

# INFORMATION SHARING IN A NONPROFIT NETWORK

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# INFORMATION SHARING IN A NONPROFIT NETWORK

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To Dad.  
May you rest in peace.

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## SUMMARY

The civil rights and other social justice movements, neighborhood watches, local garden cooperatives, and so forth are examples of a grassroots context that is largely understudied in CSCW. In recent history, movements to fight child sex trafficking, end hunger in New York City, advocate for financial reform, or even overthrow governments have illuminated a context of grassroots coordination that is a significant departure from the focus of prior research. In contrast to traditional CSCW research contexts, grassroots movements tend to emerge from the local community rather than the corporate.

In this context, the information and communications technologies (ICTs) tend to be consumer-grade off-the-shelf tools often administered and supported by a volunteer cadre of varying skill, ability, and availability. But while we see that informally organized, grassroots groups have shown considerable interest in ICTs, the actual effectiveness of ICTs for these groups remains largely unknown. The combined complexity of the ICT technology landscape and grassroots interorganizational networks raises a number of unanswered questions. Therefore, my goals in this research were twofold. First, I sought a rigorous understanding of the current inter-group information sharing practices of nonprofit social justice organizations. Second, I sought to understand how ICTs might best be applied by these organizations in pursuing their missions. Thus, the research question that guided my work was: *In the context of grassroots movements, how do interorganizational networks of nonprofits engage in informal information sharing and coordination, and how can ICTs support this engagement?*

In order to address this research question, I examined organizations involved in fighting child sex trafficking. This particular category of nonprofit, social justice organization as a field site was especially suited to this research because the challenges of interorganizational coordination are especially clear, as the inherent complexity of this issue requires many organizations, often with very different structures, backgrounds, and scales, to coordinate together.

My dissertation research included two phases of exploration and utilized a combined methodology of field study and user-centered design work. In the first phase, I focused on understanding information sharing practices of anti-trafficking organizations, which led to a more in-depth study of a particular network of organizations and their practice of information sharing for connecting. In the second phase, I conducted a design study within one organization (that I call BridgeOrg) to explore aspects of ICT support in this context. For Phase I of my research, the specific question I addressed is as follows:

*RQ 1: What are current information sharing and coordination practices of interorganizational networks in grassroots movements? Also, what challenges do they encounter in information sharing and coordination? And what are their challenges in terms of ICT use and appropriation?*

To address this question, I conducted two field studies. My primary purpose in conducting the first field study (Field Study I) was to gain familiarity with the issue of child sex trafficking by examining the broader context of human trafficking and ICT use among organizations fighting this issue. For Field Study II, I chose to focus more specifically on understanding how organizations focused on victim prevention, and BridgeOrg in particular, utilized and appropriated ICTs in their practice of information sharing for connecting. My goal was to conduct a more in-depth field study, with a

particular focus on BridgeOrg, to understand the specific information sharing for connecting as they negotiate among themselves what actions to take as network of organizations.

In Phase 2 of my research, I conducted two design studies to address the specific question below:

*RQ 2: In the context of grassroots movements, what features of ICTs might better support interorganizational networks in their information sharing and coordination?*

The first design study was to employ a user-centered approach to re-design the existing custom website to explore a network-centric design of information structure, presentation, and production. This website was designed to support BridgeOrg's practice of information sharing for connecting. In the second design study (Design Study II), I focused on creating a novel approach using applied visualization for informing basic awareness in BridgeOrg's network using a folksonomy that was identified in my field studies.

My research yielded the following contributions:

- 1) An understanding of the challenges in information sharing, and ICT use and appropriation for grassroots organizations.
- 2) Insight into the information sharing practices among grassroots organizations, and their ICT use and appropriation mediates such practices.
- 3) Exploration of network-centric ICT design to support informal information sharing and coordination.
- 4) A novel visualization approach to support network-centric navigation and exploration of a grassroots network of organizations.



# CHAPTER 1

## INTRODUCTION

“This is the cross that we must bear for the freedom of our people.” – MLK, Jr.

“We trust in nature, but we hope in technology.” – Brian Arthur in *What Technology Wants* (2009)

Computer-Supported Cooperative Work (CSCW) has long studied the gap between what is technically feasible and what is socially required with regard to coordination and collaboration for a range of social contexts. These contexts include loosely affiliated individuals, work teams, co-located groups, distributed groups, single organizations, and dyads (two organizations working together). In most of these contexts, the technology has been situated in largely corporate settings where the work practices are largely formal (centralized, with top-down management). The technology tools and choices were often commercial-grade, bespoke systems and often managed by paid professional support staff.

However there exists a radically different context from what CSCW has traditionally studied that remains under-researched. In recent history, movements to fight child sex trafficking, end hunger in New York City, advocate for financial reform, or even overthrow governments have illuminated a context of grassroots coordination that is a significant departure from the focus of prior research. In contrast to traditional CSCW research contexts, grassroots movements tend to emerge from the local community rather than the corporate. They tend to be ad hoc, informal, sometimes disjoint assemblage of individuals or groups that might seek to accomplish a non-specific goal, rather than a specific output or a specific one-time outcome. The civil rights and other social justice movements, neighborhood watches, local garden cooperatives, and so forth are examples of a grassroots context that is largely understudied in CSCW. In this context, the

information and communications technologies (ICTs) tend to be consumer-grade off-the-shelf tools often administered and supported by a volunteer cadre of varying skill, ability, and availability.

Looming in the backdrop of these grassroots movements in the past decade or so is the rise of social media and other seemingly transformative ICTs. From the growing popularity of email in the 1990s to the explosion of social network tools a decade later, the advent of content management systems and a host of online tools have unleashed new possibilities for information production, co-creation, and consumption, that allow for easy adoption by loosely-knit grassroots organizations.

The hype surrounding social networking technologies and ICTs have not been lost on those operating in the grassroots context. For example, among those seeking to end child sex trafficking, over 2,000 groups exist on Facebook alone seeking to connect with others or fundraise for the cause. Organizations fighting for the cause have taken up Twitter accounts and many WordPress-based websites have sprung up swiftly. Those leading the groups, coalitions, or networks are equipped with smart-phones and other devices to help them remain connected via the various online social media tools. The apparent hope of these in grassroots movements is that by utilizing social media and other ICTs, they can amass rapid support by having their messages “go viral,” raise funding from sympathetic donors, mobilize an army of volunteers, demonstrators, or protestors, and manage the tangle of information needed to keep their groups, organizations, or various other initiatives operating.

But while such grand hopes in this technology may seem overly optimistic, some research suggests that they are not entirely unrealistic either. For example, Burt and Taylor (1999) concluded that community organizations that do not embrace ICTs risk excluding themselves from key pathways of information as adoption of ICTs spread. Cumulatively then, whether through participation in key information pathways or through other means, these organizations hope that through technology, all individuals, groups,

nonprofits, corporations, and governments stakeholders involved in grassroots efforts will be able to join together online and engage in broad and effective social justice action.

## **1.1 Research Motivation**

But while we see that informally organized, grassroots groups have shown considerable interest in ICTs, the actual effectiveness of ICTs for these groups remains largely unknown. There are several reasons for this. First, the sheer breadth of modern ICTs and the numerous ways in which they are being applied has made it difficult for the academic community to assess them comprehensively. But second, up to this point, when the academic community does assess ICTs, it generally seeks to understand how ICTs can help individuals connect with one another. By contrast, one of the central needs of nonprofit social justice organizations is not the connection of individuals into groups, but the connection and coordination of many different groups into interorganizational networks (or groups of groups).

But again, the application of ICTs to support social justice interorganizational networks has received relatively little attention from the academic community. Indeed, Knoke and Prensky (1984), Provan and Fish (2007), Mullarkey (2012), and Saeed et al. (2012) have all pointed to this knowledge gap—particularly for networks of more than two organizations. And notably, this knowledge gap cannot be filled simply by generalizing from existing research. Rather, as Knoke & Prensky (1984) noted, the distinctive qualities of voluntary associations (as is seen among social justice organizations) were incompatible with the prevailing organization theories, which were derived from corporate group behavior. Instead, they argued, “new theoretical synthesis” may be needed. However, two decades later, Provan and Fish (2007) found that empirical studies of entire interorganizational networks – including those focused on social justice issues – remain limited. They conclude that more research in this area is needed even to begin understanding areas of productive future research. Thus, although grassroots

organizations attempt to utilize ICTs in their efforts, the research gap in understanding their use of ICTs in more complex social configurations such as a group of groups (i.e., a network of organizations) leave us with few clues to understand how well, if at all, the supposed help from ICTs align with the hope that these organizations have placed in ICTs.

The combined complexity of the ICT technology landscape and grassroots interorganizational networks raises a number of unanswered questions. For example, “How are ICTs being assimilated and appropriated? Are these tools helpful? How could ICTs be improved for interorganizational contexts? How do these groups currently apply ICTs? And how do these practices change over time?

Some initial research efforts to address this gap have begun within the domain of CSCW as summarized by Saeed et al. (2011). For example, several studies of interorganizational networks focusing on the national and global scale have been performed in recent years. These studies are a helpful start in addressing the above knowledge gap, but they have limitations. First, they focus on the use of very specific, existing ICTs such as mailing lists or online databases. They thus help identify areas where these ICTs may succeed or fall short, but fail to provide a broad picture of what types of ICTs—if any—these organizations actually require. Second, in focusing on larger national and global scales, they largely fail to address the issues of local scale, grassroots organizations that are often integrally involved in social justice efforts. Thus, while recent research in this field is providing compelling new data, it still leaves open many of the questions most relevant to grassroots social justice organizations.

Cumulatively then, we see that there is a significant gap in understanding the role—both ideally and in current practice—of ICTs in social justice organizations. One part of this gap comes from the academic community’s focus on the networking of individuals rather than of groups. But the research that has focused on groups of groups, has typically done so in more corporate, formal contexts, rather than the distinctly

informal, ad-hoc contexts typical of social justice organizations. And finally, the small amount of nascent research into informal interorganizational networking has still tended to focus on very specific ICTs and at a national or global scale. The focus of my research then, is to explore interorganizational ICT use more broadly, but among local, grassroots social justice organizations.

## **1.2 Research Question**

What is arguably at the heart of the Computer-Supported Cooperative Work (CSCW) research area is the question: for a given computing technology or class of technologies, how do we align what is technically feasible with what is desired and what is required by a particular social context? Ackerman (2000) describes this question as the gap between “what we know we must support socially and what we can support technically.” As I discussed above, this gap remains poorly understood in the context of ICTs and grassroots nonprofit organizations. Therefore, my goals in this research were twofold. First, I sought a rigorous understanding of the current inter-group coordination practices of nonprofit social justice organizations. Second, I sought to understand how ICTs might best be applied by these organizations in pursuing their missions. Thus, the research question that guided my work was: In the context of grassroots movements, how do interorganizational networks of nonprofits engage in informal information sharing and coordination, and how can ICTs support this engagement?

In order to address this research question, I examined organizations involved in fighting child sex trafficking. This particular category of nonprofit, social justice organization as a field site was especially suited to this research for several reasons. First, the challenges of interorganizational coordination are especially clear, as the inherent complexity of this issue requires many organizations, often with very different structures, backgrounds, and scales, to coordinate together. For example, Ugarte et al. (Farley, 2007), describes a case where at least twenty-one different organizations across local,

state, and national geographic boundaries had to work together to assist one child-sex trafficking victim. Second, an especially broad spectrum of interaction styles is required for these organizations to coordinate. For example, in that same case study, the interactions between the organizations were both formal (based on law, policy, or procedure) and informal (based voluntary assistance to the victim motivated by a Good Samaritan ethic).

Finally, another reason for examining this group of nonprofits is the access I was allowed as a researcher. This group offered me a rare opportunity to engage in situ with an interorganizational network. Although other nonprofits for other grassroots movements (specifically those dealing with vulnerable populations) may have been equally suitable, I would likely not have had the opportunity to make the same breadth of observations or engage as closely with stakeholders.

### **1.3 Research Outline**

In this section, I outline the plan I followed to answer this research question. My research included two phases of exploration and utilized a combined methodology of field study and user-centered design work. In the first phase, I focused on understanding information sharing practices of anti-trafficking organizations in general, which led to a more in-depth study of a particular network of organizations. In the second phase, I conducted a design study within one organization within that network (BridgeOrg) to explore aspects of ICT support in this context. In this section, I outline these two phases in more detail, and provide background on my field site.

#### **1.3.1 Background and Field Site**

To provide a brief background about grassroots organizations in the anti-trafficking movement, child sex trafficking is one of several forms of human trafficking. According to a recent film documentary called "Playground," there are about 300,000 children currently being trafficked for sex in the United States (Bales, 2007). Children

who are victimized in this way often suffer irrecoverably through contracting AIDS, becoming pregnant, sustaining physical injuries to their genitalia, and being severely emotionally traumatized from the torture and abuse to which they are repeatedly subjected (Bales, 2007). Increasing public awareness around the social justice issue of child sex trafficking has led numerous nonprofit organizations to begin working actively to rescue and restore existing victims while trying to prevent new victims.

The network that I studied for my research could be partitioned between those that worked directly with the victims of child sex trafficking and those that supported organizations working directly with the victims. I refer to the organizations and agencies working together to directly help the victim as primary care organizations. These organizations undertook efforts to intervene on behalf the victim by staging a rescue, restoring them as much as possible in terms of physical and emotional health, and helping them to reintegrate back into society. For the organizations that supported the primary organizations, I refer to them as auxiliary care organizations. These were generally organizations whose primary mission is not necessarily the direct care of child victims, e.g. churches, recreational groups, and so forth. Examples of their activities include collecting resources and supplies such as clothing and educational materials, contacting their state representatives to urge support for child-friendly laws, providing in-kind gifts to other organizations who work directly with child victims, and engaging volunteers for mentoring programs to help prevent potential victims of trafficking.

In my research, I focused exclusively on auxiliary care organizations or the part of the network that supported primary care organizations working directly with victims. Given the sensitive nature of child sex trafficking, access to primary care organizations was not available. To conduct my research, I worked with a local nonprofit organization that I term BridgeOrg to preserve the anonymity of that group. BridgeOrg facilitated community-based efforts to fight child sex trafficking in their city. Through its activities, BridgeOrg helped to create new ties with other groups involved in this issue. It did so in

part by facilitating interactions between other community organizations to act cooperatively towards eliminating child sex trafficking (Han, 2009), through informing, connecting, and mobilizing the community toward collective action against child sex trafficking. The organizations were mobilized from varying geographic locations, socioeconomic levels, and ideological positions. I collectively refer to these organizations as CommunityNet.

Again, from a feasibility standpoint, BridgeOrg was an ideal site for my research because it is geographically accessible for conducting fieldwork and the staff of BridgeOrg was amenable to committing to a long-term field study as participants. In addition, BridgeOrg's role included a particularly complex web of relationships. The organizations it connected were especially diverse, with distinct cultures, value systems, technology infrastructures, and mandates. Studying BridgeOrg thus brought to the fore a correspondingly rich array of practices and challenges in their coordination activities generally, as well as in their use of ICTs in particular.

Further, the trajectory of this organization's activities made it an ideal site for a technology intervention. In order to help facilitate its bridging activities, BridgeOrg attempted to utilize web-based technology to support their work and had been doing so for over a year. They used the technology to facilitate information sharing among the organizations they worked with. However, they faced a number of challenges in understanding what tools to use, how to engage in effective information sharing with other organizations, and how to inform, connect, and mobilize a broader community through a complex network of organizations in order to raise awareness and to galvanize resources needed to fight child sex trafficking.

### **1.3.2 Research Question, Phase 1 – Field Study**

In Phase I of my research, the specific question I addressed is as follows:

*RQ 1: What are current information sharing and coordination practices of interorganizational networks in grassroots movements? Also, what challenges do they*



*encounter in information sharing and coordination? And what are their challenges in terms of ICT use and appropriation?*

#### 1.3.2.1 Field Study I

My primary purpose in conducting the first field study (Field Study I) was to gain familiarity with the issue of child sex trafficking by examining the broader context of human trafficking and ICT use among organizations fighting this issue. The qualitative methodology I employed for Field Study I included both non-participant meeting observation and semi-structured interviews with organizations in two large metropolitan areas. I discuss Field Study I in more thorough detail in Chapter Three. However to briefly summarize, from this field study, I became familiar with the challenges of information sharing and ICT use among organizations fighting human trafficking. With regard to information sharing, these challenges included awareness of the different organizations, conflicts in collaboration modes, issues of power asymmetry, a high turnover in organizational personnel, and placing a primacy on individuals over organizations, all of which I expand upon in Chapter 3. Regarding ICT appropriation and use, challenges included extreme asymmetries in ICT access, and fighting a crisis under “normal conditions” such that technologies were needed for long-term cooperation.

I also used three information sharing practices of connecting, mobilizing, and informing as a conceptual lens to analyze interorganizational activity, I found a distinct contrast between anti-trafficking organizations working together for victim justice versus victim prevention. The organizations working together for victim justice had a longer history of interorganizational coordination than those working for victim prevention, and utilized an online case management system to manage their coordination. Their focus was on connecting to provide victim care. In contrast, the organizations working for victim prevention had no such system and were only beginning to meet regularly to start understanding how to work together. Their focus was on connecting in order to mobilize and inform others.

This finding pointed towards an opportunity for better understanding organizations focused on victim prevention and motivated my second field study (Field Study II) in several ways. The first is that organizations focused on victim justice indicated in my interviews with them a reluctance to participate in research with third parties due to privacy and safety concerns for the victims. The potential for victim exposure was deemed too high of a risk by these organizations. Also, these organizations were already in the process of refining a case management system to help support their interorganizational coordination and were reluctant to undergo further research to learn whether improvements could be made, if any. By contrast, the victim prevention organizations appeared to be in need of better tools, as they appeared uncertain how to go about the process of connecting in order to mobilize and inform both one another and the general public. Indeed, the very creation of BridgeOrg was part of their solution to this problem.

Thus, for Field Study II, I chose to focus more specifically on understanding how organizations focused on victim prevention, and BridgeOrg in particular, utilized and appropriated ICTs in information sharing and coordination with each other.

#### 1.3.2.2 Field Study II

For Field Study II, my goal was to conduct a more in-depth field study to understand the specific information sharing practices of organizations as they negotiate among themselves what actions they will take, with a particular focus on BridgeOrg. I needed an in-depth understanding of how organizations utilized a range of communications including social media, email, and a custom website to support these processes. I conducted the study with BridgeOrg as my primary field site to observe how their efforts to inform, connect, and mobilize other organizations in CommunityNet were mediated by ICTs. I utilized a combination of participant observation and semi-structured interviews, as a researcher embedded in BridgeOrg.

I present the findings from Field Study II in more detail in Chapter 4. However to briefly summarize the findings, from the data analysis I was able to characterize the overall activity stream of anti-trafficking organizations, as well as characterize their informal interactions, and identify the categories of information sharing that facilitated their coordination. Also in my data analysis, I used the three information sharing practices of connecting, mobilizing, and informing to help frame the findings. There emerged several social processes driving the practice of connecting within CommunityNet. The processes were raising basic awareness, enabling connections, and reinforcing connections. I further found that for BridgeOrg, the primary information sharing practice was connecting, and that the practices of mobilizing and informing were secondary and executed for the purpose of connecting. This contrasted with some of the organizations within CommunityNet, which connected in order to support the primary activities of mobilizing and informing. This difference in priority in terms of practice seemed to cause tensions in how ICTs were appropriated and used by BridgeOrg and CommunityNet.

Using the concepts—convergence and co-production—of ICT use and appropriation by Foot and Schneider (2006), I examined how ICTs were used to mediate the information sharing practices of connecting, mobilizing, and informing. (Details of how the work of Foot and Schneider (2006) inform my work are provided in Chapter 4, Section 4.1.4, page 62.) From my data analysis, I found that although BridgeOrg utilized a number of technologies—Gmail, Twitter, Facebook, Skype, GoogleDocs, a custom-website, and a constituent database—the collective set of ICTs seemed to be insufficient to address their connecting, mobilizing, and informing needs. The underlying tensions between what BridgeOrg and CommunityNet needed and what the ad hoc, miscellany of ICTs could support emerged from the data in two ways.

The first is a mismatch in the orientation of ICTs in terms of their information architecture. The flow of information and the features and functions available for the

production, distribution, and consumption of information of the ICTs BridgeOrg used seemed largely oriented towards the needs of the individual rather than the network. The second is a mismatch of formality, often manifesting as a mismatch between the formality requirements of the social interaction versus those supported by the ICTs. For example, vetting organizations to join CommunityNet was a formal social process for BridgeOrg, yet they were forced to use a cluttered array of Excel spreadsheets, handwritten notes, organic memory, and various communications scattered over different email accounts. These two mismatches pointed towards an opportunity to conduct two design studies, which I performed in Phase 2 of my research.

### **1.3.3 Research Question, Phase 2 – Design Study**

I used the second field study described in the previous section to inform the second phase of my research, design studies. That is, I used the analysis from my field studies to form the basis of the initial design requirements for both the re-design of BridgeOrg's custom website and a novel information visualization approach for addressing basic awareness needs within civic networks. In Phase 2 of my research, the specific question I addressed is as follows:

*RQ 2: In the context of grassroots movements, what features of ICTs might better support interorganizational networks in their information sharing and coordination?*

The design exploration that I undertook to address RQ2 was conducted in two parts. The first part (Design Study I) was to employ a user-centered approach to re-design the existing custom website to explore a network-centric design of information structure, presentation, and production. In order to do this, I first conducted a requirements analysis based on the field studies I conducted for RQ1. I then worked with an independent design and development team to make modifications to the website to enhance the information sharing within this civic network. The evaluation of this modified system showed that the information shared needed to be oriented around the common objects of joint-events, which included volunteer opportunities, awareness-raising events, and advocacy events.

Additionally, the system needed to be designed such that it could accommodate a hybrid structure of organization, i.e., a centralized structure for the bridging organization and a more decentralized one for the other member organizations involved in the civic network. I discuss Design Study I in more detail in Chapter Five.

In the second design study (Design Study II), I focused on creating a novel approach for informing basic awareness in the civic network using a folksonomy that was identified in my field studies. (By folksonomy, I mean labels for tagging information that has been generated informally and by social groups.) My purpose here was to understand if the folksonomy that emerged from the data could provide a more useful, non-alphabetic representation of organizational members using a categorization that emerged from the civic network. Also, I sought to explore the use of information visualization techniques in devising a novel approach to support basic awareness.

The information displayed in the design follows the categories of information sharing identified in the second field study. These include: interorganizational identity information, reporting on activities and community opportunities, and sharing of best practices and tips for resources. This information was organized using the folksonomy around the practice of victim management. This practice involved prevention of child sex trafficking, intervention on behalf of victims, restoring victims, and reintegrating victims into society. This practice contrasts sharply with the more procedural practice of governmental agencies and law enforcement organizations around the child sex trafficking issue, which is much more process-oriented according to the dictates of the law, specifically the juvenile justice code.

For the visualization design, I used a combined metaphor of the mobile and the stream. I selected these two metaphors because of their scalability in displaying information both vertically and horizontally. These metaphors provided flexibility for devising a graphical category map that could be used to navigate the civic network as a graph network. I conducted a task-based user study to determine if the visualization of

CommunityNet provided a navigable network-centric view that could answer questions related to “who is doing what” at the organization level, the group of organizations level, and the landscape or whole network level. The user study findings support the conclusion that my visualization approach is a promising direction for conveying the whole network perspective. I discuss the details of Design Study II in Chapter Six.

## 1.4 Research Contributions

My research was an exploration of the gap between what ICTs must support socially in the context of a grassroots movement against child sex trafficking and what is feasible for ICTs to support technically. Through my research, I sought to better understand how ICTs were being used and appropriated by interorganizational networks, and whether they were actually helpful, where they could be improved, and how their information sharing and coordination could be supported over time. The findings from two field studies and two design studies yielded the following contributions:

- **Challenges in information sharing for grassroots organizations:** I identified five challenges that the grassroots organizations I studied faced when attempting to engage in interorganizational coordination. These challenges range from operating in pockets of existence awareness, conflicts in collaboration modes, issues of power asymmetry, a high turnover in organizational population, and placing a primacy on individuals over organizations where the emphasis is on keeping in touch with the contact rather than their organization. These challenges are significantly different from contexts of traditional CSCW research and point towards opportunities for further exploring the gap facing grassroots movements in terms of effective ICT use in furthering their efforts.
- **Challenges in ICT use and appropriation:** I identified two primary challenges encountered by the grassroots organizations I studied in appropriating and utilizing ICTs in their information sharing efforts. One challenge was the

disparate adoption and use of technologies across organizations. The experience with and range of technologies used varied significantly. Some organizations did not even have access to cell phones when funding ran low whereas other organizations had relied on Joomla content management systems. These findings are further discussed in Chapter 3. A final version of the findings was also presented in a CSCW 2010 paper titled “Interorganizational Coordination and Awareness in a Nonprofit Ecosystem” (Stoll et al., 2010).

- **Information sharing practices among grassroots organizations:** Regarding the information sharing practices of the organizations studied, I identified a differentiation between organizations focused on victim prevention and those focused on victim justice. Organizations seeking victim justice seemed to primarily connect, inform, and mobilize in order to provide victim care, whereas those focused on victim prevention seemed to connect in order to mobilize and inform. However, I found that both types of organizations were uncertain as to how to go about connecting those in the community in order to generate more and effective unified coordination. The solution of the organizations I studied was to create an organization, which I called BridgeOrg, dedicated to connecting organizations in the community. In studying BridgeOrg further, I found that in their practice of connecting, they focused on four particular connection types, which are connecting to encourage coordination between organizations, connecting for resource transfer between organizations, connecting individual volunteers with organizations, and connecting for coordination, resource transfer, and volunteers for BridgeOrg. They also engaged in three types of social processes for building connections, i.e., 1) raising basic awareness, 2) enabling connections, and 3) reinforcing connections. I also found that unlike organizations focused on victim prevention or victim justice, BridgeOrg mobilizes and informs in order to support their practice of connecting. These findings are detailed in

Chapter 4. A final version of the findings was also presented in a CHI 2010 note titled “Informal Interactions in Nonprofit Networks” (Stoll et al., 2010).

- **ICT use and appropriation:** Regarding ICT use and appropriation, I examined how BridgeOrg utilized a range of ICTs to support their connecting activities. I utilized the lens of convergence to see how ICTs mediated the offline activities with online tools and support. I also examined the practices in terms of how content was co-produced by the organizations. I identified two underlying tensions that made it particularly challenging for ICTs to adequately support BridgeOrg’s connecting activities. The first is a mismatch between the network-centric information sharing needs of BridgeOrg and the ego-centric design of the ICTs BridgeOrg utilized. The second tension arose from the mismatch between the informality/formality of the social process of connecting that BridgeOrg engaged in and the informality/formality that the ICT actually supported. These findings are detailed in Chapter 4. A final version of these findings was also presented in a CSCW 2012 note titled “Between Us and Them: Building Connectedness Within Civic Networks” (Stoll, Foot, and Edwards, 2012).
- **Network-centric information sharing:** My design exploration examining network-centric approaches to information organization, presentation and production yielded a number of lessons. The first is that the notion of network-centric information organization is affected by differences in organizational structure between BridgeOrg and organizations focused on victim prevention. The network-centric needs of organizations with a professional structure differed from those that had the more administrative structure. The second finding is that differences in organizational structure may require the information be primarily organized around constituent groupings, or process-centric boundary objects. These findings are detailed further in Chapter 5.



- **Informal exploratory search of an interorganizational network:** My design exploration of supporting informal exploratory search and navigation of an interorganizational network yielded a novel information visualization approach. In my approach, I focus on conveying the narrative regarding the connections between the organizations, rather than focusing on the data regarding the nodes. I then devise a categorization scheme based on a folksonomy derived from Field Studies I and II. The details of this contribution are provided in Chapter 6.

## **CHAPTER 2**

### **RELATED WORK**

In this chapter, I discuss in more detail my research motivation from the perspective of prior related scholarship, primarily from the area of Computer-Supported Cooperative Work (CSCW). As briefly mentioned in Chapter 1, this dissertation research extends into less-explored areas of CSCW by examining an interorganizational network (a group of groups rather than a group of individuals) within a grassroots context where the dynamics are predominantly informal (rather than formal/contractual), where the orientation of the network is nonprofit (rather than for-profit), and the purpose is to promote social justice for a high-risk vulnerable population.

#### **2.1 Interorganizational Networks**

The fields of human-computer interaction and CSCW have a long history of studying the inner workings of organizations (e.g., Ackerman, 2000; Dorner et al., 2007; Greenberg, 1998; Rank, 2008) and how collaboration and coordination occur among the individuals and groups of individuals within an organization (e.g., Ackerman & Malone, 1996; Beaudouin-Lafon & Karsenty, 1992; Bobrow & Whalen, 2002; Brahe & Schmidt, 2008; Gutwin, 1998; Kraut et al., 1993). Increasingly, however, groups of organizations have become a focus of study in themselves; such groups of organizations may form out of necessity or convenience, and work together through formal or informal means, to achieve some common set of goals (Marwell et al., 1988, Oliver & Marwell, 1992) Often, such groups are organized and interconnected as interorganizational networks, a social structure that denotes a distributed, often decentralized pattern of interaction or coordination between organizations (Fulk, 2001; Galskiewicz, 1985; Ostanello & Tsoukias, 1993; Reimers et al., 2008).

Interorganizational networks are widespread, appearing across a variety of domains, including the health industry (Hackler & Saxton, 2007), non-business entities such as the government sector (notably emergency response (Denning & Hayes-Roth, 2006)), and the nonprofit sector (Huijboom, 2007). Examples of such networks of organizations range from strategic alliances among groups of companies such as the AAP (a trade association of American publishers), to coalitions of nonprofit organizations such as the NTEN (Nonprofit Technology Network), to supply chain networks in which organizations must coordinate logistics and the delivery of parts, services, and resources, to others (Stinchcombe, 1959).

In all of these cases, disparate organizations within a network share information to enable coordinated action with each other to achieve a common goal. Often, this is ongoing complex coordination, which may be supported by specific technologies. That is, in some domains, specific technological infrastructures have arisen to support this coordination and sharing at the interstices of organizations (Reimers et al., 2008). In the area of supply chain management, for example, tools have been developed to support the modeling and management of the unique inter-organizational sharing and coordination needs of the organizations involved in a supply chain network (Stinchcombe, 1959). Another example is the extensive WATERS system designed to support collaboration across research groups and scientific hubs and institutions (Ribes & Finholt, 2008). However, as described further in Section 2.3 of this chapter, grassroots networks of nonprofit organizations must adopt a *mélange* off-the-shelf tools for managing their information sharing and coordination needs. Very often, they lack the resources or the technical expertise (or both) to create, deploy, and use a purpose-built infrastructure for coordination.

### **2.1.1 Grassroots Interorganizational Networks of Nonprofits**

In fact nonprofit networks themselves are extremely diverse. A review of nongovernmental organizations (NGOs) by Judge (1994) identified thirty different

categories of nonprofit networks. Some examples include consultative networks such as specialized agencies within the United Nations that provide a intergovernmental support; transnational corporations such as the World Bank supplying international goods and services; humanitarian NGOs such as the Red Cross that respond to crises by providing various forms of relief and aid; and secret societies or religious orders such as Chinese triads or the Muslim Brotherhood, where the goal is to expand an alternative economy/society or promote a particular religious ideology.

A majority of these thirty categories can be further divided according to 1) formality or informality of interactions, 2) geography, and 3) specificity of goal or focus. Those providing intergovernmental support of financial goods and services coordinate in a more formal capacity (meaning that their coordination is often governed by contractual obligations, or even the force of law) than perhaps grassroots efforts (where coordination is based on informal, non-contractual interactions among individuals in the organizations). Some nonprofit networks are transnational, while others may be highly localized at the neighborhood or city-wide level. Additionally, the goal of nonprofit networks may be highly specific, such as where the goal is to provide a blood supply at the site of natural disasters, or extremely general, where the goal is to promote safer communities.

I use these categories presented by Judge (1994) to describe the nonprofit network I studied in my own research, which is a type of voluntary association. According to the review of NGOs by Judge, voluntary associations are seen as “part of the community building process, whether it involves social welfare, philanthropic, recreational, or other interests.” Thus, voluntary associations by their nature tend to be more informal, more geographically localized, and more general in their overall goals. Grassroots social movements such as the organizations engaged in fighting human trafficking are a type of voluntary association. Thus as a nonprofit network, they engage in informal coordination, tend to be working together within particular cities rather than in larger geographic areas,

or in virtual communities, and are focused on broader goals such as raising awareness about human trafficking or eradicating child sex trafficking.

My field sites, BridgeOrg and CommunityNet, are thus an instance of a class of interorganizational networks that have remained understudied in CSCW.

### **2.1.2 Organizational Ecosystem in Grassroots Anti-trafficking Efforts**

The ecosystem of organizations working in anti-trafficking efforts is comprised of a diverse population (Clawson et al., 2004). First there are organizations at the federal, state, and local levels. Within these levels, there are often departments, legislative bodies, law enforcement agencies, taskforces, and committees involved. A second type of organization in the anti-trafficking ecosystem is public social service agencies. Examples of these organizations include city or county hospitals, which provide what are often one-time or short-term care for victims. A third type of organization is the non-governmental organization (NGO). Some work directly with the victim in some ongoing capacity such as staging a rescue and providing for their restoration or coordinating ongoing medical and psychological care.

As briefly mentioned in Chapter 1, I categorize these types of organizations as primary care organizations. Still other organizations work indirectly with the victim by providing resources for the primary care organizations. I categorize these as auxiliary care organizations. Examples of such organizations include crime prevention organizations such as citizen watch groups or mentoring programs. Included in the broader category auxiliary care organizations is the fourth type of organization in the anti-trafficking ecosystem, which is the faith-based organization. These tend to be churches or parachurch organizations that mobilize their members within or across denominations for social justice causes. Similar to auxiliary care NGOs, faith-based organizations generally support the primary care organizations.

Governmental organizations and primary care organizations tend to cooperatively engage in efforts involving victim intervention for rescue, navigating the justice process,

prosecution of the perpetrators, and case management of victims until they are placed in homes for restoration and reintegration back into society. Auxiliary care NGOs and faith-based organizations tend to engage primarily with members of the public and to some extent primary care organizations as partners against the broader problem of human trafficking rather than for specific individual victims in particular. Their cooperative efforts generally focus on executing preventative measures such as awareness campaigns, letters to legislative representatives, and volunteering to mentor children at-risk for sex trafficking in underserved communities.

Previous research in the interorganizational context has focused on understanding the coordination efforts among governmental groups, public social service agencies, and primary care organizations (. Among such organizations, the coordination effort tends to be funding-driven, with formal interactions between organizations dictated by contractual obligations. To date, very few, if any, identifiable studies have been conducted to research the coordination efforts of auxiliary care organizations. I believe this is significant because the coordination among auxiliary care organizations is likely goal-based and informal, since they are not contractually derived. It stands to reason, that the coordination dynamics and information sharing in such contrasting context would be meaningfully different. My dissertation research seeks to complement our current understanding of grassroots communities by focusing on auxiliary care organizations.

## **2.2 Informal Interactions in Interorganizational Networks**

Social structures that are formally interconnected are often referred to as institutions. Some examples include governing bodies, groups setting industry standards, professional review boards and so forth. In contrast, informal social structures are those that emerge ad hoc, even when formal social structures are present (Chisolm, 1989). The connections between the actors in an informal social structure are voluntary, not mandated by

government policy or contractual obligations, and the interactions for retaining connectedness are not formally reinforced by law, mandate, or contract.

According to previous research, there are three dimensions along which interorganizational interactions can be characterized as formal or informal (Chisholm, 1989; Pyka, 2000; Rank, 2008). They are 1) relationship structure in terms of authority, e.g., hierarchical and centralized or distributed and decentralized, 2) the function or role of an organization in the interorganizational relationship, e.g. a funder, a communications channel, an enforcer, etc., and 3) processes or operations for accomplishing goals, tasks or missions (Chisholm, 1989; Huijboom, 2007). The degree to which each of these dimensions are made explicit or are formally stipulated through contracts, policies or other legal mechanisms, can determine the degree of formality in the interorganizational relationship(s). A real-world example of such formal interactions is the activity within a hierarchy of agencies and nonprofits assigned to shepherd a minor convicted for prostitution through the state judicial process. In such a hierarchy, the function of each organization in the process would be pre-determined and articulated in policy or law or by contract.

In contrast to the formal, informal interactions to describe a class of coordination activities between organizations that are essentially ad hoc in terms of interorganizational structure, functions, and/or processes, and are not contractually or legally binding. An example of such informal coordination is the activity within a loose network of nonprofits to generate public awareness regarding the problem of child prostitution. Another example is generating momentum within a local community to begin prevention activities to reduce the growth of victims of child sexual exploitation. In each of these instances, an explicit authority structure is lacking, specific processes are not generally put into place, and formal roles for specific functions are generally not assigned, though they maybe volunteered for by the organizations themselves.

Prior research indicates that while interorganizational interactions can vary in terms of formality, the majority of the coordination activities within a nonprofit or public interorganizational network tend to be "informal," i.e., the ways in which independent organizations discover, initiate contact, and maintain ties with other organizations for coordination are generally ad hoc (Huijboom, 2007; Pyka, 2000; Rank, 2008).

### **2.2.1 Interorganizational Coordination Between Anti-trafficking Organizations**

The diffuse nature of the human trafficking problem, of which child sex trafficking is a subset, escalates the complexity of the coordination required and can lead to inefficient interorganizational cooperation where there is confusion, unnecessary redundancy, and gaps in services. According to the U.S. State Department, labor and sex trafficking are significant issues globally, as well as in major cities across the U.S. (e.g., New York City, San Francisco, Atlanta, Los Angeles, New Orleans, Seattle, Philadelphia, Chicago, and Dallas among others); there are potentially 27 million victims of trafficking worldwide (U.S. State Dept., 2008). Those who engage in labor or sex trafficking tend to prey on the vulnerable such as young children, women who were orphans and the impoverished. For example, in one Southeast Asian country, a child can be purchased from a destitute family for a few dollars to be a sex-slave at a brothel (Batstone, 2007).

Child sex trafficking differs from human trafficking in that it is a specific form of exploitation involving minors in several key ways. One difference is in jurisdiction challenges. With children, additional layers of organizational effort is required to involve or engage the child victim's parents or guardians, for consent purposes. However, immigration issues are less problematic with children than with adult victims. Another difference is a reduction in ideological tensions, i.e., organizations fighting child sex trafficking tend to be less at odds with each other and with the state or local government because they can all agree that child sex trafficking should be eradicated. This agreement effectively sidesteps tensions among the faith community, those opposing illegal immigrants, and conflicts between the radical feminist perspective that all forms of



prostitution are forms of abuse or the liberal feminist perspective that there are categories of legal “sex work.”

Victims of human trafficking and child sex trafficking are considered high-risk vulnerable populations (HRVPs). These populations comprise some of the more challenging subsectors within the nonprofit sector (Hutchinson, 1995). Other HRVP populations include the homeless, gang members, AIDS victims, truants youths, who are often illiterate, unable to access what mainstream users come to view as basic technologies such as phones or computers, and frequently require a level of services and care that demands complex and orchestrated resources from a wide-range of organizations over a period of months or even years. Since no single organization can provide the diverse set of resources and services necessary to serve HRVPs, public sector and nonprofit organizations try to cope through collaborative interorganizational efforts.

Research by Ugarte et al. (Farley, 2007) highlights the critical importance of such interorganizational collaboration needed by organizations to effectively accomplish their mission. In one case study, they enumerate 21 different organizations that had to be involved in the identification, intervention, and subsequent rescue of a 15-year old victim of sex trafficking (Farley, 2007). More specifically, these organizations ranged from government agencies such as the Mexican Judicial Federal Police, the Desarrollo Integral de la Familia to investigate the victim's family, the Mexican Consulate Minor Protection, the US attorney's office to help prosecute the traffickers, a group home in Georgia to provide shelter in case management, the FBI, the San Diego Sherriff's Department, and so forth.

Interorganizational collaboration among anti-trafficking organizations means that they must grapple with the significant added complexity by having to cooperate across international borders, and different state and city jurisdictions. Particular to the case of human trafficking, the mobility of many victims means that they cross jurisdictional lines, requiring coordination among both nonprofits and the legal establishment in several

locales in order to provide service and prosecute traffickers. The diffuse nature of the human trafficking problem escalates the complexity of the coordination required and can lead to inefficient interorganizational cooperation where there is confusion, unnecessary redundancy, and gaps in services.

The complexity in coordinating to address such a wide-spread problem is further increased by the specialization or “silo-ing” present in this (and many other) nonprofit subsectors: specific nonprofits may focus on narrow slices of the overall service picture, such as victim counseling, immigration assistance, job placement, child care, and so forth (Farley, 2007; Hutchinson, 1995).

In 2007, a final report was published on an interorganizational coordination study funded by the Department of Justice, governmental groups, public care service providers, and primary care organizations (Caliber, 2007). This study compared the formal interorganizational coordination efforts of three networks of organizations. I sought to extend this work by examining the coordination dynamics of a network of auxiliary care organizations. These organizations stand in contrast to the networks studied in this 2007 report since they connections were driven by funding from the Department of Justice and were required to work together under contractual terms such as coordinating with each other for a set time frame of three years with partners formally connected through a contract. The study of the auxiliary care organizations in my research complements this 2007 report by examining the informal coordination dynamics, rather than the effects of formal arrangements on the organizations. My research builds on this research by specifically examining the ICTs used to support informal coordination, rather than focusing a general evaluation of the outcomes of contractually arranged coordination among organizations.

### **2.2.2 Theories of Coordination**

Theories of coordination within nonprofit networks fall into two broad categories: collective action based on interest and mutual benefit (Marwell & Oliver, 1988; Knoke,

1988), and resource or task dependency theory, where organizations coordinate because of mutual need rather than interest (Pfeffer & Salancik, 1978). While my research does not extend these theories, I utilize them to inform my understanding of coordination dynamics within voluntary associations in general.

#### 2.2.2.1 Collective Action Theories

In its simplest form, collective action, according to Marwell and Oliver, includes “actions taken by two or more people in pursuit of the same collective good,” (1993). The outcome of collective actions is designated as public goods, which include both the tangible (e.g., parks, libraries), and intangible (e.g., databases, lists). Public goods are distinct from private goods in that they are both nonexcludable as well as nonrival, meaning one’s enjoyment or use of a public good does not exclude another from the same, nor does it reduce or restrict the amount that remains available to others after use (Hess and Ostrom, 2007).

Much of the past collective action research focuses on the dynamics within a group of individuals, and the range of resulting models have generated some predictive power on individual action (Oliver, 1993). Studies on groups of groups, such as interorganizational voluntary associations, remain relatively unexplored. Consequently, I refrain from using collective action theory to predict coordination dynamics in the group of groups that I studied. Instead, I primarily utilize concepts from the theory to shape the focus of my field studies, which are described further in Chapters 3 & 4. More specifically, empirical studies utilizing collective action theory found that the “free rider” problem is not necessarily an issue in voluntary associations, i.e., the intuition that everyone will want to consume public goods but not contribute to its production or maintenance, proves incorrect (Hess and Ostrom, 2007; Oliver, 1993). This theory also identifies the specific public goods that I focus on in this dissertation, which are connection and other shared information resources (described in more detail in Chapters Three and Four).

Prior scholarship also shows that group heterogeneity results in a variety of collective action results, making prediction of coordination dynamics in a group of groups difficult or impossible at present (Oliver, 1993). This highlights the need for a significantly more research in examining the coordination dynamics of groups of groups, in particular voluntary associations.

