Enterprise Social Media:

Definition, History, and Prospects for the Study of Social Technologies in Organizations

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Abstract

Social media are increasingly implemented in work organizations as tools for communication among employees. As these technologies begin to proliferate across the enterprise, it is important that we develop an understanding of how they enable and constrain the communicative activities through which work is accomplished because it is these very dynamics that constitute and perpetuate organizations. We begin by offering a definition of enterprise social media and providing a rough historical account of the various avenues through which these technologies have entered and continue to enter the workplace. We also review areas of research covered by papers in this special issue and papers on enterprise social media published elsewhere to take stock of the current state of out knowledge and to propose directions for future research.

Keywords: *Enterprise Social Media, Affordances, Organizing, Technology Use, Social Networking, Workplace, Communication.*

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The purpose of this article is to explore, at this early date, what consequences – positive and negative – social media used for communication and interaction within the workplace may have for those socio-technical systems we call organizations. Enterprise social media (a term we define and explain below) are distinct from traditional communication technologies often used in today's organizations because those who use them can see conversations occurring between others in the organization who are not their communication partners and can distinguish social and work related connections among them. In other words, rather than functioning as a *channel* through which communication travels, enterprise social media operate as a *platform* upon which social interaction occurs. Because this platform is digital, in contrast to the physical platforms of offices, conference rooms, and hallways that have traditionally been the stages on which most workplace communication is played out, anyone in the organization can participate at any time from any place. Due to the dramatic changes in social interaction that enterprise social media portend, it is no surprise that industry analysts and the business press predict unprecedented transformations in the way organizations that adopt them will operate in the coming decades.

As these new technologies begin to proliferate across organizations, it is important that we develop an understanding of how they enable and constrain the communicative activities through which work is accomplished because it is these very dynamics that constitute and perpetuate organizations. We begin by defining enterprise social media and providing a rough historical account of the various avenues through which these technologies have entered and continue to enter the workplace. We also review areas of research covered by papers in this special issue and papers on

enterprise social media published elsewhere to take stock of the current state of our knowledge and to propose directions for future research.

Enterprise Social Media: A Definition

In the short time in which they have been present in organizational contexts, social media seem to have been used in two primary ways. The first, and more commonly studied, way is for organizational communication with *external* parties, such as customers, vendors, and the public at large. Most organizations that use social media to communicate with external parties have a multipronged strategy that crosses various platforms (Piskorski, 2011). For example, they maintain pages on popular public social networking sites like Facebook and MySpace, and they broadcast messages on micro-blogging sites such as Twitter. Their employees also sometimes write blog posts on news websites and, occasionally, they host social tagging sties. Communication on these sites is faced externally.

The second and, heretofore, less commonly studied way in which organizations have employed social media is for *internal* communication and social interaction within the enterprise. It is these internal social media platforms that occupy our attention in this special issue. Unlike external uses of social media that cross many public platforms, most organizations implement an integrated social media platform for internal communications that contains several functions (McAfee, 2009). For example, most internal social media platforms mimic in look, feel, and functionality popular social networking sites such as Facebook. But embedded within the platform one can often find blogs and wikis, as well as features through which social tagging and document sharing can happen. Thus, when talking about social technologies used for communication within the enterprise, it makes less sense to distinguish between tools such as social networking, micro-blogging, and social tagging,

and more sense to treat these individual tools as part of an integrated *enterprise social media platform*. For this reason, we define enterprise social media (hereafter, ESM) as:

> Web-based platforms that allow workers to (1) communicate messages with specific coworkers or broadcast messages to everyone in the organization, (2) articulate a list of coworkers with whom they share a connection, (3) post, edit, and sort text and files linked to themselves or others, and (4) view the messages, connections, text, and files communicated, articulated, posted, edited and sorted by anyone else in the organization at any time of their choosing.

There are many communication technologies commonly implemented in organizations that allow workers to do one of the first three activities summarized in the definition above. For example, email allows people to exchange message with specific others while Q&A forums and message boards allow people to broadcast messages to broad, unknown audiences. Some corporate directories auto-populate lists of one's current team members or past departmental affiliations while others allow workers to choose and list their team members and other key work colleagues on their own. Many contemporary knowledge management systems allow people to post files (documents, images, videos, etc.) for which others can search and read at their leisure. But what make ESM unique and potentially transformational within organizational contexts is that in addition to allowing users to do these three activities all in one place, those activities are (as indicated in the fourth part of the definition given above) recorded, stored, and available for one's coworkers to view at anytime in the future (Treem & Leonardi, 2012). Consequently, there are at least two affordances provided by enterprise social media that make them distinct from other communication technologies commonly used in organizations: They provide people visibility into the communicative actions of others and

the visible traces of those communicative actions persist over time. Because ESM afford the visibility and persistence of communicative actions, they expand the range of people, networks, and texts from whom people can learn across the organization. Consequently, one of, if not the most important, outcomes of these affordances for organizations is increased opportunities for social learning.

