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GDN Special Issue on Advances in Collaboration Technology

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Organizations today face many new challenges that are sufficiently complex that no single individual has the expertise and resources to solve them alone. Collaboration has therefore become an important aspect of organizational success. With the globalization of the world economy, collaboration now frequently occurs across organizational and national boundaries. Such teams frequently turn to collaboration technologies to support their work practices. For more than two decades, researchers have been designing, developing, and testing technologies to support teamwork. Many research-based insights are finding their way into the rapidly-growing groupware marketplace. Groupware researchers, however, continues to extend the borders of the known and the possible.

This special issue of GDN draws on from the best papers presented at the 14th Annual Collaboration Researchers' International Workshop on Groupware (CRIWG), which examines problems and solutions related to collaboration technology. Each of the eight manuscripts in this special issue present new data, stronger theoretical arguments, or new insights gained in the lab and in the field. The articles in this special issue focus on the design, deployment, implementation, and use of groupware to enhance collaboration processes.

In their paper *Empirical and heuristic-based evaluation of collaborate modeling systems: An evaluation framework*; Gallardo, Molina, Bravo, Redondo, and Collazos

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propose the further development of a groupware using a SPACE-DESIGN architecture approach. Both heuristic and empirical data suggest that such approaches are proving to add flexibility to the design of groupware interfaces by enhancing the ability of group members to contribute to distributed synchronous activities.

The proliferation of mobile collaboration technology has created both opportunities and challenges for today's workers. In presenting *A patterns system to coordinate mobile groupware applications*, Neyem, Ochoa and Pino describe pervasive architectural and coordination patterns common to many mobile applications. By considering such coordination patterns such as replicated resource synchronization and ad hoc context management, mobile groupware will be better able to a mobile software requirements including increased autonomy and decreased use of hardware resources. Although still in the early stages of development, this model has driven the development of several groupware applications, including those used in disaster relief.

Equipping first response agencies with a plethora of groupware applications is alone insufficient to enhance emergency response. In their paper, *The assessment of information technology maturity in emergency response organizations*, Santos, Borges, Canós, and Gomes propose a framework to evaluate the maturity of an emergency response organization model to help identify limitations in emergency management organizations. Greater understanding of a group's overall readiness to welcome new technologies can be achieved by developing a multi-factor maturity model unique to the mission of the group. Case studies with two fire departments illustrate how such modeling can predict the domains in which new technology is likely to be embraced.

Verbal storytelling is an essential way that information in transferred between individuals. To date, however little work has been done to facilitate the automated capture and coding of oral communication within a groupware environment. Lukosch, Klebl, and Buttler explore *Utilizing verbally told stories for informal knowledge management*. They describe the development of a collaborative storytelling application to collect and structure verbal stories from users. As verbal storytelling is fundamentally a social endeavor, the software supports a collaborative assembly of storylines from multiple users into a overarching theme.

This special issue also includes three articles targeted at special considerations of managing group decision making using groupware. In the first of these articles, *Improving group attention: An experiment with synchronous brainstorming*; Ferreira, Antunes, and Herskovic propose a model of group attention patterns in brainstorming using keystroke and response submission patterns. The opportunity seeker application developed from these response patterns can be used to deliver prompts during a time when a participant is likely to be most receptive to feedback. By prompting synchronous brainstorming users at the correct time, idea generation is notably increased.

In their paper, *Computational indicators to assist meeting facilitation*, Vivacqua, Marques, Ferreira, and de Souza describe a meeting support system designed to aid assist the facilitator in evaluating the meeting dynamics. A primary focus is proposing adaptations to groupware to decrease the cognitive load necessary to evaluate meeting performance by presenting a graphical interface to track such things as idea flow and attention allocation. A preliminary evaluation of this software revealed that novice facilitators felt better able to assess group performance and when to intervene, if necessary.

Finally, when intervention is necessary, Kolfschoten, Grünbacher, and Briggs focus on techniques for enhancing group performance while a session is in progress. *Modifiers for quality assurance in group facilitation* describe a set of best practices that can be used to adjust the facilitation process when performance deficiencies are noted. By adding such tasks as constraint re-emphasis and step-by-step checking into the facilitation framework, the facilitator is better equipped to prevent, identify, and correct deficient group processes without breaking the flow of the meeting.

Each of these papers presents stimulating new perspectives on the challenges of collaboration and collaboration technology. We commend them to your reading.