Chapter

3 Group Decision Support System & Groupware Technologies

1. Group Decision Support System (GDSS)

1. Group Decision Support System (GDSS) is a class of electronic meeting systems, a collaboration technology designed to support meetings and group work.
2. GDSS is distinct from computer supported cooperative work (CSCW) technologies as GDSS is more focused on task support, whereas CSCW tools provide general communication support.
3. Group Support System has come to mean computer software and hardware used to support group functions and processes.
4. CSCW is an acronym for Computer Supported Co-operative Work. It is the scientific discipline that motivates and validates groupware design. CSCW is technology independent which means technology is not the major driving force behind the discipline. Instead, CSCW is socially dependent. It looks at the way people interact and collaborate with each other and attempts to develop guidelines for developing technology to assist in the communication process.
5. Groupware is the hardware and software which supports and augments group work. Groupware applications are not meant to replace people in an interactive situation.

1.1 Need of GDSS

1. High level managers can spend 80% of their time making decisions in groups. Applied correctly, GDSS can reduce this time, arriving at a better decision faster.
2. GDSS provides the hardware, software, databases and procedures for effective decision making.

2. GDSS Time/Place Environment

Same Time Same Place	Same Time Different Place
Most widely used GDSS- computers with projectors, voting tools.	Team room, tools, audio conferencing, screen sharing & chat.
Different Time Same Place	**Different Time Different Place**
Audio/Video conferencing, document sharing.	voice mail, email, bulletin boards.

2.1 Model of GDSS

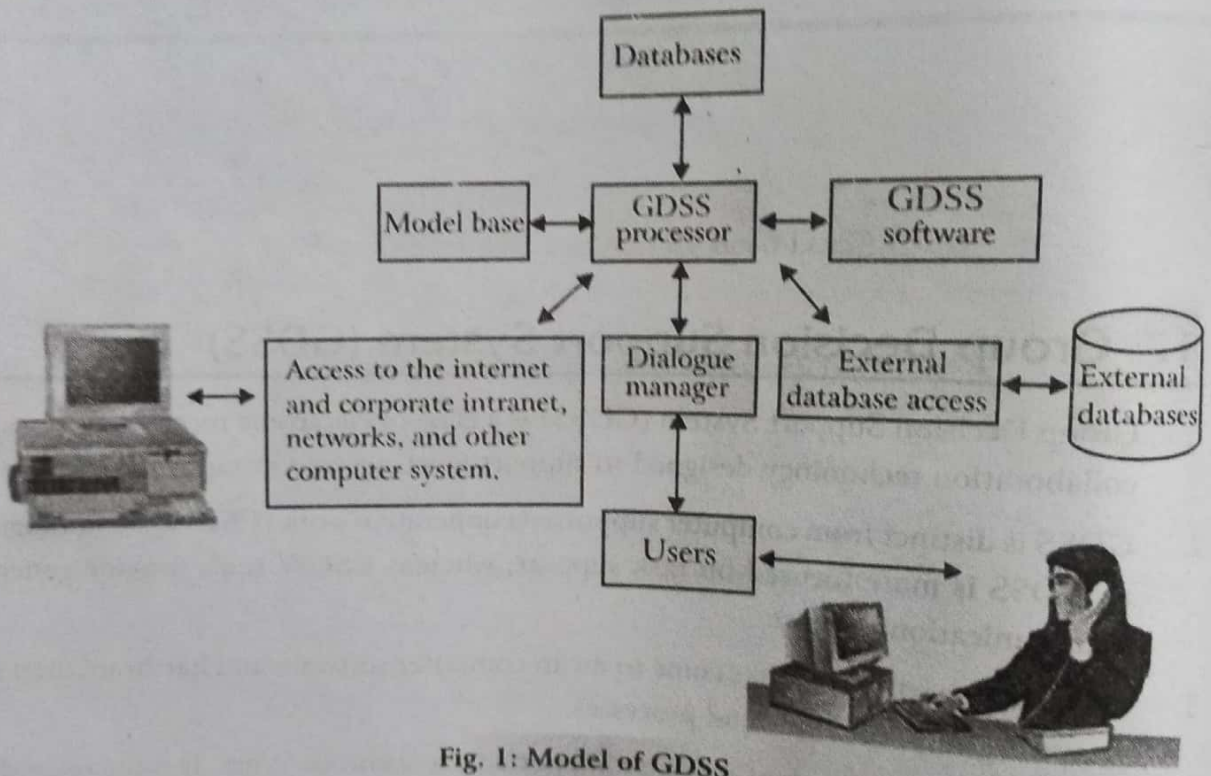

Fig. 1: Model of GDSS

2.2 Characteristics of a GDSS

1. Special design
2. Ease of use
3. Flexibility
4. Decision-making support
   (i) Delphi approach (decision makers are geographically dispersed)
   (ii) Brainstorming
   (iii) Group consensus
   (iv) Nominal group technique
5. Anonymous input
6. Reduction of negative group behaviour
7. Parallel communication

8. Automated record keeping
9. Cost, control, complexity factors

3. Components of Group Decision Support System (GDSS)

There are four fundamental types of components that compose GDSS:

1. **Hardware:** It includes electronic hardware like computer, equipment used for networking, electronic display boards and audio visual equipment. It also includes the conference facility, including the physical setup – the room, the tables and the chairs–laid out in such a manner that they can support group discussion and teamwork.

