



Chapter 8

Computer-Mediated Inter-Organizational Knowledge-Sharing: Insights from a Virtual Team Innovating Using a Collaborative Tool*

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How does a team use a computer-mediated technology to share and reuse knowledge when the team is inter-organizational and virtual, when the team must compete for the attention of team members with collocated teams, and when the task is the creation of a completely new innovation? From a review of the literature on knowledge sharing and reuse using collaborative tools,

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three propositions are generated about the likely behavior of the team in using the collaborative tool and reusing the knowledge put in the knowledge repository. A multi-method longitudinal research study of this design team was conducted over their ten-month design effort. Both qualitative and quantitative data were obtained. Results indicated that the propositions from the literature were insufficient to explain the behavior of the team. We found that ambiguity of the task does not determine use of a collaborative tool; that tool use does not increase with experience; and that knowledge that is perceived as transient (whether it really is transient or not) is unlikely to be referenced properly for later search and retrieval. Implications for practice and theory are discussed.

How does a team use a computer-mediated technology to share and reuse knowledge when the team is inter-organizational and virtual, and when the task is the creation of a completely new innovation?

This is an important set of interrelated questions because of the increasing use of *virtual inter-organizational collaboration* and the development and diffusion of *collaborative technologies* (CT) to facilitate the collaboration process (Allen & Jarman, 1999; Coleman, 1997; Haywood, 1998; Lipnack & Stamps, 1997). Dow, Ford, Chrysler and British Petroleum are well-known examples of companies diffusing CTs to facilitate their work (Ferranti 1997; Hamblen 1998). A Gartner Group (1997) study went as far as to say: "Real-time collaboration use will change from virtually nothing to ubiquity by 1999" (p.26).

The use of CTs is fundamental to making virtual teams work. A CT, also referred to as a virtual workplace, should be able to record, at a minimum, the process of the group, an agenda, libraries of solutions and practices, different forms of interaction, meta-information (such as date, sequence, author of contributions), and provide shared information storage, access and retrieval (Ellis et al., 1991; Field, 1996; Ishii et al., 1994; Kling, 1991; Nunamaker et al., 1993, 1995; Romano et al., 1998; Thornton & Lockard, 1994).

Critical, then, for knowledge-sharing and reuse with CTs is that the CT includes not just a mechanism for exchanging information (such as e-mail), but a mechanism for creating a knowledge repository and a mechanism for accessing the knowledge repository. In this paper, we report results from a 10-month field study of an inter-organizational virtual engineering design team and describe how a CT is used with respect to knowledge-sharing. The two questions we address are: (1) When do members of a virtual, distributed, inter-organizational team designing an innovative new product use a CT to collaborate? (2) When and how do team members reuse the knowledge once it is shared in the knowledge repository of the CT?

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