was one item for access to information and one for trust, which we dropped from the scales. The results of the tests indicated adequate convergent and discriminant validity levels (Hair et al., 2010).

We also conducted average variance extracted (AVE) analysis, and the square root of the AVE of each construct was greater than the correlation of that construct with other constructs and exceeded 0.50 (Table 3), which indicates satisfactory convergent and discriminant validity of all constructs (Chin, 1998b; Fornell & Larcker, 1981). Based on the above tests, we concluded that the scales were reliable and valid and were suitable for hypotheses testing. Appendix B shows the final list of items.

Table 3. Construct Correlations (N = 258)

	Social use	Cognitive use	Identifying expertise	Trust	Shared context	Information access
Social use	**0.84**					
Cognitive use	0.49***	**0.85**				
Identifying expertise	0.27***	0.30***	**0.83**			
Trust	0.18**	0.32***	0.39***	**0.88**		
Shared context	-0.05	0.08	0.21***	0.23***	**0.81**	
Information access	0.28***	0.34***	0.67***	0.48***	0.28***	**0.84**
*** $p < 0.01$, ** $p < 0.05$ - The diagonal is square root of AVE						

5.2 Common Method Bias

To minimize the risk of common method bias, we worded the survey questions in a way to reduce social desirability and tested them for clarity in the pre-testing phase. We also randomly generated the order of the questions in the online survey for each respondent, and the respondents remained anonymous to

reduce the evaluation apprehension (Podsakoff, MAcKenzie, Lee, & Podsakoff, 2003; Singleton & Straits, 2005). Following Podsakoff et al. (2003), we conducted several post-hoc statistical tests to assess the severity of the common method bias. The Harman's single-factor test generated six unrotated factors, and the amount of variance explained by a single factor was 30.4 percent, which suggests that common method bias was unlikely to contaminate the results (Podsakoff et al., 2003). We conducted a second test to control for the effect of an unmeasured latent common methods factor in PLS. We allowed items to load on both their theoretical construct and a latent common methods factor, and then we examined the significance and magnitude of the loadings. Only six common method loadings were significant with an average variance of 0.046, whereas the average explained variance of the theoretical constructs was 0.851, with all loadings highly significant (Appendix C). Given these results, we are confident that common method bias did not affect the results.

5.3 Structural Model

We used the structural model of the PLS regression to test the hypotheses. We used bootstrapping (258 cases, 5000 samples, and no sign changes) to assess the significance of the hypothesized relationships and the amount of variance in the dependent variables attributed to explanatory variables (Chin, 1998b). Figure 1 presents the results of the analysis.

