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Constructions of Success in Broadband and Organizational Networks: A Multiple Stakeholder Investigation

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This abstract describes an interpretive, qualitative study designed to investigate two networks, one a broadband communication network, the other an organizational network. The organizational network is responsible for developing and maintaining the broadband communication network. This broadband network provides community information, messaging, entertainment, medical and educational services to a residential neighbourhood. Broadband communication networks are in place in business and residential settings across North America. Although current technologies make it relatively easy to implement broadband networks, this has not always been the case. The development and operation of existing broadband networks has frequently been realized only by means of extensive collaboration and cooperation among a wide variety of public and private sector organizations. In working together these diverse collaborators form an organizational network. Thus the organizational network is not simply a social network enabled by the broadband communication technologies it provides, rather it is an organizational form that serves to coordinate activities among the organizations developing the broadband network. (See Grandori, 1997; Johanson & Mattsson, 1987; Powell, 1990 for discussions of organizational networks of this type.)

Research Question and Contributions of this Research

This dissertation project explores the experiences of participants involved in a residential broadband communication network trial. Participants include end users of the broadband network and members of the organizational network that provided the broadband network and services. The research is premised on assumptions that the multiple stakeholders involved with these networks have different understandings and social constructions of these networks, that social constructions have emerged and changed over time, and that these social constructions have an impact on the overall effectiveness and success of both networks.

The research is revealing participants' perceptions and constructions of network success and providing insights on the management of organizational networks in the information technology sector. These findings are consistent with the research objectives, which aim to make three distinct contributions to knowledge of information systems and organization theory.

Specifically, the research will: i) reveal processes by which broadband and organizational networks are socially constructed; ii) illuminate factors that contribute to the success of broadband and organizational networks, as seen from the perspective of these networks' stakeholders; and iii) advance understandings of how broadband communication networks can enable network forms of organization.

The research question that guides this research is as follows (note that the term 'communication network' encompasses the network's technical infrastructure and content):

Once a communication network is established, how do the network's stakeholders socially construct this network. Over time, how do individual stakeholders' social constructions interact and influence the success of the communication network and of the organizational network providing and operating it?

Research Site

The research is based on a broadband network trial situated in a new subdivision of a town about 30 miles from a major metropolitan area. The trial itself was in operation from 1995 to 1998. As the trial plan states:

[Netcom] (a pseudonym) is a consortium of public and private organizations who share the goal of shortening the implementation time for full service broadband networks. Netcom is testing the city of tomorrow today. It's a broad bandwidth network complete with user access appliances, multimedia content and servers and information gathering that will result in a blueprint for living and working in a connected community. The consortium includes more than thirty members from public, private and academic institutions collaborating to determine what [participants] want and need and what services they will actually use on the Electronic Highway. (Netcom, 1994: 2)

This project provides an ideal opportunity for the investigation of multiple stakeholder emergent networks and the broad stakeholder diversity provides a rich source of longitudinal data for the study.

Theoretical Underpinnings

This project adopts a structured interpretivist epistemology. From an interpretivist perspective, "the social world is essentially relativistic and can only be understood from the point of view of the individuals who are directly involved in the activities which are to be studied" (Burrell & Morgan, 1979: 5). Consistent with this epistemology, this research seeks to build new theory that captures the experiences of the social actors involved with the broadband network trial. It is anticipated that this research will develop middle range theory (Eisenhardt, 1989; Prasad, 1993).

Although interpretive in epistemology, this project is structured in that it adopts a preliminary 'conceptual framework' (Miles & Huberman, 1994). This framework offers a starting point from which to achieve an interpretive understanding of organizational and communication networks and network success as emergent phenomena, through the perspective of the networks' stakeholders (see Figure 1). The adoption of a framework is recommended to "provide clarity and focus" (Miles & Huberman, 1994: 17), but it is recognized that such a framework is malleable and will change as the research progresses. The framework is not intended as a means of formally operationalizing the constructs in this research, a process that would be inconsistent with the guiding epistemology. The usage of a guiding framework allows the researcher to draw upon experiences with the research site and phenomena under investigation, and to situate these experiences in the relevant academic literature. It enables the identification of key issues, yet does not constrain the investigation in any way, and is not inconsistent with the interpretivist approach. The framework does not outline theoretical propositions or hypotheses for testing, but it does explicitly identify the issues central to the research.

