

College of Information Sciences and Technology

**A Case Study of a Technical Coordination Body
Among Humanitarian NGOs:
NetHope**

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Prepared by

**COHORT
COORDINATION OF HUMANITARIAN ORGANIZATIONS
IN RELIEF USING TECHNOLOGY**

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Executive Summary

Across all of our observations and interviews NetHope is viewed positively by its members and staff. NetHope is also perceived to have the potential to be a coordination catalyst for its members. Most of the interviewees believe NetHope is more focused on organizational coordination than technical coordination. Although NetHope considers itself an IT consortium, the sharing of knowledge goes beyond IT. Staff and members consider that NetHope has been useful in providing specific information about a country's logistics in relation to the deployment of technology, and best ways of investigating the market when procuring new technology.

According to our data there are two essential elements that define NetHope's structure. First, NetHope operates within a formal structure. The second category that defines NetHope's structure is that it is inherently a network. Each member is structurally connected to all other members and these connections also imply a perceived lack of hierarchy. We define governance as "the rules, processes, or laws by which organizations or projects are operated, regulated, and controlled." According to our data, NetHope governance is reward-based not coercion-based.

Decision rights define who within the organization has responsibility and, therefore, accountability for each part of the decision-making process. According to our data NetHope members are empowered to make important decisions and commit resources without reporting back to their home organization. NetHope member representatives are highly placed in their home organization. This signifies that the home organization values their organizational relationship with the coordination body. NetHope has a narrow—but strong—impact on member organizations.

With regard to the process of decision-making and the process by which decisions are implemented at NetHope, we found that NetHope made decisions through formal communication channels. However, NetHope members used informal communication mechanisms to support their decision-making. NetHope may use a form of modified consensus. NetHope makes practical decisions not political decisions.

Almost all research participants expressed some barriers to coordination efforts at NetHope. Coordination barriers are issues or challenges faced by members of the coordination body in the pursuit of their common goal. Many different kinds of barriers were expressed, however no single barrier was dominant among all participants. We have identified twelve barriers to coordination.

Recommendation 1: The fact that most NetHope member representatives have high-level positions and can make decisions and allocate resources is key to collaborative projects. NetHope management should monitor or be reasonably aware of the level of member representatives that attend meetings and become involved in projects.

Recommendation 2: Conflicting priority both in level and timing, are barriers to coordination. If possible, NetHope should seek to understand how members establish priorities (annual planning cycles) and to facilitate discussion among members before these priorities are set within member organizations.

Recommendation 3: The NetHope Chapters project may help alleviate some of the barriers to coordination caused by a perceived headquarters/field disconnect.

Introduction

One goal of this research is to assist coordination bodies, like NetHope, to understand the relationship between the structure and function of their coordinating body and the decisions it makes. We seek to aid each coordinating body to find an optimal design that accounts for their specific environment and strategies. In particular we aim to assist NetHope in assessing the relationship between their organization design and coordination decision-making (for additional information on our research goals, design and methodology please see the appendices).

We define organizational design as the structures and processes that organizations use to achieve desired organizational outcomes. The organization must choose from a set of structural alternatives, organizational arrangements, and organizational role relationships with the intention of facilitating strategic accommodation to the environment and the implementation of the organization's strategy (Huber et al., 1986; Tushman et al., 1978; Tosi et al., 2000).

To understand the relationship between organization design, information sharing and decision-making we focus on three specific aspects of an organization's design: 1. structure, 2. decision rights and 3. governance/control. These areas and their associated constructs are summarized in Table 1 below.

STRUCTURE	DECISION RIGHTS	GOVERNANCE
Formalization	Centralization	Coercive: Enforcement
High Formal: Mechanistic	Centralized decision Making	Strong
Low Formal: Organic	De-Centralized decision Making	Weak
Division of Labor	Member's Representative power	Reward: Enticement
High specialization	High	Strong
Low specialization	Low	Weak

Table 1: Specification of Organization Design Constructs

NetHope as a Coordination Body

NetHope is a consortium of 22 international humanitarian non-governmental organizations. NetHope facilitates collaboration among its members through the use of Information and Communication Technology.

In this first section we demonstrate three aspects of NetHope, first that it has been viewed as a positive experience or choice by the membership, second, that it has the potential to further inspire cross organizational coordination and third, that it engages in organizational coordination more often than technical coordination. We define coordination as a process whereby organizations seek to achieve mutual goals through commitments of resources, which increases risk. The level of commitment puts coordination between cooperation and collaboration on a continuum of commitment (Saab et al, 2008). Coordination bodies are multi-stakeholder initiatives aiming at improving the efficiency of ICT use in disaster relief through greater coordination. As stated earlier, they may be temporary initiatives, ongoing inter-agency bodies or permanent incorporated NGOs.

NetHope is viewed positively by its members and staff.

Across all of our observations and interviews, NetHope was very positively by its members and staff.

“NetHope had a nice kind of collaborative thing going where everybody was sharing access to the Internet and stuff like that. That was pretty handy. I think that there are some big opportunities to NetHope. One of the reasons we want to stay in touch with the whole process, is there are technologies coming that if NetHope kind of jumps on them in the right way it would allow us all to share more services... All of that has been pretty useful.”

“I think it has been profound. It has improved their information technology, mission, visions, and implementation, more importantly it has helped them to bring services better to the beneficiaries by reducing cost, making the money more available to programs by providing more information most members have implementation partners who are in country non profits. We include them in a lot of the training and they are all in part of the products that are donated to NetHope”

NetHope has the potential to be a coordination catalyst.

Roughly thirty-one percent (31.25%) of the interviewees discussed the role of coordination body as coordination catalyst. Most of these respondents (80.00%) discussed this issue only once.

“Basically, the important thing for me is information sharing. Here we are operating in the areas that are not easily accessible and it is good, really good, and valuable if you have somebody who has already been there and connected and done the process. To share that information with you. So you don’t have to start from scratch once again, but you can go through that procedure.”

“I think in all ways it has benefited in terms of giving us access to a lot more areas when we started connectivity there were a lot of things we did not understand and did not have access to. We got over the learning curve very quickly. NetHope continues to open our accessibility to a lot of different vendors.”

NetHope is more organizational than technical coordination.

Discussing the issue of collaboration, fifty percent (50.00%) of the interviewees believe that collaboration at NetHope is more an organizational than technical issue. More than half (62.50%) of these interviewees discussed this issue in depth (at least twice). Half of the interviewees did not discuss the issue of collaboration being organizational or technical at NetHope.

“I think NetHope from what I have seen so far has been more towards sharing, sharing information, sharing working together in disaster responses and collaborating, [...] All I want to do is share information and collaborate. This is very interesting how NetHope will unfold. [...] I think collaborating and sharing information and working together in the field during disaster response or local chapters. So far this has been the direction.”