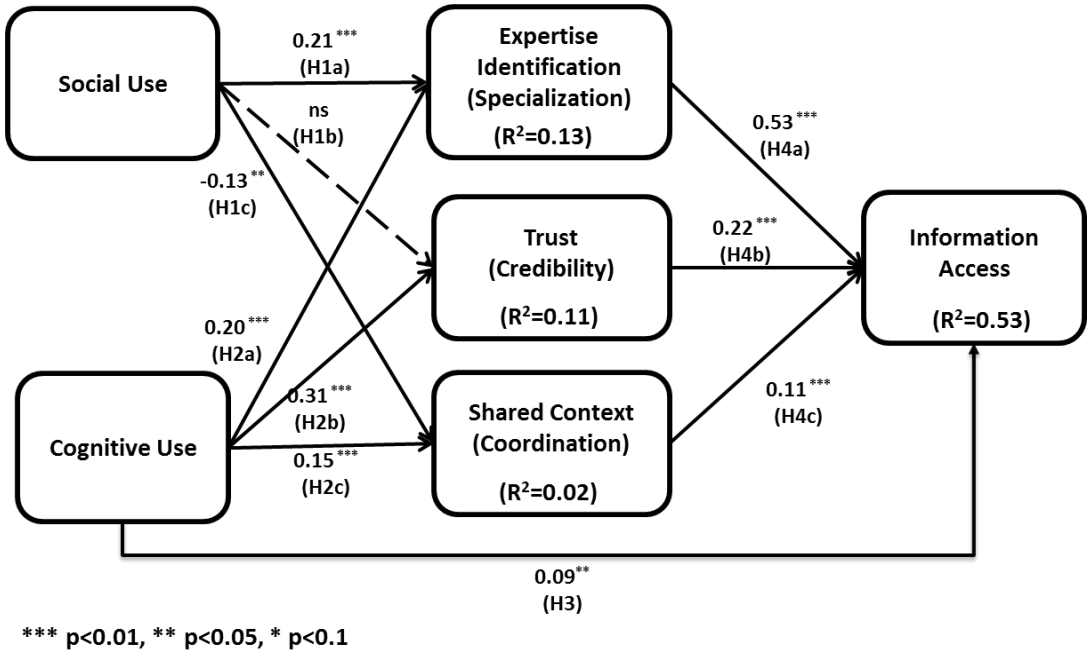

Figure 1. Structural Model

We also conducted a test of mediation on the model to test whether transactive memory mediated the relationship between socially and cognitively using social media and information access and to test whether this mediation was partial or complete. We relied on Preacher and Hayes' (2008) recommendations for using a bootstrapping technique in testing mediation. Preacher and Hayes' (2008) procedure is recommended for PLS since it does not require multivariate normality (Hair et al., 2013). After confirming the significance of the link between social and cognitive use and information access without the presence of the mediator variables, we included the three mediators and assessed the significance of the indirect link and level of mediation using the bootstrapping technique (Preacher & Hayes, 2008) and the calculation of the variance accounted for (VAF) as described in Hair et al. (2013). Table 4 summarizes the results.

Table 4. Bootstrap Tests for Mediation (N = 258)

Indirect effect	β	t-value (Sig)	VAF	Mediation
Social use → info. access	0.134	3.49(***)	0.78	~Full

Table 4. Bootstrap Tests for Mediation (N = 258)

Cognitive use → info. access	0.191	4.40 (***)	0.71	Partial
*** p < 0.01, ** p < 0.05				

Based on Table 4, we can conclude that the TM encoding constructs mediated the relationship between social media use and information access. To determine the strength of this mediation, we relied on the variance accounted for (VAF), which equals the indirect effect size divided by the total effect (indirect + direct effect). A VAF between 20 and 80 percent indicates a partial mediation, while a VAF greater than 80 percent indicates a full one (Hair et al., 2013). The VAF for the relationship between social use and information access was 0.78, meaning that including the mediators explained 78 percent of the relationship. This result, combined with the lack of theoretical justification for the direct relationship, leads us to model the relationship as fully mediated. The VAF between cognitive use and information access was 0.70, which indicates a partial mediation. Finally, we collected several control variables (age, gender, education, country of residence, and organizational, positional, and professional tenure) for this study to rule out rival hypotheses and possibly help in interpreting the results. However, none were significantly associated with any construct in the model.

6 Discussion

In this study, we analyze the relationship between a popular technology, social media, and access to information (a key determinant of knowledge workers' job performance) by examining social media's support in TM encoding. We studied two key social media uses (social and cognitive) and their relationship to three aspects of transactive memory encoding (expertise identification, trust, and shared context). We propose that social media can enhance the formation of directories of meta-memory at a time when other technologies such as expertise-locating and management systems and expertise directories have limited success (Nevo et al., 2012a; Smith & McKeen, 2006; Lewis & Herndon, 2011). With this study, we demonstrate that using social media has the ability to support TM encoding and future TMS across an organization, which enhances individual knowledge workers' access to information.