#### 2.2.2.2 Resource or Task Dependency Theories

According to resource or task dependency theories of coordination between organizations, there are a variety of shared resources or tasks that act as drivers or catalysts for establishing ties between organizations; often, these resources are in kind or monetary. This is in contrast to collective action theory, which assumes goal-based drivers for coordination in voluntary associations. Specific examples of resource or task drivers include shared grant funding or long-term victim case management.

For voluntary associations, resource and task dependency theory becomes more significant over time, rather than when the association is in the process of emerging, because of the informal nature of the connections in this context. Time is necessary for resource requirements and task roles and coordination to be aligned and defined. Prior to this, voluntary associations are still primarily driven by goals and interests, i.e., until sufficient alignment and definition have taken place. However, since the network itself is composed of individual organizations that possess a formal structure, in-line with Weber's view of organizations, "the goal-directed efforts of organizations will be displaced over time by activities that are dedicated to survival." (Michels, 1962). In other words, voluntary associations as social movements initially emerge out of informal coordination efforts, but overtime begin to exhibit more structured or formal coordination patterns. This means that the collective action theory partially explains the drivers behind a voluntary association initially, while the resource and task dependency theories partially explain the drivers as voluntary association begins to mature as a social movement.

Given this perspective of resource and task dependency theory, in my dissertation research, I chose to focus on the informal coordination aspects of BridgeOrg and CommunityNet, rather than the formal. Also, I focused on the specific goals and interests as drivers in this context rather than resources or tasks.

## **2.3 ICTs and Informal Interorganizational Networks**

With informal interorganizational networks, the interactions between the organizations in a network are rarely formally codified into a set of bespoke software artifacts (Denning & Hayes-Roth, 2006). Many networks, for instance, may consist of organizations that lack either the resources, or the technological sophistication, to create, customize, or deploy specialized software for inter-organizational coordination. Hence the current availability of off-the-shelf, open-source ICTs, which facilitate content co-production, rapid dissemination of information, and the ability to act collectively are attractive alternatives to interorganizational networks in need of low-cost technologies. Such ICTs engender a perception that informal social structures can be readily erected with minimal costs. This perception of ease co-exists with a perception of efficacy, where these ICT-enabled social structures can accomplish powerful change rapidly, en masse.

Much of the CSCW research addresses ICT use and adoption in a for-profit context rather than nonprofit. However, there is a significant difference between these ecosystems in terms of technology requirements, usage, and adoption (Burt & Taylor, 1998, 2001; Le Dantec & Edwards, 2008, Merkel et al. 2007). While settings in which complex coordination work takes place have often been a topic of CSCW-related research (e.g., Ackerman et al., 1990; Greenberg, 1998; McEwan & Greenberg, 2005; Bobrow & Whalen, 2002; Wellman et al., 1996), few studies have focused specifically on the challenges of coordination in the interorganizational context, specifically when this coordination may involve radically different types of organizations, such as nonprofits, policy makers, and legal authorities.

**Table 1. Research Efforts of ICT in Network of NGOs (Saeed et al., 2011)**

	Working Domain of Case	Empirical Study/ Technology Design	IT Artifacts IT Supported	Practice(s)
O'Donnell [2001]	Irish Women Organizations	Empirical	Mailing List	Interorganizational communication and networking
Rohde [2004]	Iranian NGO Resource Center	Technology tailoring	BSCW	Social networking of NGOs
McIver [2004, 2004a]	Transnational NGOs at World Summit of Information Society	Empirical	Collaborative	Multi lingual writing
Kavada [2009, 2009a]	Anti-globalization movement networks (ESF)	Empirical	Mailing List	Collective identity building
Stoll et al. [2010; 2010a]	Network of NGOs in support of human trafficking victims	Empirical	--	Interorganizational coordination
Saeed & Rohde [2010]	Anti-globalization movement networks (ESF)	Empirical	OpenESF	Collaboration practices
Saeed et al. [2010]	Anti-globalization movement networks (ESF)	Empirical	--	Knowledge management
Saeed et al. [2011]	Anti-globalization movement networks (ESF)	Empirical	Mailing List	Communication

According to Saeed et al. (2012) and corroborated by Mullarkey (2012), only a handful of empirical studies specifically examining ICT use have been conducted within the CSCW community examining nonprofit organizations specifically on ICT use for coordination and information sharing. Table 1 above demonstrates the paucity of research in this space. The contexts for these studies ranged from national political organizations, social justice movements, to transnational summits. The majority of the studies focus on a single ICT artifact, such as the mailing lists or databases to support specific practices such as knowledge management, social networking, collaborative writing, or interorganizational coordination.

There remain a number of unanswered questions as to how systems can be designed to support coordination within nonprofit networks, particularly when the system must support interactions that have no formal decision-making structures or discrete task definitions. For example, “How do networks of organizations that lack such purpose-built software manage the complexities of coordination and information sharing? What

practices do individual organizations in a network (and the individuals within those organizations) follow to coordinate with their peers, and where are the challenges or breakdowns?” In my exploration of informal interactions within a specific nonprofit network, my goal was to extend the work of interorganizational research by identifying characteristics of informal coordination within a real-world nonprofit network such as BridgeOrg and its network of community organization members.

## **2.4 BridgeOrg as a Case Study**

Socio-technical research, which characterizes CSCW as a knowledge area, “involves movement among case studies, comparisons among case studies, and theory” (Steinmetz, 2004), i.e., specific cases are necessary in attempts towards understanding and explaining socio-technical phenomena. In producing knowledge related to socio-technical systems, the role of explanatory case studies varies depending on the nature of the knowledge gaps. In areas that are well-researched, cases abound, patterns have been detected and articulated, and theories have emerged, the case study is useful for testing theory. However, where patterns are yet to be defined, but case studies abound, then the case study is useful for comparison between cases for pattern detection. Yet, in understudied areas where sufficient cases do not yet exist, and thus little opportunity for synthesis exists, the case study is useful for uncovering or illuminating generative mechanisms for comparison with future case studies. By generative mechanism I refer to any actor, object, concept, process, structure, practice, or dynamic that form the basis of explaining phenomena occurring in a given socio-technical system being studied. These generative mechanisms form the basis for comparison between cases and eventually the detection of patterns that will eventually lead to the emergence of theory.

In the research presented here, my goal was to answer this question: In the context of grassroots movements, how do interorganizational networks of nonprofits engage in informal information sharing and coordination, and how can ICTs support this

engagement? The examination of the informal interactions of interorganizational networks of nonprofit organizations has been understudied in CSCW. I seek to utilize this case study of BridgeOrg to identify generative mechanisms that can be useful for comparing with future case studies and contribute towards identifying patterns of ICT use. I believe such patterns can be useful for designing systems that can better align the help that social justice movements can attain from ICTs with the hope they have to change the world for the better.



## **CHAPTER 3**

### **FIELD STUDY I: ANTI-TRAFFICKING ORGANIZATIONS AND INFORMATION AND COMMUNICATIONS TECHNOLOGIES**

“When we look at modern man, we have to face the fact that modern man suffers from a kind of poverty of the spirit, which stands in glaring contrast with a scientific and technological abundance. We've learned to fly the air as birds, we've learned to swim the seas as fish, yet we haven't learned to walk the Earth as brothers and sisters.” – MLK, Jr.

Field Study I serves as the general background immersion I needed to understand how to further investigate ICT needs and use among organizations specifically fighting child sex trafficking, which is a subset of the larger problem of human trafficking. I conducted this study over a period of five weeks, and selected as my field site a broad cross-section of organizations involved in countering human trafficking. From the literature, we know that many organizations involved in this work participate in an ecosystem of other organizations that is at once deeply local, and yet also exists on a national or sometimes global scale. Organizations aimed at assistance to individuals, for instance, often coordinate with other local organizations to provide the full spectrum of services needed. Often they will also interact with a range of remote organizations, such as regional or national law enforcement, international information clearinghouses, and so forth. Thus, for many of these organizations, coordination takes place in a combined form of face-to-face local interaction as well as technology-mediated remote interaction.

My goal in investigating a broad cross-section of these organizations was to first understand the broader context in which BridgeOrg and CommunityNet were situated so that I could understand how to scope which generative mechanisms I focused on when studying BridgeOrg and CommunityNet more closely. I primarily sought to understand how information sharing for connecting among organizations was done “in the wild”, and to understand their challenges in doing so using ICTs.

### **3.1 Data Collection**

This study was conducted in two major U.S. cities, one located on the West Coast, which I refer to here as Westville and one near the Eastern seaboard, which I refer to here as Eastville. I selected these sites because both cities 1) are listed by the Federal Bureau of Investigation as top destination cities for the commercial sexual exploitation of children, and thus face major issues with human trafficking, 2) have a high-level of philanthropic activity focused on trafficking, meaning that there are well-developed ecosystems of nonprofits at each location, and 3) are regarded as being on the forefront of addressing the human trafficking problem as demonstrated by grants awarded by the Department of Justice to foster innovative coalitions to address the trafficking problem.

I chose to perform this study across two cities to allow me to sample across a wider range of coordination practices, and to help neutralize any particular local idiosyncrasies related to the cities themselves. While both Eastville and Westville are major metropolitan areas, they embody significant differences in both size and funding levels. These two cities are also situated in states that differ radically in terms of nonprofit activity; the number of nonprofits in Westville's state, for example, is almost double that of Eastville's state; likewise, the volume of revenue for nonprofits of the county for Westville is double that of the county of which Eastville is a part (NCCS, 2008 & 2008a). My fieldwork for this study consisted of both non-participant observations and semi-structured interviews. In total, I interviewed 17 different organizations, including nonprofits, governmental agencies, policy makers, and police departments.

### **3.2 Data Analysis**

For the data analysis and interpretation of my field notes, I employed a general inductive approach, guided by the work of Bryman & Burgess (1994). Because I was not guided by a specific hypothesis to test, I sought to examine the data for emerging themes relevant to interorganizational awareness and coordination in a specific nonprofit

subsector. To derive the themes of the findings presented in this chapter, the interview transcripts were coded and analyzed both individually and then horizontally (across transcripts) for categories. I then grouped these categories into broader themes. In my study, I transitioned from conducting interviews to data analysis when I began detecting recurring patterns and themes arising from later interviews that had been identified in earlier ones. As part of my analysis, I briefly reviewed and corroborated the findings with select participants in the study who had significant years of experience in the work against human trafficking.

### **3.3. Findings**

The majority of the findings presented here are challenges related to organizations negotiating engagement for coordinating together and operationalizing the information sharing practices of involving, connecting, and mobilizing, as well as challenges in appropriating and using ICTs to support these information sharing practices. In examining a broad cross-section of organizations, I was able to understand the general context in which interorganizational networks of nonprofits were situation.

#### **3.3.1 Challenges for Negotiating Engagement Between Anti-Trafficking Organizations**

From interorganizational literature, existence awareness as defined by Thellufsen et al. is an internal “awareness of other organizations in the interorganizational network”; it is considered a necessary pre-condition for the other types of more complex awareness between organizations such as: collaboration, cooperation, coordination, implementation and evolution (2009). This existence awareness is effectively the first step of virtually any interorganizational network context. Among anti-trafficking organizations many nonprofits are driven to coordinate with each other out of necessity—factors such as limited resources in any one organization, specialization of services offered, and the distributed geographical nature of problems such as human trafficking mean that addressing specific cases requires coordinated action and information sharing among a

cohort of disparate organizations. However, such coordinated action is impossible if a given organization is not aware of even the existence of others that might be potential collaborators.

The data suggest that the “existence awareness” problem faced by the nonprofits in this study was more subtle than a simple problem of being utterly unaware of other relevant organizations. On the contrary, the participants regularly noted that they were well aware of other organizations on which they could rely on a daily basis. However, participants noted the limits to their organizational awareness, particularly the failure of awareness to extend beyond the small handful of organizations that were already within their particular interorganizational network. This lack of awareness was problematic enough that one nonprofit organization (P8) had decided to make as part of its mission the task of connecting organizations with others where possible to increase awareness among the anti-trafficking community.

#### 3.3.1.1. Operating in Pockets of Existence Awareness

The analysis of the field data showed that the limits of existence awareness became exposed when an organization that provided a particular service within their network became unavailable (due to shutting down operations from lack of funds or the departure of key individuals), or when a given case required a service unavailable in their current interorganizational network. Participants P3 and P4 explained how their organization attempted to address their awareness issues by creating a compilation of other organizations called the “Resource Binder.” Unfortunately, the binder was often underutilized because it was unclear how reliable or current the information was in the binder. A high turnover in the staff and volunteer rate often contributed to incomplete knowledge transfer among the nonprofit workers, leading to the obsolescence of attempts to address organizational awareness issues such as the binder.

Participants noted that these problems were further exacerbated when their knowledge about even those organizations that were in their networks became outdated

or unreliable, for example, when a key contact in a given partner organization departed. A common theme among the participants in this study was the essential importance of personal relationships with key individuals in partner organizations; especially given the nature of the at-risk populations served by these organizations, a history of trust with individuals at partner nonprofits, in some cases built up over a period of several years, was seen as essential in well-functioning networks. When a trusted peer left, existence awareness even for organizations within the network was often severely impacted. These breakdowns meant that organizations were effectively stuck within a pocket of awareness bounded by the limits of their particular interorganizational network, without the means to easily extend beyond it despite the regular need to do so.

Although their immediate interorganizational network was sufficiently large to accomplish some of their mission as nonprofits rescuing victims of human trafficking, participants noted that these networks proved to be inadequate, especially in cases where networks lacked redundancy (such as when redundant services were needed because an organization previously providing the service was shut down), or did not have the internal ability to provide some service (meaning that organizations were unable to provide some needed service without forming a connection external to the network). In the end, what the organizations I studied were looking for was a means to move beyond the pocket of interorganizational awareness and to expand their knowledge of other organizations actively working in the anti-trafficking domain. Unfortunately, they seemed to have no easy means of moving out of their pocket of limited existence awareness. This frustration was expressed by a number of participants such as P19 and 13:

P19: We're so not connected; it's hard to know what others [organizations] are doing. The traffickers seem way more organized than we are. It's really sad.

P13: More streamlining of organizations is needed. Groups are doing redundant work in areas we don't need and there are gaps in services needed.

The necessity of moving beyond limited pockets of awareness is driven by the complexity and scale of organizations involved in trafficking mitigation, as in Ugarte et al.'s work enumerating 21 different organizations involved in the case of one individual (Farley, 2007). Responses from the participants indicated that their experiences in coordinating with a large number of organizations were consistent with Ugarte et al.'s findings (Farley, 2007). A further complicating factor noted by the participants was that coordination was highly contextually dependent; in other words, the specific network of services (and organizations providing those services) needed for a given case could vary on a case-by-case basis, with some cases requiring interactions with remote legal authorities, others requiring specialized immigration assistance, and so forth. The fact that organizations existed in limited pockets of awareness made these complicating factors much more visible and apparent to the participants, and much more deleterious to the services they could offer their clients.

This finding indicated that anti-trafficking organizations were experiencing difficulty in moving forward due to operating in pockets of existence awareness. However, this also pointed towards an opportunity for further exploration regarding how ICTs could be useful in mitigating this challenge.

#### 3.3.1.2 Conflict in Collaboration Modes

From the interview data, indications of two different modes of collaboration emerged from descriptions of coordination challenges facing participants' organizations. By collaboration mode, I refer to a goal-orientation that organizations seemed to adopt, which drove decisions to coordinate with other organizations. Some of those I interviewed made decisions to work with others primarily depending on the needs of their clients (former or potential trafficking victims). For example, according to P6 (from a

nonprofit organization) what motivated the initial contact with other organizations and the nature of the collaboration was driven by whether or not such actions benefited the victim; other priorities such as organizational growth, sustainability or increasing their competitive edge did not appear to be drivers.

In data analysis, I labeled this as the victim-centric mode of collaboration. This mode was primarily characteristic of nonprofit organizations commonly identified by participants as “service providers;” that is, organizations providing services such as advocacy, counseling, drug rehabilitation, housing, job training, etc. However, nonprofits not working directly with clients exhibited the victim-centric collaboration mode as well. For example, one organization whose primary activities are raising awareness and directing resources made collaboration decisions mainly based on whether or not such affiliations would be beneficial to helping rescued trafficking victims.

The other mode of collaboration that emerged from the data is what I labeled the process-centric mode. Organizations that are process-centric make decisions to work with other organizations based on existing processes such as those defined by law or by business best practices. Examples of organizations likely following this mode include law enforcement, policy makers, government contractors, and for-profit organizations providing services to clients as a business. How the collaboration is initiated and the nature of the coordination occurring between others and an organization following the process-centric mode is often defined a priori. That is, the protocols for engagement with other organizations are pre-defined by the law such as in the Juvenile Justice Code and coordination actions that do not fit within the Code or business process are not executed by the organization. This is in contrast to the victim-centric mode where coordination decisions are often made in real-time and based on protocols that more situational, negotiated, and implicit (that is not explicitly written into laws, for example).

Differing modes of collaboration became a significant obstacle for organizations being able to effectively coordinate: differences in priorities, procedures, and regulatory

restrictions made the interfaces between organizations problematic. Some of the participants provided examples of how the progress made in rescuing trafficking victims were oftentimes undone or completely reversed by stakeholders adhering to the process-centric mode of operating. Additionally, participants such as P22 (from a nonprofit organization) and P24 (from a law enforcement unit) expressed frustration at the conflicting modes of operating. P22 gave examples of how with the current state of the law, victims are criminalized before perpetrators who enslaved the victim. Although those in the justice department were aware of the irony of following the judicial process, they were bound in their actions by “the process.” P24 gave examples of how law enforcement members often had to avoid giving “common sense” help to victims, such as taking them to the nearest shelter for children due to jurisdictional issues dictated by “the process.” Even if law enforcement organizations were aware of specific individuals or organizations who would be most able to provide the necessary assistance to a victim in a given situation, they would often prioritize the regulations and procedures of their organizations over victim needs, when those conflicted.

### **3.3.2 Coordination Among Anti-Trafficking Organizations**

As explained by P22 and other participants, the goal of anti-trafficking organizations could be summarized along three trajectories. The first was described using co-opted terms from economics: ending demand and reducing supply. The idea was to try to prevent human trafficking by educating both perpetrators (demand) and potential victims (supply). The second was victim justice. The goal was to identify perpetrators through due process to mete out justice on behalf of the victims. The third trajectory was restoration and rehabilitation. The idea was to restore victims to society, which was at times a life-long process, and to rehabilitate perpetrators with regard to how they treat other human beings. What each of these organizations acknowledged was the need to work many others to effect prevention, victim justice, and restoration and rehabilitation. However, what was lacking were the means for making visible both the demand and



opportunities for working together. The challenges that made such visibility difficult are described in more detail below.

#### 3.3.2.1 Challenge of Power Asymmetry and “Saving Face”

One challenge that emerged from the data is that of power asymmetries and "saving face" among the organizations interviewed. Paradoxically, there was an unwillingness among organizations to devote resources specifically to organizational or technological infrastructure intended to support coordination and interorganizational awareness. Such efforts were seen as “strategic” rather than oriented toward the more “tactical” mission of the organizations, to serve their clients. Although they realized such a need existed and that it was critical for greatly enhancing their ability to work more strategically with other organizations, as one participant stated:

P8: Nobody wants to pay for doing the strategic!

According to P8, organizations want to be perceived as accomplishing a mission rather than devoting resources to the strategic maintenance of broader interorganizational structures. Described as an effort to “save face,” organizations actively worked to manage their perceived identities as solely focused on the needs of victims.

This active identity management was also driven by the fierce competition for resources in this ecosystem. Participants attested to having to compete with other organizations in the same subsector for resources such as funding and volunteers. One participant provided an example of such competitiveness where attempts were made to work with two other organizations to produce a campaign for raising awareness about Westville’s sex trafficking problem. The campaign was fully developed in terms of message and creation of materials for the campaign; unfortunately it was never executed because one organization, in the end, did not wish to devote funds to a project where it would not be the sole nonprofit to receive credit for undertaking the campaign. In other words, a joint campaign to raise awareness about the plight of trafficking victims was

dropped because it would bring insufficient recognition to one of the participating nonprofits.

The competition for funding focused the efforts of the organizations I studied on what were considered “fund-able” aspects of their mission, and away from more strategic efforts that were not considered fundable. The power asymmetry between the “funder” and “funder” causing a lack of strategic focus is inline with Pfeffer and Salancik's (1978) findings, as well as Galaskiewicz (1985) where the amount of money that nonprofit organizations received from giving entities, such as corporations, was a function of the organization's perceived reputation in accomplishing their mission. The tension between cooperating to help victims of trafficking, yet needing to yield the requirements of the organization's donors perhaps indicates a reason why resources for resolving coordination and awareness problems among the organizations I studied may not have been allocated. The issue may be more complex than simply a scarcity of technology resources or access to technological know-how, but rather the power asymmetry caused by donors emphasizing a purely mission-oriented use of funds, and the resulting tensions raised by the competition for these funds.

A corollary theme that emerged to the theme of power asymmetries and “saving face” is the seemingly dual nature of nonprofit organizations where their operational behavior was in contrast with their stated mission. According to the participants, in order for nonprofit organizations to be deemed successful, they felt the need to behave with the efficiency of for-profit organizations while at the same time accomplishing a mission that was far removed from that of the typical for-profit enterprise. Work by Galaskiewicz (1985) shows that this pressure to operationalize as a for-profit can come from donors who impose isomorphisms in ways such that environmental demands force nonprofits into mimicking for-profit organizations. Despite the uptake of various for-profit motives, such as efficiency, and certain aspects of for-profit technologies, others have commented

on the significant differences that exist between the for-profit enterprise and non-profit organization (see, for example, Merkel et al.'s work (2007)).

### 3.3.2.2 Challenge of Primacy of Individuals Over Organizational Boundaries

One significant finding that emerged in the organizations I studied is what I call the primacy of individuals over organizational boundaries. Given the specialization and competition among the anti-trafficking nonprofits in the study, and especially the strong emphasis on managing a unique and carefully cultivated “organizational identity,” I had expected to observe strict boundaries between potentially competing organizations. Surprisingly, however, participants reported this strict separation as of minimal priority. This finding is in agreement with Merkel et al. who state: “the sociotechnical gap—the gap between social requirements and what I can support technically—is by default a larger one in nonprofit community organizations versus for-profit, workplace environments because the underlying organizational structure is often invisible in the former” (2007). This finding as well as Merkel et al.'s both indicate the possible emergence of “boundary-less organizations” as identified by Nohria and Berkeley (1994). Participants noted the primacy of individuals over organizations for coordination purposes; for instance, as P4 explained:

P4: [paraphrased] Who you know in an organization is more important than just knowing about the organization. If a person leaves an organization, we keep in touch with that person and not the organization.

The primacy of personal relationships often facilitated information flow among organizations. Trust relationships and collaboration decisions were made primarily on an individual basis although familiarity of the organization may have been a starting point. However, in most examples provided by participants, most of the coordination activity began with an individual's personal network of contacts.

P20: Contact information is connected and maintained on an individual basis. Everyone has their own list of contacts they use [for coordinating with other organizations].

While the importance of the “salesman’s Rolodex” of individual connections is a long-standing meme in the for-profit world, such individual, interpersonal ties appear to play a key role in the nonprofit organizations in this study. These ties served as a way for information to cross over organizational boundaries more easily and encourage network formation, even in cases where the organizations may have otherwise been in a competitive relationship. One consequence of placing primacy on the individual over the organization is that the possibility of increasing coordination and awareness of other organizations was dependent on the quality of contacts of the individual rather than the quality of contacts based on the organization as a whole. Because an individual is followed rather than the organization, if an individual ceased work in this area, the opportunity to establish and utilize the contacts of others in the organization was often overlooked as well.

(I note here that the emphasis on the individual by the organizations I studied should not be confused with Useem's "interlocking directors" as discussed in (1993) where a power elite holding multiple simultaneous directorships wield enormous political power within the larger community. Although I interviewed some participants who had formal designations as the director of their organizations, they were not necessarily members of some power elite as those on a board of directors but those directing the nonprofit at an operational level rather than at the strategic mission-crafting level.)

### 3.3.2.3 Challenge of High Turnover in Organizational Population

Stakeholders in this study—like those reported in other studies of nonprofits (Knoke, 1988; Merkel et al., 2007)—rely on volunteer labor in order to accomplish their mission. This reliance on volunteer labor, in turn, created challenges for interorganizational coordination and awareness. The participants reported a number of

challenges for their organizations, particularly in planning for organizational longevity. Many organizations fail to plan for sustainability, i.e. being operational in the coming years; consequently, there is a high failure rate of organizations. This, in turn, was reported as contributing to the challenge of forming stable collaborative relationships with individuals in other organizations, even though such relationships were reported as necessary for “getting the job done.” This situation can lead to frustration as expressed by one participant:

P8: I wish these organizations would stay in place and remain once I find out about them so I could make referrals.

This instability exists among the individuals with whom others rely on as well. For example:

P15: When [an elected official] leaves office, everyone associated with them leaves as well. And I have to make a whole new set of contacts.

Such instability in terms of both organizations and individuals compounds the difficulties of moving beyond simple existence awareness to a more long-term coordination or collaboration; this instability is especially problematic in light of the fact that, coordination among organizations could span over several years in cases such as the treatment and full recovery of trafficking victims, as noted by (Farley, 2007).

### **3.3.3 ICT Appropriation and Use**

In the findings I present below, the organizations I studied experienced significant challenges in attempting to utilize ICTs for their work. While most organizations interviewed maintained an online presence, the use of ICTs specifically to support information sharing for connecting between organizations seemed minimal at the time of the study.

For example, most of the participant organizations had websites for their organizations, except for the law enforcement representative. However, the websites were not specific to the day-to-day activities that the participants engaged, such as maintaining

a blog. Some of the websites described campaigns that the organizations were involved in such as raising funds online for a rescue shelter in Thailand. I primarily relied on interview data to determine the extent to which online mechanisms were used to promote offline action and vice versa.

Many of the organizations indicated that their website was specifically used to trigger offline activity except for meeting advertisements and donations. One nonprofit organization in particular (P8) advertised their annual conference online and also encouraged online donations as well as fund-raising at university campuses and high schools. However the majority of the organizations employed what is colloquially known as “brochure-ware.” The information about the organizations on their respective websites conveyed information about their mission and upcoming meetings. Volunteer opportunities or other opportunities for interaction and involvement were not as prevalent among participant websites.

Based on the analysis of the interview data, most of the organizations seemed to keep online activities separate from the offline activities. Email was the primary ICT uses to organize offline activity. Facebook and Twitter were used by many of the organizations for generating online activity. However, at the time of this study many of the accounts used were personal and not specifically for the organization, although there were Facebook Fan pages dedicated to the cause of anti-trafficking. A few mentioned the use of Google to search for other organizations. However most of the participants indicated their activity with other organizations was primarily offline.

Additionally, participants in this study reported a continual, yet imperfect process of relying on a variety of information resources, such as personalized databases, search tools for online information, publicly available data, and so on in attempts to address their existence awareness challenges. Participants were creative and resourceful in seeking out other organizations, with many discussing a variety of systems they had tried. These ranged from specialized software systems such as CASESYS (for case management) and

GiftNet (for mailing list management), to home-grown Excel spreadsheets, social networking applications such as Facebook, or simple paper and pen. Participants often reported these systems to be insufficient to their needs. P3, for example, resorted to using newspaper stories to try to find others in the community focusing on anti-trafficking:

P3: We search through the local newspapers in the community to find out about meetings.

Specialized software systems were also generally useful for other aspects of non-profits work; despite attempts at repurposing them toward organizational awareness goals, they were often inappropriate:

P20: We use GiftNet for our mailing list. But we don't use it to help us coordinate with other organizations. It wouldn't help us know who to contact for things that we need to help our clients.

Despite the differences in their various attempts, a common message was that their current methods—whether online, paper-based, or centered around existing interpersonal social networks—were insufficient to address the dynamic and context dependent nature of the existence awareness information needed by these organizations. Indeed, despite the similar missions of many of these organizations, and the need for coordinated action, the technological and organizational structures available to them were unable to adequately sustain and grow effective interorganizational existence awareness for more complex collaborations between networks.

These findings indicate that ICT appropriation and use by the anti-trafficking organizations studied were not well-defined or actually in place. Offline activity was primarily separate from online activity, and much online activity tended to be personal rather than on behalf of the organization.

### 3.3.3.1 Specific Challenges in Using ICTs

At the time of this study, there seemed to be several challenges that contributed to converging online and offline activity as well as engaging in co-production of web content for the purpose of coordinating between organizations.

#### *1. Extreme Asymmetries in ICT Access*

One challenge I identified among anti-trafficking organizations was a lack of symmetric information and communications technology (ICT) access. Participants in this study reported the difficulties inherent in inter-organization coordination in the presence of an often extreme asymmetry in the availability of technology resources among the various stakeholders. For example, some service providers were technologically sophisticated and well-equipped, utilizing laptops, iPhones, chat servers and document management systems; others, however, had access only to mobile phones available depending on whether the service fee was paid in a timely fashion.

P12: There are no guarantees that the person you need to connect with will have an office or computer or even a phone.

Participants reported that the resource constraints posed by lack of funding acted as a de-motivating factor for coordination, as they were reluctant to divert scarce resources away from individual service and toward technology for coordination with other organizations. This led many organizations to rely upon a ramshackle assemblage of heterogeneous, and often personally owned, ICTs for their coordination work. P3's comments were typical of this style of technology use:

P3: We use our own laptops and cell phones to get our work done. Not everyone has a computer in the organization. And it's easier to use our own equipment.

This style of technological appropriation is in stark contrast to the for-profit environment, in which each employee often has access to a homogeneous range of ICTs—laptops, Blackberries, email servers—provided for them (and managed) by the corporation. The resulting asymmetries in access to ICTs in nonprofits, whether because



of differences in funding constraints, or because of differences in local expertise in deploying and managing ICTs, can increase the overhead required in maintaining intra- and inter-organizational communications. For example, individuals working in these organizations not only must keep track of contact information for colleagues, whether inside or outside their own organizations, but must also keep track of the best way to reach colleagues, whether in person at specific locations, by phone, email, or other via other individuals.

P5: I spend a lot of time trying to just send messages to people because it has to be sent in so many ways. I wish I could just send and write one message and a system would just be able to figure out how the message needed to be sent, whether it's by phone or email or some other means.

Thus, for the organizations in this study, such extreme asymmetry creates additional challenges for them to promote coordination and collaboration with peers.

## *2. Fighting a Crisis Under “Normal Conditions”*

The second challenge I identified was that the organizations I interviewed had to fight human trafficking as an ongoing humanitarian crisis under what participants described as “normal conditions.” Unlike other crises such as earthquakes, fires, tsunamis and hurricanes, the human trafficking problem can be characterized as pandemic and not largely bound to a specific geographic location where the crisis is caused by a bounded event in terms of time of occurrence and anticipated resolution. Human trafficking is an ongoing systemic, where the mechanisms allowing exploitation are often deeply entrenched in political, economic, and social systems (Farley, 2007; Williams, 2007).

There are several reason why the above posed challenging for the organizations I interviewed. The first is that ICT support that these organizations needed would have to reflect this need for ongoing coordination to fight human trafficking. However, the designs of many ICTs available to these organizations were oriented towards short-term

or one-time coordination. For example, Twitter is a tool for broadcasting messages to a group of followers with varying levels of commitment. Bi-directional messaging which is crucial for coordination is not easily supported and the access controls on the information shared is designed to be minimal. Unfortunately, the organizations I interviewed seemed to struggle with many tensions that are perhaps more extreme than in the for-profit context e.g., having to conduct covert actions in rescuing a victim while maintaining the facade of normal operations, or having to go to great lengths to establish a trust relationship before more in-depth coordination efforts can progress. To illustrate using the latter as an example, the data illustrate how trust work often took the form of face-to-face meetings or an extensive phone conversation to understand who the individual was connected to, their motivations for involvement in anti-trafficking work, and whether or not they would be beneficial actor on behalf of the victim and in what capacity.

P7: When I'm on a call with someone I don't know, I take lots of notes about whether the person is trustworthy and how they talk about the victim. That's very telling; whether they really care.

This finding echoes previous studies in other “high risk” contexts, for example, in the work of gang violence reduction or international truth and reconciliation efforts, in which a misstep can lead to the death of clients or service providers or others attempting to provide assistance to victims.

P13: I have to be careful of who I trust otherwise the victim as well as the service provider could be in danger.

This trust work, however, is not just centered around establishing a trust relationship between the organization and the individual; it also extends to trust relationships between organizations themselves. Participants noted that an organization that refers an individual to another organization for service must have a prior, and well-established, trust relationship with that organization, otherwise they may be putting their clients at risk.

Unfortunately, although among for-profit organizations many laws, policies and established protocols exist for ensuring that business relationships remain ethical and reliable through a system of taxation, penalties and regulations, nonprofits organizations (depending on how they are funded, whether publicly or privately) are often not accountable under such structures. As a result, nonprofits do not receive the benefits of state vetting of their organizational peers; thus the participants reported devoting a significant amount of time to fight against the established system to accomplish their mission. For this reason, ICTs designed for coordinating anti-trafficking work where they are negotiating how to work with each other to achieve prevention, victim justice and restoration for victims and rehabilitation for perpetrators, would need to support nuanced access control requirements for information being shared between organizations.

#### **3.3.4 Information Sharing**

To gain additional insight from my data analysis, beyond the challenges discussed above, I utilized three web campaigning practices identified by Foot and Schneider (2006): informing, connecting, and mobilizing. I use these practices as lenses for examining the data in hopes of gaining a more nuanced understanding of information sharing and coordination beyond the challenges the organizations encountered. The practice of informing is conveying facts or information to members of the interorganizational network as well as to members of the general public. The practice of connecting is raising awareness or creating an interdependence between members of an interorganizational network that is supported by processes of information sharing. Finally, the practice of mobilizing is moving members of an interorganizational network to take action as directed by another member or outside organization.

With regard to the information sharing practice of informing, there seemed to be two different messaging themes adopted by the organizations among those whose collaboration was victim-centric rather than process centric. These messaging themes depended on whether the organization was focused on prevention of human trafficking or

victim justice. None of the participants I interviewed were working in organizations with a mission to rehabilitate perpetrators. The organizations with a mission focused on victim justice emphasized connecting with other organizations as a critical activity. In connecting, they primarily relied on offline means, such as face-to-face meetings to connect. The organizations with mission focused on prevention or restoration of victims actively engaged in all three practices. Table 2 below summarizes the differences in the three practices between organizations focused on victim justice versus victim prevention:

**Table 2. Information Sharing Practices of Anti-trafficking Organizations**

	<b>Organizations – Victim Justice (n=6)</b>	<b>Organizations – Victim Prevention (n=11)</b>
<b>Informing</b>	<ul style="list-style-type: none"> <li>• Raise awareness about how perpetrators or luring victims.</li> <li>• How to spot a victim.</li> <li>• Train law enforcement and health professionals.</li> <li>• Raise awareness about funding needs</li> </ul>	<ul style="list-style-type: none"> <li>• Raise awareness about the human trafficking problem in general</li> <li>• Raise awareness about funding needs</li> <li>• Raise awareness about how to engage others in efforts against human trafficking</li> </ul>
<b>Methods for Informing</b>	<ul style="list-style-type: none"> <li>• Face-to-face meetings and trainings</li> <li>• Emails for organizing meetings</li> <li>• Online donation forms, e-Newsletters, and physical newsletters</li> </ul>	<ul style="list-style-type: none"> <li>• Face-to-Face meetings and events</li> <li>• Emails for organizing meetings</li> <li>• Online information with videos and links for additional information</li> <li>• Online donation forms</li> <li>• Meeting notices in community newspapers</li> <li>• Newsletters by email and physical mail</li> </ul>
<b>Connecting</b>	<ul style="list-style-type: none"> <li>• Purpose was to coordinate around the victim needs in terms of medical care, due process, and basic needs in terms of clothing, housing</li> <li>• Connection with organizations and individuals within organizations</li> </ul>	<ul style="list-style-type: none"> <li>• Purpose was to expand the informing and mobilizing capabilities of the organization around victim issues</li> <li>• Connection with broader community: individual members of the public and community-based organizations</li> </ul>
<b>Methods for Connecting</b>	<ul style="list-style-type: none"> <li>• Face-to-face meetings</li> <li>• Word-of-mouth recommendations</li> <li>• Case management database for tracking connections</li> </ul>	<ul style="list-style-type: none"> <li>• Donor databases for keeping track of contact information for donations and mailings</li> <li>• Facebook, Twitter, Email, Website</li> </ul>
<b>Mobilizing</b>	<ul style="list-style-type: none"> <li>• Focused on victim advocacy: U.S. Dept. of Justice funding and recognition of issue and victims via demonstrations in Washington, D.C.</li> </ul>	<ul style="list-style-type: none"> <li>• Focused on victim advocacy: U.S. Dept. of Justice funding and recognition of issue and victims via demonstrations in Washington, D.C.</li> <li>• Re-tweeting or posting information on Facebook</li> <li>• Attendance at meetings and events</li> </ul>
<b>Methods for Mobilizing</b>	<ul style="list-style-type: none"> <li>• Face-to-face meetings</li> <li>• Email, e-Newsletters, physical newsletters</li> </ul>	<ul style="list-style-type: none"> <li>• Face-to-face meetings and events</li> <li>• Use of individual social media accounts on Facebook, some Twitter, and Email</li> </ul>

For organizations focused on victim justice, the activities around informing tended to be much more specific to the victim's plight, rather than broadly informing members of the public about the human trafficking issue in general. Also the methods for informing that these organizations used seemed less varied than the methods used by organizations focused on victim prevention. What is significant about the difference in

the practice of informing is that those focused on victim justice seemed to need to convey substantial information (i.e., training law enforcement and health professionals). Whereas those focused on prevention focused on facts and information bytes that could be conveyed in a broadcast medium.

With regard to mobilizing, the organizations focused on victim justice tended to rely on conventional means for mobilizing (face-to-face meetings and emails). Whereas the organizations focused on prevention utilized their personal social media accounts. When I asked the organizations if they would be comfortable listing names of organizations they worked with, those organizations focused on victim justice responded with a strong negative whereas organizations focused on prevention were open to the idea depending on the purpose of the listing. When I inquired further about why organizations focused on victim justice were against the idea, they explained that confidentiality was critical in terms of not disclosing with whom they worked. Often perpetrators actively sought to retrieve their “product” and the location of safe houses and those transporting victims had to remain undisclosed. None of the organizations disclosed information additional details about how they connected with organizations they worked with beyond stating that the organizations were varied and included state and local organizations as well as law enforcement. In contrast, organizations working with victim prevention shared detail more openly, much of which is summarized in Table 2.

### **3.4 Discussion and Reflection**

The findings from Field Study I illuminated the challenges present for the organizations I interviewed in their attempts to engage with other organizations to coordinate in fighting against human trafficking. Despite the necessity of coordinated action within this ecosystem, brought about by specialization among agencies, the spanning of geographic boundaries, and other causes, a number of factors limit the efficacy of organizations working together. These factors are structural (hinging on

factors in the ecosystem itself, such as inherent competitiveness due to funding pressures), technological (such as asymmetry in ICT access), organizational (reliance on volunteer workforce), and individual (hinging on personal motivations and trust relationships among individuals).

The findings that emerged as part of the context point to particular nuances of the nonprofit context that should be considered in designing solutions to facilitate collaborations between organizations. The primacy of individuals over organizations indicates that a direct translation of an organization's contacts list of other organizations into something online may be insufficient for conveying adequate interorganizational awareness. A straightforward sharing of contact information loses aspects of the trust relationship that are essential among these grassroots organizations. Additionally, the high turnover in organizational population introduces a temporal element into the coordination dynamic, since the rapid decay in data "freshness" complicates interorganizational awareness. The dynamics of power asymmetry and "saving face" and having to fight a crisis under "normal conditions" indicate that simple lists posted in a publicly accessible way will likely be insufficient to convey the rich interorganizational awareness data that the participants must necessarily rely on to accomplish their mission.

Also, I believe that the anti-trafficking organizations viewed the work of expanding their basic awareness as more strategic, rather than directly related to their mission. This means that resources were not devoted to this critical initial step in engagement with other organization. They relied on face-to-face meetings and serendipitous encounters because their donors preferred to donate for activities that were directly mission-oriented rather than strategic.

In examining their ICT appropriation and use, I found that the anti-trafficking organizations that I studied tended to keep their online and offline activities separate with exception to fundraising and posting meeting notices for offline face-to-face meetings. Also at the time of the study, based on my analysis of the data from the interviews,

organizations were not co-producing online content as means for furthering their process of engagement with each other. However, it appeared that online, linking of content between sites were occurring, though to what extent the linking was the result of coordinated action, online or offline, between organizations remains unclear.

Regarding the information sharing practices of informing, connecting, and mobilizing, a noticeable difference emerged between organizations focused on victim justice versus organizations focused on victim prevention. Organizations focused on victim justice seemed to inform and mobilize in order to be able to connect for the purpose of coordination. However, while they were open with their details for informing and mobilizing, they were unwilling to disclose in more detail their connecting activities. In contrast, organizations focused on prevention seemed to connect for the purpose of expanding their informing and mobilizing activities; and because they did not work as closely or directly with actual victims, they were more willing to disclose their activities and who they were connected with more openly. However, for all of the participant organizations, I was unable to capture a substantial list of connections for meaningful analysis, because most of the organizations I interviewed were in the beginning stages of engaging with organizations beyond their immediate connections. Of the participants who were comfortable disclosing their connections shared the names of a handful of organizations they were connected with, but most were disparate and disconnected.

## CHAPTER 4

### FIELD STUDY II: BRIDGEORG AND COMMUNITYNET

“Do I need a coordinating group for...the present protest groups?”, and “Should such a [coordinating group] try to stimulate protests in other areas of the South?”. He made little secret that he thought the answer to each question should be yes. – Bayard Rustin, adviser to MLK, Jr. who promoted the use of Ghandian tactics for the civil rights movement (Garrow, 1988).

The findings from Field Study I provided insight into a range of challenges facing anti-trafficking organizations in terms of information sharing for connecting within a network context. It also identified several ways that organizations were attempting to cope with these challenges. One interesting approach that emerged was the formation of an organization that created an interorganizational network for the purpose of facilitating information sharing for connecting within the community. The emergence of this organization provided an opportunity to study in-depth the details of how a membership-based network of organizations undertook information sharing for connecting, and utilized ICTs in supporting their work. My goal in conducting Field Study II was to explore beyond the challenges identified in Field Study I, and delve in-depth into the practices and processes driving information sharing for connecting and how ICTs support these. I was able to do so by closely examining BridgeOrg and its information sharing and coordination activities.

#### 4.1 Study Design

Towards the end of 2008, BridgeOrg had just begun to operate in a large metropolitan area called Eastville; at this time, the organization had one part-time employee who functioned as its executive director. The executive director was tasked, with the aid of five faith-based organizations, to stimulate broader participation within the local community. The sole mission of BridgeOrg was to act as a coordinating group to mobilize a network of members of the public and other community-based



organizations to eradicate child sex trafficking. I refer to this network that was to emerge as CommunityNet. The focus of BridgeOrg's efforts was around victim prevention. Rather than functioning as either a primary care organization or an auxiliary care organization, BridgeOrg was designated to function as a hub organization in the community, i.e., a focal point in the community with ties to a significant number of organizations and members of the public. From 2008 – 2011, this organization grew to 80-plus organizational members and 2,000-plus individual members. Given the organization's geographic accessibility as well as openness towards adopting ICTs, I was able to utilize BridgeOrg as a research site for Field Study II.