Although NetHope considers itself an IT consortium, the sharing of knowledge goes beyond Information and Communication Technologies. Staff and members consider that NetHope has been useful in providing specific information about a country’s logistics in relation to the deployment of technology, and best ways of scanning and analyzing the market when procuring new technology. NetHope can be considered an ideal mechanism to promote and carry out collaborative initiatives.

Coordination Body Design

In the following section we will discuss three elements of the NetHope coordination body; its structure, the decision-making rights of members, and the governance style employed by NetHope.

Structure

In relation to organization design, by organizational structure we mean the formal system of task and authority relationships that control how organizations coordinate their actions and use resources to achieve organizational goals (Jackson et al., 1982). A structure can be viewed as a collection of elements and the set of relationships that connect these elements (Monge & Eisenberg, 1987). In an inter-organizational coordination structure, the elements are the organizations. There are two categories of structures, formal and informal. Formal structures usually have fixed rules of behavior while informal structures do not. Formalization and standardization are defined as the conformity to specific organizational norms and the extent to which rules, procedures, instructions, and communications are written (Mintzberg, 1979; Pugh et al., 1968).

According to our data there are two essential elements that define NetHope's structure. First, NetHope operates within a formal structure. NetHope is a nonprofit corporation. It has a board of directors, formalized leadership positions and supporting staff. NetHope also has clear mechanisms for becoming a member and maintaining membership. Positions and membership are in no way, ad hoc, impromptu or organic. In addition, control over NetHope resources, staff, and communication and support tools are held tightly by the organization. NetHope has very clear boundaries.

The second category that defines NetHope's structure is that it is inherently a network. The term network here implies two things, one, that each member is structurally connected to all other members. Secondly, these connections also imply a perceived lack of hierarchy—or flat organization. Members feel as if they connect as equal partners within the coordination network. It is unclear whether they consider staff as part of that flattened network.

Below, we draw from our interview data to demonstrate the two elements of NetHope's structure.

NetHope has a formal structure.

Sixty-nine percent (68.75%) of the interviewees discussed NetHope as being a highly formalized coordination body. Most (68.75%) of the interviewees discussed the formal structure of NetHope's coordination body in depth. The formal structure of the coordination body was discussed in depth at least two times by the 63.63% of the interviewees. Thirty-one percent (31.25%) of the interviewees didn't discuss NetHope as being a formalized coordination body. Only thirteen percent (12.5%) of the interviewees discussed NetHope as being an informal coordination body.

“What NetHope is trying to do is to turn that more into a formal collaborative effort rather than just ad-hoc and dependent on whether somebody feels like doing it or not. A lot of these things need to have people, certain people who are very interested or educated in doing what they are doing. They can help drive you forward.”

“NetHope has many benefits because it is registered and more formalized.”

The formalized structure of NetHope is influential on the reputation of the coordination body within the international relief community. The evolution of the size of NetHope is affected by the fee that is required of all members and the strict membership selection.

“...it’s a non-trivial membership fee to begin with if you haven’t realized the benefits. It can be a difficult sell. It was a difficult sell for me at [NGO member]. To begin with “is this really worth the what was originally a \$10,000 a year commitment.””

“The membership fee and the time. A smaller NGO who does not have the resources won’t be admitted. From the point of the dues.”

NetHope is a recognized 503.c non-profit organization that has well defined regulations. These are all examples of a highly formalized structured organization. As seen later in this document, the institutional barriers and the strong bureaucracy perceived by interviewees as some of the major barriers to coordination could be linked to the highly formalized structure of NetHope.

NetHope is a network.

Thirty-one percent (31.25%) of the interviewees discussed the concept of network structure within the NetHope coordination body. Forty percent (40%) of these interviewees mentioned network structure more than once.

“NetHope does stuff, not just people talking and networking, making connections, and learning about things. NetHope also makes those connections, people get to talk and learn, but then they get to act about that and collaborate in a very concrete specific way. I think in part, actually one of the reasons I think maybe that maybe all these IT departments, it costs them. If you are a consenter you are collaborating with another agency, and that you can deliver more for the same cost, or reduce your cost.”

As discussed in the section concerning barriers to coordination (see later section below), trust is perceived by interviewees as a barrier to coordination. In a network structure of the coordination body, lack of trust could have a large impact on coordination.

Lead-agencies hold an important role in NetHope’s structure.

Thirty-one percent (31.25%) of the interviewees discussed the leadership role of members in the decision-making process at NetHope. This issue was discussed only once by these interviewees.

“What I didn’t mention is the lead agency, when a disaster situation with satellite, routers, wireless, usually one of the agencies in the affected area takes on a leader role. It is a very critical role. They host meetings, they answer questions from the UN organization, from the telecomm authorities, they put proposals in together. It really is critical. The person from the lead agency is usually a very active person. He or she attends the headquarters relief teleconferences. That forms the linkage between the headquarter activities and the field activities, across agencies in a disaster affected area.”

NetHope Structure Description

Based on information gathered from various NetHope documents and interviews with NetHope members, we constructed the following diagram (Figure 1) to describe the current structure of NetHope coordination body.

