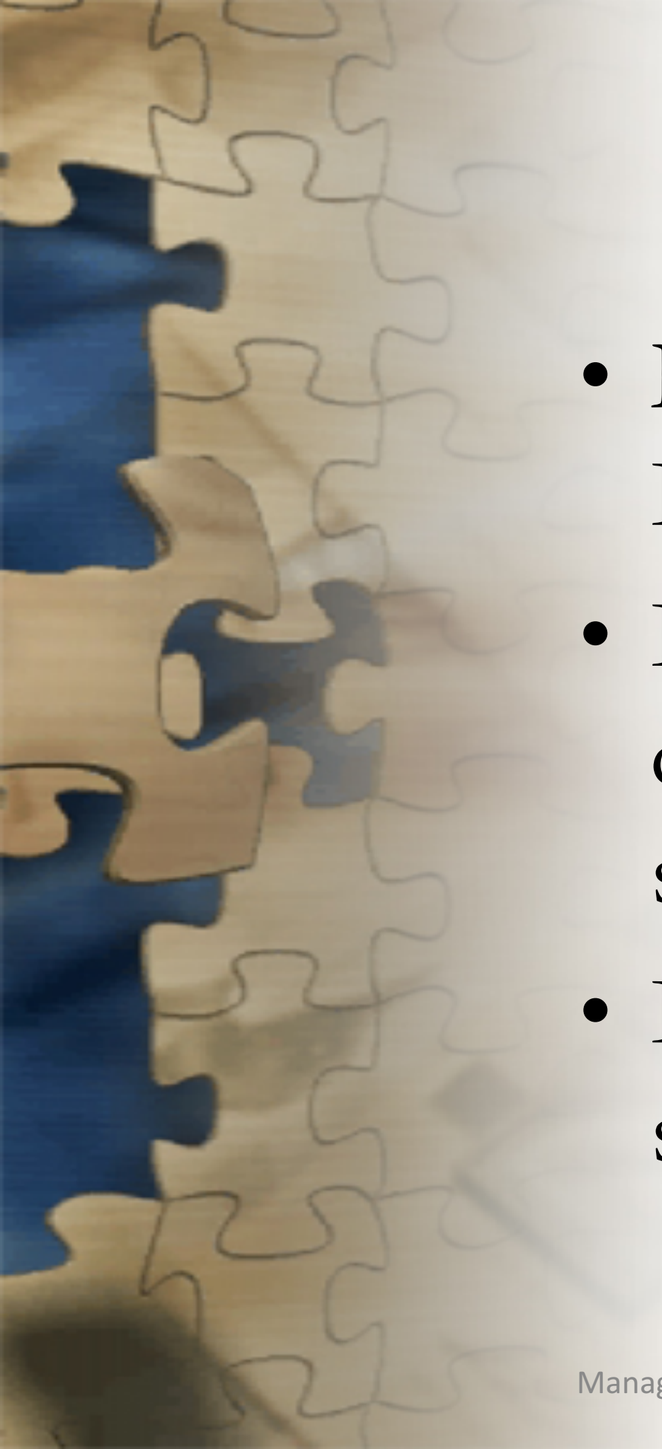
Week 6 Review

- Knowledge Management
- Business Intelligence
- Specialized Information Systems
  - Artificial Intelligence
  - Expert Systems
  - Multimedia and Virtual Reality
  - Specialized Systems

Management Information Systems (MINSYST)