ESM afford the possibility of making visible the communicative activities in which one engages at work, such as the content of one's messages to others, his or her communication network, and the outputs of his or her work, which were once invisible to others in the organization (or at least very hard for them to see). Visibility is tied to the amount of effort people must expend to locate information (Treem & Leonardi, 2012). On a basic level, it is difficult to be privy to every communication that goes on within the organization. Workers often do now know that two of their colleagues have communicated, or what that communication was about, because it occurs through private channels such as email or the telephone (Cross, Borgatti, & Parker, 2003). On a more profound level, workers often do not attend even to the communications of others that they do overhear because they lack interest or understanding. For example, it is not uncommon for individuals to sit side-by-side in cubicles, no more than five feet away from each other, and have little or no idea what each other actually do at work. This reality arises, in large part, because of the specialization of work common in contemporary organizations. People are often split into divisions, departments, and teams and assigned work tasks unbeknown to their colleagues. Also, people who are proximately located to others may not have the domain knowledge necessary to understand the work of someone form a different specialty. For these reasons, the work of individuals and their communications about that work are largely *invisible* to others within the enterpris. ESM, by offering a fast and lightweight means for individuals to publish information, provide an easy way for employees to make their communicative activities visible to others in an organization and, perhaps

more importantly, by reducing the effort needed to find out who communicated about what, ESM make it much easier for others not party to the original communication to see what was said and who said it.

Persistence refers to the fact that communication remains accessible in the same form as the original display, even after the actor has finished his or her presentation (Bregman & Haythornthwaite, 2003). When an individual communicates through an ESM, that information remains available to users, and does not expire or disappear when an individual logs out. In technologies such as instant messaging or video-conferencing the conversation is normally bound in time and a record of the interaction does not exist beyond what is remembered or captured by participants. Because records of communication on ESM are available for a longer period of time communicative acts can have consequences long past the initial point of presentation. The ability to view past interactions and information affords individuals a chance to learn from the experiences of others and look at what has been previously successful. Workers do not need to witness an interaction between others in real-time to take advantage of the social information it contains. Consequently, people can interact with a communication, rather than the communicator, long after the conversation is over. Persistence of communicative actions provides a direct pathway to an organization's memory (Walsh & Ungson, 1991).

The fact that the messages people send to one another, the networks they articulate, the text they produce, and the files they post are visible to everyone in the organization and persist in their original form over time means that others throughout the enterprise who were not involved in the original communication have the opportunity to learn from and contribute to it. Perhaps the most important effect of visibility and persistence is that they enable employees to learn from the

communications of others. There are at least two kinds of knowledge people can learn by participating in ESM: Instrumental knowledge and Metaknowledge.

Instrumental knowledge is knowledge about how to do something. Direct exposure to instrumental knowledge has been shown to be an important mode of social learning in organizations (Huber, 1991). But research shows that direct exposure is often impeded because people simply do not know what knowledge exists out there to be learned, or where that knowledge lies (Lave and Wenger, 1991). They do not have an awareness of what knowledge exists in the organization because it has been communicated in a visible format and/or it does not persist over time. Metaknowledge is knowledge about what and whom other people in the organization know. Metaknowledge is important for the functioning of organizations because it is an important antecedent to the transfer of instrumental knowledge (Ren & Argote, 2011). As one example of a way in which visibility and persistence afforded by ESM may help new employees engage in the social learning necessary to develop metaknowledge quickly, imagine a new employee to marketing who needs to extract data on consumer purchasing behavior from the company's datacenter. As a new employee, she might be aware that the datacenter has this information, but not have insight about who to contact to access it. If, when reviewing content on the social media platform, this employee sees that a colleague in marketing has talked with someone in the datacenter, she begins to develop metaknowledge. Because she knows that the colleague in marketing knows someone at the datacenter, she can ask the colleague in marketing if this is the correct person from whom to obtain the data she needs. Were the communication between the colleague in marketing and the person in the datacenter to happen through a channel that did not afford visibility and persistence, like the telephone, the new employee would not have been able to easily and quickly develop the metaknowledge necessary to obtain the information with which to complete her assignment.

A Historical Perspective on Social Media Use in Organizations

The emergence of ESM has typically followed one of three primary paths into organizational contexts: (1) use of publicly available sites like Facebook, Google+, and Twitter, (2) private implementations of open source or proprietary software, either installed on a company's own servers or acquired as a hosted (cloud-based) software service, or (3) in-house proprietary solutions, often built as prototypes by software vendors for later incorporation into commercial offerings. We elaborate on each of these paths below.

Public Sites

Although many organizations now routinely use publicly available social networking and microblogging sites for customer-facing innovation, marketing and after sales service purposes (Kaplan and Haenlein, 2010), in the years before popular sites allowed business pages, employees often independently joined and interacted with coworkers on public social media. In many cases, these experiences predated the establishment of internal-only social media applications. For example, Efimova and Grudin (2007) chronicle the arrival of blogging at Microsoft, noting that student interns as early as 2000-2001 were active bloggers. Similarly, DiMicco and Millen (2007) reported on the growing use of online social networking by new employees at IBM, who used Facebook at work to learn about new colleagues in what they termed people sensemaking. Early studies further examined the tensions created by such the use of public sites, such as the potential they raise for proprietary information leakage, hierarchy problems when managers and employees become friends, or personal and work boundary issues (Skeels and Grudin, 2009). As with the blogging example at Microsoft, students transitioning from college to work were a common vector for the introduction of online social network sites like Facebook and LinkedIn into organizations in the early to mid 2000s (DiMicco and Millen, 2007).

