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# CT334/434

## Computer Supported Co-operative Work (CSCW)

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# Ground rules



- To keep disturbance to your fellow students to a minimum
  - Try to arrive on time. If you are more than 15 minutes late, please wait until there is a break and copy the notes from a friend.
  - Make sure your mobile phone is switched off during the lecture!!!
  - Keep talking, whispering and other background noise to a minimum. If you are confident you are already familiar with the material that I will be covering, then please feel free to stay away from the lectures, instead of bothering other students who do want to listen.
  - If there is something you don't understand, please interrupt me to ask if I could clarify.
  - If you want to make a general remark, then it may be better to wait until there is a natural break.

2004/05
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2

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# Purpose

- Explain what is meant by communication and collaboration (C&C)
  - Describe main social processes underlying C&C
- Outline the range of CSCW systems and their characteristics developed to support C&C
- Consider how knowledge of C&C in the context of groups and organisations can improve the design of CSCW systems

2004/05
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3

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## What is CSCW?

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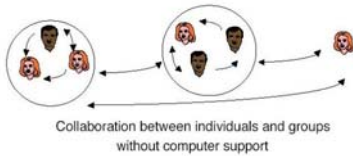
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## Paradigm shift



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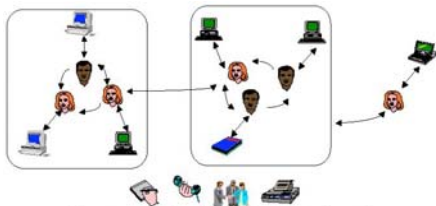
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## Paradigm shift



human-computer interaction is introduced  
but human-human collaboration still required

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# Paradigm shift

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7

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# Definitions of CSCW

- There does not exist a commonly agreed definition
  - Abstract definition
    - "CSCW is a generic term which combines the understanding of the way people work in groups with the enabling technologies of computer networking, and associated hardware, software and services."
  - Practical definition
    - "CSCW looks at how groups work and seeks to discover how technology (especially computers) can help them work more effectively as a group"
- More recently, CSCW knowledge has also been applied to non-work related computer-supported collaboration/communication.

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8

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# The Context

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9

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# Organisations and Tasks

- Software design and development
  - Macro level cooperation between departments
  - Micro level cooperation between members of a group
  - Communities of practice
  - Open-source
- E-Science
- Teaching environment
  - Transfer of information and skills (e-learning)
    - Between teacher and students
    - Between students
- Shared design of media and products
  - CAD/CAM
- Cooperation in healthcare (e.g. between doctors and nurses)
- Any other teamwork



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10

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# People

- People with a range of skills
- People of all ages and cultures
- Rich people and poor people
- People in offices and people on the move



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11

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# Technology



- The technology used for CSCW is called **GROUPWARE**
- Examples
  - Teamroom
  - DiamondSpin
  - CoOL-Room: Collaboration Oriented Learning-Room

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12

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## Communication



### For

- Faster communication between individuals and groups
- Easier to keep in touch with remote team members
- Easier to avoid or repair misunderstandings



### Against

- People without the 'right' systems get excluded
- Faster pace of life may cause more stress
- "Work doesn't get done by talking about it"
- More communication – Less thinking

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## Organisation



### For

- Physical location of team members becomes less of a constraint
- Easier to switch between tasks and roles



### Against

- Many changes may be difficult for staff
- Less understanding of processes/roles

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## Groupwork



### For

- Best practice can be embedded in the tools
- Easier to recruit appropriate team members
- Reducing dependence on a single member's expertise
- Organise work better



### Against

- Reliance on technology (loss of control)
- Reduction in creativity due to more protocols




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# General Lecture Topics

- Part 1: Introduction and Background Theory
  - Week 1: Group work
  - Week 2: Groupware
  - Week 3: Issues in Groupware Design
  - Week 4: Evaluation of Groupware
  - Week 5: Coursework preparation
- Part 2: Additional Issues in CSCW
  - Week 10: Social Information Systems (e-society/e-government)
  - Week 11: Mobility
  - Week 12: Revision



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16

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# UG Assignment

- Work in as a team to prepare a recommendation for a CSCW system to support a global software development team
  - Analyse requirements
  - Investigate state-of-the-art
  - Prepare a recommendation
- Deliverables
  - Group presentation
  - Individual report



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17

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# PG Assignment

- Groupwork to evaluate 3 communities of practice
  - Microsoft windows
  - Linux
  - Mac
- Deliverables
  - Individual presentation on a research paper
  - Group report on comparative evaluation
  - Individual report on groupwork experience



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## Assessment



- Coursework 30% of total
  - Group activity 50% of coursework
  - Individual activity 50% of coursework
- Exam 70% of total

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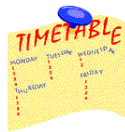
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## Schedule



- Weeks 2 – 5 Lectures CSCW Basics (MSS/C9)
  - Group work
  - Groupware intro
  - Groupware design
  - Groupware evaluation
- Weeks 6 – 7 Coursework
- Week 8 Group Presentations (location TBA)
- Week 9 Individual report (MSS/Reception F-floor)
- Week 9 – 12 Lectures CSCW Topics (MSS/C9)
  - Social Information systems
  - Mobility
  - Revision and feedback

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## Core Reading



- Erran Carmel – Global Software Teams
  - Joule library: 1 short loan and 11 lower level
  - Precinct library: 1 short loan and 1 lower level
- Uwe Borghoff and Johann Schlichter – Computer Supported Cooperative Work
  - Joule library: 1 short loan and 5 lower level

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# CSCW Basics

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

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22

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# Learning outcomes

- The Aims are to ...
  - introduce the importance of working in groups
  - explain the problems associated with group work
  - discuss the various stages in the life-cycle of a group

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23

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# What is your experience of Group Work?

