

# Computer Supported Co-operative Work (CSCW)

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# Ground rules



- To keep disturbance to your fellow students to a minimum
  - 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 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.

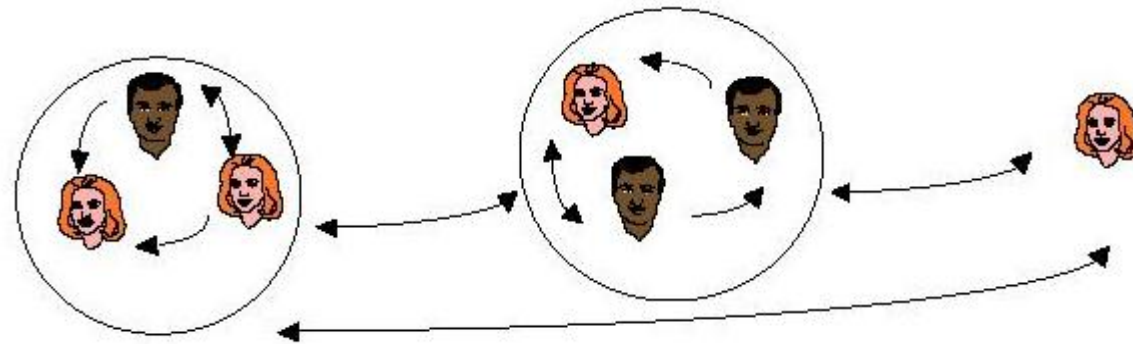
# Purpose

- 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
  - Main emphasis on web2.0 and communities
- Consider how knowledge of C&C in the context of groups and organisations can improve the design of CSCW systems

What is CSCW?