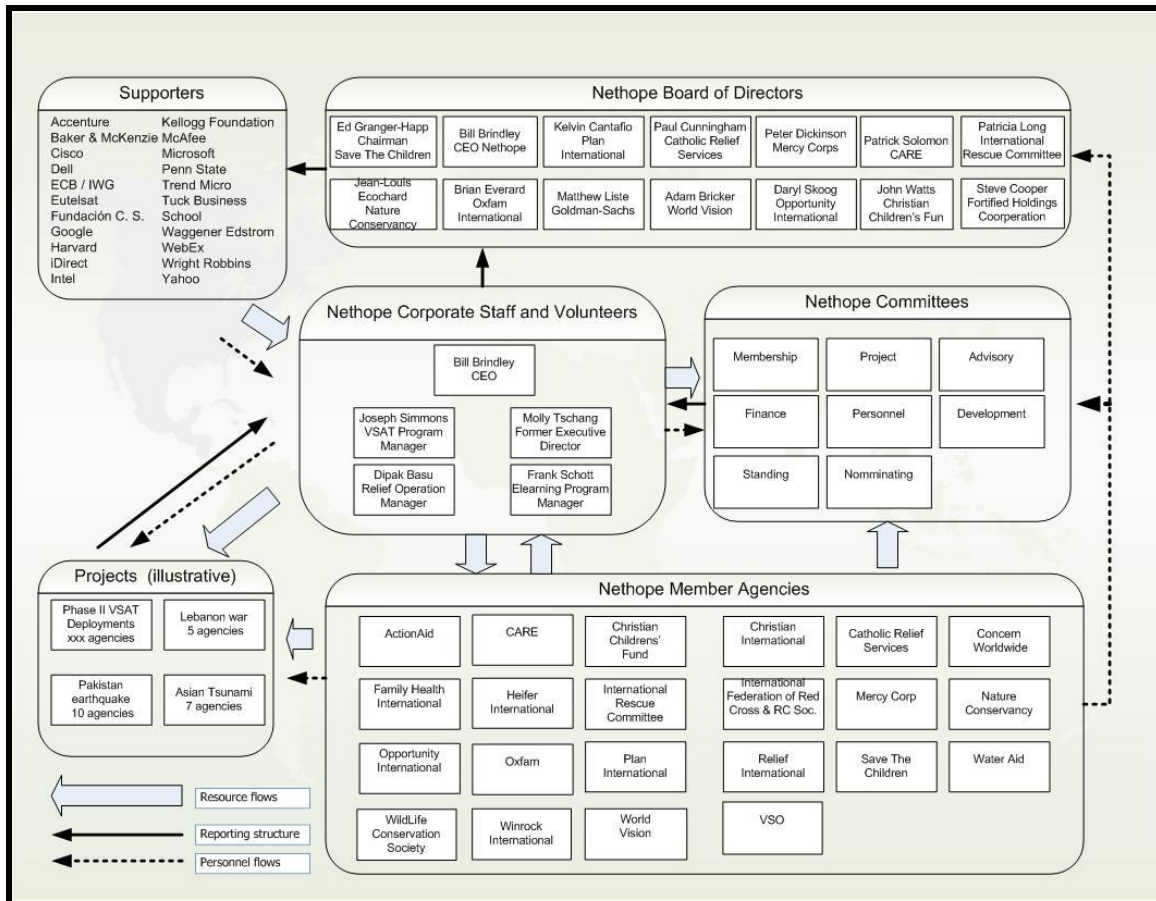


Figure 1: NetHope structure

NetHope has three major stakeholder groups. They include its members, NetHope management, and NetHope supporters. NetHope membership grew from 7 agencies in 2001 to 22 in 2008. The seven founding agencies include Save the Children, World Vision, CARE, Mercy Corps, Catholic Relief Services, Winrock International, and Children International. NetHope has a board as well as advisory committees (Finance committee, Personnel committee, Project committee, Development committee, Nominating committee Membership committee). The board of directors supervises and assists the NetHope committees on decision-making processes. In general, a NetHope member would have a representation on at least one of the committees. In addition to personnel from the agencies, NetHope has its own staff and volunteers. This group (staff and volunteers) carries out most of the “hands on” activities of the consortium. There are about twenty NetHope supporters. Some of the major ones include Cisco, Microsoft, and Baker & McKenzie. In addition to providing cash contributions, each of NetHope supporters provides the organization with expertise and other in-kind assets. There exists significant interplay between supporters, agencies, and NetHope management, at multiple levels of each organization.

Decision Rights and Member Authority

Decision rights define who, within the organization, has responsibility and, therefore, accountability for each part of the decision-making process. Decision rights identify who is authorized to make what range of decisions in an organization.

Within our category of decision rights we address the issue of authority. By authority we mean the ability to control organizational resources. We look at this issue from two points of view, from within the coordinating body, and between the coordinating body's members and their home organization. In the first case we examine the centrality of the authority within the coordinating body (Pugh et al., 1968; Pugh et al., 1973). The main question is--what shape does the authority structure within the coordinating body take, centralized at the top of the structure or delegated to members at all levels of the coordinating body. In the second case we ask the question--how much authority each member has over the resources of his or her home organization. We expand this definition to include the information, incentives, constraints and interactions facing these decision-makers.

According to our data there are five key elements to NetHope decision rights. One of these elements answers our first question concerning authority inside the coordination body. According to the NetHope membership, decisions are made centrally, by the leaders of the organization, with significant input from members. This does not signify that the NetHope membership does not take an active role in decision-making. This is not the case (see the later section on decision-making). This implies that the organization makes decisions as a single unit, all members participating and allowing their input and vote to flow toward the center. This means that NetHope does not encourage its subunits to make decisions without the consent of the full membership.

The remaining four elements answer our second question-- how much authority does each member bring to NetHope? NetHope members are self-empowered to make decisions and commit time and resources from their home organizations to NetHope. NetHope members are also highly placed within their home organizations. Member organizations are strongly committed to participation in the NetHope coordinating body. All of these signify that the home organizations for the NetHope members are willing to commit highly placed organizational members and allow them to make significant decisions.

In the section below we detail each of these claims and support them with evidence taken from our interview data.

NetHope makes decisions in a centralized manner.

Slightly over half (56.25%) of the interviewees discussed centralized decision making rights in NetHope. Nineteen percent (18.75%) of the interviewees discussed centralized decision making rights more than once. Twenty-five (25%) of the people interviewed didn't mention decision rights, centralized or decentralized.

"I think what the board tries to do is to make sure that any decision, first of all any major decision that happen are usually put out to the members in paper form. Then there is a meeting called in order to explain it, in order to debate it and using proper board protocol to have votes."

One member discussed the clear advantages to the field that NetHope has centralized its structure and decision-making.

"Initially we have a meeting with all the members and key decisions will be taken on those calls. [...] We formed the project committee who has a process now for a project to be proposed. [...] Then the project committee makes the recommendation to the board for approval then it monitors the project during execution."

The kinds of decisions that are able to be made by the coordination body members depend on a multiple number of factors. The placement of the NGO member's representative (to the coordination body) highly influences what kinds of decisions they are able to make, and their autonomy. These decisions affect resources and information sharing. These outcomes reflect how dedicated an organization is to the coordination body.

NetHope member representatives are self-empowered.

Approximately eighty-one percent (81.25%) of the interviewees discussed their strong level of capabilities to make important decisions and commit resources without reporting back to their home organization first.

“We also spend a smaller percentage on IT than most of the other organizations. It's a bigger piece of my pie. I had no problem selling to the senior manager, because I have basically cart-blanche with my budget, it's selling myself.”

Representatives of member organizations largely have the authority to make decisions regarding finances and resources (to be allocated). Despite authority to make decisions regarding finances of home organization, long-term contracts and agreements are not within their capabilities. These interviewees had to check with the authorities in their home organization before making a strong commitment to the coordination body.

None (0%) of the interviewees discussed a lack of capability to commit resources and or make important decisions without reporting back to their home organization first.

The absolute lack of interviewees who discussed a lack of capability to commit resources or make important decisions without reporting back to their home organization first shows the high level of commitment to the coordination body. It also shows how important the coordination body is considered to the home organizations.