   The hardware part may consist of the following components: I/O devices, PCs or workstations, individual monitors for each participant or a public screen for group and a network to link participants to each other.

2. **Software tools:** It includes various tools and techniques, such as electronic questionnaires, electronic brainstorming tools, idea organizers, tools for setting priority, policy formation tool, etc. The use of these software tools in a group meeting helps the group decision makers to plan, organize ideas, gather information, establish priorities, take decisions and to document the meeting proceedings. As a result, meetings become more productive.

   The software part may consist of the following components: Databases and database management capabilities, user/system interface with multi-user access, specific applications to facilitate group decision-makers activities, and modeling capabilities.

3. **People:** It compromises the members participating in the meeting, a trained facilitator who helps with the proceedings of the meeting, and an expert staff to support the hardware and software. The GDSS components together provide a favorable environment for carrying out group meetings.

   The people may include decision-making participants and/or facilitator. A facilitator is a person who directs the group through the planning process.

4. **Procedures:** This refers to the methods that have been used in holding meetings.

4. Features of Group Decision Support System (GDSS)

1. **Easy of use:** It consists of an interactive interface that makes working with GDSS simple and easy.
2. **Better decision making:** It provides the conference room setting and various software tools that facilitate users at different locations to make decisions as a group resulting in better decisions.
3. **Emphasis on semi-structured and unstructured decisions:** It provides important information that assists middle and higher level management in making semi-structured and unstructured decisions.

4. **Specific and general support:** The facilitator controls the different phases of the group decision support system meeting (idea generation, discussion, voting and vote counting etc.) what is displayed on the central screen and the type of ranking and voting that takes place, etc. In addition, the facilitator also provides general support to the group and helps them to use the system.
5. **Supports all phases of the decision making:** It can support all the four phases of decision making, viz intelligence, design, choice and implementation.
6. **Supports positive group behavior:** In a group meeting, as participants can share their ideas more openly without the fear of being criticized, they display more positive group behavior towards the subject matter of the meeting.

5. Group Decision Support System (GDSS) Software Tools

Group decision support system software tools helps the decision makers in organizing their ideas, gathering required information and setting and ranking priorities. Some of these tools are as follows:

1. **Electronic questionnaire:** The information generated using the questionnaires helps the organizers of the meeting to identify the issues that need immediate attention, thereby enabling the organizers to create a meeting plan in advance.
2. **Electronic brainstorming tools:** It allows the participants to simultaneously contribute their ideas on the subject matter of the meeting. As identity of each participant remains secret, individuals participate in the meeting without the fear of criticism.
3. **Idea organizer:** It helps in bringing together, evaluating and categorizing the ideas that are produced during the brainstorming activity.
4. **Tools for setting priority:** It includes a collection of techniques, such as simple voting, ranking in order and some weighted techniques that are used for voting and setting priorities in a group meeting.
5. **Policy formation tool:** It provides necessary support for converting the wordings of policy statements into an agreement.

5.1 Advantages of GDSS

1. **Anonymity:** Drive out fear leading to better decisions from a diverse hierarchy of decision makers.
2. **Parallel communication:** Eliminate monopolizing providing increased participation, better decisions.
3. **Automated record keeping:** No need to take notes, they're automatically recorded.
4. **Ability for virtual meetings:** Only need hardware, software and people connected.
5. **Portability:** Can be set up to be portable laptop.
6. **Global potential:** People can be connected across the world.
7. **No need for a computer guru:** Although some basic experience is must.

5.2 Disadvantages of GDSS

1. **Cost:** Infrastructure costs to provide the hardware and software/room/network connectivity can be very expensive.
2. **Security:** Especially true when companies rent the facilities for GDSS; also, the facilitator may be a lower-level employee who may leak information to peers.
3. **Technical failure:** Power loss, loss of connectivity, relies heavily on bandwidth and LAN/WAN infrastructure – properly setup system should minimize this risk.
4. **Keyboarding skills:** Reduced participation may result due to frustration.
5. **Training:** Learning curve is present for users, varies by situation.
6. **Perception of messages:** Lack of verbal communication could lead to misinterpretation.