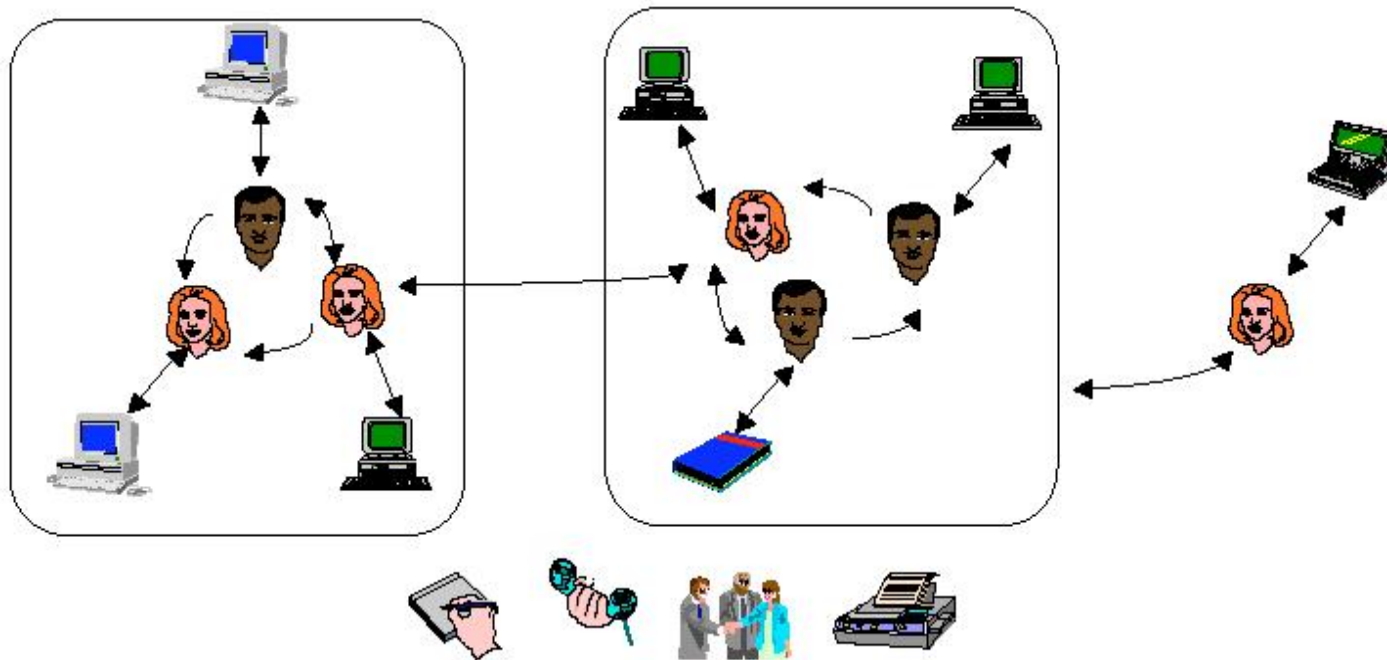
# Paradigm shift



Collaboration between individuals and groups  
without computer support

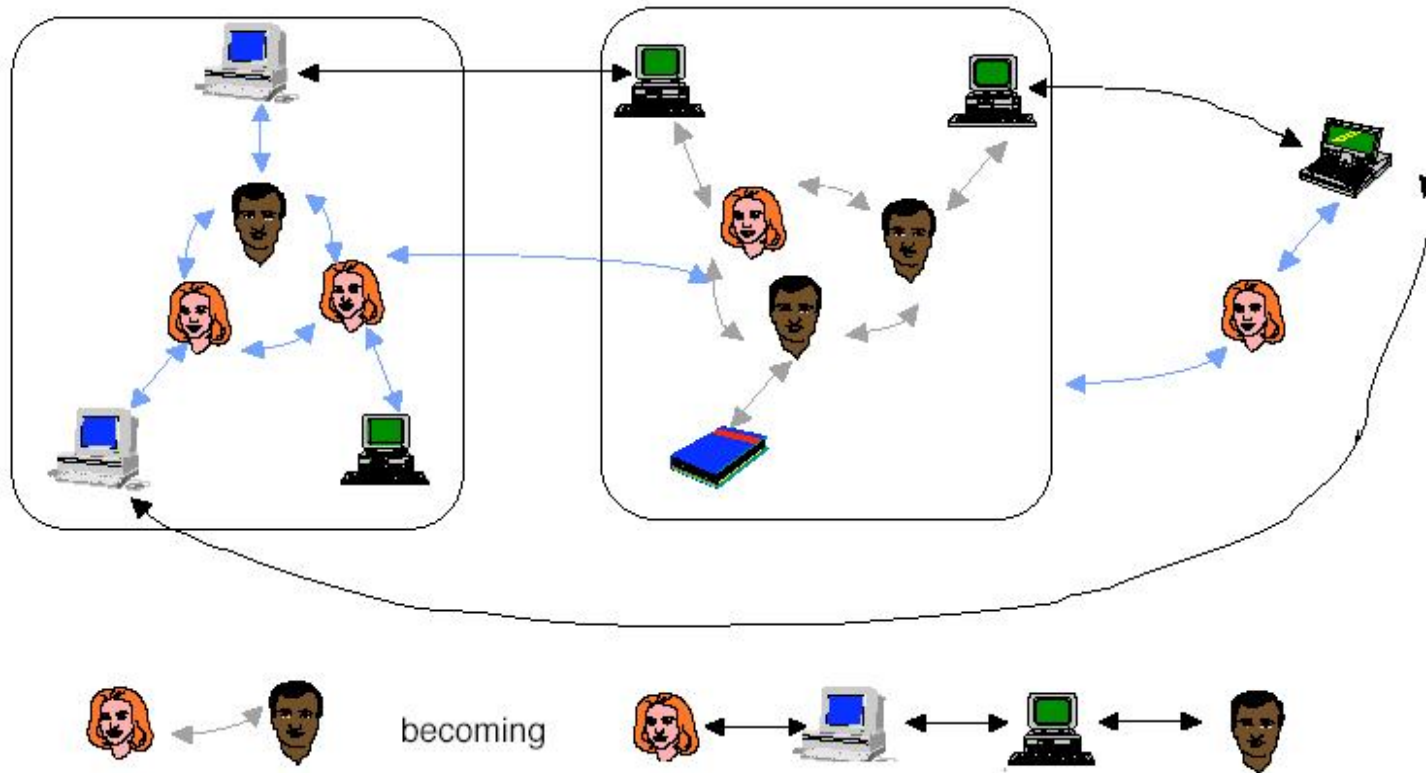


# Paradigm shift



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

# Paradigm shift



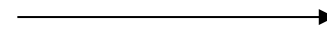
# Definitions of CSCW

- 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 been applied to non-work related computer-supported collaboration/communication activities