This project draws on a wide range of organizational and information systems research. The organizational aspects of the research will not be addressed in any detail in this abstract, but are informed by literature on interorganizational relationships, network analysis, network success and effectiveness, network forms of organization and stakeholders in organizational networks.

It is the information systems component of this research that is of interest here, with a focus on understanding the development, implementation and usage of a broadband communication network, as perceived and constructed by the broadband network's multiple stakeholders. Theoretical underpinnings include work on information systems success (e.g. DeLone & McLean, 1992) and the growing body of interpretive research in the information systems field that considers the interactions and relationships among systems users; social constructions of technology; and the contexts in

which technologies are deployed (e.g. Barley, 1986; Boland, Tenkasi & Te'eni, 1994; DeSanctis & Poole, 1994; Green & Murphy, 1996; Jackson, 1996; Lea, O'Shea & Fung, 1995; Orlikowski & Gash, 1994; Orlikowski et al, 1995; Prasad, 1993; Robey & Sahay, 1996; Sahay, Palit & Robey, 1994; Sahay & Robey, 1996).

The preliminary conceptual framework offers a starting point from which to achieve an interpretive understanding of networks and network success, through the perspective of the networks' stakeholders. There are three main concepts: i) social constructions of networks; ii) role of stakeholders in networks, and iii) understandings of network success. The research is process oriented (Newman & Robey, 1992) and will explore the relationships between these concepts, looking at the processes by which multiple network stakeholders socially construct networks and network success over time. It is anticipated that theories of negotiated order (Day & Day, 1977) and symbolic interactionism (Fine, 1992; Prasad, 1993) will be of assistance in interpreting the multiple perspectives on, and social constructions of, networks that will emerge from this study. Theories of chaos and complexity (e.g. Brown & Eisenhardt, 1998) may be of assistance in understanding the dynamics of social constructions of networks in this context.

Methodology

The researcher has been involved with this trial as a participant and an observer since the planning stages in 1993. This level of involvement has provided a strong understanding of the multi-faceted nature of the trial, and it has enabled the collection of a great deal of data, including, for example, field notes from meetings with the Netcom president, consortium members, researchers, and residents of the 'wired' homes; minutes of annual general meetings; and annual reports. These data are a rich source of information on all aspects of the Netcom trial, but on their own are not sufficient to fully illuminate the research questions posed here. These data (which are mainly textual in form) are being supplemented with extensive, in-depth interviews with multiple informants.

A variety of qualitative techniques are being used to analyze the data. (See Miles & Huberman, 1994 for a discussion of qualitative data analysis methods. Although they take a positivist approach to qualitative research they offer some helpful advice on how to explore and manage large volumes of qualitative data.) The data and analysis can be evaluated using established criteria for ethnographic research, namely that they exhibit credibility, transferability, dependability and confirmability (see Altheide & Johnson, 1994; Golden-Biddle & Locke, 1993; Lincoln & Guba, 1985).

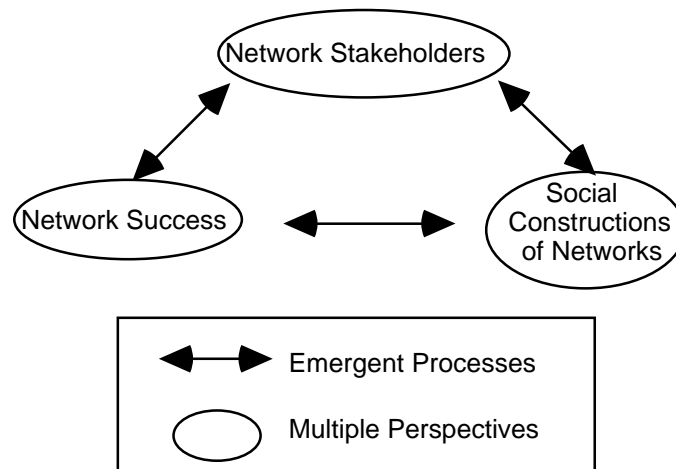


Figure 1: Preliminary Conceptual Framework

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Note: Some articles mentioned in this abstract and published in information systems journals (e.g. MISQ, ISR) have been excluded from the list below in order to meet length limitations. A complete list of references cited above can be found at www.yorku.ca/academics/middletn/amcis99.html. Apologies to those authors whose work is not listed below.

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