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## PANEL 12 RECENT ADVANCES IN SUPPORTING COLLABORATIVE WORK

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## PANEL 12

### RECENT ADVANCES IN SUPPORTING COLLABORATIVE WORK

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Corporate and academic research have generated a set of facilities and technology intended to support real-time group work. These include Xerox PARC's Colab, the Arizona Lab, the Capture Lab at EDS, MCC's Nick Lab, and the Minnesota GDSS Lab. These facilities differ in their arrangement and blend of furniture and technology, both for the individual and the shared view. They were developed to support different levels of formality in group work, from facilitated or chauffeured meetings, to free form informal, more democratic participation. Different kinds of groupware were installed in these facilities, including shared whiteboards, brainstorming and voting tools, anonymous messaging, and shared workspaces. The facilities explored a variety of ways to support work and adopted different conventions as to how much they were consistent with the participant's normal computing environment. Video connectivity for remote sites had not changed much for the days of Picturephone, with some advances in the size and quality of the view of the group and its integration with remote whiteboards or viewgraph presentation.

Although each of these technologies and facilities achieved certain breakthroughs in our understanding of what kind of facilities are needed to support group work, there have been more recent investigations that provide a second generation of these technologies and facilities to explore.

- **Space** is to be designed to meet ergonomic needs of groups (e.g., enough room to move about but allowing close enough contact for face-to-face conversation and work) and to be flexible for use both in meetings of various numbers of participants and in individual work outside of meetings.
- **Furniture** for groups and individuals is to house the computing and artifact support for current work as well as provide for storage for information needed at other time. The furniture has to be sensitive to the ergonomic features of individuals working alone for periods of time and in groups at other times. Issues of comfort, access, ability of the user to read information (e.g., without glare and with sufficiently sized fonts), to see and hear each other (e.g., over the noise of fans on computers) loom in addition to standard issues of aesthetics and fit to anthropometry.
- **Software** is to support not only the formal processes people have developed for business groups doing policy formation, exchanging ideas with anonymity, and structuring ideas in specific business contexts, but also the more free-form abstract drawing, such as listing and sketching, that supports the communication of groups doing work like design. Some of this new software is driven from a deeper understanding of the nature of group work, their use of artifacts, and the requirements for interfaces to group work to support the rapid-fire interchange and editing of ideas.
- **Video** is to support not only prearranged meetings whose participants are at remote sites, but also the more informal interchange in the hall and the ability to glance to see if someone is interruptible. Some video innovations arise from a new understanding of the role of informal communication in group work.

This panel will critique the first generation collaboration technology (both software and video) and space/furniture support and then describe and illustrate recent advances. The group as a whole will then discuss the directions in which each of these topics is heading, with a particular emphasis on coordinating these in a single setting. We will close with both a framework in which to think about these issues and a list of the kind of research that we believe is needed to understand the role of each kind of technology in group work and their integration.