  - On-line communities
  - Second Life
  - Social Networking Platforms
  - We understand these technology as enablers of collective action

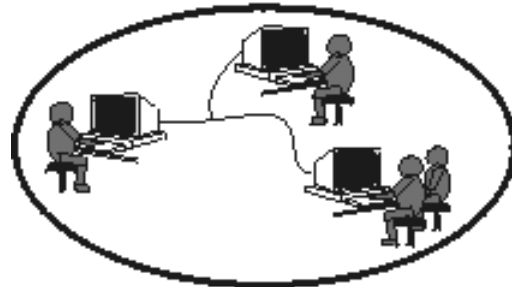




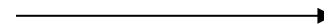
Human-Computer Interaction (HCI)



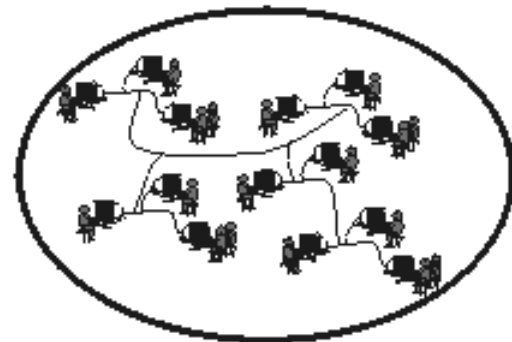
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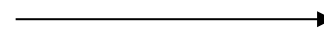
Computer Supported Collaborative Work (CSCW)



