Exploring Barriers to Coordination between Humanitarian NGOs:
A Comparative Case Study of two NGO's Information Technology Coordination Bodies

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ABSTRACT

Humanitarian nongovernmental organizations (NGOs) are increasingly collaborating through inter-organizational structures such as coalitions, alliances, partnerships, and coordination bodies. NGO's information technology coordination bodies are groups of NGOs aimed at improving the efficiency of ICT use in humanitarian assistance through greater coordination. Despite their popularity, little is known about these coordination bodies, specifically the extent to which they address inter-organizational coordination problems. This paper examines coordination problems within two humanitarian NGO's information technology coordination bodies. Based on data collected through interviews, observation, and document analysis, despite positive attitudes toward coordination by members, seven of eight widely accepted barriers to coordination still exist among members of these coordination bodies. Further, in a comparison of mandate-oriented, structural and behavioral coordination barriers, research finds mandate issues were most significant and structural factors were found in the greatest numbers. Findings suggest that effective humanitarian NGO's information technology coordination bodies must pay attention to both organizational design and management issues, although the former are likely to have a greater impact on coordination.

Keywords: *Competition for Resources, Coordination Barriers, Humanitarian NGO's, Information Technology, NGO's Coordination Body*

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INTRODUCTION

In recent years, as the number of man-made and natural disasters has risen, so has the number of non-governmental organizations (NGOs) engaged in international humanitarian relief and development (UNDP, 2002). This growth has in part contributed to their increasing importance in the humanitarian field but at the same time has increased the range of challenges they face. One of these challenges is inter-organizational coordination around information technology (Saab et al., 2008).

In an attempt to mitigate this challenge, humanitarian NGOs are forming structures such as coalitions, alliances, partnerships, and coordination bodies (Guo & Acar, 2005; Zhao et al., 2008). NGOs' coordination bodies are groups of NGOs brought together with the purpose to improve coordination of their activities. Coordination efforts among NGOs members of a coordination body are thought to function as a solution to the duplication of efforts, poor planning and implementation of relief efforts, and a lack of knowledge among humanitarian organizations on the developing situation. This NGOs' coordination entails developing strategies, determining objectives, planning, sharing information, dividing roles and responsibilities, and mobilizing resources. Coordination among NGOs is also concerned with synchronizing the mandates, roles and activities of the stakeholders and actors at higher organizational levels. NGOs coordination ensures that priorities are clearly defined, resources are efficiently utilized and duplication of effort minimized in order to provide coherent, effective and timely assistance to those in need (Harpviken et al., 2001).

The issues involved in forming and maintaining these entities, as well as inter-organizational relationships more broadly, have been the subject of some studies (Bennett, 1995; Donini, 1996; Harpviken et al., 2001). These studies find that while coordination bodies share a limited number of common traits, they vary in several dimensions. Common features include (1) independence from government; (2) existence of a semi-permanent secretariat; and (3) a variety of participants sharing common ideology (Bennett, 1994).

Within the frame of these common elements, coordination bodies have been found to vary in their structure, size, formality and duration. Structural variations are observed in their variety of missions, organizational forms, and decision making processes. Size variations are reflected in coordination bodies that attempt to coordinate intensely among a small subset of NGOs, or target larger memberships and less complex interactions. Variation in the level of formality and authority depends on who has taken the initiative to set up the coordination entity, and which agencies are involved (Harpviken et al., 2001). Moreover, coordination bodies may be temporary initiatives, ongoing inter-agency bodies or permanent incorporated nonprofit organizations (Zhao et al., 2008).

A number of coordination bodies focus exclusively on information technology and management (IT/IM) related issues. We refer to them in this paper as information technology coordination bodies. These coordination bodies aim at reducing redundancies and pooling limited IT resources, while at the same time promoting inter-organizational information sharing to improve humanitarian relief and disaster response. They help to ensure that organizations that are members have access to the best information and communication technology and practices when assisting during or after disasters. The two cases investigated in this paper are examples of such coordination bodies. HumaniNet is a salient example of an information technology coordination body. HumaniNet consists of over a hundred organizations. HumaniNet provides its members with practical assistance in global information and communication technologies, especially in remote areas.

Despite their popularity, the existing scholarship on humanitarian NGOs has yet to investigate the impact of humanitarian NGO's information technology coordination bodies. The literature is especially silent on the extent to which obstacles obstruct an effective inter-organizational information technology coordination under the umbrella of a coordi-

nation body. In response to this limitation, our research explores the issues that humanitarian NGO's information technology coordination bodies face when carrying out their activities.

Adopting the label of 'coordination body', this research addresses the question: "What barriers face NGO's information technology coordination bodies in the humanitarian relief field?" Using a comparative case study design, this research investigates coordination problems within two humanitarian NGO's information technology coordination bodies. The two coordination bodies[1], ReliefTechNet International and Information Technology for Emergency Alliance (ITEA), have respectively twenty-two (22) and seven (7) organizational members. Our unit of analysis is the coordination body, not the member NGOs which comprise the bodies in question. The study introduces an analytic framework that divides coordination barriers into mandate, behavioral, and structural categories and finds that the coordination bodies studied here differentially influence these areas. Taking into account past literature, the study finds that from the eight identified coordination barriers, the coordination bodies seem to be able to overcome only one barrier, namely competition for resources among members. In addition, descriptions provided by the subjects elaborated on the nature of the obstacles helps to add detail to the framework introduced in the first part of this study.

When approaching this research, we identified the eight barriers to inter-organizational coordination as said earlier, but did not anticipate each of the eight to receive equal weight from our study participants. Both the special context of our research, humanitarian relief, and the special type of coordination bodies, those focused on IT, signaled to us that the weighting of these barriers would be differently distributed. The context of humanitarian relief led us to believe that the barriers involving resources and costs would be paramount. From the literature on these large-scale humanitarian relief organizations we knew that finances, resources and personnel are always stretched thin. We anticipated that competition and the perceived increasing costs of coordination would prevent some organizations from entering into coordination body project activities. Conversely, we assumed that barriers involving conflicting goals and values would receive little weight since most organizations shared the larger mission of humanitarian relief.

The fact that both coordinating bodies in question were also special, focused on technology issues, also led us to anticipate an unequal weighting of these barriers. We assumed that since the body was focused on more technical, rather than organizational joint projects and activities, barriers involving information and communication issues and divergent goals would matter less to decisions to coordinate. The members of the coordinating bodies who sat around the table shared an interest and expertise in IT. This led us to believe that those problems that could be classified as technical problems would be treated as such and dealt with easily by the body. Those that were more organizational may have been seen as out of their scope of expertise and may have presented more of a barrier to coordinate.

The paper is structured as follows: the next section provides a background on coordination barriers, which is followed by the third section that introduces the analytic framework. In section four, the research methods are discussed and thereafter, the two coordination body case studies are presented. In section six, the research findings are articulated followed by the discussion and conclusions in section seven.

BACKGROUND

The Need for NGO's Coordination

Humanitarian non-governmental organizations provide assistance to people who have been struck by natural or man-made disasters, through disaster relief and subsequently development projects. Relief activities, which are typically short-term, focus on providing goods and services to minimize immediate risks to human health and survival. Alternatively, development activities are longer-term assistance, focusing

on community self-sufficiency and sustainability. These activities include establishing permanent and reliable transportation, health care, housing, and food.

