Assessing Humanitarian Inter-Organizational Network Effectiveness: The Case of GlobalSympoNet

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ABSTRACT

This paper reports on research in progress. The objective of the study is to assess the effectiveness of multidimensional humanitarian inter-organizational networks. Especially, it investigates how organizational characteristics and network structure properties impact network effectiveness. To this end, the research develops a model of network effectiveness in the humanitarian field, using the case of GlobalSympoNet, a network of organizations/agencies engaged in humanitarian information management and exchange. Data for the research come from a series of three surveys and semi-structured interviews conducted among organizations/agencies members of GlobalSympoNet. Social network analyses are done using UCINET (Borgatti et al., 1999). Some preliminary results are presented here.

Keywords

Humanitarian organization, Inter-organizational network, network effectiveness.

INTRODUCTION

Massive inter-national response to humanitarian crises such as the recent earthquake in Haiti highlights the importance of inter-organizational collaboration networks in the humanitarian field. There is a need for an evaluation of the effectiveness of these humanitarian inter-organizational networks. Evaluating humanitarian inter-organizational network effectiveness is critical for understanding whether networks are effective in meeting the goals of the network as a whole, those of the individual network members and more importantly, the extent to which the needs of the affected people have been met. Establishing the level of network effectiveness is also important for member organizations and those whose policies and funding support the network. Ideally an effective inter-organizational collaboration network would enhance the quality of service provided to its clients; optimize use of resource by reducing redundancies; however at a minimum it should achieve its own goals.

In the existing literature on nonprofit inter-organizational collaboration network research, only a few studies have investigated the effectiveness of these organizational forms (O'Toole, 1997; Provan and Milward 1995; Provan et al., 2007). Moreover, these few studies that have investigated the effectiveness of inter-organizational networks in the nonprofit sector have been carried out in the health sector and concern health service delivery (Provan and Milward 1995; Lemieux-Charles et Al., 2005; Arya & Lin, 2007). Despite the recognized need for and support of inter-organizational networks by the humanitarian relief community there is little systematic

> **Reviewing Statement**: This paper represents work in progress, an issue for discussion, a case study, best practice or other matters of interest and has been reviewed for clarity, relevance and significance.

analysis of their effectiveness, in other words the extent to which they meet the goals the network members and it various stakeholders set out to achieve.

This research explores inter-organizational network in the humanitarian field. Through a case study, we investigate how organizational characteristics and network structure properties impact network effectiveness. Especially, we explore the relationship between quantitative indicators of focal organization characteristics, partners' characteristics, inter-organizational network structures and measures of network effectiveness in information management. We investigate how the different types of collaboration links (advice, project and funding) are related and the extent to which their relationships with network effectiveness are similar or different.

INTER-ORGANIZATIONAL NETWORK EFFECTIVENESS

In the existing literature on nonprofit inter-organizational network research, only a few studies have investigated the effectiveness of these organizational forms. According to Alter & Hage (1993), if the concept of organizational effectiveness is problematic it is doubly so in the case of inter-organizational networks. Assessing inter-organizational network effectiveness is more complex than organizational effectiveness due to the involvement of multiple organizations in a network (Provan and Milward 1995). Networks use multiple organizations to produce one or more pieces of a single service, thus making their evaluation more complex than that of a single organization. Another major problem associated with conceptualizing effectiveness of inter-organizational networks is establishing the focus of investigation (Provan & Milward, 1995). Network effectiveness issues are also problematic because most researchers are more concerned with organizational outcomes, even when the organizations studied are part of a network (Provan & Milward, 1995) moreover, networks have multiple stakeholders and it may be harder to satisfy all of them.

Notwithstanding these difficulties, they have been attempts to investigate inter-organizational network effectiveness (see O'Toole, 1997; Provan and Milward 1995; Lemieux-Charles et Al., 2005; Provan et al., 2007; Arya & Lin, 2007). As mentioned earlier, almost all these studies are conducted in the public health sector. More over, in most of them, the level of analysis is either community or network. Also, the studies use a wide range of criteria for inter-organizational network effectiveness including objective measures such as network membership's growth and subjective measures such as the perception of solving problems.

MODELS OF INTER-ORGANIZATIONAL NETWORK EFFECTIVENESS

The models used to assess inter-organizational network effectiveness are similar to those of organizational effectiveness. The most frequently used models found in the literature include (i) the goal model, (ii) the system resource model (iii) the internal processing model and (iv) the multiple constituencies' model. Alter & Hage, (1993) provide a brief summary of these four models (see Table 1 below).

