Social Media, Social Capital, and Knowledge Sharing in an Enterprise

Mohammad Hossein Jarrahi
University of North Carolina, Chapel Hill, School of Information and Library Sciences
200 Manning Hall
Chapel Hill, NC 27599 USA
Phone: +1 (919) 962-8364
jarrahi@unc.edu

Abstract

This article provides insight into the transformative role that social media may play in informal knowledge sharing (KS) in an enterprise through the lens of social capital. This work explores the ways in which the use of social media results in digital transformation of informal ties that provide the social capital needed for KS, both within and across organizations. The effects of social media on these social ties are observed in a field study of social media adoption by consultants.

Introduction

The rapid uptake of social media in social and organizational contexts, combined with growing interest in the broader digital transformation that they enable, raises pertinent questions about uses of these tools for knowledge sharing (KS) in organizations. Social media are now considered one of the few megatrends defining the digital transformation of business across many industries [1]. This article is motivated by two broad phenomena: (1) the importance of informal knowledge-sharing in organizations, and (2) the rapid rise in the variety and prevalence of social technologies. The concept of social media can include both (1) public social technologies such as blogs, wikis, and major public social networking sites (e.g., Facebook, Twitter and LinkedIn), and (2) enterprise social networking technologies used by a host organization (such as Jive, Yammer, SocialCast, and SocialText).

The empirical basis of this article is a field study focused on the uses of a variety of social media by knowledge workers from 17 consulting firms. These firms are archetypal knowledge-intensive environments and can be considered harbingers of possible futures in the industry.

This work combined four forms of data collection: interviews, micro-studies of practice, documents, and system level data. However, the primary source of data for this research is the interviews with consultants from multiple management consulting firms. We interviewed 58 consultants and pursued a broad range (maximum variation sample) of age, gender, and position level in the organizations (managers vs. non-managers). The interviews elicited how these workers share knowledge within and across boundaries, and how social media support their knowledge practices.   Table 1 outlines the demographics and social media use of the participants. System-level data were particularly useful in capturing the ways that LinkedIn and Twitter were perceived and used. Uses of Facebook and internal social networking systems were self-reported via interviews.

Table 1. Participants' information

Gender	Male	35
	Female	23
Organizational role	Consultants	34
	Managers	24
Age	Under 30	25
	30 and above	33
Facebook use	None	11
	Connecting with professional contacts (e.g. coworkers)	26
	Not connecting with professional contacts (e.g. coworkers)	21
Twitter use	None	36
	Lurking and following trends	14
	Tweeting frequently	8
LinkedIn use	None/Limited	14
	Keeping an active profile and professional networking	32
	Keeping an active profile, professional networking and participating in LinkedIn communities	12
Use of internal (enterprise) social networking systems	None	35
	Keeping a profile	13
	Actively engaging in networking and community building	10

Total	58

Informal knowledge sharing and use of ICT

Informal knowledge activities allow workers to cross organizational boundaries, and to incorporate different sets of expertise, perspectives, and problem-solving capabilities into their work practices [2]. These activities also enable workers to go beyond the organization's formally captured or documented knowledge base, and to exchange tacit experimental knowledge and stories about concrete cases [3]. Informal knowledge activities, which take place independently of the organization's formal communication systems, are more critical in knowledge-intensive contexts where there are fewer formal processes in place dictating how work should be accomplished and how communication and KS should be conducted [4]. As Deloitte's Chief Learning Officer asserts, 90% of learning and KS in these contexts is performed informally based on interpersonal relationships [5].

In the past 30 years, a wide variety of information systems have been developed to address the knowledge boundaries within and across organizations, often called knowledge management (KM) information systems. These systems are considered by some to have created promising platforms to foster KS in organizations. Since communication via personal channels is the most effective means for transferring highly context-specific and tacit knowledge, the decontextualized approach of classic KM tools falls short of embracing individuals' critical experience, expertise, learning, and insights [6]. In recent years, knowledge workers are increasingly turning to social media to seek out and share informal knowledge. Many now recognize the value of social media for organizations, stating that enterprises are rapidly adopting social networking technologies. Social media are a form of ICT that provide a viable platform upon which social interactions among individuals can be built [7]. This definition of social media refers to tools that build on and facilitate interpersonal relationships, and are therefore useful for bolstering informal KS across temporal and spatial boundaries. The question is, what will be the effect on knowledge work, on the informal networks that undergird KS activities, and on workers increasingly using these technologies?

