Supporting Global Virtual Work through Blogs and Micro-Blogging

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Abstract
We present findings from a case study of an innovative firm that developed blogging software and successfully leveraged that software for collaborative work in their global virtual firm. Our study shows that use of blogs was effective as it enhanced information sharing across locations to support three enablers of virtual work: shared understanding, integration, and trust. We synthesize five integrative mechanisms used by the firm: (1) aligning use of blogs and distributed work practices from firm inception; (2) utilizing a media ecology to support diverse needs and functions across locations (3) creating hiring practices that appropriately socialized newcomers into blog use and distributed work practices at the firm; (4) supporting continuous tailoring and adaptability of their software for supporting distributed work; and, (5) aligning blog use with firm’s product development for continuous innovation. We discuss implications of the study.

1. INTRODUCTION
The use of information and communication technologies (ICTs) has enabled global reach, access to highly skilled labor, and much needed expertise for knowledge work [15]. This ability to access expertise and labor though comes at a cost – increased reliance on ICTs increases interpersonal and organizational breakdowns across locations [2, 12, 15, 21]. In particular, communicative boundaries prevent workers from sharing direct experiential knowledge [6, 7] leading to lack of trust [20], misunderstandings [5, 6], and conflict [14, 16]. Recent research suggests that social media tools such as blogs can potentially be used to overcome some of the communication and information sharing barriers prevalent in distributed work settings [3, 28]. Blogs, microblogs, and wikis [28, 29, 30] in particular are able to enhance information sharing across boundaries due to their informal, short, and adaptable nature. To date though, the relationship between use of blogs and global virtual work has not been directly examined. This is an important issue to investigate given that both geographic distribution of work as well as the use of media such as blogs and microblogs is increasing across enterprises. In this paper we present findings from a field study that examined how blogs – and microblogging integrated into a blogging platform – were integrated into the work practices of a geographically distributed firm. Our research site is unique as the firm we studied also built a popular blogging platform and used its own product for internal communication. Although our sample is idiosyncratic, it provides a unique opportunity to learn from those at the forefront of blog use for distributed work. In the rest of the paper, we first review prior research on distributed work and use of social media in the enterprise. Then we discuss our field study, followed by findings and a discussion of social media enabled work practices facilitated global virtual work.

2. LITERATURE REVIEW
2.1 Barriers to Information Sharing in Virtual Teams
In geographically distributed virtual teams [13] there is reduced information sharing across sites [6, 9] brought by reliance on technology for communication [23], distance between workers, and differing work norms across sites, [14, 17]. Lack of information sharing disrupts three primary enablers of distributed work – shared understanding, integration, and mutual trust [5; pg. 12]. Shared understanding refers to common beliefs, expectations, skills, knowledge or ability held by team members. It is a “collective way of organizing relevant knowledge [17, p.21]” and is critical for teams to coordinate their work. One key barrier to development of shared understanding is the reduced possibility of sharing informal, unintentional information among coworkers [16, 17]. Different policies, organizational structures, and systems across locations also hinder effective integration. Integration refers to mechanisms through which different norms and systems across locations can be combined to result in a single overarching productive system across locations [5]. Globally distributed workers are highly susceptible to subgroup formation and ethnocentrism [8] as different locations provide a natural boundary for comparisons across locations. This makes it harder, and that much more critical, to be able to integrate processes and practices across locations. Finally, trust, which is a “shared psychological state characterized by an acceptance of vulnerability based on expectations of intentions of others in the team [5, pg. 13],” although critical for any type of team, is an essential enabling condition for virtual teams [20]. Trust promotes openness and transparency and influential in
information exchange among workers. In virtual teams trust is harder to develop because of the absence of direct observation and monitoring of others and it “special effort [5, pg. 9]” to build trust. Given these barriers to information sharing, communication media and norms – by changing information sharing – can shape virtually distributed work significantly.

