MIS

CHAPTER 12

MANAGEMENT SUPPORT SYSTEMS

Fire your Customer

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IDEO

What do Managers Do?

▸ They make decisions

▸ Better decisions = better managers

▸ The amount of information people must understand to make decisions, solve problems, and find opportunities is growing exponentially

Types of Decisions in an Organization

- **Structured decisions**
  - Well-defined standard operating procedure exists
  - Also called programmable tasks
  - Can be automated
- **Semistructured decisions**
  - Not as well-defined by standard operating procedures
  - Include a structured aspect that benefits from information retrieval, analytical models, and information systems technology

Types of Decisions in an Organization (cont'd.)

‣ **Unstructured decisions**
  ◦ Unique; typically one-time decisions
  ◦ Does not rely on standard operating procedure
  ◦ Decision maker's intuition plays the most important role
  ◦ Information technology offers little support for these decisions

‣ **Management support systems (MSSs)**
  ◦ Different types of information systems have been developed to support certain aspects and types of decisions

Types of decisions

- Structured
  - How many workers to staff line A
  - What is the EOQ for raw material Z
  - How many turbines to power Lethbridge?

- Unstructured
  - What are the benefits of merging with XYZ
  - How will consumer react if we lower the price by 10%
  - What are the benefits of MacDonald's opening up Hotels

Phases of the Decision-Making Process

- Herbert Simon
  - Winner of the 1978 Nobel Prize in economics
  - Defines three phases in the decision-making process:
    - intelligence,
    - design,
    - choice
  - Fourth phase, implementation, can be added

The Intelligence Phase

▸ Decision maker examines the organization's environment for conditions that need decisions

▸ Data is collected from a variety of sources and processed

▸ Decision maker can discover ways to approach the problem
  ◦ Ex Faculty enrollment has declined for two consecutive years

The Design Phase

- Objective
  - Define criteria for the decision
  - Generate alternatives for meeting the criteria
  - Define associations between the criteria and the alternatives
- Defining associations between alternatives and criteria involves understanding how each alternative affects the criteria
- Information technology doesn't support this phase of decision making much

U of L faculty of Management

▸ **Problem** (intelligence) – **How to cut $12 milliion or 7% from budget**

▸ **Criteria or objectives** (design)
  - ▸ 1
  - ▸ 2

▸ **Alternatives** (design)
  - ▸ 1 raise tuitiion
  - ▸ 2 fees
  - ▸ 3 cut wages
  - ▸ 4 fund raise
  - ▸ 5 increase classes

The Choice Phase

- Best and most effective course of action is chosen
- Analyze each alternative and its relationship
- Decision support system (DSS) can be particularly useful in this phase

The Implementation Phase

▸ Organization devises a plan for carrying out the alternative selected in the choice phase
▸ Obtains the resources to implement the plan
▸ DSS can do a follow-up assessment on how well a solution is performing

Decision Support Systems

- Decision support system (DSS)
  - Interactive information system
  - Consisting of hardware, software, data, and models (mathematical and statistical)
  - Designed to assist decision makers in an organization

Decision Support Systems (cont'd.)

▸ Requirements:
  ◦ Be interactive
  ◦ Incorporate the human element as well as hardware and software
  ◦ Use both internal and external data
  ◦ Include mathematical and statistical models
  ◦ Support decision makers at all organizational levels
  ◦ Emphasize semistructured and unstructured tasks

DSS Capabilities

- ▶ What-if analysis
  - ◦ " If the advertising budget increases by 2 percent, what's the effect on total sales?"
- ▶ Goal-seeking
  - ◦ how much to advertise a product to increase total sales to $ 50,000,000.
- ▶ Sensitivity analysis
  - ◦ how much the interest rate has to go down for you to be able to afford a $ 100,000 house with a monthly payment of $ 700.
- ▶ Exception reporting analysis
  - ◦ such as pinpointing the region that generated the highest total sales
- ▶ More capabilities, such as:
  - ◦ Graphical analysis, forecasting, simulation, statistical analysis, and modeling analysis

Costs and Benefits of Decision Support Systems

▸ Benefits of a DSS:
- ◦ Increase in the number of alternatives examined
- ◦ Fast response to unexpected situations
- ◦ Ability to make one-of-a-kind decisions
- ◦ Cost savings
- ◦ Better decisions
- ◦ More effective teamwork
- ◦ Time savings
- ◦ Making better use of data resources