#### **4.1.1 Field Site**

Before BridgeOrg formed as an organization, several different primary care organizations attempted to build a loose coalition or alliance of nonprofit organizations; these organizations ranged in size from small (1-2 staff) to large (12-15 staff). They recognized the critical need for broader community support for their efforts and sought to use these meetings to launch coordination for engaging others in the fight against child sex trafficking beyond direct victim support. They understood that a critical component of fighting child sex trafficking is their capacity to coordinate well with others since no one organization was able to provide or meet all the needs of the populations they serve. Although BridgeOrg was not launched directly from these meetings, these meetings ceased once it became known among the organizers and attendees that BridgeOrg was forming to become the hub organization to spearhead coordinating efforts among members of the public and auxiliary care organizations. In fact, two of the organizers and some of the attendees became members of BridgeOrg's CommunityNet. The organizations that chose not to become members were primary care organizations who were not focused on victim prevention, but on victim justice.

The primary goal of BridgeOrg as an organization was to create, build, and maintain a community network of organizations and individuals, where the organizations

were predominantly auxiliary care organizations. These auxiliary care organizations were victim-centric but focused on prevention, whereas primary care organizations that were also victim-centric, focused on victim justice. As discussed in Chapter 1, auxiliary care organizations provided both direct support (i.e., clothing and food for victims) and indirect support (mentor programs for at-risk children) to primary care organizations. Figure 1 below shows the placement of BridgeOrg situated in the broader ecosystem of organizations. As shown in the diagram, BridgeOrg did not recruit any process-centric organizations since these organizations did not engage in prevention efforts. At the time I began Field Study II in August 2009, BridgeOrg had about 20 organizational members in CommunityNet.



**Figure 1. Ecosystem in Eastville of the anti-trafficking organization participants of Field Study II**

#### **4.1.2 Data Collection**

In Field Study II, I utilized a combination of both nonparticipant and participant observation of BridgeOrg and members of CommunityNet and semi-structured interviews as follow-up to the observations. I specifically chose a qualitative empirical approach because it enabled me to gather in-depth insight into an understudied organizational context where the nuances of the role and use of ICTs could be captured more fully. My field data was supplemented by documents provided by meeting and interview participants, which included meeting minutes, newsletters, and questionnaires used by nonprofits to acquaint others with their organization. I also collected and

gathered Facebook posts, Tweets, and emails from BridgeOrg to CommunityNet members during this time as well. In Table 3 below, I summarize the data collected and methods used for collection. I chose to rely on exploratory qualitative methods of addressing RQ1 since previous research, though vast in related aspects of interorganizational interactions, leaves understudied the use of ICTs in informal interorganizational coordination. The understudied complexity of the interactions in this context made hypothesis-driven qualitative inquiry less suitable.

**Table 3. Summary of Data Collected for Field Study of BridgeOrg and CommunityNet**

	Data Collected	Time Period	Participants	Data Collection Method
Meeting Observations	Seven start-up meetings (total: 12 hours)	Sept 2008 – June 2009	Community organizations	Non-participant observation and meeting documentation
	Six monthly meetings led by BridgeOrg (total: 16 hours)	Nov 2009 – April 2011	Individuals, CommunityNet org members, BridgeOrg	Participant observation
	Nine BridgeOrg staff meetings (13.5 hours)	Sept 2009 – June 2010	Four BridgeOrg staff members	Participant observation
Interviews	Follow-up interviews – BridgeOrg (7 hours)	Jan 2010 – Feb 2010	Four BridgeOrg staff	Semi-structured interview
	Follow-up interviews – CommunityNet (23 hours)	Nov 2009 – Feb 2010	Twenty-one CommunityNet Organization members;	Semi-structured interview
Social Media	Facebook (~1077 posts)	Apr. 2010 – Feb 2012	Individuals and multiple faith-based org members	Manual scrape from BridgeOrg Facebook page
	Twitter (~766 tweets)	Jun 2009 – Feb 2012	Individuals and multiple faith-based org members	Manual scrape from BridgeOrg Twitter page
Other ICTs & Tools	Emails (~366 messages)	May 2010 – June 2010	BridgeOrg Staff & CommunityNet Organization members	BridgeOrg mailbox for email forwards from all BridgeOrg staff members
	BridgeOrg Website v.1	Nov 2009 – May 2010	CommunityNet Organizations and individuals registered	CSV data download from site
	GoogleDocs, Mailing Lists	Sept 2009 – June 2010	BridgeOrg documents	Shared documents from staff

#### 4.1.2.1 Data Collection - Meeting Observations

*Start-up Meetings:* I observed seven start-up meetings over a period of 10-months, where a variety of 30 or so community organizations began the process of working together. I arrived at this number using meeting attendance records and mailing lists maintained by one of the organizations. Only a subset of these 30+ organizations attended the seven meetings I observed; the actual number of organizations involved changed depending on factors such as the closure of a nonprofit organization due to

resource constraints or a change in the organization's mission based on directives from their national offices. The purpose and format of these seven meetings were discussion sessions regarding child advocacy and coordination with 6 to 15 organizations represented at each session. The attendees were representatives from different organizations ranging from nonprofit and governmental organizations within the local community situated in a large metropolitan area with a population of over 5 million. All organizations represented at these seven meetings were nonprofit organizations working to prevent or mitigate the sexual exploitation of children or working to assist victims of child sex trafficking.

The total recorded meeting time was 12 hours. Digital recordings were not taken to minimize the perceived or felt intrusion from my presence. However, attendees were made aware of my presence to avoid potential confusion regarding my identity and purpose for attending the meetings. I also asked follow-up questions for clarifications from individuals at the meetings where needed via email.

*Six Monthly Meetings Led by BridgeOrg:* I also observed six monthly meetings led by BridgeOrg. These were open meetings where members of CommunityNet network and the public were invited to participate together. At the time that I began studying BridgeOrg, at least eight members of CommunityNet had also previously participated in the seven start-up meetings described in the above. However, a majority of these organizations were actively recruited by BridgeOrg.

I recorded observations of these monthly meetings over an 18-month time period, in hopes of capturing informal interorganizational interactions throughout the growth process of CommunityNet. Since its inception in 2008, CommunityNet experienced rapid growth from five member organizations to over 80-plus organizations. Attendees of these monthly meetings were faith-based organizations as well as community-partner organizations that I categorized as auxiliary care organizations. The average attendance for each of these meetings was over 40 individuals representing twenty-plus

organizations. Each meeting lasted slightly over 2.5 hours. The total recorded observation time for these meetings was 16 hours. I observed these meetings as a participant, in that I was known at the meetings as a volunteer for BridgeOrg at this time. At the request of BridgeOrg, digital recordings of these meetings were not taken.

*Nine BridgeOrg Staff Meetings:* Finally, I observed nine BridgeOrg staff meetings, where staff members engaged in planning and discussion regarding their interactions with other organizations within CommunityNet. The staff members consisted of a part-time executive director, a part-time volunteer program coordinator, a full-time operations coordinator and a consultant for BridgeOrg. I recorded observations of these meetings over a 10-month period as a participant observer. My participation was restricted to the 5-10 hours/week volunteer work that I provided in exchange for access to BridgeOrg meetings and data. The total time recorded is 13.5 hours, with the duration of each meeting averaging 1.5 hours. Again at the request of BridgeOrg, digital recordings of these meetings were not taken.

#### 4.1.2.2 Data Collection - Follow-up Interviews

To supplement my meeting observation data, I conducted additional follow-up interviews with BridgeOrg staff members, both individually and as a group. I also conducted follow-up interviews with CommunityNet members (n=21) who met with me both individually and with other collaborators in their respective organizations. All the interviews were semi-structured and focused on understanding the organizations use of ICTs in information sharing for connection and coordination, the types of information shared, the challenges of using technology in their organization, and the particular tools they relied on for connecting or coordinating with other organizations.

#### 4.1.2.3 Data Collection - Social Media, BridgeOrg Website, Email, Other ICTs

To supplement the interview and meeting observation data, I also collected Facebook posts as well as tweet messages of BridgeOrg, to see what additional insights

could be gleaned in how BridgeOrg and CommunityNet members utilized social media in their coordination and information sharing efforts. I also gathered two months of emails from BridgeOrg staff communicating with CommunityNet members to look for additional insight to supplement the interview and meeting observation data. Finally, I also examined BridgeOrg's website, which was intended by BridgeOrg to facilitate connection and coordination within CommunityNet. Through the admin panel of BridgeOrg's website, I was able to periodically download information regarding the organizational members, the individual members, and also the volunteer opportunity information shared by the organizations.

#### **4.1.4 Data Analysis**

My data analysis for this field study was informed primarily by the work of Foot and Schneider (2006) in several ways. The first is their web campaign practice of connecting. I derive my concept of the practice of information sharing for connecting from their conceptualization of connecting: "The Web practice of connecting involves a campaign in the creation of an online structure that serves as a bridge between the user of the site and third actor" (p. xx). For the context that I studied, I describe the practice of information sharing for connecting as involving an organization (BridgeOrg) in the creation of an ICT-based structure that serves as a bridge to connect different organizational actors.

The second aspect of Foot and Schneider's work I employ is their differentiation between the web campaign practice of connecting versus mobilizing. In their work, the practice of connecting (bridging actors via a website to other actors) contrasts with their practice of mobilizing, which is the practice of persuading and technically enabling an interested person to become an actor. For example, a person may visit the BridgeOrg site to learn about anti-trafficking efforts. However, they become mobilized when they actually spend volunteer time with an organization. This distinction between connecting and mobilizing in Foot and Schneider's work (2006) contrasts with the work of Bennett

and Segerberg (2012), in which connecting is not differentiated from mobilizing. Instead, Bennett and Segerberg argue that connecting occurs as a result of “individualized and technologically organized set of processes that result in action without the requirement of collective identity framing or the levels of organizational resources required to respond effectively to opportunities” (Bennett and Segerberg, 2012). I chose to rely on Foot and Schneider’s (2006) conceptualization because the primary activity of BridgeOrg was to connect organizations with other organizations, but whether these organizations shifted into being actors or actively engaged with each other was left to the organizations themselves. In my work, as in Foot and Schneider’s work (2006), engaging in the practice of connecting does not imply engaging in the practice of mobilizing.

The third aspect of Foot and Schneider’s work (2006) that informed my analysis was their conceptualization of the techniques of convergence and co-production. Convergence is the technique of using online structures to support offline activity and vice versa. Co-production is the joint production of content using a range of approaches from syndication (writing content together), headlining (adding the headline and linking content), abstracting (summarizing another’s content), and full-text copying. These two techniques can be utilized to support virtually any practice, which points to a fourth aspect of Foot and Schneider’s work (2006) that informed my analysis. They distinguish between the notions of practice versus technique, arguing that techniques are neutral to the larger activity they are embedded in; thus they are portable and can be used to operationalize a range of practices. In contrast, a practice is “a set of activities” or pattern of doing within the organizational context that has a specific aim or goal (p. xx).

In my data analysis, I used the concepts of connecting and mobilizing derived from the web campaign practices identified by Foot and Schneider (2006). I also employ their differentiations between connecting and mobilizing, and practice versus technique, and the specific techniques of convergence and co-production to more clearly distinguish between the range and types of activities in which BridgeOrg and CommunityNet

engaged. After completing a round of open-coding on the data, I used these concepts and differentiations to further categorize and frame the findings from my analysis.

To summarize, the two techniques around ICT use identified by Foot and Schneider (2006) that I utilized are:

- **Offline/online convergence:** These are online mechanisms that would facilitate offline actions to occur, and vice versa where offline mechanisms also facilitate online actions. For example, encouraging those attending a face-to-face meeting to “Like” BridgeOrg’s Facebook Group page.
- **Co-producing online content:** These are mechanisms that facilitate multiple members of an interorganizational network to jointly produce online content that is disseminated throughout CommunityNet as well as to members of the general public.

And the three information sharing practices I derived from the web campaign practices defined by Foot and Schneider (2006) are:

- **Informing:** conveying facts or information to members of CommunityNet as well as to members of the general public
- **Connecting:** raising awareness or creating an interdependence between members of CommunityNet that is supported by processes of information sharing
- **Mobilizing:** moving members of CommunityNet to take action as directed by BridgeOrg

For the data analysis and interpretation of the field notes, I employed the same inductive approach (Bryman & Burgess, 1994) as in Field Study I. I coded within the individual field note documents as well as between them. However, the codes that I utilized to begin the iterative analysis were derived from the literature and Field Study I. The majority of the sub-themes and primary themes that led to the findings emerged from the coded data itself. Throughout the data collection process, I engaged in iterative coding, i.e., I transitioned from conducting interviews to data analysis when I began



detecting recurring patterns and themes arising from later interviews that had been identified in earlier ones. Although I was the sole-coder for my data, I relied on multiple data sources as well as presenting and reviewing my findings to BridgeOrg staff and select members of CommunityNet on an ongoing basis in order to maintain the validity of my findings. I also briefly reviewed and corroborated the findings with select organizational participants in the study who had significant years of experience in the work against human trafficking.

## **4.2 Findings – Formation of BridgeOrg and CommunityNet**

The anti-trafficking organizations I studied seemed to follow two trajectories among the anti-trafficking organizations I studied. The first is primary care organization engaging with each other for victim justice. The engagement here seemed to be with a number of different organizations that could help provide the victims' basic needs, medical care, and legal advocacy. The strategy of primary care organizations to address challenges of engaging with other organizations was to utilize a case management database, e.g. CASESYS (from Field Study I). While a system such as CASESYS helped track organizations that were currently engaged, the struggle remained locating other, not-yet-known organizations that could serve as reinforcement given the high turnover rate among nonprofit organizations.

In contrast, second trajectory of engagement was among auxiliary care organizations with a focus on victim prevention. The strategy of some auxiliary care organizations was to try to form a network with primary care organizations that were also searching for means to connect with other organizations. In the end, both groups of organizations adopted BridgeOrg as their strategy for engaging with other organizations in anti-trafficking work. The challenges identified in Field Study I lend plausibility to the motivation behind forming BridgeOrg. To begin with, none of the organizations were able or willing to put forth the resources for what is strategic rather than mission-oriented

activity of engaging with others, despite the fact that anti-trafficking organizations were having difficulty progressing in forming an effective interorganizational network to coordinate their efforts. However, if an organization such as BridgeOrg existed whose sole purpose was to facilitate engagement between organizations, then BridgeOrg could raise its own funds to provide a strategic service to the community auxiliary care organizations. The purpose of engaging others was to discover what McGrath (1991) calls “production demand and opportunity”. In the “Inception” stage, organizations explore demands and opportunities for producing together. To facilitate this, BridgeOrg effectively became a clearinghouse for information regarding demands and opportunities. BridgeOrg informed, connected, and mobilized as well as providing opportunities for members of CommunityNet to also inform, connect and mobilize.

#### **4.2.1 Informal Interactions, Categories of Information Sharing, and the Interorganizational Activity Stream**

Prior to BridgeOrg, the auxiliary care and primary organizations effectively organized their informing, connecting, and mobilizing around the activities of preventing victims, intervening on behalf of victims, staging victim rescues, and restoring victims to function well in society. In the start-up meetings I observed, considerable time was devoted to explaining who the organizations were, the activities they engaged in and what their organizational mission was in terms of fighting the sexual exploitation of children. The analysis of how they described their organizational mission as well as their discussions and interactions yielded three findings.

##### **4.2.1.1 Interorganizational Activity Stream**

The first finding is the interorganizational activity stream. The seven start-up meetings consisted of both auxiliary care and primary care organizations, and the descriptors they used to describe their work revolved around the the labels of: prevention, intervention, rescue, restoration, and reintegration. In coding the monthly meeting observations and interview data, I used these descriptors to segment members of

CommunityNet and their informing, connecting, and mobilizing. I refer to these descriptors as the activity stream.

The goal of prevention activities included raising awareness in the community using advertisements and other media, promoting self-esteem among vulnerable populations of children via the school systems, and traversing the streets for truants who may become potential victims of exploitations. The goal of intervention is to restore truants back to family members, or depending the situation, shelter truants from exploitative family members, screening children at shelters, schools and hospitals for possible victimization. The goals of rescue and restoration are to remove children from a situation of exploitation, following tips and leads from the community to locate where child exploitation is occurring, provision of basic, medical, and legal care, and education.

In Table 4, I provide specific examples from the data of information sharing practices that operationalized activities around prevention:

**Table 4. Example activities of anti-trafficking organizations in relation to their information sharing practices (based on observations of seven start-up meetings in Eastville including supplementary documentation)**

<b>Practices:</b>	<b>a. Informing</b>	<b>b. Connecting</b>	<b>c. Mobilizing</b>
<b>1. Prevention activities (auxiliary care orgs)</b>	<ul style="list-style-type: none"> <li>• providing access to documentary to raise awareness</li> <li>• posters to raise awareness around city</li> <li>• photo art show</li> <li>• Tweets of national statistics</li> <li>• photo essay book</li> <li>• billboard ads regarding child sex trafficking issue</li> <li>• interviews with news outlets to direct public focus on the issue</li> <li>• statistics of the child sex trafficking problem state-wide</li> <li>• promote hotline number</li> </ul>	<ul style="list-style-type: none"> <li>• fashion show connecting donors with organizations in need of funding</li> <li>• monthly coalition meeting to meet-and-greet</li> </ul>	<ul style="list-style-type: none"> <li>• identifying truant locations at public transit locations</li> <li>• temporary night time and weekend housing for truant</li> <li>• fundraising via online donations</li> <li>• 24/7 prayer effort</li> <li>• demonstrations at the State Capitol</li> <li>• mentoring at-risk children</li> </ul>
<b>2. Intervention activities (auxiliary care orgs)</b>	<ul style="list-style-type: none"> <li>• promote hotline number</li> <li>• training members of public to conduct surveillance for identifying victims and perpetrators</li> </ul>	<ul style="list-style-type: none"> <li>• monthly coalition meeting to meet-and-greet</li> </ul>	<ul style="list-style-type: none"> <li>• surveillance to identify potential victims and perpetrators</li> <li>• creating and delivering care packages for victims</li> </ul>
<b>3. Rescue activities (primary care orgs)</b>	<ul style="list-style-type: none"> <li>• training of law enforcement and healthcare professionals on how to identify victims and perpetrators</li> <li>• promote hotline number</li> <li>• emergency response “wallet card” organized by counties</li> <li>• raise awareness about funding needs via newsletters</li> </ul>	<ul style="list-style-type: none"> <li>• no rescue organizations were observed or interviewed</li> </ul>	<ul style="list-style-type: none"> <li>• victim rescue</li> <li>• surveillance to identify potential victims and perpetrators</li> <li>• advocate revision laws to support victims</li> <li>• raise funding for temporary shelters</li> <li>• work with state government to create investigative committee</li> <li>• establish safe-havens for at-risk children, e.g., fire stations</li> <li>• research scope of demand for sex with children</li> <li>• victim advocacy at state capitol through public demonstration</li> </ul>
<b>4. Restoration &amp; Reintegration activities (primary care orgs)</b>	<ul style="list-style-type: none"> <li>• inform organizations that a safe-house for victims was available through their facilities to raise awareness about funding needs via newsletters</li> </ul>	<ul style="list-style-type: none"> <li>• connect with prosecuting attorneys office and Governor’s office</li> <li>• monthly coalition meeting to meet-and-greet</li> </ul>	<ul style="list-style-type: none"> <li>• advocate revision laws to support victims</li> <li>• raise funding for long-term care</li> <li>• raise funding for additional long-term housing to shelter victims</li> <li>• victim advocacy at state capitol through public demonstration</li> </ul>

Although I observed and had follow-up conversations with two organizations involved in intervention and restoration, they declined to provide specific examples and details of their informing, connecting, and mobilizing practices due to concerns for victim safety. They felt comfortable sharing general information about the overall goals of intervention and restoration. I had no opportunity to observe or interview any organization involved in

rescue. However, I was able to obtain information about rescue activities, in particular the mobilization aspect based on what two organizations disclosed at the seven start-up meetings.

Table 4 is derived from observations of the start-up meetings and does not reflect the prevention activities of BridgeOrg and members of CommunityNet. Table 2 indicates that among the anti-trafficking organizations in Eastville, the auxiliary care organizations primarily engaged in prevention activities by informing, while primary care organizations engaged in rescue and restoration activities by mobilizing. However, both primary care and auxiliary care organizations were not able to devote time and resources into connecting with other organizations. This gap is partially what BridgeOrg was created to address, and the details of how BridgeOrg attempted to address it is discussed in the sections that follow.

#### 4.2.1.2 Characteristics of Informal Interactions

The second finding is that the informal interactions I observed were consistent with what has been described in the literature, i.e., non-hierarchical structure, ad-hoc coordination, lack of formally identified roles or processes (Chisholm, 1989; Rank, 2008). However there emerged from the data two other characteristics of informal interaction that complement this prior research.

The first characteristic is the use of a common goal to bring together a nonprofit network. Prior interorganizational research identifies both task and resource dependencies as a common basis for structured relationships between organizations (Galaskiewicz, 1985). These dependencies require the input or participation of other organizations to accomplish a certain task or acquired necessary resources. However, in the informal interactions I observed at all six meetings, the basis for coordinating was the goal of ending the commercialized sexual exploitation of children. Adopting economic terms of demand and supply, organizations described their overall goal in terms of reducing the

sexual demand for children and reducing the supply of victims through prevention and restoration efforts.

What I further observed in the meetings is that two sub-groups of organizations began to emerge with one group focused on addressing issues of demand and the other focused on addressing supply. These groups emerged when during discussions, organizations would self-identify as being focused on addressing either the demand or the supply side.

The second characteristic that emerged was actions by organizations to maintain the informal nature of the interactions. In a majority of the meetings, I observed that organizations were beginning to organize further by identifying sub-goals within the overarching goal of reducing the demand and supply of child sex trafficking. In the meetings, organizations would put forth suggestions for creating subcommittees for addressing the specific sub-goals that had been identified. However, throughout the discussion, the notions of obligation to fulfill a particular role, or authority to impose a particular reporting structure for accountability of actions remained fuzzy or unspecified.

For example, if an organization put forth a suggestion for collective action such as creating a database of organizations, volunteers were asked for to participate in moving the action forward. However, what seemed absent from my observations was any indication of follow-up mechanism by the other organizations to ensure that those who volunteered followed through on their obligations. Members who attended previous meetings and volunteered but then were absent at subsequent meetings were not noted. Suggestions for actions were only noted at the meetings where the suggestions occurred but were not mentioned at subsequent meetings.

#### 4.2.1.3 Categories of Information Sharing

The third finding is as these organizations attempted to engage with each other at these start-up meetings, they consistently exchanged three categories of information, which include:

1. **The exchange of interorganizational identity information:** The first category of information sharing identified is what I labeled interorganizational identity information. This label refers to the set of data conveying basic awareness information about the organization. This set includes 1) basic contact information, 2) goals, 3) opportunities, 4) motivations, 5) capabilities of the organization. This finding is consistent with and expands on the finding from the case study by Chisholm (1989) that specifically identified organizational 1) motivation, 2) opportunity and 3) capabilities as being essential information for facilitating informal coordination between organizations.
2. **Reporting on activities and community opportunities:** Much of what was shared at these meetings among the organizations were the activities that the organizations were engaged in such as mobilizing support in the State legislature, putting on a fashion show to raise awareness among members of the public, and creating a database of nonprofit organizations who could provide services to victims of child trafficking. Organizations also shared opportunities within the community to participate in upcoming events, legislative updates, and volunteer opportunities for specific needs. I also observed the sharing of best practices as well as tips for finding resources. For example, a representative from one organization while explaining their mission of preventing victimization through self-esteem programs also mentioned the need for a dozen prom dresses and received several tips for where such dresses might be procured locally. In another example, an organization cautioned the others about relying on statistics cited by other organizations when educating those in the community on the child sex trafficking problem. Apparently, a misquoted statistic based on a FBI report was repeatedly being cited throughout the community.
3. **Sharing of “best practices” and tips for resources:** We also observed the sharing of “best practices” (or processes identified by organizations as being

helpful) as well as tips for finding resources. For example, a representative from one organization, while explaining their mission of preventing victimization through self-esteem programs, also mentioned the need for a dozen prom dresses and received several tips for where such dresses might be procured locally. In another example, an organization cautioned the others about relying on statistics cited by other organizations when educating those in the community on the child sex trafficking problem. Apparently, a misquoted statistic based on a FBI report was repeatedly being cited throughout the community.

The discussions at the meetings did not significantly deviate from these categories. However, in the sixth and seventh start-up meetings, some of the organizations mentioned the need to begin creating an organizational structure and some accountability. I believe this indicated progress in the “Inception” stage because the organizations felt that further exploration of how to work together would be beneficial. Around this time BridgeOrg announced its mission of engaging the broader community in the anti-trafficking issue, including members of the public, faith-based organizations, and community-based organizations focused on preventing trafficking. These start-up meetings that had included both primary care organizations and auxiliary care organizations came to a halt. Furthermore, BridgeOrg formed a smaller, publicly announced coalition, which I call BWA to preserve anonymity, with two primary care organizations from these seven start-up meetings.

BWA determined that BridgeOrg would be partly responsible for galvanizing the broader community to support primary care organizations. Based on a follow-up conversation with the executive director of BridgeOrg concerning the formation of BWA, the two other members of the BWA coalition apparently had concluded that the work of working together would be accomplished more efficiently if BridgeOrg took the charge. These two members had been primary organizers of the start-up meetings and their sense was that there was need to engage the broader community to support primary care



organizations, particularly with mobilization. Also there was a need to continue expanding the prevention efforts. However, both of these coalition members did not have the capacity to address these needs.

Thus at this point in Field Study II, the anti-trafficking organizations of Eastville had progressed in the “Inception” stage only as far as forming a coalition (BWA) and determining that the opportunities and demand for “production” or working together on anti-trafficking needed to be organized so that those mobilizing and informing could be connected with organizations who had the capacity to resource those efforts in terms of time, monetary funds, and other tangible resources. BridgeOrg was tasked with organizing these efforts.

#### **4.2.2 Connecting in BridgeOrg and CommunityNet**

Although the coalition with BWA was critical, BridgeOrg’s mission of facilitating engagement between anti-trafficking organizations in Eastville was also based on input from the faith-based organizations that helped form it. These faith-based organizations had expressed a desire to move beyond informing for awareness to “getting involved” to really solve the child sex trafficking problem. BridgeOrg interpreted this to mean these faith-based organizations wanted to be connected with community-based organizations in order to volunteer time and energy where needed. The strategy that BridgeOrg employed to connect organizations with others was to first recruit faith-based organizations, such as churches, that had a base of individual members who wanted donate funds and volunteer their time. BridgeOrg also recruited community-based organizations for membership who were informing and mobilizing around prevention, although some organizations recruited were mobilizing around rescue and restoration. These organizations recruited by BridgeOrg formed the interorganizational network of CommunityNet.

Before presenting the findings from the data on BridgeOrg’s connecting practices, I summarize connectedness as interdependence between organizations that is supported by processes of information sharing. This definition is based on the work of Baldassari &

Diani(2007), Carroll et al.(2011), Ribes & Finholt(2010), which explored the formation of connectedness among organizations, while other studies (c.f. Gulati & Garguilo, 1999) examined properties of organizations creating such ties. This prior research has demonstrated two types of connectedness in civic networks: transactions and social bonds (Baldassari & Diani, 2007). Transactions are ties “involving exclusively the exchange of information and resources necessary to the pursuit of shared collective goals.” In contrast, social bonds are deeper connections, often tied to identity or strong interpersonal interactions. Social bonds create tight clusters of interconnected organizations in a network while transaction ties tend to bridge between these tight clusters.

Among the members CommunityNet that BridgeOrg had recruited, both types of connectedness were evident. I identified three distinct social processes in which connections between organizations were instantiated in CommunityNet:

- **Raising basic awareness** through gathering and disseminating information about contact details, organizational goals, capabilities, and opportunities (Stoll, et al., 2010).
- **Enabling connections**, through face-to-face meetings, updates, and encouragement to exchange basic awareness information in order to foster informal coordination (Baldassari & Diani, 2007; Shumate & Lipp, 2008). Through connection enabling processes, organizations may achieve a functional agreement to begin assessing the feasibility of working together towards a common goal.
- **Reinforcing connections**, through follow-up meetings, joint events, and other opportunities involving multiple organizations in the network (Baldassari & Diani, 2007; Gulati & Garguilo, 1999). These activities bring organizations together to engage in the actual work of coordinating to fight child sex trafficking jointly.

Basic awareness about other member organizations' activities and capabilities in anti-child sex trafficking efforts is a necessary pre-condition for more complex relationships among organizations, including collaboration, cooperation, coordination, implementation, and evolution (Hogue, 1993). However, as discussed in the Field Study I findings, anti-trafficking organizations such as those in Eastville were critically hindered in some of their efforts (e.g., legislative advocacy and petitioning where a high volume of participation is needed) due to a lack of awareness beyond their immediate social circle. That is, clusters of organizations were often in silos of awareness. Also lacking were persons with overlapping memberships in multiple circles who could act as bridges (Kavanaugh et al., 2003) between these silos.

As a first step towards building connections, BridgeOrg's process of building greater awareness among anti-trafficking organizations continued to hold monthly face-to-face meetings. After introductions were made at these face-to-face start-up meetings, organizations then determined whether further connection would be fruitful, often resulting in follow-up meetings to facilitate the process of enabling these connections and to begin the process of reinforcing them. During these meetings, organizational members would inquire about the status of current efforts as a whole. They often asked questions related "who was doing what" in terms of the overall flow of activities, and whether or how the actions of one organization could contribute to the overall efforts of the community. What they seemed to seek was a whole network perspective—that is, a perspective informing basic awareness at the network-wide level rather than simply details about singular entities. They were seeking a bird's eye view of the community, integrated with specific details about each member fighting child sex trafficking. Additionally, this bird's eye view needed to convey more than just membership but also commitment over time to specific aspects of the overall community effort e.g. prevention, advocacy, restoration, etc.

BridgeOrg received a number of requests to provide an excel spreadsheet of all the organizations in CommunityNet, which was indeed emailed to the requesters. There are four types of connections that BridgeOrg hoped to generate within CommunityNet. One type was coordination between organizations in CommunityNet, such as pursuing joint programs for at-risk children or having a joint awareness event to inform members of the public about the child sex trafficking issue. Another type was connecting primary care organizations with monetary and tangible donations from faith-based organizations. A third type was connecting volunteers from faith-based organizations to donate time to community-based auxiliary care and primary care organizations focused on prevention. A fourth type was to connection individuals and organizations with BridgeOrg itself to further BridgeOrg's mission of connecting within CommunityNet. Table 5 below summarizes the activities that BridgeOrg conducted that supported four types of connections formed within CommunityNet, generated by the three types of social processes for building connectedness. Of the four types of connections, BridgeOrg focused primarily on two types of connections: 1) connections for transferring resources from members that were faith-based organizations to members that were community organizations in need and, 2) connecting individual volunteers with CommunityNet organizations.

**Table 5. BridgeOrg’s Connection Activities for CommunityNet**

Social Connection Processes:	<b>a. Raising Basic Awareness</b> (information disseminations)	<b>b. Enabling Connections</b> (face-to-face meetings and events)	<b>c. Reinforcing Connections</b> (joint initiatives or programs)
<b>Coordination</b> Between CommunityNet Organizations	<ul style="list-style-type: none"> <li>• Providing Excel spreadsheet to CommunityNet members upon request</li> <li>• Monthly meet-and-greet for all CommunityNet members</li> </ul>	<ul style="list-style-type: none"> <li>• Facilitated one-on-one meetings between CommunityNet organizations as the needs arose</li> </ul>	No data
<b>Resource Transfer</b> Between CommunityNet Organizations	<ul style="list-style-type: none"> <li>• Responded to numerous email requests from organizations for opportunities for involvement and <i>providing</i> or <i>receiving</i> resources</li> </ul>	<ul style="list-style-type: none"> <li>• Monthly lunch-and-learn for faith-based organizations about opportunities to give resources</li> <li>• Adopt-a-Partner opportunity: faith-based organization could “adopt” a CommunityNet organization to help resource; facilitated by BridgeOrg</li> </ul>	No data
<b>Volunteers</b> Connecting with CommunityNet Organizations	<ul style="list-style-type: none"> <li>• Posting online listing of other volunteer opportunities with CommunityNet organizations</li> <li>• Responded to numerous emails from individuals requesting matches</li> </ul>	<ul style="list-style-type: none"> <li>• Monthly Serve &amp; Learn meeting for volunteers to “try” helping a CommunityNet organization</li> </ul>	No data
Coordination, Resources, and Volunteers for <b>BridgeOrg</b>	<ul style="list-style-type: none"> <li>• Letter writing campaign to solicit foundation grants and corporate sponsorship of BridgeOrg</li> <li>• Tweets, Facebook posts and photos of BridgeOrg events</li> </ul>	<ul style="list-style-type: none"> <li>• “Volunteer with BridgeOrg” day to learn about opportunities</li> </ul>	<ul style="list-style-type: none"> <li>• Formed the BWA Coalition with select members from start-up meetings. Worked together on annual mass demonstration at state capitol building and other advocacy initiatives.</li> </ul>

As a researcher, I was given access primarily to BridgeOrg’s connection activities for raising basic awareness. BridgeOrg allowed me to observe some of the connection enabling activities, but I was unable to collect any data on the meetings for reinforcing connections. BridgeOrg felt that technology was useful mostly for helping to raise basic awareness and that they did not desire any technology tools to facilitate their connection enabling and reinforcing activities. Their intuition was that technology would be disruptive to the activities, since all of them were face-to-face meetings to negotiate the extent to which they could work with each other to fight child sex trafficking.

The three social processes of connectedness represent three levels of determining engagement between organizations at the “Inception” stage, for the purpose of determining the demand and opportunity for working “producing” together. BridgeOrg expressed their need to automate the process of raising basic awareness as possible.

Given the time involved in the activities for enabling and reinforcing connections, BridgeOrg sought to reduce their workload by using technology to raise basic awareness. Having seen online content “go viral” and incite mass participation through voting on online polls, comments, donations, video views or site visits, BridgeOrg hoped to raise basic awareness en masse in a similar fashion. Much of the work to raise basic awareness within CommunityNet was being conducted manually, and they sought technology-driven approaches for reducing their workload.

#### **4.2.3 BridgeOrg’s Mobilizing and Informing**

Closely tied to BridgeOrg’s connecting practice was their mobilizing and informing, the purpose of which was to encourage more connections. I use the term “mobilize” in the sense of Oliver and Marwell (1992) to refer to efforts by BridgeOrg to organize individuals and organizations to take action as directed by BridgeOrg, whether it was volunteering, donating, demonstrating, or otherwise. Table 6 lists specific examples of their activities. The mobilization efforts of BridgeOrg comprised of driving attendance to meetings for facilitating connection, driving online traffic to BridgeOrg’s site so that volunteers could sign-up for opportunities with CommunityNet organizations, and organizing an annual demonstration at the state capitol. BridgeOrg’s primary strategy was to mobilize by working with contacts they had in CommunityNet faith-based organization members. All initiatives for mobilization were sent to faith-based organizations via email and phone calls. In an open advocacy letter that BridgeOrg wrote in 2010 to state legislative representatives, they claimed to represent the support over 60,000 individuals, which was the estimated sum of all the individual members of faith-based organizations in CommunityNet. Despite this, only an estimated 2,000 individuals actually signed up with BridgeOrg to be a part of CommunityNet.

**Table 6. BridgeOrg's Mobilizing Activities**

	Examples
Mobilize for meeting/event attendance	Emails reminders to CommunityNet members; posting of event on BridgeOrg's online calendar
Mobilize for online traffic	Word-of-mouth reminders at meetings, events, and news interviews regarding BridgeOrg's website; Emails pointing to links on site
Mobilize for volunteer opportunities	Online postings of volunteer opportunities; paper-based partial listings of volunteer opportunities at monthly meetings

BridgeOrg's practice of informing was primarily to support connecting and mobilizing.

There was some informing that BridgeOrg did to raise awareness about the issue of child sex trafficking. Table 7 provides examples of what BridgeOrg undertook to inform CommunityNet:

**Table 7. BridgeOrg's Informing Activities**

	Examples
Informing for Connecting & Mobilizing	<ul style="list-style-type: none"> <li>• See Table 3 and Table 4</li> <li>• Emailed newsletters to update CommunityNet members about BridgeOrg</li> <li>• Monthly meetings for face-to-face updates</li> </ul>
Informing about child sex trafficking issue	<ul style="list-style-type: none"> <li>• Held one event to show film documentary about the issue.</li> </ul>

According to BridgeOrg's director, the primary goal behind their informing activities was to "raise awareness to promote meaningful action." Meaningful action for BridgeOrg was to facilitate connections within CommunityNet so that individuals and organizations could do the actual meaningful acts of volunteering time, making donations, etc. A number of other organizations in Eastville pursued the mission of informing the community about the child sex trafficking issue. Hence BridgeOrg chose to focus on the practice of informing for the purpose of connecting and mobilizing.

#### **4.2.4 Summary of BridgeOrg's Connecting, Mobilizing, and Informing**

Thus far from Field Studies I & II, I found that the ecosystem in which BridgeOrg operated was composed of anti-trafficking organizations focused on the goals of victim

prevention as well as victim justice. Although organizations from each focus coordinated with others to varying degrees, the broader coordination as a larger network of organizations was only beginning to emerge. Efforts to connect with other organizations in order to unite and mobilize as a larger voice was considered by these organizations to be more strategic rather than mission-oriented, and thus most organizations felt unable to devote resources to such efforts. However, seeing the need for coming together, some anti-trafficking organizations in Eastville began gathering as a loose coalition in order to explore how they might coordinate together in the overall fight against trafficking, in particular child sex trafficking.

In this exploratory phase, the interactions were informal and purposely so given the emergent nature of this loose coalition. During this time of exploring how they might coordinate together, I identified specific categories of information sharing that facilitated such informal, exploratory interactions between the organizations. I also identified a generalized stream of activity that the organizations in this loose coalition in Eastville seemed to follow, which included: prevention, intervention, rescue, and restoration activities.

However, this loose coalition disbanded once it was established that a separate organization (BridgeOrg) would be set-up and dedicated to raise awareness about child sex trafficking in particular and to unify efforts in order to mobilize as a larger voice; it was tasked with connecting auxiliary care organizations and members of the public and to duplicate these efforts elsewhere throughout the United States. BridgeOrg also formed a formal, explicit coalition called BWA with two other organizations that had been involved in the loose coalition. The purpose of BWA was to specifically mobilize the annual demonstration at the state capitol to advocate on behalf of child sex trafficking victims.

BridgeOrg sought to develop four different types of connections within the broader anti-trafficking community in Eastville: 1) coordination between CommunityNet



organizations, 2) resource sharing between CommunityNet organizations, 3) coordination between volunteers and CommunityNet organizations, and 4) connections with volunteers, organizations, and resources for BridgeOrg. A pattern of three social processes emerged from BridgeOrg's connection efforts. These are 1) raising basic awareness, 2) enabling connections, and 3) reinforcing connections.

#### **4.3 Findings – ICT Appropriation and Use in BridgeOrg**

The members of CommunityNet through BridgeOrg relied upon a rich and diverse set of shared information that was used to coordinate the members in collective action. Partner organizations shared updates with each other about planned events (such as upcoming community hearings and fundraising opportunities), information about qualified potential volunteers that might be matched with specific opportunities, messaging and collateral materials regarding various initiatives, opportunities to engage with local governmental programs, shared mailing lists, and so on. This diverse set of information originated within the various member organizations, but was disseminated and updated by others organizations as it percolated through the network. The varied forms of information shared by this network match those detailed in by Stoll et al. (2010) regarding the particular categories of information sharing, which include basic contact information, updates regarding organizational resources, capabilities and opportunities.

BridgeOrg relied on a variety of what might be called “modest technologies” for their information sharing needs, despite the scale of the network. This diverse (and changing) set of technologies included social media tools such as Twitter, Evite, a Facebook Group page, and a Facebook Fan page; a custom website built using the CakePHP framework; a variety of synchronous and asynchronous communications tools including Skype and Gmail; a third-party email list management application; and a variety of data repositories including Google Docs, a MySQL database, and raw Excel spreadsheets.

In effect, this assortment of tools was treated by BridgeOrg as a unified “system of systems,” with member organizations relying on specific configurations of technologies to share specific forms of information, with specific other parties. What is significant is not that this network used a particular tool such as Twitter or Evite, but rather that these tools were being used in concert with other consumer off-the shelf tools to accomplish the work of the interorganizational network. Such tool use may be representative of other networks (especially in the non-profit case), for which specialized bespoke information systems do not exist, or which may lack the resources or technical sophistication to deploy, customize, and manage enterprise-oriented systems such as CRM or Exchange.

Prior research has shown that, especially among start-up or small nonprofit organizations, the use of particular types of software—freeware, hosted “cloud-based” services, and so forth—is used because 1) it does not bring with it the heavy costs or administrative burdens of, say, enterprise-style software such as exchange or CRM systems, and 2) it may be familiar to a broader base of users without specialized technical skills (Hackler and Saxton, 2007; Merkel et al., 2007). I hoped that understanding the use of such heterogeneous, cobbled together technologies would shed light on how such tools (which are more accessible to a low-budget network of organizations) can be modified to support information sharing in this context.

At the time of Field Study II, BridgeOrg had adopted this set of heterogeneous technologies over the course of less than one year. This technological configuration effectively began with the development of a website “bridge.org,” created by BridgeOrg in order to support CommunityNet, and encourage engagement with the broader community. To produce this website, BridgeOrg employed a third-party vendor to design and implement the site; this vendor advised BridgeOrg to utilize GMail for communication, since the bridge.org domain would rely upon it. Thus, at its inception,

this website brought with it the use of Gmail as a means for coordination among the organizations comprising the network.

A slow accretion of technologies thus followed, each of which followed a similar pattern. Generally, an individual at a CommunityNet meeting would have familiarity with a particular technology and would recommend its adoption for sharing a particular type of information. For example, at one CommunityNet meeting, a need emerged for sharing a list of potential partner organizations in such a way that multiple organizations could add to it or update it; an individual who had used Google Docs successfully in the past suggested its use by the entire alliance, even though most individuals present at the meeting were unfamiliar with it. After a brief explanation, a consensus emerged that Google Docs would be the way to go, and thus it was adopted by the entire network.

All other pieces of technology—with the exception of Gmail and the website, which had originated with BridgeOrg—were adopted in a similar fashion, and incorporated into the emerging assortment of tools. Over a period of about a year, this collection of technologies accreted and gradually stabilized. For the network, the appeal of these technologies was in their ease of access to all members, as well as the presence of an individual driver of the technology within the alliance who could be looked to as the keeper of the technology. That is, when an individual recommended using a tool, they were tacitly held responsible for setting up the tool to be used by others, and then spreading the word to the rest of the alliance members regarding how and where to access it. If the organization or individual keeper of the tool became unavailable for a period of time, the tool would fall into disuse until a new keeper was established. In the case of Twitter, for example, the individual designated as the keeper became engaged and was temporarily unavailable due to nuptial-related celebrations. For a few months, Twitter usage by BridgeOrg remained inactive until a new voluntary keeper was designated.

For BridgeOrg, the selection of specific tools was driven based on membership, i.e., the tool used depended whether the sharing was internal to BridgeOrg and

CommunityNet members, or if the information was to be shared externally with those outside the alliance. For internal information sharing within the alliance, BridgeOrg relied primarily on personal communication tools such as GMail and Skype, and various shared data repositories including Google Docs and Excel spreadsheets transmitted via email. For communication that included those outside of CommunityNet, BridgeOrg utilized social media tools including Facebook and Twitter, as well as its website.

In contrast, the selection of technology tools used by the member organizations of CommunityNet was driven primarily by whether the information was to be shared with a single person or organization, versus multiple individuals or organizations. In communicating with single persons or organizations, members of CommunityNet would primarily rely on email and shared documents, much as with BridgeOrg's communications with the network. However, when sharing information with multiple entities, members of CommunityNet relied upon the full range of tools accepted by the network as pieces of the assortment.