Indeed, we show that both social use and cognitive use had a positive relationship with identifying expertise (H1a and H2a). Using social media to socially interact with others or to collaborate, create, and share knowledge with others all provided good signals of others' expertise and supported identifying expertise across the organization we studied. With respect to perceptions of trust, we hypothesized that both key uses of social media positively relate to trust or perceptions of credibility of others' expertise. H2b, which we found support for, states that cognitively using social media highlights colleagues' abilities, skills, reliability, and benevolence and, hence, can lead to others trusting their expertise and believing that they are credible. Surprisingly, we did not find support for H1b, which proposes that trust emerges out of social interactions and shared social ties. One possible explanation for the lack of support for H1b is that social relations and interactions may be more related to affective trust such as caring, benevolence, and emotional connections rather than cognitive trust such as competence, reliability, and professionalism (Lewis & Weigert, 1985; McAllister, 1995), and the latter is the one more commonly associated with TM (Kanawattanachai & Yoo, 2007). We need to further examine the complex relationship between trust and the socially using social media.

As hypothesized, we found that cognitively using social media was significantly and positively associated with shared context (H2c) due to social media's ability to convey meaning and the transfer of know-how and because it facilitates spontaneous, informal, flexible, open, and uninhibited communication. The fact that content ownership is highly visible with social media also contributes to a shared context. However, we surprisingly found that the social use was negatively associated with shared context, albeit moderately (H1c), meaning that social interactions, sharing social cues, and access to personal information and experiences, via social media, may undermine shared context, an outcome worth investigating further in future studies. The knowledge workers in our study did not seem to rely much on social media content for accessing information because the relationship between the cognitive use of social media and information access was very weak (H3). Finally, we found support for our hypotheses (H4a, H4b and H4c) that the three dimensions of TMS are significantly related to individual employee access to information in a knowledge-based organization.

Overall, we note that we found a significant link from social media use (social and cognitive) to TM—an important contribution because it provides evidence for the ability of information technology to effectively support organization-wide TMS. Such evidence has been scarce thus far (Nevo et al., 2012b; Ren & Argote, 2011).

6.1 Contribution

Our study makes several contributions to the literature and practice. It augments our understanding of social media's benefits in human resource management. In addition to social media's direct benefit to employees in the form of communication, collaboration, development, support, training, and engagement (Isaacson & Peacy, 2012), employees can also benefit from using social media at work to locate expertise. One should consider these benefits when evaluating the impact and value of social media on human resource management. Our study shows that social media use was positively associated with the development of transactive memory, which facilitates knowledge access. Much literature on TM's benefits for knowledge workers supports the importance of social media as a facilitator of TM encoding.

Studies have shown that TM in small groups leads to benefits such as improved performance, coordination, and decision making and that TMSs have a positive impact on team performance. However, few, if any, studies have looked at the development of TM across an organization and its impact on individual knowledge workers' job performance via their access to information. We found that the three dimensions of TM were significantly related to individual employees' access to information in a knowledge-based organization. Of the three dimensions of TM, specialization had a strongest relationship with information access, indicating that building accurate directories of "who knows what" in organizations is crucial for helping individuals locate expertise. Among the three dimensions of TM, social media use had the strongest support in specialization, possibly due to the existence numerous social media features that focus on highlighting employees' knowledge, expertise, and experiences. Credibility, however, was more challenging to identify and capture in our organizational setting, even with the support of social media. Building on our theoretical foundations, our results show that people tended to rely more on the central rather than the peripheral route to persuasion because we see that credibility was more strongly related to cognitive use (reading and elaborating on content) than to social use (relying on heuristics and social network characteristics). Our results also show that coordination was most difficult to achieve at the organizational level due to the difficulty in coordinating tasks and knowledge with a large number of individuals. Studies have found that, to effectively coordinate knowledge, one needs to develop representations of how tasks can be divided, how subtasks are interrelated with each other, and how subtasks are assigned to team members (Kanawattanachai & Yoo, 2007), which is difficult to achieve at the organizational level. This challenge could explain the low R-square of the coordination construct and the low significance of the relationships associated with it.