Executive Information Systems

▸ Interactive information systems that give executives easy access to internal and external data
▸ Typically include:
  ◦ "Drill-down" features
  ◦ Digital dashboard
▸ Ease of use
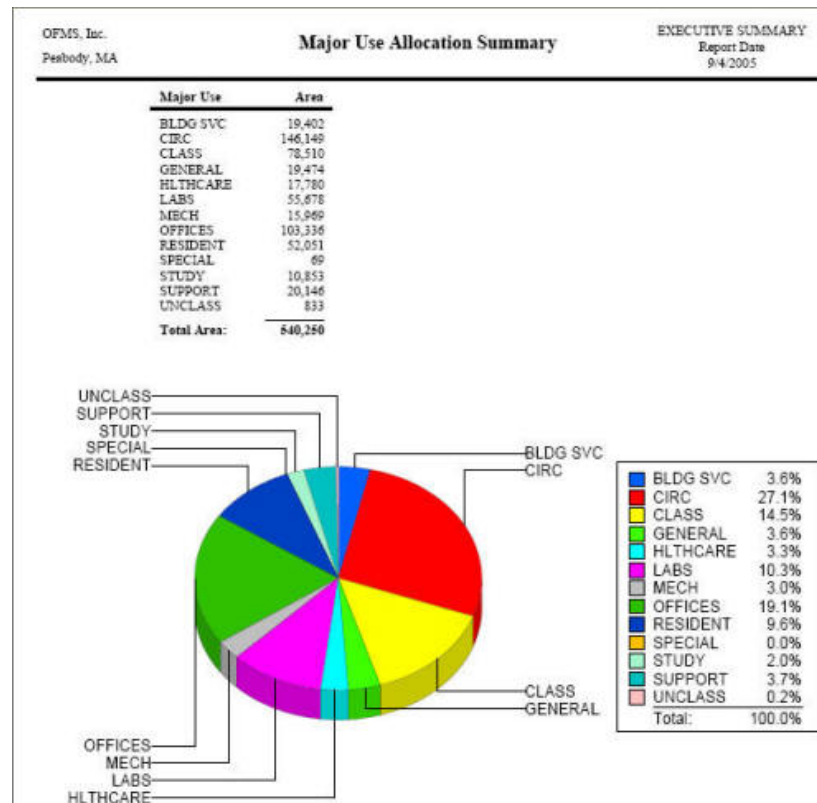 ◦ EIS designers should focus on simplicity when developing a user interface

Executive Information Systems (cont'd.)

- Require access to both internal and external data
  - So that executives can spot trends, make forecasts, and conduct different types of analyses
- Should also collect data related to an organization's "critical success factors"

Reasons for Using EISs

- EIS increases managers' productivity
- EIS can convert information into other formats
- EIS can spot trends and report exceptions

Group Support Systems (cont'd.)

- Assist groups in:
  - Communicating, collaborating, and coordinating their activities

- Intended more for teamwork than for decision support

- Use computer and communication technologies to formulate, process, and implement a decision-making task

- Useful for:
  - Committees
  - Review panels
  - Board meetings
  - Task forces
  - Decision-making sessions that require input from several decision makers

Groupware (cont'd.)

▸ Some capabilities of groupware include:
- ◦ Audio and video conferencing
- ◦ Automated appointment books
- ◦ Brainstorming
- ◦ Database access
- ◦ E-mail
- ◦ Online chat
- ◦ Scheduling
- ◦ To-do lists
- ◦ Workflow automation

Advantages and Disadvantages of GSSs

- Advantages:
  - Costs as well as stress are reduced due to decreased travel
  - More time to talk with each other and solve problems
  - Shyness isn't as much of an issue in GSS sessions
  - Increasing collaboration improves the effectiveness of decision makers

Advantages and Disadvantages of GSSs (cont'd.)

- Disadvantages:
  - Lack of the human touch
  - Unnecessary meetings
  - Security problems
  - Costs of GSS implementation are high

Geographic Information Systems

▶ Captures, stores, processes, and displays geographic information

▶ Uses spatial and nonspatial data

▶ Common example of a GIS:
   ◦ Getting driving directions from Google Maps
   ◦ User–friendly interface that helps you visualize the route
   ◦ After you make a decision, you can print driving directions and a map

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Summary

- Different types of decisions
- Phases of decision making in a typical organization
- DSS:
  - Components, capabilities, key players, and costs and benefits
- Executive information systems
- Group support systems
- Geographic information systems