The selection of tool usage by BridgeOrg based on membership in CommunityNet highlights its role as a bridging organization. The practices of informing, connecting, and mobilizing by BridgeOrg served to reinforce the notion of the membership to both BridgeOrg staff as well as members of CommunityNet; that is, the use of specific channels to inform, connect, and mobilize reinforced whether a person or organization was "in" or "out" of the CommunityNet membership. Because the individuals comprising BridgeOrg staff were affiliated with people of influence in the community, a sense of prestige became associated with CommunityNet, i.e., membership to CommunityNet thus came with certain benefits (access to shared information as well as prestige). For organizations to be able to say they belonged to the network was a shorthand method of expressing to others that they were part of a larger cooperative community effort. One consequence of this is that the cohesion of CommunityNet depended upon the informing, connecting, and mobilizing choices made by BridgeOrg.

This means that BridgeOrg also played a critical role in determining which technologies remained part of the system. Although the presence of a volunteer keeper of particular tool was necessary, the choice by BridgeOrg to continue utilizing a particular technology was also important. The implication is that tools may need to accommodate needs of a specific type of organization—the bridging organization.

#### **4.3.1 ICTs and Information Sharing for Connecting in BridgeOrg**

In this section, I first present findings on the use of ICTs to support BridgeOrg’s connecting activities through the techniques of offline/online convergence and the co-production of online content. I then discuss the labeling system that BridgeOrg used to manage the faith-based and community-based organizational members of CommunityNet. This labeling system points to an attempt by BridgeOrg to make sense of CommunityNet as a whole network in order to address the question of “who is doing what?” so that connections within CommunityNet could be more easily facilitated. Finally, I provide details on the challenges that BridgeOrg faced when attempting to utilize Facebook to foster communication and connection within CommunityNet.

##### **4.3.1.1 Convergence and Co-production**

According to Foot & Schneider (2006), convergence is a technique where online information is used to generate offline activity or vice versa. What is converging are the two realities of the online world and the offline. BridgeOrg made use of convergence to support their connecting activities. An example of such convergence is when meeting notices are announced online and by email, but the actual meeting occurs face-to-face offline. Another example is when materials such as coasters with pointers to register online are distributed at an event, and the recipients participate in registering as volunteers. Table 8 provides a summary of the activities listed in Table 5 (page 75) according to the type of connection they were intended to generate or support:

**Table 8. Use of Convergence to support BridgeOrg Connection**

	<b>Social Bonds</b> (based on social relationship, usually tied around identity; created for more in-depth coordination/collaboration)	<b>Transactions Bonds</b> (exchange of information and resources such as time, funding, in kind goods for common goal)
<b>Offline → Online Convergence</b>	<p>1. <i>Offline</i>: Meet-and-greet meetings → <i>Online</i>: email to coordinate follow-up meeting to discuss further engagement (social process supported: Enabling Connection between orgs)</p> <p>2. <i>Offline</i>: Face-to-face BWA Coalition meetings resulted in organizing annual mass demonstration → <i>Online</i>: registration and instructions posted online, coordination to bus in registered participants for the demonstrations (social process supported: Reinforcing Connection for BridgeOrg)</p> <p>3. <i>Offline</i>: Announcement of lunch-and-learn and Serve &amp; Learn meetings at monthly meetings → <i>Online</i>: Registration for event on BridgeOrg website (social process supported: Enabling Connections between orgs)</p> <p>4. <i>Offline</i>: Announcement of “Volunteer with BridgeOrg” Day at monthly meetings → <i>Online</i>: Registration for event on BridgeOrg website (social process supported: Enabling Connections between orgs)</p> <p>5. <i>Offline</i>: Announcement of “Adopt-a-Partner” opportunity at monthly meetings → <i>Online</i>: Registration for opportunity via email (social process supported: Enabling Connections between orgs)</p>	<p>1. <i>Offline</i>: Collected names after face-to-face meetings with community-based organizations to be included in Excel spreadsheet with contact information. → <i>Online</i>: Excel spreadsheet was distributed via email upon request. (social process supported: Raising Basic Awareness between orgs)</p>
<b>Online → Offline Convergence</b>	<p>1. <i>Online</i>: Posting lunch-and-learn and Serve &amp; Learn meeting notices + registration → <i>Offline</i>: meetings open to the public to convey information about opportunities for coordinating (social process supported: Enabling Connections between orgs)</p> <p>2. <i>Online</i>: “Volunteer with BridgeOrg” Day online notice + registration → <i>Offline</i>: face-to-face meeting about opportunities for volunteering with BridgeOrg (social process supported: Enabling Connections with volunteers)</p> <p>3. <i>Online</i>: “Adopt-a-Partner” opportunity posted on BridgeOrg website + flyer to promote at faith-based organization → <i>Offline</i>: faith-based organization to promote opportunity internally within organization using flyer (social process supported: Enabling Connections between orgs)</p> <p>4. <i>Online</i>: Posting of BridgeOrg events + registration form → <i>Offline</i>: Attendance at events → <i>Online</i>: Posting Tweets during the event and pictures after the event (social process supported: possibly Reinforcing Connections by strengthening weak social ties)</p>	<p>1. <i>Online</i>: Email requests to BridgeOrg for providing or receiving resources for organizations e.g. furniture, funds, clothing, etc. → <i>Offline</i>: Delivery of resources to the receiving organization (social process supported: Raising Basic Awareness)</p> <p>2. <i>Online</i>: Posting volunteer opportunities with CommunityNet organizations; Volunteer signs-up online → <i>Offline</i>: Automatically matched volunteer contacted by organization and donates time and physical effort to organization (social process supported: Raising Basic Awareness between orgs)</p> <p>3. <i>Online</i>: Email requests from individuals seeking to be matched with CommunityNet organizations → <i>Offline</i>: Matched volunteer donates time and physical effort to organization (social process supported: Raising Basic Awareness between orgs)</p> <p>4. <i>Online</i>: Posting of BridgeOrg events + registration form → <i>Offline</i>: Attendance at events</p>

Table 6 shows that BridgeOrg did not utilize offline to online convergence to generate transactional bonds beyond gathering a contact list of CommunityNet organizations. Instead, it primarily relied on online to offline convergence to help raise basic awareness. In contrast, BridgeOrg utilized convergence in both directions (offline → online and online → offline) convergence to support the social processes of enabling

connections and reinforcing connections between organizations in particular. This contrast shows BridgeOrg's emphasis on connecting organizations with other organizations in CommunityNet. The contrast also shows that for BridgeOrg raising basic awareness is largely a transactional process, which they sought to automate as much as possible. An insight that emerged from my analysis of the interview data of BridgeOrg staff is that they felt compelled to use the offline→online convergence technique to encourage interorganizational connection because their online→offline attempts did not automatically result in the levels of participation they were seeking. Rather than seeking a technological solution to generate more traffic, BridgeOrg opted to use face-to-face, word-of-mouth offline techniques to encourage more registration at BridgeOrg events. In the interviews, that staff also indicated they would have to do "something more" about connecting volunteers with CommunityNet organizations because they were not generating a sufficient number of individuals signing up to be volunteers, nor were individuals being matched with organizations. Their intuition is that BridgeOrg.org was working in theory but in practice, the sign-up numbers and the feedback they were receiving from organizations indicated otherwise. However, BridgeOrg staff was overwhelmed by the work of connecting and they felt they could not do more at this time. This partly explains why there were less offline → online efforts in raising basic awareness.

Foot & Schneider (2006) also identified the technique of co-producing online content to support social processes. Co-production is generating content through means of syndication (writing content together), headlining (adding the headline and linking content), abstracting (summarizing another's content), and full-text copying. At the time of this study, BridgeOrg utilized used all four content co-production means to generate the online postings for the volunteer opportunities with CommunityNet organizational members. The opportunities posted varied depending on how much time BridgeOrg staff had, the content contributions of CommunityNet members, and the complexity of the

volunteer opportunity. Sometimes links were provided directly to CommunityNet members; at other times, an email address and/or phone number was provided.

This analysis of the data in terms of convergence and co-production shows that BridgeOrg was attempting to utilize ICTs to facilitate their connecting activities. However, their extensive offline efforts or feelings of being compelling “to do more” rather than relying on ICTs indicated that their use of technology was not yielding the results they expected.

#### 4.3.1.2 Interorganizational Identity or “Who is Doing What?”

A notion that emerged from the data analysis of was interorganizational identity. I use the term interorganizational identity to refer to the identity of an organization as it relates to other entities within the same network. I derived this term based on the observation that BridgeOrg used several labels to differentiate the identities of its members within CommunityNet. These labels were used by BridgeOrg to help manage CommunityNet member information to support their connecting activities.

Each organizational member of CommunityNet were labeled using three sets of categories. The first set of labels indicated the type of member organization it was, which could be either service (helping children directly) or support (helping organizations that help children). The second set of labels indicated the type of goals (such as awareness or advocacy) pursued by the organization. A third set of labels indicated the type of capability (such as mentoring or training) held by the organization. BridgeOrg created this taxonomy of labels in order to classify each member organization within CommunityNet, and each member organization was tagged by BridgeOrg with at least one label from each set.

Member organizations then adopted the labels given to them by BridgeOrg, but utilized them only in reference to coordination activities within the network. Member organizations did not use these labels to communicate their identity outside the context of the network. Hence, I refer to the labels as their interorganizational identity (not as their



organizational identities) because the labels were only utilized in the context of coordination within CommunityNet. This information was stored on an Excel spreadsheet accessible to BridgeOrg staff and emailed to any CommunityNet member that requested the spreadsheet.

BridgeOrg primarily used these labels to help set up in-person meetings and facilitated introductions between member organizations that shared common labels. BridgeOrg also setup separate mailing lists that segmented member organizations according groups the shared common labels in order to send messages relevant to the different groups. Although these labels were created and initially assigned to members by BridgeOrg, these members had the option to change the labels tagged to their organization. With these label changes, organizations in CommunityNet were able to reflect shifts in alignment to different groups in the network.

#### 4.3.1.3 Facebook for Interorganizational Communication

To foster general communication for connection between CommunityNet members beyond these group segments, BridgeOrg set-up a Facebook Group page to use like a community bulletin board, where any member could post. Over the course of a few months or so, this Facebook page was overrun by messages from a specific group of CommunityNet members. In other words, an online space that BridgeOrg had intended for use by the entire network had been co-opted by a particular group within CommunityNet. In order to resolve this problem, CommunityNet had setup another Facebook Group page for this particular group. However, after a few more months of use, this particular group indicated to BridgeOrg staff that they felt isolated or disconnected from the larger CommunityNet because they were no longer as visible to overall network. By the frequent messaging, the active presence of this group had been conveyed to CommunityNet, but by being moved to a separate Facebook page, their presence was only visible by a link, which could be easily overlooked. As a result of being less visible, this group felt they would be hindered in encouraging other members to join their group.

The technology challenge that occurred here in terms of connectedness was one of boundary reinforcement at the cost of visibility. To prevent this group within CommunityNet from overtaking the online messaging space intended for the entire network, BridgeOrg reinforced the boundary between the group and the rest of the network by setting up a new Facebook Group for this particular group. However in doing so, BridgeOrg had few options for retaining the visibility of this group to the rest of the network. I believe the opportunity for design here is providing a means to retain boundaries of groups in shared online spaces so that online “squatting” is mitigated, but doing so without obscuring the visibility of such groups within the network.

In summary, with regard to BridgeOrg’s ICT use to support their practice of information sharing for connecting, they attempted to provide a whole network perspective using an Excel spreadsheet. They used a set of labels to partition all the organizational members of CommunityNet in order to facilitate face-to-face introductions between organizations. They also attempted to use a Facebook group page in order foster communication between organizations. However, the openness of Facebook as an interorganizational communication channel left this channel vulnerable to confusion in communication boundaries between organizations.

#### **4.3.2 ICTs and BridgeOrg’s Information Sharing Practice of Mobilizing**

The posting of volunteer opportunities served the ultimate purpose of mobilizing the broader public in the fight against child sex trafficking. To facilitate this mobilization, BridgeOrg used their website “bridgeorg.org”, which had a place for listing volunteer opportunities in CommunityNet and a webform that individuals could complete to indicate interest in being a volunteer; this webform allowed them to enter information about their schedule, skills, age, gender and geographic location. Volunteers available at certain times with interest in specific areas were matched with organizations that had opportunities in the same specific areas and times. The system made the match automatically and sent notices to the matched volunteers and organizations. The

expectation by BridgeOrg staff was that the matched parties would initiate contact with the other and complete the “transaction” where the volunteer participated in the opportunity provided by the organization.

However, although the matching tool could reliably deliver the data about the match to both the relevant parties, BridgeOrg observed a lack of follow-up from both the volunteers and the organization. Despite repeated attempts by BridgeOrg to encourage matched volunteers and organizations to contact each other, and despite assurances received from both parties that such contact would be made, contact between the volunteers and the organizations was seldom if ever made.

Over a period of five months, less than ten “matches” had been carried through where contact was made and opportunities were fulfilled. To combat the low volunteer connections resulting from the automated tool, BridgeOrg arranged to have informal face-to-face meetings between potential volunteers and organizations. The results of the meetings, which recurred monthly during the study, were that more individuals actually began to participate in the service opportunities that were available. Between 20-30 matches were carried through to completion.

Based on the assessment by BridgeOrg staff, the matching system had not been designed to accommodate certain nuances that were more naturally accommodated by the face-to-face meetings. According to the BridgeOrg staff, when the face-to-face meetings occurred between the matched individual and the organization, both parties gauged the other for a sense of “fit” based on maturity, excitement, commitment and whether or not the opportunity just “felt right.” Although the matching tool was able to perform matches based on the objective characteristics recorded in the web form (age, gender, skill, availability, and so on) other, less tangible, more nuanced features were not addressed. The BridgeOrg staff explained to us that whereas the automated matching model was akin to an “arranged marriage,” what was needed was more of an online dating site where both parties could “get a feel” for the other before taking additional steps to “move

forward” in an explicit relationship. In other words, there was a mismatch between the model of matching that was encoded into the bridge.org system and the actual matching interaction, in which members of CommunityNet were encouraged to engage in by BridgeOrg.

The technology challenge I observed here points to what I refer to as a socio-technical mismatch, which occurred in several ways. First, the automated matching tool did not support the nuances of the social interactions that needed to occur to result in a successful match. Online dating sites could perhaps provide pointers for some of the features needed by BridgeOrg to encourage matching. However, features and functions aside, the more significant mismatch may have been in BridgeOrg’s attempt to foist an entirely technical solution onto a task that ultimately requires human interaction. Even if more features had been included in the automated matching tool to enable individuals and organizations to get a better sense of each other, what was needed in the end, as indicated by BridgeOrg staff, was likely a face-to-face meeting.

#### 4.3.2.1 Convergence and Co-production for Mobilizing Faith-based Organizations

BridgeOrg made it a priority to recruit as many faith-based organizations (FBOs) as possible in order to galvanize resources to help fight child sex trafficking. Individuals belonging to different FBOs that were members of CommunityNet were assisting BridgeOrg with recruitment decided to create a guide explaining BridgeOrg and the benefits of being a member. These individuals were called the mobilization team. GoogleDocs was used to collaborate on creating this mobilization guide as they called it. BridgeOrg was involved in the collaboration effort. This collaboration was effectively syndicated co-production, where both BridgeOrg and the mobilization team contributed to produce the mobilization guide.

What is interesting about this guide is the difference in expectations for how it would be used. BridgeOrg, seeking to automate connection as much as possible and wanting to minimize costs, sought to make the guide available online and to limit the

print copies that were available. However, the mobilization team preferred to rely on the guides as a tangible information resource to leave with potential recruits. Their selection of glossy, heavy-weighted paper for the printed guides reflects how they intended to use the guide. Although they did not object to the guide being made available online, these individuals felt the physical guidebook provided an important means for conveying the weightiness of the value of membership in CommunityNet. They also indicated the guidebook facilitated the discussion during the recruitment process. According to them, turning pages was easier than setting up a laptop to download the pdf for viewing or printing out a black and white copy of questionable quality. Additionally, the team asked BridgeOrg to provide copies of these guides to whoever requested them or wanted to distribute them on BridgeOrg's behalf to members of their FBO.

The mobilization guide illustrates a divergence in the use of convergence. BridgeOrg used GoogleDocs (online) to collaborate with others to produce mobilization guide (offline), but sought to keep the document as primarily a resource on the website (online). The mobilization team when finished with the online collaboration sought to retain it primarily as a physical document to facilitate offline interactions. However, BridgeOrg was concerned about the cost and privately criticized those who requested multiple copies for distribution for being too indiscriminate in sharing the costly mobilization guide.

At the end of this field study, the costs of producing the document overwhelmed BridgeOrg's ability to continue printing it at the rate it was being demanded by the mobilization team and others. Soon after, the entire mobilization team disbanded over disagreements with BridgeOrg staff about the overall mission of BridgeOrg and aspects of the recruitment process. One of the mobilization team members was also a member of the board of directors for BridgeOrg and threatened to leave the organization. At the time, BridgeOrg and members of the mobilization team declined to provide further details.

After the team disbanded, the printing of the mobilization guide was drastically reduced and eventually became available only online.

#### **4.3.3 ICTs and BridgeOrg's Practice of Informing**

During the course of Field Study II, CommunityNet had grown from around 30 organizations to roughly 50 organizations. Foreseeably, as the network grew, the information artifacts generated by CommunityNet members as well as the sharing of them also increased. The information available was primarily to support connection within CommunityNet. Thus BridgeOrg acted as a mediator for making information available to the members, i.e., they played an explicit role in determining and exercising the policies for authenticating and authorizing access to the shared information of the network.

BridgeOrg's role in controlling information access had dual aspects. The first was in maintaining the information sharing policy among those who were members of CommunityNet. This policy applied only to organizations and individuals who had been vetted for membership by BridgeOrg. According to the policy, any individual associated with organizations vetted by BridgeOrg could receive access to any shared CommunityNet data upon request to BridgeOrg. In other words, the access control policy operating within the network was effectively "If you are a vetted member of CommunityNet, ask, and you shall receive." Comments from participants during the meeting observations indicate that the primary rationale for this policy was to encourage coordination and information sharing by providing liberal access to shared data. According to (Fulk et al., 2004), this is a known incentive for encouraging contributions of information from collective entities for the benefit of others.

What I find interesting here is that the goal of their controlling information access differed from the more typical articulation of goals from the information security literature, such as ensuring data confidentiality or integrity. On one hand, this liberal access control policy can be interpreted as a breakdown. As described by Lee et al.

(2006), establishing data sharing policy in a multi-organizational context can be a complicated affair given conflicts in priority and differences in interpreting data guidelines. The “ask, and you shall receive” policy of BridgeOrg could seem to be indicative of organizational negligence in setting up appropriate access control policies that should be in place.

On the other hand, BridgeOrg’s liberal access policy may be indicative of other priorities, particularly since the content of the CommunityNet data shared did not necessitate confidentiality; i.e., no personal, financial or otherwise sensitive data were disclosed. According to the BridgeOrg staff, the shared information was being used as an incentive to join CommunityNet as well as to retain membership. Based on feedback to BridgeOrg from organizations, (apart from the prestige with being associated with CommunityNet) the shared data were valuable enough to motivate them to initiate a vetting process with BridgeOrg to become members of the network. To retain members, BridgeOrg staff continued to add to the shared data, which CommunityNet members contributed to, so that the information would be updated and more relevant to its members.

The second aspect of BridgeOrg’s role in controlling information access was to act as a gatekeeper to the network. As gatekeepers, BridgeOrg had oversight over the vetting process before full membership was granted to organizations who were not yet part of CommunityNet. Based on the interviews with BridgeOrg staff, individuals from potential member organizations were initially met through informal means, such as through open meetings; such meetings were publicized via email blasts sent from BridgeOrg, and organizations interested in joining would attend so that they could informally meet and greet other members of CommunityNet. Once a potential member organization indicated interest in joining CommunityNet, BridgeOrg began a more formal process of vetting the organization. The first step was for the organization to complete an online form available on [bridge.org](http://bridge.org) where the prospect disclosed

information about their organization in terms of mission and operations. Then a committee of CommunityNet members evaluated the application and voted whether or not the application was to be accepted. Deliberations were conducted in person, by phone, and email.

If an organization passed the initial round of vetting, then it would be granted a preliminary level of access to the shared data, which included a limited selection of resources such as volunteer time and training resources. If feedback received from the volunteers was positive and the new organization was responsive to the flow of help directed by BridgeOrg, then full membership and the next level of access was granted where the new member organization could access mailing lists, documents that BridgeOrg helped to manage, pointers to tangible resources that the new member could access directly rather than having to rely solely on the mediated efforts of BridgeOrg.

BridgeOrg used a vetting process that granted two different levels of access in order to gauge how well the organization could operate as a partner in CommunityNet. The extent to which an organization could utilize the resources provided at the two different levels helped BridgeOrg assess the operational health of the organization and whether or not the potential partner could help contribute to the goal of “safe communities” for children. However, the task of vetting 80 organizations made it challenging for BridgeOrg to keep track of the feedback regarding the organizations being vetted. When the BridgeOrg staff received feedback on new member organizations, they stored the input in Excel spreadsheets, which was a time consuming process. In order to gather the feedback, person-to-person calls were made to volunteers who had experience with the new potential member. However, due to limitations on staffing, the thorough vetting process for granting both levels of access could not always be followed. The BridgeOrg staff on a number of occasions determined that access would be granted based on a collective “gut feeling” by the staff.



One technology challenge I observed here is not the failure of a particular tool but rather an absence of support for the vetting process. In vetting organizations, the problem that BridgeOrg staff encountered was two-fold: a lack of time in soliciting feedback and difficulty in tracking the two-levels of data access for organizations being vetted. I believe this gap in support for the vetting process provides an opportunity for technology to be developed to ease the burden on the BridgeOrg staff. Perhaps a lightweight reputation system with a micro-polling feature could be used to solicit feedback from volunteers, as well as keep track of the access levels being granted by BridgeOrg.

#### **4.3.4 Summary of ICT Use to Support BridgeOrg's Connecting, Mobilizing, and Informing**

BridgeOrg as an organization seemed open and willing to adopt any technologies that held promise in furthering its mission of connecting anti-trafficking organizations in Eastville dedicated to eradicating child sex trafficking. Table 9 provides a summary of the technology used, the practice it was supposed to support, and the specific activity or social process in which it was utilized.

Common to most start-up, nonprofit organizations, BridgeOrg did not have a pre-planned strategy for ICT usage in supporting its work as an organization dedicated to connecting anti-trafficking organizations focused on fighting child sex trafficking. Much of the actual work of connecting and mobilizing was done manually or through face-to-face meetings. The ICTs assisted with directed information (via Gmail), broadcasted information (Twitter and Facebook), stored information (GoogleDocs, bridgeorg.org). However, despite the organizations efforts, ICTs were not effectively used for facilitating the four types of connections that BridgeOrg pursued or for mobilizing to the extent that BridgeOrg desired.

**Table 9. Summary of ICT use by BridgeOrg to support connecting, mobilizing, and informing**

<b>Practices:</b>	<b>a. Connecting</b>	<b>b. Mobilizing</b>	<b>c. Informing</b>
<b>bridgeorg.org</b> (multi-purpose)	<ul style="list-style-type: none"> <li>Online presence as a bridging organization in Eastville</li> </ul>	<ul style="list-style-type: none"> <li>Online sign-up form to automatically match individuals with organizations</li> <li>Online listing of volunteer activities</li> </ul>	<ul style="list-style-type: none"> <li>Information about BridgeOrg as an organization</li> </ul>
<b>GoogleDocs</b> (document storage; for co-production of documents)	<ul style="list-style-type: none"> <li>Maintain CommunityNet organization information</li> </ul>	<ul style="list-style-type: none"> <li>Stored BridgeOrg and CommunityNet documents related to mobilizing</li> </ul>	<ul style="list-style-type: none"> <li>Stored BridgeOrg and CommunityNet documents related to child sex trafficking and BridgeOrg</li> </ul>
<b>Gmail</b> (all-purpose communication tool)	<ul style="list-style-type: none"> <li>Email Excel spreadsheet of CommunityNet organizations</li> <li>Help facilitate connections via e-introductions</li> </ul>	<ul style="list-style-type: none"> <li>Facilitate the execution of BridgeOrg events and face-to-face meetings with other orgs and CommunityNet members</li> </ul>	<ul style="list-style-type: none"> <li>Send e-Newsletters about BridgeOrg</li> </ul>
<b>Facebook</b> (tool for broadcast messaging and response; useful for building social /transaction bonds)	<ul style="list-style-type: none"> <li>Intended to support bulletin-board like communication among CommunityNet members</li> </ul>	<ul style="list-style-type: none"> <li>Announce BridgeOrg events</li> <li>Share comments and links to pictures related to BridgeOrg face-to-face meetings and events</li> </ul>	<ul style="list-style-type: none"> <li>Share news stories and reports about child sex trafficking</li> </ul>
<b>Twitter</b> (tool for broadcast messaging; useful for building transaction bonds)		<ul style="list-style-type: none"> <li>Announce BridgeOrg events</li> <li>Share links to pictures from BridgeOrg face-to-face meetings and events</li> <li>Micro-blogging of to encourage meaningful actions</li> </ul>	<ul style="list-style-type: none"> <li>Share statistics about child sex trafficking</li> </ul>
<b>Skype</b>	Used as alternative phone line for BridgeOrg staff		
<b>mySQL database</b>	In the process of setting up constituent relations database		

An expectation often expressed by BridgeOrg staff was that information put out by the organization would “go viral”, i.e., be picked up by many in Eastville and that the information itself would be so compelling that large crowds of individuals and organizations would instantly be mobilized into meaningful action. This expectation is reflected in their ad hoc use of technology in supporting their work. BridgeOrg did not streamline information across communication channels, i.e., the tweeting of one event did not mean it would be posted on Facebook, or the posting of an upcoming event did not necessarily mean it would be tweeted. Regarding BridgeOrg’s website, they anticipated that visitor traffic would be in the hundreds of thousands, and that millions in Eastville

would sign up online to become volunteers. After fourteen months of having its website online, BridgeOrg managed to gather about 270 online sign-ups. Interviews from BridgeOrg staff indicated they perceived a more effective use of technology was needed, that their manual and face-to-face efforts were too time-consuming to accomplish their mission.

By the end of Field Study II, BridgeOrg had been operating for about fourteen months. The result of their efforts was about 50 organizational members of CommunityNet, about 270 individual online sign-ups for volunteering with CommunityNet members, and a mailing list of less than 2,000 people. Although 270 online sign-ups had been gathered, BridgeOrg did not know who was volunteering for which CommunityNet organizations. Nor was it aware of whether CommunityNet members were benefitting from their association with BridgeOrg. At this time, BridgeOrg began to actively explore solutions that would enable them to more effectively fulfill their mission.

#### **4.4 Discussion**

In presenting the findings related to BridgeOrg's ICT use to support its information sharing practices, I largely omitted dwelling on a number of other, more prosaic, hodge-podge-related breakdowns such as data fragmentation due to data storage in multiple "stand alone" applications or partial messaging channels because not everyone in the network had a Twitter or Facebook account. Previous work on grassroots political campaigns identified forms of ICT-based miscommunication and communicative overload that can result from such cobbling together of ICTs (Kavanaugh et al., 2003). Unsurprisingly, I observed similar mishaps, such as data fragmentation due to data storage in multiple "stand alone" applications, incomplete or redundant messaging as not everyone in the network used social media tools and each organization maintained different email lists. Also, the "noise" in these social media channels, especially Twitter,

seemed to render the raising-basic-awareness process less effective than word-of-mouth, emails, meetings, or online directory listings.

I believe some of these breakdowns could perhaps be addressed through a custom software system, tailored to the specific needs of this network of organizations. Such a holistic system could, for example, avoid the problems with fragmented data that occurred. Although from a pragmatic perspective, of course, such a bespoke information system is often outside the reach of many organizational networks because of cost or lack of technical capabilities. However, understanding BridgeOrg and its ICT use concerns more than the problems incurred by a naïve application of technologies custom software or a mish-mash of heterogeneous technologies adopted in an ad hoc fashion. The inability of BridgeOrg to effectively utilize ICTs to further its mission seemed to stem from both organizational and technological problems.

#### **4.4.1 Organizational Issues and Expectations for Technology**

The first problem is with BridgeOrg itself as an organization. It failed to devise an in-depth strategy for connecting, mobilizing, or informing. In the words of one of the staff members, “We’re building this plane as we’re flying it.” Although its mission was clear, BridgeOrg had only a general plan for how it would actually accomplish its mission. Basically, BridgeOrg’s strategy was to recruit organizational members for CommunityNet and to use Gmail, Twitter, and Facebook to mobilize the masses. In carrying out the various activities related to connecting, mobilizing, and informing, BridgeOrg soon became overwhelmed with the time consuming activities, in particular fundraising as well as the face-to-face meetings and events. BridgeOrg attempted to alleviate the workload by hiring a part-time staff member to recruit faith-based organizations who would be willing to join CommunityNet and share their resources with BridgeOrg and other CommunityNet partners. However, this staff person was terminated due to a failure to recruit a sufficient number of organizations.

Because of its expectations towards technology, BridgeOrg believed much of the informing, connecting, and mobilizing work would be accomplished by that technology itself. The ease with which information could be shared and spread through technology led BridgeOrg to believe that as an organization, it could focus primarily on fundraising for BridgeOrg, and that the technology would somehow “magically” inform, connect, and mobilize. For example, the director expressed the hope that the ICTs used would eliminate the need for face-to-face meetings. The idea was that the mere act of posting information for the purpose of furthering connections or to mobilize would result in the information being spread to those who needed to see it and automatically appropriate the information to take appropriate action. In another example of “magical” thinking, one of the staff members believed that BridgeOrg’s website would automatically generate a training video, complete with script and images if he just described it in a short conversation to the website developer, that after the conversation, the developer could simply post a fully-developed video that could inform potential CommunityNet recruits how to be involved.

Due this perception of “magical” technology, BridgeOrg did not invest adequate time or effort towards creating a more in-depth communications strategy. Although there was some response by individuals and organizations as BridgeOrg anticipated, the volume of response was far below expectations. BridgeOrg came to realize that the “magic” of technology to help their organization would not be so easily accessed, especially through ad hoc application of freely available, open-source tools they were using.

This lack of planning partly due to unrealistic expectations of technology is reflected in how BridgeOrg actually appropriated and used the technologies available to them. The generative mechanisms around ICT appropriation and use, which I examined for Field Study I and Field Study II were: 1) offline/online convergence, and 2) co-production of online content. The findings from Field Study I showed that the offline

activity of the anti-trafficking organizations studied was largely separate from online activity, and that there was little opportunity for co-production of online content. Many of the websites were “brochure-ware” rather than supported by content management systems, which could have facilitated co-production. Also the adoption of social media at the time of the study was more by the individual staff within organizations rather than by the organizations themselves.

#### **4.4.2 Convergence and Co-production**

In Field Study II, BridgeOrg adopted social media, began using online forms to automate matching volunteers with organizational members of CommunityNet, and utilized tools such as GoogleDocs to begin generating documents with CommunityNet members. The result was some co-production of online content via Facebook and Twitter posts. Also with regard to offline/online convergence, one of the GoogleDocs created by BridgeOrg and some members of CommunityNet yielded a hard-copy brochure that was used to recruit faith-based organizations into CommunityNet, and the automated matching resulted in some organizations contacting the volunteers who had signed-up for opportunities online. However, BridgeOrg staff felt that they had follow-up with face-to-face and word-of-mouth means for executing their connecting, mobilizing, and informing activities. In brief, the findings from Field Study II indicate that BridgeOrg’s use of convergence and co-production were not generating the results they had hoped for, and they were having to replicate their online efforts on the website in their offline activities. Their hope of their online content “going viral” and automatically generating connections and mobilizing CommunityNet was not yet a reality.

#### **4.4.3 Socio-technical Tensions**

However, apart from the organizational issues, unrealistic expectations of technology and other challenges, a second problem emerged in the form of two socio-technical tensions underlying BridgeOrg’s difficulty in effectively applying ICTs.

#### 4.4.3.1 Informal/Formal Mismatch

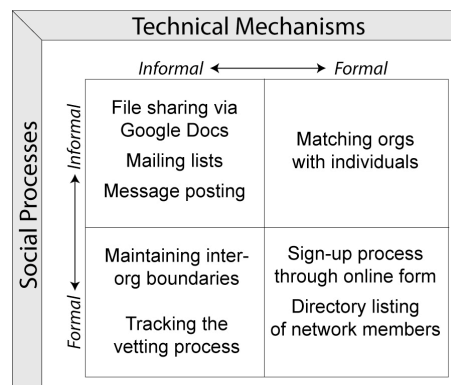
Within BridgeOrg's CommunityNet, the information sharing practices may represent both informal processes, such as the "gut feelings" from informal face-to-face meetings and socially-driven matching of individuals to organizations; they may also represent formal processes, such as the vetting process, contractual agreements or funding relationships among organizations (although these were less prevalent in the study of CommunityNet). Likewise, for the technology tools utilized by BridgeOrg, this same dichotomy between the informal and the formal also exists. Informal means—such as Facebook pages that can be overwritten or "squatted" by overly eager members—coexist alongside more formal arrangements, such as databases that code particular roles for organizations, or web-based access control mechanisms that rely on accounts and passwords and explicit permissions, or online forms allowing entry of specific data.

When I applied the lens of examining the formal and the informal to both the socially-mediated and technologically-mediated interactions present in the CommunityNet, I found a mismatched interplay between the informal/formal aspects of the social processes within CommunityNet juxtaposed against the informal/formal technical mechanisms being utilized to support these processes. For example, in the case of the access control needs of data sharing in CommunityNet, formal mechanisms—such as access control matrices that encode the rights of principals were not required; instead, a very liberal access control policy was used, with all network members essentially having access to all information. In this case a formal technical mechanism for access control was unnecessary because the data sharing policy within the network was largely informal.

However, the vetting access process for non-members was a formal social process, and the technical piece that was missing were tools to better support it where BridgeOrg could closely track the vetting, enable the two-levels of access for these potential members and solicit feedback from volunteers regarding them. Instead,

BridgeOrg staff attempted to use spreadsheets, text files of scattered notes, emails, and memory of phone conversations as an informal jerry-rigged mechanism to help manage the information related to the vetting process.

This reflection on the mismatches between the social formal and informal with the technical formal and informal suggests a partitioning of the range of technical mechanisms and information sharing practices used by this particular network of organizations, which I summarize in Figure 1. (I note here that the arrows between the “informal” and “formal” labels in Figure 1 below indicate that these processes or mechanisms lie on a spectrum of (in)formality; I am not attempting to strictly categorize the social or the technical entirely into either the formal or informal categories. Rather, I believe that social processes can be a combination of the formal and informal to varying degrees and that technical mechanisms can likewise support such to varying degrees as well.)



**Figure 2. Examples of (mis)matches in technical mechanisms and social processes within CommunityNet**

Above in Figure 2, some of the activities of this network are informal social processes that appeared to be well supported by likewise informal technical mechanisms (represented by the upper left quadrant of the table). These include file sharing using Google Docs and swapping smaller mailing lists (under 250 contacts) using GMail or sending short messages from BridgeOrg to CommunityNet members using Twitter and Facebook.



Likewise, for a number of the more formal human processes, such as the sign-up process to be considered for partnership, formal technical mechanisms such as the online web forms and the membership directory supported these (I can conjecture that similar mechanisms are at play in domains such as supply chain management, where contractual and legal obligations are supported by formal modeling and management systems) (Rank, 2008). These are represented by the lower right quadrant of the table.

Where the mismatches occur, however, is in regions where there is a mismatch—where either the informal (and necessarily nuanced and difficult to concretize or formalize) social processes run afoul of overly constraining technical systems, or where highly formal social processes lack the structured technical systems needed to facilitate and enable them (Ackerman et al., 2000).

The upper right quadrant of the table represents the mismatch between socially informal processes with formal technical mechanisms. An example of this drawn from the data is the mismatch between the custom-built automatic matching software that formally supported a social process that was effectively informal. As described in the findings section, the individuals and organization needed opportunities to assess the other party and gauge the “chemistry” of the match.

The lower left quadrant, on the other hand, represents a tension between socially formal processes that are ill-supported by technical mechanisms that are more suited for supporting informal processes. In the study, I identified two such examples. The first is in maintaining interorganizational boundaries. In the example of the Facebook squatters, these boundaries were not visible or explicitly enforced, which enabled the takeover of a webspace by another group. In the second example, BridgeOrg did not have an easy tool for tracking the formal vetting process of a partner and for conducting micro-polls among members to provide input or feedback about the potential partners.

This partitioning of the socio-technical mismatches observed in this network concurs with the broader reality articulated by Lee and Dourish (2006) that technology

infrastructures in general for the multi-organizational context are still emerging and that “they cannot be plucked off the shelf, but must be crafted and developed in situ.” Indeed as Reimers et al. (2008) point out, such infrastructures evolve on long time scales before the technical mechanisms they afford “can then be used in a natural, ready-to-hand fashion (p. 114)” (Star and Ruhleder, 1996). This is in agreement with the observation of Ackerman et al., (2000) that the addition of “social nuance and flexibility” to systems has indeed been a slow, incremental process. Thus, I believe these mismatches in CommunityNet may indicate an evolving set of needs where the set up of an actual working infrastructure to support this network will be an incremental work-in-progress. The significance of this is that designing systems to facilitate information sharing in an interorganizational network may include the added challenge of persevering through an extended, ongoing evolution of social processes and technical mechanisms before the critical mismatches can be fully worked out.

However, as incremental as the progress may be to create a workable infrastructure—particularly for a network of community organizations having to modify an assortment of consumer tools—these findings contribute to better understanding the interstitial organizational design space. That is, this partitioning of the socio-technical mismatches in this space between the social informal/formal processes and technical informal/formal mechanisms helps to identify where the breakdowns may be occurring or might be expected to occur in using a system.

#### 4.4.3.2 Ego-centric/Network-centric Mismatch

The second socio-technical tension that the data suggest is yet another underlying gap between these cobbled technologies and the needs of BridgeOrg and CommunityNet. In contrast to the above where the mismatch occurs along the dimension of (in)formality, I believe this gap in this case arises from email, Twitter, and Facebook being primarily oriented towards the needs of the individual user. That is, the features, functions and data visually represented by these tools are designed primarily to support connectedness

among individuals, or between individuals and groups. Such ICTs are effectively “ego-centric” technologies (Pederson, 2006), as they are geared toward the needs of individuals. The features and functions of these tools did not adequately inform the basic awareness that BridgeOrg needed to connect, mobilize, and inform within CommunityNet, i.e., an overview of the entire network, meaningful categorizations of organizations within this specific network context, and a sense of the commitments of member organizations in the network.

To begin addressing this gap, BridgeOrg started creating a custom website to enhance basic awareness within the network by increasing visibility. They began by creating an online directory listing on a custom website. With this listing they formalized and publicized the commitments to collaboration that these community organizations had made, as well as providing an overview of the network such that members could see the possibilities for coordinating activities. Consequently, this listing instantiated and made visible these commitments to interorganizational collaboration. Connections represented in social media tools likely do not adequately convey a comprehensive network overview nor convey the weight of organizational commitment to the network over time. I infer these are the primary reasons why social media tools were not appropriated for supporting the basic awareness process in this network.

## **4.5 Summary**

In conducting Field Study II, I focused on auxiliary care organizations that were concerned with victim prevention. Among these organizations, I identified three categories of information sharing as well as characterized aspects of their informal interactions. I then focused on an organization that I called BridgeOrg, which pursued a mission of galvanizing the broader community in terms of volunteer time and resources (i.e., funding, goods and services). Their efforts primarily consisted on connecting organizations with other organizations and individual members of the public. Their goal

was to build up a community network that I called CommunityNet, through which they would pursue the various information sharing practices of connecting, informing, and mobilizing.

I observed and interviewed BridgeOrg staff in order to better understand their connecting, informing, and mobilizing practices in relation to CommunityNet. With regard to their practice of connecting, I identified four categories of connections and three social processes for building such connections. With regard to BridgeOrg's mobilizing and informing practices, I found that these practices were primarily to support BridgeOrg's connecting efforts and were not separate priorities as they might be for organizations in other contexts such as the civil rights movement where mobilizing activities (e.g., mass demonstrations) are prioritized over building and maintaining connections.

With regard to ICT use, I found that BridgeOrg relied on a variety of off-the-shelf technologies acquired in an ad hoc fashion. Although BridgeOrg made effort to utilize any and every technology available that promised to help meet their information management needs, they found that the automation "magic" they were looking for in terms of mass connections were not instantly materializing. Using Foot and Schneider's (2006) concepts of convergence and co-production as lenses to examine BridgeOrg's ICT use for connecting, mobilizing, and informing, I found that BridgeOrg used convergence in both directions for social bonds but used convergence in the online to offline direction for transactions bonds. Co-production was used by BridgeOrg primarily to create information for supporting transaction bonds.

From the data analysis, there also emerged two themes regarding misalignment between what BridgeOrg needed or desired and what technology could deliver. The first is a mismatch in (in)formality, and the second, a mismatch in the orientation of the technology in terms of being ego-centric versus network-centric. These findings effectively point towards a need to better understand network-centric designs to support

BridgeOrg's connecting, mobilizing, and informing practices, as well as technologies that match the (in)formality of the social processes being supported.

## **CHAPTER 5**

### **DESIGN STUDY I: A NETWORK-CENTRIC**

#### **COMMUNITYNET.ORG**

“We’re going to create a new city. Nobody will stop us... We need laborers...an army.”  
– Jim Bevel, strategist and leader for the Civil Rights Movement

“Connecting people to people, over and over again, that's what lasts online. Folks thought it was about technology and it's not.”  
– Seth Godin, On the Tribes We Lead, TED.com, 2009

I utilized the findings from Field Study I and II to address the first part of my research question, which is: “What are current information sharing and coordination practices of interorganizational networks in grassroots movements? Also, what challenges do they encounter in information sharing and coordination? And what are their challenges in terms of ICT use and appropriation? Based on these two field studies, I was able to identify the challenges of ICT use, as well as practices and processes for supporting in information sharing for connecting within an interorganizational network (CommunityNet). One the particular challenges that emerged was the need for a network-centric orientation of the ICTs being used to support information sharing for connecting, specifically for the social processes of raising basic awareness and enabling connections.

I used Design Study I to begin answering the second part of my research question, which is: “What forms of web-based technology might be utilized by such interorganizational networks to support their social justice efforts? My purpose for Design Study I was to explore the design of a network-centric ICT to better support the social processes of raising basic awareness and enabling connections. My goal for this design study was to understand network-centricity as design priority in supporting interorganizational information sharing for connecting. The specific challenge I set out to address was supporting the social process of basic awareness from the network-centric perspective (rather than ego-centric) in terms of information content, structure,

presentation, and production. From Field Study II, I identified the five categories of information that organizations shared during the process of raising basic awareness. Thus, in terms of information content, I hoped to explore how such information should be structured, presented, and made available. I also hoped to explore how such content could be produced by CommunityNet members in a network-centric manner.

## **5. 1 Study Design for Design Study I**

BridgeOrg as an organization was attempting to be the hub of information for CommunityNet, and they did so by cobbling together a variety of technology tools. However, as the limitations of the various separate tools became clear to the staff of BridgeOrg, they sought to re-design their existing custom website to better accommodate the needs of CommunityNet. Thus the sum of my design exploration involves working with BridgeOrg staff members to re-design their existing site to be a more network-centric information sharing tool that supports connection and coordination within CommunityNet.