While growth in the international humanitarian sector is widely recognized (UNDP, 2002), the global nature of this growth is less so. Thus, whereas the decade of the 1980s international NGOs grew to 2,500 in number, within the developing world, the number of local NGOs with a relief and development focus is now approximately 30,000 (UNDP, 2002). Naturally, these increases generate further challenges for inter-organizational coordination.

Understanding NGO Inter-organizational Coordination

NGO Coordination: Despite the variety of academic perspectives from which research on coordination and inter-organizational coordination is approached (Comfort & Kapucu, 2006; Crowston, 1994; Grandori, 1997; Lewis & Talalayevsky, 2004; Mulford & Rogers, 1982; Mulford, 1984; Thompson, 1967; Van de Ven et al., 1976; Whetten & Rogers, 1982), a common theme across all of them is that coordination requires the sharing of information, resources and responsibilities to achieve a common goal.

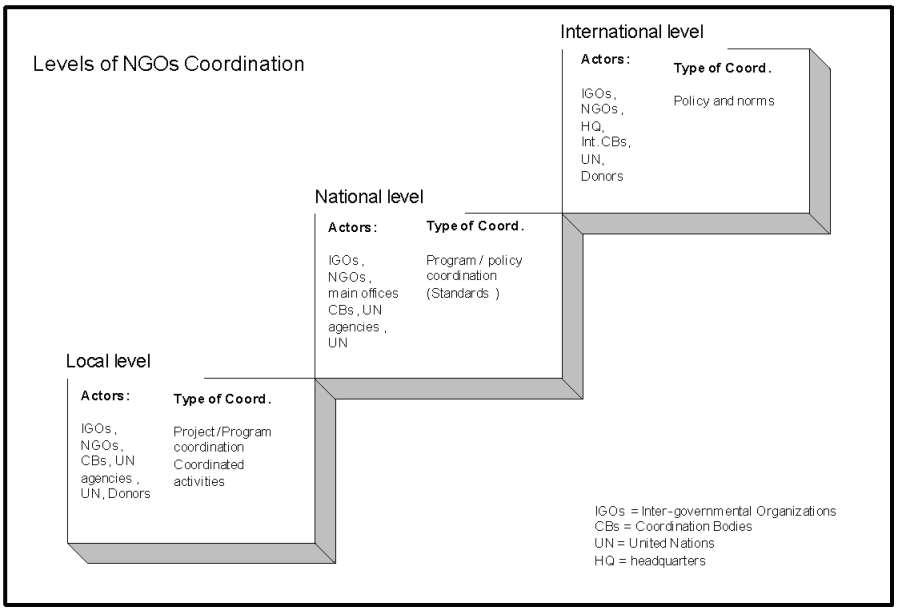
In the particular realm of NGO coordination, initiatives are seen as a solution to duplication of efforts in assistance projects, badly planned and implemented relief efforts, and the lack of knowledge among humanitarian organizations on the actual situation in which they operate. These initiatives entail developing strategies, determining objectives, planning, sharing information, the division of roles and responsibilities, and mobilizing resources. They are also concerned with synchronizing the mandates, roles and activities of the various stakeholders and actors at higher organizational levels. In a nutshell, NGO coordination is intended to ensure that priorities are clearly defined, resources more efficiently utilized and duplication of effort minimized; the ultimate goal being to provide coherent, effective and timely assistance to those in need (Harpviken et al., 2001).

Coordination among NGOs, as well as between NGOs and other humanitarian actors, takes place at different levels. Harpviken et al. (2001) identify these levels as international, national, regional and local. At the international level, the formulation of policy, general guiding principles and strategies are of concern. At the national level, coordination typically revolves around program development and policy articulation. At this level, local groups are typically less involved, while United Nations agencies, government departments and NGOs representatives assume a central role. Coordination at the local level usually takes place between representatives from NGOs, United Nations agencies, and local communities. It is at the local level where humanitarian priorities can be most readily identified and articulated. Figure 1 depicts these different levels of coordination, within which inter-organizational relationships may vary, depending on the level of coordination pursued. Our study focuses on coordination at the international level.

Inter-organizational Coordination Forms: Identifying and classifying the various forms of inter-organizational coordination has been a subject of research in both the for- and non-profit domains. Research on for-profit organizations has identified two general structures of coordination (Malone, 1987; Thompson et al., 1991). The first is a hierarchical coordination structure, characterized by long-lasting relationships with fixed rules of behavior and clear authoritative relationships. Put simply, one organization has control over the other(s). The second is a "market" coordination structure, in which all organizations are fully autonomous and make decisions in their own interest.

In the non-profit domain, research has similarly identified multiple structures (Donini & Niland, 1999). The first is "coordination by command," in which the lead NGO has authority to pursue coordination through the use of carrots or sticks and possesses strong leadership abilities. In such a situation, a central authority

Figure 1. Level of NGOs coordination; source: Author adaptation from Harpviken et al. (2001)



has the power to define the agenda, instigate preferences and enforce sanctions. Power can come in the form of control of information or resources, but also the institutionalized legal means, through which preferences might be implemented. The second form is "coordination by consensus". In this form, organizations develop agreed-upon guidelines and standards to achieve similar goals, and there is no authority to enforce compliance. The last form, "coordination by default" describes ad-hoc coordination in which a division of labor is generally the only exchange of information among actors. Obstacles to inter-organizational coordination may vary depending on these various forms of coordination.

Alternatively, research on coordination structures in the humanitarian sector finds that structure within NGOs themselves. Enjorlas (2008) argues that collectively NGOs on their own serve as coordination structures. Due to the nature of their individual governance structures, they reinforce the norm of reciprocity; making possible the pooling of resources and, because of these features, thereby facilitate collective action oriented toward public or mutual interest as well as advocacy. Moreover, this nonprofit governance structure is also compatible with other types of coordination mechanisms, and thus NGOs are able to operate in complex environments, mobilizing resources from market operations, governmental subsidies, or from reciprocity (Enjorlas, 2008).

Information Technology Coordination in the Humanitarian Relief Sector

Around the world, the adoption of information technology for disaster relief is increasing among humanitarian organizations including NGOs (Quarantelli, 1997). For these NGOs, information technology plays a vital role in disasters relief. The sooner humanitarian organizations are able to collect, analyze and disseminate critical information, the more effective the response becomes and the more lives are potentially saved. Studying inter-organizational disaster response, many researchers have looked at the use of IT as a coordination tool. A rich body of literature points to the critical role IT

plays in complex inter-organizational disaster response plans (Comfort, 1993; Comfort et al., 2001; Moss & Townsend, 2006). Wentz (2006) presents current knowledge and best practices in creating a collaborative, civil-military, information environment to support data collection, communications, collaboration, and information-sharing needs in disaster situations and complex emergencies. Comfort (1993) identifies three main roles of information technology in managing humanitarian disaster including. According to the author, information technology enables disaster managers to create an interactive network that facilitates communication and focuses attention on the same problem at the same time. The second role identified by Comfort (1993) is that information technology allows the representation of information in graphic form, thus simplifying complex data and increasing the speed and accuracy of communication. Thirdly, information technology enables and facilitates the development of a database for a given community which stores relevant information about the community and its population and assists managers in quickly formulating alternative solutions for assistance.