Small group

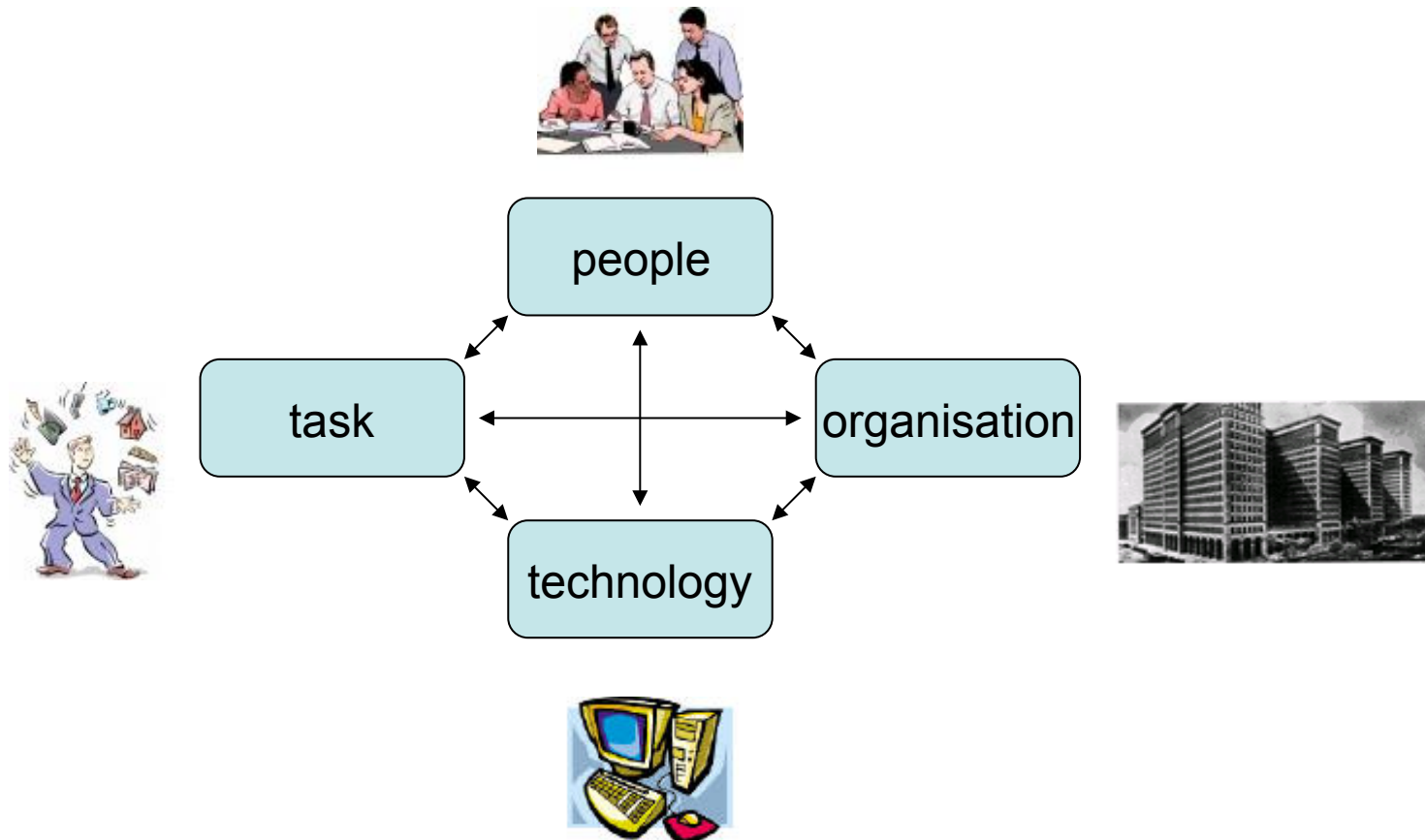


Virtual Community



Large societies

# The Context



# 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
  - Information sharing
  - Data analysis
  - Experiments planning
- 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

# 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



# Technology



- The technology used for CSCW is called **GROUPWARE**
- Examples
  - Team-room – video
  - <http://grouplab.cpsc.ucalgary.ca/Videos>

# 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

# Group-work



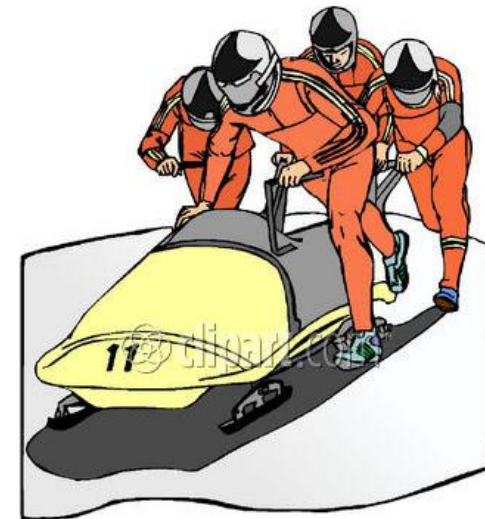
## For

- 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



# 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



# General Lecture Topics

- Part 1: CSCW Foundations
  - Week 1: Group work
  - Week 2: Groupware
  - Week 3: Issues in Groupware Design
  - Week 4: Issues in Groupware Evaluation
- Part 2: Sociability, mobility, on-line community, second Life, Social Networking etc.



# Assessment



- Coursework 50%
  - Individual activity
  - Group activity
- Exam 50%

# Reading List



- Preece J. (2000) Online communities: Designing Usability, Supporting Sociability. John Wiley & Sons.
- Benyon D., Turner P. and Turner S. (2005) Designing Interactive Systems:– People, Activities, Contexts, Technologies. Pearson Education Limited
- Arrow H., McGrath, J.E., Berdhal, J.L, (2000) Small groups as complex systems. Sage Publications.
- **Borghoff, U.M., Schlichter, J. H. (2000). Computer-Supported Cooperative Work: Introduction to Distributed Applications.**