For this design study exploration, I adopted an iterative design method for two reasons. The first is that as an organization, BridgeOrg was in the process of personnel changes as well as changing their strategic thrust in growing and maintaining CommunityNet. I describe these changes in more detail below in the Requirements section. These changes could potentially impact the design as well as the design process, thus I chose an iterative approach to better accommodate anticipated shifts in organizational structure and strategy. The second reason for the iterative approach was a lack of adequate design patterns for architecting information with a network-centric orientation; and an iterative approach would better afford the discovery of any such patterns.

### **5.1.1 Timeline and Stakeholders**

BridgeOrg's goal was to complete the re-design of their site within a four-month time period, and they hired a 3-person team of designers and developers (CNDesign) to assist with the process. BridgeOrg allowed me to work directly as a liaison between them and CNDesign, especially during the requirements gathering and analysis phase, with the understanding that this site redesign would also function as my research prototype.

With the help of CNDesign, I conducted four weeks of requirements gathering and analysis using wireframes and paper prototypes. The initial version of these prototypes was informed by findings from Field Study II. The latter prototypes were used in the design process of the actual design that was built. I worked with CNDesign and BridgeOrg for three weeks to finalize the design, and then worked with CNDesign for the remaining nine weeks to complete the first version build of the design. Throughout the requirements gathering and analysis process, I worked with all of the BridgeOrg staff to receive input. During the process of finalizing the prototype design, I received feedback and guidance from the executive director of BridgeOrg and the staff member who primarily worked with CommunityNet members. Also the executive director gave the final approval for the site and decision for when to go live.

### **5.1.2 Logistics and Communication**

Much of the communication for the duration of Design Study I occurred remotely, since CNDesign team itself was not co-located and BridgeOrg staff did not have an office location. All of my meetings with BridgeOrg staff occurred at different cafés and faith-based organizations who allowed BridgeOrg staff to use their facilities for meetings. I operated as the primary liaison between BridgeOrg and CNDesign, which enabled me to have more control over the requirements gathering and analysis process.

BridgeOrg was provided with funding by one of the faith-based organizations involved in CommunityNet in order to fund the re-design of their site. However, one challenge that arose early in this design study process is that BridgeOrg's website, which



attempted to function as a hub for CommunityNet, was housed on the servers of the original website vendor. BridgeOrg had signed an agreement that their site would have to be hosted on the vendors servers and that only the vendor would admin access to the site. This arrangement was made because the vendor had effectively donated the site to BridgeOrg.

However, impact of this is that neither CNDesign nor I were able to modify BridgeOrg's original site. Furthermore BridgeOrg was not able to engage this vendor because their rates were beyond the reach of the funding that was allocated for this project. As a consequence, BridgeOrg decided to have a separate website dedicated solely to CommunityNet and to use BridgeOrg's existing website to emphasize their "separateness" as an entity from CommunityNet as a whole. The two resulting domains were CommunityNet.org and BridgeOrg.org.

## **5.2 Requirements Gathering and Analysis**

At the time Design Study I began, BridgeOrg identified three types of CommunityNet members and five different strategic areas (a term used by BridgeOrg) in which CommunityNet members could participate. This generated a total of eight different perspectives of the CommunityNet that BridgeOrg initially wished to accommodate. The three CommunityNet member types included 1) faith-based organizations (FBOs), 2) community partners (CPs), and 3) individual volunteers. The five different strategic areas that these three member types could also participate if they wished included 1) Prayer, 2) Advocacy, 3) Supporting At-Risk Youth, 4) Aftercare, and 5) Mobilization of Faith-based Organizations.

### **5.2.1 Input from Field Study II Findings**

To begin the requirements analysis, I relied on specific findings from Field Study II. As a researcher, I was given access only to meetings that facilitated basic awareness and connection enabling activities, and almost no access to meetings involving

connection reinforcement activities where a few members from CommunityNet would meet to discuss further coordination to reinforce connections. I was aware of these meetings because I was given access to the shared staff calendar used by BridgeOrg. However, BridgeOrg considered these meetings in-depth “work” meetings where it was unclear to them that any web-based technology would be necessarily helpful at this level of coordination for connectedness. Consequently, the analysis from the Field Study II data reflects practices insofar as they could be perceived by BridgeOrg as helping to initiate informal coordination and connectedness within CommunityNet but not beyond.

The findings from the field data analysis of Field Study II point towards the social process of raising basic awareness in CommunityNet as having the most opportunity for exploring network-centric ICT design. Based on the interview data, these activities were primarily for generating transaction bonds and BridgeOrg preferred to reduce the email load and automate these activities as much as possible. According to the BridgeOrg staff, many of their emails were repetition of basic awareness information around connection and coordination.

Based on the findings from Field Study II, in the re-design of CommunityNet.org, the focus was on supporting the social process of raising basic awareness (which is one of the processes of connecting) and the practices of mobilizing and informing as they related to raising basic awareness. Throughout Chapter 5, I refer to these as simply “raising basic awareness” since in the BridgeOrg context, the practices of mobilizing and informing were primarily to support the information sharing practice of connecting.

### **5.2.2 Storyboard**

To refine my understanding of the design requirements to support raising basic awareness, I conducted a group interview with BridgeOrg staff and utilized storyboards to elicit feedback. The storyboard was designed with inputs from Field Study II and the existing BridgeOrg website (BridgeOrg.org). The purpose of the storyboard was to generate feedback specifically about the information content, navigation, and architecture

for the different constituents views that BridgeOrg wished to accommodate in CommunityNet.org in terms of raising basic awareness.

#### 5.2.2.1 Categories and Organization of Content

To design my storyboards for the group interview with BridgeOrg staff, I first created a content model to based on the categories of informal information sharing identified from Field Study II, which includes: 1) basic awareness information, which includes: a) contact information, b) goals, c) opportunities, d) motivations, and e) capabilities of the organization; 2) information about activities or events and opportunities; and 3) best practices and tips for resources. I used these categories to design the different constituent perspectives that BridgeOrg identified and deemed important to accommodate in CommunityNet.org.

The arrangement of the information represented by the categories in the content model is driven by the concept of focus+context from the field of information visualization (Lamping and Rao, 1996). As a technique, focus+context is useful in designing holistic views of information, i.e., the surrounding context is displayed around the particular information of interest. A common instantiation of this technique is the fish-eye lens for a geographic map that shows more detail as the user hovers over particular places on a map. The lens provides additional details about a street or destination of interest, while the surrounding geographic context remains visible. Applied in terms of information architecture, focus+context as a concept requires that information of interest be situated within the relevant context rather than displayed or delivered in isolation or apart from other directly relevant content.

I chose to utilize focus+context as a concept to organize the information in CommunityNet.org for two reasons. The first is that the purpose of Design Study I was to explore network-centric design of ICTs to support raising basic awareness. Thus I needed a way to organize the information using a holistic approach, which focus+context support. A second reason is that one important aspect distinguishing the focus+context

technique from other techniques for organizing information overviews is the lessening the burden on users with the task of filtering. Filtering in general becomes more burdensome and unproductive the less familiar a user is with the information being presented. The focus+context technique requires users to know little if any information beforehand in order to explore a given data set. Given that BridgeOrg and CommunityNet was emerging as a network, many organizations and individual members of the public would have been unfamiliar with navigating information designed to support connecting and coordination in a larger network context. The use of focus+context to organize the content would help to mitigate the unfamiliarity.

I describe more specifically how focus+context was applied to organize content in Section 5.3, which details the actual design of CommunityNet.org.

#### 5.2.2.2 Content Inventory for BridgeOrg Constituents

The content model described above dictated how the information content was tailored for each constituent. Tables 1-3 below detail the content inventory of the information represented in the storyboard that I presented to BridgeOrg. These inventory tables are organized according to the constituent perspectives that BridgeOrg wished to accommodate for CommunityNet.org. As mentioned previously, there are a total eight different constituents that BridgeOrg sought to accommodate with CommunityNet.org. Table 10 details an inventory of information content for faith-based organizations (FBOs) and community partners (CPs) and how the information was designed to support raising basic awareness in CommunityNet. Although the information content categories are the same for both FBOs and CPs, this table highlights a significant difference between the two organizational types for content types #3-5.

*A. Table 10. Inventory of Information Content for Organizational Members*

Organizational Constituents	Information Content Category	Sample Content	Support for Raising Basic Awareness
Faith-based Organization (FBO)	<ol style="list-style-type: none"> <li>1. Stated goal/mission</li> <li>2. Basic awareness information: a) contact information, b) goals, c) opportunities, d) motivations, and e) capabilities of the organization.</li> <li>3. Events &amp; access-controlled volunteer opportunities (members allowed to view)</li> <li>4. Best practices &amp; tips</li> <li>5. Other information resource deemed relevant by BridgeOrg</li> </ol>	<ol style="list-style-type: none"> <li>1. Start group within FBO to help stop child sex trafficking</li> <li>2. a) FBO organization name, phone number, website, email; b) to share the good news of Jesus Christ; c) building relationships within the community; d) divine unction; e) make facilities available to BridgeOrg, provide funding resources</li> <li>3. Joint event with a local CP to deliver second-hand furniture for those in need in at-risk communities</li> <li>4. Do weekly announcements in FBO Sunday bulletin</li> <li>5. Flyers for BridgeOrg events</li> </ol>	<ol style="list-style-type: none"> <li>1. Stated goal/mission: reaffirm sense of mission as being in common with other CommunityNet members</li> <li>2. Basic awareness information: share minimum amount of information needed to determine if further coordination activity should be pursued</li> <li>3. Events &amp; volunteer opportunities: increase awareness about BridgeOrg or a CP; opportunities to help further the mission of BridgeOrg or a CP</li> <li>4. Best practices &amp; tips: tips for other FBOs for organizing their efforts to fight child sex trafficking</li> <li>5. Information resources: Lower the barrier of participation by providing marketing resources and guidance on setting up organization for collective action</li> </ol>
Community Partner (CP)	<ol style="list-style-type: none"> <li>1. Stated goal/mission</li> <li>2. Basic awareness information: a) contact information, b) goals, c) opportunities, d) motivations, and e) capabilities of the organization.</li> <li>3. Events &amp; access-controlled volunteer opportunities (members allowed to view)</li> <li>4. Best practices &amp; tips</li> <li>5. Other information resource deemed relevant by BridgeOrg</li> </ol>	<ol style="list-style-type: none"> <li>1. Mentoring of at-risk children through program designed to boost self-esteem</li> <li>2. a) CP organization name, phone number, website, email; b) reach 15 middle schools in at-risk areas; c) grant for creating lunch-time mentor program; d) justice e) robust after-school tutoring program w/ active volunteers</li> <li>3. Holiday fundraising event</li> <li>4. Access at-risk children by establishing relationship with local middle schools</li> <li>5. Checklist for Good Volunteers</li> </ol>	<ol style="list-style-type: none"> <li>1. Stated goal/mission: reaffirm sense of mission as being in common with other CommunityNet members</li> <li>2. Basic awareness information: share minimum amount of information needed to determine if further coordination activity should be pursued</li> <li>3. Events &amp; volunteer opportunities: indicate specific opportunities for actual engagement that could inform future consideration for further coordination with the CP</li> <li>4. Best practices &amp; tips: tips for members of the public, FBOs and other CPs for improved collective action</li> <li>5. Information resources: Help further the mission of the CP</li> </ol>

For FBOs, the orientation of events, volunteer opportunities, best practices and tips, and other documents is toward furthering the mission of BridgeOrg or another CP. In contrast, for CPs, these three contents types function to further the mission of the CP itself. I believe one consequence of this difference is that the organizational processes of CPs are already such that their mission and activities coincide with the mission of BridgeOrg. However FBOs have organizational processes in place that further the mission of FBO, and not the mission of BridgeOrg, which is to encourage collective action fight child sex trafficking. Hence, when FBOs become members of

CommunityNet, they must also create new organizational processes that align with the mission BridgeOrg.

BridgeOrg initially ignored this need until after CommunityNet.org was built. BridgeOrg staff assumed that FBOs would create any internal processes necessary for engaging in the fight against child sex trafficking. However after feedback and requests from FBOs for guidance, BridgeOrg provided recommendations on processes, which FBOs could setup within their organization. These recommendations are not needed for CPs because they are already setup for this purpose. The recommendations that BridgeOrg gave reflected the same processes that BridgeOrg follows. The expectation was that FBOs would become like smaller scale versions of BridgeOrg and mobilize their membership for the same mission.

*B. Table 11. Inventory of Information Content for Strategic Areas*

Strategic Area Constituent	Information Content Category	Sample Content	Support for Basic Awareness
Prayer	1. Stated goal/mission 2. Basic awareness information: a) contact information 3. Prayer sign-up calendar 4. Other information resource deemed relevant by BridgeOrg 5. Prayer blog	1. Set-up 24-hour prayer against child sex trafficking. 2. Name and email address of prayer lead. 3. -- 4. Prayer guide 5. --	1. Stated goal/mission: reaffirm sense of mission as being in common with other CommunityNet members 2. Basic awareness information: share minimum amount of information needed to determine if further coordination activity should be pursued 3. Increase awareness of opportunities for involvement; indicate available time slots 4. Increase awareness of how to be involved 5. Increase awareness of the process of prayer involvement.
Advocacy	--	--	--
Supporting At-Risk Youth	--	--	--
Aftercare	--	--	--
Mobilizing FBOs	--	--	--

Table 11 shows an inventory of the information content for constituents involved in just one of the five strategic areas identified by BridgeOrg. The other four strategic

areas of advocacy, supporting-at-risk youth, aftercare, and mobilization of faith-based organizations were actually not developed in terms of content due to challenges involving volunteers. Those who had initially volunteered to lead the areas were unable to continue, and BridgeOrg did not have the staff capacity to lead those areas. Placeholder pages with general descriptions about the areas were included. However, the content on those pages not developed to the same extent as the prayer page or the pages supporting FBOs and CPs. Regarding the prayer page, there were also challenges. The volunteer leading that area requested a replacement lead, though this volunteer was willing to remain as the interim lead until a replacement was found. Also, this volunteer preferred to restrict his participation to posting blog entries about prayer. All other information on the prayer page was posted by BridgeOrg staff. Unlike the pages for FBOs and CPs, the prayer page did not contain all of the categories of information content. The category of “Events” was not included because the lead volunteer for prayer opted not to be responsible for organizing prayer related events. Also, content for the category of best practices and tips was not included because the lead volunteer chose not to include this information. There was nothing to preclude the prayer page from containing the same categories as the FBO and CP pages other than the limitations imposed by the lead volunteer.

*C. Table 12. Inventory of Information Content for All CommunityNet Members*

Constituent	Information Content	Examples	Support for Basic Awareness
Community Net members	<ol style="list-style-type: none"> <li>1. Local news stories</li> <li>2. CommunityNet calendar</li> <li>3. Community hotline numbers: a) National hotline; b) Local hotline</li> <li>4. Members-only access-controlled directory of organizations (not available to the general public)</li> <li>5. CommunityNet meta info: a) number and types of sub-groups, which include faith-based organizations (FBOs), community partners (CPs), and volunteers; b) summary of CommunityNet strategy/goal</li> <li>6. Online sign-up form</li> </ol>	<ol style="list-style-type: none"> <li>1. Recent pimp arrests and upcoming trials</li> <li>2. --</li> <li>3. Polaris hotline number</li> <li>4. --</li> <li>5. Number of faith-based organizations in CommunityNet</li> <li>6. --</li> </ol>	<ol style="list-style-type: none"> <li>1. Local news stories: Awareness of community incidents related to child sex trafficking to remind constituents about the overall CommunityNet goal</li> <li>2. Calendar: Sense of having a community calendar with events aggregated and accessible by all rather than fragmented and scattered across many sites</li> <li>3. Community hotline numbers: Awareness of shared hotline numbers about which many in CommunityNet were unaware.</li> <li>4. Access-controlled Directory of organizations: Overview of other organizational members of CommunityNet; aggregated contact information for follow-up</li> <li>5. CommunityNet meta info: Awareness of sub-groups within CommunityNet such as FBOs and CPs</li> <li>6. Access to the organizational directory and volunteer opportunities</li> </ol>

In Table 12, the information content for all CommunityNet members functioned to: 1) increase awareness of related events occurring outside of CommunityNet via news stories, e.g., arrests and trials of perpetrators, 2) increase awareness about resources available to CommunityNet such as hotline numbers, and 3) increase awareness of members within CommunityNet by providing a shared calendar as well as metadata about sub-groups within CommunityNet. All five types of information content served to reinforce a sense of the community of CommunityNet by highlighting overall details about CommunityNet and by aggregating local news stories to convey a sense of the broader local context in which CommunityNet operates.

Tables 1-3 inventory the information content in terms of the Field Study II information sharing categories from two different perspectives: the group of organizations perspectives and the whole network perspective. What these tables convey is that the information content prioritizes network-centric information rather than individual organization information.



#### *D. Individual Volunteers*

BridgeOrg decided to provide individual volunteers with a profile page so that they could post information about themselves and view the access-controlled volunteer opportunities and organizational directory. The purpose of the volunteer profile page was that BridgeOrg could keep track of the FBOs and CPs that the individuals were affiliated with as well as keep track of the number of individuals mobilized via the sign-ups.

#### *E. Site map and Site flow*

Because BridgeOrg sought to accommodate the perspective of their eight constituent groups, I organized the site map and site flow around the notion of tailoring the information content according to the content requirements of each constituent group, as well as providing channels where FBOs and CPs could convey content that was visible throughout the site. Figure 3 below shows a comparison between the site map for CommunityNet.org and BridgeOrg.org.

Homepage for <b>CommunityNet.Org</b> :	Homepage for <b>BridgeOrg.org</b>
1. Constituent pages:	CPS Login Page
FBO main page	CP main page
CP main page	
Volunteer main page	<i>(for viewing opportunities posted by BridgeOrg for their organization)</i>
Prayer main page	
Advocacy main page	Volunteers Login Page
Supporting At-risk Youth main page	Volunteers main page
Aftercare main page	
Mobilizing FBOs main page	<i>(to view opportunities even though individuals would be auto-matched according to their profiles; email confirmation sent to individual and CP)</i>
2. Login page	
FBO Admin page	
CP Admin page	
Prayer Admin page	
Volunteer Profile page	Sign-up page for volunteers
3. Sign-up page	

**Figure 3. Site Map for CommunityNet.org vs. Site Map of Organization Pages in BridgeOrg.org**

In terms of site flow between pages, the home page served as the primary entry point to access the eight constituent pages, the four different admin pages to edit content on constituent pages, and the three sign-up forms. In terms of site flow within the individual pages, the more static content of the constituent pages consisted of: 1) the

stated goal/mission, 2) the basic awareness information, and 3) other information resources such as documents such as research studies related to the child sex trafficking issues. All three areas were designated to be editable for their respective pages by FBOs, CPs, and individual volunteers leading one of the strategic areas. The dynamic content on each of the constituent pages contained: 1) a “Daily Tip” panel, 2) a “Highlights” panel, 3) a news panel, and 4) events calendar that FBOs and CPs could edit, such that tips and highlights would appear on every single page of CommunityNet. These were designed as a lens into activity occurring in the community. Each tip or highlight would be an area of focus determined by any FBO or CP member in CommunityNet.

The access-controlled content consisted of the volunteer opportunities and the organizational directory. The reason for restricting access to these areas to members only was two-fold. First the BridgeOrg wanted informational benefits to be available to members, given demand for such information in the community as perceived by BridgeOrg. Second, BridgeOrg did not want the organizational directory to be accessed by individuals or organizations with mal-intent to misuse the information and potentially target legitimate organizations and the populations they served.

What Figure 1 shows is the first design iteration of organizing the information content around constituent groups rather than individual organizations. This contrasts with the orientation of social networking sites that organize the information around individual organizations. The goal was to use the two levels of network-centric information content (whole network and groups of organizations) to provide additional information to help inform basic awareness and encourage connection between organizations.

### **5.2.3 Storyboard Feedback**

I presented the storyboard to the entire BridgeOrg staff in terms of content, site map, and flow. Again, the purpose of the storyboard was to finalize the information content designed to be network-centric. I received the following feedback from the staff.

They requested that the main FBO page and the Mobilizing FBO page needed to be combined since the page for the constituent and the strategic area would effectively be the same. This change was reflective of an actual organizational change that had occurred. Apparently, the team of volunteers working to recruit other FBOs for BridgeOrg had decided to disband because of differences with one of BridgeOrg's executive director and staff member in charge of FBO and CP relationships. One point of contention was that the team of volunteers sought to make a plan to eradicate child sex trafficking in three years, while BridgeOrg staff believed a plan for longer than three years was needed. Other points of interpersonal contention were not undisclosed.

They also requested dedicated individual constituent pages for CommunityNet organizations. BridgeOrg asked that the site generate individual pages for FBO and CP members of CommunityNet so that each organizational member could have a dedicated information pages about their organization. This design choice was made in lieu of simply listing the FBOs' and CPs' web addresses on the main webpages. The reason for this was two-fold. First BridgeOrg wanted to organize information on CommunityNet.org around the organizational members in order to encourage participation by example both within CommunityNet as well as to those who were not yet members. Second, BridgeOrg wanted to convey a weighty sense of commitment and solidarity within CommunityNet and their relationship with BridgeOrg by providing a webpage dedicated to the member organization. This modification expanded the information content to include the whole network perspective, the constituent or group perspective, and now the individual organization perspective.

BridgeOrg also requested additional online sign-up forms to facilitate connections. They needed three separate sign-up forms be created for FBOs, CPs, and individual volunteers, since the sign-up process differed for each. The staff wished to automate the sign-up process as much as possible and gather as much information

beforehand so that BridgeOrg staff would not have to seek out the information in the future.

BridgeOrg also requested that the strategic area of Advocacy be changed to “Advocacy & Awareness”. Again, this change reflected an actual organizational change since BridgeOrg staff would now handle this strategic area. The individual volunteer for that area had chosen to reduce her involvement, even though she planned to continue assisting where she could. Furthermore, one of BridgeOrg’s key CP member partners (GRRL) recently announced that they would be spearheading victim advocacy. BridgeOrg seeking to avoid duplicating efforts and to differentiate their efforts from GRRL, added the “Awareness” dimension to their strategic area.

BridgeOrg determined that all content uploaded by FBO and CP members of CommunityNet would automatically be approved, and that editing by BridgeOrg would occur post hoc. The executive director of BridgeOrg specifically requested this design so that the burden of having to approve every single word of content posted by CommunityNet members would not be placed on the staff. His reasoning was that FBOs and CPs would most likely not post inappropriate content given the nature of the organizations.

Finally, they requested changing contact names, emails, and phone numbers, as well as names of documents, and other minor content change requests were noted as well.

In summary, the feedback from the BridgeOrg staff expanded the levels of information content to include all three levels: whole network, group of organizations, and individual organization. All information content was organized according to the Field Study II categories of information sharing to facilitate informal interactions. The sign-up process for engaging new organizations into CommunityNet was further refined and separated between FBOs, CPs, and individuals rather than having separate general sign-ups for organizations and individuals.

### 5.2.4 Summary of Requirements for a Network-centric CommunityNet.org

BridgeOrg’s primary goal in creating CommunityNet.org was to reduce the email response load on the staff and to facilitate connections within CommunityNet and opportunities for growth as a network. Their emphasis was on expanding connections and mobilization and informing activities to further these connections. The overarching design principle driving the information architecture of CommunityNet.org was a network-centric production, distribution, and display of information to facilitate connections. This network-centric information architecture was organized around the different constituent groups within CommunityNet and the information produced, distributed, and displayed on the site included the categories of information that facilitates informal interaction as identified in Chapter 4. In Table 13 below, I provide a summary of the design requirements for CommunityNet.org:

**Table 13. Summary of Design Requirements for CommunityNet.org**

Design Requirements for Raising Basic Awareness	
1. <i>Organize around the Constituents</i> : Network-centric Information Structure and Navigation	<ul style="list-style-type: none"> <li>• <b>Constituent-focused</b>: navigation of information around eight constituents types</li> <li>• <b>Content model around categories of information that facilitates informal interactions</b> between organizations; utilize <b>focus+context</b></li> <li>• Support <b>static, dynamic and restricted access</b> content</li> </ul>
2. <i>Democratized Posting</i> : Network-centric Information Production for Connection	<ul style="list-style-type: none"> <li>• Enable CommunityNet member organizations to <b>post information that facilitates informal interaction</b> on CommunityNet.org such as events, tips and best practices, and news/stories.</li> <li>• Enable each CommunityNet member organization to <b>generate individual profile pages</b> that provides basic awareness information about that organization.</li> <li>• Enable each CommunityNet member organization to <b>post information about opportunities for engaging</b> with that organization in terms of volunteering or resource provision.</li> </ul>
3. <i>Whole Network Perspective</i> : Network-centric Information Presentation for Connection	<ul style="list-style-type: none"> <li>• <b>Overview</b> of CommunityNet mission</li> <li>• <b>Highlights</b> of CommunityNet organization members; <b>Provide multiple visible spaces</b> on CommunityNet.org where CommunityNet member organizations to post information that facilitates informal interaction such as “<b>lenses</b>” or <b>panels of aggregated information</b> relevant to the entire CommunityNet network and the surrounding community</li> <li>• <b>Aggregated</b> CommunityNet news, events, volunteer opportunities, and informational documents</li> <li>• <b>Directory listing</b> of all CommunityNet members</li> </ul>
4. <i>Facilitate “Real-world” Connection</i> : Expansion of CommunityNet Network	<ul style="list-style-type: none"> <li>• <b>Facilitate sign-up of new CommunityNet members</b> through online forms. This includes individual volunteers, FBOs, and CPs.</li> <li>• <b>Facilitate sign-up for participation</b> in BridgeOrg events</li> <li>• <b>Increase visibility of volunteer opportunities</b> and resource provision opportunities through filters and expanded listings</li> </ul>

The information organized, produced, distributed, and presented in CommunityNet.org followed the categories of information to support information interactions identified in Field Study II. These requirements were derived from the feedback I received from the storyboards. I then worked with CNDesign to transfer these requirements into wireframes—including site map, navigation and page layout. In the section below, I provide details of the building of CommunityNet.org and how the design requirements were reified in the actual site.

### **5.3 Prototype Design & Build of CommunityNet.org**

After conducting the group interview with BridgeOrg staff, I had a content model, an inventory of the content needed on the site, and an initial draft of a site map and flow. Based on BridgeOrg's feedback on the storyboard, I began to work with CNDesign to create the wireframes for CommunityNet.org. I did not involve myself in the selection of the aesthetics and graphics concerning the website, other than to communicate BridgeOrg's color and graphics choices to CNDesign. In this section, I do not include any of the aesthetics and graphics given that the focus of Design Exploration I was on the information content and architecture of CommunityNet.org.

#### **5.3.1 Network-centric Content Model for CommunityNet.org**

In creating a network-centric content model for CommunityNet.org to support the process of raising basic awareness, I focused on two aspects. The first is the content type. Based on Field Study II, the categories of information sharing for initiating informal coordination were at the center of this network-centric content structure. As shown in the content inventory for FBOs and CPs, the primary categories of information needed for initiating informal coordination are present. The second aspect of this network-centric content model is that the locus of control in editing the content within these categories was placed largely outside the control of BridgeOrg. Even though BridgeOrg was overseeing the building and hosting of CommunityNet.org, members of CommunityNet

effectively had primary control over the content being displayed to the community and the public at large.

The categories of information sharing utilized in this network-centric content structure are divided into three groups. The first is what is mostly static content, not subject to frequent changes, and includes: 1) stated goal/mission, 2) basic awareness info: a) basic contact information, b) goals, c) opportunities, d) motivations, and e) capabilities of the organization, and 3) other information resources such as documents. The second grouping is the dynamic content, which includes: 1) tips and best practices, 2) local news stories, and 3) calendar of events. The third grouping is the restricted-access content, which includes: 1) the CommunityNet directory, and 2) volunteer opportunities.

#### 5.3.1.1 Site Map & Flow for CommunityNet.org

The modified site map based on BridgeOrg feedback from the storyboard resulted in the below Figure 2 that was delivered to CNDesign. The site map below makes visible how BridgeOrg wanted to organize the network-centric content in CommunityNet.org. The labels in bold indicate the top-layer of the site. These labels are used for the navigation bar. All the content is organized around the constituent categories, as defined by BridgeOrg, as well as individual FBO and CP constituents. From a design perspective, goal of BridgeOrg was to ensure that the network-centric content would be seen in as many places as possible. However, I believe this site map is more reflective of how BridgeOrg viewed and understood CommunityNet, i.e., in terms of its component constituents. When discussing operational issues such as funding or events, BridgeOrg spoke of CommunityNet members in terms of these constituent categories. For example, the mailing lists that BridgeOrg maintained were divided according to these categories as well.

**Homepage for CommunityNet.Org:**

1. **Constituent pages:**
  - Faith-Based Organization (FBO)** main page
    - State goal/purpose
    - News Stories Highlight Panel
    - Events Highlight Panel & CommunityNet Calendar Link
    - Daily Tip Panel
    - Information Resources Panel
    - Link to Listing of all Volunteer Opportunities (restricted access)
    - Specific FBO Member profile pages (public)
      - State goal/purpose
      - News Stories Highlight Panel
      - Events Highlight Panel & CommunityNet Calendar Link
      - Daily Tip Panel
      - Information Resources Panel
  - Community Partner (CP)** main page
    - State goal/purpose
    - News Stories Highlight Panel
    - Events Highlight Panel & CommunityNet Calendar Link
    - Daily Tip Panel
    - Information Resources Panel
    - Link to Listing of all Volunteer Opportunities (restricted access)
    - Specific CP Member profile pages (restricted access)
      - News Stories Highlight Panel
      - Events Highlight Panel & CommunityNet Calendar Link
      - Daily Tip Panel
      - Information Resources Panel
      - CP Volunteer Opportunities (restricted access)
  - Volunteer** main page
    - News Stories Highlight Panel
    - Events Highlight Panel & CommunityNet Calendar Link
    - Daily Tip Panel
    - Information Resources Panel
    - Link to Listing of all Volunteer Opportunities (restricted access)
  - Prayer** main page
    - Prayer Blog
    - Prayer Coordination Calendar
    - News Stories Highlight Panel
    - Events Highlight Panel & CommunityNet Calendar Link
    - Daily Tip Panel
    - Information Resources Panel
    - Link to Listing of all Volunteer Opportunities (restricted access)
  - Advocacy** main page
  - Supporting At-risk Youth** main page
  - Aftercare** main page
2. **Login** page
  - FBO Admin page
  - CP Admin page
  - Prayer Admin page
  - Member Profile pages (FBO, CP, Volunteer)
    - Event Form
    - News Story Form
    - Volunteer Opportunity Form
    - News Stories Highlight Panel
    - Events Highlight Panel & CommunityNet Calendar Link
    - Daily Tip Panel
    - Information Resources Panel
  - BridgeOrg Staff access
  - BridgeOrg Volunteer Admin access
  - BridgeOrg Admin access
3. **Sign-up** page
  - FBO sign-up
  - CP sign-up
  - Volunteer sign-up

**Figure 4. Final Site Map for CommunityNet.org**

I note here that in this design, while CommunityNet.org contained network-centric content, the overall structure or arrangement of this content was constituent-centric and organizational-member-centric. Given this arrangement of the content, the



general flow of this site, via the navigation bar, was from constituent page to constituent page; and if the user wanted more specific information on individual FBOs or CPs, they could access those profile pages through the directory listing.

In summary, both the design of the information content for CommunityNet.org and the structure of the information content was designed to convey all three levels of information: the whole network perspective, the group of organizations, and the individual organization.

### 5.3.1.2 Page Layout

Figure 5 provides a summary diagram of the page layouts for all the page templates, panels, and admin pages created for CommunityNet.org.

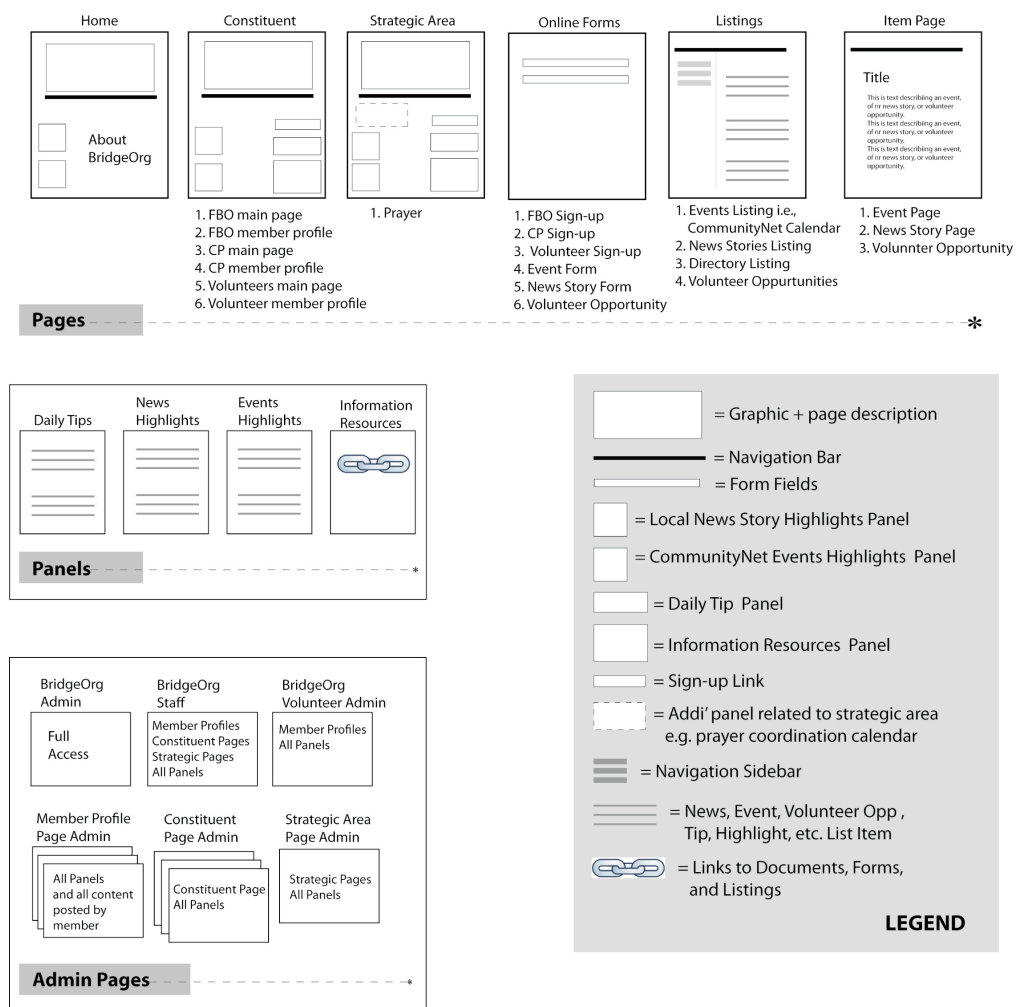


Figure 5. Page Layout Summary for CommunityNet.org

This diagram below shows another view on how all of the network-centric information was organized in a constituent-centric and organizational-member-centric fashion. That is, all lists (organizational directory, volunteer opportunities, online forms) are on the resources panel. All four panels are placed on the six different types of constituent pages. This effectively means all information on the site was accessible via the constituent main pages or constituent member profile pages.

#### 5.3.1.3 Focus+Context: CommunityNet Panels as Fixed-Lenses

Although the network-centric content model is organized around groups (constituents) and nodes (organizational members) of CommunityNet.org, this approach still contributes to the overall network-centric approach of CommunityNet.org because of the “fixed lens” concept described in section 5.2.

In CommunityNet.org, the fixed lenses are the four panels that contain dynamic information contributed by FBOs and CPs. The lenses are fixed in a metaphorical sense. One could imagine that the lens provides a fixed-focus on streams of activity in terms of news stories, events, best practices, and other information resources. The context for these fixed lenses are the surrounding content on the constituent or organizational member profile page.

An example of how this design approach operates in CommunityNet.org is a local news story highlight featured in the News Story Highlights panel that describes the arrest of a perpetrator. Noted in the news story are some of the names of CPs who are part of CommunityNet. Placement of the news story in context of other information increases the basic awareness regarding the overall community. This mitigates reading the story as an isolated, disconnected incident. Instead, the richer context of Community related to the news story is provided.

In another example, the Information Resources panel provides a poster created by anti-trafficking organizations in another metropolitan city. FBOs, CPs, and volunteer members of CommunityNet can download the poster in order place them throughout the

city. The Information Resources panel places a fixed-focus on the metaphorical stream of documents being shared with CommunityNet members. Placement of the poster in the context of information about CommunityNet constituents conveys a sense of broader participation in the use of the poster. This context mitigates the poster from being perceived as a one-time, random poster that is being circulated.

In yet another example, a fund-raising event where bracelets are being sold was communicated via the Events Highlight panel. Again, placing such an event in the context of network-centric CommunityNet information, conveys a sense that this event is occurring as a part of a larger movement.

The importance of this focus+context approach with the fixed lenses is underscored by the implications of findings from Field Study I & II. The highly fragmented nature of fighting trafficking requires many piecing the efforts of a range of many people to affect real change. Providing lenses into what is occurring both within and outside of CommunityNet supports a basic awareness lends insight into the anti-trafficking activity of the community as a whole. Consequently, I believe this focus+context approach brings a network-centric aspect to how the content is organized, although the primary organization scheme remains constituent and organizational-member centric.

### **5.3.2 Addressing Access Control, IO Identity, & Volunteer Matching**

The findings from Field Study II identified three areas of challenge for BridgeOrg concerning CommunityNet: access control, interorganizational identity, and volunteer matching. In the section below, I describe how BridgeOrg sought to address some of these challenges in CommunityNet.org.

#### **5.3.2.1 Access Control**

As detailed in Chapter 4, Section 4.4.2, I observed BridgeOrg to have a permissive data policy. According to BridgeOrg, membership was the only requirement

for accessing and contributing to content on any of the ICTs (social media, and Google Docs) employed by BridgeOrg for CommunityNet. However, the process of gathering the requirements for CommunityNet.org illuminated a more nuanced understanding of BridgeOrg's access control needs. These needs stand in direct contrast to examples of liberal access control. In one example, BridgeOrg made an Excel list of potential FBO members and the status of the membership solicitation process available on GoogleDocs for viewing and editing to any CommunityNet member. This liberality reflected how BridgeOrg's Facebook and Twitter page. Any CommunityNet member who came to BridgeOrg's monthly community meetings could effectively volunteer and receive administrator access to these accounts.

However, in designing CommunityNet.org, BridgeOrg expressed a desire for finer-grained access control on both a constituent and individual organizational basis. BridgeOrg desired information related to constituents to be freely editable by the respective constituent groups. However, information related to specific FBOs and CPs needed to be editable only by those organizations. In other words, any FBO and CP member could request through BridgeOrg to change any constituent-related content; and the profile pages of individual FBO and CP members were editable by the respective members.

Additionally, BridgeOrg on the advice of CNDesign, decided to have three different levels of BridgeOrg access to CommunityNet: staff, volunteer admin, and admin. The staff level access enabled BridgeOrg staff to edit content of all constituent pages, in terms of both dynamic and static content, and individual pages of member FBOs and CPs. The entire BridgeOrg staff received this level of access. The volunteer admin level enabled select volunteers to edit the content related to news/events highlights, daily tips, CommunityNet calendar and individual FBOs and CPs. Two volunteers with BridgeOrg received with this level of access. The BridgeOrg admin level access enable edits to every component of CommunityNet.org including the navigation

bar as well as graphics. Only one member of the BridgeOrg staff received this level of access. Table 14 summarizes these access control rules implemented in CommunityNet.org

**Table 14. Summary of Access Control Rights in CommunityNet.org**

Access-level	Content Type	Content Description
Public	Static and Dynamic	<ul style="list-style-type: none"> <li>• Event Calendars and pages, News Story Listing and pages, Overview Mission statement, General Constituent pages</li> </ul>
Individual Volunteers	Static, Dynamic and Partial Restricted-access	<ul style="list-style-type: none"> <li>• Public access pages</li> <li>• Access to volunteer opportunity and resource provisioning opportunity listings</li> <li>• Access to FBO and CP directory listing</li> <li>• Access to individual profile page</li> </ul>
FBOs and CPs	Static, Dynamic and Partial Restricted-access	<ul style="list-style-type: none"> <li>• Public access pages</li> <li>• Access to all volunteer and resource provisioning listings</li> <li>• Access to FBO and CP directory listing</li> <li>• Access to add to Event Calendar and News Story Listing</li> <li>• Access to add volunteer and resource provisioning opportunities</li> <li>• Access to add tips and best practices</li> <li>• Access to individual organization profile page</li> </ul>
Volunteer Admin	Static, Dynamic and Partial Restricted-access	<ul style="list-style-type: none"> <li>• Same access as FBOs and CPs</li> <li>• Access to <b>all</b> organization profile pages</li> </ul>
BridgeOrg Staff	Static, Dynamic and Partial Restricted-access	<ul style="list-style-type: none"> <li>• Same access as FBOs and CPs</li> <li>• Same access as Volunteer Admin</li> <li>• Access to all individual volunteer profile pages</li> <li>• Access to all Events, News Stories, Tips, Documents, and Opportunities</li> <li>• Access to all General pages and CommunityNet Overview and Mission</li> </ul>
Admin	Static, Dynamic and all Restricted-access	<ul style="list-style-type: none"> <li>• Same access as FBOs and CPs</li> <li>• Same access as Volunteer Admin</li> <li>• Same access as BridgeOrg staff</li> <li>• Access to edit all site images, navigation, content types, access control rules, and site database</li> </ul>

The significance of this difference in access control requirements indicates that BridgeOrg viewed access to CommunityNet.org content as more weighty than access to other CommunityNet content. This coincides with the view of CommunityNet members that being listed on BridgeOrg's CommunityNet.org site conveyed a weightier sense of commitment than being associated with other ICTs such as Facebook and Twitter.

#### 5.3.2.2 Interorganizational Identity

The finer-grained access control that BridgeOrg requested for CommunityNet.org also reflected an attempt to resolve the interorganizational identity issue as discussed in Chapter 4, Section 4.4.3 of maintaining boundaries in terms of content while attempting to foster communication between CPs and FBOs. CommunityNet.org, being organized according to constituents, provided two types of information sharing spaces for the organizations. The first level was the constituent space via the main FBO and main CP pages, where any organization could post Daily Tips, news stories, contribute to the CommunityNet calendar, and post volunteer opportunities. These items would be viewable throughout the site, and linkable in other places such as Facebook and Twitter. The second level was the organization space, where each FBO and CP member had its own webpage. In this space, members could post their own stated goal/mission statement, their contact information for raising basic awareness, and other details the individual organization deemed important.

The importance of giving organizational members their own information space was also partly motivated by the fact that the involvement of most FBOs was driven by a handful of individuals associated with the organization. Since most FBOs were churches, the existing FBO membership was dedicated to other causes. Thus, even though FBOs were listed as members of CommunityNet, the actual involvement of the FBO in CommunityNet depended on the activity of members within FBO who were driving it. This contrasts sharply with the involvement of CPs in CommunityNet because the mission of CPs coincided with the overall mission of combatting child sex trafficking. FBO members as previously mentioned had to set-up new processes for engagement and involvement with CommunityNet. BridgeOrg sought to assist FBOs with this by providing an information space where FBO members driving the involvement could manage information related to it.

Also, in an attempt to provide the whole network perspective, to inform CommunityNet about “Who is doing what?”, an alphabetic directory listing of all the organizational CommunityNet members was compiled. This directory contained the basic contact information as well as links to each of the FBO or CP profile pages that provided additional details about how each organization was involved in CommunityNet, e.g., their volunteer opportunities, events, and so forth.