Inter-organizational coordination of humanitarian NGO around information technology however gives rise to many challenges. They originate not only from the general organizational characteristics but also from those of IT. These challenges include issues related to the inter-organizational context, to the nonprofit sector and to the emergency response context. Researchers have explored coordination related issues in humanitarian NGOs IT coordination bodies. Saab et al. (2008) investigates the extent to which organizational characteristics such as structure, number of members and funding influence outcomes as well as what they see as the critical priorities for facilitating coordination. Van Gorp et al. (2008) investigate how and in which situation coordination does occur within a humanitarian coordination body. The study also explores the benefits and constraints for coordination of VSAT deployment for development and relief purposes. Maitland et al. (2009) identify similarities and differences between information management and information technology challenges to inter-organizational coordination. They also identify requirements for resolving these challenges.

In our study, we are not directly concerned with the development and use of information technologies and information systems within individual NGOs. Rather, we investigate coordination problems within humanitarian NGO's information technology coordination bodies seeking those that these entities help to address. We also seek, when appropriate, to make recommendation on how to address other barriers. To this end, we introduce an analytic framework that helps us to group well-known inter-organizational coordination barriers into mandate, behavioral, and structural categories. We focus on coordination at the international level first because in the two case studies investigated in the paper, coordination is performed at the international level. Humanitarian relief, which often implies services provided in low income countries by organizations from high income countries, is inherently international. National level coordination challenges do exist but these are the domain largely of domestic oriented NGOs which are not included in our study. Another reason is that some of our previous work explored other levels of coordination (Tapia et al., 2010).

NGOs' Inter-Organizational Coordination Problems

Research on barriers to inter-organizational coordination has been undertaken in both general organizational contexts (Burbridge & Nightingale, 1989; Comfort, 1990; Comfort & Kapucu, 2006; Crowston, 1997; De Bruijn, 2006; Faraj & Xiao, 2006; Quarantelli, 1982; Thompson, 1967), as well as among NGOs specifically (Bennett, 1995; Bui et al., 2000; Foster-Fishman et al., 2001; Saab et al., 2008; Uvin, 1999; Van Brabant, 1999). After an analysis of the literature, we found a fairly consistent set of eight coordination barriers. They include (1) bureaucratic and turf-protection, (2) divergent goals and conflicting interests,

(3) resource dependency, (4) coordination cost, (5) information and communication issues, (6) assessing and planning joint activities, (vii) competition for resources, and (7) emergency response time.

Bureaucratic barriers and turf-protection refer to the desire to maintain autonomy and thus avoid having individuals in other organizations interfere within one's own organization. Burbridge and Nightingale (1989) note a common fear among organizations is that coordination may somehow result in a take-over or a loss of decision-making autonomy. Furthermore, the discipline of coordination can limit maneuverability, and hence poses a major challenge (Uvin, 1999). Coordination may be perceived as increasing bureaucracy, generating institutional resistance among bureaucratically burdened NGOs (Van Brabant, 1999).

A common problem in inter-organizational coordination is that divergent goals or an over-emphasis on individual organizational goals as opposed to those of beneficiaries may lead to conflicting interests (Bennett, 1995; Bui et al., 2000; Quarantelli, 1982; Saab et al., 2008; Van Brabant, 1999). Goal conflicts occur when a party seeks divergent or incompatible ends. Further, divergent goals may also lead to an exacerbation of turf issues or other coordination problems (Bui et al., 2000).

Resource dependency is both a motivation for and barrier to coordination (Crowston, 1997; Dawes et al., 2004; Thompson, 1967). Interdependencies, whether of the pooled, sequential or reciprocal type, require coordination (Thompson, 1967). However, at the same time they can create problems for coordination and constrain the efficiency of task performance (Crowston, 1997). One of these problems is the associated cost of coordination, as to be effective it is time and staff intensive and the benefits must outweigh these costs (Aldrich, 1972; Bennett, 1995; Van Brabant, 1999).

Coordination cost is yet another barrier that hampers coordination among organizations. Inter-organizational coordination is believed to limit an organization because scarce resources and energy have to be invested in the maintenance of relationships with other organizations. Negotiation of resources allocation can lead to difficult bargaining among parties engaged in coordinated activities. Usually, organizations find it difficult to allocate scare resources (Bui et al., 2000). Aldrich (1972) argued that it is costly for organizations to initiate and/or maintain linkages with other organizations. For example, the costs can be seen as in term of additional staff-time necessary to attend a joint board of directors' meeting; or the additional funds necessary to participate in joint database. According to Uvin (1999), the high cost in time and money that effective co-ordination entails constitute one of the major barriers to inter-organization coordination.

Another frequently encountered barrier is related to the availability and the quality of information. This is usually due to the inconsistency in data collection and management across organizations and to the mismatch between the informational demands and supplies (De Bruijn, 2006; Fisher & Kingma, 2001). According to Bui, et al. (2000), there are varying levels of mistrust, misrepresentation of facts, and incomplete information exchange among organizations. Further, the high level of uncertainty in humanitarian operations likely requires greater amounts of information to be processed between decision makers (Galbraith, 1977).

General assessment and planning of joint activities can lead to disagreement about the means and the ends of a coordinated activity (Bui, et al., 2000). Situations tend to worsen when organizations are unsure of their role, and act independently, without consulting or coordinating with others. Joint activities must also confront problems of understanding, which emanate from the fact that participants in inter-organizational relationships are accustomed to different structures, cultures, functional capabilities, cognitive frames, terminologies, and management styles and philosophies (Vlaar et al., 2006).

In addition to the resources related to coordination itself, competition for scare resources in general may inhibit the initiation of inter-organizational coordination generally

Table 1. Summary of eight coordination barriers

Barriers	Issues	Authors
• Bureaucratic and turf protection	• Desire to maintain autonomy and thus avoid having individuals in other organizations interfere within one's own organization	Burbridge and Nightingale (1989) (Uvin, 1999). (Van Brabant, 1999).
• Divergent goals and Conflicting interests	• Divergent goals or an over-emphasis on individual organizational goals	Bennett 1995; Bui et al, 2000; Quarantelli, 1982; Saab et al, 2008; Van Brabant, 1999.
• Resource dependency	• Interdependencies require coordination but at the same time they can create problems for coordination and hamper performance.	Crowston, 1997; Dawes et al., 2004; Thompson 1967). Aldrich 1972; Bennett, 1995; Van Brabant 1999
• Coordination cost	• Scarce resources have to be invested in the maintenance of relationships with other organizations.	Bui et al, 2000; Aldrich,1972; Uvin, 1999
• Information and communication issues,	• Information availability and accessibility, • Information quality, • Information Sharing • Information system quality, • Standards and interoperability • Systems integration	De Bruijn, 2006; Fisher & Kingma, 2001; Bui, et al 2000; Galbraith, 1977.
• Assessing and planning joint activities	• Disagreement about the means and the ends of a coordinated activity	Bui, et al, 2000; Vlaar et al., 2006
• Competition for resources	• Competition for scare resources may inhibit the initiation of inter-organizational coordination	Uvin, 1999; Van Brabant, 1999; Salm, 1999.
• Emergency response time	• Coordination is often perceived as increasing response time especially in case of emergency	Van Brabant, 1999; Comfort, 1990.

(Uvin, 1999; Van Brabant, 1999). Given the increasing numbers of NGOs, combined with decreasing overseas development assistance budgets, competition for funding between organizations is heating up (Salm, 1999; Van Brabant, 1999).

