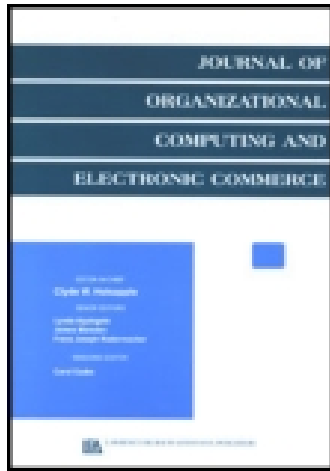


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Desktop Multimedia Conferencing: IBMs Person to Person in Organizational Context

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A trend in cooperative systems is the emergence of multimedia systems that aim to support synchronous cooperation in a manner which unifies both remote and co-located users. These systems combine information-sharing facilities provided in real time with video- and audiocommunication services. This review of IBM's desktop multimedia conferencing system Person to Person (P2P) presents the characteristics of its utilities. Further, it discusses some organizational impacts and implementation issues within an organizational context.

desktop multimedia conferencing, organizational design,
organizational communication, CSCW

1. INTRODUCTION

Most of the daily work in offices occurs in groups, and includes teams, projects, meetings, committees, training, and some form of teaching. Johansen [1] states that group work is a natural way of doing business and that computers are just catching up to the fact. What was missing in the early groupware systems and some electronic meeting systems is the ability to work with multiple types of media from the PC desktop. The merging of workstation technology and real-time computer conferencing has had a significant impact on computer supported cooperative work (CSCW). This merging led to the term "desktop conferencing" [2]. Early multimedia conferencing systems like Rapport (developed at AT&T Bell Laboratories) [3], Cruiser from Bellcore [4], or MERMAID from NEC [5], had as their aim the provision of the facilities found at face-to-face meetings with remote groups.

IBM's Person to Person (P2P) is one of the first commercially available PC products for the business market and is integrated in IBM's multimedia policy. In it, the company states that it will support multimedia computing at all levels, ranging from PCs to workgroup systems and distributed enterprise systems. To support this policy, IBM committed itself to provide multimedia enhancements in all its services and applications.

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2. PERSON TO PERSON AND ITS UTILITIES

The important features of P2P are the availability of collaborative desktop tools and the support of multiple media types. In this article, multimedia is used in terms of a computer-based, real-time, and interactive information and communication system which combines text, image, audio, and video over a networked infrastructure [6].

Person to Person is a desktop multimedia conferencing tool for supporting groupwork with remote parties over a networked infrastructure, which can be a LAN, WAN, ISDN, or via modem in establishing a peer-to-peer connection. The user interface and operating systems are either MS-Windows or OS/2. In the future, IBM plans to release P2P also for AIX and Apple System 7 operating systems to provide interoperability among different platforms. P2P consists of eight utilities for interactive, collaborative multimedia groupwork in real-time mode. Because of a lack of network bandwidth for multimedia communications in most organizations, and relatively high costs for updating PCs with the necessary video boards, the "Video" and "Still capture" utilities are offered as an option.

The "Call Manager" has to be activated before a meeting can start. It provides a direct link to other meeting participants by logging and displaying information about the current calls. Incoming calls can be answered manually or automatically. In the "Address Book", each participant stores names, user IDs, and telephone numbers of other meeting participants. The "Chalkboard" provides a shared workspace that participants can use with a set of simple tools to point, draw lines, enter text, and annotate the chalkboard contents. It can be loaded with bitmaps, scanned images, data, text, or any standard application window. This utility is in fact an information sharing-tool and is best characterized as an implementation of the WYSIWIS (what you see is what I see) paradigm [7]. The "Talk" utility unfortunately does not offer the option to transmit voice to other participants. It is a simple method of exchanging text messages by using the keyboard. This feature particularly makes sense where no audio link via telephone is established, or within a workgroup where sessions may last for long periods of time but require limited interaction among the people involved. "File Transfer" allows the transfer of any file on the desktop system to and from other meeting participants. The "Clip" utility is a way of sharing data with other participants by using the clipboard and its cut and paste functions. The "Video" option extends the collaborative sharing of data to include the visual sharing of either live or prerecorded images of participants or objects. Up to eight meeting participants can join a desktop videoconferencing session. A "Privacy" option is provided to inhibit transmission of pictures from the camera. Meeting participants who do not have the video equipment installed can still receive video images from other P2P participants. The "Still Capture" option allows the user to capture images from source material like scanners, VCRs, and document cameras, and to build up a file of images, such as a box of slides, which can be shared with other participants. Table 1 summarizes the main characteristics of the utilities of P2P; Figure 1 shows a screen of P2P with activated "Chalkboard" utility, the icon view of the utilities, and a video image of a P2P conference participant.

