Knowledge Collaboration In Distributed Practice Communities

Completed Research Paper

Sri Kudaravalli
HEC Paris
1, rue de la Libération
78351 Jouy en Josas cedex

kudaravalli@hec.fr

Samer Faraj
McGill University
1001 Sherbrooke St. W.
Montreal, Quebec H3A 1G5

samer.faraj@mcgill.ca

Abstract

Information Technology is now making distributed collaboration possible on a very large-scale and across many different kinds of boundaries, thereby transforming professional work. Yet, our understanding of how such work is accomplished in large, distributed environments is limited. Professional work tends to be complex, uses established procedures, and is rooted in specific historically and materially situated practices. Approaches that take the social and situated nature of knowledge and learning into account, such as the literature on communities of practice, have been developed largely in relation to small, collocated groups. The practices that enable knowledge collaboration in large, distributed environments, mediated by a variety of information technology and other artefacts, have not received attention. Therefore, we undertook an empirical investigation of the practices through which work is accomplished in a professional legal association, whose more than ten thousand members are scattered around North America and play an essential role in shaping how the laws related to their practice areas are developed and implemented. Our investigation revealed two sets of practices that allow this organization to balance the competing demands of stability and change. These practices shed light on how larger communities of practice overcome diversity, dispersion, and a complex set of boundaries to achieve a deeper and more dynamic level of collaboration.

Keywords: knowledge work, communities of practice, distributed work, knowledge sharing, work practices, professional networks

Introduction

In recent years, we have seen the emergence, supported by information and communication technologies, of novel forms of collaboration that enable collections of individuals to organize toward shared goals, across organizational, geographic and temporal boundaries. Some researchers have used the label 'new organizational forms' to describe such groups (Fulk and DeSanctis 1995) while others have even suggested that they represent "new forms of organizing" (Zammuto et al. 2007). Such new organizational forms tend to be distributed, loosely-coordinated, self-organizing and voluntary (Moon and Sproull 2000). The accomplishments of such collaborative forms have become evident in many different areas. For example, open-source has revolutionized the production of software (Lakhani and von Hippel 2003); online communities have transformed knowledge sharing, product innovation and social relationships (Preece 2000); new media has upended the business models of traditional media companies; and collaborative content creation, with Wikipedia being a prominent example, is redefining knowledge production (Wagner and Majchrzak 2007).

New organizational forms enabled by information technologies are also transforming knowledge production in many occupational communities. For example, researchers have suggested that, in addition to the community, market and hierarchy approaches to organizing professional work, a new form called "collaborative community" is emerging to meet the need 'for more effective knowledge generation and diffusion', for which neither market nor hierarchy structure is adequate (Adler et al. 2008). Moreover, despite being loosely connected and lacking formal structures, these communities develop complex practices to accomplish knowledge-intensive work. For instance, Adler et al. (2008) suggest that the characteristics that distinguish the new professional collaborative form in medicine are social structures that support horizontal coordination of interdependent work processes and collaborative learning.

Despite recent interest, however, research examining the practices that accomplish knowledge work in new organizational forms has been limited. Some studies have examined the practices that are used to coordinate knowledge work in changing contexts (Kellogg et al. 2006; Orlikowski 2002). However, most of this research has been conducted in traditional organizations, while the new organizational forms characterized by loose-coordination, self-organization and voluntary membership have not received attention. While the communities of practice literature provides valuable insights (Lave and Wenger 1991; Wenger 1998), this approach emerged from the study of small, co-located and craft-based communities and therefore, the applicability of those insights to large-scale, dispersed groups using information technology is not clear. How might these ideas apply to large-scale, distributed practice-based communities, especially at a time when IT in the form of social media are affording and sustaining new forms of collaboration? Knowledge sharing has been a central concern in this literature (Brown and Duguid 2001), however, researchers have suggested that there are structural and epistemic constraints to communities of practice as they grow (Thompson 2005). What practices are used to overcome such constraints in large-scale collaborations? On the other hand, while IT allows far-flung individuals and groups to be connected, research also shows that situated activity in different geographic settings produces "unique, locale-specific knowledge", which is, "at the same time a valuable resource and a source of communication difficulty" (Sole and Edmondson 2002). How can distributed collaborations benefit from such local, geographically situated knowledge in different locations?

In order to examine these questions, we undertook a field study in the context of a professional legal association comprising more than ten thousand members, whose national offices are located in the mid-atlantic region whereas its members are spread all over North America and some parts of the world, thus providing an ideal setting to examine the research questions. Given our limited understanding of these topics, we adopted a grounded theory approach to develop useful concepts and theory that can be applied to the study of this phenomenon. We also took a practice view and focused on the everyday activities that resulted in the accomplishment of this work (Schatzki et al. 2001). Legal work is extremely knowledge-intensive, fast-changing and lawyers have to operate in conditions of uncertainty and ambiguity. Associations, consisting of voluntary members, play a crucial role in organizing professional knowledge and responding to a changing legal environment. The findings will shed light on how large-scale, distributed communities, mediated by a variety of IT artifacts, accomplish complex knowledge work, while managing the competing demands of stability and change.

Knowledge Work in Distributed Settings

The last decade in organizational studies has seen a steady stream of literature exploring knowledge and knowledge work within and across organizations. Under the broad umbrella of organizational knowledge literature, the idea of communities of practice has achieved a high level of popularity, both in organizational studies research and practitioner-oriented literature (Lesser and Everest 2001; Marshall et al. 1995; Pan and Leidner 2003; Wenger et al. 2002). Lave and Wenger (1991) are generally credited with having coined the term in their study of situated learning in the context of Yucatec midwives, Vai tailors, naval quartermasters, meat cutters and alcoholics anonymous. Through an examination of these specific case studies, Lave and Wenger proposed a new, socially situated approach to learning. In the communities they examine, new members, through peripheral participation, exposure and access to resources, gradually become full participants. Brown and Duguid (2001) adapted this approach for the organizational context. Subsequently, Wenger (1998) further expanded this approach by including consideration of not only processes within communities of practice, but also the boundary and practice implication of belonging to multiple communities of practice.