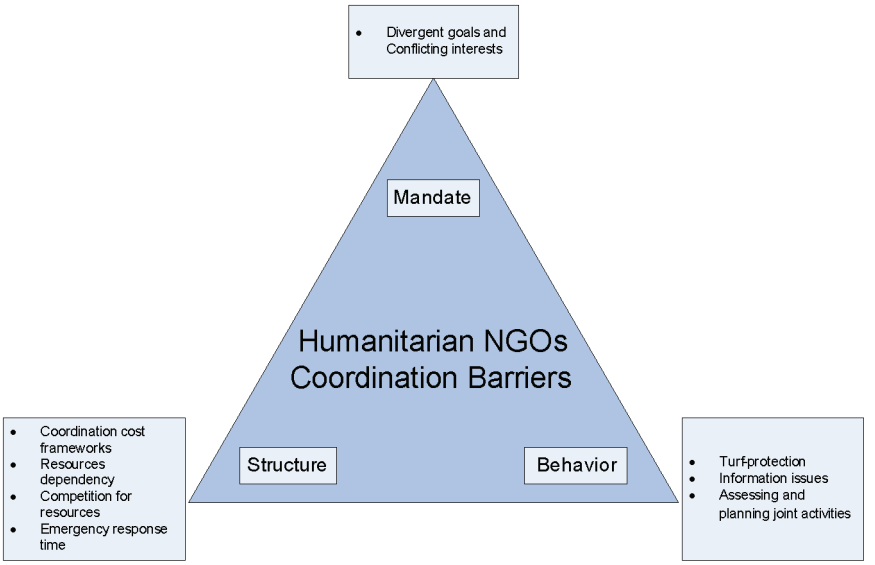
Finally, response time is considered yet another obstacle to coordination among organization. Coordination is often perceived as increasing response time especially in case of emergency. According to Van Brabant (1999), there is the fear that the coordination effort will cause delays in providing relief. Comfort (1990) observed that coordination activities generated delays in response in the four events she analyzed.

Thus, inter-organizational coordination between international humanitarian NGOs will seek to share information, resources and responsibilities that through more efficient use of resources and minimization of duplicate activities will provide effective and timely assistance to those in need (Harpviken et al., 2001). This coordination can occur at multiple levels and may be carried out through one of several forms, including command, consensus or default (Table 1). Whatever the form, it must contend with a wide range of challenges.

ANALYTICAL FRAMEWORK

To date, research on NGO inter-organizational coordination generally, as well as that specifically related to coordination bodies, lacks a coherent framework for analysis. In particular, coordination barriers are considered as separate constructs without being categorized into use-

Figure 2. Humanitarian NGOs coordination bodies' coordination barriers framework;source: Author adaptation from State Services Commission (2008)



ful higher order concepts. These higher order constructs should be useful both in terms of theory building as well as generating actionable insights for nonprofit organizations. In this section we present an analytic framework that can be applied to analyze coordination bodies and systematically analyze barriers they confront. The analytic framework presented here borrows from one presented in a New Zealand State Services Commission (2008) report. This report was designed for analyzing factors for successful coordination among government agencies. Although, there is an organizational difference between the coordination of institutions under the government of a country, and the coordination among independent NGOs, the framework is useful pointing the three critical aspects for the coordination process. The original framework distinguishes three broad factors for successful inter-organizational coordination, including the organizational mandate, system and behavior. Here we substitute 'structure' for 'system' as we perceive it to be more reflective of the crucial issues, as well as for its connection to the coordination literature. Further, this framework creates an ordering of the well-known coordination barriers discussed above, as each one can be associated with one of the three factors (Figure 2). Consequently, delineating coordination issues into those related to mandate, structure and behavior separates those more closely aligned with organizational design (mandate, structure) from those associated with coordination body management (behavior). To provide a better sense of the meaning of each of the three areas, they are discussed in turn below.

For successful coordination, the mandate category recognizes that each member organization of the coordination body must emphasize the importance of effective coordination and commit to making it work by prioritizing the coordinated activities. This requires leadership and clear goals. Coordination is best achieved when senior leaders have invested significant time and energy modeling and supporting this way of working (Gratton & Erickson, 2007). Particular behaviors required of leaders include: ensuring that resources and time are available for the team and managing external pressures so that coordination can occur. Further, clearly-defined and mutually-agreed upon joint outcomes are critical for successful coordination.

If objectives are unclear or not shared, participants may work towards different, incompatible goals and fail to achieve desired outcomes.

In terms of structure, successful coordination requires appropriate governance and accountability frameworks, as well as adequate resources. The roles, responsibilities and contributions of each organization must be made clear. Further, governance frameworks will influence the way interactions among organizations develop over time and must be designed to sustain them. Governance frameworks must also specify appropriate resource allocations. The main resource requirements are a dedicated budget, a working pace that can sustain progress without overwhelming the group and, sufficient time to establish working relationships, achieve outcomes, and nurture the required behaviors.

With regards to behavior, successful coordination requires organizations be represented by people with the appropriate authority, and the right skills and competencies to work collaboratively. There must be clear leadership among the group. Participants in a coordination initiative should represent a cross-section of agencies whose involvement is necessary for the coordinated initiative to succeed. Representatives need the ability to negotiate, sense when to compromise and have the patience to allow the relevant parts of their agency time to act deliberately and thoughtfully to reach decisions.

Further, each organization's culture must support coordination so that, over time, people involved in the coordinated activity come to share common culture, language and values. Shared culture is important if members are to develop a sense of joint ownership of the way the group works and of the results it produces. This is easier to achieve when agencies have a prior history of working well together, primarily because the issue of shared culture has already been partially resolved.

We feel that this higher order analytical structure that organizes these barriers into three larger categories is appropriate to both the context of humanitarian relief as well as to coordinating bodies focused on IT. In the case of the first factor, mandate, we feel that this may be of particular interest in this special case. We perceive each member of the coordinating body to be operating under the onus of three distinct mandates—first to the large goals of humanitarian relief and saving lives, second, to the particular goals of IT and building more effective, robust, secure and efficient systems, and lastly the mandate to represent the interests of their home organization as a whole within the coordinating body. This juxtaposition and potential conflicts therein, may prove to be scientifically interesting.

Secondly, we feel that the higher order classification of structure also has potential in this special case. The coordinating body members are coming from unique, established, large and hierarchical relief organizations to form a coordinating body between themselves which will not mirror any of their home organizations, yet must account for each in some fashion. The authority and governance structures that might be created between these member organizations which allows IT resources and distributed decision-rights to control them to flow from the home organizations may take on very interesting forms.

Lastly, in terms of the higher order factor of behavior and culture, we believe that unlike other arenas of coordination, those in this special case already share the overarching goal of humanitarian relief and the instrumental goal of building and maintaining better IT infrastructure. We believe that this common ground may go a long way in smoothing the ability of the coordinating body to successfully coordinate across organizational boundaries.

RESEARCH METHODS

This study employs a comparative case study research design to capture holistic detail in natural settings (Creswell, 1998). This method is particularly well-suited to studying phenomena that cannot easily be distinguished from their context and provides insight into contemporary phenomena within real life settings (Yin, 2003).

Table 2. Case Study Data Collection Activities

Case Study	Interviews	Other
ITEA	12 in-person and through telephone	Background documentation; access to conference calls; observations at a meeting
ReliefTechNet	19 through telephone	Background documentation; access to project conference calls; limited field office survey and observations at meetings

As will be discussed in more detail below, the two cases, The Information Technology for Emergency Alliance (ITEA) and ReliefTechNet, exhibit a variety of similarities and differences. They both seek to foster coordination between information technology managers at the headquarters level of large international humanitarian NGOs. Generally, NGO information technology units are considered part of overhead and hence budgets are limited. The two bodies are ideal for comparison in that they differ on a variety of organizational characteristics, yet have some overlap of membership. This overlap enabled in-depth understanding, developed through observation, of both cases. Furthermore, one coordination body manager familiar with both bodies was able to discuss with us perceived similarities and differences. However, to control for potentially confounding effects, organizations with dual membership were omitted from interviews related to the larger organization. Our unit of analysis is the coordination body, not the member NGOs which comprise the bodies in question.