# CSCW Basics

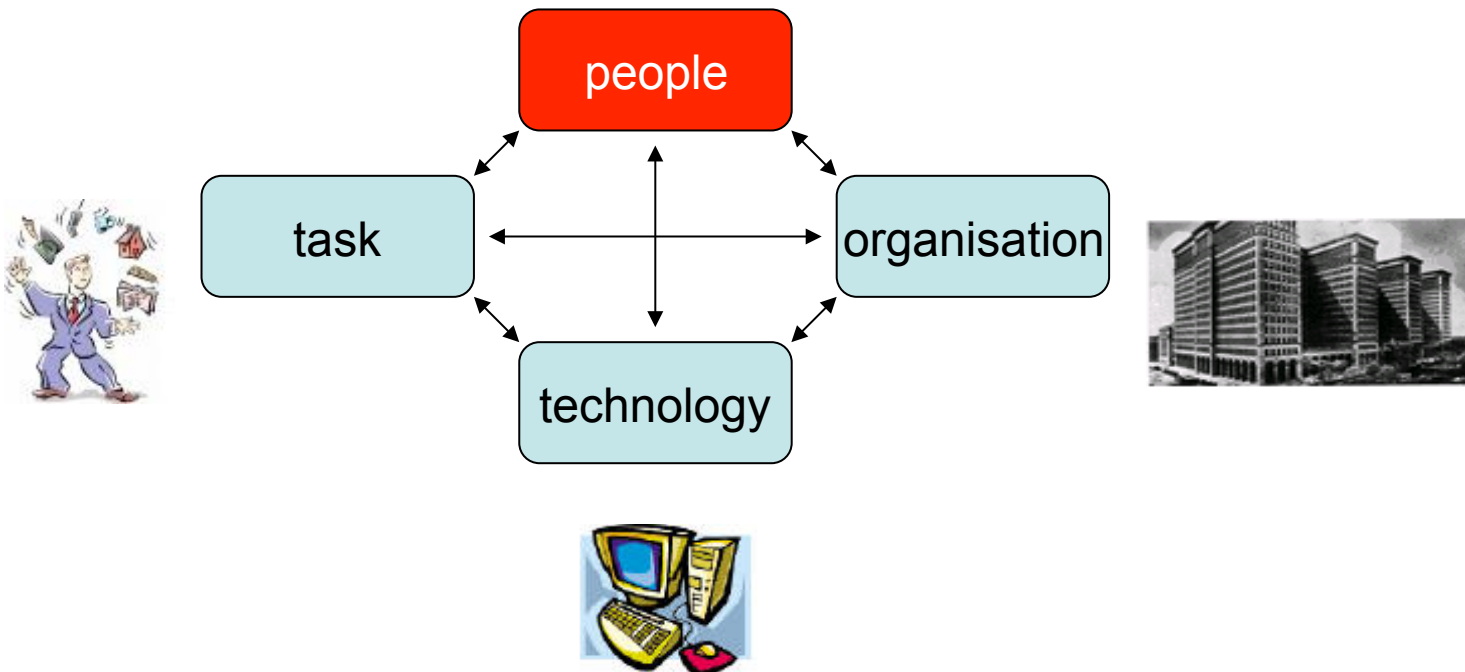
- **Intro to Group Work**
- Intro to Groupware
- Design of Groupware
- Evaluation of Groupware



# 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 team life-cycle

# The Context



# What is a group

- Group → two or more individuals that influence each other in some way
- Group is a dynamic entity - different from the sum of 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

# Social-identity theory

**Tajfel & Turner, 1986**

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## Personal Identity

Representation of the self in terms of the unique individual, different from relevant others