2.2 Blogs in the Enterprise

There is a growing body of research into the adoption and use of social media in the enterprise including studies of blogs [10, 19], microblogs [11], wikis [18, 23], and other sharing tools [25]. Jackson et al [19] found that weak ties enabled by blogs provided employees access to additional technical and organizational advice networks. Zhao and Rosson [30] examined informal communication in the workplace through micro-blogging and found that micro-blogging supported informal communication by allowing workers to 'broadcast' with less concern about the message as compared to other media, particularly email, as there was no expectation of reciprocation. Furthermore, they suggest that brevity of micro-blogging can make it easier for employees to obtain useful and trustworthy information. Micro-blogging, according to them, also increased serendipity and creates a stream of what people are working on and can foster collaborative opportunities. According to these studies, the success of these tools varies across settings and relies heavily on management support [28]. When social media, and particularly blogs, are not recognized or supported by the management or team leader, workers are reluctant to use it and are confused about how and why to use it [3, 28]. For instance, Yardi et al. [28] found that management support was one of the most critical factors that shaped internal corporate blogging behavior (the other was whether a blogger perceived others were reading their post).

2.3 Blogs in Globally Distributed Enterprises

Interestingly, from the perspective of the current study, many of the studies of blog use in the enterprise, including the ones discussed above, have taken place in globally distributed teams [2,4,28]. One incidental finding from these studies is that globally distributed workers reported more satisfaction with blogs and social media; also, the higher the distribution within the team, the more they preferred using them. Brzozowski et al. [4] found that members of distributed teams – especially those who were highly distributed – derived more value from the system as it facilitated integration regardless of location. The authors [4] suggest that their findings may generalize to other similar large, geographically distributed organizations and that verifying their hypothesis falls to future work. They also suggest that a prerequisite for the success of a system like this might be the availability of internally public media and presence of people willing to share their knowledge openly. Overall, the authors found blogs presented an opportunity to build a distributed knowledge base and increase employees’ sense of connection to company’s initiatives and to each other.

3. RESEARCH STUDY

3.1 Research Question

In spite of positive incidental findings about use of blogs in distributed organizations, to date the relationship between use of blogs and globally distributed work has not been examined directly. We were told prior to conducting our study that integration of blogs with distributed work was central to the firm that we studied and this was primarily done to expedite the sharing of knowledge and removal of knowledge silos. Based on this information and a review of prior work we decided to explore the following questions in this study: Is it possible for blogs to support information sharing in globally distributed virtual organizations? And, what mechanisms enable their productive use?

3.2 Research Site

The site for this study, RAPID (a pseudonym), is a web development firm with around 50 full-time employees and 5-10 contractors. RAPID develops one of the most popular blogging software on the Web. Although physically headquartered on the U.S. West Coast, most of RAPID’s employees are distributed globally across North America, Europe and Asia.

3.3 Methods and Data Collection

This study was initiated through a top manager of the company and employees of the firm volunteered to participate in the study. Data were collected over a period of 3 months. A small sample of employees (N=5) agreed to be interviewed and a larger sample (N=26) responded to a survey. The sampling was purposive. The norm of the firm is such that we could only ask for volunteers. Our sample does not include interviews with members in Asia (survey had response from members living in Asia). We note though that the use of blogs in conjunction with Internet-Relay Chat (IRC), a text-based chat mechanism, allowed inclusion of team members across the world as all communication was archived. This prevented location-based isolation, which can be a major barrier to distributed work. The firm explicitly works towards creating a seamless environment and discourages cross
country differences and our data did not suggest that those differences played a role and should be emphasized. All interviews, except one, were conducted via Skype and audio recorded. Interviews lasted an hour and copious notes were taken during the interviews. The sample was diverse in terms of work function, location, and gender (Table 1). The interviews consisted of a series of open-ended questions about background, tenure with RAPID, nature of work, team composition, use of technology, and collaborative experiences.