Our treatment of social media also presents a contribution to the field. Following recent views that IS use is a complex and multidimensional construct, we take a use-based rather than feature-based approach and study two important types of social media use; namely, social use and cognitive use. In developing social media policies and guidelines for human resources one can focus on specific tools and applications (e.g., rules concerning the use of tool X in the organization) or—in line of what we did in this study—focus on how individual use tools (e.g., rules concerning social use). In the case of grassroots, flexible technologies, such as social media, we feel that the latter has much to offer in terms of understanding how individual use them and such use's relationship with various organizational factors. Adopting a professional social networking application such as LinkedIn may create chances for social ties and interactions ("social use") and at the same time offer discussion forums and interest groups to allow one to publish, disseminate, and consume expertise ("cognitive use"). As we show in this study, these two types of use—even in the same tool—play different roles in providing benefits for employees.

Further, to enrich our understanding of the links between social media use and TM, we followed a mixed-methods approach that combined both qualitative and quantitative research. Our interviews provide insights on the relationship between social media and transactive memory. They further show that a wide range of tools, from social networking sites to tagging tools to visual media, support the dimensions of TM. The interviews show the range and variety of cues that social media users use to learn about expertise, to gauge experts' credibility, and to facilitate coordination of knowledge. These insights can fuel research on heuristics in expertise location.

Finally, we incorporated transactive memory theory in our model. Researchers originally developed and tested transactive memory theory in the context of dyads and small groups. Researchers who applied the

theory in virtual teams, (e.g., Kanawattanachai & Yoo, 2007; Griffith & Neale, 2001) showed that it is possible to support TM in the technology-mediated environment, although such environments may still need richer interactions, such as face-to-face sessions, to enhance TM development. Across organizations, TM can develop with the help of technology as long as we can capture and represent not only who knows what but also group members' trust of one another (Nevo et al., 2012b). The work we describe in this paper goes one step further by empirically showing that social media use can indeed signal such attributes and effectively support organization-wide TM.

6.2 Limitations

Our study has several limitations. The first limitation concerns the sample frame, which comprised employees of a single company. However, this large information technology organization is one of the very few to experiment with a wide array of social media tools over the past ten years or so. Given that the organization did not mandate that employees had to use the tools, the sample showed variance in social media use despite the fact that the respondents self-selected themselves for participation. Moreover, most employees of the organization qualified as knowledge workers, the focus of this study. We also note that we had only a small number of non-users in our respondents, and, thus, one should interpret our results as reflecting a magnitude of use rather than use versus non-use. A second limitation concerns the potential risk of social desirability bias in questions about shared context and trust. However, we expect that the guarantee that all responses would remain anonymous and the fact that we could not attribute individual responses to have alleviated some of the risk of bias (Singleton & Straits, 2005). Third, we used a reverse-coded scale to measure shared context, which may have led to the low R-square for this construct and should be replicated in future studies. Finally, although we deliberately selected a use-based approach to studying social media, there is a possible limitation that stems from the fact that some social media tools are more prone to social use (e.g., social networks) while others are more cognitive in nature (e.g., wiki). It may be valuable to study these tools separately to tease out their specific relationship with TM dimensions.

7 Conclusion and Future Research

In this paper, we focus on understanding the link between social media use and knowledge workers' access to information. To do so, we focus on one specific route: TM. At the broad level, future work should continue to explore the different links from social media to information access to gain a better understanding of its business value. Future work can explore additional use dimensions beyond social and cognitive use and link these dimensions to relevant constructs. Because of the grassroots nature and fast pace of change of many social media applications, longitudinal studies can examine whether these use dimensions are stable over time and whether new dimensions emerge with new applications. It would be very interesting to see whether new uses emerge for social media and how these new use dimensions impact organizations.

The human resource literature has identified social media as a valuable recruiting tool that can help screen employees and obtain information about them (Black et al., 2015; Brown & Vaughn, 2011; Davison et al., 2011). Black et al. (2015) highlight an important privacy issue with using social media information for purposes unintended by candidates. Wilson et al. (2012) also highlight the privacy concerns in their review of Facebook research. One can investigate a similar question in the locating expertise if experts are not interested in being identified as such and the information they post is used in a way that its contributors did not necessarily intend. Social media users may resent being evaluated as experts based on their posts, and there may be intricate effects on how employees use social media if they know they are being evaluated.

