Integration of E-Collaboration Technologies: Research Opportunities and Challenges

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ABSTRACT

Integrated technology support for collaborative work is a topic of great interest to academics and practitioners alike. E-collaboration has become a vibrant and fruitful area of research and application from many perspectives. Integration remains a major challenge, however, and a significant opportunity exists to advance the state of practice as well as research. We provide an overview of different forms of integrated e-collaboration technologies, along with examples of key application areas. Based on these examples, we analyze the research opportunities and challenges, and provide a set of recommendations for advancing our understanding of integrated e-collaboration technologies. The focus throughout is on behavioral and organizational issues related to these technologies, and on underlying theoretical perspectives. The overarching goal of the article is to identify important needs for research, based on a clear understanding of the key concepts, issues, and existing knowledge.

Keywords: collaborative support systems; collaborative technology; e-collaboration; emerging information technologies; groupware; IS integration; virtual teams

INTRODUCTION

Developing integrated technology support for collaboration has been a major target for both research and industry since the early groupware era of the 1980s. A range of prototypes have been developed in the area of Computer-Supported Cooperative Work (CSCW), integrating various combinations of collaborative support for different working modes and contexts (e.g., Francik, Rudman, Cooper, & Levine, 1991; Sohlenkamp & Chwelos, 1994; Geyer et al., 2001). While providing important illustrations of the potential and limitations of different de-
esign concepts and architectures, the evaluation of these prototypes in real use tends to be limited. Clearly, there is a long and complex road from prototype to commercial systems.

With the widespread diffusion of the Internet and the Web, new possibilities have emerged for providing integrated support for flexible, anytime/anyplace collaboration, and today there exists a rapidly growing market of integrated e-collaboration products and solution providers. This trend coincides with the current industry focus on enterprise integration, i.e., the integration of vital information from both internal systems and those of trading partners (Rabin, 2001).

The integrated e-collaboration technologies available in the marketplace today range from small-scale, Web-based team and project rooms, to enterprise-scale collaborative product suites. They include both new products developed exclusively for this market and established products that extend their functionality to collaboration. Examples of the latter include integration of document management and workflow functionality in enterprise resource planning systems. During the last few years, major vendors of asynchronous e-collaboration suites have sought to broaden the scope of their platforms by acquiring vendors of conferencing applications, for example, the acquisition of PlaceWare by Microsoft and eRoom by IBM (Computerworld, 2002). Even standard office applications such as MS Word and MS PowerPoint today offer collaborative features for co-authoring and net meetings, which when used to their full extent comprise relatively advanced collaborative support.

While integrated e-collaboration technologies have finally become easily available in the commercial marketplace, we still know little about how the integration aspect of these technologies affects their appropriation and use, nor is it clear what their effects are on productivity and quality of task execution and work processes. Research on CSCW and groupware has provided a rich body of studies on the adoption and use of single technologies or services, such as electronic calendaring and scheduling (Grudin & Palen, 1995), workflow management support (Grinter, 2000), electronic meeting support (Fjermestad & Hiltz, 1998-1999; 2000-2001), or desktop conferencing (Mark, Grudin, & Poltrock, 1999). While these different technologies can also integrate several features, they mainly support one of the three major forms of collaboration — either communication, coordination, or information sharing (Grudin & Poltrock, 1997). Furthermore, the research rarely focuses on integration aspects per se. The more comprehensive set of tools integrated in collaborative product suites such as Lotus Notes do provide potential exceptions. However, the body of empirical research on Lotus Notes shows that organizations tend to make rather limited use of the varied functionality available in Notes (Karsten, 1999). Consequently, even this research rarely addresses aspects related to integration of tools, other than reporting how the flexible nature of this product suite may result in user perceptions of increas-
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