Table 1
Characteristics of Person to Person

<i>utilities</i>	<i>function</i>
• Call manager	manages the links to other participants
• Address book	manages all names, numbers, IDs etc. for links to participants
• Chalkboard	"what you see is what I see" utility for shared workspace
• Talk utility	for exchanging text messages via keyboard
• File transfer utility	manages file transfer to and from participants
• Clip utility	clipboard sharing with participants
• Video utility	sharing live or recorded video (option)
• Still capture utility	allows capturing from source material (option)

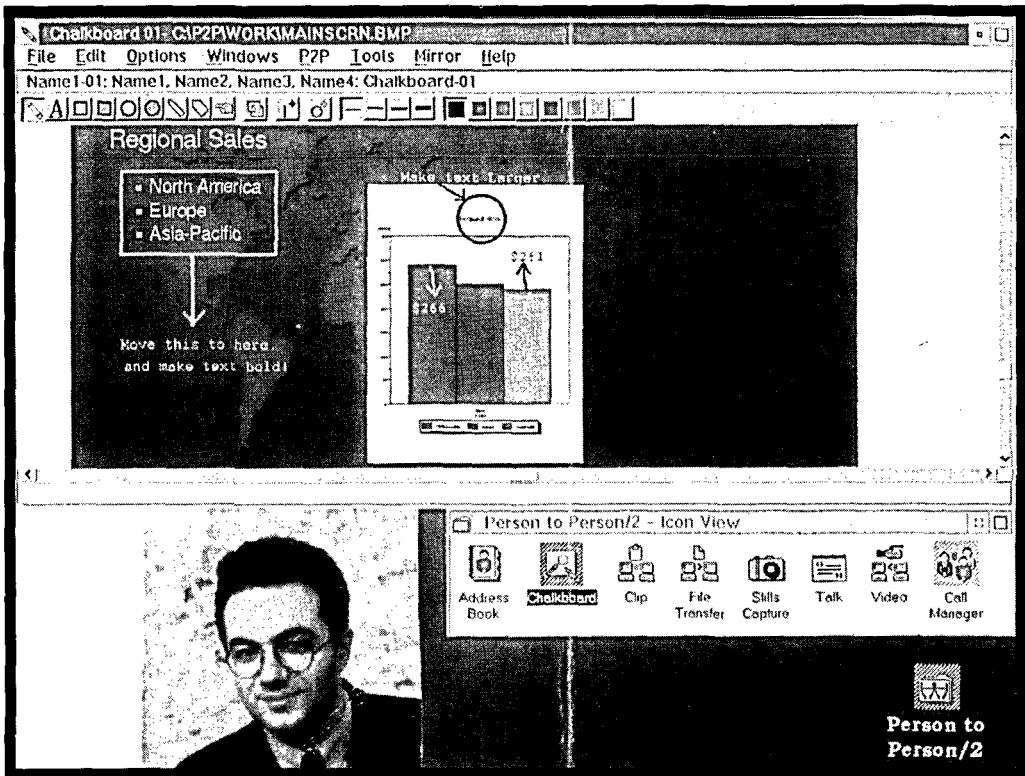


Figure 1.

3. PERSON TO PERSON IN ORGANIZATIONAL CONTEXT

Having examined the characteristics of P2P, I now discuss some organizational impacts and implementation issues within an organizational context. I agree with Culnan and Markus [8] that electronic media differ qualitatively from traditional communication modes in several ways, and that synchronous computer conferencing—in this case with P2P—has virtually no analog in traditional

communication modes. With P2P, up to eight people can visually review and activate anything that can be displayed at the desktop computer at the same time, while using the telephone for audiocommunication. The "Video" and "Privacy" options of P2P make it possible to transmit snapshot-like images of meeting participants at intervals selected by participants. This allows any member of the conference to compose the appearance of socially correct behavior, which may contrast sharply with the actual behavior.

Considering P2P in the context of the level of integration with other tools, I agree with Ishii and Miyake [9] that the gaps between groupware and other manual and software tools must be closed. In the software market we can see that software companies like WordPerfect, Lotus, and Microsoft are enabling their applications with mail capabilities for asynchronous communication. Desktop multimedia conferencing software like P2P shows the growing need of workgroups to share the applications' content in different media types and sometimes also across organizational boundaries via synchronous communication. Participants of a P2P conference can share and edit information of any application with the "Chalkboard" utility. However, more integration is needed. For example, P2P supports no audiocommunication via computer networks. Participants of a collaborative conference have to establish an audioconference link via telephone if they want to use audio as well.

Teaching and training often require long-distance travelling for both students and teachers. P2P can be a valuable means to make these time-consuming journeys obsolete, since it provides on-demand access to remote expertise via video- and optional audiolinks to the desktop PC. Multimedia communication has different qualities via desktop PCs compared with electronic meeting rooms, for example, control issues regarding user access and user participation.

4. CONCLUSION

Person to Person is one of the first multimedia conferencing systems designed for collaborative work on the PC-desktop, but it still relies on the telephone for establishing an audiolink between the meeting participants. The advent of desktop multimedia conferencing systems for collaborative work like P2P raises new research questions on design issues of inter- and intraorganizational communication [10], organizational design [11,12], and organizational computing [13]. Prospective P2P users should take into account the volume and ambiguity of the "information environments," [14] as well as the cultural prerequisites of their organization [15].

Desktop multimedia conferencing is a new form of computer-aided collaboration and is in its early stages. To be successful, an important requirement is a "critical mass" [16] of users within an organization and a climate of collaboration [17]. Most of the technological problems result from the lack of network bandwidth of existing computer networks and lack of integration with voice networks. The social and organizational implications of desktop multimedia conferencing—for example, structural and cultural changes in building virtual organizations [18]—will be even more challenging for the organizational computing community.

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