Table 1: Interview Participants

<table>
<thead>
<tr>
<th>Informant</th>
<th>Function, Location, Preferred Media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brian</td>
<td>Support/Designer, Central U.S., Blogs, IRC</td>
</tr>
<tr>
<td>Alan</td>
<td>Designer/Developer, Central U.S., Blogs, IRC</td>
</tr>
<tr>
<td>Sarah</td>
<td>Admin, U.S. West Coast, Email, Blogs</td>
</tr>
<tr>
<td>Janet</td>
<td>Editor, U.S. East Coast, Blogs, Email</td>
</tr>
<tr>
<td>Michael</td>
<td>Support/Developer, Europe, IRC, Blogs</td>
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Table 2: Survey Respondents

A survey was designed using a rough analysis of interview data and consisted of ten questions with multiple items in each question. The topics covered included demographics, use of media for communication and collaboration, information and knowledge sharing, team climate, and overall performance. The survey was limited to ten questions to keep response time under fifteen minutes. It was pre-tested with the primary informant and then released to all employees of the firm. The survey items either asked about frequency of media use (Daily, Weekly, Hourly, etc.) or consisted of Likert-scale items on a five point scale (1 “Strongly Agree” → “Strongly Disagree, or 2 “Extremely Useful” → “Not Useful”). The survey received twenty-six responses (response rate of 45%). Table 2 provides details of survey respondents. The age of respondents ranged from 25-45 years. Two respondents did not provide demographic details. The category “Others” includes administrative staff, managers, and paid editorial staff. In addition to interview and survey data, archival data was available on the public site associated with the open source version of the firm’s product and the allied online communities. Since the internal blogs referred to paid clients, confidentiality issues prevented access. Although data access was restricted, given the openness of the firm significant, information about its work practices was abundant on the public sites. We also received screenshots of internal blogs to compare with the information on the public website and the structure of information was largely similar.

3.4 Data Analysis

Data analysis followed an iterative approach. The interview data were first analyzed roughly to identify themes that could then be captured by the survey. Following that, interview data were completely transcribed and analyzed in conjunction with the survey data. If additional information was required to interpret the data it was gathered as much as possible through online search of public data related to the firm. In addition, the manager was contacted a couple of times for clarification and to assess if data interpretation were corrected. Findings from the survey were shared back with the firm after removing all identifying information.

4. FINDINGS

Our analysis confirmed that geographic distribution and use of social media were both central to RAPID’s work practices. After further analyses we were able to synthesize five factors that facilitated distributed work using social media at RAPID. We now discuss each of these in turn.

4.1 Aligning Media Use & Distributed Work from Inception

4.1.1 Management Support

When RAPID was founded, its management set up a distributed firm for the first time and was well aware of the challenges it faced in creating “a sense of teamwork and common purpose despite being spread so far apart” At the same time, they looked at it as a challenge, as one of the founders stated: A brand new thing that I had never done before was figuring out how to build a distributed company, where team members work from places all over the world. That’s been a great learning experience for me. I love how much personal freedom the distributed model gives people.

In particular, they realized that judicious use of relevant communication tools was critical for the firm’s success as communication challenges are “amplified” in a distributed firm. The founders realized that although they would have to figure out many aspects of organizing through trial and error, they were many benefits that could accrue from a distributed firm. One manager explained that, for
instance, chat conversations are not as rich as real life interaction but there are many advantages to chat as the conversation can be archived, search, and made visible to the entire team. In contrast, hallway conversations are a great way of informal communication but they are often “lost to the ether.” Another advantage of a distributed firm, articulated by a manager, was that “being distributed is a good excuse to abolish inefficient meetings, conference calls, and email silos, and get the whole team to use better online collaboration tools.” To overcome the perceived challenges, RAPID decided to “fully embrace new real-time, activity stream inspired communications tools.” After 3 years, their success was evident, as one of the managers put it, “I know that the distributed model feels very strange to business people who are used to the traditional, centralized way of running a company. But I’m here to tell you that it works. It might even work a lot better than the traditional model for certain types of businesses. After all, distributed systems tend to work well in general, the internet itself being a prime example.” Overall, there was strong leadership support for the use of blogs within the firm from inception.

