

## Group Decision Support Systems and Executive Support Systems

### Introduction to GDSS

Many business decisions involve a group of people. While a person might be responsible for the final decision, meetings can be used to enable everyone to have a say, analyze the potential effects on each area, and persuade others to accept an agreed decision. There is a problem, though: decisions that involve groups of people have additional complications. Someone has to organize and control the meeting. During the meeting, people may compete to make comments and get their options heard. Someone has to take notes of the meeting and votes have to be counted.

Information systems can help with situations involving group decisions; tools can be used to share data and documents, message systems can be used to share comments and early drafts of work, and bulletin boards can be used to let everyone express opinions and evaluations. In the late 1980's, an additional tool known as a **Group Decision Support System (GDSS)** was defined.

### What is a Group Decision Support System (GDSS)?

It is a type of decision support system that helps organization managers and executives reach a consensus during events that require their collective opinions and proposals. Through its tools, communication, collaboration, and decision-making involving large numbers of managers and/or executives become efficient and cost-effective.

### Why Use GDSS?

A GDSS accomplishes a number of goals, which in turn allow the system to aid a group of decision-makers to make effective and efficient decisions:

- **Group Problem Mitigation**
  - Reduces pressures of conformity that may result in “groupthink” (consensus due to peer/group/member pressure).
  - Streamlines coordination, representation and planning of collaboration meetings.
  - Optimizes group dynamics by allotting appropriate responsibilities to each collaborator.
  - Reduces the probability of the group making decisions of poor quality or high risk.
- **Maximization of Group Effectiveness and Efficiency**
  - Allows group to better understand problems and eliminate errors.
  - Allows members to utilize information and/or knowledge based on their areas of expertise.
  - Streamlines group work, which in turn eliminates resistance and allows better decision consensus.
  - Collaborators have accountability for decisions, which in turn instills responsibility in their vote.
- **Support of Multiple Collaboration Processes**
  - Provides access to rules that will aid in arriving to decisions.
  - Utilizes tools and subsystems to generate useful ideas and alternatives.
  - Reduces costs for decision-making collaborations for groups.

### Elements of a GDSS

A GDSS can utilize a number of elements for its subsystems and tools to aid decision-making groups in their tasks:

- **Pre-Planning** – This element addresses the agendas of a decision-making meeting. This element handles the topics of the agenda, the end goal of collaboration (whether it is a decision, or further plans of collaboration if consensus has not been reached), and possible future agendas.
- **Collaboration Facilitation** – This element ensures that ideas and communications are free-flowing, without interruptions or hindrances.
- **Evaluation Objectivity** – This element provides equal opportunity for collaborators by eliminating “office politics”: the practice of dismissing ideas based on the person who presented them.
- **Documentation** – This element takes care of logging information from the collaboration, such as meeting minutes and resulting decisions made by the group. This in turn allows geographically challenged members to know what took place.

### GDSS Limitations

As with most systems, a GDSS also has its own share of limitations:

- **Digitized Input is Required** – Unlike traditional meetings, where ideas, comments and criticisms can be conveyed by oral discussion, a GDSS may require different types of digitized input, such as typed input, graphic presentations, or digital spreadsheets. This may inhibit some managers who prefer more traditional methods of collaboration.
- **Moderation is Limited** – A GDSS's capabilities become liabilities when multiple discussions about a decision take place. Since the system requires digitized input, people capable of using the GDSS effectively may have the upper hand in any collaboration or discussion.
- **Maintenance Costs may be High** – Despite the system reducing costs, the cost of maintaining a high-end facility that can utilize the GDSS for group collaboration may erase such benefits. Implementations may have to be justified by having the facility and the system be regularly used, though an option of leasing such a facility to academic institutions and other companies may also generate minor revenue in this regard.
- **The GDSS may Require a Facilitator** – Some GDSS may be complicated, which means a facilitator who can lead collaborations, help users and control the system within the network may be needed. This opens up a few complications, such as whether to train such a person from the existing employee pool, or hire someone on a project-based basis, which may not be favorable.

## Characteristics and Tools of a GDSS

Any computer system can be classified as having three (3) primary characteristics: **hardware**, **software**, and **persware**. Simply put, hardware is the physical aspect of the system, the software the program/digital aspect, and the persware (also called **peopleware**) the users. This trifecta of characteristics ensures that the system does not lack any important aspects that allows it to function as intended, as the system cannot function if any of the three (3) characteristics is removed.