#### 5.3.2.3 Volunteer Matching

In CommunityNet.org, BridgeOrg opted not to automate the matching process based on the profile of the individual and the organization provided on the sign-up form. BridgeOrg decided to attempt a manual matching process using email. When individuals would sign-up, a BridgeOrg staff member, with the help of a volunteer would contact the individuals regarding potential volunteer opportunities with CPs. BridgeOrg also decided to continue offering “meet-and-greet” type of events to encourage connections between individual volunteers and volunteer opportunities available at member CPs. CommunityNet.org was designed to only collect information about volunteers, CPs, and opportunities via the sign-up forms and the volunteer opportunities posted by the CPs.

### **5.3.3 Building CommunityNet.org, Version 1**

After finalizing the content model (Section 5.3.1), page templates and layouts (Section 5.3.1.2), site map, navigation, and flow (Section 5.3.1.1) of CommunityNet.org, I worked with CNDesign to select a platform for the site. BridgeOrg’s goal was to reach 100,000 people, recruit 75 FBO members, and 50 CPs members, as well as expand to other locations throughout the United States. At the time CNDesign began developing CommunityNet.org, BridgeOrg had less than 30 FBOs, around 30 CPs, and about 260 individual volunteer members. Given their growth ambitions, BridgeOrg requested that CommunityNet.org be designed accommodate future other locations and constituents.

#### 5.3.3.1 Drupal Platform for CommunityNet.org

CNDesign suggested the use of a robust content-management system (CMS) to accommodate the needs of BridgeOrg. At the time of this study, the three primary open-source CMS platforms were Joomla, Wordpress, and Drupal. BridgeOrg agreed with CNDesign to use Drupal as the platform to build CommunityNet.org because the system organized its data according to the content generators. This means, each user had editing control over all content generated by that user only. This method of data organization enabled the flexibility needed so that access control could be set-up for each of the constituent groups as BridgeOrg specified. In contrast, WordPress and Joomla organized their data according to categories created by users. At the time of this study, neither WordPress or Joomla were able to accommodate the access control needs of BridgeOrg, such that constituent groups, individual BridgeOrg staff, and individual volunteers could appropriately manage pieces of the content in CommunityNet.org.

At the time that BridgeOrg had engaged CNDesign for developing CommunityNet.org, the organization had also begun looking for a constituent relationship management (CRM) database to organize their contact as well as donor information. CNDesign recommended using CiviCRM, which is an open-source CRM, built on the Drupal platform that could potentially integrate with CommunityNet.org. The benefit of this integration was a potential reduction in data entry by BridgeOrg staff. The hope was that both CommunityNet.org and CiviCRM could operate out of the same constituent database, eliminating the need for BridgeOrg staff to manage two databases of constituents. Although the Drupal module for integrating CiviCRM with a Drupal site was not yet available at the time, the support threads in the Drupal developer community indicated that such an integration module was in the process of being created.



### 5.3.4 Features and Functions of CommunityNet.org to Support Raising Awareness

In this section, I describe how each of the design requirements was implemented in CommunityNet.org. Each feature or function is discussed in terms of how it was designed to support raising basic awareness and how it supported co-production and convergence within CommunityNet as guided and driven by BridgeOrg.

#### 5.3.4.1 Organize Around the Constituents: Network-centric information organization

There are two ways that CommunityNet.org conveyed network-centric information organization. The first way is with a horizontal navigation bar (Figure 6) with a drop-down menu showing all the general constituent pages.

home	who we are	get involved	sign-up	contact us	login
		faith-based orgs			
		community partners			
		volunteers			
		prayer			
		advocacy			
		support at-risk youth			
		aftercare			

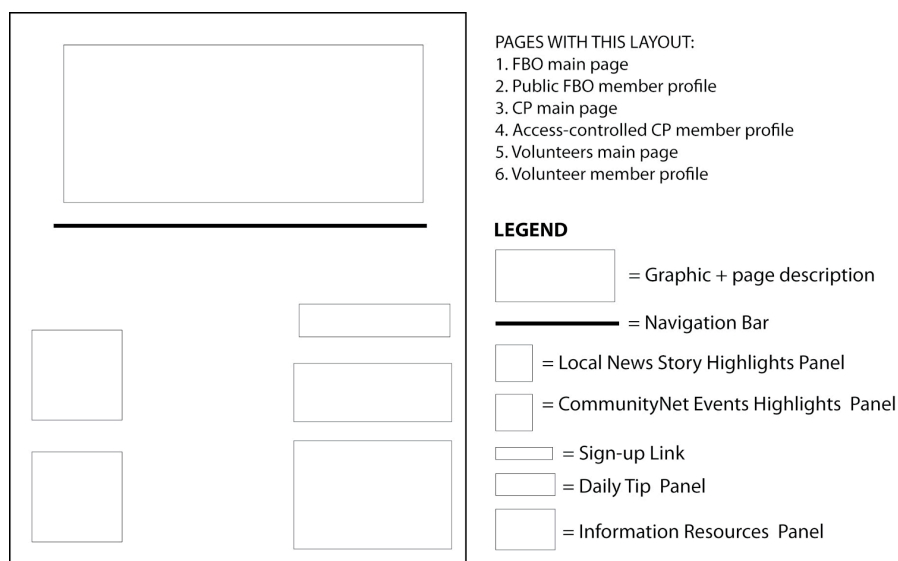
**Figure 6. Navigation Bar**

These constituent groupings were prominently displayed so that viewers of CommunityNet.org could gain a sense of the types of members in the community. This supported an immediate and accessible visual representation of the groups within CommunityNet to support existence awareness of those focused on victim prevention rather than victim justice.

The types of groups within CommunityNet were entirely the result of BridgeOrg's choice to focus on specific areas—prayer, advocacy, supporting at-risk youth, and aftercare, as well as focusing on specific constituent types of faith-based organizations (FBOs), community partners (CPs) and individual volunteers. However, according to the executive director, BridgeOrg's choice was informed from two inputs.

The first is a 3rd-party consultant who advised targeting FBOs to generate donations, resources, and volunteers, and CPs as resource recipients from FBOs. The second is the other two members of BWA, the coalition that BridgeOrg participated in to produce the annual advocacy event at the state capitol. These two members of BWA advised BridgeOrg of the needs beyond victim justice, which coincided with BridgeOrg's understanding of victim prevention needs.

At the time CommunityNet.org was being implemented, BridgeOrg pursued its primary mission in creating connections for CommunityNet. However, because of input from the other BWA members, BridgeOrg had an additional goal of pursuing the additional "strategic areas" of prayer, advocacy, supporting at-risk youth, and aftercare of restored victims. BridgeOrg's pursuit of these strategic areas was unclear and largely dependent on volunteers who would spearhead those strategic areas. Despite initial interest, several of the volunteers for each of the strategic areas had interpersonal conflicts with the BridgeOrg staff member responsible for FBO and CP connections and opted to end their participation with BridgeOrg. Nevertheless, BridgeOrg attempted to maintain its seemingly dual mission of connecting CommunityNet as well as emphasizing certain areas. However, BridgeOrg was never able to replace those volunteers for those strategic areas. In the evaluation of CommunityNet.org, discussed in section 5.4, I found that this caused significant confusion in CommunityNet as to the identity of BridgeOrg and its purpose and function.



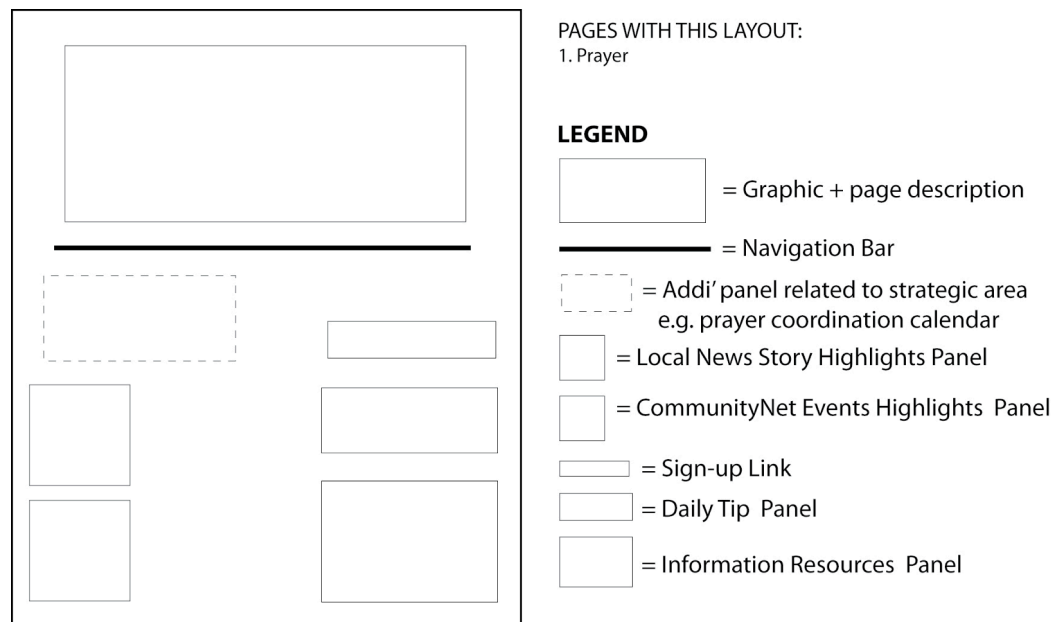
**Figure 7. Constituent Page Layout**

The second way that CommunityNet.org conveyed network-centric information organization is through each general constituent page displayed (Figure 7). On the general constituent pages for FBOs and CPs as well as the individual profile pages for organizations, all five categories of information that facilitates informal interactions between organizations were displayed. The layout is shown in Figure 5, and the page elements include (seven total): a graphic and general description, the navigation bar, the local news story highlights panel, events highlights panel, daily tip and best practices panel, and an information resources panel a sign-up link for CommunityNet. All of this information was publicly accessible, except for the individual CP member profile. These profile pages were available only to members of CommunityNet.

All of these elements collectively provided a general context for the bits of information displayed on the page. For example, if the events highlights panel showed a link to a fundraising event for one of the CommunityNet members, the event would be displayed juxtaposed to news stories related to organizations fighting child sex trafficking issue, daily tips for organizations combatting child sex trafficking, and other information resources for organizations or individuals seeking to help fight trafficking. In other

words, the fundraising event information would be situated such that the surrounding community organizational context within which this event was occurring was organized in close proximity to focus or information of interest. Furthermore, all information represented on these pages was produced by organizational members of the CommunityNet rather than by BridgeOrg.

The pages for the strategic area pages were laid out in the same fashion as the Constituent pages. They contained the same information organization and elements, but also included any additional panels related to that strategic area (Figure 8). Prayer being the only strategic area that was actually active, it contained an additional prayer calendar that was used to coordinate the 24/7-prayer initiative that CommunityNet attempted to implement. Individuals volunteering to pray would sign their names into a Google Calendar widget for a particular day and hour. This calendar was publicly accessible and managed by the volunteer leading this strategic area set-up by BridgeOrg. The prayer calendar represented a means to make visible an activity occurring at the network-wide level of CommunityNet



**Figure 8. Strategic Area Page Layout**

The informational elements on this strategic page were designed to contain the relevant community context around prayer. For example, a CommunityNet member viewing this prayer calendar would see it in the context of all other prayer related events occurring as well as all prayer related news and stories regarding fighting child sex trafficking, in addition to all information resources on praying against child sex trafficking. The informational bits of focus on prayer, such as the prayer calendar, were placed in context of the relevant broader community activity and informational resources.

The page layouts shown in Figure 5 and Figure 6 provide the details of how group-of-organizations level information was displayed in CommunityNet.org. Also within each page were supports to connect (e.g., Community Events panel), mobilize (e.g., sign-up link), or be informed (e.g., Daily Tip or local news story panel). The online supports for these information sharing practices that were placed at the group-level, mirrored the same supports placed at whole network level (homepage) through the different panels.

To summarize, the design of CommunityNet.org thus far was network-centric in terms of the information content, information structure, and page layout.

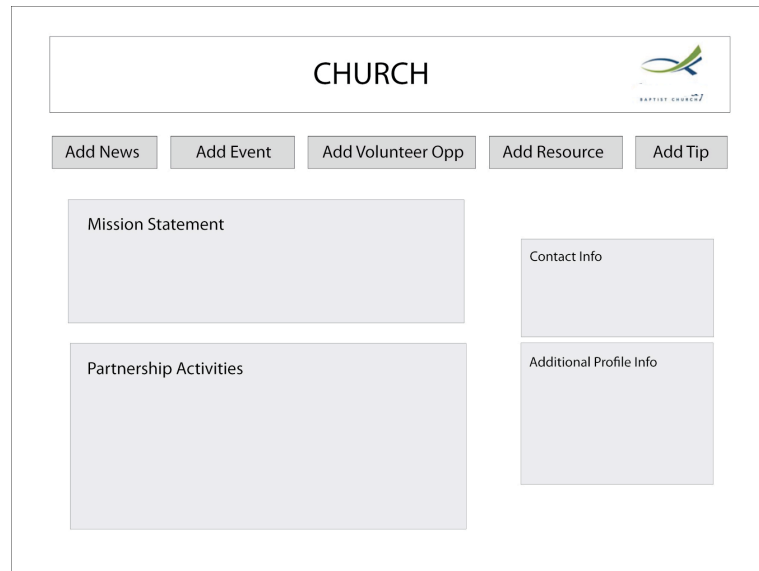
#### 5.3.4.2 Democratized Posting: Network-centric information production for connection

Four features/functions were utilized in designing CommunityNet.org to support network-centric information production for connection. The first is through the each of the FBO and CP organizational profile pages (Figure 9). Every member of CommunityNet that was an organization received a dedicated page to that organization that contained all the categories of information sharing that facilitated information interactions between organizations. In addition to these profile pages, CommunityNet.org was designed to give each organization member a dashboard page then enabled them to add events, news stories, tips, documents, and post opportunities for volunteering and resource giving (Figure 10).

Given the overall organization of information in CommunityNet.org in addition to the network-centric information production functions it supported, virtually all of the content on the site was effectively designed to be an exercise in co-production of online content. These functions also supported the degree to which the online interactions and information consumption led to offline interactions. That is, the profile pages enabled FBOs and CPs to make explicit the areas where each member was willing to engage in coordination activities with others. On this page, an organizational member could specify which are activity areas they were interested in, their mission statement, a profile picture, and contact information. In other words, these functions served to give CommunityNet members some control over the degree of convergence mediated by CommunityNet.org rather than having them mediated primarily by BridgeOrg. As discussed in Chapter 4, this mediation by BridgeOrg led to the feeling by BridgeOrg staff of being overworked and not utilizing the ICTs available to them effectively.

The screenshot shows a web profile page for a church. The header area includes a logo and the word "CHURCH". Below this, there are three main sections: "MISSION STATEMENT" with the text "To love Jesus and become more like Him." and an "EDIT" button; "PARTNERSHIP ACTIVITIES" with a list of five items (Awareness, Prayer, Mobilization, Supporting At-Risk Youth, Restoration) each preceded by a radio button, and an "EDIT" button; and "CONTACT INFO" with fields for NAME, EMAIL, PHONE, and ADDRESS. Below these is an "ADDITIONAL PROFILE INFO" section with fields for "WEBSITE:" and "GEOGRAPHIC AREA:". At the bottom, there is a section titled "THIS ORGANIZATION'S VOLUNTEER OPPORTUNITIES".

**Figure 9. Example FBO member profile page**

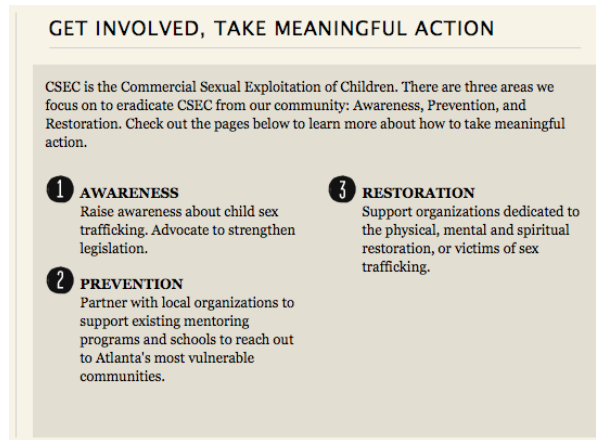


**Figure 10. FBO dashboard page for co-production**

BridgeOrg hoped that by giving FBOs and CPs the ability to upload their own information and have control over the extent to which CommunityNet.org mediated the convergence of the online and offline realities that BridgeOrg could focus on other aspects such as fundraising so that BridgeOrg could continue to exist.

#### 5.3.4.3 Whole Network Perspective: Information Structure and Presentation

CommunityNet.org provided a whole-network perspective in five ways. The first is through a clear, visible, and persistent statement of purpose that was prominently displayed on the home page (Figure 11). The slogan “Get Involved, Take Meaningful Action” encapsulated the end goal of BridgeOrg’s connection efforts within CommunityNet, which was ultimately to mobilize the community fighting child sex trafficking.

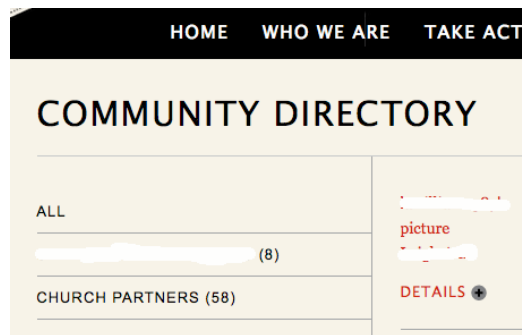


**Figure 11. The three areas of involvement in CommunityNet via BridgeOrg**

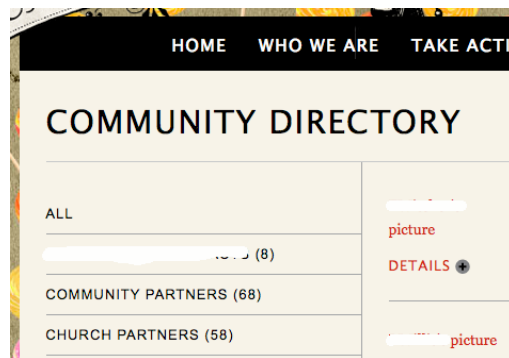
At the completion of the requirements gathering and design phase of CommunityNet.org, there were seven areas of constituent involvement—FBOs, CPs, volunteers, prayer, advocacy, supporting at-risk youth, and aftercare. Organizations currently active in any of these areas were eligible to begin the process for joining CommunityNet. The significance of these areas is that they provided the parameters for involvement, i.e., the information shared in CommunityNet.org for informal coordination between members had to fall within these topic areas.

However, after the development had been completed, the executive director mentioned that the focus for BridgeOrg was now FBOs, CPs, volunteers, awareness, prevention, and restoration. The executive director explained that the change in the purpose statement for CommunityNet arose from the need to differentiate BridgeOrg from the activities of other community organizations and to simplify its mission as an organization separate from CommunityNet. However, the stated reason for this change differed from what other BridgeOrg staff indicated, which was that volunteers to assist with the areas of aftercare and restoration were unavailable, and the BridgeOrg had to focus on what its staff was able to do, which was raising awareness, prevention or supporting at-risk youth, and restoration because a volunteer had come forth with an interest in working in this area.





**Fig. 12. CommunityNet Directory – Public View**



**Fig. 13 CommunityNet Directory – Member View**

CommunityNet.org provided a whole network perspective in a second way through the public view of the CommunityNet directory supports the process of informing basic awareness among member organizations by lists the various partners in the network. There are two views of the directory – a public view and a member view. This public view (Figure 12) contains a listing of church partners who are part of CommunityNet, as well as the staff of BridgeOrg. If the “Church Partners (58)” link is selected, then a list of all the church partners is displayed. The “58” indicates the number of Church Partners within CommunityNet. The member view (Figure 13) shows an additional listing of the “community partners” of CommunityNet who are directly involved in prevention activities against child sex trafficking such as family coaching, summer camps and mentoring for at-risk children, and tutoring programs. BridgeOrg

initially chose to have two views in case there was a risk in listing organizations working directly with at-risk children. However, BridgeOrg later determined that making the “community partner” listing viewable by members only was more of a hindrance than a real safety measure.

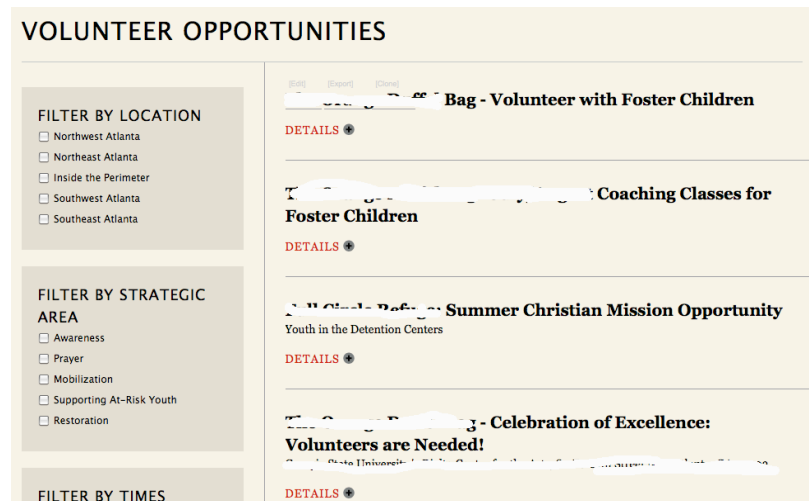


Figure 14 Volunteer Opportunities page from CommunityNet.org – Member View

A third way that CommunityNet.org provided the whole network perspective was to provide a list of volunteer opportunities available within CommunityNet (Figure 14). Each of the opportunities listed contained details regarding time, date, location, contact information of the individual coordinating the opportunity, and a description of the opportunity. From the field data, each of the organizations interviewed expressed a desire to be able to broadcast their opportunities to a wider audience beyond what they currently were able. This informational channel displayed on the website provided an additional option. In addition, the automation used to match volunteers with opportunities was dropped completely.

### UPCOMING EVENTS

June 8, 2011

**The Community - Celebration of Excellence: Volunteers are Needed!**

[DETAILS](#)

June 8, 2011

**The Community - Higher Education Institute (H.E.I.) 3-session coaching**

[DETAILS](#)

June 14, 2011

**Governor's Office of Children & Families - Introduction to Commercial Sexual Exploitation of Children**

[DETAILS](#)

EVENT DATE:

Format: 2011-06-02

FILTER BY LOCATION

☐ Northwest Atlanta  
☐ Northeast Atlanta  
☐ Inside the Perimeter  
☐ Southwest Atlanta  
☐ Southeast Atlanta

FILTER BY STRATEGIC AREA

☐ Awareness  
☐ Prayer

Figure 15. Events Listing page

### BULLETIN BOARD

The Bulletin Board is a place where our community shares news and inspiring stories. Get involved to post.

FILTER BY STRATEGIC AREA

☐ Awareness  
☐ Prayer  
☐ Mobilization  
☐ Supporting At-Risk Youth  
☐ Restoration

Apply

LATEST NEWS

May 10, 2011 by shanna

**Man accused of child exploitation sentenced**

A Tennessee man who ventured to the Dalton area in hopes of having sex with an underage girl and was arrested pleaded guilty in Whitfield County Superior Court on Tuesday and will spend three years in prison, a court official said. Rajeshkumar Patel, 40, of 1143 Appaloosa Way in Knoxville, was charged by the sheriff's office in September of 2009 with sexual exploitation of children. Later charges included two counts of criminal attempt to commit a felony. Patel pleaded guilty before...

[read more](#)

May 10, 2011 by shanna

**Georgia truck driver sentenced 10 years on child exploitation charges**

A truck driver from Chickamauga, Ga., who went to a Jefferson County restaurant thinking he was meeting a 14-year-old boy for sex will serve 10 years in prison, U.S. Attorney Joyce White Vance announced today. Tracy Shawn Guthrie, 34, pleaded guilty in February to attempting to entice a child to engage in illegal sexual activity. Guthrie will remain on supervised release for the rest of his

Figure 16. News Listing page

A fourth way that CommunityNet.org provided the whole network perspective was to provide listings of events and news occurring within CommunityNet (Figure 15 and 16). Each of the events listed contains details regarding time, date, location, contact information for attending the event, and a description of the event. The purpose of these news items was to raise awareness about the problem of child sex trafficking as well as stories of accomplishments. The purpose of allowing organizational members to post stories of their accomplishments was to enable them to highlight their capabilities as

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organizations. From the field data as detailed in Chapter 4, one category of information sharing that enabled informal coordination was conveying organizational capabilities.



**Figure 17. Information Panels Resources on CommunityNet.org:  
Upcoming Events, Helpful Resources, Daily Tips, and News Highlights**

A fifth way that CommunityNet.org provided the whole network perspective was to provide four panels through which specific events, resources, news and tips could be communicated throughout CommunityNet.org (Figure 17). This event highlight panel was displayed on every page of CommunityNet.org. This provided an additional informational channel for organizational members of CommunityNet to display opportunities for engagement in informal coordination with others. This area of the CommunityNet.org site provided information on different ways to get involved with organizational members of CommunityNet. This “Daily Tip” informational channel was intended as a means for organizational members to broadcast information to members of the public visiting CommunityNet.org. Any of the organizational members may post a daily tip. The tips posted would be rotated on a daily basis.

All four of these panels were made available on each page of CommunityNet.org. These features were designed to highlight and emphasize information resources within CommunityNet.org. However the content of these panels were tailored to the constituent pages. The purpose of these features was to mitigate information from being “buried” in the site because of placement. Allowing redundant information sharing features such as the below enabled organizations to “share the spotlight” through these rotating highlights.

Organizational members of CommunityNet had the ability to post helpful resources on the website. The purpose of these resources was to enable organizations to post studies, documents for printing information artifacts that needed to be physical posted or shared elsewhere outside of CommunityNet.org site. This was a visible informal document repository for sharing information to facilitate informal coordination.

The design purpose of these panels was to enable organizations had the ability to share volunteer opportunities as well as daily tips and other events and news related items. Collectively, these bits of information shared helped to facilitate connection-enabling activities within CommunityNet. These features also address the challenge of mismatches between volunteers and opportunities by removing the automation and by providing a filtering method for volunteers to be able to locate opportunities more appropriate for their situation. These features enabled organizations to share information for informal coordination. This is consistent with the second and third categories of information sharing described in section 3.1.1, which are: reporting on activities and opportunities for others in CommunityNet, and sharing best practices and tips.

MANAGE CONTENT				
<div>ADD NEWS</div> <div>ADD EVENT</div> <div>ADD VOLUNTEER OPP</div> <div>ADD RESOURCE</div> <div>ADD TIP</div>				
TYPE	TITLE	LAST UPDATED ▾	AUTHOR	EDIT
Volunteer Opportunity	The [REDACTED] – Volunteer with Foster Children	17 hours 19 min ago	[REDACTED]	Edit
Volunteer Opportunity	[REDACTED] – Coaching Classes for Foster Children	17 hours 26 min ago	[REDACTED]	Edit
Events	T [REDACTED] – Partnering with Camp to Belong	17 hours 30 min ago	[REDACTED]	Edit

Figure 18. Administration Panel for managing content on CommunityNet.org

CommunityNet.org designed an admin panel to help BridgeOrg staff members manage the content of the site (Figure 18). From this panel, staff members had the ability to generate content on behalf of other community members. For example, a nonprofit organization (P69) helping foster children (who are an at-risk population for trafficking) organized the volunteer opportunity listed above, which was intended to raise basic supplies for foster children who were sponsored to attend summer camp. P69 had already communicated the details of this to volunteer opportunity to a staff member at BridgeOrg. As a courtesy, the staff member entered the details of the opportunity into CommunityNet.org. The types of content entered by BridgeOrg staff and other CommunityNet members included news, events, volunteer opportunities, informational resources, and tips for volunteering or finding other resources.

What is interesting about all these features and functions is that collectively, they represent types of content that members of CommunityNet were able to contribute. The content they contributed flowed throughout the site via the different panels. The different panels were fixed lenses that functioned as windows into CommunityNet activity. These panels provided the context for the other information presented throughout CommunityNet.org. The site platform enabled bi-directional information contributions to facilitate the co-production of the overall CommunityNet reality or context.

#### 5.3.4.4 Facilitate Real-World Connection: Expansion of CommunityNet network

BridgeOrg attempted to facilitate the expansion of CommunityNet in two ways. The first is through highlighting the work of organizational partners on the home page (Figure 19). The purpose of highlighting organizational members was to make visible specific members available for coordination. This was a feature designed by BridgeOrg for the purpose of showcasing organizational members to others on a rotating basis to reinforce a sense of involvement and belonging to CommunityNet.



**Figure 19. Example highlights of six organizational members working with CommunityNet**

As one BridgeOrg staff person explained, member organizations constantly sought after visible forms of validation for their organization and work. Although such information could be tweeted or posted on Facebook, having this information placed in the context of the overall information sharing of CommunityNet was indicated by organizations as more preferable to isolated bits of information.

The second way BridgeOrg attempted to expand CommunityNet was by facilitating the sign-up process for CommunityNet membership as well as participation in BridgeOrg events for enabling connections within the community.

There were a total of three sign-up forms for membership to CommunityNet—FBOs, CPs, individual volunteers, and one sign-up form type for BridgeOrg events. The sign-up forms for membership in CommunityNet were extensive; the questions ranged from simple contact information to questions regarding organizational mission and specific reasons for involvement in CommunityNet. The sign-up forms were kept deliberately long and tedious in order to discourage low-commitment sign-ups from individuals. As one BridgeOrg staff member expressed, if an individual or organization did not want to take the time to complete a 20-minute form, their commitment was likely low to begin with and that they would not likely want to be involved. BridgeOrg hoped to encourage the sign-ups of organizations and individuals interested in forming social bonds rather than being engaged in fighting child sex trafficking in a transactional way.

## **5.4 Evaluation of Design Study I**

BridgeOrg and CommunityNet utilized CommunityNet.org for six months after the site was deployed. I then proceeded to evaluate CommunityNet.org with the help of BridgeOrg staff. To evaluate the site, I chose not to focus on performance related aspects, such as reliability, security, efficiency, or usability) at this time since the purpose of CommunityNet.org was a design exploration to better understand the network-centricity as a design priority. Although there were issues regarding the usability of the site in terms of lost passwords, and difficulties with site in terms of integrating all the different Drupal modules that were used to build the site, I chose to focus on the usefulness of CommunityNet.org rather than the usability. Overall, the site was built using modules and component parts that are standard features on thousands of Drupal-based sites, so I felt that usability would not be a significance issue based on the pre-existing extensive use of the various buttons and menus. This was echoed by participants from both focus groups. They indicated that these technical problems were hindrances in some instances of use but not overall.

Thus, the usability of CommunityNet, though important in most contexts, was less relevant at this stage of design because my principle objective was to understand whether my design of network-centric information content, structure, presentation, and production could better promote interorganizational awareness. As this website was a relatively early prototype in terms of the network-centric design aspects, I required a nuanced evaluation approach that would enable me to disentangle participants' responses to these information architecture-type aspects from responses to the overall aesthetics and affordances (or lack thereof) of the website. Consequently, I took a qualitative, discursive approach, which would enable me to solicit feedback while probing participants for the reasoning and experiences that led their impressions to take the shape they did.



#### **5.4.1 Evaluation Methods – Data Collection and Analysis**

The qualitative data I collected for the evaluation were focus group data (interaction-generated data) and semi-structured interviews with BridgeOrg staff (retrospective data). I first conducted semi-structured interviews with members of the BridgeOrg staff. I interviewed the BridgeOrg Executive Director, the program director, and two paid staff and three volunteer staff. The purpose of the interviews was to learn more about their use of CommunityNet.org in their daily information sharing activities. Two of the staff members were responsible for interacting with both Church Partners and Community Organizations, in terms of facilitating their membership into CommunityNet and helping them with information sharing tasks, which organizational members wished to share with other members of CommunityNet. In my interviews with BridgeOrg staff, both of whom I interviewed separately, the questions centered on their interactions with organizational members of CommunityNet, and the information sharing to support basic awareness, as well as the network-centric information structure, presentation, production, and expansion.

The interview data and analysis of BridgeOrg was augmented with two focus group studies with CommunityNet members. I chose to utilize the focus group interview method for interviewing FBOs and CPs since eliciting data through group interaction could open up additional opportunities for feedback on counter-opinions among the interviewees. Also, this method was helpful to me as an interviewer since I did not yet possess enough insight into organizations perceptions of network-centric information sharing to generate questions for a more structured interview process.

The first focus group consisted of four CPs, representing about 8% of the total number. The second focus group consisted of six FBOs, representing about 12% of the total number at the time of this study. All focus group participants volunteered in response to an email request sent out by BridgeOrg staff. To provoke discussion, I chose to conduct a walk-through of CommunityNet.org in terms of the network-centric

information structure, presentation, production, and expansion. The duration of each focus group was about two hours. After the walk-through discussion, all participants had the opportunity to provide general feedback about the site.

I utilized a general inductive approach for analyzing the data, using a partial categorization scheme derived from Field Study II and the requirements analysis for CommunityNet.org. I also examined the data for additional themes and sub-categories that might emerge, both within the documents and between them as well. I corroborated my findings with BridgeOrg staff for further confirmation.

#### **5.4.2 Findings – Network-centric Information Content, Structure, and Presentation**

From the analysis of the focus group and semi-structured interview data, several themes emerged regarding the network-centric information structure (information organized around constituents) and the presentation (whole network perspective). The first theme is that the structure and presentation foregrounded underlying tensions within CommunityNet due to differences in organizational structure. Organizations perceiving BridgeOrg as a bureaucratic organization had different expectations of information sharing than organizations interacting with BridgeOrg as a professional organization. The second theme is that although CommunityNet.org helped to resolve some aspects of boundary confusion between organizations, other aspects of boundary confusion was foregrounded between BridgeOrg and members of CommunityNet. The final theme that emerged was the issue of access control and information sharing in CommunityNet. The access control policy was perceived as helpful to some organizations but extremely unhelpful to others. The difference in perception pointed towards different priorities in terms of information sharing practices within CommunityNet.

##### **5.4.2.1 Coping with Multiple Administration Styles: Bureaucratic vs. Professional**

During the six months that the CommunityNet.org site was in use, a contrast emerged between the information sharing activities of BridgeOrg and CommunityNet

members. According to Stinchcombe, there are two types of work administration, which dictate different information sharing styles. The bureaucratic administration style invokes centralized information sharing within the organization, where information is shared top-down. Information for administration (specifications of goals and instructions) is relayed from the top of the administration hierarchy to the lower levels where the work is actually accomplished.

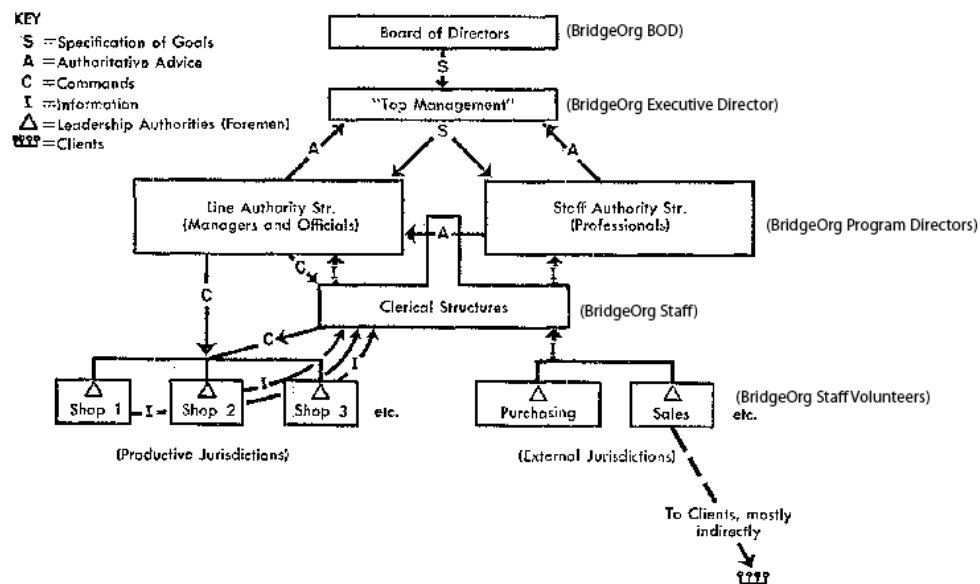


Chart 2. Administration of a mass production firm.

Figure 20. Bureaucratic Administration Structure (Stinchcombe, 1959) of BridgeOrg

Figure 20 above illustrates the structure defined by Stinchcombe (1959) and in parentheses are organizational equivalents in the BridgeOrg organization. BridgeOrg's Executive Director conveyed the "specification of goals" and the authority to do so, which was to engage the community in fighting CSEC (primarily through prevention, advocacy, and awareness). BridgeOrg's first program director (hired in 2008) focused on accomplishing this goal locally. Then in the summer of 2011, BridgeOrg hired another program director to begin exploring the possibility of working with community organizations in other cities to accomplish this goal. My field data does not reflect the

efforts of the second program director since the data gathering for this research was completed before then. BridgeOrg's Executive and Program Director had usually one or two office paid staff (depending on the funds available) as assistants. The staff was primarily in charge of communicating and coordinating with those outside of BridgeOrg and to manage BridgeOrg's files.

This bureaucratic administration style was determined based on semi-structured interviews with BridgeOrg's executive director, two members of the board, BridgeOrg's program director and staff. The interview data was supplemented by email correspondence between BridgeOrg's Executive Director and Board Members, as well as excel spreadsheets of data regarding the organization and overall specifications. The flow of information is in keeping with Figure 20 with the Board of Directors communicating exclusively with the Executive Director (ED); the ED communicating almost exclusively with the program director(s); and the program director(s) communicating primarily with the supporting staff, both paid and volunteer. The content of these emails centered around the strategy and administration of BridgeOrg, e.g., encouragement of partnerships within the community, key donors, office hires, messaging to key constituents, etc.

The point at which most of the activity occurred between BridgeOrg and CommunityNet was between the BridgeOrg program director, who functioned as the liaison between BridgeOrg, and community organizations that were focused on prevention efforts. Although this program director worked with vendors and other teams for event production efforts, the majority of this director's work centered around coordinating with community organizations.

In contrast to the bureaucratic administration of BridgeOrg itself, the professional style of work administration invokes decentralized information sharing. Information for completing the work (specifications of goals and instructions) is localized where the work is actually being accomplished rather than being relayed top-down. Figure 21 illustrates

this professional-style of administration as identified by Stinchcombe (1959). BridgeOrg program directors relayed the specifications of goals for CommunityNet members regarding the overall direction of fighting CSEC. These goals were derived from but not directly established by the specifications from the BridgeOrg Board of Directors.

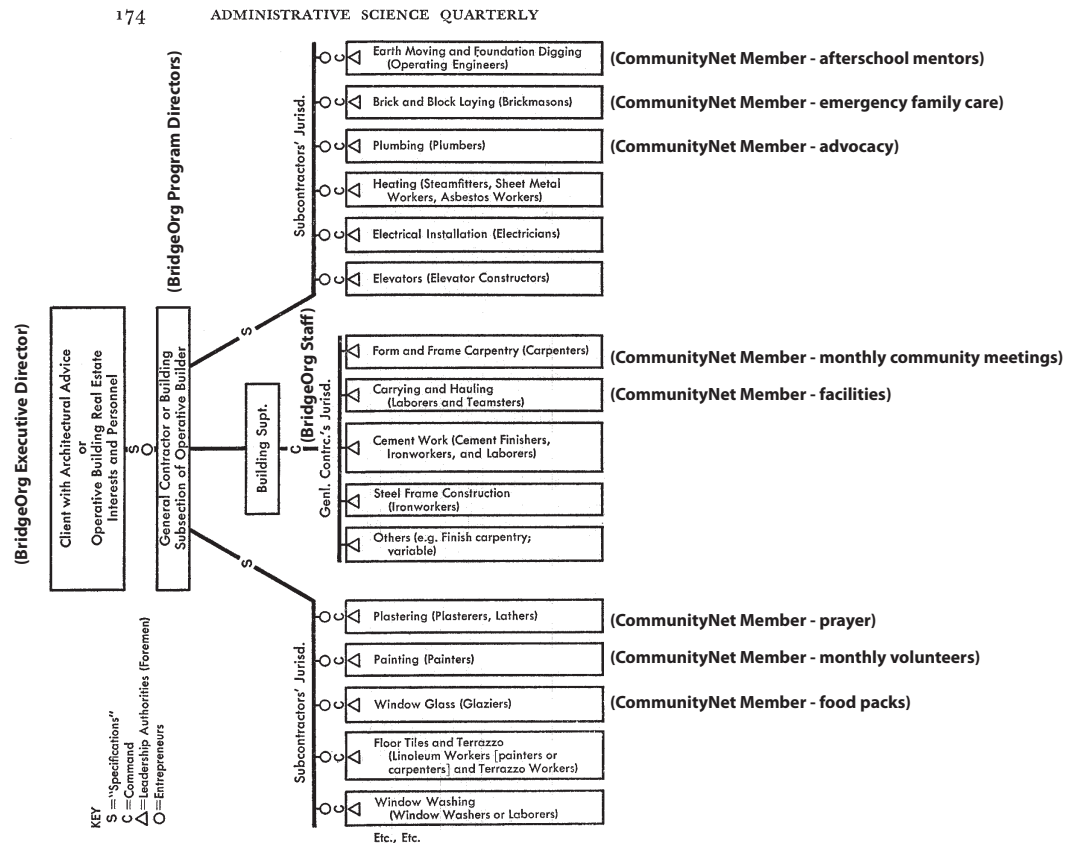


Chart 1. Site administration of a construction project.

**Figure 21. Professional Administration Structure (Stinchcombe, 1959) of CommunityNet Community Partners in Relation to BridgeOrg**

Keeping these goals in mind, CommunityNet members then made all of the decisions regarding what work would be done, by whom, and how both in terms of timing and approach. Once the goals were communicated, the BridgeOrg program director shifted into a support role of providing information resources, social connections appealing for and directing volunteers towards organizations who needed them. The

program director was also responsible for being available to organizations regarding questions about CommunityNet participation and whether specific CommunityNet events/activities fell within the specifications established by BridgeOrg.

The contrast between the administrative-style (bureaucratic) of BridgeOrg internally and its administrative-style (professional) is significant for several reasons. The first is that this dual administrative style confused members of BridgeOrg staff and CommunityNet with regard to organizational boundaries for information sharing. For example, after one organization joined CommunityNet as a member, they planned an awareness raising event to have at their facilities. They asked BridgeOrg to manage the event, provide materials, and to organize the attendees. BridgeOrg had to repeatedly clarify that CommunityNet members were expected to initiate events or activities and manage them end-to-end. BridgeOrg would only provide guidance and informational resources, but no direction and management other than direction in terms of the goal of the event. This particular organization presumed a top-down model of administration and information sharing where they viewed BridgeOrg as being “in-charge” of the anti-CSEC efforts, rather than a partner with community organizations

Even though BridgeOrg initiated, maintained, and perpetuated the community network, it was considered a separate entity as well as an organizational “member” of CommunityNet. However, other organizational members were confused by the “separateness” of BridgeOrg as an organization apart from the CommunityNet network. For example, one organization presumed that BridgeOrg would adopt its anti-CSEC public service announcements (PSAs) without prior approval because of the joint membership within CommunityNet. BridgeOrg had to clarify to this organization that although members of the network shared the same goal, and that PSAs could be offered as an informational resource to the network, adoption and usage should not be presumed. PSAs and other public relations communiqués came as directives from BridgeOrg’s executive director.