The social capital perspective

To explain the impact of social media uses on informal KS activities in enterprise, we build upon the concept of social capital, and explore how these technologies may result in the digital transformation of informal networks.

The concept of social capital enables us to examine the interplay between the adoption of social media and informal communication structures. Social capital theory broadly defines social capital as resources derived from the relationships among people in varying social contexts [8-10]. Nahapiet and Ghoshal [9] posit social capital as "*the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit*" (p. 243). Thus, the value of one's social network lies in the social capital that is embedded in the network relations. The central premise of social capital research is that network ties create valuable resources for the conduct of social practices, offering network members "*the collectivity-owned capital, a credential which entitles them to credit, in the various senses of the word*" [11, p. 249].

Therefore, the power of informal networks for KS can be attributed to the social capital that they enable. Scholars employing the social network perspective note that knowledge benefits, such as privileged access to sources of knowledge, are derived from high levels of social capital [9]. Social capital embedded in these networks facilitates KS by enabling individuals to locate useful knowledge, to draw on existing resources, and to make contributions to the networks. Applied to organizational contexts, the concept of social capital can help us examine the ways in which social ties can facilitate knowledge exchange within organizations.

The most visible impacts of social media on social capital (which underlies informal KS) can be demonstrated by focusing on the interrelated concepts of tie strength (strong vs. weak ties), structural holes, and boundary spanning as key structural dimensions of social capital.

Strong ties

Tie strength is often considered critical for understanding the effectiveness of KS relationships. Tie strength is defined as the amount of time, emotional intensity, or reciprocity between two actors in a network. Based on these dimensions, social ties can be categorized into strong and

weak ties, which have different ramifications for KS relationships. Putnam [10] differentiates between bonding and bridging social capital, where bonding social capital corresponds to strong ties, and bridging refers to weak ties, bringing together the concepts of social capital and tie strength.

Strong ties reflect well-established personal relationships with family and close friends, who can provide emotional support or access to scarce resources. They are often found among individuals in tightly knit communities in which people are emotionally close. This type of relationship can be instrumental for transferring complex knowledge between coworkers and for cultivating deeper KS practices [12].

Traditional communication technologies, such as email, are still considered useful for reaching out to strong ties for work-related inquiries. We, however, found that younger knowledge workers may employ public social media such as Twitter for reaching out to find and exchange knowledge. No matter where these social links are geographically located, younger knowledge workers may develop close relationships with those they rely upon for work-related or personal advice. One subject, who was just starting at their current company, reflected this mindset: *"I actually have a strong group of Twitter friends. We have a tight group of interests that we have in common, and we're able to support each other in decisions we make […] I use Twitter quite heavily, especially for getting advice, or if I'm thinking about something I'm wondering what other people think."*

Beyond providing direct contacts, different forms of social media are seen as instrumental for supporting strong ties and converting weak ties to strong ties, thereby providing access to greater depths of knowledge. The use of both public and enterprise social networking technologies enables rapport-building and stronger working relationships that emerge from personal information exchange. Knowledge workers get to know their colleagues through previous projects and may stay in touch with them beyond a project's timeframe. In most consulting firms, knowledge workers work on numerous projects, and in doing so have the opportunity to work with multiple teams. They develop these network ties from the first day of employment, and many consulting organizations have procedures to support such network

development. Similarly, the use of social tools such as LinkedIn, Facebook, or an enterprise's social networking platform opens the possibility of continuously maintaining social awareness of these essential strong ties. Common features of social media, such as profile status, appear to bolster already-established relationships, and create a virtual environment where close friends and colleagues can maintain strong ties. LinkedIn is useful for keeping organizational members updated about colleagues' current positions and engagements as they move among jobs and companies, which is quite common in the US job market.

