

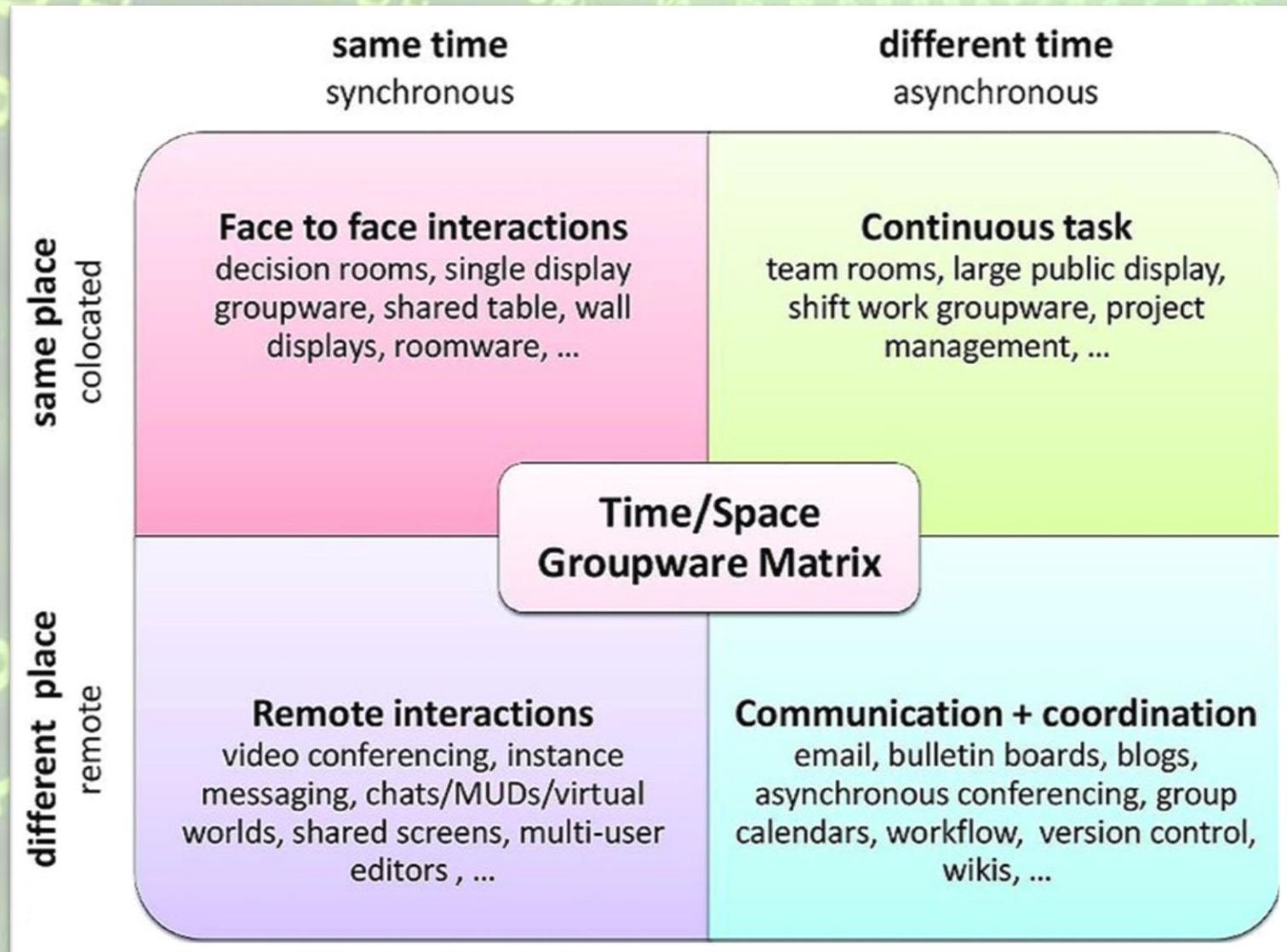
# Collaborative Virtual Enviroms

Comp10043

Lecture 3



# Collaborative Virtual Environments



# Collaborative Virtual Environments

- **Same time/same place**

- Face to face interaction
- Roomware
- Shared tables, wall displays
- Digital whiteboards
- Electronic meeting systems
- Single display groupware



# Collaborative Virtual Environments

- **Different time/same place**
  - Continuous task
  - Team rooms
  - Large displays
  - Post-it
  - Warrooms