It has been suggested that not only does the idea of communities of practice reflect more closely how knowledge work is done in groups, but also captures the social nature of learning. Therefore, this emphasis has been closely linked to recent, alternative views that emphasize the importance of a shared, social basis and the interpretive aspect associated with knowledge creation in organizations. This approach has been a fertile ground for research by presenting several new and interesting issues. For example, the shared tools, representations and perspectives, in addition to facilitating knowledge creation within the groups, also create epistemic differences between the groups. Several authors have outlined the importance of identity to the shared discourse of communities of practice (Brown and Duguid 2001). The construction of shared identities within the community helps create a shared perspective that in turn facilitates knowledge sharing within the community. On the other hand, due to distinct identities of different communities, knowledge flows across them are problematic. Even though identity can play an important role in enabling or obstructing knowledge exchange in organizations, it remains an under-explored topic in organization studies and researchers have called for more work in this area (Orlikowski 2002).

The centrality of the social nature of learning to the communities of practice view is often interpreted to indicate that when the right environment is created, learning is unproblematic. However, this ignores the idea that individuals and groups may have their own ingrained capacities and predispositions acquired from previous experiences in the life course (Roberts 2006). For example, Bourdieu (1990) suggests that individuals are conditioned to think and behave in certain ways by their experience and moreover, that they are unaware of their conditioning. This notion, which Bourdieu labels 'habitus', includes the idea that since the individuals are unaware of their tendency to act in predisposed ways, such behavior is also difficult to change. This suggests that individuals as well as entire communities of practice may be predisposed to absorb only certain types of knowledge or interpret knowledge in specific ways. Related views have been offered, based in part on Kuhn's description of the practice of science (Boland and Tenkasi 1995). In Kuhn's model of how science works, scientific facts are meaningful only when interpreted within a dominant paradigm or socially shared worldview (Kuhn 1970). There are two principal outcomes of this model – first, such a shared social understanding and agreement makes normal science within the paradigm more efficient and second, the same facts would be interpreted differently in a different paradigm. This notion of the incompatibility of different dominant theories was labeled paradigm incommensurability. In a similar vein, the notion of communities of practice, when applied to organizational knowledge creation, highlights the importance to organizations of shared understanding and worldview of groups which can also make them less open to new knowledge (Brown and Duguid 2001). Research has not been sufficiently attentive to the fact that the same characteristics that make communities of practice successful, such as shared identity and trust, also serve as a trap by making them insular and closed to new ideas. Given these complexities, research has yet to explore in any detail how communities of practice function in practice. In empirical work, researchers has only now begun to open the black-box of communities of practice (Thompson 2005).

Although Lave and Wenger's original proposal included the idea of power differential, which could have negative consequences for the group, such concerns have largely been ignored in subsequent research. For example, in the case study of butchers, which they describe, new members employed in stores are not

provided opportunities to participate in practice, resulting in their inability to progress in their training. It is clear that the core members in most of their case studies control the resources and therefore hold the power to decide how much and what kind of access to those resources should be allowed to new members. Without access to resources, it is unlikely that the peripheral participants can make the transition to full participation and may, instead, be relegated to peripheral role indefinitely. How and when access is expanded for peripheral members to include greater roles, can create opportunities for conflict and misunderstanding. Despite the importance of this issue, however, researchers have not given enough attention to the role of power in communities of practice (Contu and Willmott 2003).

The concept of communities of practices has been applied to a wide variety of groups in different contexts. For example, loosely connected groups engaged in similar practices, such as occupational groups, have been called "networks of practice", to distinguish them from the smaller, cohesive and co-located groups representing communities of practice and also viewed as a special case of networks of practice (Brown and Duguid 2000). When the primary channel of communication in networks of practice is computer-mediated, they have been called "electronic networks of practice" (Wasko et al. 2004). Such conceptualizations are an attempt to address the changing context of organizations and organizing. Recent advances in IT have made the formation of large, dispersed and loosely connected groups increasingly commonplace. The Internet has given rise to new forms of organization that enable groups of geographically dispersed individuals with common interests to collaborate and share knowledge. Such networks and online communities span organizational boundaries and are increasingly playing a significant role in organizational innovation by supporting knowledge flows across boundaries.

Despite the examination of knowledge work in different types of groups, the effect of size and geographic dispersion on communities of practice needs further investigation. Lave and Wenger's original conceptualization of communities of practice was based on small, co-located, and craft-based communities and its implications for larger groups are unclear. For example, Lave and Wenger's (1991) notion of legitimate peripheral participation describes the process of new member socialization and identity development through apprenticeship - "assembling a general idea of...how masters talk, walk and work, and generally conduct their lives" (p. 95). Similarly, field service technicians in Orr's (1996) study diagnose and solve problems by exchanging war stories and vignettes in small, informal, face-to-face gatherings. Several consequences are presumed to follow from work in such tight-knit groups – better and more direct communication, reciprocity, greater and more complex collaboration, thus "allowing for highly productive and creative work" (Brown and Duguid 2000).

In contrast, increasing size of the community or network is considered to have a negative effect, with a weakening of ties, less direct links between members, less reciprocity and explicit but weaker coordination. Thompson (2005), for example, in a study of a community of practice in a large global service organization, finds that the structure and organization of the community impacted the epistemic activity, thus suggesting that there are structural constraints to communities of practice. Consequently, researchers have characterized larger networks such as networks of practice as being less effective: "collectively, such social systems don't take action and produce little knowledge" (Brown and Duguid 2000, p. 142). However, recent work has documented examples of large networks creating complex collaborations and taking coordinated actions. For example, Adler et al. (2008) describe the emergence of a new form called "collaborative community" in medicine involving structures that support horizontal coordination of interdependent work processes and collaborative learning. Sproull (2004) describes a number of large-scale online networks that are collaborating effectively to create knowledge in a variety of fields. Wasko et al. (2004) suggest that the use of technology can, in fact, help networks of practice scale up by eliminating the requirements of co-presence and turn-taking. Further research is, however, needed to investigate the specific structures employed by such technology-enabled groups in practice. For example, Kudaravalli and Faraj (2008) outline the structure of collaboration that allows one online group to engage in deep discussion and sense-making, despite the limitations of mediated communication and geographic dispersion. Therefore, in this study, we examine the practices that make such collaborative accomplishments possible in large-scale distributed environments.