Future work can further explore the link between social media, knowledge management, and performance. One interesting variable to study in this context would be mutual knowledge (Cramton, 2001). Cramton (2001) identifies two important facilitators of mutual knowledge; namely, direct knowledge and interactional dynamics. One can develop direct knowledge through cognitively using social media in which all members are exposed to the open and easily accessible knowledge of others (e.g., through wikis and blogs). Socially using media supports social interactions among group members, which, in turn, supports interactional dynamics. However, it is not clear how social use would impact mutual knowledge. For example, if cliques form, they are likely to reduce mutual knowledge. Hence, it would be very interesting to study social media's impact on performance through the mutual knowledge route.

Another interesting investigation would be to identify the balance between codified knowledge and experts. Whole social media provides links to a large number of experts, it also generates large amounts of codified knowledge through blogs, wikis, discussion forums, and similar tools. As our ability to search these knowledge bases improves, it would be interesting to see whether people rely more on social media's ability to locate experts to interact with or to locate previously codified knowledge. While much work (especially in the literature on electronic networks of practice) has studied the network model of knowledge (e.g., Beck et al., 2014; Wasko & Faraj, 2005; Whelan, 2007), we still need work on social media as knowledge repository.

Finally, organizations are increasingly adopting social media for its many obvious benefits, including its ability to support communication, collaboration, community building, employee engagement, and so on. Most organizational departments (e.g., marketing, public relations, research and development, and human resources) gain these benefits. Using social media inside the organization also has indirect and less visible benefits, such as its support for the emergence of a transactive memory system, which has known and proven benefits. However, concerns and risks of using social media persist, and human resources departments have the responsibility to develop the appropriate social media policy for their organizations based on their specific needs and dissipating it to all employees. We believe that human resources departments should provide training to all employees on social media policies, educate them on its direct and indirect benefits, promote its (proper) use, and provide training for those who need it.

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Appendix A: Exploratory Factor Analysis

Table 5. Exploratory Factor Analysis

	Social use	Cognitive use	Trust	Info. access	Expertise Identif.	Shared context
Soc1	**.759**	.219	.005	.180	.139	-.064
Soc2	**.754**	.205	-.021	.119	.132	-.051
Soc3	**.646**	.331	.057	.086	.049	-.093
Soc4*	**.525**	.427	.134	.283	.000	-.033
Soc5	**.827**	.165	.013	.015	.151	-.014
Soc6	**.766**	.174	.068	.047	.149	.008
Cog1	.234	**.809**	.125	.153	.079	-.008
Cog2	.270	**.704**	.044	.041	.160	.062
Cog3	.190	**.833**	.092	.103	.103	.055
Cog4	.212	**.642**	.093	.112	.128	.078
Cog5	.195	**.691**	.145	.191	.061	.008
Trust1	.015	.158	**.821**	.120	.208	-.015
Trust2	.053	.104	**.812**	.112	.135	.103
Trust3	.103	.100	**.858**	.161	.135	.092
Trust4	.010	.074	**.808**	.126	.047	.101
Trust5	-.016	.029	**.595**	.032	-.027	.142
InfoAcc1	.131	.106	.144	**.716**	.373	.051
InfoAcc2	.146	.208	.128	**.626**	.352	.058
InfoAcc3*	.157	.086	.144	**.555**	.406	.052
InfoAcc4	.078	.137	.119	**.708**	.349	.150
InfoAcc5	.058	.120	.168	**.637**	.388	.173
InfoAcc6	.070	.150	.090	**.515**	.135	.214
ExpId1	.138	.092	.024	.187	**.796**	.059
ExpId2	.108	.034	.136	.381	**.518**	.155
ExpId3	.082	.077	.148	.295	**.718**	.132
ExpId4	.141	.164	.089	.331	**.662**	.044
Cntxt1	-.003	-.017	.050	.092	.000	**.796**
Cntxt2	-.062	.009	.106	.038	.088	**.635**
Cntxt3	-.053	-.008	.137	.037	.103	**.782**
Cntxt4	-.031	.103	.020	.154	.057	**.659**

