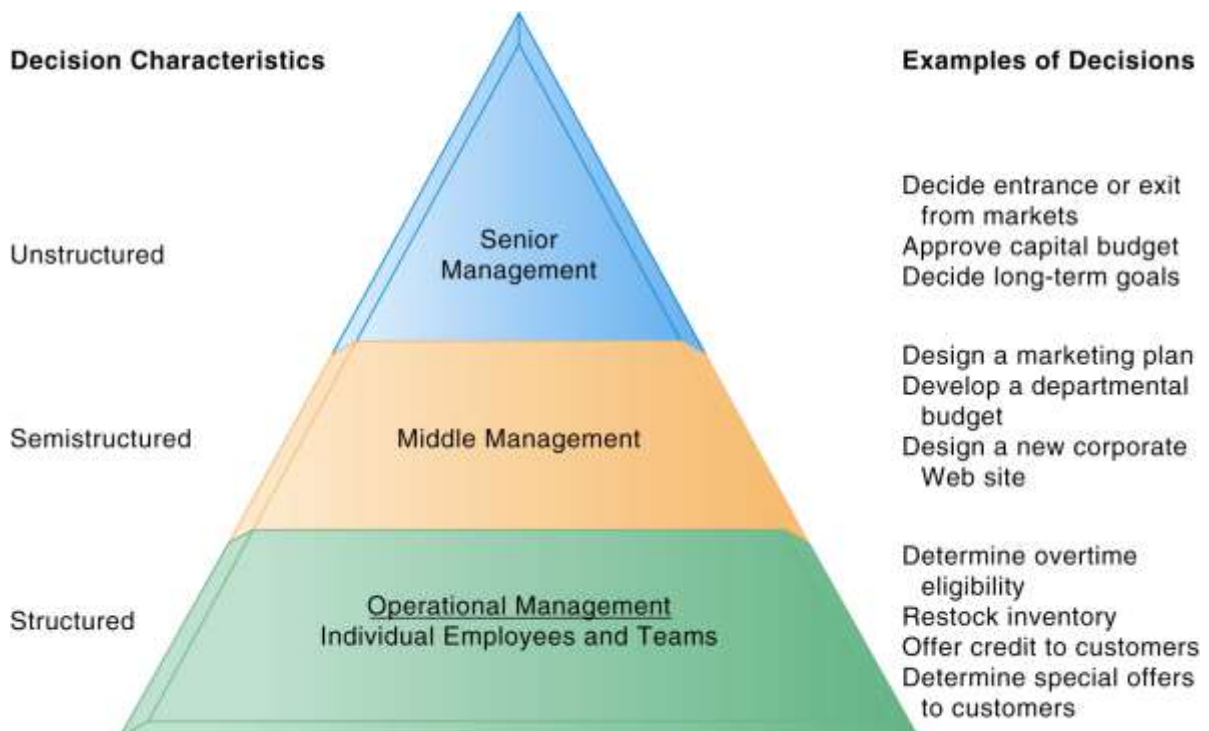


# Enhancing Decision Making

Note: In addition to the following main points, the students should refer to the detailed study material which has already been e-mailed to them.

- **Business value of improved decision making**
  - Improving hundreds of thousands of “small” decisions adds up to large annual value for the business
- **Types of decisions:**
  - **Unstructured:** Decision maker must provide judgment, evaluation, and insight to solve problem
  - **Structured:** Repetitive and routine; involve definite procedure for handling so they do not have to be treated each time as new
  - **Semi-structured:** Only part of problem has clear-cut answer provided by accepted procedure



- **Senior managers:**
  - Make many unstructured decisions
  - E.g., Should we enter a new market?
- **Middle managers:**
  - Make more structured decisions but these may include unstructured components
  - E.g., Why is order fulfillment report showing decline in Minneapolis?
- **Operational managers, rank and file employees**
  - Make more structured decisions
  - E.g., Does customer meet criteria for credit?
  