Private Systems

Primarily due to security concerns, a more common approach to implementing social media in the enterprise is through in-house implementation of applications that are not open to external audiences. These can be either open source or proprietary systems implemented on a company's own servers or implemented on a private basis as a hosted "software as a service" (SaaS). Among the earliest examples of this approach were the many wikis established on company intranets (Danis and Singer, 2008). Majchrzak et al. (2006) surveyed managers at 168 different companies that had implemented internal wikis, finding that corporate wikis improved work processes, and collaboration and knowledge reuse, but had little impact on creation of new business opportunities. Internal blogging communities are another example of this approach. For example, by 2002, Microsoft had an active internal blogging community hosted on company intranets (Efimova and Grudin, 2007). IBM also maintained an internal blogging community, BlogCentral, which has been credited with facilitating employees' access to tacit knowledge of experts inside the company, and otherwise enhancing collaboration across its many distinct communities (Huh et al, 2007). Similarly, Jackson et al (2007) observed how internal blogging in a large, global IT company led to a number of social and informational benefits for the workforce, including those with only moderate usage levels. Social benefits included feeling more a part of a community and gaining a better perspective on the organization, with some employees indicating that they had made new connections with other blog participants outside the system. Informational benefits included obtaining feedback on ideas and assistance on solving problems.

Installing private social media applications were simplified by the availability of popular, and free, open source wiki and social software such as TWiki, Foswiki, Tiki Wiki, and StatusNet. In recent years, however, many vendors have entered the enterprise social software market with

proprietary solutions that can be either installed on company servers or hosted in the cloud. Such enterprise social software tools now typically integrate the full variety of social media functionality, including blogs, wikis, status updates and microblogs, and other collaboration tools (e.g. uploading and sharing files and other digital resources), as well as social network features such as profiles and the ability to connect with or follow someone. Examples of such integrated enterprise social software services include Salesforce's Chatter, Microsoft's Sharepoint, Yammer (recently acquired by Microsoft), IBM's Connections, Jive from Jive Software, Oracle's Social Network, Cisco's Webex Social, BlueKiwi from Atos, Cynapse's Cyn.in, Tibbr, Telligent, MangoApps, Socialtext, Socialcast, and Ingage Networks. Client companies for these systems include many of the largest and most successful organizations in the world, including Proctor and Gamble, Dow, SAP, SteelCase, Deloitte, American Express, and hundreds of others.

In-House Developed Proprietary Solutions

The literature on ESM documents a number of examples of proprietary, custom-built systems, usually developed by computer (both hardware and software) and information technology companies that have vested interests in understanding how organizations might employ such new computer-based applications. These types of companies not only stand to benefit from the potential for increased productivity of their own knowledge workers, but also have an obvious interest in the potential that ESM can have for their product mix. Their prototypes have been used to support research that informs internal production systems and future commercial products, or otherwise supports client needs. Two custom ESM examples that have been the subject of several papers are the Beehive system developed at IBM (DiMicco et al, 2008; Steinfield et al, 2009) and the Watercooler system developed at HP (Brzozowski, 2009).

The Beehive system, launched in mid 2007, garnered over 30,000 users before the end of the year (DiMicco et al, 2008). It encompassed many of the features found on public sites like Facebook, but was restricted to IBM employees. Employees reported connecting with both close colleagues and "weak ties", but reported greater content sharing with their more distant connections, leading DiMicco and colleagues to conclude that the site had helped to form new ties and strengthen weak tie relationships within the company. A later study of Beehive use by Steinfield et al (2009) similarly found that usage of the site was associated with a number of social capital benefits such as increased access to new people and expertise, as well as perceptions of belonging to a larger community. At HP, the WaterCooler system essentially was developed to bring together the feeds from the many separate social media systems that were proliferating in the company (Brzozowski, 2009). The system indexed these feeds by novelty, popularity, author, and topic, and enabled users to filter posts. Based on a survey, as well as a network study of commenting behavior that compared internal blog reading by WaterCooler users versus non-users, the author concludes that the system enhanced employees' access to new people and expertise outside their local units. WaterCooler readers were more likely to access blogs from outside their local unit than other readers.

These research prototypes often have a limited lifespan, and the lessons learned from such prototypes are used to inform other internal systems and commercial products. For example, Beehive, which at its height had over 65,000 members, was discontinued in 2011 but had many of its features incorporated into a new internal site called SocialBlue. Today IBM offers a product called Connections that incorporates features from these earlier prototypes. Microsoft also benefited from its early experiences with various from social media, ultimately incorporating many social media features into its commercial Sharepoint offering.