* Items dropped for cross-loading

Appendix B: Final Survey Items

Table 6. Final Survey Items

Category	Item wording
	In my organization, I use social media to…
Social use	create new relationships at work
	get to know people I would otherwise not meet at work
	maintain close social relationships with people at work
	get acquainted with colleagues who share my interests
	discover colleagues with interests similar to mine
Cognitive use	share content with colleagues
	create content in collaboration with colleagues
	create content for work
	disseminate content at work
	access content created by my colleagues
	In my organization…
Expertise identification (Specialization)	I have a good “map” of my colleagues’ talents and skills
	I know who in my organization has specialized skills and knowledge that are relevant to my work
	I am aware of the skills and knowledge of many of my colleagues
	I know which colleagues have expertise in specific areas
Trust (Credibility)	I have several colleagues whose skills I trust
	Overall I can rely on the colleagues I work with
	Generally speaking, my colleagues and I have confidence in one another
	In general, my colleagues show a great deal of integrity
	How often do you experience at work:
Shared context (Coordination)	Incompatibility between your colleagues' work practices and yours
	Differences between your colleagues' priorities and yours
	Incompatibility between your colleagues' information and yours
	A difficult time understanding your colleagues when you interact with them
	In my organization…
Information access	I can obtain the information necessary to do my job
	when I need additional information to do my job, I usually get it
	the amount of information available to me is sufficient for me to make good decisions
	I have found that information is generally complete enough for me to make good decisions

Appendix C: Common Method Bias Analysis

Table 7. Common Method Bias Analysis

Construct	Indicator	Substantive factor loading (R1)	$R1^2$	Method factor loading (R2)	$R2^2$
Social use	SOCUSE1	0.814***	0.787	0.062	0.004
	SOCUSE2	0.860***	0.740	-0.005	0.000
	SOCUSE3	0.755***	0.832	0.004	0.000
	SOCUSE5	0.913***	0.771	-0.070*	0.000
	SOCUSE6	0.853***	0.629	-0.011	0.000
Cognitive use	COGUSE1	0.887***	0.659	-0.005	0.000
	COGUSE2	0.860***	0.753	-0.032	0.001
	COGUSE3	0.912***	0.850	-0.052	0.003
	COGUSE4	0.8779***	0.887	0.011	0.000
	COGUSE5	0.793***	0.878	0.081*	0.007
Trust	TRUST1	0.812***	0.578	0.073*	0.005
	TRUST2	0.868***	0.654	0.059*	0.003
	TRUST3	0.922***	0.723	0.001	0.000
	TRUST4	0.942***	0.750	-0.140***	0.020
Identifying expertise	EXPIDE1	0.937***	0.594	-0.107**	0.011
	EXPIDE2	0.760***	0.724	-0.045	0.002
	EXPIDE3	0.809***	0.554	0.051	0.003
	EXPIDE4	0.850***	0.815	0.014	0.000
Shared context	CNTXT1	0.866***	0.578	-0.038	0.001
	CNTXT2	0.771***	0.501	-0.023	0.001
	CNTXT3	0.851***	0.861	0.003	0.000
	CNTXT4	0.744***	0.790	0.062	0.004
Information access	INFOACC1	0.903***	0.787	-0.051	0.003
	INFOACC2	0.760***	0.740	0.059	0.003
	INFOACC4	0.928***	0.771	-0.096	0.009
	INFOACC5	0.889***	0.629	-0.058	0.003
Average		**0.851**	**0.724**	**0.046**$^{\pm}$	**0.003**

$p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, ± Average of absolute values

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