The level of involvement and/or commitment from the home organization to the coordination body is representative of how an organization feels about the coordination body. The more committed and involved an organization is in the coordination body, shows the level of importance placed upon the organization's involvement in the coordination body.

NetHope member organizations are highly committed to NetHope.

Eighty-one percent (81.25%) of the interviewees discussed the high level of involvement and/or commitment from their home organization to the coordination body. None of the interviewees discussed a low level of involvement and/or commitment from their home organization to the coordination body.

The variety of impacts of the coordination body on the home organizations can have a significant range. A coordination body can impact and influence the ICT methods utilized by an organization.

NetHope has a narrow—but strong-- impact on its member organizations.

Slightly less than half (43.75%) of the interviewees discussed the strong impact of the coordination body on the home organization. Of the 43.75% of the interviewees who discussed the coordination body's strong impact, most discussed it at least once and all gave examples. This signifies that while not all interviewees felt that NetHope influenced their home organization, those that did, felt it influenced it strongly.

“As I said NetHope brought some results, the first thing that NetHope has done, even before the Chapter started was this ICT skills building. It worked about that very quickly.”

None of the interviewees discussed a low impact of the coordination body on the home organization. Since none of the interviewees discussed the coordination body having a low impact on their home organizations, it can be assumed that the coordination body is influential.

There is a centralized and specific group on NetHope that make the decisions. Nevertheless, in most of the cases, the member of this selected group act as a spokesman of its organization and have a good understanding of the home agency/organization resources that can be compromised by its decisions. The position of these decision makers on their own agencies/organizations and their strong commitment to NetHope facilitates the negotiation.

Governance

For the purposes of this work, we define governance as “the rules, processes, or laws by which organizations or projects are operated, regulated, and controlled.” All organizations must control and coordinate their members to achieve organizational objectives. All organizations desire a certain level of compliance from members (Collins, 1988; Etzioni, 1975; Ouchi, 1977). When members fail to meet this level of compliance, organizational processes are invoked in a concerted, determined, effort to restore compliance.

In the case of NetHope we have established that members are guided toward adopting shared goals via a reward-based method, rather than through coercion. During our observation periods we did not witness any forms of coercion between NetHope staff and membership, nor did we witness any coercive behavior between NetHope members.

The primary mechanism by which a NetHope member was brought to full participation on a project, committee or common decision was through members seeking personal or organizational benefits for their participation. An excellent example of this voluntary participation in NetHope projects with the hope of reward is the VSAT project.

One quarter (25.00%) of the interviewees discussed the central role of projects at NetHope. Half (50.00%) of these interviewees discussed the issues at least twice.

“Agencies collaborating towards single project goals. These agencies that compete for funding, they were very intelligent to collaborate. To make that worthwhile we said, we need to do a project which is an interest across most of the membership, all of the membership in regions where these agencies have interest, common interest.”

With no alternatives in place, NGOs frequently must use very expensive satellite infrastructure through VSATs (Very Short Aperture Terminals). VSAT technology is particularly useful when terrestrial infrastructure has been destroyed, and as such provides a powerful tool to mitigate damage incurred by disasters (Hancock, 1999; Marek, 1993). However, given the expensive nature of any satellite communications, VSAT is often deployed in the context of establishing new field offices; thus it is primarily deployed for development purposes, rather than for emergency response, or direct post-disaster relief. One possible means for NGOs for lowering the cost of VSAT deployment is to cooperate on deployment; i.e. to jointly order, install and maintain VSATs. To this extent, a collaborative agreement with a VSAT vendor provides opportunity for

discounts. It is to this end that NetHope established a collective VSAT agreement with a vendor. Those members most interested in shaping the agreement and using the VSATs were the leaders of the NetHope VSAT committee.

Similar examples can be found with the NetHope Skills Building Project and the NetHope Chapters Project in which members participated on a voluntary basis when their organizational and personal interests were allied with that of the project.

NetHope governance is reward-based not coercion-based.

Sixty-nine percent (68.75%) of the interviewees talked about NetHope as being a very reward-based, rather than coercive-based coordination body. Only twelve percent (12.5%) of the interviewees talked about a coercive nature of the governance of NetHope and they only briefly discussed it. Of the sixty-nine percent (68.75%) of interviewees who discussed the reward-based governance style of NetHope, Seventy-two percent (72.72%) discussed it more than once. This was one of the most heavily discussed codes.

“We are pretty happy with the way it works. We definitely feel like we get kind of good value for money out of our membership fees. There is also a kind of a benefit to the other members of having us engaged. I think in particular because we are one of the agencies, the few agencies within NetHope that uses IT extensively not only in our management of project, but also in the projects themselves.”

The lack of response to coercive governance related issues indicated that the interviewees didn't feel forced to participate in network projects. Conversely, the overwhelming discussion regarding the reward-based inducement codes indicated that the interviewees felt very strongly about their desire to participate in NetHope projects. Most talked about the range of benefits that result from participating, including information sharing, collaboration, connectivity, discount prices, ICT training, relationships and program development.

NetHope's Decision-Making Process

The decision-making and the process by which decisions are implemented are part of governance of and organization. An analysis of governance usually focuses on the formal and informal actors involved in decision-making. It also focuses on implementing the decisions made, and the formal and informal structures that have been set in place to arrive at, and implement the decision.

In order for coordination to take place, communication must occur between the coordination body and the members. There are a variety of methods of communication within the decision-making process among the coordination body members.

NetHope makes decisions through formal communication channels.

Slightly more than one-third of the research subjects believed that NetHope made decisions through formal communication channels. Thirty-eight percent (37.5%) of the interviewees discussed formal methods of communication that take place in the coordinating body.

“We have telephone meetings but we also have face to face meetings.[...]In terms of the telephone one we will have a greater presence. In terms of face to face it requires long term planning to make it successful. If we do short term planning for NetHope it won't work. Of course there needs to be a lot of communication going on to keep people on plan”

While all the coordination body members take part in formal methods of communication, only 37.5% of the interviewees actually discussed it.

NetHope members used informal communication mechanisms to support their decision-making.

Approximately sixty-three percent (62.5%) of the interviewees discussed informal methods of communication that take place in the coordinating body.

“Many times we have drinks, I have drinks with my colleagues and it is quite easy. We can have a drink over something, which is outside the office, but we discuss things about technology and technology in the office. We share what we have come across and what difficulties I have had. That happens quite often, not formal meetings.”

Most of the interviewees who discussed formal methods of communication also discussed informal methods of communication. Four interviewees solely discussed formal methods of communication. One interviewee didn't discuss any methods of communication.

Discussing issues related to coalition building, eighteen percent (18.75%) of the interviewees think that coalition building at NetHope is informal and bilateral. The rest of the interviewees (87.25%) did not discuss these issues.