Prospects for the Study of Enterprise Social Media

Our understanding of the role that ESM play in organizational life is in its infancy. To date, most studies of ESM have been conducted by scholars within the computer-supported cooperative work (CSCW) and human computer-interaction (HCI) communities. That these two communities would be the forbearers of research on ESM is understandable, given that many of the authors of papers from these areas were themselves creators of specific ESM applications (e.g. the homegrown applications we discussed in the previous section), or worked in organizations in which these technologies were created. Most studies in CSCW and HCI have focused on specific technologies and provided detailed description of how people use ESM, but with little focus on the implications for ESM use for organizational action. Up to this point, researchers in the field of Communication have focused a good deal on social media use among youth and college students, but they have not considered how such tools are used within organizational contexts. Researchers in Information Systems are just beginning to explore ESM, most often by describing how they might affect organizational performance. Scholars in management and organization studies have not yet begin to explore ESM use.

Given these trends, the time seems ripe for researchers to examine how ESM are implicated in various processes that occur *within* organizations. Specifically, this special issue seeks to provide an initial examination of how the affordances enacted by ESM use may reinforce, alter, or dramatically change how the people carry out important organizational processes.

To lay the groundwork for such an endeavor, we have reviewed the literature on ESM use published in the disciplines mentioned above to identify various ways that researchers have characterized ESM so far, and to uncover some of the organizational processes with which ESM use seem to be related. Below, we present three broad metaphors for describing the role that social media play within organizations: ESM as a Leaky Pipe, ESM as an Echo Chamber, and ESM as a Social

Lubricant. As described above, the visibility and persistence of communicative behavior afforded by ESM use provides new and enhanced opportunities for social learning within organizations. Our review of the literature suggests that these opportunities for social learning have implications for at least four common processes within organizations: Social Capital Formation, Boundary Work, Attention, and Analytics. Below, we review each of these metaphors and discuss, in turn, how viewing each of these four processes from the vantage point provided by the particular metaphor bring potential advantages and disadvantages related to each of the processes into focus, which may provide direction for future research. Table 1 summarizes our discussion.

INSERT TABLE 1 ABOUT HERE

In working through the logic of Table 1, we also discuss the stances that the authors of the various papers in this special issue take on these processes. This special issue is comprised of five excellent papers. Fulk and Yuan discuss how the affordances of ESM can help reduce three challenges in sharing organizational knowledge: How people locate expertise, their motivation to share knowledge and their ability to capitalize on their social connections. To do so, they draw on transactive memory, public goods, and social capital theories to show how ESM function as hybrids of communal and connective goods within the organization. Majchrzak, Faraj, Kane, and Azad also focus on organizational knowledge sharing. They theorize four ESM affordances – metavoicing, triggered attending, network-informed associating, and generative role-taking – that represent different ways to engage in the publicly visible knowledge conversations enabled by social media use. These four affordances overlap in some ways and depart in others from the four ESM – affordances of visibility, persistence, editability, and association – outlined earlier by Treem and Leonardi (2012). Majchrzak and her colleagues argue that ESM use creates the opportunity to turn organization-wide knowledge sharing from a centralized process into a continuous conversation of

strangers. Pike, Bateman, and Butler confront the tensions of information quality and availability faced by hiring managers within organizations. They find that the affordances of ESM create an abundance of information for organizational decision-making, but provide no means by which to interpret its quality. Consequently, managers have to engage in several strategies to reduce tensions of accessibility, contextual cues, and intrinsic interest inherent in the information ESM provide them. Vaast and Kaganer focus on governance issues in ESM use. Specifically, they examine how organizations craft policies to respond to the affordances provided by ESM and they consider how these policies, alongside the ESM affordances, might shape people's use of these tools in the workplace. Finally, Gibbs, Rozaidi, and Eisenberg provided a much needed critical evaluation of ESM use, arguing that much of the emerging literature on social media in the workplace use is characterized by an "ideology of openness," which assumes ESM use will increase knowledge sharing in organizations, and that open communication is effective and desirable. Their study of ESM use in a geographically distributed organization shows how users limit as well as share knowledge through social media, and the productive role of tensions in enabling them to attend to multiple goals.

Enterprise Social Media as a Leaky Pipe

One common metaphor that has implicitly guided many studies of social media use within organizations up to this point is that ESM are leaky pipes for organizational communication. In using the metaphor of a leaky pipe we mean to suggest that the directionality of a particular communication (to whom it is directed) and the content of that communication (what the parties involved actually said to each other) is visible to people who were not involved in it. Although the message may be communicated for an intended audience, many others for whom the communication was not intended can learn that two people are communication partners and what it is that they communicated about because the technologies make not only the message public, but indicators of who the sender and

recipients are as well. Surely, there are some circumstances in which employees want or need the content of their communication and awareness of who their communication partners are to remain private. But from the standpoint of management, directional communication through leaky pipes may be quite advantageous for the organization, writ large, especially when it comes to processes like learning and knowledge sharing (see Fulk & Yuan, this issue, and Majchrzak et al., this issue).