## Social Identity

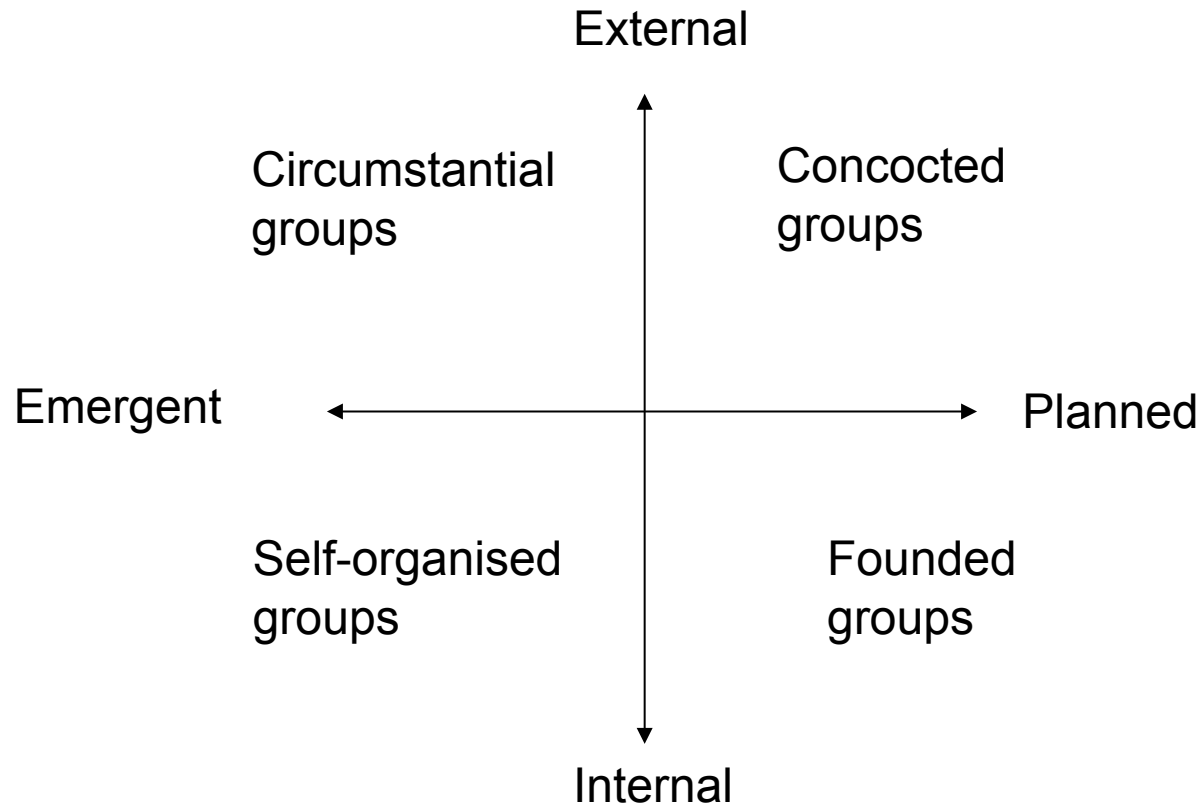
Representation of the self according to social categories to which people identify - women vs. men; students vs. lecturers; Manchester United supporters vs.



# Creating groups

- Create a sense of belongingness to the group → shared social identity
- More important than creation of interpersonal bonds between individual group members
- Different in mediated interaction
- 1<sup>st</sup> meeting anonymous: Less emphasis on individual characteristics: race, gender
- Appropriate intergroup comparison with other groups
- Instruction given to the group as a whole
- Group personalisation / rather than individual personalisation
- Let group members to choose their roles

# Group Formation Space



# Group-formation space

- Framework to differentiate between groups based on the reason of the group
  - **Planned** groups are **deliberately** formed by the members themselves (founded group) or by an external authority (concocted group), usually for **some specific purpose or purposes**
  - **Emergent groups** form **spontaneously** as individuals find themselves repeatedly interacting with the same subset of individuals over time and settings. These groups may be **circumstantial** or **self-organised**.
- The framework helps predict the social norms regulating the group, their time-frame, etc. and can be used to predict how a groupware technology can affect performance

# What is your experience of Group Work?

- Think about your experiences of working as part of a group
  - Write down particular benefits and drawbacks of group work that you have experience of