Some subjects have "friended" close coworkers with whom they have already developed rapport in the workplace. The use of Facebook allows people to reinforce these social ties and keep up with important events in each other's personal lives. One subject pointed out: *"What's great about Facebook is the fact that someone can put all their pictures of their kids up, and I can meet them in the airport and be like, Oh, I saw the pictures of your kids. And the conversation at the airport can be 2 minutes. And so that's very good for casual connections, and for the connections that you really wanna maintain."*

In addition, these tools solidify social ties; through repetitive and intensified social interactions enabled by social technologies, new and weak social ties can be transformed into strong ties over time. Some people employ LinkedIn as a networking and community-building tool. A few subjects noted that active participation in the LinkedIn communities may result in professional face-to-face meetings, consequently bringing about more opportunities for nurturing weak ties into strong ties.

Weak ties

Several researchers have argued that social media play an even a more crucial role when it comes to supporting and extending weak ties [e.g., 13]. A network around a knowledge worker often consists of a core of strong ties and a large periphery of weak ones. Although weak ties lack the depth of strong ties, they offer a breadth of social relationships. Weak social ties can produce bridging social capital, formed when individuals from different backgrounds make connections between social networks. Organizational actors usually maintain these relationships in greater number than strong tie relationships; therefore, weak ties are typically

helpful for giving an individual access to a greater breadth and variety of knowledge sources [12].

Weak ties are critical for locating experts and building the social infrastructure that facilitates expert locating. Expert locating is an informal and largely social process through which workers seek advice and input from others [14]. The situations driving this activity involve questions or problems that are too complex or nuanced to be articulated for searching in knowledge repositories. In these situations, the appraisal of the knowledge problem often also reveals that the immediate social contacts of a knowledge worker (strong ties) are less likely to have the required knowledge. This combination of need and lack of success drives the worker to reach out to other people in their extended social network (weak ties).

Different types of social media serve as platforms that facilitate expert locating within and across enterprises. Both public (e.g., Twitter and LinkedIn) and enterprise social technologies (e.g., Yammer) are considered to be visible and effective venues for discussing work-related questions, and more importantly for finding experts on various topics. Steinfield et al. [15] suggest that the use of enterprise social networking technologies in IBM helped workers make new connections within the organization, and forge awareness about colleagues and other social contacts. In consulting firms, profiles created on internal social networking platforms are a viable means through which project managers can search for and identify employees with expertise relevant to projects, particularly when staffing and preparing proposals.

Public social media provide access to a general interorganizational audience. A simple tweet addressed to people from other organizations within the same industry can result in the identification of experts. A subject noted: "*Unless what I'm working on is confidential, or too private, I have no hesitation in just tweeting out: I'm having this problem, has anybody else had this? And just, I'm always shocked, because sometimes a person that I've never talked to before will respond, other times like 4 or 5 people will respond from my network saying, I had that same problem recently; here's how I fixed it.*"

LinkedIn supports expert locating practices via its communities and profile search function. In particular, for people with technical roles, LinkedIn communities offer forum-like capabilities

where a question can be brought to the attention of members of a large community who share interests and expertise in the same topic. In addition, LinkedIn can be used as an organizational tool for locating expertise. For example, a consulting firm now uses consultants' LinkedIn profiles as a means for both identifying sources of expertise and communicating with customers. Previously, consultants were expected to maintain a biography in the form of an MS Word document on a central resource management system, and update it immediately after each project. When a consultant is assigned to a project, the LinkedIn profile is sent out to the customer, who can look at the consultant's areas of expertise, as well as professional and educational backgrounds. As such, LinkedIn as a public social tool offers affordances for locating relevant experts for both the consulting firm and client organizations.