“We are actually actively discussing how to make that happen as easy as possible. In this challenge we have formal programs, but a lot of the catching up and sharing happen informally. Trying to see how to facilitate the informal exchange. That is why the collaboration tool and the other things that happen outside the summit are becoming more and more important.”

The way that involvement and participation took place in the decision making process by members is broken into two categories. The first category is whole group, which refers to when all members are present in the decision making process. The second category, subgroup, refers to when the coordination body has a subgroup that is making a decision. This subgroup can be composed of chapter members, committees and/or member body leaders.

NetHope members make decisions collectively.

Nearly eighty-eight percent (87.5%) of the interviewees discussed the involvement and participation of the whole group of the coordination body in the decision-making process.

“I think what the board tries to do is to make sure that any decision, first of all any major decisions are usually put out to the members in paper form. Then there is a meeting called in order to explain it, in order to debate it and using proper board protocol to have votes.”

Roughly thirty-seven percent (37.5%) of the interviewees discussed the involvement and participation of sub-groups in the decision making process.

“At the same time there are things where it does not make sense to make central decisions and we leave it up to the country. At the same time the countries have no requirement that they do work with central.”

NetHope uses a form of modified consensus.

Thirty one percent (31.00 %) of the interviewees discussed the issue of modified consensus at NetHope. Most of these respondents (80.00%) discussed this issue only once. By modified consensus we mean that while some members may not fully support a decision they will not actively block it.

“We vote, by rules its “majority rules,” most decision making in NetHope is by consensus. [...] We in large are consensual.”

“I have never seen anyone actually say “No.””

NetHope makes practical decisions not political decisions.

Fifty-six percent (56.25%) the interviewees discussed issues related to practical decision making at NetHope. These issues were discussed in depth (at least twice) by thirty-three percent (33.33%) of these interviewees. Almost all of the interviewees discussed how the whole group participated in the decision making process. Nineteen percent (18.75%) of these interviewees discussed the whole group more than once.

Slightly more than a third believed that subgroups, such as project teams, were the locus of decision-making for NetHope. Thirty-eight percent (37.5%) of the interviewees discussed the involvement and participation of subgroups in the decision making process. The interviewees who discussed how the sub-groups participated in the decision making- process have been involved with the coordination body longer than most of the interviewees who didn't discuss the sub-groups. The coordination body used evaluation as a method of aiding the decision making process by examining previous projects and monitoring current projects.

NetHope members have understood that decisions related to technology should be practical and not politically based. The decisions are usually discussed using formal mechanisms of communication (conference calls and meetings), but informal mechanisms are also used to support the decision making process (clarify points or elaborate on details).

An Initial Framework for the NetHope Decision-Making Process

In this framework (figure 2), we simulate how NGOs interact inside coordination bodies to create collaborative projects and form coalitions for these projects.

Each NGO is portrayed as an autonomous agent in a social network consisting of other organizations in the coordination body. Agents have different organizational characteristics, possess different types of resources in various amounts, and have prioritized to-do lists of projects they want to contribute to. A candidate collaborative project is characterized by its goal, cost, benefits and resource requirements. In addition, there is no hierarchy or authority in the multi-agent community so that every agent can make a decision independently.

Generally, an agent promotes projects on its to-do list that it believes would both benefit and benefit from participation by the broader community and tries to persuade more agents to support those projects. There are two types of agent interactions in the process:

- 1) In a group meeting, agents will propose the projects at the top of their to-do list to all the other agents, as potential collaborative projects. Upon receiving a proposal, each agent will check whether the goal of the project matches the goal of the NGO. If there is a match, the agent will calculate a priority score for the project based on the cost, benefit and resource requirements of

the project. When the priority score is high enough, the agent will support the project by putting it on its own to-do list. Agents are required to allocate and commit resources for projects they support.

2) A private discussion is similar to a group meeting. The major difference is that agents only exchange information about possible projects on their to-do lists with acquainted peers. The higher the organization's social tie is, the more information they would share with each other. When evaluating a project, existing supporters of the project and the agent's relationship with the supporters are also taken into the consideration, i.e., the calculation of priority scores. Also, if the priority score of an incoming project is so high that it tops an agent's to-do list, the agent will turn to promoting the new project to its acquaintances, instead of the prior top project in its to-do list.