# Why work in groups?

- Combine a number of areas of expertise, competencies, 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, have different viewpoints
  - ‘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 may motivate to think harder and more creatively than we do by ourselves
- Satisfy socio-emotional needs



# Why not to work in group?

- Lack of common goals – people may not like each other – people do things in different ways
- 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)

# 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



# 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

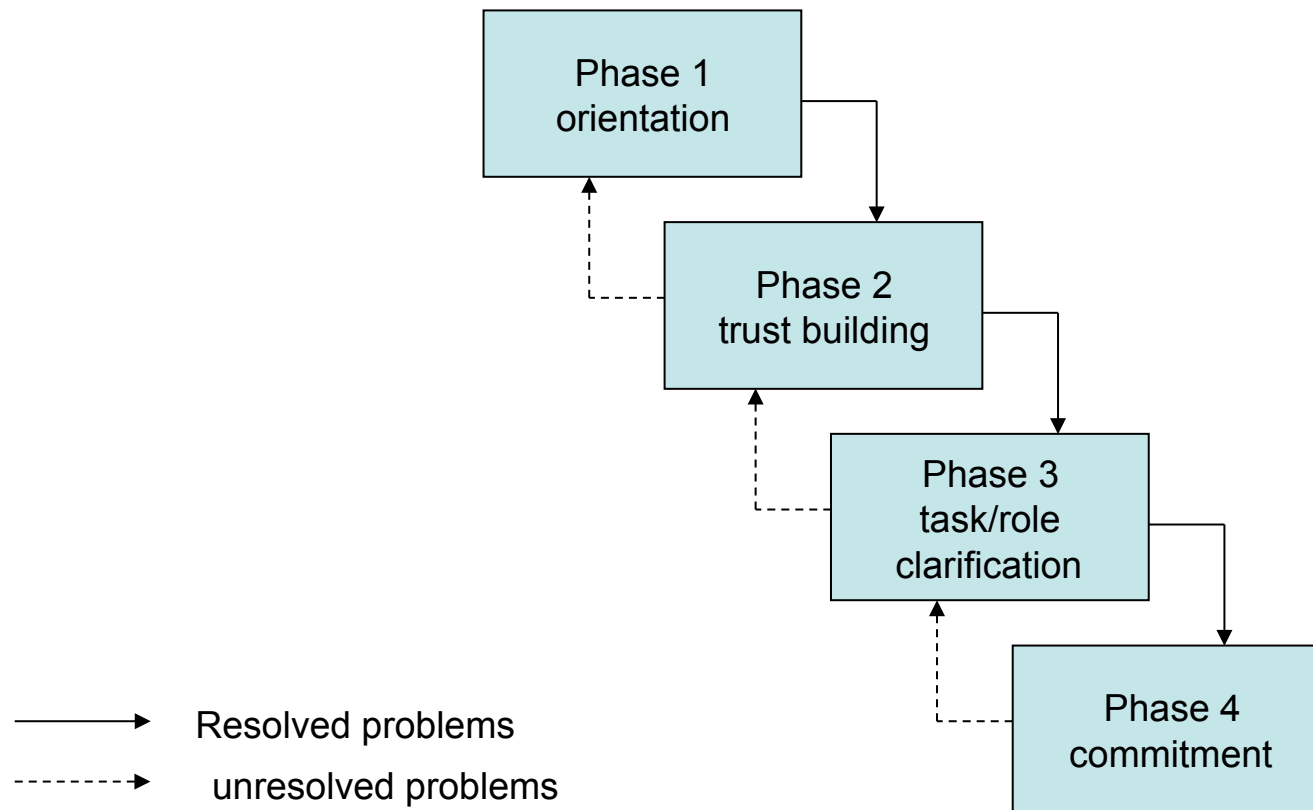