As is common in the case study method, multiple data collection methods were employed (Yin, 2003). Data for the two cases were collected over a period of 15 months (October 2006 through December 2007). The data sources included semi-structured interviews, direct observation, and document analysis. The specific data collection activities for each case are outlined in Table 2.

The data collection emphasized semi-structured interviews as they allow interviewees to convey their experiences and assumptions in a way that is not permitted by completely structured questions (see interview guide in appendix A). The interviews, which were used to follow-up on questions arising from the archival, documentary, and observational data, were guided by the researchers to cover specific topics, but were flexible enough to pursue avenues of inquiry as they arise during the interview process (Berg, 1989). We conducted nineteen (19) interviews with ReliefTechNet staff and representatives of member organizations. All the organizations member of ReliefTechNet did not take part to the interview. Out of the nineteen (19) interviews, sixteen (16) were conducted among representatives from eight organizations. The rest (3) interviews were conducted with ReliefTechNet management staff. We also conducted two in-person observations at ReliefTechNet meetings in 2006 and 2007. For the ITEA case, we conducted twelve (12) interviews with representatives, as well as participated in conference calls. Each interview lasted between forty-five (45) to seventy-five (75) minutes, was recorded and transcribed. All the 12 interviews were conducted through phone and involved four out of the seven ITEA members. Two ITEA interviews were conducted with consultants. In either of the two cases, we believe the views of the organizations represented in the interviews are representative of the whole coordination body.

For this study, we used a mixture of deductive and inductive coding (Epstein & Martin, 2005). Deductive codes were developed based on our research questions. In this way, open and selective coding was carried out for each interview, so that themes and categories could be developed. As such, we were able to compare these themes (about assumptions and interpretations) across interviewees as well as

against the research questions and the theoretical framework. During the coding process we also let some codes emerge from the data. The inductive approach reflects frequently reported patterns used in qualitative data analysis. The process of coding was iterative and cyclical based on the framework developed by Seidel (1998).

This study is part of a larger research agenda that seeks to understand how aid agencies can organize themselves to promote higher levels of coordination. For the particular research question of this study, the initial coding of interview's transcription focused on identifying the problems within the coordination bodies. Although there was a particular question to inquiry about this aspect (Could you mention the issues or problems that you have faced while working with the coordination body?), subjects mentioned issues and problems while describing coordination bodies' activities. Those answers were also included in the coding process.

The interview results were complemented by direct observation and document analyses. We conducted two multi-day, in-person observations at ReliefTechNet meetings in 2006 and 2007. We also reviewed and analyzed organizational documents including meeting minutes, annual reports and organization publications. The ITEA Initiative provided documentation to establish context and background to ITEA project outcomes.

GENERAL CASE DESCRIPTIONS

This section presents general descriptions of the two coordination bodies, providing background and contextual information. It is followed in Section 6 by an analysis of interview data.

ReliefTechNet is a coordination body of humanitarian NGOs. With help from initiators, the organization sought to pool NGOs' demand for IT donations, but quickly took on a range of other activities including coordinating information and communication technologies (ICTs), both during disaster response and development activities. ReliefTechNet membership grew from 7 organizations in 2001 to 22 in 2008. The organization's administration and projects are funded through a combination of grants and membership dues. ReliefTechNet is wholly autonomous, having established itself as a non-profit organization. ReliefTechNet has three major stakeholder groups including (1) ReliefTechNet members, (2) ReliefTechNet management, and (3) ReliefTechNet supporters. There exists significant interplay among these three groups. ReliefTechNet has a board as well as a project committee that approves project ideas from the membership. ReliefTechNet's activities initially focused on the headquarters level of its member organizations, which allowed for collective bargaining with vendors, to provide ICT services such as satellite telecommunications, coordination of ICT policies and practices, and more. Within ReliefTechNet, project involvement is voluntary and funded by participating organizations. While some member organizations are larger, having more resources to contribute to particular projects, these larger organizations do not appear to have disproportionate control over the decision-making process, despite their financial leverage. The consensus surrounding projects has been fairly easily achieved because participation is voluntary and thus those uninterested are unlikely to stand in the way of others for whom the projects are a priority.

With regards to activities, ReliefTechNet develops and implements tools (e.g. NetReliefKit) which provides data and voice connectivity in a small, transportable suitcase allowing its members to quickly establish a short-term communications solution in the event of a disaster or emergency. ReliefTechNet tests and manages the deployment of communications infrastructure to provide its members with access to the Internet at remote project sites where relief and development operations are carried out. ReliefTechNet provides forums for member organizations to document and share their field experiences regarding the effectiveness of their telecommunication technology and to suggest ways to improve future delivery of

Table 3. ITEA and ReliefTechNet demographics

	ITEA	ReliefTechNet
Number of members	7 Agencies	22 agencies with varying numbers of representatives
Open/Closed Membership	Closed	Closed; by invitation only
Funding Sources	Private foundation	Yearly membership dues
Mission Focus	Preparedness, Relief	Preparedness, Relief, moving towards Development
Degree of Autonomy	High	High
Organizational Level Focus	All Levels	Executive, field
IT Centricity	Low to Moderate	High - entirely devoted to ICT utilization and enhancement
Governance model	Consensus	Consensus with opt-in/opt-out of specific projects

services. ReliefTechNet provides its members with ICT skills capacity building to improve emergency response.

The Information Technology for Emergency Alliance (ITEA) is a coordination body consisting of seven agencies and was funded by a large foundation. Its goal was to improve preparedness for relief efforts of NGOs over a two-year period. In particular, it focused on four specific areas: Staff Capacity Development (Initiative 1); Accountability and Impact Measurement (Initiative 2); Disaster Risk Reduction (Initiative 3); and Information and Technology Requirements (Initiative 4). ITEA had a decentralized project management structure that coordinated the implementation of its activities for its planned two-year program. ITEA4, the last initiative of ITEA focusing specifically on ICTs, is the one discussed in this paper. The main activity of the ITEA4 was to conduct an assessment of how information is managed in emergency response and what tools and resources are available for these activities.

Similarities and Differences

Besides their obvious common interest in facilitating coordination, ReliefTechNet International and ITEA share much in common. In addition to their members being engaged in humanitarian assistance and international development, all members of ITEA are also members of ReliefTechNet International. Furthermore, coordination in both bodies is at the international level and is by consensus (Donini & Niland, 1999).

With regard to differences, ReliefTechNet International and ITEA differ in size, their primary focus, their funding mechanisms and their duration. With regards to the size, ITEA is a smaller coordination body with seven (7) members as compared to twenty-two (22). ReliefTechNet International's focus is primarily on technology change, while ITEA's is primarily organizational change. With regards to funding mechanisms, ITEA is funded by one donor while ReliefTechNet International is funded through a combination of private sector support and membership fees. Finally, with regards to their duration, ITEA is a fixed term (2 years) initiative while ReliefTechNet International is an ongoing initiative. Table 3 summarizes the demographics of the two organizations.