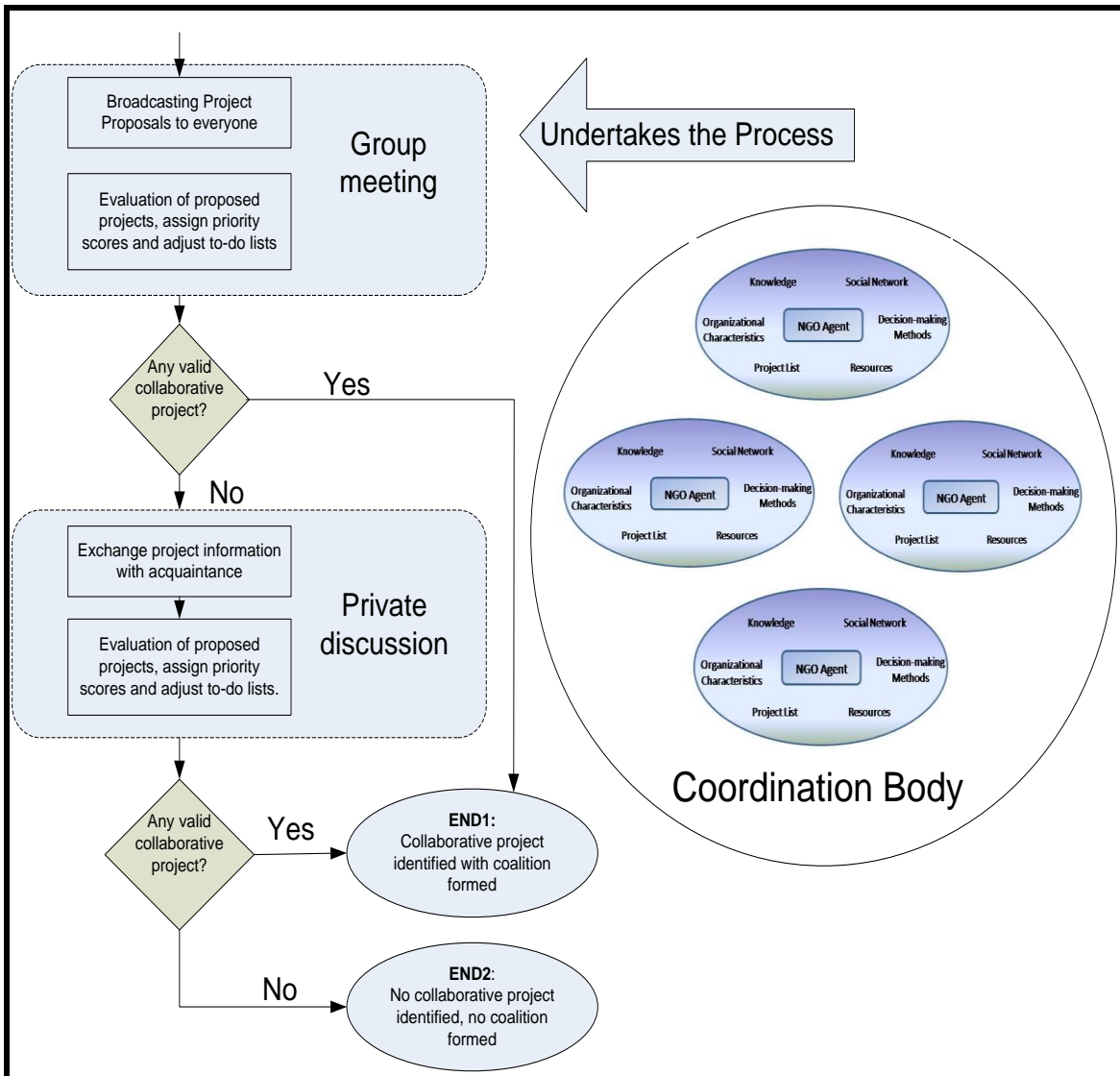


Figure 2: Framework for NetHope Decision-making Process

After several rounds of communication, if a project appears on the to-do lists of a certain number of agents and can gather all the required resources from those who support it, the project is considered as a valid collaborative project. A group of agents that support this collaborative project also emerges.

We plan to implement this framework with R-CAST, a software agent architecture developed at the Penn State's Intelligent Agent Laboratory.

Barriers to Coordination

While all participants in this research expressed the strong positive value to coordination through NetHope, almost all research participants also expressed some barriers to that coordination effort. Coordination barriers are issues or challenges faced by members of the coordination body in the pursuit of their common goal. As seen below many different kinds of barriers were expressed, however no single barrier was dominant among all participants. We have identified twelve barriers to coordination. They are presented in order of rate of occurrence (from most to least discussed by interviewees) as found in our data.

1. Conflict of goals and interests/ competing interests.
2. Institutional and/or bureaucratic barriers
3. Lack of and/or conflicting standards
4. Lack of time
5. Geographical distance
6. Lack of incentives
7. Sharing of resources
8. Communications and/or language
9. Membership/ size of organization
10. Lack of tools for collaboration
11. Politics and a lack of trust
12. A lack of resources and/or funding

The barrier with the most discussion was the conflict between the goals of the member's home organization and that of NetHope. This was also expressed as a conflict of goals, a conflict of interests and competing interests. Thirty-one percent (31.25%) of the interviewees discussed conflicting, multiple interests as barriers to coordination. Forty (40.00%) of these interviewees mentioned conflicting interests more than once.

"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 NetHope. "

Twenty-five percent (25%) of the interviewees discussed institutional and/or bureaucratic barriers as barriers to coordination. Twenty-five (25%) of those interviewees mentioned the institutional and/or bureaucratic barriers more than once.

"Licensing and customs is definitely an obstacle. This is one way we try to work with NetHope members and [Service Provider] to facilitate. We talked earlier about the local providers, one of the advantages that local providers have is they already would have a license, so that is not something that the customer would worry about."

Approximately nineteen percent (18.75%) of the interviewees discussed either a lack of or conflicting standards as barriers to coordination. Thirty-three percent (33.3%) of those interviewees discussed standards as barriers to coordination more than once.

“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.”

Another barrier mentioned is time. Twelve percent (12.5%) of the interviewees discussed time as a barrier to coordination.

“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.”

“We are one of the smaller agencies involved in NetHope so you know we do not have a dedicated IT team or a lot of people able to devote time to participation.”

Approximately thirteen percent (12.5%) of the interviewees discussed geographical distance as barrier to coordination. Half (50%) of those interviewees discussed geographical distance and/or time zones as barriers to coordination more than once.

“I would say the major barriers are geography.”

“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?”

Approximately thirteen percent (12.5%) of the interviewees discussed a lack of incentives as a barrier to coordination. All of the interviewees who discussed a lack of incentives as a barrier to coordination mentioned them once.

“Well, not too much. There is no resources allocated, it is pretty much on a voluntary basis. There is no pressure to do it... a lack of incentives.”

Approximately thirteen percent (12.5%) of the interviewees discussed sharing of resources as a barrier to coordination. All of these interviewees mentioned sharing of resources as a barrier to coordination once.

“How can data be backed up, how can they have a database of security risks in a country. These are very close to each member’s business. We don’t tend to collaborate at all. It is a common interest among collaboration, but where there is something where the individual agency then it is more, we don’t have a lot of collaboration.”

Less than seven percent (6.25%) of the interviewees discussed communications and/or language as a barrier to coordination. It was discussed twice in those interviews.

“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 who’s native language is not the language that the first is using.”

Less than seven percent (6.25%) of the interviewees discussed membership/ size of organization as a barrier to coordination. It was discussed twice in those interviews.

“I think a lot of the projects that are going on there will be some organizations that are more sophisticated than others, in order to contribute equally, 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.”

Less than seven percent (6.25%) of the interviewees discussed the diversity of tools for collaboration as a barrier to coordination. It was discussed once in those interviews.

“For all of us in the for profit, or not for profit tools for collaboration are a real challenge, what works and what doesn’t work so going around finding out what... [NGO] is using QuickPlay, [NGO] is using Sharepoint, [NGO and NGO] use Lotus Notes.”

Less than seven percent (6.25%) of the interviewees discussed politics and a lack of trust as a barrier to coordination. It was discussed once in those interviews.

“The political issues, and the lack of trust, [another organization] has created the trust so that is not so much an issue. But there are, just like in your specialties, real disagreements over how you measure something.”

Less than seven percent (6.25%) of the interviewees discussed a lack of resources and/or funding as a barrier to coordination. It was discussed once in those interviews.

The problems caused by conflict of interests or goals are one of the main barriers for coordination, according to the participants. When looking at the rest of issues mentioned, they can be easily linked to the single fact that NetHope is a conglomerate of different organizations. Each organization has their own agenda and a location that could cause scheduling issues and communication problems. Each agency/organization also has its own procedures and standards that could cause standards issues.

Summary of Findings

Our findings summarized in this section are grouped in the following four categories: (i) NetHope as a coordination body, (ii) coordination body design (iii) NetHope decision-making process and, (iv) barriers to coordination.

NetHope as a Coordination Body

Across all of our observations and interviews NetHope was viewed very positively by its members and staff. NetHope was also perceived to have the potential to be a coordination catalyst for its members. Most of the interviewees believed NetHope is more focused on organizational coordination than technical coordination.