Week Seven

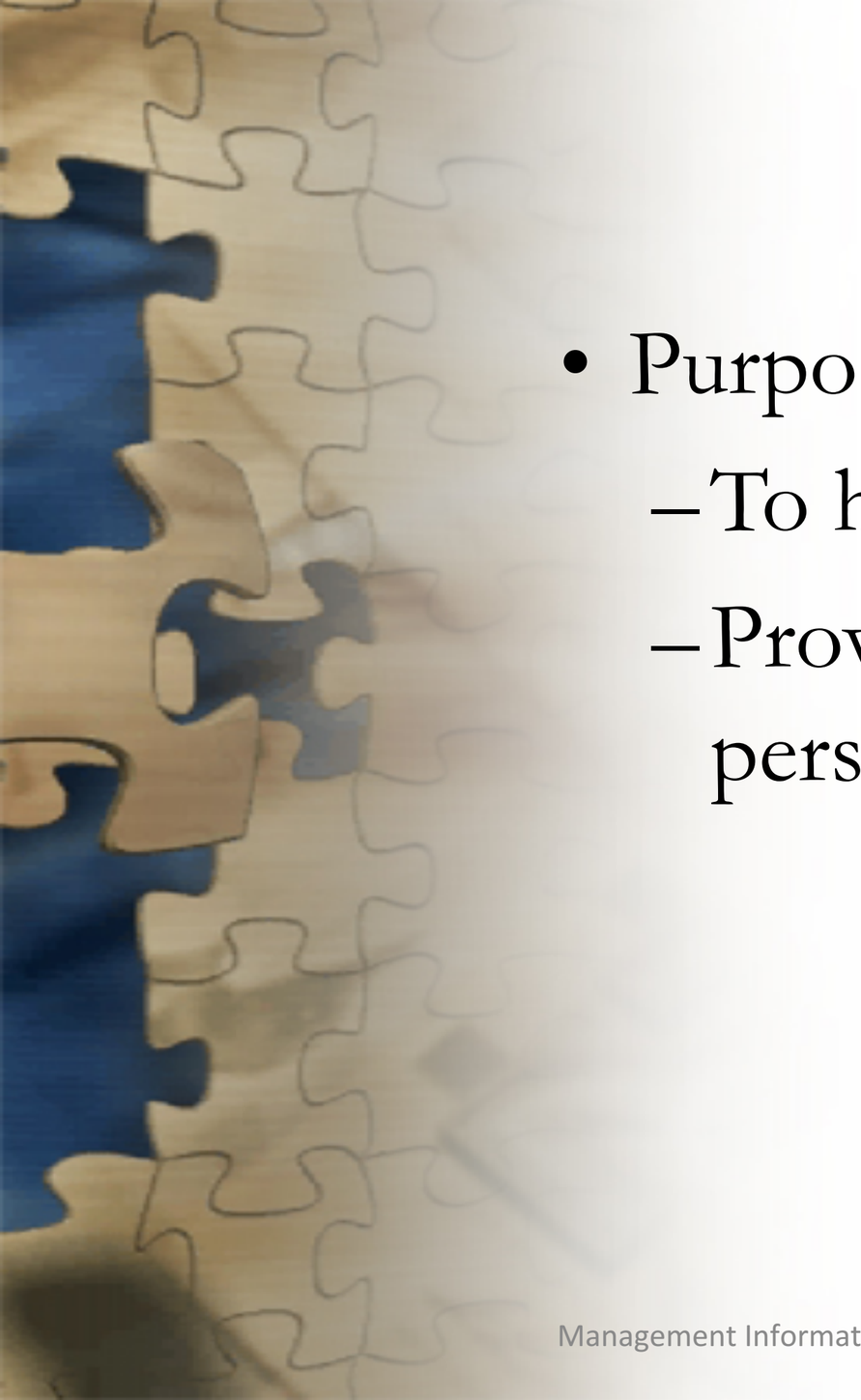


Objectives

- Define the functional aspects of a Management Information System
- Identify the characteristics that differentiates a decision support system from a group support system
- Identify the fundamental uses of group support systems and executive support systems

An Overview of MIS

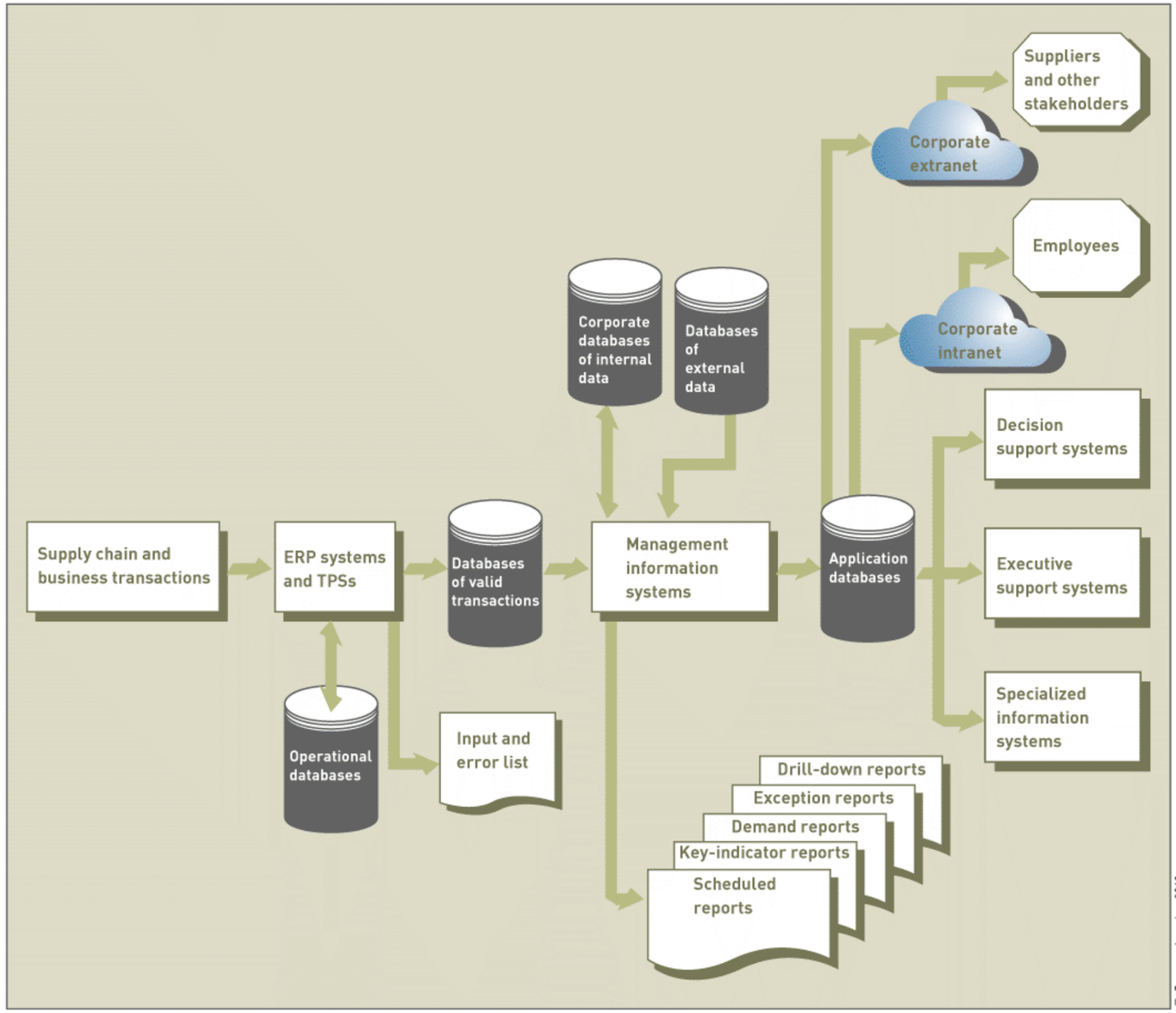
- Management information system (MIS):
  - Integrated collection of people, procedures, databases, and devices
  - Can give the organization a competitive advantage



MIS in Perspective

- Purpose of an MIS:
  - To help an organization achieve its goals
  - Provide the right information to the right person in the right format at the right time

MIS in Perspective



Reference:
Reynolds, G. (2014). *Information Systems Principles. Philippine Edition*. Cengage Learning Asia Pte.