The learning that occurs by third parties when other peoples' communications occur through leaky pipes has implications for the development and maintenance of one's social capital within the organization. Social capital typically refers to the actionable resources accumulated through the relationships among people (Coleman, 1988). Research suggests that by being exposed to leaky communications can allow people to keep up with what others are doing in an easy way. From their interviews with individuals about the potential for ESM at work Zhao and Rosen (2009, p. 5) found that the broadcast nature of microblogs and other ESM tools served as a "People-based RSS feed" that might help "keep a pulse on what is going on in others' minds." Similarly, at HP a tool that aggregated ESM content from throughout the company was viewed by employees as "a way to orient themselves in the organization" with respect to what and who others knew (Brzozowski, 2009, p. 7). As these studies demonstrate, through exposure to communication leaking out from directional interaction among others, a person might be exposed to social information that will allow her to make new social connections with people she did not previously know (because she now has some knowledge about them that can be used to start conversations) and to maintain those relationships better over time (for more examples see Fulk and Yuan, this issue). Consequently individuals may be able to increase their social capital by expanding their networks or by deciding which people represent redundant contacts that provide little knowledge advantage and reconfigure their networks to bridge across structural holes (Burt, 1992)

However, as Gibbs et al (this issue) argue, the transparency into others' actions enabled by communication through leaky pipes may also encourage people to engage in defensive self-presentation behaviors. For example, one way to think about social capital is that the strategic structure of relations provides benefits for action. As Burt (1992), observes, being the person who connects people who are not connected directly to each other confers power and status to the broker. But if a broker communicates information (about what he knows or who he knows) through a leaky pipe, others might learn who his contacts are, and what they discuss, and bypass the broker altogether. Such bypass could result in the loss of social capital that gave the broker his or her unique advantage in social relations.

When focusing on the issue of boundaries within organizations (e.g. spatial, temporal, linguistic, occupational, departmental, epistemic, etc.), the metaphor of ESM as a leaky pipe has much to offer. Boundaries within organizations are constructed in practice, and people from one side often have difficulty understanding the frames of reference of people on the other in large part because they simply do not know who other people are or what they know (Carlile, 2004). If the content and directionality of communication leaks out of ESM for others to see, individuals may be able to cross more knowledge boundaries due to visibility into what people in other groups, departments or locations are doing (Majchrzak et al., 2006). Further, the ability to see connections between people from across various parts of the organization may help individuals to gain entrée to others because they know someone who knows the person in question (Treem & Leonardi, 2012).

However, we can also see ways in which boundary spanning is impeded if we view ESM as leaky pipes for communication. Research suggests that people communicating to unknown audience on social media may communicate more abstract information that can be understood by a wide group of people (Marwick, 2011). This tendency, coupled with the fact that groups may have proprietary

information that they are not allowed to share even with other groups in the same organization may encourage a level of communicative abstraction that makes it difficult or impossible for people from across boundaries to really learn anything of substance from the communication that leaks out of the pipes provided by ESM.

When viewed as a leaky pipe, ESM can be considered a vehicle through which to enlarge the arena in which individuals within the organization pay attention. For example, many people simply do not seek knowledge or information from coworkers because they simply do not know that certain knowledge even exists "out there" to be found (Fulk & Yuan, this issue). If exposure to the routine communication of others expands people's awareness of knowledge, it may also increase the attention they pay to it. Organizational policies that take advantage of these affordances can increase knowledge sharing and reduce rework throughout the organization (Vaast & Kaganer, this issue).

Although expanding the realm of attention across the organization can be beneficial, information overload is always possible. If information is too vast to consider in its entirety, individuals may make only bounded searchers for information or process only limited quantities of information, which could force them to become even more insulated and in-group focused than they were before they began ESM use. This effect is partially documented in Pike et al.'s (this issue) study of hiring managers who have face an onslaught of information about candidates through ESM use and have to develop specific attention allocation strategies that limit their use of the information, and hence, its usefulness.

As a leaky pipe for communication, ESM create special opportunities for analyzing social relations and producing insights based on social analytics. The digital traces of communication can be processed with algorithms that can help employees make connections, and help managers understand the organization's informal information economy. A study by Green, Contractor, and Yao

(2006) showed how a social networking application with algorithms to make emergent associations between people and user-generated content spurred cross-boundary interactions and knowledge sharing in environmental engineering and hydrological science research. This increased collaboration occurred because once users learned that others were interested in similar topics to them individuals were more willing to work to overcome disciplinary differences and understand one another, even if they did not share a common store of domain knowledge.

The use of digital communication traces that have leaked out of secure channels and are available for mining with machine learning algorithms can also have disadvantages for organizational action. Such algorithms provide management with increased ability for surveillance and the possibility to control workers. Knowing that people are watching and using their every communication to create analytics that represent them, individually and in the aggregate, in some way, workers may choose to communication through other media than the ESM so as to preserve some amount of anonymity and autonomy. Choosing to do so obviously negates the potential benefits of third-party learning that can take place when communication occurs through leaky pipes.

Enterprise Social Media as an Echo Chamber

A common concern voiced in both the scholarly and popular press is that the Internet, through its ability to link people to content that reflects their preferences, operates like a giant echo chamber where like-minded people connect with each other and conflicting ideas are avoided (Pariser, 2011; Singer, 2011). Recommendation systems and search algorithms, for example, present us with results that are linked to our past behavior and interests, in effect filtering out information that may challenge our current views. The potential balkanizing effects of the Internet have been examined in diverse arenas, including political behavior (Sunstein, 2009), entertainment choices (Pariser, 2011), and even science (Van Alstyne & Brynjolfsson, 2005). In social media, researchers

have empirically demonstrated evidence of an echo chamber effect in political blogs, finding greater agreement than disagreement among users' comments, and revealing patterns of linking that suggest limited interaction across liberal and conservative blogs (Gilbert, Bergstrom, and Karahalios, 2009).

