



**Turban, Aronson, and Liang
Decision Support Systems and Intelligent Systems,
Seventh Edition**

**Chapter 7
Collaborative Computing
Technologies: Group Support
Systems**





Learning Objectives

- Understand concepts and fundamentals of groupwork, communications, and collaboration.
- Examine how computer systems enhance communication and collaboration.
- Understand the principles and capabilities of GSS.
- Explore the concepts of time/place frameworks.
- Learn how GSS interplays with the concepts of process gain and loss, and task gain and loss.
- See how GSS utilizes parallelism and anonymity.
- Understand the fundamentals of electronic meetings.
- Examine GSS' three technologies.
- Learn how the Web enables GSS, electronic meetings, and collaborative computing.
- Explain how distance learning is enabled by GSS.
- Show how GSS enhances creativity.



Chrysler Scores with Groupware Vignette

- SCORE initiative
- Identified waste in supply chain
- Enhanced relationships
- Accessed through Internet or modem
- Enhanced communication and collaboration
- Used good project management principles



Groupwork

- Groupwork
 - Collaboration and communication
- Members can be located in different places and work at different times
- Information may be located external to the project
- Allows for rapid solutions
- May exhibit normal team problems of synergy or conflict
- Often Internet based
- Groupware tools support groupwork
- Work called computer-supported cooperative work
- Collaborative computing



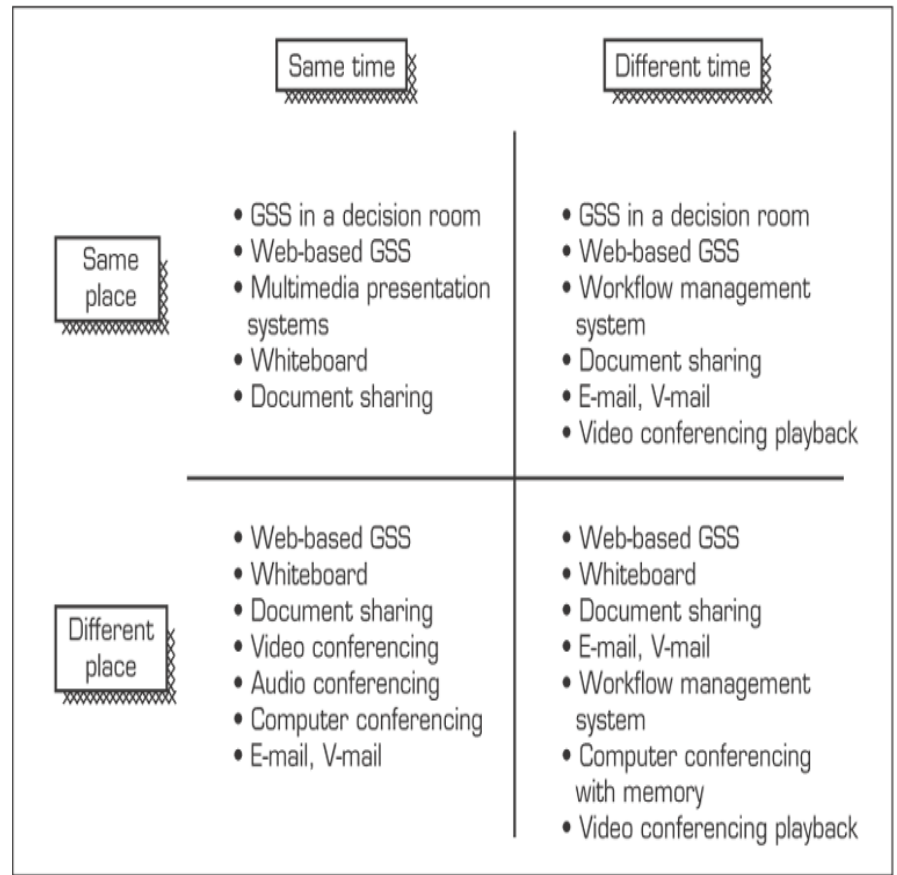
Communication Support

- No collaboration without communication
- Internet supplies fast, reliable, inexpensive support
- Groups need not only communication, but information and knowledge

Time/Place Communication Framework

- Effectiveness of collaborative group depends on
 - Time
 - synchronous or asynchronous transmission of information
 - Place
 - location of participants

Figure 7.1 Time/Place Communication Framework and Some Collaborative Computing Support Technologies





Groupware

- Software providing collaborative support to groups
- Different time/place applications
- Most use Internet technologies
- Most offer one or more capabilities
 - Electronic brainstorming
 - Free flow of ideas and comments
 - Electronic conferencing or videoconferencing
 - Group scheduling and calendars
 - Conflict resolution
 - Model building
 - Electronic document sharing
 - Voting services
- Electronic meeting services also available
- Enterprise-wide systems expensive in cost and human resources



