An Overview of Management Information Systems

➢Management information system (MIS)
  ➢Integrated collection of people, procedures, databases, and devices
  ➢Provides managers and decision makers with information to help achieve organizational goals
  ➢Can give the organization a competitive advantage

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An Overview of MIS

➢Providing the right information to the right people in the right format and at the right time
➢Provides managers with information that supports effective decision making and provides feedback on daily operations

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Inputs to MIS

➢Internal data sources
  ➢TPSs and ERP systems and related databases
  ➢Data warehouses and data marts
  ➢Specific functional areas throughout the firm

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Inputs to MIS

➢External data sources
  ➢Customers, suppliers, competitors, and stakeholders whose data is not already captured by the TPS
  ➢Internet
  ➢Extranets

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Outputs of MIS

➢**Scheduled report**
  ➢Produced periodically: daily, weekly, or monthly
  ➢**Key-indicator report**
  ➢At beginning of workday, for quick, corrective action
  ➢Summary of previous day's critical activities: sales, inventory…

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Outputs of MIS

➢**Demand report**
  ➢Developed to give certain info at someone's request
  ➢e.g. FedEx' site allows customers to track packages
➢**Exception report**
  ➢Automatically produced when a situation is unusual or requires management action

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Outputs of MIS

➤ **Drill-down reports** (e.g. company to dept to salesrep)
  ➤ Provide increasingly detailed data about a situation

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System Applications in the Organization

- There are different interests, specialties, and levels in an organization, there are different kinds of systems.
- No single system can provide all of the information an organization needs.
- Systems are built to serve these different organizational interests.

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Different Kinds of Systems

- Four main types of information system serve different organizational levels:
- **1. Operational-level systems**
  - support operational managers by keeping track of the elementary activities and transactions of the organization, such as sales, receipts, cash deposits, payroll, credit decisions, and the flow of materials in a factory.

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Different Kinds of Systems

- **2. knowledge-level systems**
  - support the organization's knowledge and data workers.
  - The purpose of knowledge-level systems is to help the business firm integrate new knowledge into the business and to help the organization control the flow of paperwork.

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Different Kinds of Systems

- **3. Management-level systems**
  - serve the information systems that support the monitoring, controlling, decision-making, and administrative activities of middle managers.

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Different Kinds of Systems

- **4. Strategic-level systems**
  - help senior management tackle and address strategic issues and long-term trend,
  - both in the firm and in the external environment.
  - Information systems also serve the major business functions, such as sales and marketing, manufacturing, finance, accounting, and human resources.

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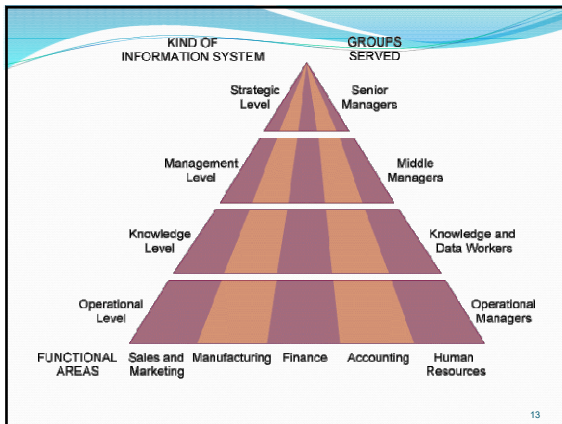
Systems From a Functional Perspective

- Information systems can be classified by the specific organizational function they serve
- as well as by organizational level.

Major Types of Systems

- **1. Transaction Processing Systems**
  Transaction Processing Systems (TPS) are the basic business systems that serve the operational level of the organization.
- A transaction processing system is a computerized system that performs and records the daily routine transactions necessary to conduct the business.

Major Types of Systems

- **2. Knowledge Work and Office Systems**
  - Knowledge Work System (KWS) and office systems serve the information needs at the knowledge level of the organization.
  - **Knowledge workers** are people who hold formal university degree and who are often members of a recognized profession, such as engineers, doctors, lawyers, and scientists.
  - **Data workers** typically have less formal, advanced educational degrees and tend to process rather than create information.

Major Types of Systems

- **3. Management Information Systems**
  - The term management information systems (MIS) also designates a specific category of information systems serving management-level functions.
  - MIS refers to information systems at the management level of an organization that serve the functions of planning, controlling, and decision making by providing routine summary and exception reports.

Major Types of Systems

- **4. Decision-Support Systems**
  - Decision-Support Systems (DSS) also serve the management level of the organization.
  - DSS help managers make decisions that are unique, rapidly changing, not easily specified in advance.
  - They address problems where the procedure for arriving at a solution may not be fully predefined in advance.