CASE DATA

Through systematic coding of our data, we identified fifteen different types of coordination barriers. In the coding process we noted each time a type of barrier was mentioned and ag-

Table 4. Aggregated responses to coordination barriers

	ReliefTechNet		ITEA		Total	
	Occ.	%	Occ.	%	Occ.	%
Conflict of goals or interests	5	20.83	3	16.67	8	19.05
Lack of resources	2	8.33	4	22.22	6	14.29
Problems of standards	3	12.50	2	11.11	5	11.90
Institutional or bureaucratic	4	16.67	1	5.56	5	11.90
Lack of incentives	2	8.33	1	5.56	3	7.14
Lack of technical skills	0	0.00	3	16.67	3	7.14
Lack of tools for collaboration	1	4.17	1	5.56	2	4.76
Lack of time and timing	2	8.33	0	0.00	2	4.76
Geographical distance	2	8.33	0	0.00	2	4.76
Lack of trust /sharing spirit	1	4.17	0	0.00	1	2.38
Speed for emergency	0	0.00	1	5.56	1	2.38
Staff turn-over	0	0.00	1	5.56	1	2.38
Communications / language	1	4.17	0	0.00	1	2.38
Membership/ size of organization	1	4.17	0	0.00	1	2.38
Different organization structure	0	0.00	1	5.56	1	2.38
	24	**100.00**	**18**	**100.00**	**42**	**100.00**

gregated these occurrences as presented in Table 3. Subsequently we ranked and performed basic statistics on the occurrences of each issue. While many barriers are similar to the general and well-known ones, others appear to be specific to the functional domain of the coordination bodies, namely information technology. Further, whereas 6 of the 15 barriers were mentioned in both cases, the other 9 were identified in only one case or the other. We elaborate on these barriers in Table 4.

Barriers in both Coordination Bodies

One of the most frequently cited barriers to coordination in both cases (19% in aggregate) was the conflict between the goals of the member's home organization and those of the coordination body. This was also expressed as a conflict of goals, a conflict of interests and competing interests. To a large extent, members of the coordination body have individual goals they tend to prioritize, overlooking the general interest of the group. For one of the subjects, the span of attention to coordination activities last as long as the meetings of the body.

"I think the main issue could be that a lot of the people, once they leave the meeting and go back, are more focused on their organization rather than ReliefTechNet."

The second most cited barrier (14% in aggregate) was a lack of resources, providing yet more evidence for what is known to be a significant problem. However, here while it was common to both groups, it was more significant in the ITEA case, in which the coordination body had more ambitious goals but also had external funding. More specifically, the difference of resources and capacities among organizations was mentioned by one of the subjects as an important factor.

"…it is a challenge for everybody to be able to do that when they are not funded or skilled or staffed equally. It is bad for those that are lagging behind as well as those that are leading."

The third most frequently cited problem (in aggregate nearly 12%) is the issue of standards. The issue was mentioned nearly equally in both cases. One respondent noted:

"So now I think that's the biggest obstacle. To get the standards, you have to get everybody together, key people, enough key people, to reach agreement. Once you reach agreement, building it out, once you get that, the technology is there."

The fourth mostly commonly cited barrier (in aggregate nearly 12%) is institutional and/or bureaucratic issues. Interviewees expressed their reluctance to pursue coordination, perceiving it as bringing about more bureaucratic and institutional constraints. This issue was more significant among members of the ongoing ReliefTechNet than those of the fixed-duration ITEA.

Although less frequently mentioned, other barriers cited by members of both coordination bodies include a lack of incentives and a lack of collaborative tools. Representing in aggregate roughly 7% of responses, one of the subjects described the lack of incentives as follows:

" There is no resources allocated, it is pretty much on a voluntary basis. There is no pressure to do it… a lack of incentives."

A similar level of concern (roughly 5% in aggregate) was shown in both cases towards a lack of collaborative tools. A subject described this problem both within and beyond the humanitarian NGO community.

"For all of us in the for-profit, or not-for-profit, tools for collaboration are a real challenge."

Exclusively ITEA Barriers

As described above, ITEA is a coordination body that seeks organizational change among IT units in humanitarian organizations with a particular focus on relief operations, and as such has a relatively ambitious goal. Accordingly it also has fewer members. Issues found only among members of this coordination body are a lack of technical skills, different organizational structures, speed for emergency assistance, and staff turn-over.

Lack of technical skills represented more than sixteen percent (16.67%) of the responses in this case, whereas different organization structures speed for emergency response and staff turnover represented a little more than 5% each. As regards organization structures, one member observes

"One of the biggest barriers is we are structure[d] differently, internally to our organizations. You know some people have their field people coordinated one way, some people have their systems one way, and some people have it another. Sometimes I think that is a big barrier because we have different ways of getting stuff done in the field."

As regards the issue of speed for emergency assistance, one member observes:

"I guess the biggest imperative these ones, and that causes a lack of coordination is the really the imperative to respond to the emergency as quickly as possible"

As regards the issue of staff turn-over, a subject indicates:

"obviously one of the big things, the big problems when you do disaster relief is that there is a relatively high turnover of staff so there is not a lot of institutional knowledge. Organizations are aware of that and seem to be trying very hard to change that. "

Exclusively ReliefTechNet Issues

As compared with ITEA, ReliefTechNet is a larger coordination body, with less ambitious goals and of an on-going duration. Barriers exclusively mentioned by its partners include a lack of time for and/or timing for coordination, geographical distance, communications and/or language, membership size and lack of trust.

Among these time and distance represented each roughly 8% of responses. Successful coordination requires time for appropriate planning and gathering information. As said by one of the subjects, the fact that all organizations are independent makes harder to spend enough time all together working in common issues.

"We all work for independent organizations. I think probably time, you know, time to work on things together. Time to work things out, timing, is the other."

As concerns geographical distance, a subject expresses its importance in the following terms:

"Take these conference calls for example, if you have people in the eastern US, western US, Australia, India, the UK, all of those people, there are people in all of those time zones represented, how do you have a meeting?"

Of less concern, representing roughly 4% of responses each are communications, size and trust. Of the first, one member observes:

"Of course you add in the language problems and the misunderstandings and misconceptions that can be found when one person will say a lot of things and it can be misconstrued by a second person whose native language is not the language that the first is using."

These issues of communications exist concurrently with issues that arise due to differing sizes (and hence resources, structures, etc.) of member organizations as well as with those of doubting whether fellow members will honor their commitments. This latter issue has particular implications for information sharing, a requirement for effective coordination.

Summary

Overall, out of the fifteen different types of inter-organizational issues, six were identified in both cases, although perhaps receiving different levels of emphasis in the two cases. Problems caused by (i) conflict of interests or goals, (ii) institutional and/or bureaucratic constraints (iii) lack of and/or conflicting standards and (iv) lack of resources appear to be the major barriers for coordination. These four types of coordination problems registered in total more than half of all the responses of interviewees to coordination problems (Figure 3).