The echo chamber metaphor, although commonly found in research on social media outside the organization, has not been heavily applied to social media in the enterprise. Yet, it nicely illustrates the tensions between the benefits of personalization - which facilitates finding people and content with similar interests – and the dangers of balkanization – which may reduce exposure to new ideas and exacerbate differences that can result in conflict or reduced cooperation. Viewing ESM through the prism of the echo chamber metaphor highlights the opposing types of effects that are possible in the four areas from Table 1.

The echo chamber metaphor applied to the potential social capital implications of ESM directs attention to the ways in which various types of communities within organizations can emerge and be supported. Positive associations between online social network site use and various measures of social capital are a common finding in social media research (Ellison et al., 2007), including in the study of enterprise social network site use (Steinfield et al., 2009). By making employees' interests and expertise more visible to others, and enabling linkages among like-minded people, ESMs can foster the creation of communities of practice that considered so critical to organizational innovation, learning, and knowledge sharing (Brown & Duguid, 2001; Majchrzak et al., this issue; Fulk and Yuan, this issue). Profiles, blog entries, comments and other persistent content help distributed, but like-minded workers better establish common ground that can be the basis for community formation. The notion of like-minded connections could be considered a form of homophily, which has also been associated with stronger network ties among virtual teams and increased bridging and bonding social capital (Yuan & Gay, 2006).

On the other hand, an echo chamber perspective also implies balkanization as noted above, which could lead to lower integration of knowledge across disparate communities (Van Alstyne & Brynjolfsson, 2005). The visibility afforded by ESM could thus paradoxically result in a fragmented set of communities with too little interaction among them. The formation of network ties across groups might be limited due to this subgrouping tendency. Outcomes such as groupthink, where conflicting perspectives are ignored might become more prevalent. This potential for a reduction in knowledge flows across communities might therefore signal a decline in organizational social capital from ESMs, an outcome which has been given surprisingly little attention so far.

The echo chamber metaphor can also be used to explore the effects of ESMs in the area of boundary work in organizations. Effective boundary work can bring critical outside information to organizational units such as product development teams, while also helping shield teams from distraction (Ancona & Caldwell, 1992). It is recognized as a distinct competence that emerges through practice around boundary objects (Levina & Vaast, 2005). Boundary spanning researchers have called for more study of the impact of enterprise social media on boundary spanning activities (Marrone, 2010). To the extent that ESMs support geographically distributed communities of practice, and help teams connect with external stakeholders with common interests and resources relevant to their projects, an echo chamber perspective can imply a positive influence on boundary spanning (Majchrzak et al., this issue; Fulk and Yuan, this issue). One study of an organizational social network site found that ESM use was associated with employees' perceptions of being connected across cultures in a large global organization (Steinfield et al, 2009). Another study found that employees were more likely to use an ESM to access information outside their local unit (Brzozowski, 2009).

On the other hand, an echo chamber view suggests that the opposite effect can result if groups use EMSs in ways that encourage greater divergence than convergence across boundaries, much as has occurred in the political blogosphere. Computer-mediated interactions can reinforce social boundaries when there are cues that highlight group membership (Postmes, Spears, & Lea, 1998). Such use by organizational units can create role conflict for boundary spanners caught between their ties to external sources and internal group members. ESMs may in this way inhibit effective boundary work, limiting knowledge flows across boundaries. Indeed, practice theory has shown that boundaries emerge around common practices; knowledge may be leaky within community of practice, but surprisingly sticky between such groups (Brown & Duguid, 2001).

Applying the echo chamber metaphor to the ways in which ESMs structure attention yields a focus on the kinds of signals that workers might give off, and how these signals may foster trust and connections among the like-minded. Early research on Facebook, for example, found that users who provided profile elements that were more difficult to fake and that helped to establish common background had more connections (Lampe, Ellison, & Steinfield, 2007). ESMs could thus make it easier for employees to locate and connect with a community of interest or practice (Majchrzak et al., this issue; Fulk and Yuan, this issue).

However, such an outcome, as noted earlier is not always desirable, if such cues simply reinforce the boundaries of groups while limiting integration across groups. The network-informed association affordance noted by Majchrzak et al (this issue) can result in less-than-optimal groupings, including a "rich-get-richer" outcome. Moreover, to the extent that ESMs use algorithms based on preferences to determine who and what an employee sees on the system – for example, in a news feed - then exposure to other groups and ideas might be impeded.

An echo chamber view of favorable ESM analytics outcomes would emphasize the ability for organizational leaders to have a better understanding of the communities in the organization and how they are functioning. ESM analytics can reveal who is active in various communities, perhaps identifying experts and other influential people using social network analysis tools (Zhang, Ackerman, & Adamic, 2007).