Theoretical Model	A network system is effective to the extent that	When Useful:
Goal Model	It accomplishes its consensual goal(s)	Goals are clear and measurable
System-Resource Model	It acquires needed resources	inputs can be specified and measured
Internal Processing Model	It has an absence of internal strain; exhibits smooth internal functioning	Clear causal connection between internal processes and desired output.
Strategic Constituencies Model	All strategic constituencies are at least minimally satisfied	Constituencies have powerful influence

Table 1: Models of assessing Inter-organizational Networks

RESEARCH MODEL

In this research, we use a multidimensional model of inter-organizational network effectiveness. Effectiveness of networks that have clearly defined and easily measurable goals may be assessed using the goal model. Effectiveness of networks that have more ambiguous goals as it is the case for GlobalSympoNet[1] inter-organizational network, may be better assessed using other criteria, such as the ability to attract and sustain

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[1] This pseudonym is used to protect the confidentiality of the organizations.

resources (system resource model), or the ability to satisfy key stakeholders (multiple constituencies model). As some organizational researchers have done in the past (i.e. Cameron, 1982) to address issues related to different values associated with measuring effectiveness, we will incorporate aspects of each of the four models to create a multidimensional model that will capture a more complete picture of inter-organizational network effectiveness. In our initial research model depicted in Figure 1, our independent variables are grouped into two categories (i) organization characteristics and (ii) network structural characteristics.
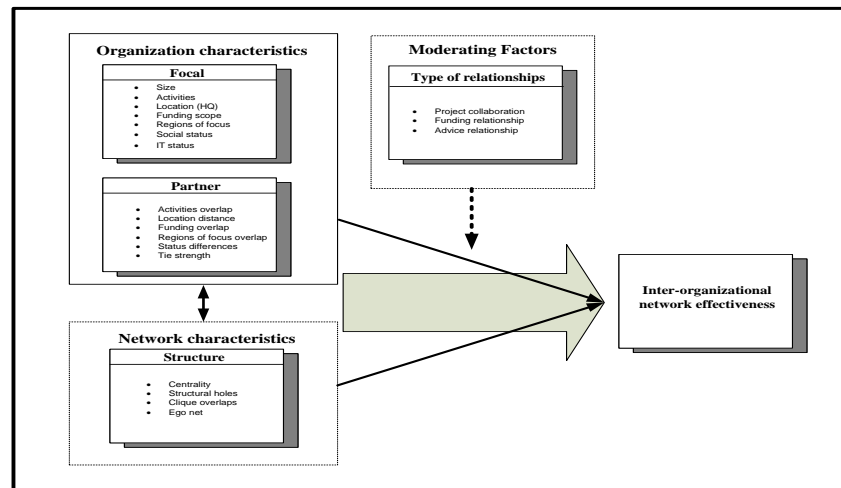

Figure 1. Initial research model

RESEARCH METHOD

The research uses the case study method. The case investigated is the GlobalSympoNet.

GlobalSympoNet

The GlobalSympoNet is a community of interest in humanitarian information management. The GlobalSympoNet is spearheaded by the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA). It began its activities in 2002 as a meeting of humanitarian information management professionals. This community of interest is made up of about 300 information technology (IT) and information management (IM) professionals   from roughly 120 international and national organizations in the field of humanitarian assistance. The goal of the GlobalSympoNet is to foster collaboration among members on humanitarian information management related projects and to disseminate best practices of information exchange.

Data

Through surveys and interviews, we identified a multi-dimensional inter-organizational network among the members of GlobalSympoNet. A series of three surveys (one paper based and two online) was administered to the participants of the GlobalSympoNet+5 (Geneva 2007 meeting) and those who attended either the 2002 Geneva meeting or at one of the regional conferences (Panama, Nairobi and Bangkok). Representatives of fifty six (56) organizations out the one hundred and nineteen (119) members of the GlobalSympoNet responded to the surveys giving a response rate of approximately forty seven percent (47%). The surveys included three social network questions. Respondents were asked to indicate (i) organizations with which they had collaborated on a humanitarian information management project (ii) they had sought or provided advice relating to Humanitarian Information Management activities and (iii) organizations they had sought funding for a humanitarian information management project. In addition to these relational questions, respondents were asked to indicate the proportion of their needs for external funding that was met. They were also asked to indicate barriers they perceived in collaboration with other members of the network. In addition to the surveys, nineteen (19) semi-structured phone interviews were conducted to enhance the validity of the survey results.