Methodology

In this study, we adopt a practice lens, in line with a number of studies that examined knowledge work (Carlile 2002; Orlikowski 2002; Schatzki et al. 2001). The practice approach seeks to dissolve long-standing oppositions in social sciences by focusing on the everyday, situated practices of agents. In our context, it allows us to avoid an objectified view of knowledge and the consequent distinctions in different types of knowledge. Moreover, the inseparability of knowledge and action is also emphasized, thereby focusing on the "knowledgeability of action, that is on *knowing* (a verb connoting action, doing, practice) rather than *knowledge* (a noun connoting things, elements, facts, processes, dispositions)" (Orlikowski 2002, p.250-251). Therefore, competence in activities cannot be understood as the result of the possession of requisite knowledge but "rather, knowing is an ongoing social accomplishment, constituted and reconstituted in everyday practice" (Orlikowski 2002, p. 252).

We used a grounded theory approach for the study and accordingly, analysis, data collection and literature survey proceeded in an iterative process (Corbin and Strauss 2008; Glaser and Strauss 1967). We cycled through the data, developing theory and comparing with current literature. As recommended by Miles and Huberman (1998) and Glaser and Strauss (1967), we developed initial coding categories by cycling through the interview transcripts and observation field notes. These categories were aimed at identifying the different practices that are used for collaboration. After this phase of open coding, the developing categories were analyzed for recurring themes. If consistent support emerged for a theme, it was retained. This iterative process was continued until we reached theoretical saturation, when no new categories emerged from the data. In the final phase of the analysis, selective coding, categories were integrated and used to develop theory.

Research Setting

The research setting is a national lawyers association (referred to as Alpha) that is more than ten thousand members strong. It is a non-profit organization that provides its members with continuing legal education, information and professional development opportunities such as workshops, training, mentoring services, to name a few. The lawyers are scattered all over the country and practice different aspects of one branch of the law. Most lawyers working in this specialization are members of the association since it is the primary source for information related to the regulations (interpretation, summary and analysis), agency updates (processing times, administrative changes), in addition to organizing efforts such as advocacy and lobbying. Most of the work is performed by the members themselves, who volunteer for various tasks and roles. The association uses several avenues for information disseminated including face-to-face events such as conferences; information technology-based venues such as the association website, online forums, specialized and geographically-based listservs, teleconferences and online presentations, distribution of CD-ROMs as well as traditional strategies such as mailers and newsletters. Alpha also publishes several books and newsletters, which are in wide use. In addition, Alpha organizes several conferences throughout the year on various topics but the yearly, annual conference covers all topics, with an emphasis on new developments in relation to the law. The annual conference is attended by, on average, more than three thousand members.

In addition to the national office, the association has more than 35 local chapters whose structure and work resembles that of the national association. Most members belong to the national association as well as their local chapter. However, based on their interests, they may or may not take an active role in the local chapter related activities. Those who do, however, may have access to specialized knowledge and expertise related to implementation of the law in the state or, local agency related information. In terms of governance, elections are held at the annual conference where the directors and national officers are elected. The national officers form the executive committee and are the primary representatives for the association and are responsible for its activities. The national office employs a staff of 50 people, who initiate and monitor many activities. However, the members themselves, whose contributions to these activities are voluntary, accomplish most of the activities. The chapters elect their own chapter chairs and resemble the national office in many activities as well as governance. In addition to the face-to-face interaction provided by conferences, Alpha also offers its members other virtual interaction opportunities on the bulletin board, which is organized as a large number of topic based threads (many of them moderated), as well as a great number of ad-hoc listservs.

<u>*Sources for Data Collection*</u>

The data for this project was collected from several different sources. Archival records provided the ability to trace the evolution of the regulations, which embody the work of the various actors and interest groups by recording the history of the changes. Interviews provided the background material for understanding the changes by eliciting the various interests, concerns and negotiations. Finally, observations provided yet another way to study the various interests of the actors and negotiations and thus help triangulate the findings from the former two sources.

<u>Archival Data:</u> These include data on legal interpretation material (allowing us to trace the activities and actors involved in the work on regulations), meeting minutes and announcements. In addition, we collected information about the organization structures and processes, including such things as organization charts, historical election records, board membership, etc.

<u>Interview Data:</u> We conducted unstructured and semi-structured interviews with the staff of the association, leaders in the association, regular members, paralegal members, administrators and IT personnel. A total 45 people were interviewed, some on multiple occasions. The interviews were conducted both in person, when possible, and over the phone, since the members are geographically dispersed. Whenever possible, the interviews were recorded and all recordings were transcribed.

<u>Observations:</u> Observation opportunities included meetings and social activities at the association headquarters. In addition, the association's conferences provided opportunities to observe member interaction in the sessions, panels and social events. We attended the annual conference of the association for two consecutive years. The observations totaled 142 hours. We took extensive field notes whenever observation opportunities arose.

Analysis

We began the study with the first research question, which asks how knowledge collaboration is organized in large, distributed, professional communities. In order to answer this question, we began by conducting semi-structured interviews of staff and members of the association. Our interviews were initially open and exploratory, designed to elicit information about the organization of the community and the processes of knowledge collaboration. The questions were mainly used as an outline of the topics to be covered, while also being open to the other topics that may arise during the conversation. During this time one of the authors also attended the association's Annual Conference, where he conducted observations of formal events such as sessions and panels as well as more informal events. These initial interviews and observations provided an overview of the organization of the community, its culture and the key actors. Since we were interested in the specific structures and practices that allow knowledge collaboration, we began coding for them in the interview transcripts and field notes after multiple readings of the materials in their entirety. These codes included both our own labels as well as in-vivo codes, borrowed from the data itself. During this phase of open coding, we also started collecting archival data, looking to find support for these codes or further clarification. We began to find evidence for a wide variety of elaborate structures and practices in this community. We started exploring these preliminary concepts by drafting memos.