However, these analytics may yield distorted views of what is actually occurring in organizational communities. This may occur if the most active users on the ESM are not necessarily the most active community members offline or the most expert. We know, for example, that a small fraction of users account for the most content in online communities (Adamic & Huberman, 2000), and this power law distribution holds for public social media such as blogs and microblogs (Java, Song, Finin, & Tseng, 2007). If ESM analytics were used by top executives, and associated with any incentives or rewards, then strategic behavior of workers might be encouraged – e.g. over-contributing to the ESM. Alternatively, employees concerned about too much openness, or who are acting to protect knowledge that they feel yields them power or privilege, might withhold contributions, further distorting the value of analytics for understanding knowledge communities (Gibbs et al, this issue).

Enterprise Social Media as a Social Lubricant

Organizations are increasingly aware of the need to be more "social," exemplified by the increase interests in social networks, communities and lately ESM. To support and sustain the social fabric of organizations, social network interactions need to run smoothly, without much managerial intervention. In other words, to keep the wheels turning, social embeddedness lubricates informal networks (Agterberg et al., 2010). The affordances of ESM create the capacity for social lubricant by easing connection and communication to get work done more quickly. Leidner et al (2010) for

example reported how the introduction of an ESM called "Nexus" at a large IT department, enabled the sharing of private information among coworkers, which allowed newcomers, over time, to cultivate a sense of belonging and a feeling of being a family within the workplace. The need to support interpersonal connection is often metaphorically translated as a need for glue to hold people together (e.g. Huysman & Wulf, 2004). The recent recognition of the fluid and temporal nature of online networks, however, might question whether such ongoing interactions benefit from fixing connections. In order to keep the conversations and connections running smoothly, organizations might be better of with social lubricants than social glue.

In general, by acting as a social lubricant, ESM contributes to the development of social capital within the organization. Because social capital is easier to create when people know what others are doing, individuals who are kept abreast of the knowledge and social interactions among their coworkers will have an easier time establishing new connections with people simply because they have more fodder for beginning conversation with unknown coworkers. For example, being informed about people's activities and whereabouts, both work-related as social-related, eases the opportunity to informally contact each other, either online or at the coffee machine. Such small talks creates a sense of belonging and lubricates connections (March & Sevon, 1984). Moreover, ESM use can create more conformable environments with higher levels of psychological safety, helping people who are normally less inclined to interact (e.g. who are shy or have a low self esteem), to get connected with others (boyd & Ellison, 2007).

On the other hand, ESM use can also stimulate the development of disingenuous relationships, for example by giving the impression that one has many close social ties, when in fact those ties are rather weak or even non existent (boyd, 2004). Also, too much social capital might result in a social overload, where non-work communication and gossip become commonplace. As

the generation Y is known for using social media in their spare time to mainly hanging out with their friends, enjoy social life and chat about nothing in particular (Park et al., 2009), introducing this communication genre in corporate life will easily create interruptions which can be detrimental for productivity (Agarwal & Karahanna, 2000)

ESM use may enable individuals to bridge across spatial, temporal, functional, epistemic or cognitive boundaries. Such bridging enables new connections and serendipitous encounters, opening new avenues for collaboration. Boundary crossing in particular between private and public life has said to support social embeddedness, bringing people closer to each other. For example Köbler et al (2010) found in their research on micro-blogging that the use of status update messaging generates a feeling of connectedness between users.

However, blurring boundaries might also have downsides. For example, "context collapse" - a phenomenon in which which multiple audiences are reached simultaneously (boyd, 2010) - can easily create problematic encounters between, for example, a boss and her employee. In general, blending private with public ties and grouping together social ties of varying strength, calls for audience management strategies, which again might result in disingenuous relations (Marwick, 2011). In the words of Karakayali (2013): "One general problem users encounter in collapsed context, then is the difficulty of deciding which 'face' of the self to display." Next to identity boundaries, epistemic, cognitive, cultural and language boundaries potentially create limits to the opportunities that ESM use can offer as a social lubricant offer. For example, although many global organizations have introduced ESM in order to increase social connectivity, it is questionable whether more employees from different regions will communication than before. Not only do language boundaries hamper informal social interactions, people's style of technology use differs per culture (e.g. Leonardi, 2003), which stiffens more than softens social interactions in cross-cultural

projects and teams (e.g. Yang et al., 2011).

The opportunity that ESM offers to attend to relevant information and knowledge lubricates social interactions as it eases connecting to relevant people and content. Because conversations via ESM are transparent and the entire history of conversation is retrievable in temporally ordered sequences, it makes it easier for people to join in the moment the conversation and become relevant.

There are, however, some drawbacks related to lubricating interactions due to the ease of attending to the right person or conversation. For example, too easily interjecting in ongoing conversations can annoy those already taking part in the conversation, especially in situations where one jumps in an ongoing conversation and brings up topics that have been discussed already. Also, increasing the level of attention has point of exhaustion, as too many social-related signals can scatter ones attention and increases absentmindedness (Turel & Serenko, 2012).

The social analytical tools that most ESM offer are embodied in the form of recommender systems that inform people with whom they should connect and why. Representing informal social networks by means of various levels of analyses increases the transparency of the social make-up of the organization, which in turn eases social connectivity. At the same time, the use of these analytical tools can reveal too much about peoples social lives and their pasts (Pike et al., this issue). Moreover, the awareness that one's interactions will be recorded and made public though analytical representations might trigger people to act and communicate strategically (see Gibbs in this special issue). Users might choose to interact online as the main front stage, while using private encounters for backstage connections via chat, email for underground online networking (Denyer et al., 2011).