4.1.2 Aligning Blog Use and Workers’ Information Needs

As discussed, information sharing for shared understanding is critical for productive work in distributed settings and at RAPID the media ecology facilitated this function quite well. Each team had a team-blog and each employee had their personal blogs. Blogs included demographic and location information, information about authors’ expertise, and their current projects. The URLs of their blogs were shared in lieu of contact information, pointing to the use of blogs as the employees’ main method of communication. The company’s website itself listed all employees, their titles, functions, and background information. Contact information of employees was highly visible and accessible. In the interviews informants indicated that they were well aware of their coworkers’ roles and expertise and were quite satisfied with information and knowledge sharing within the firm. They indicated that they regularly browsed various blogs to monitor the communication and since most communication was archived (even Skype calls were often recorded and posted) they could always go through archival data if needed. Overall, most employees reported that they had embraced the use of blogs as part of their media ecology and the information stream created within the firm was useful in making them aware of what was going on and who was doing what: “I communicate with a good percentage of the company on a fairly regular basis. And I am the kind of person who – you know we have all of these methods of communication where people are talking about the different projects that they’re working on, and I am one of those people who just kind of digests information.”

Employees from different functional areas reported that they followed employees’ blogs of coworkers from other functional areas out of interest. Blogs allowed employees to access project information such as updates/fixes and help to facilitate interpersonal relationships that will eventually contribute to the success of organizational socialization. Readers subscribed to selected blogs and were alerted when new entries were posted. Some informants reported being able to continuously learn. “I keep learning every day. You have all the channels available to you. It’s pretty impressive to know you have lot of knowledge running around in this team. Even though we are spread around in this world we are still communicating.”

4.2 Utilizing a Media Ecology to Support Interaction across Locations

To fully realize the potential of communication tools, RAPID, even though it emphasized the use of blogs, utilized a whole suite of tools [26]. In the interviews, respondents reported using four communication technologies: Blogs, IRC, Skype and Email. Blogs were the most frequently used, followed closely by IRC. 84% used blogs and 70% used IRC hourly or a few times a day. All respondents identified blogs as one of their primary communication media – blogs were the first or second choice for all informants. Blogs were used as part of project work and one respondent, Alan, referred to them as his “second skin” and added, “What really helps us is an abundance of blogs, they act as conduits of what other people are doing. I twitter constantly and I blog.”

There were some differences in the use of media based on functional areas, administrative workers used email a lot more than others due to privacy concerns, but the overall primacy of blogs was unquestionable. The novel practices of the firm were not only accepted by the employees but something they talked about quite positively. For instance, Alan reiterated that, “We don’t really have meetings; we have informal chat sessions when we need them.” There were no scheduled meetings within the teams. The only scheduled meetings were biannual face-to-face meet-ups for the entire company but informants commented that they were able to work fine even before they ever met their coworkers face-to-face. Email was least frequently used and some respondents used it only on a weekly basis. Email was used minimally and its use was actively discouraged (although not banned)
because email was often associated with silos of communication – messages were often exchanged among a few people even when others should have been privy to the communication.

Respondents were asked how useful they found each of the four tools for work. Blogs, once again, were reported as the most useful (65%) followed closely by IRC (50%). Skype was also reported as useful by a majority of respondents and only 11% found email extremely useful for work [22]. The findings confirmed interview data around media use both in terms of frequency and usefulness. Skype was a preferred back channel of communication and all real time communication happened on IRC. Janet said that she used Skype for one-to-one (audio calls) and emails a lot less than everything else, “email is the lowest on the list.” She said she also used Jabber, an Instant Messaging client, for quick updates on recent activity on blogs. Brian said that, “We use email very very low,” and primarily to set alerts to notify us of something that’s posted on the blogs.