Inputs to an MIS

- Internal data sources:
  - TPS and ERP systems and related databases
  - Data warehouses and data marts
  - Specific functional areas throughout the firm
- External data sources:
  - Customers, suppliers, competitors, and stockholders
  - Internet

Outputs of an MIS

- Scheduled reports:
  - Produced periodically, such as daily, weekly, or monthly
  - Key-indicator report summarizes the previous day's critical activities
- Demand reports:
  - Developed to provide certain information upon request

Outputs of an MIS

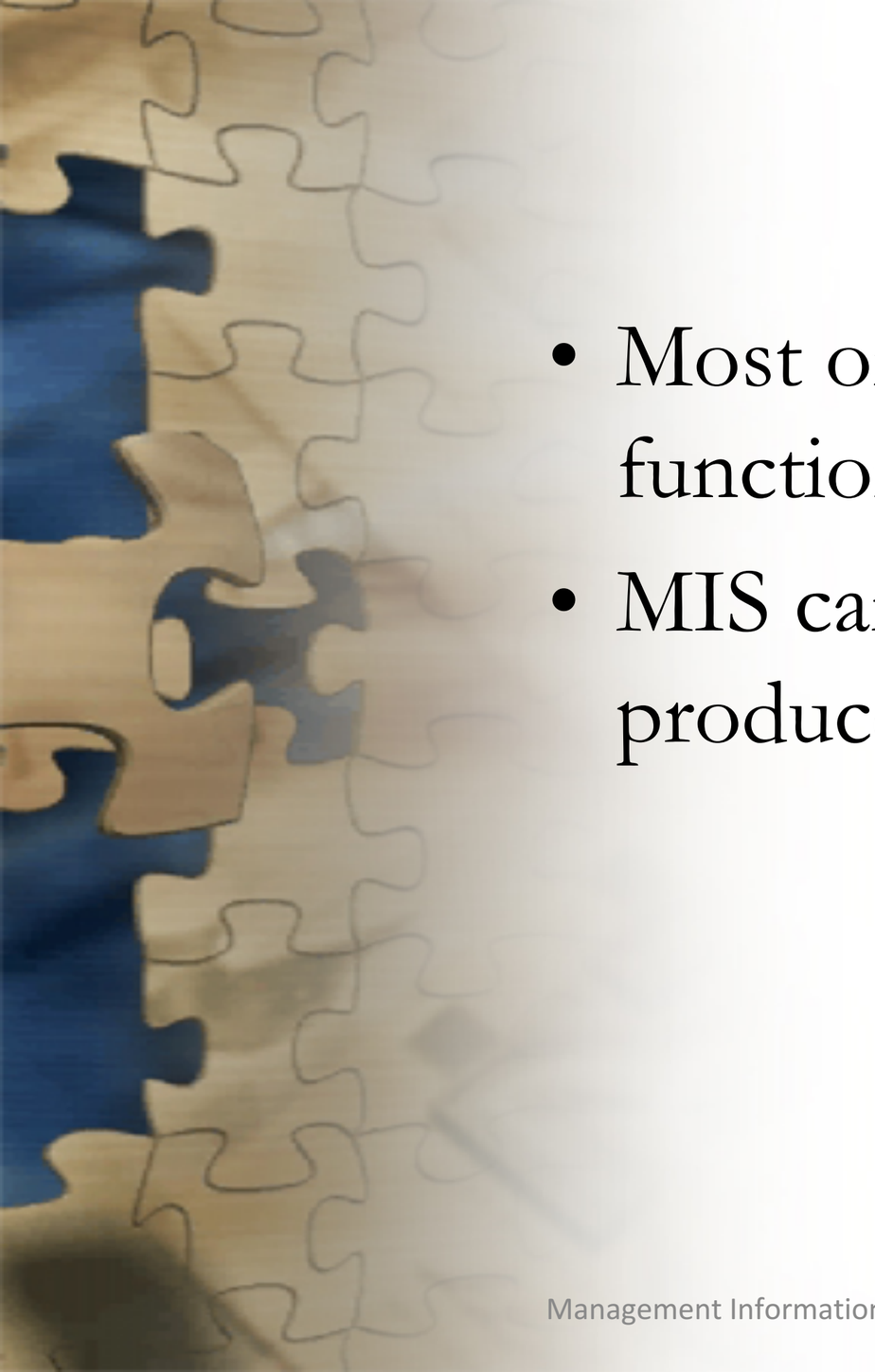
- Exception reports:
  - Automatically produced when a situation is unusual or requires management action
  - Trigger points should be set carefully
- Drill-down reports:
  - Provide increasingly detailed data about a situation

Characteristics of an MIS

- MISs perform the following functions:
  - Provide reports with fixed and standard formats
  - Produce hard-copy and soft-copy reports
  - Use internal data stored in computer system

Characteristics of an MIS

- MISs perform the following functions:
  - Allow users to develop custom reports
  - Require user requests for reports developed by systems personnel



Functional Aspects of the MIS

- Most organizations are structured along functional areas
- MIS can be divided along functional lines to produce reports tailored to individual functions