### GDSS Characteristics

A GDSS redefines the trifecta of information systems by changing some aspect of each characteristic:

- **Hardware** – The hardware characteristic handles broader technologies now: it includes not just computers and other equipment, but also the conference facilities, audiovisual equipment, and networking equipment that will connect each collaborator to the group.
- **Persware/Peopleware** – This characteristic now involves not just the actual collaborators, but also the facilitators of the group collaboration, such as meeting planners and hardware operator staff.
- **Software** – This characteristic, in turn, not just involves the use of specialized tools and traditional programs, such as operating systems; it now involves reworked tools that have additional capabilities and network connectivity that allow more people to be involved in decision-making collaborations.

### GDSS Software Tools

Many of the previously discussed and mentioned software tools can be used as part of a GDSS:

- **Questionnaire Tools** – This allows questioning, data-gathering and investigation for planning and collaboration. Certain information systems and standalone platforms offer customizable, digital versions of this tool.
- **Electronic Brainstorming** – This tool facilitates creations of proposals, ideas, and solutions that will help in making decisions. Features may allow the elimination of office politics interfering with the decision-making process by making submitted proposals, decisions, votes and/or opinions anonymous.
- **Stakeholder Identification** – This tool determines the impact of the group's decision. It may also have the capability to weigh each collaborator's vote on a decision before finalizing it.
- **Group Dictionaries** – This allows the system to reduce a particular problem or concern into distinct interpretations. These interpretations then allow decision-makers to make proper decisions.

## Role of Executive Support Systems

### What is an Executive Support System (ESS)?

The executive support system (ESS) is a type of support system tailored specifically for executive use. The need for the system arises due to the fact that DSS implementations are specific to select personnel and/or departments, meaning that executives will have little use for them.

To address the need for a separate information system for executives and senior management officials, the ESS was created

to supply the necessary tools for high-level decision making. These tools facilitate predictions, summarize information, and provide further acquisition of data. Data is mostly external in nature, since most executive decisions are made in the context of the world outside the organization. This means that an ESS must be flexible and easy to manipulate in order to accommodate different problems and situations.

### The Role of ESS

An ESS can have varying roles, depending which particular role it plays for an executive-level decision:

- **Information Filtering** – An ESS can sift through vast volumes of information. This allows an executive or senior manager to narrow down the details surrounding a decision without the irrelevant data. This benefit, in turn, allows the executive to avoid being overwhelmed by information and pinpoint possible alternatives.
- **Data Linking** – An ESS is able to link data from various sources, both internal and external, in order to provide the amount and kind of information that executives find useful. Since an ESS's tools provide an easy way to manipulate and filter information, additional capabilities such as Internet connectivity can be incorporated to add more flexibility to the system.
- **Executive Role Support** – An ESS can support the three (3) basic roles of an executive: **interpersonal roles** (leader, liaison, etc.), **informational roles** (spokesperson, monitor, announcer, etc.), and **decisional roles** (negotiator, entrepreneur, etc.).

### Benefits of ESS

An ESS offers various advantages for executives, depending on applications of the system:

- **Simplicity** – An ESS is considered an oversimplified information system due to the fact that it does not need in-depth computer experience to use. Executives can easily navigate and use the system without the complications involving specific functions and tools.
- **Information Processing** – An ESS can facilitate the timely delivery of data through better filtering, tracking and processing in the shortest amount of time, which in turn produces relevant information for a senior manager for quick, efficient decision-making.
- **Flexibility** – An ESS can be advantageous to organizations that have fewer layers of management, as it can be integrated into other information systems and subsystems through emerging new technologies.

### Disadvantages of Using ESS

As with most systems, usage of an ESS may be subject to certain risks:

- **Computer Skill Requirement** – Usage of an ESS assumes that executives and senior managers know how to operate computers.
- **Long Processing Time** – Depending on the volume of information, analysis and processing of data to get the desired information may take a considerable amount of time.
- **Limitations on Summarized Information** – Information derived from specific data may be insufficient for executives to base a decision on, requiring them to derive data from other systems (such as DSS) to get specific data.
- **Difficulty in Quantifying Benefits** – Since a decision processed by an ESS is based on summarized information, it may be hard for an executive to justify the said decision if specific details regarding the decision are queried.
- **Difficulty in Maintaining Database Integrity** – Since an ESS derives on large volumes of data, some of them external, the data inside the database may not produce accurate or correct results, which may further complicate the processing of information.

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