The contrast in administrative styles between BridgeOrg and CommunityNet, also gave rise to confusion regarding data capture and management. In one example, BridgeOrg built and maintained a website where individuals could join CommunityNet as runners. Some of these runners were affiliated with CommunityNet members and were given the opportunity to list their affiliation on the sign-up form on the site built for CommunityNet. However, few actually did so. At one point, a CommunityNet member requested data from BridgeOrg regarding the number of runners affiliated with their organization that had signed up to be a part of the awareness raising running team. BridgeOrg provided the names of two individuals who had noted the affiliation with the organization. This organization expressed frustration with BridgeOrg for not maintaining better records of runners affiliated with their organization. Making a sign-up form available with the option of inputting the organization affiliation, obscured the reality of other ways to become part of the awareness running team, e.g., through the running team Facebook page, where one could learn about team events without ever having to sign-up through the custom site or simply by word of mouth where participation could occur without a formal signup.

Because BridgeOrg made a sign-up available, some CommunityNet members expected BridgeOrg to capture, maintain, and share data that CommunityNet members imagined BridgeOrg had available. In reality, BridgeOrg enabled individuals to sign-up, added the individuals to a list, and then sent communications to that list. If affiliation information was noted, then the names were forwarded to the organizations as a courtesy. However, BridgeOrg expected CommunityNet members to build and maintain their own lists of runners and to share that list with BridgeOrg. This example demonstrates the conflict between the BridgeOrg expected a professional-based style of information sharing and data management where these tasks are largely undertaken by CommunityNet members, while some CommunityNet members expected a more

bureaucratic sharing, where BridgeOrg captured and maintained event information related to individual affiliate members of CommunityNet organizations.

All church partners in the focus group indicated being demotivated to use CommunityNet.org or post information items because of a lack of interaction with BridgeOrg staff. However, based on the focus group data, the interaction they needed from BridgeOrg seems to be different from that of the community organization partners.

Community organization partners were set-up to more easily provide BridgeOrg with 1) basic awareness information, 2) daily tips and resources to share with others, 3) events, and 4) volunteer opportunities. The daily functioning of their organization included these information types. In contrast, although church partner organizations were interested in being part of CommunityNet and taking meaningful action against CSEC, they needed to go through the process of generating 1) basic awareness information, 2) daily tips and resources to share with others, 3) events, and 4) volunteer opportunities.

What they needed from BridgeOrg was guidance in generating such information and getting “organized” to participate. This need is the one of the key causes of organizational boundary confusion within CommunityNet. The interviews with BridgeOrg indicate a lack of awareness of this need by church partners, although BridgeOrg staff did indicate frustration and incredulity regarding the confusion by church partners regarding organizational boundary issues.

The data from the focus group sheds light on this confusion and indicates the problem is the result of a lack of organizational structure by church partners. BridgeOrg assumed that church partners would self-organize and generate information regarding: 1) basic awareness information, 2) daily tips and resources to share with others, 3) events, and 4) volunteer opportunities. However, because church partners did not have the organizational structure to generate such information, they assumed that their relationship with BridgeOrg would be more centralized and hierarchical. Whereas the community



partners rightly had the expectation that the relationship would be more in the professional administration style.

At the conclusion of the focus group interviews, community partners confirmed that the information content of CommunityNet.org was helpful and did not request additional categories of information types. In contrast, church partners indicated they needed help organizing their engagement with BridgeOrg, and that while the information content was helpful, additional information on setting up processes for long-term engagement with BridgeOrg was needed.

#### 5.4.2.2 Organizational Boundaries in Information Sharing

Structuring the information in CommunityNet.org around the different constituent groups as well as giving each individual member a dedicated page on the site resolved the issue that occurred when using FB group pages. The pages for each of the constituent groups had been structured in such a way as to mitigate these pages from being overrun by any of the other constituent groups, yet to enable contributions from any an all members of CommunityNet. For example, the general FBO constituent page contained information panels that enabled any FBO to contribute tips, events, news stories, and volunteer opportunities that would be displayed in multiple places throughout the site. However, there were other boundary problems that the use of CommunityNet.org helped to foreground.

The first is a confusion in terms of information ownership. Both focus groups (FBOs and CPs) indicated there was confusion about the site branding. In the midst of the build-out and implementation of the CommunityNet.org site, BridgeOrg decided to do launch a film campaign to raise awareness. One consequence is that the site was re-skinned to fit the film campaign launch, while the content remained the same. Members from both focus group indicated confusion about the purpose of the site since the visual elements were oriented around the film campaign, while the content was oriented around the CommunityNet members. BridgeOrg staff explained that the site was now serving a

dual purpose of promoting the film campaign to raise funds for BridgeOrg while at the same time serving as an informational resource site for CommunityNet.

When focus group members were asked if this confusion presented a hindrance for their participation in the site, they unanimously responded that the information on the site was still helpful such that they would like to continue using it. However, organizational boundaries were confused in that they were now questioning whether they were part of the film campaign of BridgeOrg. Since BridgeOrg financed the design and implementation of the site, they had final authority over what happened to the site. Rather than paying for the build-out of a separate film campaign site, they decided to re-skin the CommunityNet.org site. They chose not to do this for their main website for BridgeOrg because they wanted to retain a sense of their identity. However, they failed to appreciate the overlapping sense of ownership on the site. CommunityNet members “owned” the information on the site, yet BridgeOrg as hosts did not consider that CommunityNet members owned the information, and assumed it would be obvious to CommunityNet members that they were not a part of BridgeOrg’s film campaign.

#### 5.4.2.3 Continued Access Control Issues

The access control policy that BridgeOrg determined for CommunityNet.org (Table 5) was designed to accomplish three objectives. The first was to enforce organizational boundaries in information sharing. The second was to provide an incentive to organizations and individuals to join CommunityNet in order to receive access to privileged information, namely the volunteer opportunities. The third was to moderately protect CPs since organized child sex trafficking rings and other predators could utilize this list of organizations to target vulnerable children that the organizations were serving.

The access control policies did successfully enforce organizational boundaries in information sharing between organizations and providing some login-based protection. However, based on feedback from FBOs and CPs during the focus group interviews, this policy was considered more of a hindrance to information sharing around volunteer

opportunities. Individuals had to join CommunityNet, be approved by a BridgeOrg staff member, and then login before they could view volunteer opportunities. Despite clear instructions posted by BridgeOrg staff regarding the process, individuals were hindered viewing the opportunities due to a variety of issues such as browser cookies, forgotten login credentials, and so forth.

FBOs and CPs that tried to direct potential volunteers to their opportunity listings on CommunityNet.org did not realize the process required to view them and misinformed individuals about the process. The organizational members of CommunityNet assumed that all information would be publicly accessible, including the volunteer opportunity information. They did not realize, nor did BridgeOrg inform them that volunteer opportunity information would be used as an incentive to encourage membership into CommunityNet.

The overall impression of the access control policy for CommunityNet.org was that it discouraged participation between volunteers and CPs, which is a key connection type that BridgeOrg sought to support and encourage.

#### **5.4.3 Findings – Network-centric Information Production**

BridgeOrg did not have an adequately functioning CRM at the time. CommunityNet.org helped to organize information for BridgeOrg. They could view info about CommunityNet members and other constituent groups. However, what they could not view are the connections between individuals and CPs and FBOs. According to focus group interview data, they needed to know which individuals was connected to which church, was connecting with which CP. They were also helpful to BridgeOrg for keeping track of information regarding which organizations posted information and the individuals that had signed-up to be a part of CommunityNet.

BridgeOrg undertook considerable effort to encourage the use of CommunityNet.org by the community organizations. They held training meetings to demonstrate the use of the site, and distributed reminder magnets on which login and

password information could be written. Emails were sent to each organization to encourage the use CommunityNet.org. These efforts resulted in raising awareness about the availability of the site among CommunityNet.org members. A few began using the site, but the majority preferred to send emails for information sharing. As a result, the program director and volunteer staff began manually updating the information for each of the organizations being sent in by email or phone calls. CommunityNet members regularly and reliably supplied information to share with members of the public and CommunityNet, but BridgeOrg staff was relied upon by the organizational members to actually upload the shared information.

The primary methods by which the program director communicated with CommunityNet members were through meetings, phone and email. Information designated to share with the public and the rest of CommunityNet was placed primarily on the CommunityNet.org site that BridgeOrg designed and built based on feedback from CommunityNet members and BridgeOrg staff. The site was designed to enable community organizations to upload shared information regarding 1) basic awareness information, 2) daily tips and resources to share with others, 3) events, and 4) volunteer opportunities. Each organization had a login name and password that enabled them to access a dedicated page containing all shared information from that organization. Also available on that site was listing of all the organizations that were members of CommunityNet.

Both focus groups indicated that BridgeOrg's level of contact or lack of contact was a key determinant in the CommunityNet members use of CommunityNet.org. This may seem like an obvious point because BridgeOrg was serving as an information upload proxy. However, the issue is more complex than just a lack of interaction. BridgeOrg sent emails and made phone calls to both church partners and community organization partners soliciting and encouraging posting of events, volunteer opportunities, best practices, and news onto CommunityNet.org. However, the primary respondents to such

requests were community organization partners. Consequently, BridgeOrg exchanged less communications with church partners in contrast to the community organizations.

In addition to the semi-structured and focus group interviews, I conducted a light-weight information flow analysis of the revised site based on actual content uploaded to the site. Based on the information flow analysis, regular updates of all categories of information for informal coordination was being posted by almost all of one constituent type, which BridgeOrg called “Community Partner”. The other constituent type, which BridgeOrg called “Church Partner”, as a group, was fairly inactive in posting information. The imbalance in the exchange and involvement of BridgeOrg is noticeable in that the information available on the CommunityNet.org site is heavily skewed towards information regarding community organization partners rather than church partners.

#### **5.4.4 Findings – Expansion of CommunityNet**

The sign-up process was organized around the constituent groups of individual volunteers, faith-based organizations, and community partners. All three sign-up forms were extensive with 15-20 questions per sign-up. BridgeOrg staff manually approved all sign-up requests. BridgeOrg deliberately designed long sign-up forms because they believed if an individual’s or organization’s willing to take the time to complete the form was an indication of their dedication or commitment to the cause. The number of sign-ups tripled for individuals and doubled for organizations after CommunityNet.org was launched. This may have been due to BridgeOrg’s recruiting efforts that occurred after the launch.

Many individuals that signed-up were not as responsive as expected to contacts made by BridgeOrg volunteers, encouraging them to volunteer with CPs. Over 1,500 were contacted and less than ten percent responded in the affirmative, seeking to volunteer. BridgeOrg had shifted from automatically matching individual volunteers, to supplementing the match process with meet-and-greet events, and well as manually

emailing individuals about interests. One reason for the lack of response may be that individual volunteers were mostly looking for transactional connections with organizations, i.e., one-time engagements such as clicking a like button, completing a sign-up, or giving a one-time donation. The act of filling out a form with BridgeOrg may have been the “completed” transaction, and thus motivation for further action by the signed-up individuals was diminished.

I believe it is also possible that most individuals were seeking to develop a relationship with an organization because the meet-and-greet attendance ranged from 30-100 participants. Potential individual volunteers were more responsive to the meet-and-greet events than the emails sent by BridgeOrg volunteers. The significance of the disparity between those that responded to emails and those that responded to the meet-and-greet events, indicate that CommunityNet.org should be designed to support offline activity rather than extended online supports for reaching out to potential volunteers.

In terms of expanding CommunityNet’s organizational members, BridgeOrg reached over 50 community partners through the sign-up process. As a result, they ceased soliciting partnerships so that they could focus on developing relationships with these organizations. Generally, each organizational sign-up resulted in the addition of an organizational member because of the vetting process that BridgeOrg had in place. The vetting process involved a high degree of contact between BridgeOrg and the potential organizational member. However, BridgeOrg rejected some organizations because they were businesses seeking to extend their network of contacts for potential new business.

## **5.5 Discussion and Reflection**

CommunityNet.org was an exploration in network-centric information sharing design. The information content was network-centric because it followed the categories of information sharing for facilitating informal interaction (from Field Study II). The structure and presentation of the information content was presented in a network-centric

fashion by providing the categories of information sharing through three different views: the landscape view or whole network perspective, the group of organizations view, and the single organization view. These three different views were accommodated through the use of panels as modular information structures that could be configured for each view. The production of the information content was also network-centric through the features and functions that enabled any organizational member of CommunityNet to contribute content that was displayed throughout the site.

The evaluation study of CommunityNet.org revealed that the information structure and presentation was helpful. The website seems to have supported basic awareness with the information made available. Organizations were able to see all five categories of information to support basic awareness, and these categories of information were displayed from the whole network perspective, the constituent perspective, and the single organization.

Nevertheless, the faith-based organizations felt the need for additional content; for example, they wanted to know which individuals from their congregation were participating in events and volunteer opportunities. BridgeOrg did not think to keep track of such information because the staff believed keeping track of congregational involvement belonged to the FBO. In contrast, the community partners in the focus group were satisfied with the content and did not offer suggestions for additional content.

This difference between FBOs and CPs pointed towards a hidden tension among CommunityNet members. CommunityNet.org was designed for FBOs and CPs as if their information sharing practices with BridgeOrg were the same. The FBO and CP profile pages were set-up in such a way that they reinforced this “sameness” explicitly. Analysis of the focus group data showed that FBOs did not find the website as helpful because it lacked other content they needed. BridgeOrg failed to realize that FBOs saw themselves as an extension of BridgeOrg as an organization—a scaled-down version of BridgeOrg, having to do what BridgeOrg did in terms of connecting, mobilizing, and informing, but

doing so within their particular congregation. CommunityNet.org foregrounded this difference in perspective when FBOs were encouraged to use the website for their information needs rather than directly contacting BridgeOrg staff via email. The lack of certain types of information on CommunityNet.org became more apparent, e.g., information related to setting up an engagement strategy within the church congregation, tracking of congregational involvement, and an explicit feedback mechanism to inform BridgeOrg on church partner activity related to fighting child sex trafficking. Although CommunityNet.org fulfilled its core purpose, which was to inform basic awareness, the gaps in information needed by FBOs shows the need for a fourth perspective—in addition to the whole network, constituent, and organization perspectives. This fourth perspective would be the dyadic view; this includes information related to the relationship between the FBO and BridgeOrg, both of which comprise the dyad. This dyadic view would support the basic awareness needed between each FBO and BridgeOrg. The focus group data indicate that FBOs required this dyadic view whereas community partners did not because they did not necessarily themselves as an extension of BridgeOrg.

In this design study, I explored network-centric information sharing in terms of content, structure, presentation, and production. I found that supporting basic awareness for connection requires four different views on the five categories of information to facilitate informal interactions. My design exploration utilized open-source Drupal modules, which were configured to accommodate at least three of the four views—whole network, group, and organization. I relied on the conventional navigation design to shift between the three views. However, this conventional design was inadequate in several ways. First, it did not accommodate views of any surrounding context that may be outside of the network. This outside view could provide additional relevant context to accentuate the place of CommunityNet within broader community. For example, FBOs may wish to know the relationship of victim justice organizations to victim prevention. However, the



navigation of CommunityNet.org did not accommodate that. Second, it did not easily support the exploration of organizations. An alphabetic directory of organizations was provided. However, this directory was of limited use if one did not have a specific organization name in mind.

To further extend my exploration of network-centric design, and to understand how accommodate different views as well as support users exploration of a network such as CommunityNet, I conducted a second design study. In this second study, I developed an alternate navigation system based on a folksonomy that emerged from Field Study II, and applied different visualization techniques as part of the design. Additional details of this study are provided in Chapter 6.

## **CHAPTER 6**

### **DESIGN STUDY II: NETWORK-CENTRIC NAVIGATION AND EXPLORATION OF COMMUNITYNET**

Findings from Field Study II (Chapter 4) pointed towards a need to explore ICTs that sufficiently matched the formality and informality of social processes being supported. In addition, the information orientation of these ICTs needed to be more network-centric, where the content, structure, and presentation were oriented to the needs of the network. In Design Study I (Chapter 5), I explored how CommunityNet.org could be designed with an emphasis on network-centricity in order to support the social process of informing basic awareness for connecting. This process of informing basic awareness is an informal process and required ICTs that could accommodate the flexibility needed. Although the information content, presentation, and structure of CommunityNet.org generally supported raising basic awareness, I chose to further investigate ways to support the exploration of CommunityNet in terms of the relationships or connections within CommunityNet.

One example where better exploration support could be useful was in the volunteer matching process. Not all volunteers and organizations were looking specifically for events and opportunities. Some were seeking organizations they could browse and determine if longer-term relationship or coordination were possible. However, the alphabetic directory of organizations was ill-suited to users attempting to make sense of CommunityNet as a network of organizations. Unless they were previous familiar with the names of these organizations, meaningful associations that could guide users exploration were lacking.

In another example where better navigation support could be helpful is in shifting between different meaningful views of CommunityNet's information. In Design Study I,

three views were actually incorporated into CommunityNet.org: the whole network perspective, the group of organizations view, and the single organization view. The evaluation study of CommunityNet.org revealed that an additional dyadic view was needed, i.e., one that conveyed basic awareness information about an organization's relationship with BridgeOrg. There is also a fifth view that could further support basic awareness and that is the broader context in which CommunityNet is operating. This is the context for the whole network perspective. CommunityNet was a network of auxiliary care organizations. However, there is a network of organizations focused on victim justice and direct victim care that remains hidden; the current structure and content of basic awareness information conveyed in CommunityNet.org does not accommodate for this additional context.

The above two examples point towards opportunities to design network-centric navigation, as well as support the informal exploration of organizations within a given network; thus, my purpose for conducting Design Study II was to investigate this.

## **6.1 Study Background & Motivation**

The problem that inspired this second design exploration came from Field Study II. The data analysis from my second field study suggested that the process of matching individual volunteers with organizations and opportunities was more akin to the nuances of online dating (as opposed to traditional match-making or arranged marriages).

However, the automated, more formal approach that BrideOrg actually utilized to support the matching process with custom webpages resulted in poor participation by individual volunteers (volunteers were automatically matched with organizations as in an arranged marriage). BridgeOrg attempted to resolve this problem by augmenting the automated match system with meet-and-greet meetings between potential volunteers and organizations.

While the meet-and-greet meetings did increase participation somewhat, BridgeOrg sought alternative solutions that would enable a drastic increase in volunteer participation. BridgeOrg then decided to drop that automated matching altogether. Instead, they would match the individuals and organizations manually via a phone campaign. They dedicated two volunteer staff to help with these efforts. The only automated portion of this manual process was the collection of volunteer information and information about the organizations providing the actual volunteer opportunities. Unsurprisingly, this approach proved too tedious, even with two dedicated volunteer staff.

BridgeOrg then chose to utilize a hybrid approach. They decided to view all volunteer opportunities as an event and to list them on CommunityNet.org. They also decided to no longer require individuals to “sign-up” with CommunityNet. Only organizations were now required to sign-up. This meant that individuals no longer had to login in order to view the volunteer opportunities. When potential volunteers visited the site, they could browse the volunteer opportunities directly and sign-up for them as if they were registering for an event. BridgeOrg decided that any individual signing-up for any volunteer opportunity would automatically make them a part of CommunityNet.

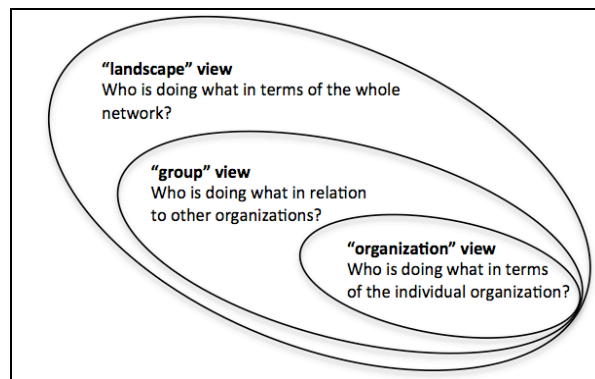
This hybrid approach helped solve a transactional aspect of volunteering, i.e., an individual finds an opportunity, and signs-up online to promise a certain number of hours of volunteer help. The transaction is completed offline after the volunteer completes whatever task was promised. No further relationship or obligation remains after the transaction. However, this approach did not help the individual volunteers who were seeking more than a volunteer transaction. BridgeOrg staff indicated that a significant number of individuals and FBOs were seeking to develop a relationship with a CP in need, instead of a one-time interaction.

The only resource that BridgeOrg had to support this need was the online alphabetic directory of organizations that listed basic awareness information about each

organization. Using this directory, potential volunteers and FBOs could browse the listing to identify organizations of interest. Given that BridgeOrg sought to expand nationally and to increase its organizational listing substantially, BridgeOrg was motivated to better support users in the initial stage of exploring organizations for the purpose of longer-term relationship building.

## 6.2. Design Process - Information Organization

To begin the design process, I distilled the problem of network-centric navigation and exploration into the problem of answering the question “who is doing what?”. To address this question, there are the three perspectives of network-centric information identified from Design Study I (Chapter 5).



**Figure 22. Three perspectives on “Who is doing what?”**

As shown in Figure 22, the first perspective or “landscape” view refers to “who is doing what in the context of the whole network?”. Many of the organizations I interviewed were seeking an overview that could convey the landscape of organizations devoted to fighting child sex trafficking. The second perspective or “group” view refers to “who is doing what in relation to other organizations?”. Individuals from organizations I interviewed expressed a desire to know organizations working on similar aspects of fighting child sex trafficking. This perspective of the “who is doing what” question arose

when individuals or organizations were attempting projects requiring the cooperation of multiple stakeholders. The third perspective or “organization” view refers to “who is doing what in terms of individual organizations?”. This perspective addresses exploration of specific organizations within a network; it is also the basic variation of the “who is doing what” question.

In Design Study II, I did identify the need for the dyadic view. However, this view is not accommodated in this design exploration because this view would not be a publicly accessible view as these other four views. The dyadic view would be created solely the basic awareness between the organization and for BridgeOrg.

### **6.2.1 Folksonomy/Categorization Scheme**

To organize the information content that would address the “who is doing what” question from all three perspectives, I first drew upon the “activity stream” finding from Field Study II. The activity stream was a set of descriptors that organizations used to refer to other anti-trafficking organizations in the network. These descriptors effectively describe the process that a victim can go through, and they include: prevention, intervention, rescue, restoration, and reintegration.

There are additional descriptors that were derived from BridgeOrg’s organization directory. This directory gave CommunityNet members access to information needed to facilitate informal coordination, and this included an organization’s basic contact information, their mission, opportunities, and capabilities. With each listing, a set of labels to describe their place in CommunityNet was also used. The first set of labels indicated the type of member organization it was, which could be either service (helping children directly) or support (helping organizations that help children). The second set of labels indicated the type of goals (such as awareness or advocacy) pursued by the organization. A third set of labels indicated the type of capability (such as mentoring or training) held by the organization. BridgeOrg had created this taxonomy of labels in order

to classify each member organization within CommunityNet, and each member organization was categorized by BridgeOrg with at least one label from each set.

Member organizations then adopted the labels given to them by BridgeOrg, but utilized them only in reference to coordination activities within the network. Member organizations did not use these labels to communicate their identity outside the context of the network. Hence, I refer to the labels as their interorganizational identity (not as their organizational identities) because the labels were only utilized in the context of coordination within CommunityNet. That is, BridgeOrg primarily used these labels in order to help raise basic awareness among member organizations about the presence of other members in CommunityNet. For example, BridgeOrg set up in-person meetings and facilitated introductions between member organizations that shared common labels. BridgeOrg also setup separate mailing lists that segmented member organizations according to groups that shared common labels in order to send messages relevant to the different groups. Although these labels were created and initially assigned to members by BridgeOrg, these members had the option to change the labels tagged to their organization. With these label changes, organizations in CommunityNet were able to reflect shifts in alignment to different groups in the network.

I further augmented these descriptors with others that emerged from my field data. These descriptors are categories I used in my field data analysis to organize the overall ecosystem of anti-trafficking organizations in the community I studied. They include community support, direct victim support, victim justice, and victim needs. These are broader categories I used to make sense of the anti-trafficking community, and to compare and contrast their coordination and ICT use. The complete set of descriptors that emerged from the field data in addition to the descriptors used by the organizations themselves as follows:

*From anti-trafficking organizations:*

- Prevention
- Intervention
- Rescue
- Restoration
- Reintegration

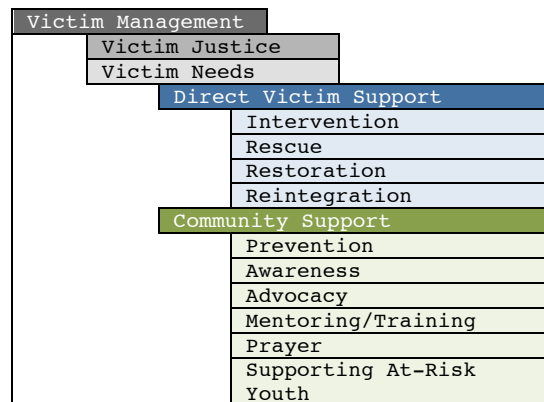
*From BridgeOrg:*

- Advocacy
- Awareness
- Prayer
- Resource Gathering
- Mentoring/Training
- Supporting At-risk Youth

*From Field Study I & II data categories:*

- Community Support
- Direct Victim Support
- Victim Justice
- Victim Needs

I refer to these descriptors as a folksonomy, i.e., an ordered set of categories that emerge from the social context. One common theme for all of these descriptors is the practice of what I call victim management. All of these labels refer to either preventing victims or an aspect of managing victims. I then used the broad categories derived from my field studies to further organize the categories derived from BridgeOrg and the other anti-trafficking organizations into the following structure:



**Figure 23. Folksonomy/Categorization Scheme of the Victim Management Information Sharing Practice**

My design purpose for this folksonomy was to use it to help address the first perspective of the “who is doing what” question, which is the landscape view or “who is doing what in the context of the whole network?”. This perspective would also provide

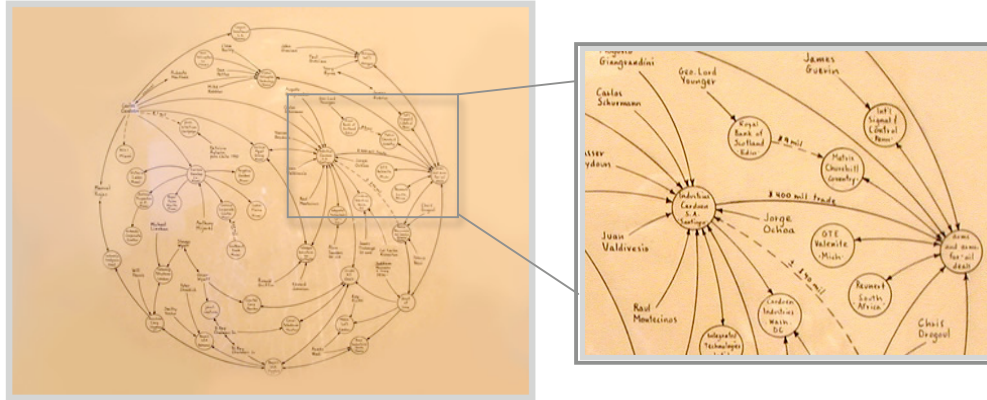


the context for the remaining two perspectives, the “group” view and the individual organization view. To organize the content for the group view and the organization view, I utilized the categories of information sharing finding from Field Study II. These categories include: 1) basic contact information, 2) mission, 3) capabilities, 4) opportunities for engagement, and 5) tips and best practices. The purpose of the organization view was to display all five categories of information for each individual organization. The group view would consist of groups of organizations that were working together or involved in the same event or opportunity for engagement.

### **6.3 Design Process – the Community Category Navigator Visualization**

I chose to utilize a visualization approach because the information space that had to be navigated and explored was fairly large, and the visual channel has been shown to be effective for “processing” information (Card et al., 1999). Additionally, those conducting the exploration would need to interact with the data to uncover areas of interest. The techniques of information visualization are particularly well-suited for supporting user interaction with data in a variety of ways such as filtering, focusing, and zooming to uncover insights.

For the visualization, I drew inspiration from two sources. The first Mark Lombardi, a late artist from New York, who drew by hand social network graphs representing power relationships (Lombardi, 2003). Rather than displaying all entities or nodes and the interconnected relationships between them, he selected specific groups of nodes and arranged them into clusters (Figure 24) that represented regions of power dynamics within a larger story, i.e., not all the individuals actors in the social network was displayed.

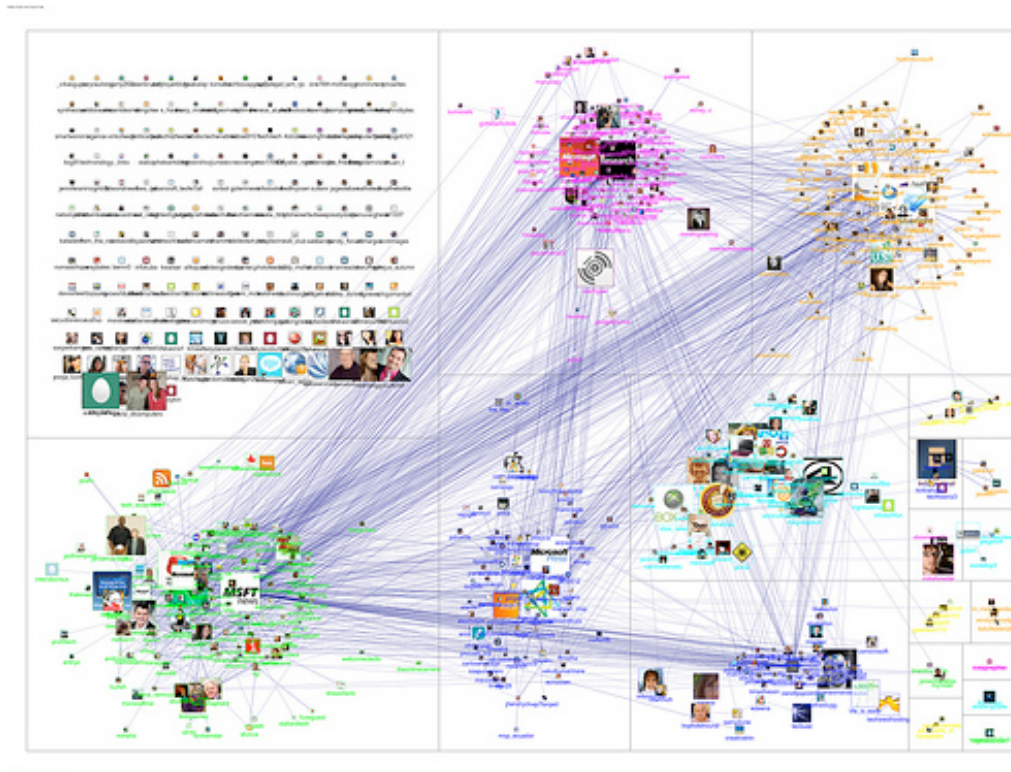


**Figure 24. Lombardi's Global Network and Narrative Structure**

One feature that distinguishes Lombardi's visualization from other graphs is the design choice of not displaying all related nodes, but rather selecting ones that were meaningful to the overall story. What he emphasizes in his design is the story of the edges. The dashes, arrows, and endpoints of the edges convey the story of power relationships that Lombardi seeks to tell through his visualization. The nodes act as anchors for the edges. This contrasts from the typical graph visualization that emphasizes the story of the nodes, where the information about each entity tends to be rich, while a mere thin line represents the reason for their interconnection.

I drew inspiration from Lombardi's notion of narrative structures and emphasis visualizing the story of the edges, and determined that the narrative of the edges for CommunityNet were contained in the folksonomy/category map for victim management. The interrelations between organizations in CommunityNet were driven by interactions around activities for managing victims. Lombardi's approach, however, did not explicitly call out the narrative structures. They were implied by the negative spaces around the edges and nodes, and crafted into a circular arrangement. I believe this lack of explicitly identifying the narrative structures detracted from the usability of Lombardi's approach for navigation and exploration.

The work by Rodrigues, et al. (2011) offered an approach for explicitly representing intra- and inter-cluster links in a social network, which is analogous to Lombardi's narrative structures. They created a visualization they refer to as Group-In-A-Box (GIB) layout, where the graph was distorted into different adjacent boxes representing inter-linked groups, as shown in Figure 25. In contrast to Lombardi's approach, GIB displayed all of the nodes and edges at the same time, but explicitly showed the relationships between clusters by stretching the graph and placing them into meaningful areas or boxes.



**Figure 25. Group-In-A-Box TechFest group layout (Rodrigues, et al., 2011)**

For my visualization design, I chose to pursue a hybrid approach of GIB and Lombardi that focused on explicitly conveying the narrative of the edges, but avoided displaying the full set of nodes in CommunityNet at the same time. I believed this hybrid approach would enable me to convey the three different views in a usable fashion without potentially overwhelming the user by showing all of the information at one time. I then

selected two visual metaphors for explicitly conveying narrative structures or the interconnections between groups. The first is linear, to provide a temporal, sequential view of the various processes that must occur with respect to a victim as part of the rescue/rehabilitation process. I refer to this as the “stream” view, after a metaphor used by one of the anti-trafficking organizations.

The second representation is a hierarchical tree visualization to represent the above Folksonomy. This view provides a focus+context type interaction, where the user’s area of interest is given more space at the expense of areas of less interest. In creating this view, I used design inspired by Alexander Calder’s notion of the mobile, as it naturally provided a visually pleasing way to arrange this type of dynamic, hierarchical content without making a space feel crowded or disorganized. My use of this scaling category map (which I refer to as the “mobile” view) was for several reasons. First, this view readily conveys the whole network perspective by showing a general overview of the hierarchy, and a sense of the content in several of the nodes beneath the current view. Additionally, this visualization naturally offers a graphical trail of context to enable further exploration. Thus, this approach seemed ideal for this context, helping to balance the tension between the occlusion of displaying high volume data within a limited screen space, and ease of navigability and clarity.

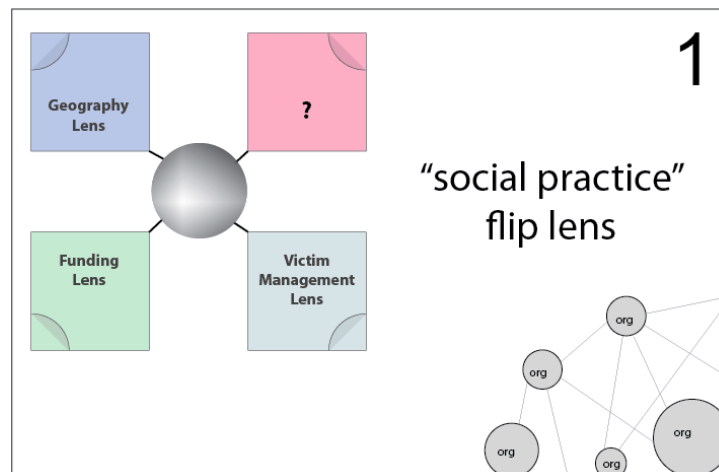
In what follows, I present seven sketches of my visualization approach for network-centric navigation and exploration, which I refer as the community category navigator. It is a 2-dimensional visualization that relies on direct manipulation for interacting with the data, i.e., the data of interested is selected through pointing and clicking rather than entering text-based queries in a search box. The data source I utilized for my visualization design concept is a directory listing of organizations from BridgeOrg that was edited to change contact names, phone numbers, and other identifying information. This directory listing was organized alphabetically and each entry contained

basic contact information, categorization tags taken from the category map, names of events they participated in, and volunteer opportunities associated with each organization.

### 6.3.1 Visualization Tasks

With regard to network-centric navigation and exploration, the specific visualization tasks that I sought to support were two-fold. The first is providing an overview of the data. My goal was to utilize the whole network perspective to support this task of conveying the requisite overview. The second task was supporting details-on-demand, that is, providing additional information as the user exploring the visualization actually sought the data. The additional details I provided the user were information organized around three different views of the data (landscape, group, and organization).

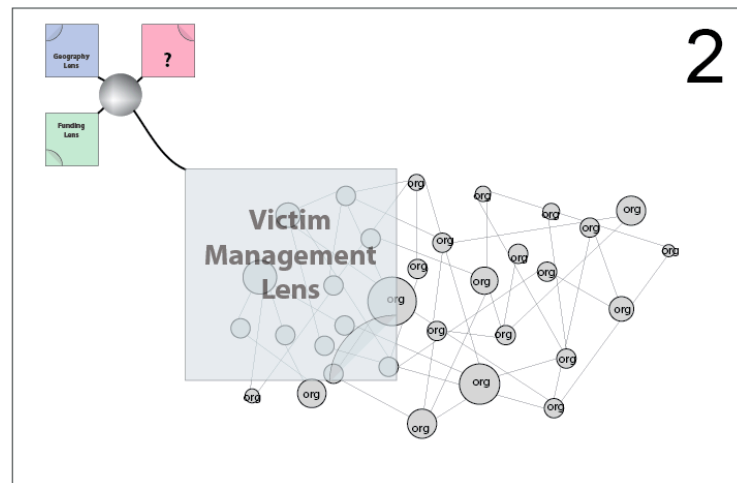
In what follows, I describe a series of seven sketches that I created as one visualization approach for network-centric navigation and exploration. These are conceptual drawings only and do not as yet reflect a functioning system, since my primary goal at this stage was to develop a usable visualization concept.



**Sketch 1. Information sharing practices lenses**

As part of my design, I created an interaction mechanism, which I refer to as the information sharing practice flip lens as shown in Sketch 1. By information sharing

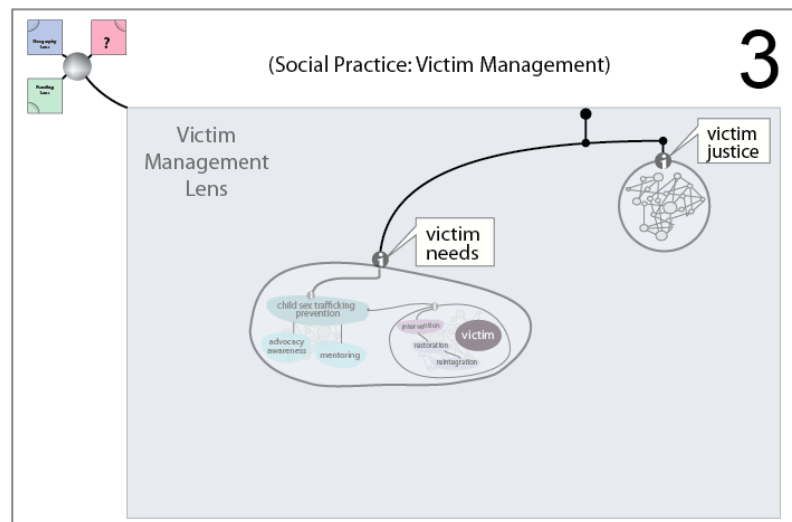
practices, I refer to repeated patterns of interactions occurring among organizational members of a network in keeping with the overall goal of the network. These lenses are designed to provide additional options for viewing an interorganizational network. For CommunityNet, the practice of Victim Management is the primary narrative driving the interactions between the organizations. Although all of the categories in the folksonomy converged on the practice of victim management, I recognized that there are multiple information sharing practices that could be applied to generate the three perspectives of the “who is doing what” question. Examples of other practices that could be utilized are geographic distribution and funding management.



**Sketch 2. Overlay of information sharing practice lens over interorganizational network**

These lenses are used to overlay the graph (as shown in Sketch 2) and to reveal an ordered categorization scheme of the information sharing practice that was derived from Field Study II. The graph in Sketch 2 represents a network of organizations, with each gray circle labeled “org” representing an organization in the network. The lines represent connections between the organizations, which can be based on a range of network-wide attributes such as event involvement, fundraising, and so forth. The information sharing practice lenses are an interaction mechanism for selecting the attribute for connection. In Sketch 2, the lens selected is Victim Management, and when the lens is overlaid, the

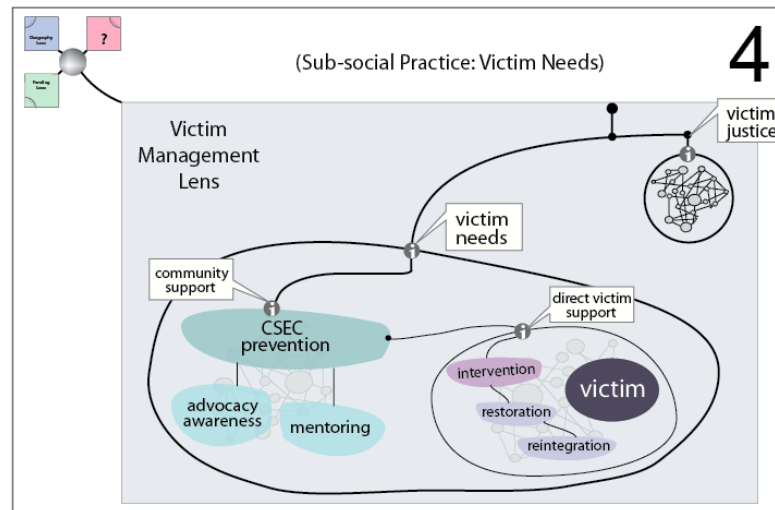
connections of the graph are rearranged to reflect clusters of organizations that have similarities in Victim Management, each individual node is not revealed at this level of the visualization. The benefit of this approach is that it avoids displaying the entirety of all nodes and corresponding edges. Instead the overlaid information sharing practice lens provides a way to navigate a meaningful pattern of connections that supports the sense-making of an unfamiliar interorganizational network.



**Sketch 3. Landscape View: Partition between victim needs and victim justice**

Once overlaid, the lens displays structures within the interorganizational network according to the categorization scheme for Victim Management information sharing practice. The mobile metaphor is used visualize the category map. I used the primary branch of the mobile to indicate the connection between victim needs and victim justice as being part of victim management. However, the hanging components indicate the partition between these groups. The victim needs component is purposefully larger than victim justice and foregrounded in the center of the visual to indicate that more information is available for the victim needs category. The first partition in Sketch 3 is between organizations focused on victim justice versus those focused on victim needs.

This partition is visualized as an irregular oval encompassing a group of clusters. This visualization is designed for users to be able to select either a partition or a cluster to explore for further details.



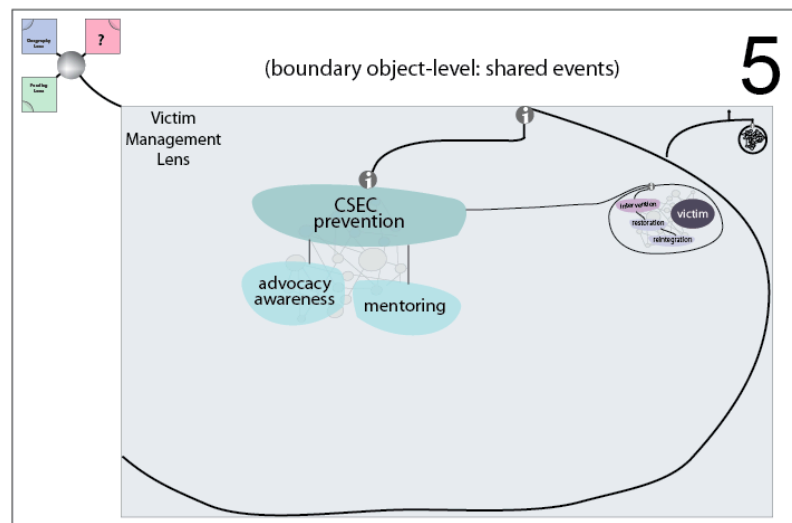
**Sketch 4. Partition of Victim Needs between community support and direct victim support**

Sketch 4 shows a visualization of the entire categorization scheme for Victim Management. This view of the visualization effectively shows the “landscape” perspective of the “who is doing what” questions. Traversing further down the categorization scheme of Victim Management, the category of victims needs is further subdivided between community support and victim support again using the irregular shaped ovals. The visualization uses sub-branches of the mobile to connect the partitions, as well as adding components (pastel-colored oval shapes) for the sub-categories with community support and victim support. Each oval shape represents a cluster of organizations that have a sub-attribute of Victim Management in common. For example, the turquoise oval shape labeled “CSEC Prevention” represents organizations focused on prevention efforts against child sex-trafficking. Two clusters of organizations under “CSEC Prevention” are shown as light blue ovals. The ordering of these clusters and sub-clusters within partitions are displaying the categorization scheme shown earlier in Figure



23. The colors of these ovals were selected to coincide related clusters. For example, clusters within the “Direct Victim Support” partition are variations of purple. In contrast, the clusters within “Community Support” are variations of blue. This color scheme helps to reinforce the sense of partitions being conveyed with the thin black-lined ovals.