Financial MIS

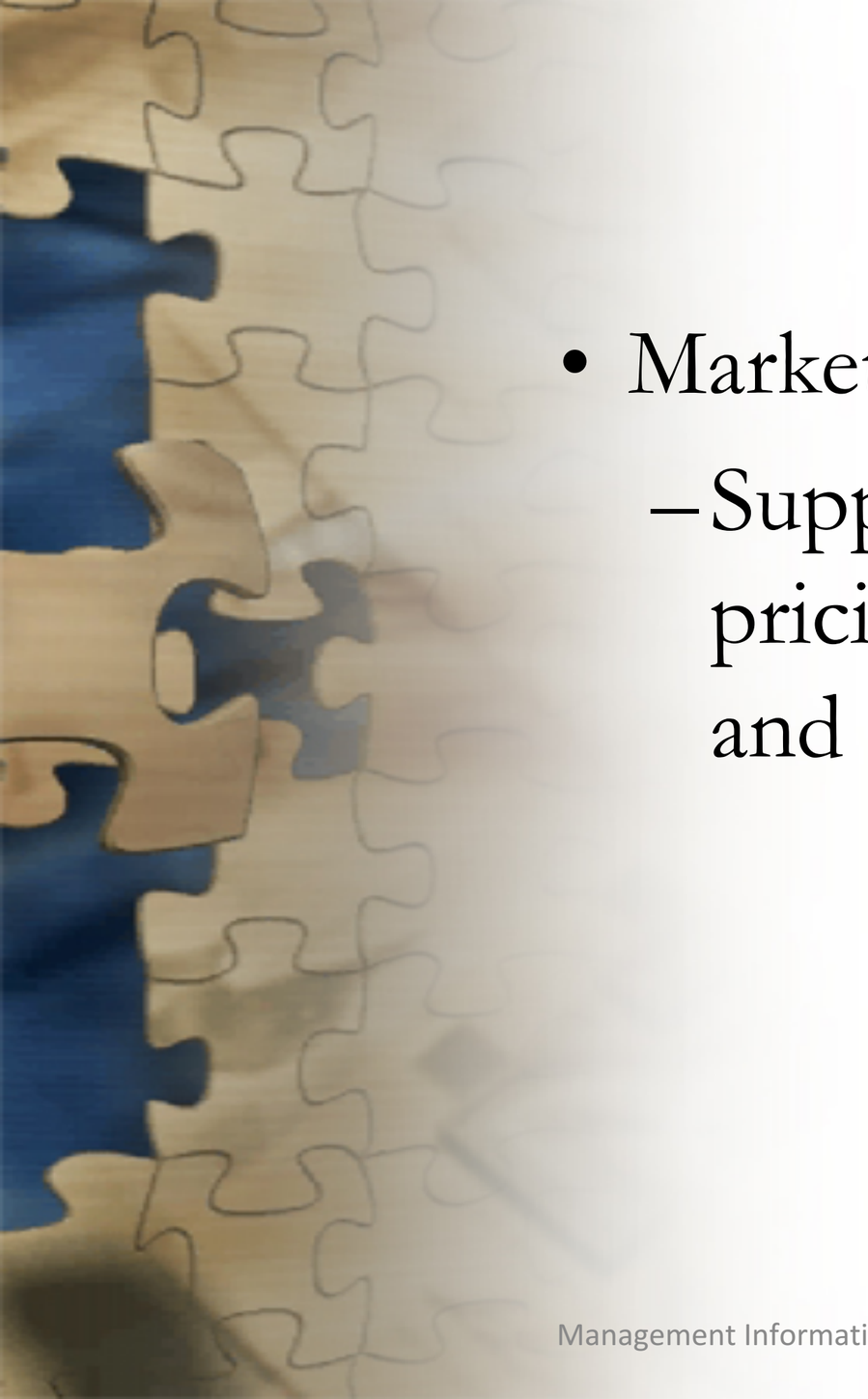
- Financial MIS:
  - Provides financial information to executives and others
- Some financial MIS subsystems and outputs:
  - Profit/loss and cost systems
  - Auditing
  - Uses and management of funds

Manufacturing MIS

- Manufacturing MIS subsystems and outputs:
  - Used to monitor and control the flow of materials, products, and services through the organization

Manufacturing MIS

- Common information subsystems and outputs used in manufacturing:
  - Design and engineering
  - Master production scheduling
  - Inventory control
  - Process control
  - Quality control and testing



Marketing MIS

- Marketing MIS:
  - Supports product development, distribution, pricing decisions, promotional effectiveness, and sales forecasting