Although NetHope considers itself an IT consortium, the sharing of knowledge goes beyond Information and Communication Technologies. Staff and members consider that NetHope has been useful in providing specific information about a country’s logistics in relation to the deployment of technology, and best ways of investigating the market when procuring new technology.

Coordination Body Design

With regard to coordination body design, three elements of the NetHope coordination body were discussed; its structure, the decision-making rights of members, and the governance style employed by NetHope.

Structure

According to our data there are two essential elements that define NetHope's structure. First, NetHope operates within a formal structure. The second category that defines NetHope's structure is that it is inherently a network. The term network here implies two things, one, that each member is structurally connected to all other members. Secondly, these connections also imply a perceived lack of hierarchy—or flat organization. Members feel that if they connect as equal partners within the coordination network.

Decision rights and Member Authority

Decision rights define who within the organization has responsibility and, therefore, accountability for each part of the decision-making process. Decision rights also identify who is authorized to make what range of decisions in an organization. According to our data there are five key elements to NetHope decision rights.

- NetHope members are empowered to make important decisions and commit resources without reporting back to their home organization.
- NetHope member representatives are highly placed in their home organization. This signifies that the home organization values their organizational relationship with the coordination body.
- NetHope member organizations are highly committed to NetHope.
- NetHope has a narrow—but strong-- impact on member organizations.

Governance

We define governance as “the rules, processes, or laws by which organizations or projects are operated, regulated, and controlled.” According to our data, NetHope governance is reward-based not coercion-based.

Decision-Making Process

With regard to the process of decision-making and the process by which decisions are implemented at NetHope, we found that:

- NetHope made decisions through formal communication channels.
- NetHope members used informal communication mechanisms to support their decision-making.
- NetHope members make decisions collectively.
- NetHope may use a form of modified consensus.
- NetHope makes practical decisions not political decisions.

Barriers to Coordination

Almost all research participants expressed some barriers to coordination efforts at NetHope. Coordination barriers are issues or challenges faced by members of the coordination body in the pursuit of their common goal. As seen below, many different kinds of barriers were expressed, however no single barrier was dominant among all participants. We have identified twelve barriers to coordination.

- Conflict of goals and interests and/or competing interests
- Institutional and/or bureaucratic barriers
- Lack of and/or competing standards as barriers
- Lack of time
- Geographical distance as barrier
- Lack of incentives as a barrier
- Sharing of resources as a barrier
- Communications and/or language as a barrier
- Membership/ size of organization as a barrier
- Tools for collaboration as a barrier
- Politics and a lack of trust as a barrier
- A lack of resources and/or funding as a barrier

Conclusions and Recommendations

The purpose of research is to assist humanitarian coordination bodies to understand the relationship between the structure and function of their coordinating body and the decisions it makes. We conducted a case study of NetHope, a coordination body of humanitarian non-governmental organizations.

Our findings suggest that the way a coordination body is structured influences barriers to coordination. For example, according to our data, NetHope operates within a formal structure. The institutional barriers and the strong bureaucracy perceived as some of the major barriers to coordination could be linked to this highly formalized structure of NetHope. Conflicting interests would also have a high negative impact on coordination in a highly formalized structure.

In regards to the networked nature of the structure of NetHope as a coordination body, trust between members may be an issue. The lack of trust as well as connectivity of field offices were perceived to be some of the barriers to coordination at NetHope and could possibly be due to the networked structure of NetHope.

In both formalized and network structure, lack of resources (skills, funding, time etc...) would have a negative impact on coordination. The lack of resources would have a more negative impact on coordination in a formal coordination body structure than on a less formal, network structure.

Concerning our second research question, our findings suggest there is no formal hierarchy among NetHope members. All are subjected to the same yearly membership fees and most of the important decisions are taken by vote, each member having equal voice. However, some members are more influential in decision-making than others. This is specially the case when taking the leadership on a project. The position of member representative in the home organization can largely shape their position and authority in the coordination body. NetHope member representatives have a high level position within their home organization. They are empowered to make decisions regarding finances and resources to be allocated to a joined project of the coordination body without having to check back to their home organization.

According to our data, the level of involvement and commitment from the home organization to the coordination body is representative of how an organization feels about the coordination body.

With regard to our third research question, our findings suggest that barriers to coordination could be addressed through coordination body design. A highly formalized structure would, for example, help to speed up the decision-making process and/or to facilitate information sharing.

