

## MANAGEMENT INFORMATION SYSTEM

# DECISION SUPPORT SYSTEM (DSS)

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## Decision Support Systems

- A computer-based information system designed to help knowledge workers select one of many alternative solutions to a problem.

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## DSS

- Interactive software-based systems intended to help managers in decision-making by accessing large volumes of information generated from various related information systems involved in organizational business processes such as office automation system, transaction processing system, etc.

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## Why DSS?

- DSS uses the summary information, patterns, and trends using the analytical models.
- A decision support system helps in decision-making but does not necessarily give a decision itself. The decision makers compile useful information from raw data, documents, personal knowledge, and/or business models to identify and solve problems and make decisions.

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## There are two types of decisions:

1. Programmed
2. Non-programmed decisions

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## Programmed decisions

- These are basically automated processes, general routine work, where:
  1. These decisions have been taken several times.
  2. These decisions follow some guidelines or rules.
- For example, selecting a reorder level for inventories, is a programmed decision.

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### Non-programmed decisions

- These take place in unusual and non-addressed situations, so:
  1. It would be a new decision.
  2. There will not be any rules to follow.
  3. These decisions are made based on the available information.
  4. These decisions are based on the manager's discretion, instinct, perception and judgment.
- For example, investing in a new technology is a non-programmed decision.

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- DSS generally involve non-programmed decisions. Therefore, there will be no exact report, content, or format for these systems. Reports are generated on the fly.

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### The Decision-Making Process

- Decision making is a three-phase process:
  - **Intelligence phase:** collect facts, beliefs, and ideas
  - **Design phase:** design the method for considering the collected data, to reduce the alternatives to a manageable number
  - **Choice phase:** select an alternative from the remaining choices

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### Characteristics of a DSS

1. Support for decision-makers in semi-structured and unstructured problems.
2. Support for managers at various managerial levels, ranging from top executive to line managers.
3. Support for interdependent or sequential decisions.
4. Support for variety of decision processes and styles.
5. DSSs are adaptive over time.

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### Benefits of DSS

1. Help increase market share
2. Help reduce costs
3. Help increase profitability
4. Help enhance product quality

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### Components of a DSS

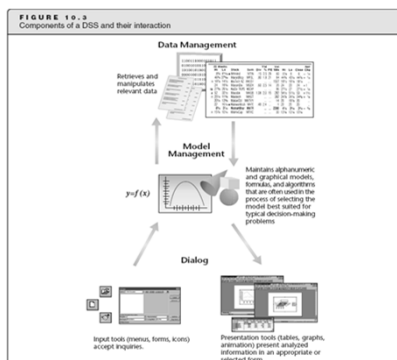
1. **Database Management System (DBMS)**
2. **Model Management System**
3. **Dialog and Support Tools**

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## Database Management System (DBMS)

- To solve a problem, the necessary data may come from internal or external database. In an organization, internal data are generated by a system such as TPS and MIS. External data come from a variety of sources such as newspapers, online data services, databases (financial, marketing, human resources).

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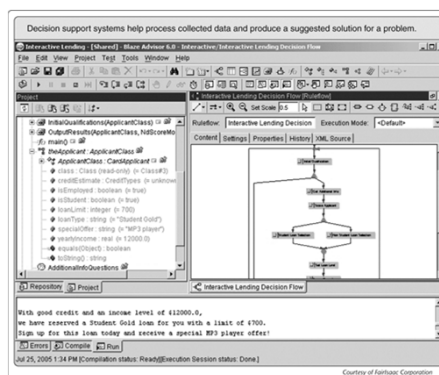


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## Model Management System

- It stores and accesses models that managers use to make decisions. Such models are used for designing manufacturing facility, analyzing the financial health of an organization, forecasting demand of a product or service, etc.

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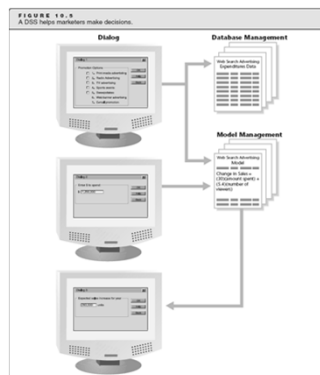
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## Support Tools

Support tools like:

- online help;
- pulls down menus,
- user interfaces,
- graphical analysis,
- error correction mechanism,
- facilitates the user interactions with the system.

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## Classification of DSS

1. **Text Oriented DSS:** It contains textually represented information that could have a bearing on decision. It allows documents to be electronically created, revised and viewed as needed.
2. **Database Oriented DSS:** Database plays a major role. It contains organized and highly structured data.
3. **Spreadsheet Oriented DSS:** It contains information in spread sheets that allows create, view, modify procedural knowledge and also instructs the system to execute self-contained instructions. The most popular tool is Excel and Lotus 1-2-3.

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## Classification...

4. **Solver Oriented DSS:** It is based on a solver, which is an algorithm or procedure written for performing certain calculations and particular program type.
5. **Rules Oriented DSS:** It follows certain procedures adopted as rules. Expert system is the example.
6. **Compound DSS:** It is built by using two or more of the five structures explained above.

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## Types of DSS

1. **Status Inquiry System:** It helps in taking operational, management level, or middle level management decisions.

For example daily schedules of jobs to machines or machines to operators.

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## Types of DSS

2. **Data Analysis System:** It needs comparative analysis and makes use of formula or an algorithm.

Examples:

cash flow analysis

inventory analysis

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## Types of DSS

3. **Information Analysis System:** In this system data is analyzed and the information report is generated.

Examples:

sales analysis,

accounts receivable systems,

market analysis

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## Types of DSS...

4. **Accounting System:** It keeps track of accounting and finance related information.

Examples:

final account,

accounts receivables,

accounts payables

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## Types of DSS...

- 5. Model Based System:** Simulation models or optimization models used for decision-making are used infrequently and creates general guidelines for operation or management.

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## DSS in Action

- DSSs can be used on demand or integrated into a scheme that enforces corporate policy
- DSSs help maintain standard criteria in decision making throughout the organization
- Automated decision production is becoming very popular
  - The only labor required is for data entry

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## DSS in Action (continued)

- DSSs are used in many industries:
  - Food production and retailing: to forecast the number of patrons, the amount of ingredients to purchase, etc.
  - Agriculture: allows farmers to make decisions about how to control specific pests, and for picking farm locations
  - Tax planning: tax helper applications such as TurboTax and TaxCut

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## DSS in Action (continued)

- DSSs are used in many industries (continued):
  - Web site planning and adjustment: to analyze shopper behavior, and to design Web sites based on page usage
  - Yield management: to maximize revenue from airline trips or lodging
  - Financial services: to determine loan amounts, and to qualify customers based on credit history
  - Benefits selection: to allow employees to make decisions about their benefits

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## DSS in Action (continued)



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## DSS in Action (continued)

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**FIN!**



**Thank you!!!**

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