Marketing MIS

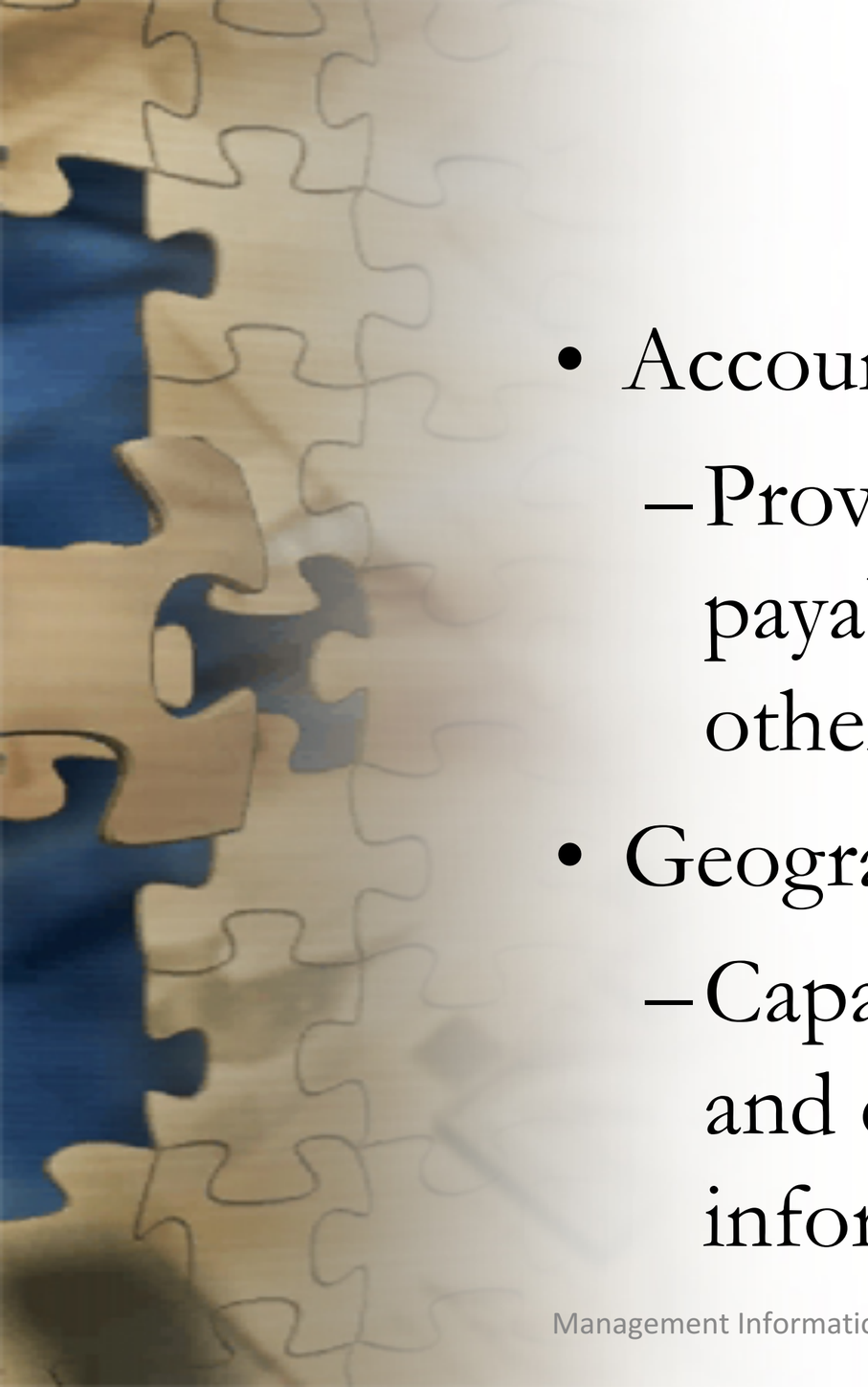
- Subsystems:
  - Marketing research
  - Product development and delivery
  - Promotion and advertising
  - Product pricing
  - Sales analysis

Human Resource MIS

- Concerned with activities related to previous, current and potential employees
- Effective HRMIS allows a company to keep costs at a minimum while serving the required business processes reed to achieve corporate goals

Human Resource MIS

- Subsystems:
  - Human resource planning
  - Personnel selection and recruiting
  - Training and skills inventory
  - Scheduling and job placement
  - Wage and salary administration
  - Outplacement



Other MIS

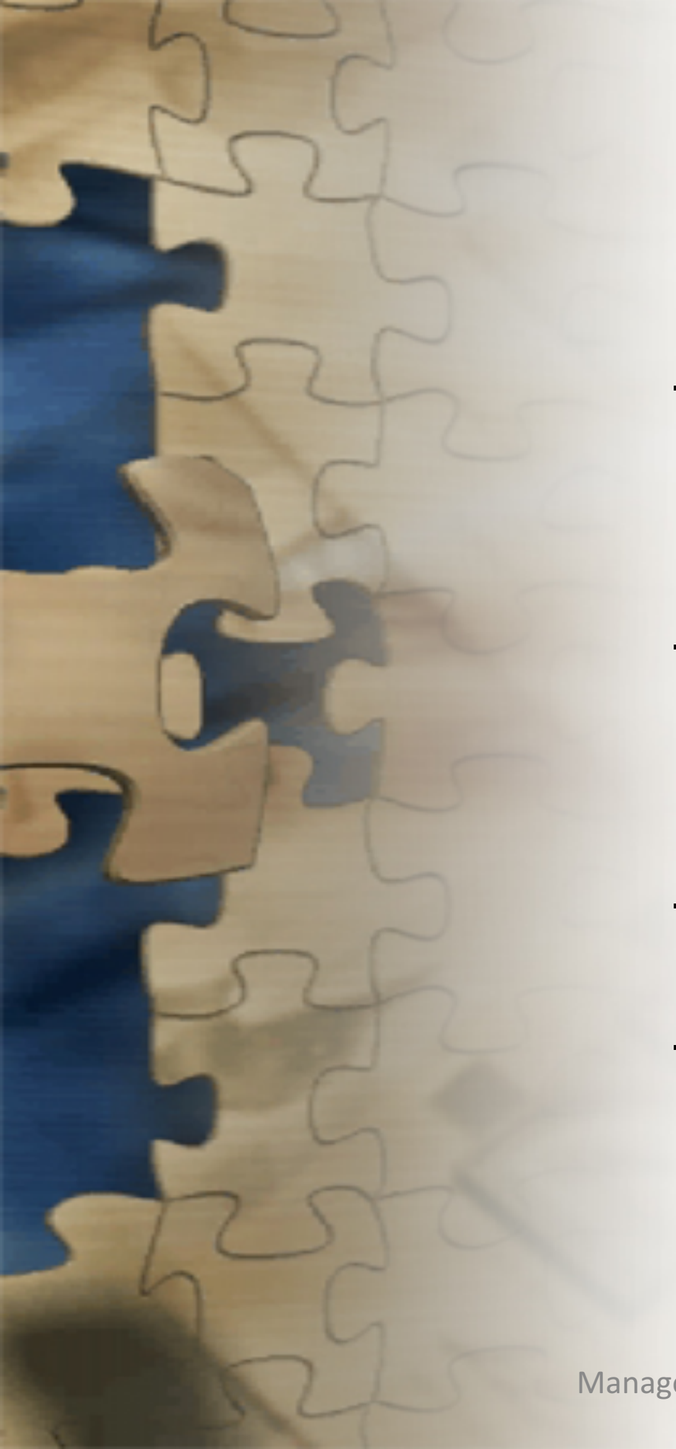
- Accounting MIS:
  - Provides aggregate information on accounts payable, accounts receivable, payroll, and many other applications
- Geographic information system (GIS):
  - Capable of assembling, storing, manipulating, and displaying geographically referenced information