Building on the recommendations of Corbin and Strauss (2008), our analysis highlighted key themes from the early stages, such as the role played by the association in knowledge sharing, privileging expertise and the importance of local knowledge, and we began to document their relation to the different lower-level codes. For example, concepts such as "core/periphery structure", "reputation" and "expertise hierarchy" were related to the higher-level concept of "privileging expertise". The concepts of "promoting cross-fertilization", "ramping up for leadership role" and "making room for new blood" were related to the higher-level concept of "member socialization".

As we developed the key higher-level concepts in the analysis, we continued to ask questions to elaborate these concepts and explore how they linked to each other. We conducted further interviews and collected archival data to answer the questions, which led to not only further questions but also more categories, which led to more data collection. For example, a question that needed to be explored was how privileging expertise was manifested in the structures and processes of Alpha, what form it took. Further data collection revealed how the committees were structured, the hierarchy among them, and the progression

members often made from lower-level committees to higher-level committees with increasing experience. These structures and processes related not only to privileging expertise but also member socialization. As a result, we coded yet another higher-level concept to subsume privileging expertise, called "expertise-based structuring".

An important distinction emerged between the higher-level concepts as the analysis progressed – that between internally-focused practices and externally-focused practices. We continued to refer back to the literature through the analysis and data collection. The survey of the literature revealed the limited attention externally-focused practices have received, especially in the context of distributed collaboration and new organizational forms. For example, despite the importance of context and environmental influence, literature on communities of practice has focused almost entirely on their internal structures and processes (ØSterlund and Carlile 2005; Wenger 1998). During this time, one of the authors attended Alpha's annual conference a second time, where we gathered more evidence for these distinctions.

Findings

In this section, we report on some findings from the field study. In order to set the stage, we describe some salient characteristics of legal work by first outlining the complexity involved in this kind of legal work. This prepares the ground for the subsequent reporting on two sets of practices that have been identified in the preliminary analysis. The first category, which is labeled *sustaining practices*, encapsulate the practices that this community needs to support everyday activities and are essential for its continued viability. The second category, which are labeled *generative practices* represent the practices that allow this community to deal with the external forces from its environment. We conclude by outlining how this community balances its efforts between the internally focused sustaining practices and externally focused generative practices.

Characteristics of Legal Knowledge

Legal work in many areas of the law can be complex and dynamic due to, among other things, the large number of stakeholders involved, elaborate codes, exceptions and frequent changes. In order to illustrate the complexity of this work, let us consider three key aspects of the law – legislative, administrative and judicial. The legislative aspects deal with the law as drafted by congress, the administrative aspects deal with the regulation as implemented and enforced by the federal agencies and the judicial aspects relate to the case law deriving from the adjudications in courts. Each aspect adds another dimension to an area of the law and makes the knowledge related to it progressively more elaborate and complex. Many areas of the law are dynamic and constantly evolving. For example, the Title 8, CFR, was first drafted in 1958 and continues to be amended and added to in the present day. The external political and cultural environment has a significant impact on the law, and as new governments take power or when the political climate changes, existing laws are amended or superseded. Therefore, in areas of the law that are fast-changing, there is a need for the legal community to stay abreast of the latest information with timely updates. For example, one attorney commented: "I actually spend more time studying now than I did in law school, I sit here for several hours a day just sifting through the interpretations and what's happening." Amendments and changing interpretations add to the complexity already introduced by elaborate regulations and case law. As an example, one attorney observed, "These days..."the Bible of ___law"...which started with 4 volumes...stretches to 20 volumes." Further, given the broad terms in which the law is initially drafted and subsequently interpreted and clarified through the regulatory process and case law, legal work often deals with ambiguity. At the same time, since the adjudications by case officers in federal agencies or judges in courts tend to be unpredictable, legal work also involves considerable uncertainty. Finally, depending on the specifics of each case, the stakes can often be high. The consequences of unfavorable decisions may involve imprisonment, deportation or other extreme penalties.

One possible response to such increasing complexity could be the emergence of specialization accompanied by fragmentation into smaller communities. Yet, our findings indicate that information and communication technologies have played an important role in preventing fragmentation within Alpha as a result of burgeoning complexity. For example, one respondent commented:

> "…when I came in to this field more than 25 years ago, it operated as a community then, but it was more, smaller sub-communities, (but) with the explosion of technology and the ability to relate nationally as though you were sitting in the same room in some instances…it's redefined that community, really in the last 10 years." (Director, Programs)

This suggests the importance of technology-enabled distributed work to groups such as this one in allowing them to sustain themselves and grow as a large-scale community of practice. However, despite the evidence for the existence of this phenomenon, there has been limited investigation of the practices that make this kind of distributed work possible. In the next section, we describe two sets of knowledge practices, one with an internal focus and the other with an external focus.

Sustaining Practices

To remain viable, communities need practices that support everyday activities. Our analysis reveals the existence of four such practices. The first two, member socialization and reinforcing shared identity are practices that replenish membership and reinforce their common purpose, thus ensuring continuity. In addition, the practices of privileging expertise and providing knowledge to members ensure the community's continued value to members. We use the labels, expertise based structuring and knowledge sharing and dissemination to refer to these practices. We describe each of these in detail and the evidence for them is also presented in Table 1.

Member Socialization

Whether voluntary communities continually regenerate and sustain themselves is determined by how the groups create and structure their resources to enable new and peripheral member learning and socialization. In addition to extending the life of the group by replacing core members as they leave, beginning members bring new ideas and energy. On the other hand, how they are socialized into the group determines their ability to perform essential functions and manage continuity. This is even more important in the continuity of long-standing professions such as law and medicine, where voluntary professional associations perform critical roles in new member learning and professional development. While technology allows such entities to scale up their membership, increased size also presents challenges in structuring their resources for member learning.

We found evidence of several different types of structures and processes for new member socialization at Alpha both at the national and local level. At the local level, chapters have their own New Member Divisions with their associated activities. The divisions often have their own listservs and brownbag lunches to encourage knowledge sharing as well as social interaction. The local chapters provide better settings for familiarization with Alpha activities, culture and members since they have smaller groups and it is easier to get to know others and therefore, are less intimidating for new members. At the national office level, Alpha provides a way for more seasoned and experienced members to participate in mentoring activities through its Mentor Network. In addition, Alpha organizes various social activities for its beginning members at the Annual Conference. To promote better knowledge sharing and learning for new members, Alpha also organizes events at the Annual Conference in tracks labeled Fundamentals and Masters with the former aimed at members who are either new to the specialization or the practice of law and the latter aimed at more experienced members.