Conclusion

Social technologies are becoming pervasive in today's organizations, and are functioning as a platform through which much internal communication occurs. Much of the discussion about social

media has emphasized the powerful effects they can exert on the ways in organizations connect with customers and external stakeholders, exploring issues linked to marketing, branding, and customer relationship management. In contrast, this introduction and the papers in this special issue illustrate that such technologies can also have significant implications for communication *inside* the workplace, influencing such organizational communication issues as interaction with new hires, knowledge sharing and management, and employees' abilities to form relationships and build social capital. Additionally, our introduction and the papers in this issue support the contention that outcomes from social media use are a result of the interaction between the social context in which they are embedded and their material features – the affordance view reveals that both positive and negative outcomes can result from the use of social media in the enterprise.

The papers in this issue continue the work of this introductory essay by mapping out the terrain for studies of ESM use in the organizations. We encourage scholars to continue the work begun here by continuing to think about different metaphors for understanding ESM use, and exploring how those metaphors allow us insight into various processes that are important to organizations. Theoretically motivated investigation of social media technologies in the workplace is now an imperative for the fields of communication, management, and information systems. Collectively, the papers in this special offer a wide range of theoretical perspectives to help guide this process.

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Table 1
Prospects for the Study of Enterprise Social Media Use in Organizations

Processes	**Metaphors of Enterprise Social Media**		
	Leaky Pipe	**Echo Chamber**	**Social Lubricant**
Social Capital	*Advantages* • Easy to "keep up" with what others are doing without significant social investment. • Broad knowledge helps build bridges across non-redundant groups. *Disadvantages* • Awareness that others see what/whom you know could stop you from contributing so as not to undermine brokerage position. • Potential loss of power from making private rolodexes public.	*Advantages* • Immediate feedback from similar others strengthens existing communities. • Helps to establish common ground that makes interaction and sense of belonging easier. *Disadvantages* • Self-reinforcing groups may balkanize and splinter into non-redundant communities. • Groupthink could arise from exposure only to similar others.	*Advantages* • Insights into what others are doing and who they know help create conversational fodder that makes it easy to initiate new connections and maintain established connections. *Disadvantages* • Peripheral awareness of others may create illusion that a real social connection exists when it does not. • Too much social information can disrupt work and distract from work-related communication.
Boundary Work	*Advantages* • Ability to cross more knowledge boundaries due to visibility into what people are doing in other groups, departments, or locations. • Ability to see more connections between people and forge alliances. *Disadvantages* • More generic communication due to awareness that people outside a trusted or known community are watching. • Loss of proprietary information in a particular group.	*Advantages* • Understanding of people in different parts of the organization, but doing similar tasks, can increase sense of relationships and belonging. • Promote similarity and accessibility in global teams, across cultures. *Disadvantages* • Strengthen boundaries between groups making communication, interaction and identification more difficult. • Create a "speaker's corner" in which people only from one side of boundary	*Advantages* • Ease of communication creates a low stakes environment to reach out to people not within same social group. • Blurring boundaries between private and work communication showcase personal similarities that can be touch points for work communication. *Disadvantages* • Context collapse makes it difficult to know which "self" to present in what situation. • Highlights differences in communication style across cultures, which can make

Table 1 Continued
Prospects for the Study of Enterprise Social Media Use in Organizations

Processes	Metaphors of Enterprise Social Media		
	Leaky Pipe	**Echo Chamber**	**Social Lubricant**
Attention Allocation	*Advantages* • Individuals begin to attend to information, knowledge, and communication from others who they would not normally talk with.	*Advantages* • Because of public nature of communication to a known community, people provide more accurate and honest information. • Information from trusted others increases attention to ideas communicated by others.	*Advantages* • Due to threaded and temporally ordered nature of conversation, people can focus their attention in ways that allows them to enter conversations more easily at meaningful times.
	Disadvantages • Many information inputs means cognitive overload and individuals allocate attention only to specific areas of the organization, or discontinue use of ESM altogether due to overload.	*Disadvantages* • Individuals may believe that information they are attending to is representative of entire organization. • Construction of sub-optimal attention allocation strategies.	*Disadvantages* • People interject in conversations not intended for them. • Too many social-related signals can scatter one's attention and increases absentmindedness.
Social Analytics	*Advantages* • Because communication is visible and available, managers can use these digital traces to understand the organization's informal information economy • Create strategic opportunities for connecting people who are not yet connected	*Advantages* • Better understand who are the various communities within the organization, even if those communities are not tied to formal organizations (e.g. departments or divisions).	*Advantages* • Recommendations of connections provides excuse for people to get to know one another • Recommendations for documents that one might read can provide conversation-starter material with documents' creators.
	Disadvantages • Increased ability for surveillance and possibility of control. • Knowledge that management is watching may compel people to refrain from communicating on the platform.	*Disadvantages* • Mistaken understanding of what communities are or who key players in them might be because analytics do not sample communication that occurs offline.	*Disadvantages* • Encourages strategic self-presentation or offline interactions to avoid being traced, tracked, and quantified, which reduces likelihood people will use the tool to make new connections.