An Overview of Decision Support Systems

- 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

Characteristics of a Decision Support System

- Some important characteristics:
  - Provide rapid access to information
  - Handle large amounts of data from different sources
  - Provide report and presentation flexibility
  - Offer both textual and graphical orientation
  - Support drill-down analysis



Characteristics of a Decision Support System

- Perform complex, sophisticated analysis and comparisons using advanced software
- Support optimization, satisficing, and heuristic approaches
- Perform simulation analysis
- Forecast a future opportunity or problem

Capabilities of a Decision Support System

- Support problem-solving phases
- Support various decision frequencies
  - Ad Hoc, Institutional
- Support various problem structures
  - Highly structured, semistructured, unstructured
- Support various decision-making levels

A Comparison of DSS and MIS

Factor	DSS	MIS
Problem type	Can handle unstructured problems that cannot easily be programmed	Normally used only with structured problems.
Users	Supports individuals, small groups, and the entire organization. In the short run, users typically have more control over a DSS.	Supports primarily the organization. In the short run, users have less control over an MIS.
Support	Supports all aspects and phases of decision making; it does not replace the decision maker – people still make the decisions.	In some cases, makes automatic decisions and replaces the decision maker.
Emphasis	Emphasizes actual decision and decision-making styles.	Usually emphasizes information only.
Approach	Serves as a direct support system that provides interactive reports on computer screens.	Typically serves as an indirect support system that uses regularly produced reports.
System	Uses computer equipment that is usually online (directly connected to the computer system) and related to real time (providing immediate results). Computer terminals and display screens are examples – these devices can provide immediate information and answers to questions.	Uses printed reports that might be delivered to managers once per week, so it cannot provide immediate results.
Speed	Is flexible and can be implemented by users, so it usually takes less time to develop and is better able to respond to user requests.	Provides response time usually longer than a DSS.
Output	Produces reports that are usually screen oriented, with the ability to generate reports on a printer.	Is oriented toward printed reports and documents.
Development	Has users who are usually more directly involved in its development. User involvement usually means better systems that provide superior support. For all systems, user involvement is the most important factor for the development of a successful system.	Is frequently several years old and often was developed for people who are no longer performing the work supported by the MIS.

Reference:
Reynolds, G. (2014). *Information Systems Principles. Philippine Edition*. Cengage Learning Asia Pte.

Components of a Decision Support System

- At the core of a DSS are a database and a model base
- User interface (dialogue manager)
- Access to the Internet, networks, and other computer-based systems

