Thesis Overview

My dissertation research advances our understanding of knowledge sharing and communication on systems development projects. In particular, I examine the challenges of effective communication and knowledge sharing on such projects where multiple parties are involved and various social boundaries have to be negotiated.

IS development has always involved multiple stakeholders, but IS literature has traditionally focused on communication issues between two groups: technical developers and users. With changes in technology and the increased strategic role of IS applications, the number and diversity of stakeholders on IS projects has increased significantly. Problems of integrating the knowledge of multiple stakeholders are particularly acute in the E-commerce arena because of the novelty of this area of activity and the constant technological and business changes within it. People from diverse walks of life—business strategists, technologists, graphic designers, marketers—now need to work together to invent new E-commerce applications. Moreover, web-based products often target a wide-audience of users who may or may not belong to the same organization or even the same industry. Outsourcing IS development adds to communication challenges as clients and consultants have little shared background and quite diverse organizational priorities. These factors make the study of multi-party collaboration on E-commerce projects particularly relevant and theoretically appealing. The differences in interests and work practices of the multiple parties involved in E-commerce projects create a number of social boundaries. The question examined in my dissertation is how participants on multi-party IS development projects communicate across social boundaries to achieve results.

In answering this question, I first draw on the literature of communities of practice, organizational culture, and social identity to understand the nature of social boundaries in organizations. I then use the lens of communicative genres, traditionally applied within a single community of practice, to understand the issues and conflicts that arise when different social groups have to communicate across boundaries. I then explore the role of boundary objects—shared artifacts that relate to the practices of multiple social groups—in cross-boundary communication practices. Research on boundary objects helps me analyze the tradeoffs between concrete and abstract knowledge representations that are at the heart of many IS development methodologies. Analyzing these tradeoffs helps me to explain why effective boundary objects are hard to create. Communicative genre lens then helps elaborate on the norms that are involved around more or less concrete boundary objects. This research makes a first step in developing an integrated perspective on how people share knowledge across boundaries by emphasizing the roles of communicative norms, knowledge representations, as well as individual actors.

I develop these arguments by drawing on a nine-month long, ethnographic field study which I have conducted at an E-Services consulting firm. Within this firm, I focused specifically on a single client engagement project and on the R&D group. The consulting firm that I studied was geographically distributed and relied heavily on cross-disciplinary approaches to project delivery and collaboration with the client. The breadth and depth of the data (over 1,500 typewritten pages of notes, 60 interviews, and numerous documents) that I have collected from multiple interactions among and with project participants spanning different social groups provides a fruitful ground for theory development.

In analyzing the data from the field, it became apparent that the differences among the social groups involved on the project were typically ignored in practice until communication actually failed. Communication habits developed within a given social group for a specific purpose were typically assumed to work in a cross-boundary setting. However, the disagreements about the norms of communication and significant differences in practices and interests of participants often led to misunderstandings and conflicts. The development of new communication practices in this high-pressure environment proved to be quite challenging and involved making compromises that impacted the quality
of the outcome. The following offers a short illustration from the web-site design phase of the client engagement.

Business analysts working on IS development are accustomed to producing textual documents and spreadsheets that specify the functionality of a system. On this project, business analysts relied on “Use Case” scenarios, which were text documents specifying the interaction of a system with its users. Business analysts assumed that graphic designers, who need to produce graphical treatments of web-pages, would be able to understand Use Cases. However, graphic designers stated at the beginning of the project that they were accustomed to “receiving information” orally or graphically. When they got textual Use Case documents, graphic designers found them hard to understand and often ignored them. As a result, the design team was not producing the graphical treatments that were expected. When business analysts and the project manager reflected on the situation, they decided to experiment by producing a different type of an object a “Wire-frame”—a schematic representation of a web page that places navigational and informational elements on the page, but without colors or pictures. This representation was not part of the functionalist analysts’ usual practices; however, for graphic designers, Wire-frames were considerably more concrete and digestible. The project moved forward. Yet, there was a trade-off: Use Cases were not very specific on how to lay the information out on the site, but the creation of Wire-frames required business analysts making page layout decisions. Though Wire-frames resolved the communication problem, their concreteness and the norms around their use constrained graphic designers’ creative input into the process. The social norms that evolved around the use of Wire-frames limited soliciting graphic designers’ feedback on them or allowing designers to make changes as they produced graphical treatments. As a result, despite designer’s frustration, it was the business analysts’ perspective of the layout of the page rather than designers’ that was implemented. At the end of the design phase, neither the project participants nor the users were quite satisfied with the visual presentation of the site.

This short illustration highlights several key findings of my research. First, the assumption that the communication genres operating within a social group (Use Cases) would work to communicate across boundaries is flawed. Second, while traditional communication practices often fail, organizational actors can collectively reflect on what went on and experiment with new practices. This collective experimentation and reflection can help project participants discover alternative genres for communicating in a multi-party setting. Third, consistent with prior research on cross-functional product development, new cross-boundary communication practices often rely on boundary objects (Wire-frames). Fourth, the establishment of cross-boundary communication practices involves tough tradeoffs about the degree of concreteness of representations that are being created. While more abstract representations (Use Cases) allow for greater creative input of other parties, they are often too removed from the practices of these parties to be particularly useful. On the other hand, concrete representations (Wire-frames) are easy to interpret, but their typical use is also more prescriptive. Dilemmas involved in choosing more abstract or more concrete knowledge representations make the search for "perfect" boundary objects very difficult. Finally, the communication norms around the use of boundary objects can encourage or discourage collective reflection, dialogue, and re-interpretation of concrete boundary objects and significantly affect the quality of the outcome.

Because communication practices are deeply embedded in the day-to-day life of practitioners they are often left unexamined despite the large amount of common frustration that they create. Extending notions of communicative genres and boundary objects into the multi-party IS development setting helps me develop insights into the difficulties and tradeoffs involved in making cross-boundary collaboration work. My findings suggest that addressing these difficulties involves experimenting to find effective boundary objects as well as developing communication norms that encourage questioning and re-examination of the solutions often prescribed by these boundary objects. The theoretical development of the social boundaries concept in this work will help extend the findings to address collaboration challenges in a variety of organizational settings.

natalia@mit.edu