# Co-located versus Distributed

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

# Dynamics of Creation

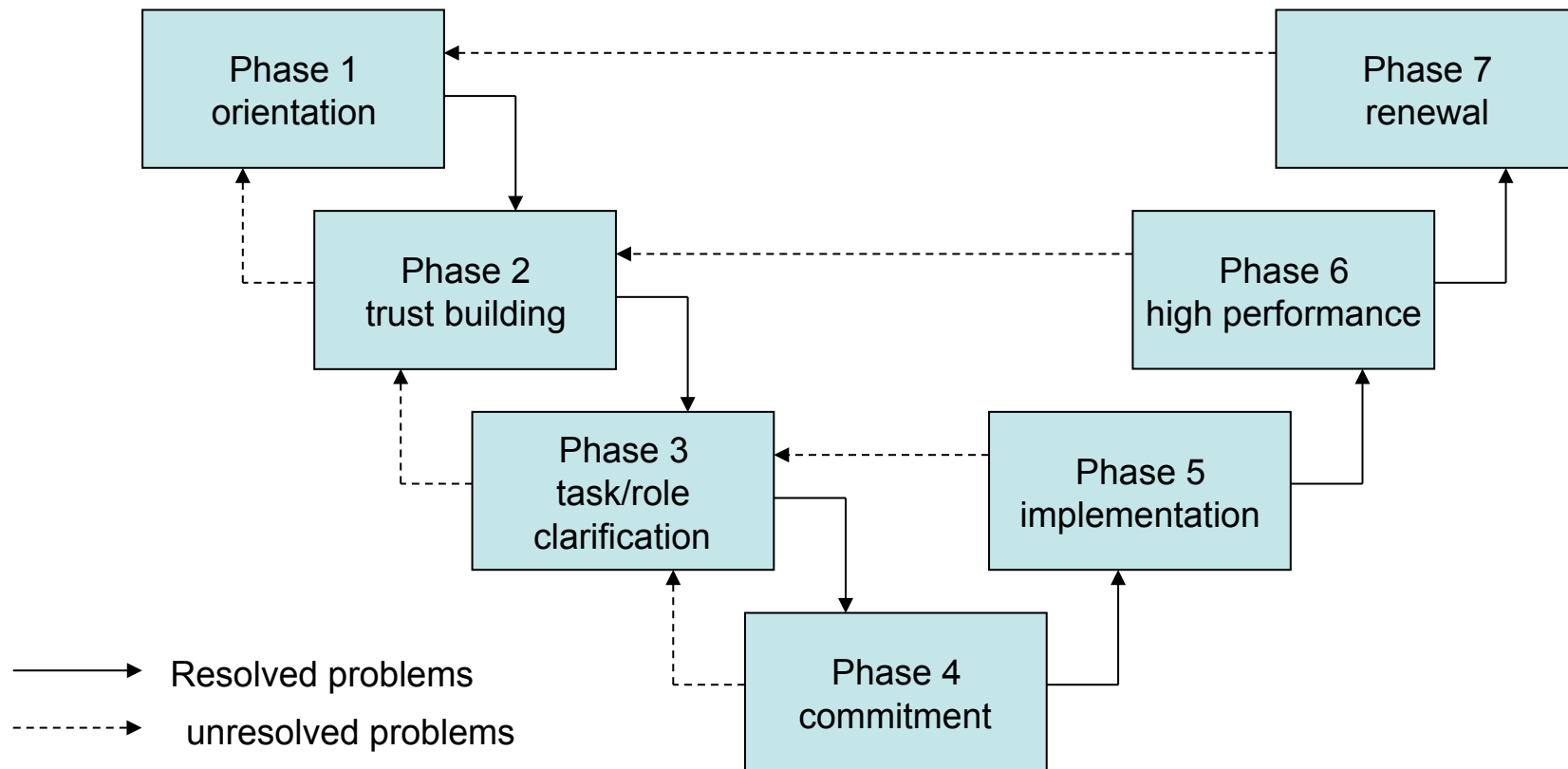


# Creation of a Team

- 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



# Team Life-cycle



# 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



# Summing up

- CSCW definitions
- 4 dimensions: task, people, organisation and technology
- Groups are different from individuals
- Group dynamic can somehow be predicted
- Best group-work practices (creation and consolidation of teams)
-