# Collaborative Virtual Environments

- **Same time/different place**

- Remote interaction (incl. VR/CVE)
- Electronic meeting systems
- Videoconferencing
- Real-time groupware
- Messaging (instant messaging, email, chat)



# Collaborative Virtual Environments

- **Different time /different place**

- Communication + Coordination
- Electronic meeting systems
- Wiki
- Blogs
- Workflow
- Version control

# Collaborative Virtual Environments

- **Xerox Colab**

- Same Time/Same Place
- WYSIWIS Revised paper
  - Stefik et al., 1987
- Multiple shared & private windows
  - Participant terminals & presenter touchscreen
  - Document editing, whiteboard, etc.
  - For brainstorming, meeting organisation, etc.
  - Evaluations identified limitations of 'WYSIWIS' – “What You See Is What I See



# Collaborative V

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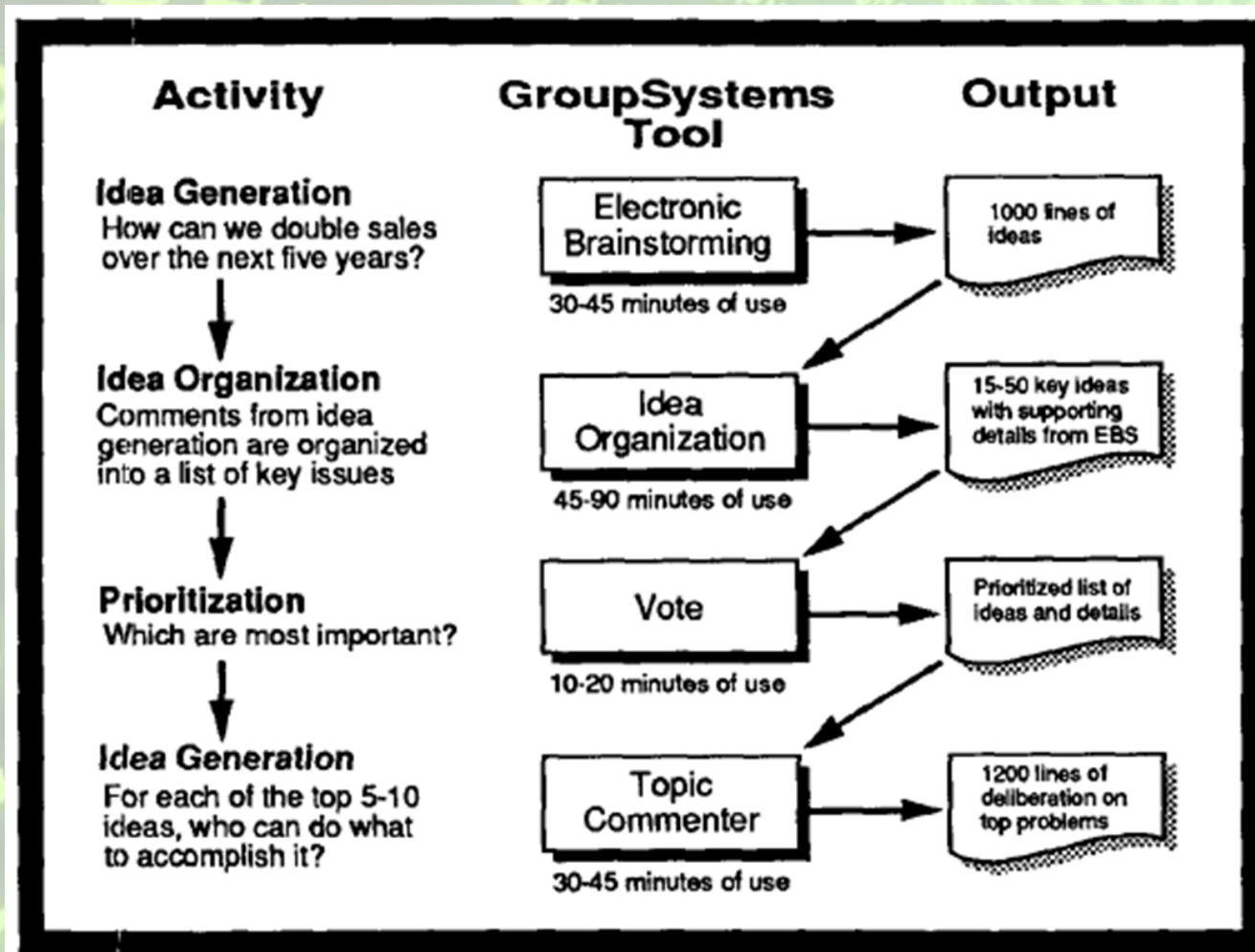