DSS

- **Decision support system (DSS)**
  - Organized collection of people, procedures, software, databases, and devices used to help make decisions that solve problems
- Focus of a DSS is on decision-making effectiveness regarding unstructured or semistructured business problems
- Used by managers at all levels

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Problems

Structured   Semistructured   Unstructured

- Structured
  - Routine problems with known solution and info
    - e.g. Which customers did not pay?
  - Management level involved _____

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Problems

- Semistructured
  - Less routine problems
  - Involves subjective judgment; info may not be available
    - e.g. Which products should we sell?
  - Management level involved _____

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Problems

- Unstructured
  - Requires human intuition for decisions; info is missing
    - Decrease cold weather inventories due to global warming?
  - Management level involved _____

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Example Characteristics of a DSS

- **What-if analysis**
  - Manipulate input for desired output
  - Making hypothetical changes to problem data and observing impact on results
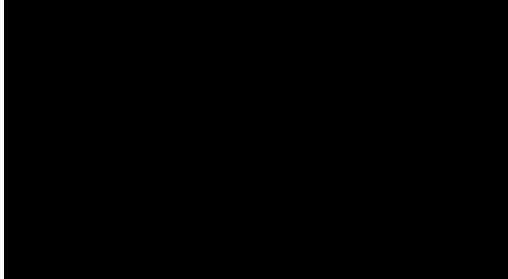
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Example Characteristics of a DSS

- **Goal-seeking analysis**
  - Manipulate output for desired input
  - Determining problem data required for a given result

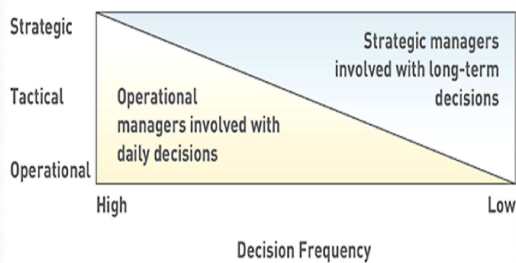24

Goal seeking analysis in Microsoft Excel

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Example Characteristics of a DSS

- **Simulation**
  - Ability to duplicate features of a real system
  - War games; different marketing decisions under various market conditions; drug testing in simulated trials

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Capabilities of a DSS span all levels of management

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5. Group Support Systems

- **Group support system (GSS)**
  - Consists of most elements in a DSS, plus software to provide effective support in group decision making
 - Also called group decision support system **(GDSS)** or computerized collaborative work system

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GSS Software

- Often called groupware or workgroup software
- Helps with joint work group scheduling, communication, and management
- Examples
  - Windows Meeting Space (in Vista)
  - MS SharePoint Workspace 2010
  - MS Office Live Meeting
  - Lotus Domino (previously Notes) from IBM

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## MS Office Live Meeting - demo
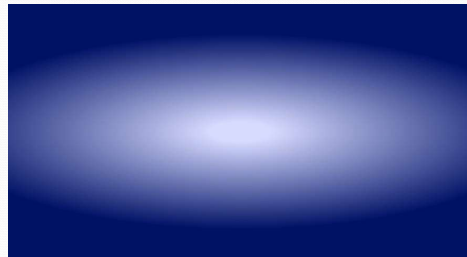
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Major Types of Systems

- **6. Executive Support Systems**
  - Senior managers use executive support systems (ESS) to make decisions.
  - ESS serves the strategic level of the organization.
  - ESS are design to incorporate data about external events such as new tax laws or competitors, but they also draw summarized information from internal MIS and DSS.

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Executive Support Systems
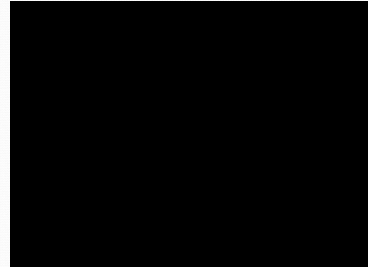
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Examples of specific systems

- **Sales and Marketing Systems**
  - The sale and marketing function is responsible for selling the organization's products or services.
  - Marketing is concerned with identifying the customers for the firm's products or services, determine what they need or want, planning and developing products and services to meet their needs, and advertising and promoting these products and services.

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Examples of systems

- **Manufacturing and Production Systems**
  - The manufacturing and production function is responsible for actually producing the firm's goods and services.
  - Manufacturing and production activities deal with the planning, development, and maintenance of production facilities; the establishment of production goals;
  - the acquisition, storage, and availability of production materials; and the scheduling of equipment, facilities, materials, and labour required to fashion finished products.

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Examples of systems

- **Finance and Accounting Systems**
  - The finance function is responsible for managing the firm's financial assets, such as cash, stocks, bonds, and other investments,
  - in order to maximize the return on these financial assets.
  - The finance function is also in charge of managing the capitalization of the firm.
  - In order to determine whether the firm is getting the best return on its investments, the finance function must obtain a considerable amount of information from sources external to the firm.

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Examples of systems

- **Human Resources Systems**
  - The human resource function is responsible for attracting, developing, and maintaining the firm's workforce.
  - Human resources information systems support activities such as identifying potential employees, maintaining complete records on existing employees, and creating programs to develop employees' talents and skills.

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Examples of systems

- Strategic-level human resources system identify the employee requirements (skills, educational level, types of positions, number of positions, and cost) for meeting the firm's long term business plans.

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