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# Social Networking Technologies and Organizational Knowledge Sharing as a Sociotechnical Ecology

**Mohammad Hossein Jarrahi**

Syracuse University  
337 Hinds Hall  
Syracuse, NY 13244 USA  
mhjarrah@syr.edu

**Steve Sawyer**

Syracuse University  
344 Hinds Hall  
Syracuse, NY 13244 USA  
ssawyer@syr.edu

**Abstract**

We focus on how the uses of social networking technologies (SNT) are bound up in knowledge sharing practices. For us SNT include weblogs, wikis, corporate social networking platforms, and social networking sites such as Facebook, Twitter, and LinkedIn. Our focus is to the uses of SNT relative to people's informal networks within and across organizations. We conceive these as multidimensional networks, treating technology and humans symmetrically and as members of the same sociotechnical ecology. To date, evidence indicates that SNTs have multiple roles regarding knowledge sharing in organizational contexts, and it appears that uses of SNT advance collaborative practices in ways not fully congruent with contemporary organizational practices.

**Keywords**

Social networking technology, Sociotechnical ecology, Knowledge sharing, Informal ties.

**ACM Classification Keywords**

K.4.3 [**Computers and Society**]: Organizational Impacts – *computer-supported collaborative work*.

**General Terms**

Human Factors

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### Introduction

This research is motivated by the confluence of two issues: the importance of informal knowledge-sharing in organizations and the rapid rise in both the number and users of social networking technologies (SNTs). We see SNTs as increasingly pervasive in both personal as well as professional domains. According to a recent report by Pew research center, the number of adult using social media technology has increased from 8% in 2005 to 65% in 2011[1]. Similarly, a study of US information workers, reveals that currently 29% of the workforce uses a social technology [2].

These tools seem to offer unprecedented opportunities for collaboration and social exchange [3] but raise questions about their organizational value. That is, the growth in SNT usage has largely come from outside formal organizations, with much of the early use of these platforms by young people and students. As a result, most research on the uses of SNTs focuses on non-organizational or explicitly social contexts, with a particular emphasis on teens' and students' uses [e.g., 4, 5, 6]. To date, few studies have investigated the adoption of these social tools in the workplace. What we do know about SNT in workplaces is based on a few studies of wikis [e.g., 7], blogs [e.g., 8], corporate social networking sites [e.g., 9] and public social networking sites such as LinkedIn and Facebook [e.g., 3].

These studies on organizational uses of SNT have primarily focused on a single SNT in isolation. While they offer insight into organizational implications of a specific tool, they don't investigate how SNTs are used in combination. We know, however, that most people interact with multiple SNT (as part of an even larger suite of ICT being used), and the interactions among

people and tools cannot be examined in isolation [10]. This environment, constituted of both social and technical players, is dubbed a "sociotechnical ecology" [11]. Within the sociotechnical ecology, SNTs work in concert, rather than alone, to meet their users' varied communication and knowledge sharing needs.

Our work seeks to increase scientific understanding of the role of SNT as a suite of tools. In doing so, it explores how organizational members interact with different SNTs at their disposal within a sociotechnical ecology. For the work reported on here, we pursued the following research question: *How do the uses of various SNTs by organizational members facilitate knowledge sharing within and across organizational boundaries?*

### Theoretical Framework

We draw on concepts of social networks and sociomateriality. By sociomateriality we mean research that considers technology and people to be part of the same network, rather than as exogenous entities [12]. Following this agenda, we draw specifically on the concept of multidimensional networks to help us capture the multi-faceted relationships among people and technologies in the sociotechnical ecology. Multidimensional networks are both multimodal and multiplex [13]. Multimodality refers to networks that contain nodes of different types. Multiplexity refers to networks that are comprised of multiple types of relationships among nodes. Together these concepts help us focus on the structure and dynamics of networks involving different types of players (people and SNTs) and different types of relations among people and SNTs.

### Methods

The preliminary phase of this study involved interviews, based on purposive sampling of people who hold knowledge-intensive roles in formal work organizations, collecting secondary data such as trace data of SNT uses and gathering relevant organizational and personal documents. To date, we have interviewed 16 individuals from five large management consulting firms. These knowledge-intensive organizational settings are considered extreme contexts which allowed clear observation of the use of SNTs in informal knowledge sharing. This is a form of theoretical sampling in which we choose cases which are likely to replicate or extend the emergent theory [14].

The value of SNTs for organizational knowledge sharing was examined by focusing on the ways these tools augment or extend organizational members' access to various sources of knowledge. To frame the effect of SNTs, the unit of analysis was the personal network (ego-centric). Inductive data analysis was informed by concepts from the multidimensional network framework, providing us with a basis for capturing the informal interactions enabled by the use of SNTs.

### Preliminary Findings

Organizational workers interviewed for this study have access to a variety of social tools in their work environment. Each SNT is used for sharing different types of knowledge and connecting to different groups of people. Table 1 outlines types of social contacts and respective knowledge practices mediated by different SNTs. These workers view each application as one part of a larger technological suite. The affordances of each application for knowledge sharing are meaningful only in relation to other options (other nodes of the

multidimensional network). Two significant dimensions of the relationships among the SNTs in such a network are *competition* and *interoperability* among them. The SNT compete with one another as organizational members constantly evaluate their functional capabilities and perceive one more effective in supporting interactions. In addition, while various SNTs are often articulated as independent and discrete technologies, the interoperability of these tools in day-to-day practices makes such distinctions less meaningful. For example, blogs posts are reposted on Twitter and Facebook. The interoperability and competition among these technologies represent different types of relationships among nodes in the multidimensional network.

SNT	Type of social contacts	Type of knowledge
Internal social networking platforms	Coworkers within the same organization	Awareness of coworkers' interests and areas of expertise
Facebook	Family and friends	Updates on personal life
Twitter	Liked-interested individuals	Innovative and groundbreaking information, indirectly influencing people's work
LinkedIn	Professional contacts from multiple organizations	Updates on professional contacts, topics discussed by professional communities
Yammer	Interpersonal contacts within the same organization	Quick pieces of advice, awareness on weak ties within organization

**Table1: Roles of SNTs in knowledge sharing**

### Contributions

There are two contributions of this study for CSCW research. First, findings provide greater understanding of roles and uses of SNT in supporting informal knowledge sharing within and across organizations. By treating various SNTs and organizational members as members

of multidimensional network, this research offers insight into the rich relationships among various social tools and people. Second, this work advances the current conceptual status of ICTs within personal networks. Within the CSCW domain, most studies have traditionally focused on the group level analysis. Scholars have highlighted the importance of the assemblage of people found through personal networks in studies of collaborative technologies [15]

### Next Steps

In moving forward, interviews will continue following an iterative data collection process in order to identify and successively refine themes emerging from the preliminary study. We will also integrate traces of knowledge sharing practices on public SNTs such as LinkedIn and Twitter to complement the interview data. The final product of this research will be a theoretical framework describing the role of SNTs in the workplace.

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