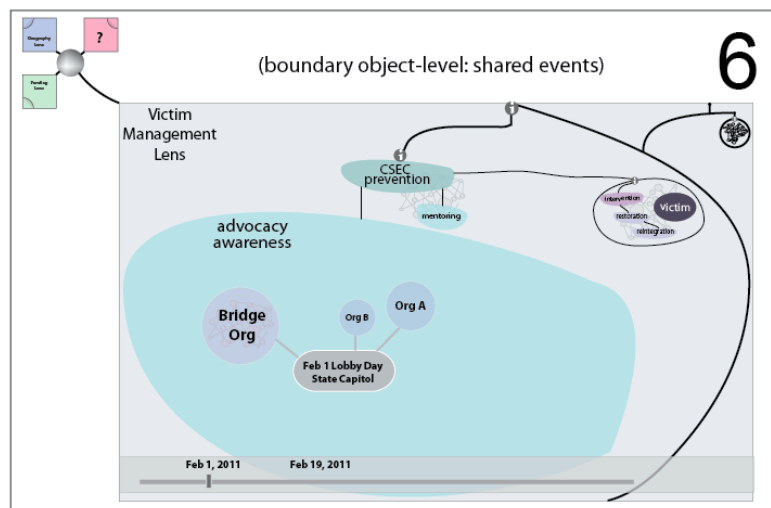
Sketch 5 shows how the visualization transitions from the “landscape” view to a “group” view. If a user selects the “CSEC Prevention” cluster, the visualization interface will zoom into the cluster of interest, while at the same time minimizing the other cluster groupings. These cluster groups remains visible so that the user can easily traverse between clusters of interest. The design intent was to enable a user to select any of the components below and the visualization would zoom into the component and enable them to select additional categories for exploration.



**Sketch 5. Group View: zoomed in view of the victim prevention partition**

If the user selects Advocacy and Awareness, as shown in Sketch 6, the visualization zooms further to reveal groups of organizations that have participated in common events, such as the February 1 Lobby Day event. Based on the categories of information sharing from Field Study II, these events are one type of boundary object (Star and Ruhleder, 1996) that brings organizations together in the anti-trafficking community. Boundary

objects can be artifacts, discourses or common language, and processes shared in common by communities that have practices significantly in common (Star and Ruhleder, 1996). These boundary objects act as interaction points between organizations. Using this visualization approach in other contexts may result in displaying other types of objects that have shared meaning for that community. For CommunityNet, these events for furthering connection as was the most significant boundary object bringing together members of network.

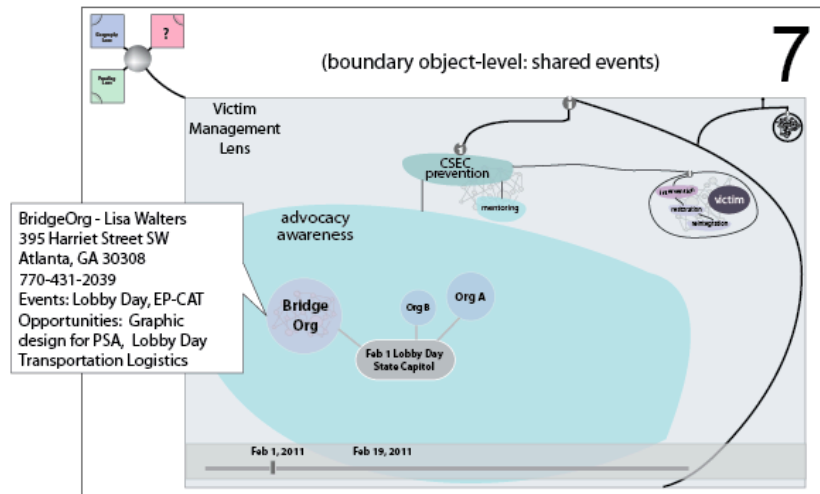


**Sketch 6. Group View: selection of Advocacy & Awareness and related organizations**

In Sketch 6, the large blue circle represents BridgeOrg because it represents many organizations. The other blue circles represent smaller organizations representing themselves at the “Feb 1 Lobby Day” event. The connecting lines from these circles to the regular-shaped oval event object represent involvement or participation in the event. The time-line slider at the bottom of the sketch would enable users to explore different events that organizations in the “Advocacy & Awareness” cluster were involved in over time.

If a user selects one of the organizations, then the “organization” view is shown. Sketch 7 below displays an example of the basic contact information that could be

displayed for the “organization” view. This basic information reflects the categories of information sharing for connecting identified from Field Study II.



**Sketch 7. Organization View: display of basic contact information**

Sketches 1-7 demonstrates a visualization approach that displayed information to address the three different perspectives of the “who is doing what” question. Users could use this information to navigate information organized according to a information sharing practice categorization scheme that has been derived empirically. This visualization seeks to support the exploration of information spaces where the user has little to no knowledge of the information available in that space. In the case of anti-trafficking organizations, a person unfamiliar with other organizations in the space would be able to use the visualization to explore the general landscape of other anti-trafficking organizations as well as inform their sense of meaningful groups within the landscape as well.

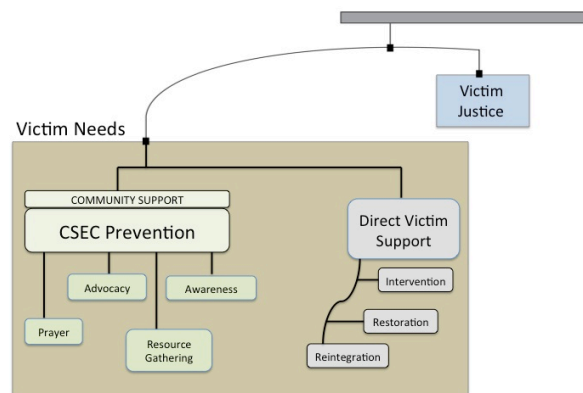
## 6.4 User Study

To better understand how the folksonomy and visualization could support the exploration of an ecosystem of anti-trafficking organizations, I conducted a task-based user study. In this study, I first compare an alphabetic directory with a directory

organized according to the victim management folksonomy/categorization scheme. I then compare the text-based folksonomy/categorization scheme with the visualization of the folksonomy.

#### 6.4.1 Study Prototypes

I created three different low fidelity prototypes for this user study. The first prototype was an alphabetic directory with ninety organizations listed. Each listing contained basic contact information as well events, opportunities, and relevant categories from the categorization scheme. The second prototype was a text-based directory created in that contained the same information as the alphabetic directory, but was organized according to the categorization scheme rather than alphabetically. The third prototype was a visualization of the same information provided in the alphabetic



**Figure 26. Landscape View: Visual representation of the Victim Management Category Map**

directory, except the information was organized according to the folksonomy, and represented as a graphical mobile, as shown in Figure 26. Study participants could select any of the components of the mobile to explore additional information from any of the three views: landscape, group, or organization.

#### 6.4.2 User Tasks

I developed three categories of tasks for study participants to complete; there were two tasks per category for a total of six. Two of these tasks are related to exploring the

“landscape” view of the “who is doing what” question. The first task asked users to identify the two primary categories of organizations involved in the information sharing practice of victim management. The second task asked users to identify the areas of community support, which organizations in the network provided.

The next two tasks related to exploring the “group” view. One task asked users to provide the names of three organizations that participated in an awareness event together. Another task asked users to identify the number of organizations involved in the area of Advocacy.

The final two tasks related to the “organization” view of the “who is doing what” question. One task asked users to provide the name of an Awareness-related event that a specific organization participated in. Another task asked users to give the name of an Advocacy-related opportunity that a specific organization participated in.

The purpose of these tasks was to test whether study participants could complete them using one of three tools provided. The six questions given are provided in Appendix C. The control group was provided with an alphabetic directory. A second group was provided with a text-based directory where the information was organized around the folksonomy/category map, but without the visualization. The third group was given the visualization of the text-based directory detailed in the previous section.

### **6.4.3 Study Participants**

I recruited study participants from the Georgia Tech campus as well as outside the campus. I purposely selected study participants who were computer literate and were not familiar with the child sex trafficking issue, i.e., they were unable to name two organizations fighting child sex trafficking. My purpose in doing so was to utilize participants who were unfamiliar with the anti-trafficking ecosystem, since this folksonomy and visualization was designed to assist those unfamiliar with a given information space.

I recruited a total thirty participants (n=30). Ten participants completed the six tasks using an alphabetized directory of organizations, while another ten utilized a text-based version of the folksonomy/categorization scheme that organized the directory information according to the categorization scheme. The final ten participants used the visualization to complete the six tasks. The study participants completed the tasks in an unsupervised environment, i.e., I was not visibly present to the participants during the study. If the study participant had a question, they were given a mobile number that they could call for assistance during the time of the study. All participants were asked to spend no more than 10-15 minutes completing the six tasks. None of the participants were given training or explanations in using any of the tools, including the presentation. They were simply instructed to complete the tasks as best as they could, using the tool provided. None of the study participants called to ask questions about the study or the tool.

I utilized the Mann-Whitney test to determine the statistical difference of these results because my study was a between-subjects study and I had no information about whether the data I obtained fit a normal distribution. Also, the quantitative data I collected was not binomial, i.e., for each task category, participants received a score of 0, 1, or 2, depending on the number of correct answers for that category. I ran the Mann-Whitney test to test for statistical significance ( $\alpha=0.05$ ,  $z=\pm 1.96$ ) between the control and the text-based tool, and also visualization tools. I also tested for it between the results for just the text-based and visualization tool.

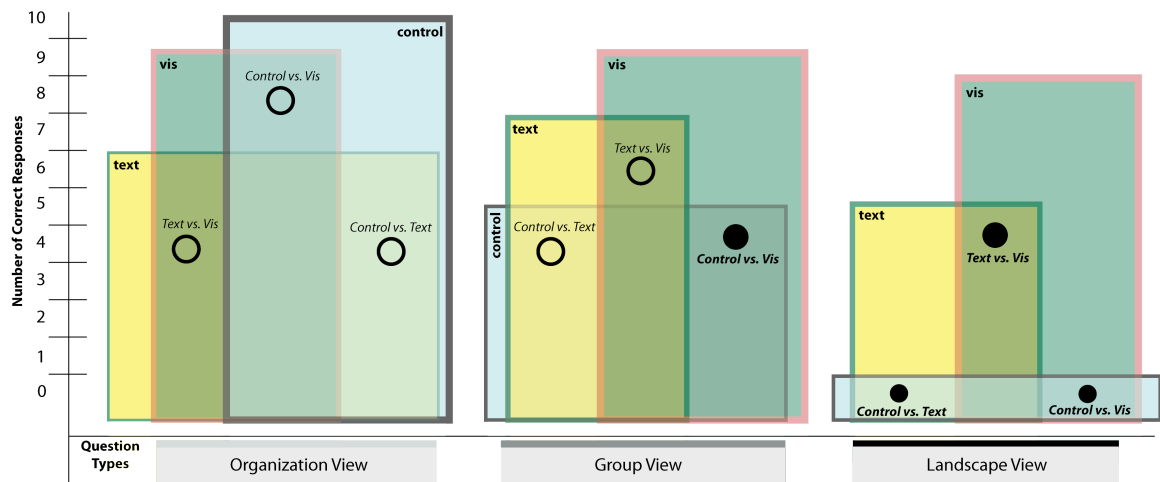
## 6.5 User Study Findings

The statistical analysis run on the user study results yielded significance for only some of the tasks. Below, Table 15 summarizes the results of the Mann-Whitney tests run to determine statistical significance; the shaded areas signify the significant values

**Table 15. User Study Z-values** (n=30,  $\alpha=0.05$ ,  $z=\pm 1.96$ )

	Org View	Group	Landscape
Control/Text	-1.51	1.21	$z=3.02$
Control/Vis	-0.38	2.42	3.78
Text/Vis	1.17	1.51	2.12

In Figure 27, I use a Venn diagram combined with a bar chart to display a summary of the user study results. The numbers on the y-axis represent the total number of correct responses from each participant group. The x-axis represents the three task categories for the six questions. The areas where the bars overlap represent the comparisons between the conditions. The filled black circles represent areas where statistical significance was found. The hollow circles represent areas where statistical significance was not found.



**Figure 27. Venn diagram+bar chart of the study results for community category navigator**

The first set of bars for the organization view show the results show that participants who used the alphabetic directory were most successful in completing the tasks in the organization view category. All ten participants in the control group (represented by the light blue/light gray box) were all able to identify information about an individual organization named in the task. For the participants using the text-based tool (represented by the yellow/medium gray box) and the visualization tool (represented by the green/dark gray box), the majority was also able to correctly complete the tasks in the organization view category. As indicated by all the hollow circles on each of the overlapping areas, none of the comparisons between the results yielded in statistical significance.

For the group view tasks, participants were asked to identify specific information about groups of organizations working together on events and volunteer opportunities. The second set of overlapping bars in Figure 5 show that more participants using the text-based tool and the visualization were able to correctly complete the tasks. Only half the participants in the control groups were able to complete the tasks for the group view. The statistical significance in the results was found between the control group and the group using the visualization. This means that study participants were able to complete the group view task more easily using the visualization tool rather than the alphabetic directory. What is interesting about these results is that using text-based tool was not found to be any better or worse than using either the alphabetic tool or the visualization. This result possibly indicates that the folksonomy/category map had little impact on completing tasks requiring the group view. However, the addition of a visualization made the task significantly easier to complete than an alphabetic directory.

For the landscape view tasks, participants were asked to identify specific information about the whole network, such as naming the primary categories (not types) of organizations in CommunityNet. None of the participants in the control group provided the correct answers to tasks in the landscape category, and only about half the participants were able to correctly answer these questions using the text-based tool. In contrast, more than two thirds of the participants were able to complete the landscape view tasks correctly using the visualization tool. Comparison of the results between the control and both conditions yielded statistical significance. The implication here is that the visualization supported exploration of the whole network perspective significantly better than the alphabetic directory or the text-based tool.

## **6.6 Discussion and Summary**

I undertook this second design study to examine network-centric navigation and exploration of CommunityNet. I utilized a folksonomy/categorization scheme derived



from Field Studies I & II to structure the data to be explored. I then created a visualization designed to display CommunityNet information from three perspectives: the landscape, the group, and the single organization. The orientation of the navigation and the exploration emphasized the network-centric with its structure and features supporting transitions between the different views. The user study results showed that participants using the visualization were better able to complete navigation and exploration tasks related to the whole network perspective much better than when using an alphabetic directory or a text-based version. The results indicate that the community category navigator is a promising network-centric visualization that I plan to explore further.

One interesting finding from the user study is that all ten participants in the control were able to answer the questions about the single organization view correctly. Only a majority of participants were able to answer the same questions correctly when using the text-based tool or the visualization tool. The reason for this is likely that the alphabetic directory affords finding information rapidly once the name of an organization is known. In contrast, the text-based tool and the visualization tool both require the user to traverse the categories before arriving at the single organization view. This finding indicates that a combined approach may be much more effective than just the visualization.

There may also be other drawbacks in using a visualization approach over an alphabetic approach. For example, in my study, less than 100 organizations were represented in the visualization tool. If the number of organizations increased by several orders of magnitude, the visualization may not scale. Also, with an increase in significantly more organizations, the complexity of using the visualization may increase as well. This complexity may pose a barrier for users seeking to quickly explore or navigate to needed information. Thus, in future work, I plan investigate how to address scalability of the visualization and where different approaches may be appropriate to support different aspects of navigation and exploration of interorganizational networks.

## **CHAPTER 7**

### **REFLECTIONS**

Grassroots movements demonstrate the power of collective action for social change. To begin a powerful movement, individuals join or form organizations. Being organized together amplifies the voices and actions of individuals into a powerful collective one. To push such amplification even further, organizations join grassroots efforts with other organizations, resulting in an interorganizational network. The emergence of these complex social structures within grassroots movements seems to be largely enabled by information and communications technologies. Such tools seemed to have fueled mass coordinated action such as the Occupy Movement and the Arab Spring.

Yet, when designing technologies for grassroots organizations, we are at a loss to explain what the critical requirements are, and are less able to navigate the feature and function choices based on what works and what does not. In fact, we are unable to explain why the same technologies seems to work for some aspects of a movement but not for others, e.g., some organizations succeed in fundraising millions online, while others struggle to raise enough signatures for their online petition. Understanding the use of information and communications technologies (ICTs) for supporting the work of grassroots movements, especially at the interorganizational level is both challenging and complex.

The goal of my research was to contribute to reducing the knowledge gap in the CSCW domain regarding the information sharing practices of a group of groups within a grassroots context. Through my research, I sought to better understand how ICTs were being used and appropriated by interorganizational networks, and whether they were actually helpful, where they could be improved, and how their information sharing and coordination could be supported over time.

## **7.1 Research Contribution – Field Studies I & II**

The two field studies I conducted and detailed in Chapters 3 and 4 yielded insights into the information sharing and coordination practices of a grassroots interorganizational network, and how they used ICTs to support their work. These studies also yielded the challenges related to their practices as well as the challenges in utilizing and appropriating ICTs in furthering their mission.

My field studies were centered on anti-trafficking organizations, with a particular focus on an organization that I referred to as BridgeOrg. The predominant information sharing and coordination practice that BridgeOrg engaged in was connecting. Their *raison d'être* was to raise basic awareness regarding potential connections, enable new connections, and reinforce existing ones. They engaged in a variety of activities and events around mobilizing and informing for the purpose of supporting the formation of connections within the anti-trafficking community.

The challenges they encountered in their information sharing and coordination efforts seemed characteristic of a new movement. A lack of a stable volunteer base, a focus on relationships with individuals rather than organizations, and operating in pockets of existence awareness seem to be indicative of emergent interorganizational networks. Movements long established over decades, such as the fight against breast cancer or support for civil rights, would likely face different challenges in information sharing and coordination.

The anti-trafficking organizations I studied utilized a wide-range of ICTs to support their work. They were eagerly willing to utilize any tool that offered a solution to whatever needs they encountered. BridgeOrg facilitated the co-production of online content for their organizational partners, and used a range of online tools such as shared calendars, sign-up forms, and email blasts to support offline activities and events. The challenges they encountered again seemed to be indicative of an emerging grassroots movement. For example, access to various ICTs was disparate and unevenly distributed.

However, most if not all had access to online content via personal network connects or the public library.

One common theme that arises from my field study findings is that the practices and challenges seem to be characteristic of a newly emerging grassroots movement. Thus within the domain of CSCW, I articulate the contribution of my research findings using McGrath's Typology of Group Function (1991), summarized below in Table 1. What this typology illuminates are the range and aspects of what can be examined in terms of organizations and ICTs. The range and variety highlight why one-size fits all solutions are challenging to design for such contexts. Much prior CSCW research has tended to focus on the "Performance" aspect of the Execution function.

**Table 16. Typology of Group Function (McGrath, 1991)**

	<b>Production</b>	<b>Group Well-Being</b>	<b>Member Support</b>
<b>Inception</b>	Production demand and opportunity	Interaction demand and opportunity	Inclusion demand and opportunity
<b>Problem-Solving</b>	Technical problem-solving	Role network definition	Position and status attainments
<b>Conflict Resolution</b>	Policy resolution	Power and payoff distribution	Contribution and payoff distribution
<b>Execution</b>	Performance	Interaction	Participation

Table 16 identifies the four stages, summarize below, of what a group of organizations would cycle through in their interactions:

- Stage 1. **Inception** (where organizations begin to negotiate the processes of what they produce, how they interact, and support each other)
- Stage 2. **Problem solving** (where organizations begin the process of actual production)
- Stage 3. **Conflict resolution** (organizations work together to resolve challenges to production)
- Stage 4. **Execution** (organizations have actually produced something)

Given the seeming emergent nature of the grassroots movement I studied, I believe my research contributes to the CSCW domain by providing insight into the "Inception" phase, in particular the "Production" function as shaded in gray in Table 1. McGrath defined the "Inception" stage as encompassing the range of activities surrounding the engagement of others to accomplish a project or goal. This engagement is a negotiated process where organizations begin to parley with each other concerning three particular

functions, which are: 1) what they will produce, 3) how they will interact as group, and 3) what supports will be provided to member organizations.

I believe the findings from Field Study I point towards challenges of anti-trafficking organizations progressing through the “Inception” stage. One reason for this is that they experienced significant difficulty in finding each other and differences in their collaboration modes and what they focus on in terms of their information sharing practices pose difficulties in engaging with each other in the fight against human trafficking. These challenges give insight into opportunities for utilizing ICTs facilitate the negotiation process of engagement between organizations. Also, I believe the reason for the focus on connection in the organizations I studied is that they were in the process of negotiating how to begin working with each other to fighting human trafficking in general, and child sex trafficking in particular. Future research on groups of groups within grassroots movements may need to consider the stage that the movement is operating, and what stage of operation the ICTs need to support. The implication here and a limitation of this research is that the need for network-centric ICTs may be characteristic of emerging interorganizational networks and not of mature networks.

## **7.2 Research Contribution – Design Studies I & II**

The field study findings uncovered an area of tension that I explored using a pair of design studies. This tension emerged from the ego-centric orientation of tools being used to support information sharing and coordination. Many of the features and functions of the ICTs around the navigation and production of information as well its representation was oriented around the needs of individuals. However, what BridgeOrg and CommunityNet, needed was information that was oriented around constituent groups along with an overview perspective of the landscape of CommunityNet members. They also needed a means to enable organizations to co-produce and post a range of content on

shared information spaces. I refer to these sets of needs as network-centric information orientation.

I conducted a design study to explore how network-centricity could be reified within an actual technology tool. The dimensions of network-centricity that I explored were information structure, presentation, and production. Using a custom-built website, BridgeOrg and CommunityNet members were able to navigate information that had been organized around constituent groups, inform their awareness of CommunityNet from a whole network perspective, and to co-produce a range of content.

This design exploration in network-centricity illuminated how ICTs can foreground tensions in organizational structure that may be hidden. The custom website resolved some information sharing boundary confusion, but made explicit other boundary confusion regarding the ownership of co-produced content. This design study also pointed to other means of network-centric information structure. The custom-built website initially organized all of the content around the constituents. However, in the next iteration of the website, the overview perspective of CommunityNet landscape remained intact. In other words, the information about groups of organizations working together and information about individual organizations was structured around events/opportunities. The event/opportunity postings contained information about groups and individual organizations; and the sign-up form for these events/opportunities effectively became the boundary object that captured the information about groups working together. More specifically, fields on the sign-up form required all users to enter the organization affiliation (college, church, nonprofit organization) information.

The significance of the above is that the orientation of network-centric information structure can be structured around several artifacts. The first is constituents where all the information is organized around constituent types. Another artifact for structuring information is what I call relational boundary objects such as

events/opportunities, which are activities that reinforce connections. The custom website used by BridgeOrg and CommunityNet utilized both artifacts.

I conducted a second design study to further explore a novel approach that would support network-centric navigation and exploration. Field Study II showed that the whole network perspective was lacking in the information sharing activities. A whole network perspective could be helpful to organizations explore the CommunityNet landscape for potential organization partners, and also to individual volunteers seeking a long-term volunteer relationships with a single community organization. The community category navigator visualization I created supported network-centric navigation and exploration by using a folksonomy/category map derived from the Field Studies I & II. Three levels of perspectives were supported by this visualization: the CommunityNet landscape view, the group of organizations view, and the single organization view.

A task-based user study of the visualization indicated that the visualization design was a promising direction to support the navigation and exploration of the CommunityNet at the three levels. However, the visualization did not perform as well as the alphabetic directory in supporting the single organization view. These results coincide with what González and Kobsa (2003) found in their analysis of the use of information visualization systems. The community category navigator may be more useful not as a standalone system but as a tool integrated with other tools that support alphabetic and tabular views of representing the same information.

### **7.3 Considerations for Design**

I believe the findings from Field Studies I and II as well as the exploration from the two design studies could contribute towards building a website design pattern for groups of groups within grassroots movements. Duyne, Landay and Hong (2007) offered the start of a basic website design pattern for networks of nonprofits. For their pattern, they encouraged the use of message boards, blogs, calendars, and content management

tools. They recommended configuring these tools such that everyone had equal access to all information, and that the information was built around specific projects to be completed. Much of their advice was geared towards practical implementations of donations support, schedules of events for volunteers, sign-up forms, logins, and so forth. However, their design guidance focuses on the general rather than accommodating specific needs for interorganizational networks that may be emerging, or need to work closely with particular organizational types but not others.

An underlying assumption in their pattern is that all nonprofits, even networks of nonprofits are at the core the same as any other organization and can be designed for as such. While this may be true for some facets across organizational types, there are a number of nuances that may cause designs for a nonprofit network to be drastically different from another. Hirsch (2011) identifies three such systems supporting grassroots movements, Ushahidi, Crabrass, and the Hub, where a requirement critical to one system was non-essential for another.

My research extends this initial website pattern by offering six different considerations when designing ICTs for grassroots interorganizational networks. These considerations can help CSCW researchers and practitioners navigate some of the nuances of designing for groups of groups.

### **7.3.1 McGrath's Typology of Group Function**

The first consideration is the use of McGrath's typology to determine what areas of intergroup function need to be supported. This typology can help to frame the requirements as well as identify design priorities. The typology can point to potential problems unique to particular stages. For example, at the Inception stage, the interorganizational ICT needs may be vastly different than at the Production stage, because the network is still in the process of emerging. The researcher or practitioner may need to schedule a wait-and-see period until the organizational structures, practices, and processes have stabilized. This typology may also be useful as a scoping tool. For



example, the gathered requirements for any ICT being designed can be mapped to the typology to reveal whether or not the functions and features being proposed are more appropriate for one stage or another; or if the requirements are overly supporting one area over another.

### **7.3.2 The Information Sharing Community – Four Views**

The second consideration is the visibility of the community engaged in information sharing and coordination. I identified four different view of information that needed to be conveyed within the BridgeOrg and CommunityNet context. The first view is the “landscape” view that shows a whole network perspective. The importance of this perspective is that it informs the basic awareness that is needed prior to initiating contact for coordination. Based on my findings from the design exploration, the “landscape” view can be oriented around a range of information sharing practices such as victim management or funding. This is an alternative to providing “landscape” views based on constituent groups or formal taxonomies. The second view is the “group” view where one can view the connections between organizations based on transactional boundary objects such as event sign-ups or around processes that brings groups of organizations together. The design consideration is providing a view that is more in-depth than the landscape view. The third view is the “organization” view. The information in this view can be oriented around the categories of information sharing needed to facilitate informal interactions. The fourth view is the dyadic view or the view of information being shared between one organization and BridgeOrg. This view differs from the other three views in that it is generally not made publicly available. An inventory of information content can be created based on each of these four views.

### **7.3.3 Co-production and Convergence**

The third consideration is the identification of features and functions to support the techniques of co-production and convergence (Foot and Schneider, 2006). This

consideration is closely related to the four information views. Taking the inventory of content required based on the four views, these content items can then be mapped to features and functions that support the co-production of online information, as well as the features and functions to support the convergence of online and offline activities within the interorganizational network. After creating such an inventory of content and determining how the content will be aligned with the co-production and convergence needs, additional considerations may be examined such as data access, accuracy, privacy, security, and so forth. These are second order considerations since their implementation depends on the information views selected as well as the co-production and convergence features/functions to support the views.

#### **7.3.4 Organizational Structure**

The fourth consideration is the organizational structure of the organizations in the network. CommunityNet had three different types of organizational structures operating: BridgeOrg—a hub organization, faith-based organizations, and community partners. As a hub organization, BridgeOrg became the driver as well as information steward for CommunityNet. It was the primary decision-maker in terms of the technologies used and adopted. Community partners interacted with BridgeOrg as professional organizations, with their own structure, processes, and agenda. Their information sharing with BridgeOrg was limited to the five categories of information sharing that BridgeOrg enabled them to co-produce on CommunityNet.org. In contrast, faith-based organizations viewed themselves as an extension of BridgeOrg, an organization with a centralized bureaucratic structure.

These differences in organizational structure impacted the different types of information sharing views required. Community partners felt that the landscape, group, and single organization views were adequate. However, the faith-based organizations felt the need to access a dyadic view, where they could maintain awareness about information relevant to their individual relationship with BridgeOrg.

### **7.3.5 Information Sharing for Connecting Lenses**

The fifth consideration is lenses of information sharing for connecting. In my research, I utilized three information sharing practice lenses borrowed from Foot and Schneider (2006): connection, mobilization, and informing. Grassroots interorganizational networks may prioritize one over the others, thereby affecting how the features and functions supporting co-production and convergence are designed. For example, political campaign inform and connect in order to mobilize individuals to vote for a candidate. All features and functions of co-production and convergence must ultimately translate into an actual vote. In another example, organizations focused on victim prevention connect with others in order to mobilize (donate, like on Facebook, sign-up for newsletter) and inform to raise awareness. Thus the features and functions of co-production and convergence must enable the one-way flow of information between organizations and constituents. In yet another example, organizations focused on victim justice connect, mobilize, and inform in order to obtain justice for the victim.

BridgeOrg's primary information sharing practice priority was connecting. They mobilized and informed in order to form connections within CommunityNet. This priority shapes the design considerations in terms of co-production and convergence. The online features and functions are needed to make visible the community, and to support offline connection activities. These features and functions needed to support bi-directional information flows within CommunityNet. Also needed was more views and visibility of the community and informing the question of who is doing what. The features and functions also needed to develop the creation of transactions between members as well as relational bonds between CommunityNet members.

### **7.3.6 Network-centric Design for Emerging Grassroots Networks**

The sixth consideration is network-centricity as design priority. In examining the Occupy Movement and its use of Facebook for organization, Caren and Gaby (2011) concluded that Facebook would become less relevant to the movement as it matures. This

conclusion was corroborated by the fact that Occupy Movement is now is now in the process of completing a site called inter-occupy.org in order coordinate the numerous occupy groups that have emerged. This shift from organizing on Facebook to a custom site coincides with the notion that the ego-centric orientation of Facebook and other social media tools are incongruous with the network-centric needs of an interorganizational grassroots movement.

In Design Study I and II, I explored a network-centric design of the information content (based on the five categories of information from Field Study I), the information structure and presentation (organized around constituents or events), the information production (democratized such that all organizational members can make significant contributions), and the information navigation and exploration (organized around the folksonomy/category map derived from the field). These specific areas of exploration provide researchers and practitioners with ideas for generating other network-centric designs that can build on and extend the ideas put forth in this research.

### **7.3.7 Towards a Framework for Network-centric Information Sharing**

These six design considerations point towards the development of a potential framework to help designers support information sharing for connecting in a group of groups content. Such a framework would be most applicable in contexts where 1) the interorganizational interactions are informal, 2) the participation by organizations is voluntary, and 3) the overarching goal for interorganizational activities is information sharing for connecting. One start to such a framework is that these six considerations could apply to other contexts--beyond anti-trafficking organizations--along three dimensions of generalizability. Each of the six considerations fall along one of these three dimensions, which I discuss them in more detail below.

The first dimension of generalizability is *interorganizational-level practice*. This dimension brings together the two design considerations of information sharing for connecting practice lenses, and the four views of information sharing. By

interorganizational-level practice, I refer to patterns of activity around the whole network level.

Within BridgeOrg and CommunityNet, varying levels of practice were identified. The practice of victim management occurred at the community-wide level, extending beyond CommunityNet. I described the details of this victim management practice using the activity stream. Figure 23 in Chapter Six summarizes the activity stream. I also identified a practice of information sharing for connecting at the CommunityNet level as well as three social processes supporting this: raising basic awareness, enabling connections, and reinforcing connections.

These practices illuminate the different layers of activity occurring in an interorganizational network, i.e. at the community-wide level, the network-wide level, and the social processes supporting these practices. Furthermore, examining practices at these levels are effectively lenses to help designers scope what could or should to be supported by ICTs. For example, in studying BridgeOrg and CommunityNet, I used these lenses to identify that for the practice of information sharing for connecting, they sought to use the website to support the two social processes of basic awareness and enabling connections for Community Partners (CPs) and Faith-based Organizations (FBOs). These lenses also showed where the ICT was "failing" for the faith-based organizations as a constituent group since they had expectations of the website supporting the process of reinforcing connections with BridgeOrg.

The second dimension of generalizability is *interorganizational task environment*. This dimension brings together the two design considerations of McGrath's typology of group function (Table 16), and organizational structure. By task environment, I refer to the interorganizational context in which BridgeOrg and CommunityNet are operating. For example, BridgeOrg was a centralized organization, reporting to a Board of Directors every quarter. Projects were approved by the director, managed by the program director, and executed by administrative support staff and volunteers. The task environment is

shaped by the power and authority structures, resources, goals, opportunities, capabilities of the organization, other factors that may impinge on the activities/practices of the interorganizational network as a whole.

McGrath's typology of group function can help situate the overall task environment in which the interorganizational network is functioning. At the time of my study, BridgeOrg and CommunityNet were in the process of forming as a network and were in the Inception stage, with a focus on negotiating their "Production", i.e., what they would produce and how. As BridgeOrg and CommunityNet matures, the practices and processes supporting their production could eventually shift to the Execution stage where performance measures may actually be taken to evaluate their work. Situating these practices within this typology helps researchers and practitioners distinguish significant or permanent shifts of practices within the task environment as a network matures. For example, as BridgeOrg and CommunityNet stabilizes as a network, the focus of information sharing for connecting maybe more on the social process of reinforcing connections rather than basic awareness.

Organization structure is a closely related design consideration. The factors shaping the interorganizational task environment are manifested or reified in the organizational structure. For example, CPs had a decentralized relationship with BridgeOrg. As organizations, CPs already had their own internal organizational structure, practices, and processes. Their engagement with BridgeOrg was limited to activities around raising basic awareness and enabling connections. These activities did not demand a close, centralized relationship with BridgeOrg. As organizations, CPs had missions that were broader than fighting child sex trafficking. They also viewed BridgeOrg as one of multiple channels they used for raising basic awareness and enabling connections. Thus the structure of their relationship with BridgeOrg was like that of professional organizations, rather than a centralized hierarchical one. In contrast, the FBOs viewed BridgeOrg as a leader in the fight against child sex trafficking, and that

FBOs could join BridgeOrg as close partners in the fight. They expected a relationship with BridgeOrg that was more integrated in terms of practices and processes. They saw themselves as an extension of BridgeOrg's centralized hierarchy. Consequently, they expected the custom website to support their process of reinforcing their connection with BridgeOrg.

Understanding the task environment, how it is situated overall (McGrath's typology) and how it is manifesting in the organizational structure can lend insight to designers into the nuances of information sharing practice, i.e., what aspects need to be supported for the different constituent groups. My case study provides details of such nuances for BridgeOrg and CommunityNet. However, additional case studies are needed to understand variations in group function and organization structure for different practices beyond information sharing such as mobilizing, informing, involving, and so forth.

The third dimension of generalizability is *network-centricity*. This dimension brings together the design consideration of network-centric content in terms of structure, presentation, organization, production, and exploration. It also brings together two other design considerations of the four views of information sharing, and the techniques of convergence and co-production.

Understanding the interorganizational practices and task environment can inform the designer in creating a network-centric system. In information sharing for connecting within CommunityNet, the content types are: 1) basic contact information, 2) goals, 3) opportunities, 4) motivations, 5) capabilities of the organization. For other practices, the categories of information shared are likely different.

Designers can support the co-production of network-centric content again depending on the practices that need to be supported and the task environment in which these practices are occurring. For BridgeOrg, one consequence of their informal, voluntary task environment is that their original website could not easily be modified by

other volunteers. Hence, the new custom website for CommunityNet had to be hosted elsewhere so that others could assist with the design and development. In another example, because CPs viewed BridgeOrg as another channel for raising basic awareness, they used BridgeOrg as a proxy for posting information to the CommunityNet.org site. The next iteration of CommunityNet.org was designed to make it easier for BridgeOrg to post information on behalf of CPs.

The technique of convergence can be used to organize ICT features and functions for supporting information sharing practices and processes. Once the content has been determined and the process of co-production decided, the ways in which ICTs support the offline aspects of the practices and the online aspects can be decided by designers.

Then the structure, presentation, and organization of the content can be designed in light of the convergence to be supported, and the co-production needs as it relates to the practices and processes operating in the a particular task environment. For example, BridgeOrg sought support the social processes of raising basic awareness and enabling connections within CommunityNet. The task environment in which this was occurring required BridgeOrg to support these social processes within two different types of organizational structures (i.e., professional for the CPs and an extension of BridgeOrg's centralized structure for the FBOs). BridgeOrg also had to support some aspects of reinforcing connections (social process) with FBOs by making modifications to how they designed the online registration for BridgeOrg events

Finally, in terms of exploring and navigating content in a network-centric fashion, designers can use the activity stream or other community-wide practices as a way to organize the network-centric content as detailed in Chapter 6.

In other contexts, while the elements of network-centric design may remain the same, the extent to which they support online/offline activities, and co-production of content will vary. These variances depend upon the structure, organization, and presentation of the content in ICTs.



## 7.4 Future Work

My dissertation research has laid a foundation as future work the development of a network-centric framework for information sharing. In the short-term, I plan to pursue this work by first conducting a series of case study comparisons. My research focused on the exploring network-centric design for one website. However, a number of open questions remain concerning how other off-the-shelf tools could or even should be integrated or configured into the information sharing practices of the interorganizational network to support their information sharing. In the past year or so, two organizations, Crabgrass and InterOccupy began the work of creating online tools to support grassroots organizations from single groups to groups of groups. As a starting point for future research in this direction, I plan to conduct a comparative analysis of Crabgrass and InterOccupy with CommunityNet.org along the three dimensions of interorganizational practice, interorganizational task environment, and network-centricity.

In conjunction to this case study comparison, I also plan to further develop the community category navigator visualization. The study results show that the visualization holds promise as a contribution towards organic-type visualization, i.e., a class of information visualization that deals with emergent data structures and a high degree of variability in its visual representation of emergent data. To further develop this visualization, I will explore several aspects. The first is folksonomy/category map. Although such a category scheme is difficult, if not impossible, to derive using automated means, I am interested in understanding how the category scheme could be encoded and generated from a software program. The second is the visualization itself. I would like to examine the aesthetic aspects that were not addressed in Chapter 6. There are a number of questions I am interested in exploring such as, “would the visualization be more appealing or even more effective using irregular shapes or are boxes adequate?”. I would also like to examine the implied dynamics that come from using a mobile metaphor. I

would ask questions such as, “do users perceive a smaller visual element on the mobile as indicated less information or less important information?”.

My goal is to develop this visualization for initiatives such as the Freedom Registry led by ChabDai, an international organization based in Cambodia. ChabDai created the Freedom Registry project ([freedomregistry.org](http://freedomregistry.org)) in the U.S. in order to document and make available an online listing of organizations fighting human trafficking. Currently the registry is organized in an alphabetic fashion and provides a range of filters to narrow down the search results. However, it is limited in supporting the whole network perspective or landscape view and the group of organizations view. My hope is that the community category navigator could be used to augment directories such as the Freedom Registry by providing support for network-centric navigation and exploration.

I also plan to use social network analysis (SNA) to complement my findings in the case study comparison. This analysis could potentially help to validate my analysis of interview and observation data as well as illuminate nuances of the information sharing practice and task environment that qualitative data could not easily show.

Once I complete my comparative analysis, I plan to pursue the following three longer-term directions of research to further develop my framework. The first is developing my understanding of the organization as the user. In CSCW, the user is generally understood to primarily be an individual. After all, it is individuals that do the connecting, even when whole organizations are together. Additionally, my Field Study I data analysis indicated how connection with individuals was emphasized over connection with organizations. However, I argue that while individuals may mediate the interactions between organizations, they do so as representatives of an entire group of people. The processes for supporting or maintaining the interactions tend to be significantly different from doing the same with individuals. The organizational resources for initiating and sustaining a connection tend to be more complex than single individuals. My intuition is

that understanding the organization as a user of ICTs will facilitate the generalizability of interorganizational case studies in the use of ICTs to support information sharing for connecting and other practices. I plan to the organization as a user as a fourth dimension to my framework.

The second longer-term research direction I seek to pursue is understanding the effects of whole network visibility on interorganizational coordination. Some questions I seek to answer are "How does whole network visibility reduce or increase competition or cooperation within an interorganizational context? Are folksonomies generalizable as an effective approach for organization information in complex information ecosystems?" My plan is to add whole network visibility as a fifth dimension to my framework.

The third direction I plan to pursue is examining how ICTs support different frames for action in the public health domain. By frames for action, I refer to the definition by Bennett and Segerberg (2012) in which a group of individuals or organizations can act based on a pattern established by another group of individuals or other organizations. The degree to which these action frames vary depends on the extent of organizational involvement and coordination in setting up those frames, and whether those frames extend existing actions or enable actions different from the norm. By examining these frames in the public health domain, I seek to understand how in a real-world context, the five preceding dimensions of my framework inform the design of ICTs to support interorganizational actions.

## APPENDIX A

### INTERVIEW GUIDE FOR FIELD STUDY I AND II

**Project Title: Information Sharing Practices and Social Structures in Nonprofit Networks**

*Optional Interview/Survey Guide of Sample Questions:*

1. What information & communications technology does your organization use?
2. In what ways do such technologies help with your organization's mission?
3. In what ways do such technologies hinder the activities of your organization?
4. Describe a scenario where a technology failure prevented your organization from completing a critical task.
5. Describe a scenario where technology facilitated or enabled a critical task which would have been difficult to accomplish without the technology.
6. What technology does your organization rely on the most to collaborate with other organizations?
7. What technology does your organization rely on the least?
8. Does your organization have a budget for technology purchases? If so, what percentage of the budget is it? (estimate)
9. How much does your organization rely on donated equipment?
10. Describe your organizations experience in using donated equipment.
11. What sort of technology are you hoping to have donated to your organization?
12. What technology do you anticipate using or purchasing in the next year or short-term?
13. Describe in your own words how technology is helping your organization.
14. Describe in your own words how technology is hindering your organization.

15. What information sharing tasks do you engage in with other organizations?
16. List all other organizations you coordinate with.
17. What software packages do you use to facilitate your information sharing within your organization as well as outside of it?
18. What social networking programs do you use?
19. How long has your organization been in operation?
20. What information do you share with members of the general public?
21. What types of information do you consider confidential?
22. How many individuals are associated with your organization?
23. What online information resources do you use?
24. How satisfied are you with the current tools you are using for information sharing?
25. What improvements can be made to the current tools you are using for information sharing?
26. Does the folksonomy currently being used by other organizations help you in finding and organizing information about the work that others are doing? How so?
27. Please provide feedback on visual designs created to organize directory information about organizations working in this space.

## APPENDIX B

### Questions for Design Study II Task-based User Study:

1. What are the two primary categories of organizations that are working with Victim Management?
2. What areas of Community Support do organizations provide in Victim Management?
3. Provide the name of three organizations that participated in an Awareness event together:
4. How many organizations are involved in the area of Advocacy?
5. Give the name of an Awareness-related event that BridgeOrg participated in:
6. Give the name of an Advocacy-related opportunity that BridgeOrg participated in:

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