- Think about your experiences of working as part of a group
  - For example, CT203 The Lakeland Project
  - Write down particular benefits and drawbacks of group work that you have experience of

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24

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25

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# What is a group

- Group → two or more individuals that influence each other in same way
- Group is a dynamic entity which is different from the sum its members
- Important features are:
  - Interdependence: group members need each other to reach common goal
  - Common identity: individual perceive themselves as belonging together
  - Structure: mixture of roles, hierarchies and bonds between group members

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26

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# Self-categorisation

- Social identity
  - Representation of the self according to social categories to which people identify (e.g., women vs. men; students vs. lecturers; Manchester United supporters vs. ...)
- Personal Identity
  - Representation of the self in terms of the unique individual, different from relevant others

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27

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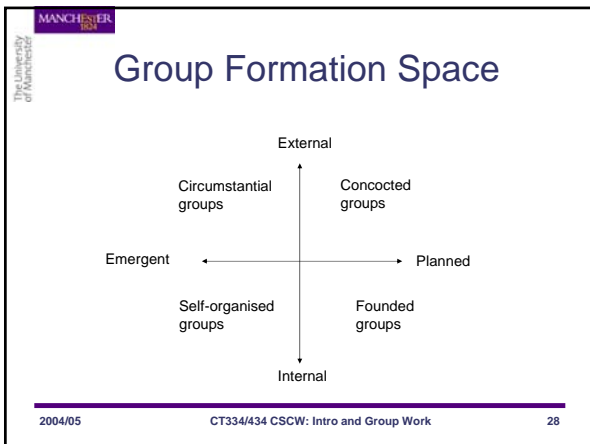
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## Why work in groups?

- Combine a number of areas of expertise and different competencies
- Combine multiple view-points
  - Mistakes are more likely to be detected
- Split a large task up into smaller parts
  - Global 24-hour software development
- Individual members perform different roles
  - 'Shaper': derives objectives, sets priorities
  - 'Leader': Organises who does what
  - 'Strategist': Generates ideas and seeks ways of solving problems
  - 'Motivator': Injects enthusiasm and motivation
- Presence of others is emotionally arousing
- Group motivates to think harder and more creatively than we do by ourselves
- Satisfy socio-emotional needs



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## Why not to work in group?

- Social Loafing
  - tendency of individual group members to reduce their work effort as groups increase in size
- Diffusion of responsibility
  - The belief that the presence of others makes one less responsible for the events that occur in that situation
- De-individuation
  - Loss of a sense of individuality and a consequent weakening of social norms and constraints
- Group-polarisation
  - The group tend to enhance shared pre-existing views (more extreme attitudes, opinion)

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## What makes a successful team?

- Team members ...
  - are engaged in a common task
  - work towards a common goal
  - interact with a shared environment
  - share and exchange information
  - strive towards a common understanding and awareness
  - take responsibility of their individual actions




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## Conflict

- Conflict arises due to:
  - Differences in beliefs, values, interests
  - Scarcity of resources such as money, time, power
  - Rivalries between people and groups
  - Pressure to avoid failure




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## Co-located versus Distributed

- Distributed teams can be: Global, from different cultures, very large
- Problems:
  - Dispersion
  - Coordination breakdown
  - Loss of communication richness
  - Loss of Teamness

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## Creation of a Team

- Orientation:
  - Discuss the overall goal of the team
    - What is the purpose of the team?
- Trust building:
  - Integration of the individuals into the team
    - What is expected of me?
    - Who are my direct contacts?
- Task/role clarification:
  - Agree upon the tasks and roles in the team
    - Make sure everyone has the same expectations of the tasks and roles.
- Commitment:
  - Sort out responsibilities and dependencies
    - Decide on task structure and assignment of resources



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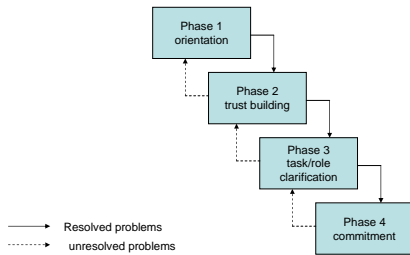
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## Dynamics of Creation



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## Consolidation of a Team

- Implementation
  - Assign individual tasks to team members
    - Temporal and causal dependencies must be taken into consideration
- High performance
  - Team members get on with the execution of their tasks
- Renewal
  - Team members get less motivated and a new cycle in the life of the team is initiated
    - The goals of a team may shift
    - The structure and roles of a team may change



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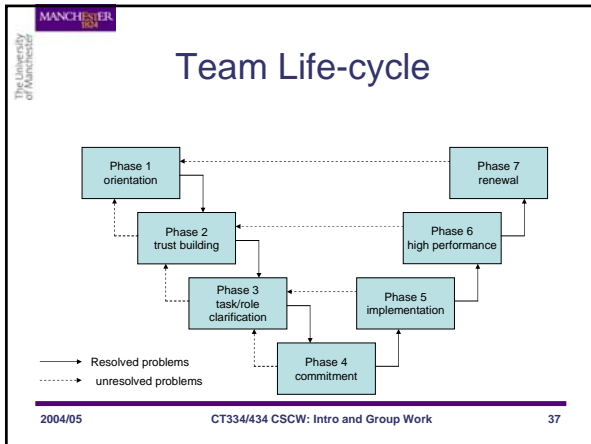
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## Further Reading

- Borghoff & Schlichter, pp. 87-150
- Carmel, Chapter 4

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