Since Alpha is run entirely by the voluntary activities of its members, how well new members succeed and move towards full participation is based on the extent to which new members volunteer for activities as well as their ability to contribute. Member progression is based on their efforts being noticed by other senior members, who nominate them to important committees, which brings further attention. Such success at the local level often leads to nominations at the national level. Committees are reconstituted every year in part to ensure inclusion of new members. Despite these structures, member socialization at Alpha is not without its challenges. The very structures that are designed to promote socialization of new members can inhibit knowledge sharing. For example, a senior staff member noted that:

> "The (New Member Division) listserv ends up being a place where they can reach their peers and we have found…that the new members often are more willing to post their questions on their own listserv than they are to go on the (national forum) and post because they don't want to look stupid to the older and most experienced members. But the

downside is if they are posting their questions on the new member division listserv, they are only getting new members to respond. Sometimes, often, may be, they are getting bad information or incorrect information."

Reinforcing Shared Identity

A recurring theme that emerged from observations and interviews at Alpha was the repeated emphasis on the helping and "doing good" aspect of their profession. Members often emphasized that, since practice in this area of the law, generally, has significantly less financial benefits than some other areas, they would not be satisfied unless they see helping their clients as the primary reward. Moreover, this helping behavior that constituted their shared identity was reinforced through established, institutionalized practices such as awards at the Annual Conference for pro bono work and celebrating individual life stories that illustrated their success in achieving the desired ends for their clients. These narratives often included conquering great odds to reunite families or to help clients overcome traumatic experiences. At public venues such as the Annual Conference, speakers often compared their work to the civil rights struggle.

While organizational identification is important in promoting cooperation among members, it is especially critical in distributed groups and has been found to be helpful in "maintaining coherence, commitment, and continuity across the multiple locations, priorities, and interests of the hundreds of people involved in the collaborative effort" (Orlikowski 2002, p. 257). At Alpha, while members identify with the organization, their strongest identification is with their profession, specifically, its' avowed characteristic of fighting for the rights of the underprivileged. Since most members work in solo or 2-3 person practices and have almost no face-to-face interaction with other members, the reinforcement of shared identity acts as the glue that connects them in their common efforts while working on achieving favorable regulation or interpretation of the regulation for their clients.

Expertise based Structuring

A key concern for researchers who have been studying new organizational forms centers around the question of how such efforts succeed despite the fact that they depend entirely on voluntary contributions of members. Therefore, researchers have studied how such projects are organized (O'Mahony and Ferraro 2007), why members contribute to such efforts (Wasko and Faraj 2000) and what predicts continued participation (Joyce and Kraut 2006). Further, studies in a wide range of domains have consistently shown that a small, core group is responsible for the majority of the contributions to such groups (Moon and Sproull 2002). A much larger percentage of members occupy peripheral positions and make occasional contributions. Therefore, researchers and practitioners alike have been concerned with understanding how members can be motivated to contribute, which is presumed to result in active and viable communities.

Although the importance of the core group is confirmed by the findings at Alpha – the members on national committees only number between 300-400, out of the total membership of around 11000, and can be considered the core – the importance of expertise in gaining membership in the core group is perhaps unique. Given the complexity of this kind of legal work as described earlier, expertise is highly valued, especially since the stakes are often high. Members gain experience at different levels of complexity before taking on important roles. For example, most of the members on the national committees gain considerable experience doing committee work at the chapter level, whose organization mirrors that of the national office. Most members work in solo practices or 2-3 person firms and depend on individual reputation for attracting clients and building their practice. Therefore, motivating members to contribute does not appear to be a significant challenge – members view the opportunity to contribute as a route to getting noticed and building reputation – and often do so at considerable cost in terms of time and effort away from their practice. However, managing motivated contributors in a voluntary organization can also be challenging when there is strict expertise hierarchy. Since wrong information and advice can have disastrous consequences, organizers of such efforts often have to find creative ways to refuse contributions from highly motivated contributors who lack the necessary abilities or expertise.

Knowledge Sharing and Dissemination

Alpha plays a critical role in the legal practice of many of its members by providing important information and perspective on changing law and its implementation. The leadership commented that getting essential information out to the members in a timely manner was a key function of the association. Alpha uses several different types of technologies and media in their information dissemination such as websites, forums (moderated), conferences, books, magazine, webcasts and podcasts. Member reliance on Alpha for these services made their management and development especially important. For example, as one member commented, "the first thing I do every morning is check the website for new developments...and the last thing I do at night is check the website...I also find the mentor feature very useful, I can email when I have any questions". Given the range of strong technology use preferences that existed, Alpha continued to use redundant channels to communicate some information, although effort was made to consolidate such channels. For example, some members had a strong preference for hard copy books or CDs, even though the same information was made available online while also being searchable and more frequently updated.

In addition to these formal channels organized by the central office, members developed many informal communication channels with other members. There were more immediate opportunities to develop relationships with others at the local level, depending on the chapter, in the form of regular meetings or brown bags at a member's office. The conferences, especially the annual conference, provided opportunities to meet members working in other geographic locations and other specializations. Such informal networks were an important source of information. As one member commented:

> "...if we have to go to another court or (agency) office then I'll always call up somebody there whom I know and ask their opinion on what's the attitude of the examiner on this issue...even in a routine case, if say we're going to another city, I'll probably call up somebody and say, hey, what's the attitude generally. I think the good thing about (Alpha) is that among the members, there's a lot of collegiality and people will always share their time and expertise and their knowledge."

While these examples describe how members acquire knowledge, many respondents viewed acquisition of knowledge and dissemination of knowledge as inseparable activities that formed a virtuous cycle. One member commented on how integral these activities were to his practice:

> "...yeah, all of this (association activity) takes time but the thing is that you've integrated all this as part of your practice, you don't see it as something that's outside the practice. The fact that you do it adds a dimension to your practice, to your stature, so everything kind of benefits ultimately who you are as a lawyer. And that's how you have to view it, you can't just view it as, I'm not making so many dollars because I'm editing an article. By editing an article, somebody's article, you're gaining knowledge, which will ultimately help you in a future matter."