Structural holes and boundary spanning roles

The concept of structural holes pinpoints the lack of social connection among different parts of a network within an organization. Structural holes here can be understood as some of the discontinuities that impede KS within and across organizations. In most contemporary organizations, knowledge and expertise are cultivated and retained within organizational silos [16]. These boundaries can make it difficult for employees to reach out to and take advantage of their colleagues as knowledge resources. In particular, large, fragmented organizations can be seen as networks riddled with structural holes. Lack of KS constrains many organizations, as illustrated by the well-known statement by Lew Platt, former CEO of Hewlett-Packard: *"If only HP knew what HP knows, we'd be three times more productive."*

As organizational knowledge is distributed in organizational communities that are separated by location, division, or function, spanning these boundaries becomes critical to KS. Boundary spanners are typically individuals who facilitate the sharing of knowledge and expertise by linking two or more different groups of people, thereby spanning structural holes. Through boundary spanners, knowledge outside tightly knit organizational subcommunities (i.e. functional units) can be identified, collected, and disseminated to other communities. By helping actors extend their weak ties, social media users may support the boundary spanning

role that helps individuals locate knowledge sources and identify experts outside their local communities, ensuring that knowledge is able to flow across the boundaries.

Studies of social media in nonorganizational contexts have found a strong connection between the use of Facebook and higher levels of bridging social capital among students [17]. Similar findings about the benefits of social media are also mentioned by DiMicco, Millen and Geyer [18] in their study of IBM's adoption of an enterprise social networking technology. The main motivation of users of an enterprise social network site was to "*build [a] stronger relationship with their weak ties and to reach out to employees they do not know*" (p. 711). The use of other social media by consultants offers opportunities to learn about and connect with new people separated by various boundaries, such as spatial/geographical distance. For example, since connections on Twitter revolve primarily around shared interests, people have the opportunity to open up a relationship with like-minded individuals through replies or "retweets." One technical subject noted: "*Hadoop is a database technology, and I saw someone on Twitter talk about how he just implemented his first usage of Hadoop. And because of that, I was able to connect with him and reach out, and we were sharing contacts, and information about that.*"

As another example, blogging systems can also be instrumental in connecting previously unconnected people/units. One informant underscored this benefit of enterprise blogs: "*Most teams have <like> a blog and they'll post regularly about things they're working on or kind of general questions. So I follow those and will participate in cases where mine is strategically relevant, and I found that that's a good way to make contact.*" Through such weak ties, a worker can span structural holes and provide information benefits to previously isolated networks, while also increasing his/her social capital.

In summary, social media uses can contribute to both bridging and bonding forms of social capital. When weak and strong relationships are extended or augmented via the use of social media, an informal network emerges, connecting different organizational communities. These informal ties can perform boundary spanning roles that fill structural holes and expose a diverse knowledge base. Through these social interactions among network members, social capital is gradually acquired, increased, and embedded, supporting and increasing the transfer

of knowledge. This social capital embedded in informal networks initially accrues to individuals. However, the emerging structural configuration of the informal network enabled by the use of social media can further facilitate KS at the organizational level, producing a specific type of organizational capital by relating social capital produced in different organizational communities. In other words, informal relationships that workers may nurture through the use of social media as individually held social capital can benefit not just the individual holding it, but also the organization for which that individual works. For example, a recent study of Twitter use suggests that Twitter users (particularly those with a diverse network) tend to generate more innovative ideas for the enterprise [19].

Finally, findings demonstrate that different social media may support knowledge practices differently. Interviews, micro-studies of practice, documents, and system level data together draw attention to different ways in which social media foster social capital, enabling informal KS. Table 2 summarizes the utility of different social media commonly used by our participants. One clear distinction between public social media (e.g., LinkedIn) and all the internal social networking systems employed in the firms included in this research is related to cross-organizational KS. One of the most salient aspects of consultant work (and possibly most forms of knowledge work) lies in extensive interactions with clients and colleagues from other organizations. Although enterprise social networking systems enabled intra-organizational social networking and KS (See Table 2), our sample did not address this need.