Popular Groupware

- Lotus Notes/Domino
- Microsoft Netmeeting
- Groove Workspace
- GroupSystems MeetingRoom and OnLine
- WebEx



Benefits and Problems

- Benefits of groupwork
 - Process gains
 - Nominal group technique
 - Delphi method
 - Technology applied as GSS
 - Hardware and software combined to enhance groupwork
 - Collaborative computing
- Problems in groupwork
 - Process losses
 - inefficient

GSS

- Common group activities with computer assistance
 - Information retrieval
 - Information sharing
 - Parallelism
 - Anonymity
 - Information use
- Support participants
 - Improve productivity and effectiveness of meetings
 - More efficient decision-making
 - Increase effectiveness of decisions



GSS Technology Deployment

- Special purpose decision room
 - Electronic meeting rooms
 - Software operates across LAN
 - Allowed for face-to-face meetings
 - Trained facilitator coordinates meeting
 - Group leader structures meeting with facilitator
- Multiple use facility
 - General purpose computer lab
 - Effective way to lower costs
 - Trained facilitator coordinates meeting
 - Group leader structures meeting with facilitator
- Web-based groupware with clients
 - Anytime/anyplace meetings with deadlines established
 - Software bought or leased
 - No facility costs
 - Flexible

TABLE 7.1 Collaborative Computing/GSS and Web Impacts

<i>Collaborative Computing/GSS</i>	<i>Web Impacts</i>	<i>Impacts on the Web</i>
Collaboration	<p>Consistent, friendly, graphical user interface for client units</p> <p>Convenient, fast access to team members</p> <p>Improved collaboration tools</p> <p>Access to data/information/knowledge on servers</p> <p>Enables document sharing</p> <p>Enables anywhere/anytime collaboration</p> <p>Enables collaboration between companies, customers and vendors</p>	<p>Improvements in management, hardware, software, and infrastructure due mainly to collaboration in (Web-based) CASE and other systems analysis and design tools</p> <p>Improvements in site design and development methods</p> <p>Simultaneous Web surfing (e.g., Groove)</p>
Communication	<p>Improved, fast communication among group members and links to data/information/knowledge sources</p> <p>Makes audio and video conferencing a reality, especially for individuals not using a LAN</p>	Same as above
Decision Rooms	<p>Consistent, friendly, graphical user interface for clients</p> <p>Communication support</p> <p>Access to Web-based tools</p> <p>Room design teams can collaborate to provide dramatic improvements in facilities</p>	Same as above
Mixed-mode Facilities	Same as above	Same as above
Colocated Team Facilities (members in different locations)	Provides fast connections to enable real-time collaboration	Same as above



GSS Meeting Process

- Group leader meets with facilitator to plan meeting structure.
- Participants meet on computers.
- Group leader or facilitator poses question.
- Participants brainstorm by entering comments into computer.
- Facilitator employs idea organization software to sort comments into common themes.
- Results are displayed.
- Facilitator or group leader leads discussion.
- Themes are prioritized.
- Highest priority topics are either sent through the process again for further discussion or a vote is taken.



GSS Meeting Process

- Standard Process
 - Exploratory idea generation
 - Idea organization tool
 - Prioritization
 - New idea generation
 - Selection of final idea
- Success based upon effectiveness, reduction in costs, better decisions, increased productivity



GSS and Distance Education

- Classroom collaborative computing advantages
 - Brainstorming, chat, discussion boards
 - Distribution of information, lectures
 - Publishes to course site
 - Videoconferenced
 - Consistent materials
 - Textbooks can be bound or electronic
 - E-mails and listservs
 - One-on-one interaction
 - Allows for global classrooms
 - Anytime/anyplace with fixed deadlines
 - Flexible time frame
 - Doesn't interfere with work shift
 - Low delivery costs with large audiences

GSS and Distance Education, continued

- Disadvantages:
 - Fewer social interactions
 - Communication problems
 - Students must be self-starters and highly disciplined
 - Classes require major technical and administrative support
 - Technical infrastructure must be reliable
 - Courses may need to be redesigned for online
 - Special training
- Corporate training online:
 - Allows anytime/anyplace training
 - Lowers costs
 - Decreases time away from jobs
 - Shortens learning process
 - Delivered via Intranet, intranets, extranets, audio and video conferencing



Creativity Support System

- Creativity
 - Fundamental human trait
 - Level of achievement
 - Can be learned
- Organizations recognize value in innovation
- Stimulated by electronic brainstorming software
 - Free flow idea generation
- Creative computer programs
 - Smartbots function as facilitators
 - Identify analogies in letter patterns
 - Draw art
 - Write poems
- Computer programs stimulate human productivity