Such knowledge sharing activities were also linked to other perceived characteristics of their profession as well as reputation building essential for their career (accordingly, knowledge contributions were credited and real names were used in virtual settings). The former is supported by other studies in the situated learning literature that suggested that learning and identity are intertwined (Lave and Wenger 1991; Wenger 1998). The latter is supported by Wasko and Faraj (2005), who found that reputation seeking was an essential motivation for knowledge contribution in electronic networks of practice. However, members often emphasized both simultaneously. For example, one member discussed the opportunity cost of time spent on sharing knowledge with others:

> "Obviously, you take all these into consideration, sure. But ultimately, I didn't join a law firm that had a brand name already, big large firm...a company like IBM...where the brand name is already there and the moment you join there as an executive vice president everybody claps. I started from ground zero, so I decided to build my own brand. And in order to build the brand and sustain it this is what you have to do. But it's not really seeing it that way, I think that's a subsidiary benefit. You do it because you're passionate about it and because there is an inherent obligation to be involved in every manifestation of your practice and to be part of that." (regular member)

Table 1: Sustaining Practices		
Category	Description	Examples
Member Socialization	The success of the organization depends on how well new members are socialized into the community, thus bringing new ideas and expertise. Different socialization processes exist.	"On all our committees, we make sure that every year there is some new blood, while also having enough of the members from the previous year for continuity" (Senior staff)
Reinforcing Shared Identity	Maintaining a shared identify in a widely dispersed group such as Alpha is challenging. This is achieved through stories and repeated narratives that highlight their common identity.	"We are waging the new civil rights battle of our times…we will prevail…", "we speak for the voiceless…" (Executive Director, Legal Foundation) "You don't get into this profession for money, but only if you are passionate and want to help people…" (Director, Liaison)
Expertise Based Structuring	There is a small, committed, core group at Alpha that is critical to its functioning. However, since expertise is critical to performance in these roles, members gain experience at different levels before taking on important roles.	"We have a few die-hards who contribute regularly, have significant experience, for example this 540 page book was written by one such member…" (Director, Publications) "Most of our national committees are filled with members who have risen up through the chapters and gained experience at the local level…" (Senior staff)
Knowledge Sharing And Dissemination	Knowledge sharing is a critical function of Alpha and different venues and technologies are used to promote it.	"The first thing I do every morning is check the website for new developments…and the last thing I do at night is check the website…I also find the mentor feature very useful, I can email when I have any questions" (Regular member) "I spend 80 percent of my time at the conference attending sessions and panels and may be 20 percent of the time socializing…the sessions are critical, especially the ones with agency officials and Q&A" (Regular Member)

Generative Practices

Communities of practice reside in a larger context. Therefore, they are subject to external forces from the environment. The ability of communities of practice to respond to external forces determines their survival and success. There are many different stakeholders and organizations involved in this work – the congress, federal agencies, courts and other interested actors such as advocacy groups. Consequently, distributed communities such as Alpha have to develop practices that address external forces that impact their work and affect their interests. This ability is encapsulated in four practices that we label *generative practices* since, very often, dealing with these forces requires Alpha to generate new knowledge. We describe these in detail below and the evidence for these practices is also presented in Table 2.

Structuring for External Shocks

Alpha has several structures in place to address changes in regulation. These include existing committees that are charged with drafting responses to agencies or preparing analyses and summaries that explain the changes to the members. However, on occasion, these structures are inadequate to foresee or respond to dramatic events or shifts in the regulatory, political environments that have significant consequences for the community or large numbers of their clients. Such shocks can either be short, localized events or longer term, expansive changes. For example, when a new administration or congress comes to power and are opposed to the current policy, it may completely overhaul the existing law instead of making incremental changes. A new administration may also replace all the political appointees at key federal agencies to institute policies it favors. For example, one respondent at Alpha observed:

> "The changes that have taken place at the agencies in the last eight years have been devastating, with the political appointees imposing their view on everyone, moving or forcing out people who do not agree with them…down to the lowest level…even if the new administration is friendlier, it may take a decade or more, assuming they are motivated, to roll back the changes…it may not even be possible…"

Alpha responds to such changes with several different types of structures. Several working groups, or committees, are formed to take on the issue on multiple fronts – for example, one to prepare a practice advisory for members to clarify the change and how the change should be interpreted, one to prepare

questions for the agencies, one group to lobby congress and yet another to "take on the media and develop message points". Members at Alpha suggested that response time is often critical when sudden, unexpected events or changes occur and described an episode during which all these different efforts were organized in two weeks. In addition, when such shocks are sustained changes, special sessions and panels are organized at the conferences to discuss the changes. Moreover, the legislative advocacy unit of Alpha organizes activities such as email or fax campaigns to congressmen or lobbying by members. The results for the advocacy efforts vary based on how wide-ranging the impacts of the proposed changes are. Some issues generate strong reactions – for example, lobbying effort for a long-standing issue generated thirty thousand phone calls as a result of support not just from Alpha members but also their attorneys' clients and the general public.

Disseminating Local Knowledge

While technology potentially allows geographically dispersed groups to communicate, overcoming the many differences of their geography that divide such groups is not always easy, thus creating a challenge for successful collaboration. As a result of the variations in local conditions, groups may develop differing practices that often cannot be transported to another location. Since Alpha members, in their practice, deal with state agencies and offices, members develop special expertise and familiarity with procedures in their area. As one respondent described the problem:

> "...there's a whole, like 60 different local offices of (federal agency), ...and each one does things their own way on anything you can name. And the challenge is, because, no matter where you're sitting you can wind up in one of those offices one way or another..." (Senior staff)

Therefore, Alpha members, despite being licensed and building practices in individual states, often deal with offices in other states. There has been an effort to standardize processing and procedures at the different offices of the federal agencies, resulting in a handful of very large regional service centers. However, in some areas such as enforcement and detention, familiarity with local practices nevertheless provides an advantage. Members also described how local practices diverged even in areas where national policies exist:

> "There's all sort of things that are minor but are a big deal to a lot of the members, they want to know if you can't bring camera phones. But there's lots of different kinds of local rules, how do you do increase? When can you see a supervisor? How do you do reschedules? And even though they're national policies every district office I think has their own feel of how they're implementing that, so understanding that I think is important for at least our chapter members..." (Chapter president)

A key challenge for the organization, then, is spreading knowledge about local practices throughout the wider community. There are several structures that facilitate dissemination of local knowledge in Alpha. Chapters serve as repositories of local knowledge since they organize the liaison with local government offices and collect information related to practice in their region. When new members join Alpha, they are automatically signed up for their local chapter and receive chapter communications and updates on activities. In addition, members whose practice deals with another region are encouraged to join the local chapter to gain access to the chapter listserv and member expertise. Moreover, the chapter chairs are automatically members of the national board of governors, thereby ensuring not only chapter representation at the national level but also communication of information about local practices. Finally, chapter members who make valuable contributions are often recruited into national committees, thus providing another conduit for sharing local knowledge.

Deliberation and Sense-Making

Given the considerable ambiguity and uncertainty often present in legal work, Alpha needs structures and processes that promote deliberation and sensemaking. We described, in a preceding section, the many aspects that make the practice of this area of the law complex. In particular, individual attorneys have to consider many different contextual and case-specific details before making a decision on the right way to proceed. One respondent described the problem of finding the right information and making a knowledgeable decision in this area of the law:

> "it's not just a matter of, you know, taking a big law or statute or regulation and applying it to a particular case or set of facts, its what aspect of the case are you looking for knowledge about… (vis-à-vis) *strategies, procedures and legal arguments…*this supreme court case says x, y or z but here is how my case is different from that and should be distinguished, so that court case shouldn't control, I mean there are many kinds of legal arguments that you need to make in the midst of all this but I would say (this area of the) law is unique in the *layers of procedures that people have to grapple with and it can be something as simple as, you know, what mail box do I send this application to…* and what, you know, payment do I attach to it, in what form…I mean, its bound up with all kinds of convoluted procedures and the procedures end up being different depending on the application, depending on what part of the country you are in… " (italics added)

Given these variations in procedures and contexts, individuals look to others and the association for clarification. However, given these variations, this involves not simply a transfer of information, but a process of deliberation and sensemaking, where individuals go back and forth and clarify contextual differences and consider various strategies. In the process, members consider different examples, run through scenarios and develop rules of thumb. The need for deliberation and sensemaking is more acute when the law changes and the agencies change the rules or issue new guidance memos. The scale of the organization, however, presents a challenge to processes used to make sense of the changes. While technology mitigates some of these challenges, addressing them in face-to-face interaction is much more problematic. For instance, sessions at the conference are sometimes attended by 800 or more members. Involving as many people as possible and yet making room for public deliberation is challenging.

Table 2: Generative Practices		
Categories	Description	Examples
Structuring For External Shocks	New and changing legislation creates the need for new knowledge.	Committees as a mechanism of dealing with changes. Evaluate threats, develop strategies and mobilize members as needed.
Disseminating Local Knowledge	Geographically dispersed activity creates locale-specific practices. Sharing knowledge about these practices is essential at Alpha.	"…there's a whole, like 60 different local offices of (federal agency), …and each one does things their own way on anything you can name. And the challenge is, because, no matter where you're sitting you can wind up in one of those offices one way or another…" (Senior staff)
Deliberation and Sense-Making	Outlets for making sense of changing regulation and how it might affect their clients, their practice and profession.	"Through out the panel discussion, a steady trickle of audience members walked up to the left side of the raised platform and gave their hand-written questions to the organizer…the questions from the audience were inserted into the deliberation…(but) never explicitly acknowledged as audience questions" (Field notes from the conference)
Organizing for Knowledge Contestation	In the drafting of regulations or when negotiation fails, knowledge and interpretation of other stakeholder is contested through litigation, long-term advocacy, public education and lobbying.	"…(we) are more than just an internally focused knowledge community, (we are) a player in shaping the national debate and action on these kinds of issues…what is the country and how are its values reflected in this body of law…" (Senior staff)

Organizing for Knowledge Contestation

Alpha performed a variety of externally focused activities such as monitoring the legal environment, legislative advocacy, liaison with agencies, etc. While a significant share of these activities involved negotiation, liaison and building relationships with different stakeholders, sometimes these are no longer enough. For example, a respondent commented on the importance given to not only externally focused activities such as liaison, but also the stakes involved in these activities by the link to larger values:

> "if you look at the association overall and you look at how it allocates its resources…you could just have a knowledge based association that was entirely about when something happens we push it up to the members, we get their analysis, they share it with each other to be better lawyers, right? And you wouldn't have to have any arm that did legislative advocacy or liaison. No government advocacy with the agencies. And some associations just operate that way. But part of what (Alpha) has been from very early on is that …(we) are more than just an internally focused knowledge community, (we are) a player in shaping the national debate and action on these kinds of issues…*what is the country and how are its values reflected in this body of law…*" (italics added)

Precisely because such stakes are involved, Alpha has to contest the position and interpretation of other stakeholder in the courts and in public opinion. Alpha has a separate division dedicated to issues such as selective involvement in high-profile pro bono cases, education and improving public awareness. However, knowledge contestation after the fact is expensive, not only in terms of the resources needed but also the consequences for the clients of Alpha. Therefore, attempt is made to get involved early in the

process of drafting legislation to effect a favorable change. Failing to achieve such changes often leads to more direct knowledge contestation, such as litigating the agencies and changing public opinion through media messaging.

Discussion

The key implication from the two sets of practices described here is that large-scale, distributed communities such as Alpha face challenges from within and without and their success depends on how they manage both sets of challenges. However, addressing internal and external challenges and balancing the resources needed across them is complicated by the fact that these challenges are often in conflict. In practice, different types of activities have to be modulated to balance these opposing demands. For example, when there is an external shock, resources may have to be diverted from regular activities to address an existential threat to the community, but also the focus of internal activities may have to be realigned. In the case of Alpha, when the regulatory environment turns hostile as a result of a change in administration, more lobbying, messaging and communication resources have to be assigned to address the changes. If the macro environment continues to remain challenging, members may turn their practice to other areas of the law or leave the practice of law altogether. The turnover in membership could create a vicious cycle by reducing revenues and consequently affecting services to members, which may create further turnover or an additional loss of members.