When respondents were asked for their personal preference, 69% of respondents either agreed or strongly agreed that they prefer blogs over other media while 54% responded in a similar fashion when asked about IRC use. Informants who were in development, design, or support roles mentioned that IRC was the second most popular tool for team communication. IRC channels were logged and used for real time synchronous communication, as opposed to blogs which were used primarily for asynchronous interaction although they were updated frequently. There were variations across functional areas. IRC was not popular among administration or editorial staff; Janet, an editor, commented, “I hardly use it. Developers use it quite a bit, quickly to get a problem solved.” Michael, a customer support person, commented that his team mostly used IRC supplemented with Skype for one-on-one communication.

4.3 Newcomer Hiring and Socialization

RAPID was highly selective in its hiring practices and recruited potential employees based on their expertise and their contribution to RAPID’s open source products. The firm recognized its uniqueness when it came to the use of blogs for distributed work and through its hiring and socialization practices ensured that not only were the newcomers aware of these practices but were able to experience them firsthand before committing to working for the firm. RAPID’s work practices were clearly stated to all newcomers and were even posted on the job page of the website. In addition to employment postings on their website, RAPID relied on internal referral program and community-focused conferences to attract quality candidates. Most employees were hired based on their expertise and first placed in a contractor position to establish a fit with the company. New employees made their formal entry into RAPID by starting a blog or linking their existing blog with the company system. Later, they were given access to an internal product support knowledge repository to familiarize them with the system. RAPID brought the new hires on board through a temporary contract agreement with the promise for fulltime employment if both sides – the employee and the firm – found the relationship productive. This time frame allowed the firm to gradually socialize the newcomer to its norms.

Figure 1: Socialization Practices

4.3.1 Challenges of Newcomer Socialization

Newcomer socialization was not without its challenges, particularly because newcomers had limited access to internal blogging tools. For instance, Alan recounted that when he joined RAPID he was a contractor and only had access to Skype, which was not as powerful as blogs. If he used Skype with his team, the entire communication had to be recapped on the internal blog. Furthermore, he received a lot of information via email digests and he did not like that. Once he became fulltime and got access to the internal blogs his contribution changed significantly. He then used emails primarily as notification service and Instant Messengers were used similarly, to subscribe to blog notifications. When asked about their socialization practices, 89% of respondents who had worked in the support function when they joined the firm said that they agreed or strongly agreed that the support role was useful. 88% of respondents who came on board as consultants agreed or strongly agreed that joining as a consultant was useful in the onboard process (see Figure 1). Of the total respondents, 46% had never worked virtually before joining RAPID. Of those who had worked virtually before, all agreed or
strongly agreed they had found previous experience useful.

4.4 Tailorability and Adaptibility of Blogs

The communication tools available to workers for communication were tailorable and adaptable – both in terms of their use and their actual software – frequent changes were made to address emerging needs. This tailorability was an essential component of the use of communication tools within RAPID [27]. The nature of expertise of the workers, technically proficient, made it easy to make changes to communication tools and implement the changes across the organization. Many respondents indicated that during the initial years at RAPID, IRC was the preferred tool. IRC served as a, “real-time chat room for the company that we enhanced by keeping logs, to have searchable archives, and by running bots to automatically publish things like code commit notices into the chat stream.”

As the size of the firm increased though, the IRC channel got too busy and they split it into several channels. Finally, they reached a situation where IRC alone did not satisfy their communication needs and they took the concept of IRC and integrated that with blogs to develop a real time group blogging theme. This platform is not used by each project in the company and today, as one informant explained, “we still have our IRC channel for real-time group chat, but the majority of company communications takes place on a couple dozen [real time blogging channels].” Slowly, after the initial years of IRC based communication, Skype was added to the repository of communication tools for one-on-one communication but, “anything that isn’t strictly private, we push to blogs to make sure there’s an archive of the information accessible to everyone in the company.”