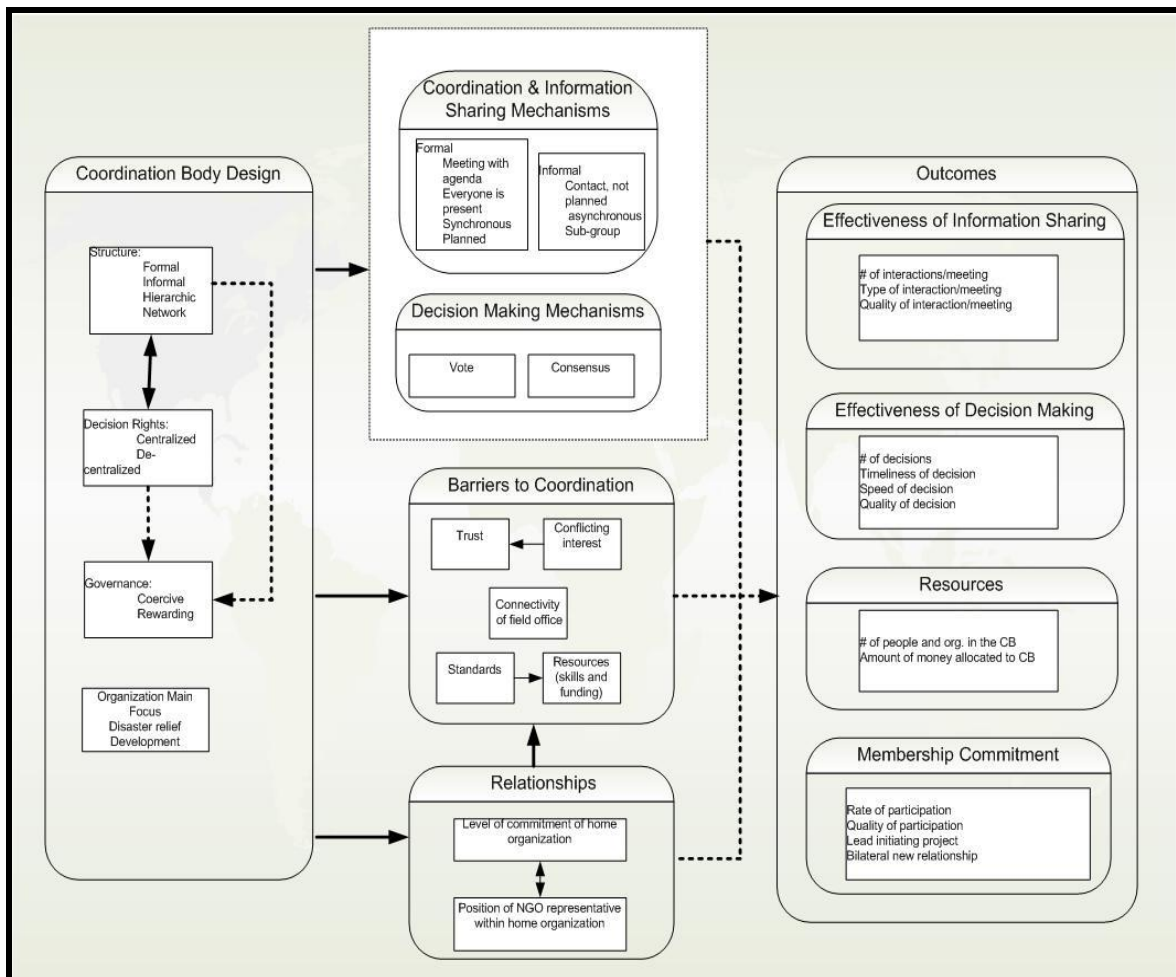


Figure 3: Relationship between coordination body design, barrier to coordination and coordination output

Recommendation 1: The fact that most NetHope member representatives have high-level positions and can make decisions and allocate resources is key to collaborative projects. NetHope management should monitor or be reasonably aware of the level of member representatives that attend meetings and become involved in projects.

Recommendation 2: Conflicting priority both in level and timing, are barriers to coordination. If possible, NetHope should seek to understand how members establish priorities (annual planning cycles) and to facilitate discussion among members before these priorities are set within member organizations. Knowing what other organizations are likely to pitch to their management and that collaboration may be possible, (established through a-priori conversations) may help avert goal conflicts.

Recommendation 3: The NetHope Chapters project may help alleviate some of the barrier to coordination caused by a perceived headquarters/field disconnect. However, as some chapters are likely more concerned with field coordination or access to discounts further research is required to understand their input.

APPENDIX A: COHORT Project Overview

The massive, global, multi-organizational response to several recent natural disasters have highlighted the need for improved decision making and greater levels of coordination in humanitarian relief, particularly in the area of information and communication technologies (ICTs). While improved coordination is a noble goal itself, the real aim is to improve relief services. One approach taken by non-governmental organizations (NGOs) has been to organize ‘coordination bodies,’ whose goals are to improve the efficiency of ICT use in disaster relief through greater coordination. To address these challenges, a variety of coordination bodies with different missions, organizational forms, and decision processes exist. Some coordination bodies attempt to coordinate intensely among a small subset of NGOs, while others target larger memberships and less complex interactions. Given these differing goals, it is unclear which decision processes and organizational designs work best for a given mission. To date it is unclear just how much improvement in relief services result from improved coordination in the ICT realm.

This research will answer the questions: How do organizational designs and decision making processes for ICT-related coordination bodies in the disaster relief industry affect performance in both the organization itself and subsequently in the relief supply chain? Which forms of coordination of ICTs between NGOs work best—and in which situations?

This research is comprised of three integrated research tasks/stages. The first task includes the use of qualitative methods to gather and analyze data on the organization designs and decision-making processes of three coordination bodies. The data generated, is used in the second part of the project to modify an agent-based architecture to perform sensitivity analyses of the effects of these designs on decision-making, generating recommendations for improved designs. Through this research we model the differences in a coordinating body’s (1) size (admin & membership), (2) member commitment and type, (3) funding strategies, (4) emergency-relief-recovery focus, and (5) body structure and governance. The third task of this research employs analytic methods that use the outputs of the simulation to predict the effects of decision-making improvements on disaster relief supply chain performance. This procedure allows for making comparisons of the performance enhancements that do or do not occur when decisions are made.

The NetHope case is the first of a series of three coordination body case studies that will be conducted within the COHORT project. Each of these case studies concerns a different type of coordination body. Coordination bodies can be temporary initiatives such as Enhanced Capacity Building (ECB) initiatives, ongoing inter-agency bodies such as the Global Symposium organized by the United Nations Office for the Coordination of Humanitarian Affairs) or permanent incorporated NGOs such as NetHope.

For NetHope, criteria for assessing an optimal organization design might include the degree of consensus on a decision or the time it takes to make the decision. These criteria represent a departure from traditional intra-organizational design criteria such as the fit between organizational information processing requirements and capacities (Tushman et al., 1978; Daft et al., 1986), sub-unit purposefulness (McKelvey et al., 1975) and profitability (Nault, 1998), and managerial costs/salaries (Harris et al., 2002).

APPENDIX B: Research Design and Methodology

We use comparative case studies in this research. The three current case studies employed in the research are NetHope, the Emergency Capacity Building Project (ECB4) and the UN-OCHA's Global Symposium +5. This report refers to only the NetHope case data.

The case study method is a research method used for the purposes of capturing holistic detail in natural settings. Case studies have been identified as an appropriate and important tool for the study of information and communications technologies in organizational contexts (Darke et al., 1998). Also, the case study method is particularly well suited for studying phenomena that cannot easily be distinguished from its context.

When conducting a case study, the researcher often relies on multiple sources of evidence and analysis techniques. Typical sources of evidence relied upon in conducting case studies include documentation, archival records, interviews, direct observation, participant observation, and physical artifacts (Benbasat et al., 1987; Yin, 2003). For the NetHope Case study we conducted a total of 15 interviews. Thirteen (13) were with member representatives and two (2) NetHope staff. We also reviewed organizational documents and conducted two multi-day in-person observations at NetHope meetings in 2006 and 2007. Our interviews were semi-structured, structured to the extent that they were guided by the researcher to cover specific topics, but were flexible enough to pursue avenues of inquiry as they arise during the interview process (Berg, 1989). Interviewing was used to follow-up on questions arising from the archival, documentary, and observational data. Each interview lasted between 45 to 75 minutes, was recorded, transcribed and coded using both inductive and deductive coding techniques.

The conducting and comparing of multiple case studies is also a preferred technique for increasing the validity and generalizability of the findings as well as theory development and testing (Benbasat et al., 1987; Yin, 2003). Inductively generalizing from a single case study is epistemologically problematic and runs the risk of being easily falsified by a single counterexample (Benbasat et al., 1987). However, this risk can be partially overcome by conducting multiple case studies of similar (by definition it is impossible to conduct identical case studies because case studies are contextual); one can identify recurring patterns and make general propositions.

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