Similar tensions exist between other practices that have internal and external focus. For example, in the previous section, we discussed the importance of sharing local knowledge for distributed communities. However, differing local practices are necessarily in conflict, with the need to develop standard procedures that apply across local contexts. How autonomous can the local chapters be and how distinct can the chapter practices be without fragmenting Alpha into many smaller communities? Similar questions arise in regard to the practice of expertise based structuring. We suggested that expertise is highly valued at Alpha and members go through several years of "training" before taking on important roles. Why not allow the experts to prescribe courses of action when questions arise instead of deliberating the issue in the larger community? Yet, even novice members may suggest useful ideas or have access to information that the experts do not.

The two sets of practices described here and the importance of managing both can be illustrated further through comparison with other professional communities. Alpha shares similarities with associations that exist in almost any academic community. For example, while Information Systems researchers are employed in different institutions and often in inter-disciplinary departments, most are members of an association. These associations organize annual meetings, provide venues to present and publish research as well as opportunities for career development. In much the same way as Alpha, these associations are entirely run by the voluntary activities of its members, play an important role in knowledge sharing and information dissemination and have an expertise hierarchy. Very often, members have stronger identification with the association or the group represented by it, such as the information systems academic community, than with the institution where they are employed. Just as Alpha is threatened by changes in the political or regulatory environment, academic communities also face challenges from economic or jurisdictional changes. For example, there has been a long-standing debate within the information systems discipline about its identity, its status as a reference discipline and whether its lack of contribution to or impact on other disciplines could threaten its survival (Hirschheim 2006; Straub 2006; Wade et al. 2006). Similarly, the discipline faced significant challenges when the economic climate changed and student enrolment dropped after the technology downturn.

A broad finding in this study is the seamless coupling between face-to-face activities and those that are mediated by IT. Technology is widely used to enable this association, which is characterized by distributed membership, to develop and sustain practices that are closer to those found in co-located communities of practice. As evident from the description in previous sections, Alpha successfully organizes many initiatives to collectively address changing regulations. A variety of mediated and non-mediated settings such as bulletin boards, listservs and face-to-face conferences are used to organize their activities. The knowledge practices described here span all such media, settings and technologies. In effect, technology is interwoven into the fabric of organizing and the practices described here. Therefore, our findings indicate

that the impact of IT on collaboration is likely to be difficult to isolate and characterize separately. The practices identified here relied heavily on the IT infrastructure to sustain and facilitate collaboration. However, little could be gained by aiming to isolate IT analytically or as its own effect. At the same time, our study confirms previous findings in the literature regarding the importance of face-to-face interaction for distributed organizing - in building relationships and sharing knowledge (Orlikowski 2002). The annual and regional conferences and other venues for face-to-face interaction were highly valued and attended by members for these and other reasons, despite the high costs associated with travel.

This study makes a number of other contributions to the literature on distributed collaboration. In particular, we previously outlined the literature on communities of practice and suggested that the applicability of these ideas to professional work in large, distributed environments is not clear. These studies offer very little guidance on how groups such as Alpha can operate on a large-scale, given the evidence that communities of practice have structural and epistemic parameters that impose constraints on their growth (Thompson 2005). Moreover, the literature in this area has largely focused on such issues as identity (Wenger 1998), neglecting the practices of knowledge collaboration.

Therefore, the internal-focused practices described here (what we call sustaining practices) illustrate how insights from the communities of practice literature apply to large, distributed settings. For example, while this literature describes growth and transformation of identity as evolving along with increasing competence and legitimacy in co-located groups (Lave and Wenger 1991; Wenger 1998), the practice of reinforcing shared identity at Alpha acts as a glue that connects dispersed members who seldom meet face-to-face. Similarly, the practice of member socialization at Alpha can be compared to Lave and Wenger's (1991) notion of peripheral participation, however, it uses specific structures at the chapter and national levels as well as the process of progression through and reconstitution of committees. While the sustaining practices thus resemble and extend the insights from the communities of practice literature, the external-focused practices described here, labeled generative practices, represent a novel contribution. For, as researchers have pointed out, despite the importance of the challenges from the environment for communities of practice, the literature has focused almost entirely on their internal structures and processes (ØSterlund and Carlile 2005; Wenger 1998). Evidence from Alpha suggests the existence of different types of generative practices such as structuring for external shocks, disseminating local knowledge and organizing for knowledge contestation. The identification of these practices, therefore, is an important contribution to the literature on distributed practice communities and new organizational forms.

While the literature on online communities offers important insights, the focus in these studies tends to be on such communities in isolation and does not examine how individuals and groups organize across online and offline interaction. Similarly, the overwhelming focus in the studies on distributed work tends to be on the limitations of mediated communication (e.g., Kiesler and Cummings 2002; Nardi and Whittaker 2002; Olson et al. 2002). Not enough attention has been given to the question of how groups overcome such limitations, as evident from the great number of collaborative accomplishments in different areas. We depart from this focus in our study and investigate *how* distributed groups, especially occupational communities, organize, adapt to the changing environment and create their collaborative accomplishments across mediated and non-mediated settings.

This study has some limitations that must be acknowledged. The knowledge practices reported here are from the study of a single distributed community and their applicability to other distributed communities needs further investigation. Since very little is known about how voluntary communities organize their knowledge collaboration in dispersed settings, we undertook an in-depth study of their practices. Future studies can uncover how other large, distributed communities balance internally and externally-oriented activities in practice. Second, although we set out to study knowledge practices in large-scale voluntary communities and therefore chose a non-profit organization as our setting, more work is needed to explore such practices in for-profit organizations. Finally, in this exploratory study, we took an initial step in identifying a set of practices that allow a large group to be successful despite the negative consequences of geographic dispersion, but a longitudinal study is needed to examine how these practices changed over time and are affected by technological and other contextual factors. For example, future studies could investigate questions concerning how information technology might have shaped the organizational structure or how technology use may have been shaped by the organizational structure.

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