PRELIMINARY RESULTS

In this study, effectiveness is conceptualized in two ways. First it is seen as the potential for organizations to obtained external funding. Second, effectiveness is conceptualized in term of more or less constraints that an

organization perceives in the collaboration network. We use network analysis methods to explore the association between an organization's degree centrality and its effectiveness in humanitarian information exchange activities. The degree centrality of an actor is the number of direct contacts it has with other actors in the network. For example in the project collaboration network, the degree centrality of a member indicates the number of different organizations with whom the member collaborates on projects. The concept of centrality measures the number and strength of ties that an organization has with other organizations. Centrality has been used to capture the flow of information in a network and the potential level of collaboration (Freeman, 1979; Faust, 1997). We also explore homophily patterns in the networks. The homophily concept suggests that if two network members are similar in some way, it is more likely that there will be network ties between them. We present below some preliminary results which consist essentially of some basic descriptive statistics of three networks (i) advice network, (ii) project network and (iii) funding network and an investigation of homophily behavior in these networks.

Network descriptive statistics

The relationships between organizations have three dimensions, namely advising, collaboration and funding. In other words, we have obtained three one-dimensional undirected networks, each of which indicates one type of relationship. An edge in the advising network means the two organizations have exchanged advice concerning policy, technology, data, and so on. In the dimension of collaboration, two organizations are connected by an edge if they used to collaborate on humanitarian information management projects. The project they collaborated on could be joint training of staff members, coordinated data collection, shared database, and so forth. Edges in the funding network denote relations between funding providers and receivers. Table 2 summarizes the basic statistics of the three one-dimensional networks.

Network	Number of nodes	Number of Isolates	Number of edges	Density
Advice	119	24	574	0.0818
Project	119	7	851	0.1212
Funding	119	24	194	0.0275

Table 2. Basic statistics of the multi-dimensional networks

Figures 2, 3, and 4 show the networks and their centrality degree distributions. In these figures, the size of a node is proportional to its degree centrality.
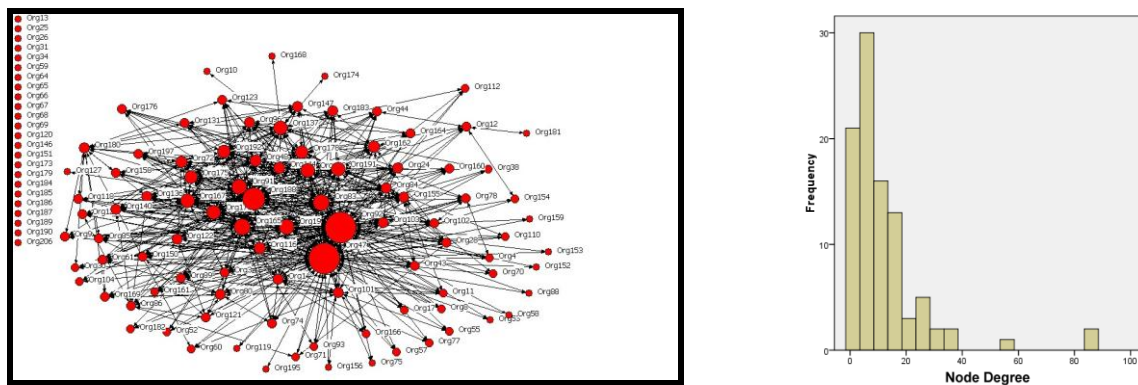
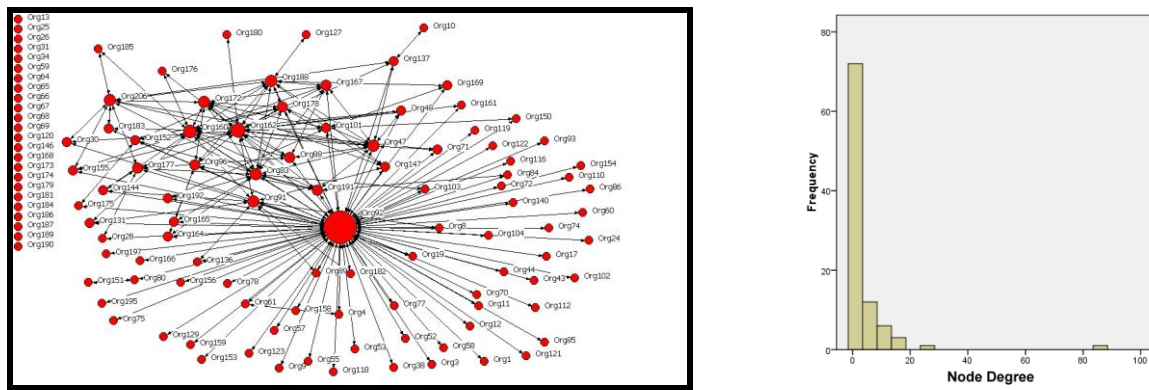**Figure 2. Advice network**
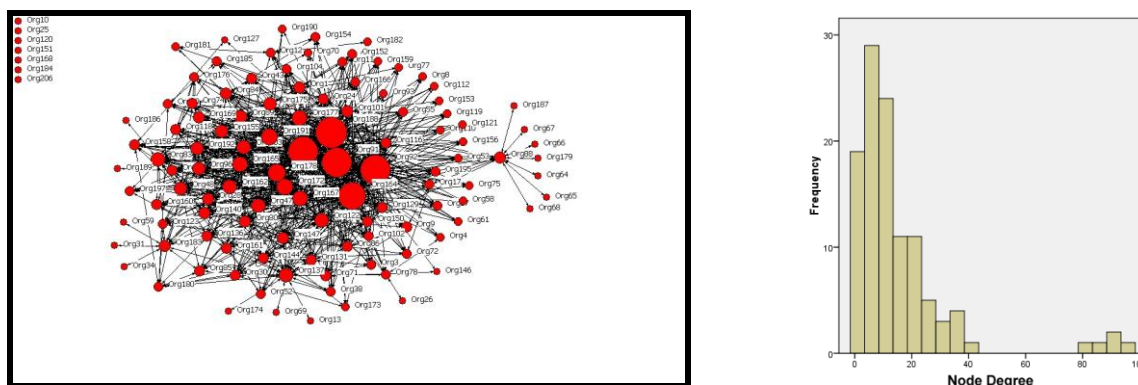
Figure 3. Project network