- **Four stages of decision making**
  1. **Intelligence**
    - Discovering, identifying, and understanding the problems occurring in the organization
  2. **Design**
    - Identifying and exploring solutions to the problem
  3. **Choice**
    - Choosing among solution alternatives
  4. **Implementation**
    - Making chosen alternative work and continuing to monitor how well solution is working
  
- **Three main reasons why investments in information technology do not always produce positive results**
  1. **Information quality**
    - High-quality decisions require high-quality information
  2. **Management filters**
    - Managers have selective attention and have variety of biases that reject information that does not conform to prior conceptions
  3. **Organizational culture**
    - Strong forces within organizations resist making decisions calling for major change

- **Four kinds of systems for decision support**
  1. **Management information systems (MIS)**
  2. **Decision support systems (DSS)**
  3. **Executive support systems (ESS)**
  4. **Group decision support systems (GDSS)**
  
- **Management information systems (MIS)**
  1. Help managers monitor and control business by providing information on firm's performance and address structured problems
  2. Typically produce fixed, regularly scheduled reports based on data from TPS
    - E.g., exception reports: Highlighting exceptional conditions, such as sales quotas below anticipated level
  
- **Decision-support systems (DSS)**
  1. Support unstructured and semi-structured decisions
  2. **Model-driven DSS**
    - Early DSS were heavily model-driven
  3. **Data-driven DSS**
    - Some contemporary DSS are data-driven
    - Use OLAP and data mining to analyze large pools of data
  
- **Components of DSS**
  1. **Database**
    - Used for query and analysis
    - Current or historical data from number of applications or groups
    - May be small database or large data warehouse
  2. **User interface**
    - Often a Web based interface
  3. **Software system**
    - With models, data mining, other analytical tools
    - **Model:** Abstract representation that illustrates components or relationships of phenomenon; may be physical, mathematical, or verbal model
      - **Statistical models**
      - **Optimization models**

- **Forecasting models**
  - **Sensitivity analysis models**
- **Data visualization tools:**
  1. Help users see patterns and relationships in large amounts of data that would be difficult to discern if data were presented as traditional lists of text
- **Geographic information systems (GIS):**
  1. Category of DSS that use data visualization technology to analyze and display data in form of digitized maps
  2. Used for decisions that require knowledge about geographic distribution of people or other resources, e.g.:
    - Helping local governments calculate emergency response times to natural disasters
    - Help retail chains identify profitable new store locations
- **Web-based customer decision-support systems (CDSS):**
  1. Support decision-making process of existing or potential customer
  2. Use Web information resources and capabilities for interactivity and personalization to help users select products and services
    - E.g., search engines, intelligent agents, online catalogs, Web directories, newsgroup discussions, other tools
  3. Automobile companies that use CDSS to allow Web site visitors to configure desired car
  4. Financial services companies with Web-based asset-management tools for customers
- **Group decision support systems (GDSS)**
  1. Interactive system to facilitate solution of unstructured problems by group of decision makers
  2. Hardware – computer and networking hardware, overhead projectors, display screens
  3. GDSS software collects, documents, ranks, edits and stores participant ideas, responses
  4. May require facilitator and staff
  5. Enables increasing meeting size and increasing productivity
  6. Promotes collaborative atmosphere, guaranteeing anonymity

7. Follow structured methods for organizing and evaluating ideas and preserving meeting results
- **Executive support systems (ESS)**
    1. Designed to help executives focus on important performance indications
    2. Balanced scorecard method:
      - Measures outcomes on four dimensions:
        - Financial
        - Business process
        - Customer
        - Learning & growth
      - Key performance indicators (KPIs) measure each dimension
    3. In developing an ESS, first concern is for senior executives and consultants to develop scorecard and then to automate flow of information for each KPI
  - **Role of ESS in the firm**
    1. Used by both executives and subordinates
    2. Drill-down capability: Ability to move from summary information to finer levels of detail
    3. Integrate data from different functional systems for firmwide view
    4. Incorporate external data, e.g. stock market news, competitor information, industry trends, legislative action
    5. Include tools for modeling and analysis
      - Primarily for status, comparison information about performance
  - **Business value of executive support systems**
    1. Enables executive to review more data in less time with greater clarity than paper-based systems
      - Needed actions identified and carried out earlier
    2. Improves management performance
    3. Increases upper management's span of control
      - Also enables decision making to be decentralized and take place at lower operating levels
    4. Increases executives' ability to monitor activities of lower units reporting to them