4.4.1 Case Study of Micro-blogging Introduction

Another example of tailorability and appropriation of social media within RAPID comes from changes they made to their internal blogging software. Initially, the presentation of blogs was not efficient in delivering desired information. The comment system in blogs was extremely cumbersome and made going through all the comments – which were critical for knowledge sharing – an arduous task. Then, a feature was introduced to allow postings on a blog page that gave it a Twitter like feel but a problem remained. The blogging interface was useful for status updates but was not conducive for conversation. Eventually, a feature was introduced to allow threaded conversation under blog posts and it proved to be a very popular, averaging 20 posts per day for each blog. As one designer commented, “Seemingly simple changes have increased engagement many-fold.” Although comments are common in blogs, the ability to link comments to previous comments and post short comments made this practice common and useful for capturing product related information (Fig 2). The tailorability was also evident in how informants combined media. According to developers they used blogs together with IRC as that allowed both synchronous and asynchronous coordination. This made it easy to monitor the dynamic development environment where products sometime underwent as many as 15-25 code commits every day.

Figure 2: Micro-blogging Integrated into a Blog Theme

4.5 Aligning Work Practices and Blog Use with Product Innovation

As we have seen, the use of blogs was a critical communication mechanism within RAPID. The sustainability of this approach was supported by the communicative function performed by the blogs – ease of information sharing – as well as the ease of tailorability of blogs since they were a product developed by the firm itself. This second aspect of the use of blogs proved useful in another important way. By tailoring blogs the firm was able to improve as well as test their product in a controlled environment before releasing it publicly. In essence, eating their own dog food improved their product. This provided tremendous value to the firm as product innovation was directly aligned with internal firm dynamics. The integration of product innovation with firm’s use of their product was especially beneficial for RAPID as the firm operated in a fast paced environment that required quick response to user needs, quick changes to the product, and quick release back to the users. The success of RAPID in this regard was unquestionable. In a little over 4 years, the firm had done over 25000 product releases, averaging almost 16 releases a day. This fast-paced innovation is achievable, since combined with IRC, blogs allowed both synchronous and asynchronous coordination and easy monitoring of the dynamic development environment. An informant emphasized the internal use of their own software products, “It’s really important that if you have a
product – especially if it’s a communication-based product – it’s really important that you be using your own product.” Respondents referred to it as “eating your own dog food” and it spurred the development of many plug-ins and other improvements for their main web product. In the interviews, informants reported that product plugins are often initially developed to meet their internal needs and are subsequently incorporated into their core product offering. In the survey, 92% respondents indicated that they found it “extremely useful” or “useful” to use the firm’s own products internally.

4.5.1 Team-level Work Practices

Work practices using blogs were often formulated at the team level as was evidenced from the blogging practices of the core development team of RAPID’s open source project. This blog was frequently used by about 10 developers for the purpose of updating progress of their projects such as weekly meeting agendas, project schedules and also allowed for debate pertaining to coding. An inside look at this internal blog revealed that the blog is not only used to disseminate project information but serve several additional functions such as soliciting feedback, encouraging product innovation, and allowing developers to contribute collectively by inputting their individual opinions. For example, after the completion of the latest version of their software project, the blog was used to announce plans for code updates and also to encourage formation of mini-development teams. This post obtained feedback and volunteering efforts from members in a span of 3 days. The blog was used to disseminate information and build momentum towards next coding. Even though RAPID was a relatively small organization, it was divided into subunits to facilitate faster innovation and weak ties among workers, often formed through reading of other workers’ blogs, ensuring information sharing [19]. Survey data also indicated that workers were well aware of team level information and team leaders were well aware of other teams, therefore, knowledge sharing aggregated at the enterprise level making it easier for individual workers to not overload.