Figure 4. Funding network

Homophily analysis

We conducted some preliminary homophily analyses to assess the extent to which network behavior is similar to organizations that are similar on certain characteristics. The organizational characteristics considered included (i) degree centrality, size and type. Table 3 summarizes the homophile coefficients and errors given by our computational analysis.

	Degree-based coefficients	Size-based coefficients	Type-based coefficients
Advising Network	-0.3896 (0.0006)	-0.0196 (0.0005)	0.0009 (0.0003)
Collaboration network	-0.4293 (0.0005)	-0.0960 (0.0004)	-0.0105 (0.0004)
Funding network	-0.4459 (0.0003)	-0.1898 (0.0012)	-0.1176 (0.0006)

Table 3. Homophily coefficients

The three GlobalSympNet inter-organizational networks that we investigated exhibit non homophily patterns on the organizational attributes considered in this research. In other words, members of the GlobalSympNet tend to interact with those that are not similar to themselves on those attributes. This is quite different from social networks, which are often homophily, especially on node degrees. This finding suggests that, in the humanitarian relief sector, inter-organizational relationships are often based on complementarities. Humanitarian organizations interact with others, because they are seeking complementary resources or expertise that their own organizations do not possess.

Among the three inter-organizational networks that we explored, the funding network presented the most non homophily pattern. We believe this is because funding relationships need the highest level of complementarities. If an organization already possesses enough resources for a specific humanitarian relief project, the chance that it shares the funding with other similar organizations is relatively low. Among the three organizational attributes, degree centrality showed the most non homophily pattern. This suggests that organizations with different numbers of relationships tend to possess different resources in this network. This result also suggests that organizations with low degree centrality are often specialized organizations. Their knowledge and expertise on a specific mission, a specific geographic region, or specific technologies are usually what some high-degree general-purpose organizations need.

CONCLUSION

In this on-going research, we investigate how organizational characteristics and network structure properties impact network effectiveness. To this end, we have collected extensive survey and interview data from the participants of the GlobalSympoNet, held under the auspices of the United Nations Office for the Coordination of Humanitarian Affairs. Results are expected to yield a model of inter-organizational network effectiveness that will provide better insight into inter-organizational collaborative relationships in the field of humanitarian relief.

ACKNOWLEDGMENTS

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