# Collaborative Virtual Environments

- **Electronic Meeting Systems**

- May be specific to one quadrant of time/space matrix
- or a solution that works for several
  - Aka Group Support Systems / Group Decision Support Systems
- Supporting discussion, problem solving, brainstorming, meeting management, automatic documentation, note-taking, ...
  - *Nunamaker, et al., 1991*

# Collaborative Virtual Environments



**FIGURE 2. One Sequence of Use**

Example  
use of EMS  
Nunamaker  
et al, 1991



# Collaborative Virtual Environments

Face-to-face groups can suffer from a number of issues including:

- domination of the conversation by one or more members
- individuals fearing criticism or negative evaluation
- members failing to participate because they perceive that their input is not required
- pressure to conform with senior members of the group

Electronic meeting systems can be designed to enhance group effectiveness, efficiency and satisfaction

- E.g. Turn taking, anonymous voting

# Collaborative Virtual Environments

## EMS Benefits

- any-place (online) capability which avoids travel time and cost
- increased participant availability (any place, any time)
- increased interactivity and participation by parallelization
- increased openness and less personal prejudice through anonymity
- more sophisticated analysis by voting and analysis in real time
- less effort in preparation by use of meeting templates
- repeatable meeting & workshop process using meeting templates
- automatic, comprehensive, neutral documentation



# Collaborative Virtual Environments

## Virtual Teamwork Issues

Many of the challenges of using EMS have been alleviated by broader adoption of WWW/internet and wider use and familiarity with phone and web based conferencing solutions.

# Collaborative Virtual Environments

## Virtual Teamwork Issues

However, Nunamaker et al. (2009) identify some remaining and still current challenges to effective virtual teamwork:

- Loss of many non-verbal cues
- Reduced mechanisms for informal conversation & opportunities to build friendships
- Time zone differences
- Sometimes complicated, unreliable technology
- Building consensus & establishing shared meaning at a distance
- Different work processes & cultures.



# **Collaborative Virtual Environments**

## **Nunamaker's Principles for Effective Virtual Teamwork (2009)**

1. Realign reward structures for virtual teams
2. Find new ways to focus attention on task
3. Design activities that cause people to get to know each other
4. Build a virtual presence
5. Agree on standards and terminology

# **Collaborative Virtual Environments**

## **Nunamaker's Principles for Effective Virtual Teamwork (2009)**

- 6. Leverage anonymity when appropriate
- 7. Be more explicit
- 8. Train teams to self-facilitate
- 9. Embed collaboration technology into everyday work and terminology



# Collaborative Virtual Environments

## Adoption and Use

- Groupware struggles for success where
  - Users have too much to learn
  - Users have to change regular ways of working too much
  - Technology is rare, unreliable or gets in the way of work
- Many innovations from 60's, 70's, 80's and 90's needed to wait for the WWW to increase reach of internet before wider adoption