ANALYSIS

Given the above findings related to coordination barriers, we now analyze their implications through the lens of our analytic framework. The framework views coordination challenges as aligning with one of three components: mandate, structure or behavior. Structural barriers arise when appropriate governance and accountability frameworks are lacking, as well as adequate resources. Mandate barriers arise when coordination body member organizations are not committed to effective coordination and do not prioritize the coordinated activities. Finally behavioral barriers result when organizations are represented by people without the appropriate authority, culture, skills and competencies to work collaboratively. Taking the above mentioned coordination barriers and aligning them to these three components (Table 4) we observe that whereas the distribution of the 8 commonly known coordination barriers created a somewhat balanced triangle, once applied to our two cases the triangle becomes significantly skewed. Only one barrier is placed in the mandate corner, but it receives significant attention from the participants. This suggests the barrier concerning conflicting goals and

Figure 3. Frequency (in %) of barriers to coordination

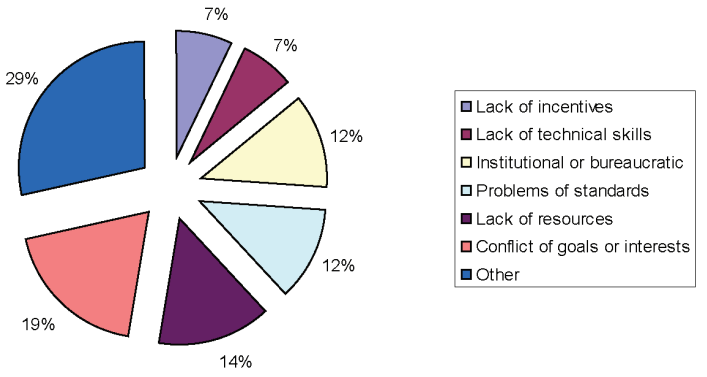


Table 5. cross study coordination barriers per category

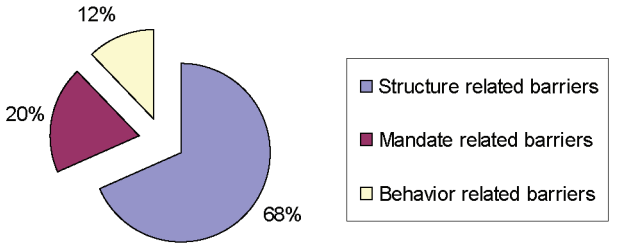
Framework Category	Barriers identified
Mandate	Conflict of goals or interests
Behavior	Lack of trust /sharing spirit Speed for emergency Staff turn-over Lack of incentives
Structure	Communications / language Membership/ size of organization Different organization structure Lack of tools for collaboration Lack of time and timing Geographical distance Lack of technical skills Institutional or bureaucratic Problems of standards Lack of resources

interests is universal and powerful. Four barriers were placed in the behavior corner, yet this corner received little attention. Nine barriers are placed in the structure corner (Table 5), showing that great attention was paid to structural barriers, but that the forms of those barriers were diverse.

From this we can claim that for these two NGO coordination bodies, mandate and structural barriers were more important than behavioral barriers in undermining coordination. We can also state that while structural barriers were important, they were also diffuse in comparison with mandate barriers. Below, these findings will be discussed in greater detail.

Conflict of goals and or interests is a single, but very significant, inter-organizational coordination issue that represents the "mandate" category. This finding suggests that, irrespective of differences such as organizational structure, mission focus, and sources of funding, if members of coordination bodies do not clearly commit to joint activities and give them priority within their individual organizations, chances are high that coordination would fail. This finding highlights the implications for coordina-

Figure 4. Frequency of coordination barriers per framework category



tion of the circumstance that nonprofits serve a multitude of stakeholders whose goals and needs are often very heterogeneous (Beamon & Balcik, 2008). This would explain why conflicting goals and interests are perceived as major barrier to coordination among humanitarian NGOs. As shown in Figure 4, mandate-related barriers accounted for twenty percent (20%) of the occurrences of coordination issues.

Inter-organizational coordination barriers in the "behavior" category were identified in both cases. This finding suggests that since the humanitarian relief sector is a relatively new and growing field, organizations in this field have not yet developed and matured a shared culture and work practices that would favor coordination. This is particularly the case in the field of humanitarian information management and technology functional areas within humanitarian NGOs. With approximately twelve percent (12%) of occurrences, behavioral related issues were the least identified in the data.

As pictured in Figure 4, the majority (sixty eight percent) of the aggregated responses of coordination issues identified in the study, fall in the "structure" category of the framework. This finding suggests that problems of governance, of responsibilities and contributions for joint activities, are those that most undermine coordination in a coordination body. This observation also highlights the fact, as mentioned earlier, that the information technology function within the humanitarian NGO sector is still young. It is not surprising to find that issues, such as a lack of standards, are identified as major coordination problems. Moreover, as seen in the review of relevant literature, appropriate and sufficient resources are necessary to successfully coordinate activities. The fact that NGOs rely primarily on donations as their source of funding, emphasizes the issue of resources. However, we did not identify competition for resources, a generally well-known barrier, as an issue in these cases.

The fact that some coordination barriers were discussed only in one of the two cases draws attention to specific characteristics of these bodies. For example, members of ReliefTechNet, a larger organization with greater variance among its members in terms of location and size, unsurprisingly mentioned structural barriers associated with membership size and geographical distance, as well as the possibly related issue of communications and/or language and a lack of time for and/or timing for coordination. ReliefTechNet members also identified a lack of trust as a behavioral barrier. The structural coordination barriers unique to ITEA include a lack of technical skills and different organizational structures, whereas behavioral barriers include speed for emergency assistance and staff turnover. While these findings do not clearly associate behavioral or structural barriers as being more significant to one or the other, clearly there exist a set of common barriers, as well as those that are somewhat idiosyncratic to the mission of the coordination body. For example, relief response time and staff turn-over, both of which emerged from inductive coding, likely arise from ITEA's primarily relief orientation, as opposed to relief and development in ReliefTechNet, and ITEA's relatively short duration.

Furthermore, in addition to being influenced in part by idiosyncrasies of the coordination body, coordination barriers may also be functionally determined, in this case related to IT. The above analysis shows that members of these two coordination bodies experience both common and unique IT-related coordination barriers. Both groups experienced frustration over the lack of standards. By standards, we mean accepted and common data formats, transmission protocols, and hardware which support information sharing. A lack of standards can affect the quality and timeliness of information, which is so important to inter-organizational coordination. Conversely, only ITEA experienced the coordination barrier of a lack of IT skills. This could potentially be associated with the smaller size of the coordination body, which would result in a smaller pool of expertise from which to draw.

Structural Coordination Barriers: Internal and External

The initial analysis from the interviews revealed that most of the barriers described by the subjects especially all those related to information technology and information management can be classified under the Structure category. When analyzing these barriers, it is clear that some of the problems are inherent to the individual structure and operation of each NGO. On the other hand, other factors are related to the infrastructure and logistic needed for communications links to take place among the organizations.

For the purpose of this paper, we have categorized the structural barriers in two: internal and external. The structural internal problems are those that also affect the normal working of the NGOs and that can be addressed individually by each organization. Structural internal barriers include the lack of time and timing, the lack of technical skills, and bureaucracy. The structural external barriers are those that should be tackled taking a team effort. Structural external barriers consist of communication and language issues, lack of tools for coordination/collaboration, lack of standards, and lack of resources.

The analytical framework used as guide for this study was built assuming that the barriers that faced the coordination bodies were specific to the coordination issue. After the categorization of internal and external barriers, we found that NGOs still have to solve internal problems that may affect an effective coordination (Figure 5).