Components of a Decision Support System

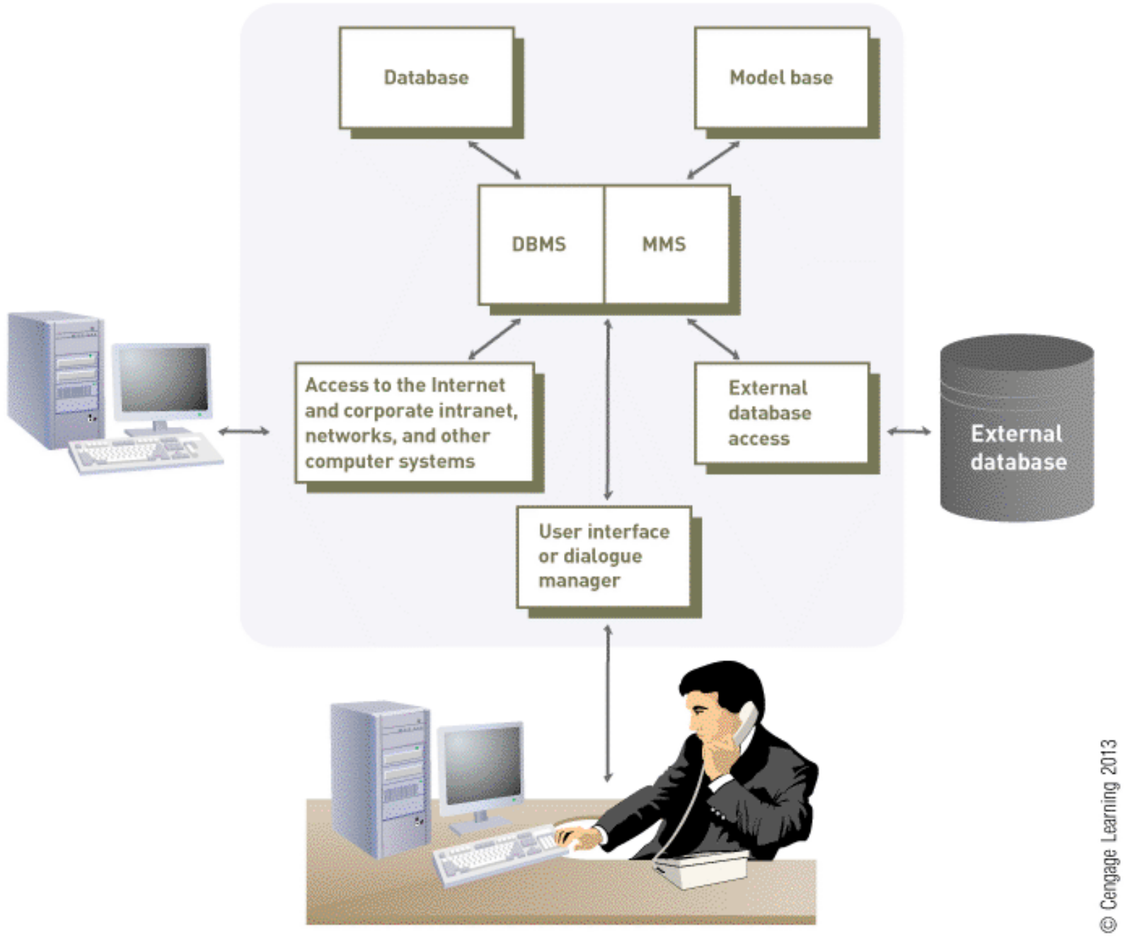


FIGURE **6.17**

Conceptual model of a DSS

DSS components include a model base; database; external database access; access to the Internet and corporate intranet, networks, and other computer systems; and a user interface or dialogue manager.

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The Model Base

Model Type	Description	Software
Financial	Provides cash flow, internal rate of return, and other investment analysis	Spreadsheet, such as MS Excel
Statistical	Provides summary statistics, trend projections, hypothesis testing, and more	Statistical programs, such as SPSS or SAS
Graphical	Assists decision makers in designing, developing, and using graphic displays of data and information	Graphics programs, such as MS Powerpoint
Project Management	Handles and coordinates large projects; also used to identify critical activities and tasks that could delay or jeopardize an entire project if they are not completed in a timely and cost-effective fashion	Project management software, such as MS Project

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The User Interface or Dialogue Manager

- Allows users to interact with the DSS to obtain information
- Assists with all aspects of communications between user and hardware and software that constitute the DSS

Group Support Systems

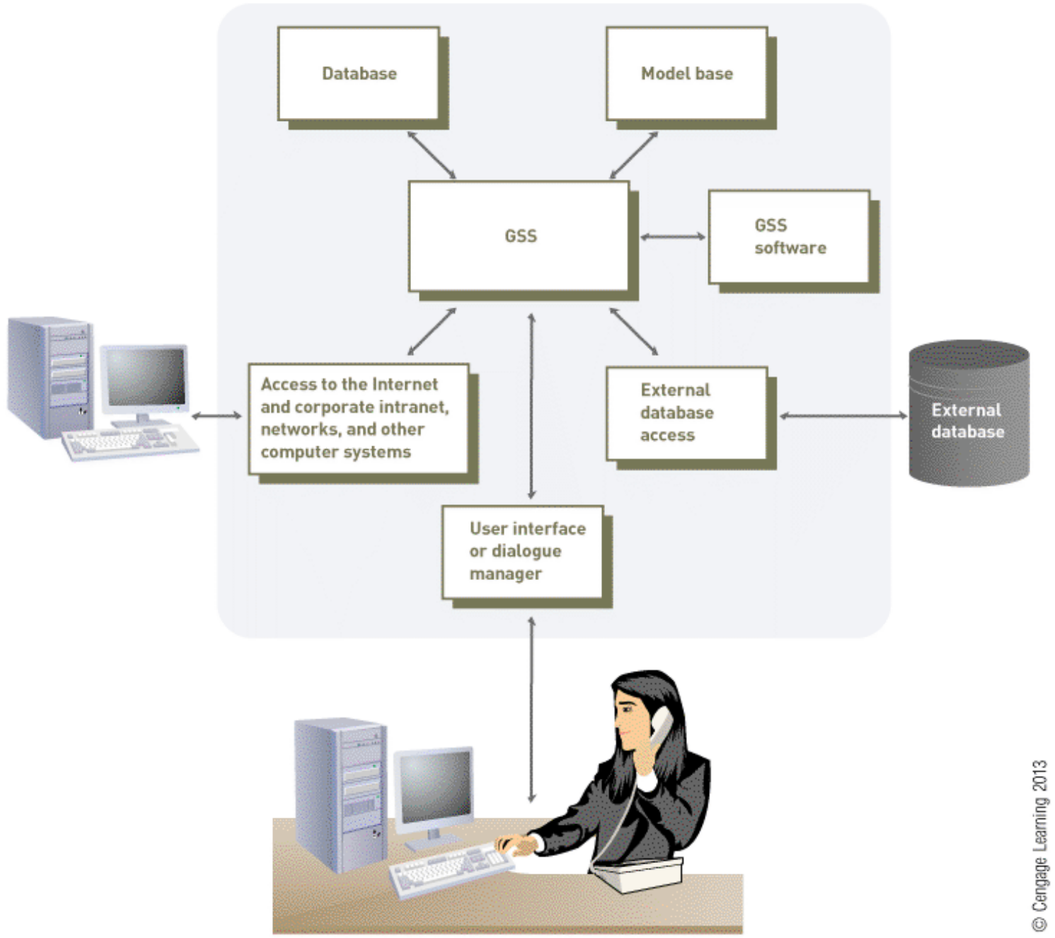

FIGURE **6.18**

Configuration of a GSS

A GSS contains most of the elements found in a DSS, plus software to facilitate group member communications.