5. DISCUSSION AND IMPLICATIONS

At the start of this paper we had reviewed prior research on distributed work and underscored how increased reliance on information technology creates communicative breakdowns in distributed teams. We had also posed a question – how can the use of blogs, and other new media, ameliorate some of the problems faced by distributed workers? We then proceeded to answer this question through a field study of an innovative organization, RAPID, that by design wanted to be distributed and wanted to use blogs, a product it developed, to be able to work collaboratively across distances. The findings from our study show that by creating specific practices, RAPID was able to work in a highly distributed manner quite effectively by using blogs as the primary communication medium. It was able to create a culture of openness and transparency that rewarded information sharing. Innovative information technology is often championed by workers in the trenches and often stymied by managers. At RAPID, we saw a strong role of leadership and the mandated use of the blogs. As prior studies of blog use have suggested, this is essential for its uptake within the organization [28]. The leaders were well aware of the advantages of a distributed firm and valued the flexibility it provided their employees. Therefore, the proactive support of firm leaders for social media tools was a significant factor in virtual work practices within RAPID. When asked what motivated them to use blogs – whether to quickly innovate their products or to share knowledge within the firm – a manager responded that he saw blogs, product development, and knowledge sharing as an integrated activity for their highly distributed software firm. Figure 3 depicts an analytical framework we derived based on the findings from this study. The figure is not intended to portray a theoretical model but tease out some relationships that can be empirically

![Figure 3: Use of Blogs for Distributed Work at RAPID](image)
examined in future work. It emphasizes the critical role of information sharing in distributed work as information facilitates the three crucial enablers of distributed work [5] – shared understanding, integration, and mutual trust. We now discuss in how information sharing within the firm and enabled distributed work.

5.1 Information Sharing
Informants reported sharing information about other people, projects, products, coding and other software development related practices, and new products and innovations. Significantly, they reported that information was an integral part of their work practice and they monitored different blogs and IRC channels to keep updated with useful information. Documentation of interactions as well as work was deemed critical, “One of the key things is communication. You have to document and communicate with your people… When you are working remotely, different time zones and different countries, you need to document. It needs to be written down, so that finding things becomes easy.” Blogs facilitated informal communication but also enabled it to be saved and documented for future use. They were easy to monitor and provided links to weak ties – those with whom workers did not work directly. The blogs provided information about both technical issues and social issues. Overall, blog use helped align two pieces of knowledge – ‘who knew what’ and ‘what they knew’. In other words, a blog was not only owned by an individual or a team, it contained content that indicated the expertise of that individual or team. Furthermore, due to its leaner nature – it was more adaptable – it was easier to change the way it was formatted and the manner in which it could be accessed, even as an IRC notification. In this specific context, it was also highly intertwined with the product and therefore was a more integral part of the infrastructure. By bringing together the information and social spaces across dispersed locations, meaningful interaction and information sharing can be supported. Blogs, at least in this case, was able to support this infrastructure in a productive manner. By their ability to monitor blogs and IRC, and develop this practice over time, workers were able to avoid the problem of information overload [19]. Since employees did not meet face-to-face, blog posts were required to deliver quality information effectively so that communication goals – critical for knowledge sharing [1] – and therefore clear communication was essential. The use of blogs as a primary means of communication also ensured that others read the postings. A lack of knowledge about whether others read postings was one of primary concerns that uncovered as being a barrier to acceptance and use of blogs by employees [28]. The reliance on blogs had its challenges. As with any media, information overload was a concern. Informants reported that sometimes they worried that they might have missed some important piece of information and since the obligation was on them to monitor all communication, they felt pressured. Sharing of code was facilitated through the use of IRC but in instances where they wanted to use a ‘whiteboard’ or another representational capability the options were sometimes limited.