Table 2. Different utilities of social media for KS

Social tools	Type of social contact	Type of social capital for KS
Facebook	Personal contacts (e.g., close colleagues)	Sharing updates about personal life, exchanging information, and indirectly influencing people's work
Twitter	Like-interested individuals	Sharing innovative and groundbreaking information, indirectly influencing people's work, and raising awareness about thought leaders
LinkedIn	Professional contacts from multiple organizations	Sharing updates about professional contacts, career opportunities, and relevant topics on professional communities of practice

Internal social networking systems	Coworkers from the same organization	Connecting with coworkers, and generating awareness about coworkers' interests and areas of expertise

The use of social media in enterprise and digital transformation

Decades ago, organizations owned ICT and employees were limited to a few corporate-owned technologies for communication and KS. However, the technological landscape has shifted dramatically, requiring both individuals and organizations to adapt to new technological realities. Employees now have access to dozens of social technologies that arise from the consumer market. They may therefore use multiple social tools to reach out to, communicate, and share knowledge with their colleagues and other social and professional contacts. In particular, the proliferation of social media in recent years has spurred digital transformations inside and outside of the enterprise. Social media transform the nature and scope of informal networks due to their unique information and communication capabilities. An important dimension of social networks around workers that is transformed by the use of these technologies is the social capital embedded in these networks. It is however important to note that the ongoing digital transformation is not exclusively determined by social technologies and their unique features. The true benefits and transformative affordances of these technologies for informal KS are realized through a complex array of sociotechnical changes, shaped by both the use of technology and the ways in which workers interpret and appropriate them, and in a broader sense, factors such as culture and norms. Some of the distinct impacts of social media on knowledge practices are rooted in how workers make sense of them based on their individual preferences, and in the norms of workplace and social networking, rather than being direct consequences of these technologies. For instance, management consultants working for merger and acquisition practices refrain from using geotagging features on public social media websites because it may reveal private information about clients who may be involved in the merger. Information shared on Facebook or Foursquare can be easily linked to knowledge

workers' public profiles on LinkedIn, uncovering key information about professional affiliations and activities.

At the same time, changes in how people interact and communicate further shape the way social media and other consumer/ubiquitous technologies enable digital transformation. That is, organizations—public and private alike—now must accommodate the needs of a new generation entering the workforce. Young workers challenge enterprises to create cultural contexts that can respond to their demands as "digital natives": people who have grown up using social media for social networking and KS. Whether or not enterprises advocate the use of enterprise social software, their employees, particularly the newer generations, increasingly adopt public social networks because these technologies are considered effective communication tools for certain purposes, and are often more effective than the ones implemented internally [20]. Such concurrent technological and social changes invite (if not demand) contemporary organizations to carefully monitor and take advantage of the sociotechnical dynamics of the adoption of social media, particularly for fostering KS.

A recent HBR [1] report indicates that the transformative effects of social media are most visible in outbound marketing activities and communication with their customers. Many organizations grapple with the use of social media [21], and find it difficult to assess the utility of these technologies for supporting KS in organizations. Measures used to evaluate traditional information systems may be less useful for assessing the consequences of social media in organizations. Social media exhibit distinct characteristics that differentiate them from previous enterprise information systems. For instance, the potential benefits of these technologies are thought to be intangible and to primarily accrue to individuals rather than organizations. Understanding the reciprocal relationship between informal networks and the use of social media can help organizational decision makers employ social media for fostering informal KS. The concept of social capital enables us to examine how individual uses of these social technologies influence the configuration and structures of informal networks, and how those changes may spill over into KS practices at the organizational level.

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Author Bio: Dr. Mohammad Hossein Jarrahi is an assistant professor at the iSchool at the University of North Carolina at Chapel Hill. His research focuses on the use and consequences of information and communication technologies (ICTs) and the accompanying social and organizational changes that these bring to knowledge-intensive organizational contexts. His recent project explored the interplay between different social media and informal knowledge sharing within and across organizations. More specifically, he studied the ways in which informal networks interact with an assemblage of social technologies, and serve as conduits of knowledge in enterprise.