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Characteristics of a GSS That Enhance Decision Making

- Special design
- Ease of use
- Flexibility
- Decision-making support:
  - Delphi approach, Brainstorming , Group consensus approach, Nominal group technique

Characteristics of a GSS That Enhance Decision Making

- Anonymous input
- Reduction of negative group behavior
- Parallel and unified communication
- Automated record keeping

GSS Hardware and Software Tools

- GSS hardware includes computers, laptops, tablet computers, smartphones, and other devices
- Advanced video devices
- GSS software packages
  - Lotus Notes, Office Communicator, Sharepoint, WebOffice, BaseCamp

GSS Hardware and Software Tools

- GSSs use a number of tools, including:
  - E-mail, instant messaging (IM), and text messaging (TM)
  - Videoconferencing
  - Group scheduling
  - Project management
  - Document sharing

GSS Alternatives

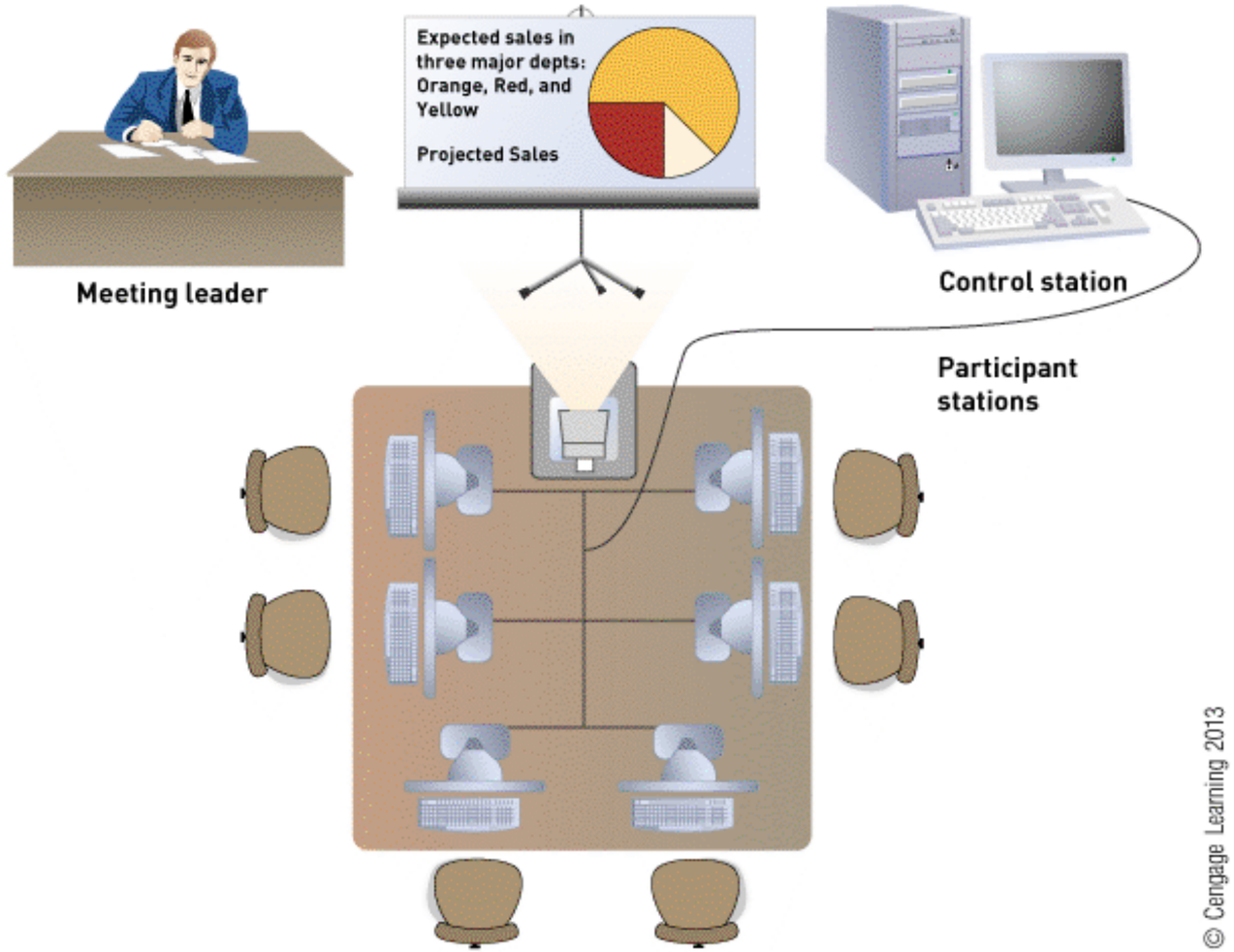
- Decision room
  - Decision makers are located in the same building or geographic area
- Local area decision network
  - Group members are located in the same building or geographic area under conditions where group *decision making is frequent*

GSS Alternatives

FIGURE **6.20**

GSS decision room

For group members who are in the same location, the decision room is an optimal GSS alternative. This approach can use both face-to-face and computer-mediated communication. By using networked computers and computer devices, such as project screens and printers, the meeting leader can pose questions to the group, instantly collect members' feedback, and, with the help of the governing software loaded on the control station, process this feedback into meaningful information to aid in the decision-making process.



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GSS Alternatives

- Teleconferencing:
  - *Decision frequency is low*
  - Location of group members is distant
- Wide area decision network:
  - *Decision frequency is high*
  - Location of group members is distant

Executive Support Systems

- Executive support system (ESS):
  - Specialized DSS
  - Includes hardware, software, data, procedures, and people used to assist senior-level executives
  - Also called an executive information system (EIS)

Executive Support Systems in Perspective

- ESS is a special type of DSS
- Difference between DSS and ESS
  - DSS provides variety of modeling and analysis tools to enable users to answer questions
  - ESS presents structured information about aspects of the organization that executives consider important

Capabilities of Executive Support Systems

- ESS provides support for:
  - Defining overall vision
  - Strategic planning
  - Strategic organizing and staffing
  - Strategic control
  - Crisis management

Ethical & Societal Issues