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# CSCW Basics

- Intro to Group Work
- Intro to Groupware** ←
- Design of Groupware
- Evaluation of Groupware

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# Learning Outcomes

- After attending this lecture and reading the additional literature, you should be able to:
  - Explain what groupware is
  - Recognise examples of groupware and
  - Use a taxonomy for categorising groupware applications

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# The Context

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## Familiar Examples

- Electronic Communication
  - Email
  - Instant messaging
    - ICQ, Windows Messenger
  - Electronic chat
    - In chat rooms on the Web
    - Netmeeting
  - Discussion lists
  - Forums



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## Not so Familiar Examples

- Electronic Whiteboards
  - Mimio ----->
- Shared file spaces
  - ftp
  - Shared databases (Lotus Notes)
- Workflow and work management systems
  - Open diaries (MS Exchange)
  - Work schedules



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## In the beginning

- Douglas Engelbart and colleagues at Augmented Research Centre of Stanford
  - Multimedia access to a networked computer system
    - The first mouse
    - Hypertext
    - Multiple Windows
    - On-screen video conferencing
  - Video available for viewing on <http://sloan.stanford.edu/MouseSite/1968Demo.html>



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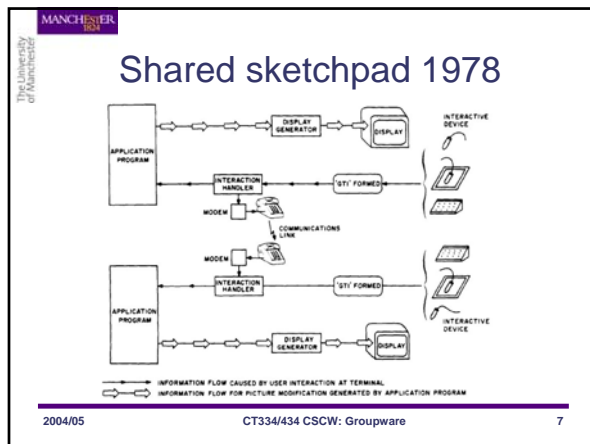
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- ## Timeline
- Mid-1960's: Engelbart's AUGMENT
  - Early 1970's: Electronic mail, audio and video teleconferencing
  - 1978: Sawchuck et al.: Shared sketchpad
  - 1982: 'Groupware' coined (Johnson-Lenzes) and decision support systems
  - 1984: Greif and Cashman coin 'Computer Supported Cooperative Work'
  - 1988 – Present: POW!
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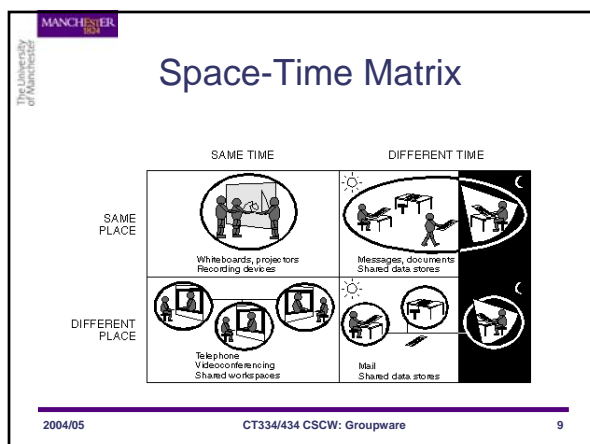
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## What groupware have you used?

- Think about your experiences with groupware.
  - What groupware have you used?
  - In which categories do these fall?
- What would you say were particularly good or bad experiences?
  - As an individual
  - From a Team perspective

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## Definition

- Groupware is a generic term for specialized computer aids that are designed for use by collaborative work groups...Groupware can involve software, hardware, services and group process support.
  - Groupware provides an interface to a shared environment.
  - Provides synergistic mechanisms for coordinating each user's actions with respect to the rest of the group and the system.
  - In contrast to individual data processing, with groupware collaboration / cooperation are important issues.

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## What should groupware do?

- Provide communication between group members
- Collaboration
  - Provide organisation and common understanding of the work processes and other people
    - Awareness support
  - Support decision making and problem solving

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# Synchronous computer-mediated communication

- Conversations are supported in real-time through voice and/or typing and/or video
  - One-to-one?
    - Over the phone
    - Instant messaging (IM)
    - CVE
    - Web chat
  - One-to-many?
    - Video link/Speaker phone
    - Web chat (Netmeeting)
    - CVE
  - Many-to-one?
    - "class feedback"
    - Portholes
  - Many-to-many?
    - Video Conference between sites (Hypermirror)

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# Collaborative virtual environments

The rooftop garden in BowieWorld, a Collaborative Virtual environment (CVE), supported by Worlds.com. Users take part by "dressing up" as an avatar. There are 100s of avatars to choose from, including penguins and real persons. Once an avatar has entered a world they can explore it and chat to other avatars.

Source: [www.worlds.com/bowie](http://www.worlds.com/bowie)

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# Hypermirror (Morikawa and Maesako)

- allows people to feel as if they are in the same virtual place even though in physically different spaces

1) People in different places are superimposed on the same screen to make them appear as if in same space



(woman in white sweater is in a different room to the other three)

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# Creating personal space in Hypermirror

2) Two in this room are invading the 'virtual' personal space of the other person by appearing to be physically on top of them

3) Two in the room move apart to allow person in other space more 'virtual' personal space

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# Everyone happy?

No, when the two people start talking to each other, the person standing virtually between them feels awkward

**Beware: strange things may happen!!**

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# Asynchronous Communication

- Communication takes place remotely at different times
- Email, newsgroups, computer conferencing, IBM Babble
- Benefits include:
  - Read any place any time
  - Flexible as to how to deal with it
  - Powerful, can send to many people
  - Can make saying things easier
- Problems include:
  - **FLAMING!!!**
  - Spamming
  - Message overload
  - False expectations as to when people will reply

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Circle with marbles represents people taking part in conversation in a chatroom.

Those towards  
the outside  
are less  
active in  
the conversation.



- Current Topic

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- Computer mediated communication
  - Peer-to-peer
  - Through shared space

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- Provide communication between group members
- Collaboration
  - Coordinate and control shared objects
  - Provide organisation and common understanding of the work processes and other people
  - Support decision making and problem solving

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# Shared Objects

- Collaborative editors
  - Asynchronous
    - MSWord
  - Synchronous
    - Synchronous Asynchronous Structured Shared Editor (Sasse)
    - Shared Whiteboard (Clearboard)
    - Has to deal with problems of concurrency



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# Clearboard (Ishii et al, 1993)

- ClearBoard - transparent board that shows other person's facial expression on your board as you draw



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# What should groupware do?

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## Portholes (Xerox PARC)

Regularly updated digitized images of people in their offices appeared on everyone's desktop machines throughout day and night



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## Workflow management/ coordination systems

- Form based systems
  - Model the dataflow within organisations
- Calendar systems
  - Contingency checking
- Workflow systems
  - Automate business process
  - Automatically implement policies and best practice

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Decision Making

- Business Intelligence Tools
- Multi-Dimensional Analysis
- Data Mining
- Information Visualisation
  - Spotfire

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Spotfire Decision Support

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Model of Groupware: Part 2

- Coordination of shared workspace
  - Concurrency
  - Security/Access
  - Organisation
  - Awareness

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## Further Reading

- Borghoff & Schlichter, pp. 87-150
- Carmel, Chapter 7
- ACM Proceedings of the CSCW conference (through ACM Digital library)
- Preece et al. – Interaction Design, Chapter 4



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