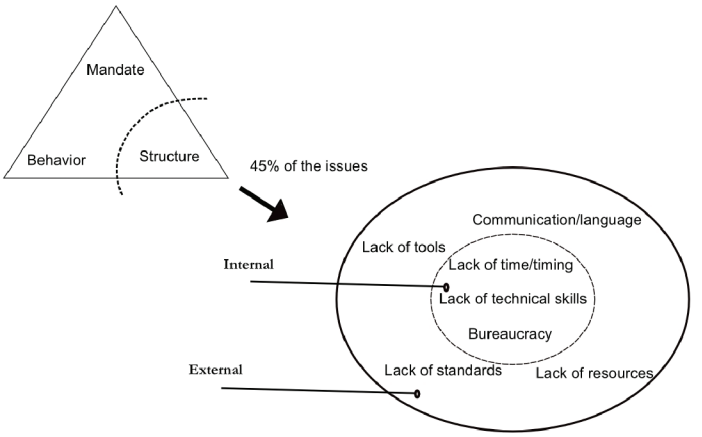
DISCUSSION AND CONCLUSION

The purpose of the study was to investigate the effectiveness of humanitarian NGOs' information technology coordination bodies in addressing inter-organizational coordination problems. To guide the study, we employed an analytic framework that enabled organizing the myriad of well-known inter-organizational coordination barriers into three categories, which are recognized as factors for successful coordination among organizations in coordination bodies. The analytic framework was applied to data from two coordination body case studies that revealed fifteen different barriers to coordination among humanitarian NGOs. We present below a discussion of these findings.

Our first observation is that, in general, our findings corroborate previous research that has explored inter-organizational coordination problems in the specific context of humanitarian NGOs research (Bennett, 1995; Bui et al., 2000; Uvin, 1999; Van Brabant, 1999). For example, some of the major inter-organizational coordination problems identified by Bennett (1995) include (1) conflicting interests, (2) coordination cost in terms of resource inputs, especially staff-time. Van Brabant (1999) also identifies and discusses obstacles to coordination in the humanitarian sector. Our findings are also consistent with all the issues discussed in that paper.

Our second observation is that members of these coordination bodies continue to face seven out the eight major coordination problems as identified in the literature. The one barrier they failed to mention in either case and, hence

Figure 5. Structural coordination barriers



do not face, is competition for resources. None of the 31 interviewees discussed this issue as a coordination problem within the coordination body. This would suggest that humanitarian NGO coordination bodies are valuable for addressing this type of coordination problem and this insight constitutes a significant contribution to the literature on humanitarian NGOs coordination bodies.

Our third observation is that coordination barriers categorized in our study as "internal barriers" play an important role in the coordination initiatives. Consequently, coordination bodies should tackle first those issues when trying to foster coordination and collaboration.

Our fourth observation concerns information technology and information systems. In our study, they were not mentioned as an issue, by members of the coordination bodies. Here, we make two key assertions,

First, IT/IS collaboration is often the first form of collaboration entered into by NGOs. Organizational coordination between NGOs is often perceived as difficult, if not impossible, especially when NGOs must change some of their basic operations, procedures or come to significantly depend on others for key elements of their operations. IT/IS is different. From our research, IT/IS collaboration is perceived as easier to accomplish, less risky, and poised for success. In addition, donors also support these collaborative IT/IS efforts in that they often have the goals of increased accountability, visibility, and efficiency. Whether many of these IT/IS joint system developments actually result in successful collaboration is beside the point (most fail). The NGOs, and their donors, strongly believe that the first step in collaboration is through IT/IS.

Second, in traditional IS/IT research, collaborations are often contractual networks of dependent firms, interlocked into supply chains. These contractual relations are often of mutual benefit, but also, often coercive. Our findings suggest that the IT/IS collaborations among NGOs are entered into voluntarily and operate under the assumption of consensus as the decision-making parameter. While there may be some impetus from outside donor agencies to collaboration on IT/IS, the pressure to collaborate never is exerted between partners. This unique flat, yet pluralistic, space in which information systems are developed across organizations is a valuable contribution to IT/IS literature.

Finally, our study has introduced an analytic framework that divides coordination barriers according to their relationship to mandate, structure and behavior. This framework can serve as a basis for further theory development

that views coordination barriers associated with structure and mandate as ex-ante organizational design issues and those associated with behavior as ex-post management issues.

Earlier in this paper we explained that drawing from the literature on coordination barriers in the humanitarian relief context, we anticipated finding that a lack of resources, and competition for those resources, would play a significant role in making coordination more difficult. This did not prove to be the case.

Our single greatest contribution from this research is that the strong value of creating coordinating bodies in the humanitarian relief sector that are focused on IT-issues is that it reduces or eliminates the barrier to coordinate around resources. We believe that the coordinating body created a structure and mechanism for the home organizations and outside donors to channel funding, staff and supplies to create collaborative IT projects that may have been impossible within any single NGO. Given the other (seven) significant barriers that still hold true in this sector with IT coordinating bodies, it is significant when we can see the diminished effects of one barrier.

This study has several limitations that prevent us from claiming that all coordinating bodies or even all IT-focused coordinating bodies held to resolve resource barriers to coordination. However, the implications are that perhaps with a well-structured coordinating body with the appropriate mandates and culture might facilitate coordination around IT issues across organizations, at least in the area of resources.

Future research needs to validate the usefulness of the framework beyond the consensus coordination structures considered here, to those that exhibit coordination by command, in which mandate and structural barriers may be less. One other major limitation of this framework is that it was developed to assess successful coordination in public sector coordination bodies. In our study we apply it to a context it was not originally intended for.

In addition, future research is needed to overcome other limitations of this study. Findings from this research cannot be generalized to all NGO coordination bodies. Generalizing from two case studies would be epistemologically problematic and would run the risk of being easily falsified by a single counterexample (Benbasat et al., 1987). However, this risk can be partially overcome by conducting several similar case studies. Moreover, as our study is conducted at the international headquarters level, is biased toward those *least* likely to face resource challenges (although they still do), future research should examine NGO coordination bodies at either the local or national level to validate whether they also are able to overcome the 'competition for resources' barrier for their members.

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ENDNOTE

1 ReliefTechNet International and ITEA are pseudonym used to protect the confidentiality of the coordination bodies

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APPENDIX A

General Interview Guide

1. Who are you? Describe your role in the coordinating body.
2. Describe the structure of the coordinating body.
   Formal? Specialized/General?
   Centralized/Decentralized?
   Adaptable? Responsive to environment? To members' needs?
   Formal Meetings? Minutes? Agendas?
3. Describe the relationship between your home organization and the coordinating body.
   Kind of decisions able to make? Resources? Time?
   Level of power granted by home organization/position within organization? Need to check back home? In what circumstances?
   Reports back to home organizations?
   Coordination Body's impact on home organization?
4. Describe barriers to coordination?
   Failed process? Conflict? Consequences? Lack of follow through?
   Major challenges? What would you change in how this coordinating body runs?
5. Describe the decision making process the coordinating body has gone through leading to project X.
   Communication between members leading to decision?
   Offline? Online? Email discussions? Tele-meetings?
   Subgroup? Whole group?
   Roberts Rules? Voting? Consensus?
   Disagreement? Leadership? Persuasion?
   Documentation? History? Repository?
   Evaluation of projects? Monitoring? Maintenance?
   Enticements?
   Other projects considered? Criteria for decision?
6. Coordination in this environment? How do these make it easier/harder to coordinate?
   NGO? Relief? IT work?
   Inter-organizational relations?
   Policy/national government/ international government?
7. General Impacts of Coordination Body
   Coordinating Body's impact on disasters?
   Impact on field?