5.2 Enablers of Global Virtual Work
In the survey administered to respondents at RAPID (see Figure 4), we included four items that asked questions related to work practices of workers: “I feel like I’m on the same team as my co-workers,” “My co-workers provide timely information about changes in current plans,” “I feel comfortable sharing ideas and feelings about work with my co-workers,” and, “Overall, I feel like my coworkers are trustworthy.” The overall response rate shows that there was a strong feeling of being on the same team (65% either strongly agreed/agreed), information sharing was timely (57% either strongly agreed/agreed) and workers felt comfortable sharing information (77% either strongly agreed/agreed), and, finally, the level of trust among coworkers was self-reported to be extremely high (88% either strongly agreed/agreed). In addition, almost every respondent either agreed or strongly agreed that they are comfortable sharing their ideas with co-workers through blogs (88%). Finally, 70% of respondents reported that they did not have any difficulty finding people with the right expertise.

Figure 4: Coworker Relationship & Information Sharing

One crucial issue faced by distributed coworkers, alluded to earlier, is the formation of subgroups across locations. Subgroup formation is a result of coworkers aligning themselves with workers in their location as it is an easy reference group to identify with. This has implications for how work is negotiated and performed.
across locations with workers in different locations having or aspiring to more power than others. Not surprising, and well documented in the literature, power often resides with workers at the headquarters [2]. This issue is critical to work dynamics in transnational firms. RAPID was able to overcome this problem by creating location neutral work practices through the use of social media. Furthermore, no location within the firm got precedence over the other and all efforts were made to assign team leaders from different geographical locations selected solely on their expertise and ability to execute. As one informant commented, “At RAPID, I think the whole diversity of locations is more of an advantage than a disadvantage...we can pick up where someone else left and it reduces the time [to respond]. This also gives us a bigger coverage. But the communication is the crucial part of it.”

Finally, the highly distributed nature of the firm and reliance on use of communication technology by all employees of the firms meant that subgroup dynamics was reduced significantly. This also resulted in largely common norms across the entire firm in terms of how work was conducted – commonality that was reinforced by their hiring practices. Therefore, integration across the firm was significantly easier. Informants reported the differences that emerged were largely around the issue of health insurance and leave policies that varied across countries and had to be worked through with the HR people. Salary of employees corresponded to local prevailing wages where they resided, if they were fulltime employee working from a non-U.S. nation. These issues are central to distributed work since their prevalence demonstrates that workers had developed shared understanding and mutual trust. They also demonstrated that they viewed their team as one and had integrated their work practices across the sites.

5.3 Design Implications

There are several design implications of this work at both the product and firm level. The findings show that blogs that integrated micro-blogging as part of the blogging interface facilitated continuous interactions and information sharing. As Fig. 2 illustrates, comments in the blog theme were replaced by micro-blogging like feature for commenting which allowed for more integrated and timely dialogue within the blog interface itself. The transformation of blogging into a group-based activity supported by a novel blog theme was a critical design innovation. This study also illustrates how product design can be improved through integration of the product with firms’ practices. The firm’s practices allowed coworkers to draw on their experience and expertise to structure communication thereby making actions and information visible, raising awareness, and imbibing the firm with accountability. At the organizational level, this study shows how blogs, microblogs, and potentially other tools, can be used to create a transparent communication ecology that facilitates information and knowledge sharing. For software development in particular, this work has many practical implications – it suggests that the use of IRC and blogs for continuous improvement, daily commits, and quick user feedback and integration. When designing the media ecology for global virtual work, one of the features should be the integration of multiple media that allow for communication and coordination in a variety of ways. This study also shows how firms can be designed to be transparent by supporting informal and open communication and building ways to document interactions across the firm. The use of media ecology is important to be able to support the diverse needs of any organization.

6. CONCLUSION

In this paper we have presented a case study of a distributed firm that develops blogging software and has successfully integrated its software to create work practices that enable globally distributed work. Through the use of blogs and micro-blogging the firm is able facilitate information sharing across workers in different locations. Information science research has long debated the pitfalls and challenges of creating IT-enabled work practices. This study suggests that when leveraged correctly, any new media has the potential to support productive work practices and provide benefits beyond existing communicative media and practices.

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8. REFERENCES


