INTRODUCTION

Since the development of the Internet—and the emergence of computer networking as a mass medium in the mid-1990s—many organizations and institutions have experimented with Internet protocol (IP)-based communications to coordinate work and activities across geographical distance. This has been in response to growing needs to coordinate business and projects between different offices, firms, regions, and states. Rather than organizations flying people to meet face-to-face, network technology presents opportunities for persons located apart to work together. It offers the potential for cheap and efficient collaborations across distance. Yet, while economic pragmatics drive organizations to adopt virtual work methods, virtual working is difficult to implement. This is because it strains many conventional assumptions about work behaviour and the cognitive and emotional foundations of collaboration.

BACKGROUND

Since the 1970s, there has been a general trend worldwide for organizations to move from being closed systems to open systems. This has involved growing pressures on organizations to interact with their environment rather than trying to internalize their environment. The most visible consequences of this have been the escalating tendency of organizations to contract out functions, to relocate parts of their operations across the world, and to grow the number of strategic collaborations with other organizations. The result is more and more organizational actors working with persons—often persons they do not know—in other locations. Working with people at a distance means working virtually (Duarte & Snyder, 1999; Franke, 2002; Igbaria & Tan, 1998; Jackson, 1999; Kisielnicki, 2002; Lipnack & Stamps, 2000; Mowshowitz, 2002; O’Hara-Devereaux & Eccles, 1994). Virtual collaborators (teams and partners) have no shared physical presence. Collaborators may see one another only rarely if at all.

The technologies of virtual collaboration are relatively straightforward: e-mail, ftp, collaborative groupware, and audio-video conferencing. Groupware and IP-based conferencing is still relatively under-utilized. Third-party hosted groupware offers solutions to high-level collaboration across firewalls. IP-based conferencing provides opportunities to enrich interactions with sound and visuals. Groupware to date, however, does little more than make conventional file storage and threaded discussion available to persons working in multiple locations across organizational boundaries. Conferencing software is only beginning to be able to deliver quality audio across low bandwidth connections. Typically, high-quality video and the sharing of complex software applications still require high network bandwidth, and are often unavailable from roaming and non-institutional locations.

While technology shapes the possibilities of virtual interactions, psychology is a more powerful factor in determining the viability of such interactions. A basic condition of virtual collaboration is the ability to work with others without seeing them, knowing them, or meeting them in person. While technology can enable such work, to effectively leverage these technological possibilities, organizations have to adapt themselves to different ways of working, and in some cases they have to re-invent themselves. Working virtually at the micro-level of teams, groups, and pairs is only effective where the larger organizational environment lends itself to virtual interaction.

There are three basic types of organization: social, procedural, and the virtual or self-organizing (Miller, 2002). Social organizations are the most common type. These are based on face-to-face interactions and on character norms such as loyalty, dedicated service, and “keeping your word”. Procedural organizations are built on impersonal roles and rules. Virtual organizations are structured around more abstract patterns and forms. The family firm and the relationship-driven Japanese corporation are examples of the social organization (Fukuyama, 1995). The Fordist-type American corporation typifies the procedural kind (Chandler, 1977). In contrast, production and distribution reliant on intangible or intellectual capital, such as licensing, patents, or correspondence, encourages forms of virtual collaboration based on high degrees on self-organization (Barley, Freeman & Hybels, 1992).