# Collaborative Virtual Environments

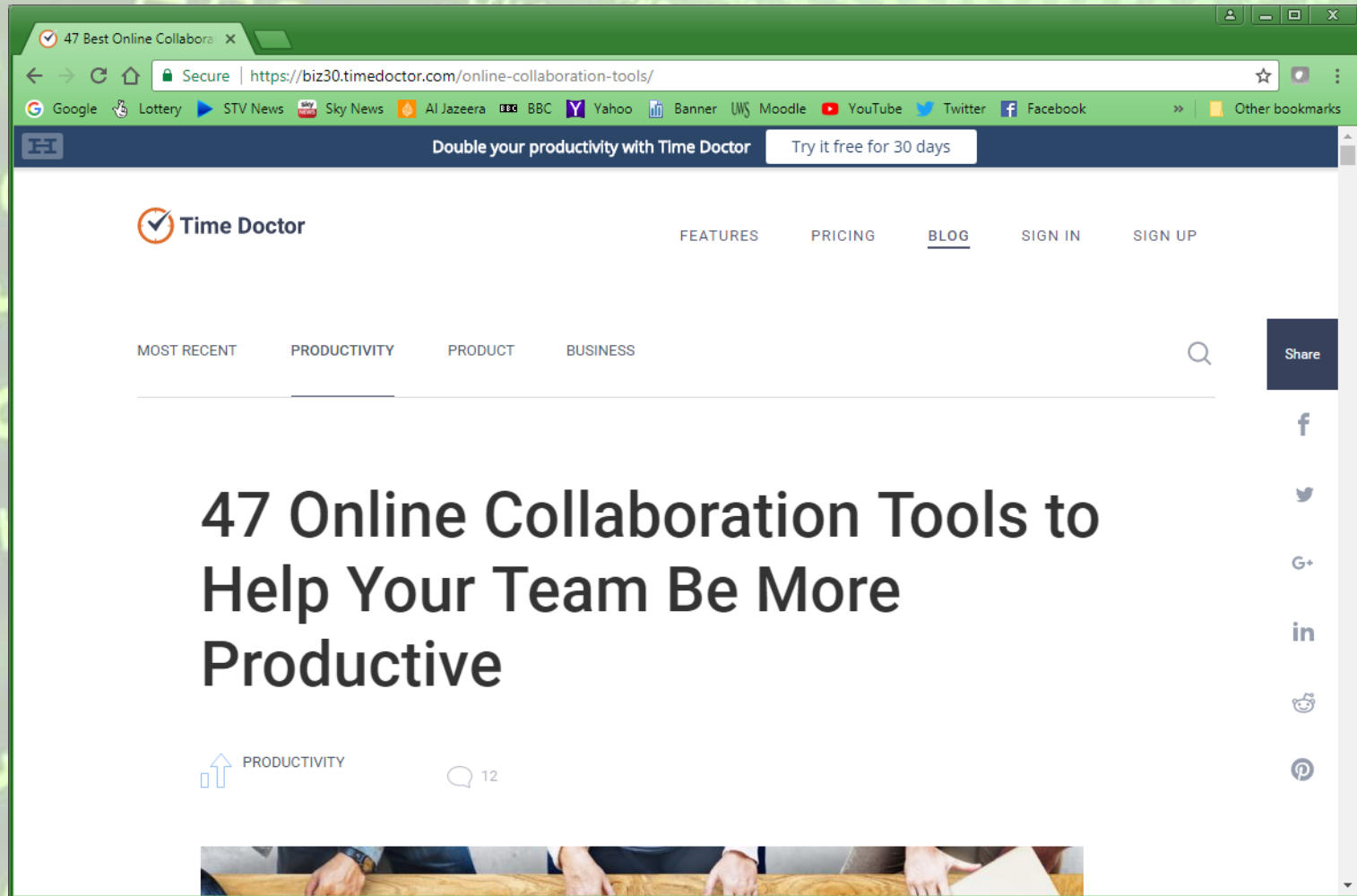
## CSCW

- Computer Supported Cooperative Working
- 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, services and techniques.

– [https://en.wikipedia.org/wiki/Computer-supported\\_cooperative\\_work](https://en.wikipedia.org/wiki/Computer-supported_cooperative_work)



# Collaborative Virtual Environments



# Collaborative Virtual Environments





# Collaborative Virtual Environments

The screenshot shows a web browser displaying a PCMag article. The article title is "The Best Online Collaboration Software of 2017" by Jill Duffy, dated 3 Aug 2017. The article includes a list of 18 collaboration tools and a comparison table with various features.

**Article Title:** The Best Online Collaboration Software of 2017

**Author:** Jill Duffy

**Date:** 3 Aug 2017

**Summary:** When teams have solid collaboration tools, they spend less time lost in email and more time getting real work done. These apps can help your employees be more productive.

**18 shares** (Facebook, Twitter, LinkedIn, Pinterest)

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Lowest Price	EC EDITORS' CHOICE	EC EDITORS' CHOICE	EC EDITORS' CHOICE	EC EDITORS' CHOICE						
Editors' Rating	✓	✓	✗	✓	✗	✗	✓	✓	✓	✓
Free Account Offered	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Android App	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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Got it!

# Collaborative Virtual Environments

## How do we use these tools in this course?

- What are the *processes* you'll be putting in place to support the project
- How will you be ensuring that these processes are working
- Regularly review: is your team working effectively, are *you* working effectively, if not then what is the problem?
- Lots of supporting material & technology available
  - make effective use of it



# Collaborative Virtual Environments

# Questions??