Chapter XVIII
Research Communities in Context:
Trust, Independence, and Technology in Professional Communities

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ABSTRACT

This chapter examines a community of professionals, created by a government agency and charged with conducting country-wide, cross-disciplinary, and cross-sectoral research and innovation in the area of water. The analysis describes the structure of the community and places it in the context of existing project practices and institutional arrangements. Under challenging conditions, the professionals in the area recruit team members from their trusted long-term collaborators, work independently on projects, use standard communication technologies and prefer informal face-to-face contacts. Out of these practices emerge a sparsely connected community with permeable boundaries interspersed with foci of intense collaboration and exchange of ideas. In this community, professionals collaborate and exchange of ideas with the same colleagues. Both collaboration and exchanges of ideas tend to involve professionals from different disciplines and, to a lesser extent, from different sectors and locations.

VIRTUAL COMMUNITIES OF PRACTICE IN RESEARCH WORK

In the past few decades, when knowledge and innovation have been identified as the key to economic development and competitive advantage, governments worldwide have made considerable efforts to encourage knowledge creation and transfer (Drucker, 1993; Quintas, 2002). The Canadian federal government is no exception. Its

Networks of Centres of Excellence (NCE) program targets strategic areas of scientific development. In each area, the program forges private-public partnerships and fosters multidisciplinary and nation-wide collaborative research. Since traditional bureaucracies are not conducive to knowledge generation and transfer, the program creates flexible organizational forms of the type of "invisible colleges" based on informal ties and permeable boundaries (Heckscher & Donnovan, 1994). A small NCE agency in each strategic area develops a network of stakeholders – leading researchers, government decision-makers, private companies and NGO staff, that serves as a catalyst for research and innovation. In essence, the program creates communities with distinctive characteristics: they are geographically dispersed, connected to some extent by technology, and include participants who have shared interests but diverse disciplinary and institutional background. There is an inherent tension in the mandate of the NCE agencies and in the communities they create: on the one hand, they connect professionals bound by their expertise in a particular area and their interest in collaborative solutions; on the other, they aim to foster connections across sectoral, disciplinary, and organizational boundaries to ensure innovation and novel solutions.

This chapter examines the Canadian Water Network (CWN) – the community representing the NCE program in the area of water. CWN is seen as a Virtual Community of Practice (VCoP), which gets its distinctive qualities by the tension between the shared interests and the diverse background of its participants. The analysis departs from such common research issues in the study of VCoPs such as technology, information sharing, or relational characteristics of the community. Instead, its objectives are to map the structure of the community using Social Network Analysis (SNA) and to explain how these structural characteristics emerge out of the institutional arrangements in the area of water and the practices of the participants in the community.

BACKGROUND, RESEARCH QUESTIONS AND DATA

Literature Review

At the centre of the study is a dispersed community of professionals engaged in applied collaborative research. Given this, literature in three areas contribute to the framing of the research questions and the interpretation of the results: learning and knowledge processes, scientific research, and social networks.

Unlike early research on learning and knowledge processes, which overlooks the embedded nature of knowledge, recent studies interpret knowledge as collaborative and socially embedded. Knowledge processes can only be understood in the context of the groups that create knowledge, the practices they employ, and the situation in which they function (Wenger, 2000; Brown and Duguid, 1991). The central concept in the literature is CoP, defined as informal self-selected communities of learners bound by shared expertise and joint enterprise. CoPs are the centres of knowledge creation and the building blocks of larger learning systems (Wenger & Snyder, 2000; Wenger, 2000; Brown & Duguid, 2000; Lesser and Prusak, 1999). With the increasing importance of knowledge processes in society, however, comes the proliferation of knowledge creating groups. Learning and information exchange processes on the level of organizations and beyond are captured in terms such as social learning systems, Networks of Communities of Practice (NCoPs), and Virtual Communities of Practice (Wenger, 2000; Brown & Duguid, 2000). In their typology of collaboration among researchers, Bos and his colleagues (2007) add newer organizational forms supporting the creation and sharing of knowledge such as Virtual Learning Communities and Distributed Research Centres.

Among all these forms, Virtual CoPs are distinguished by their dispersed nature, the use of technology, and the common interests, goals,