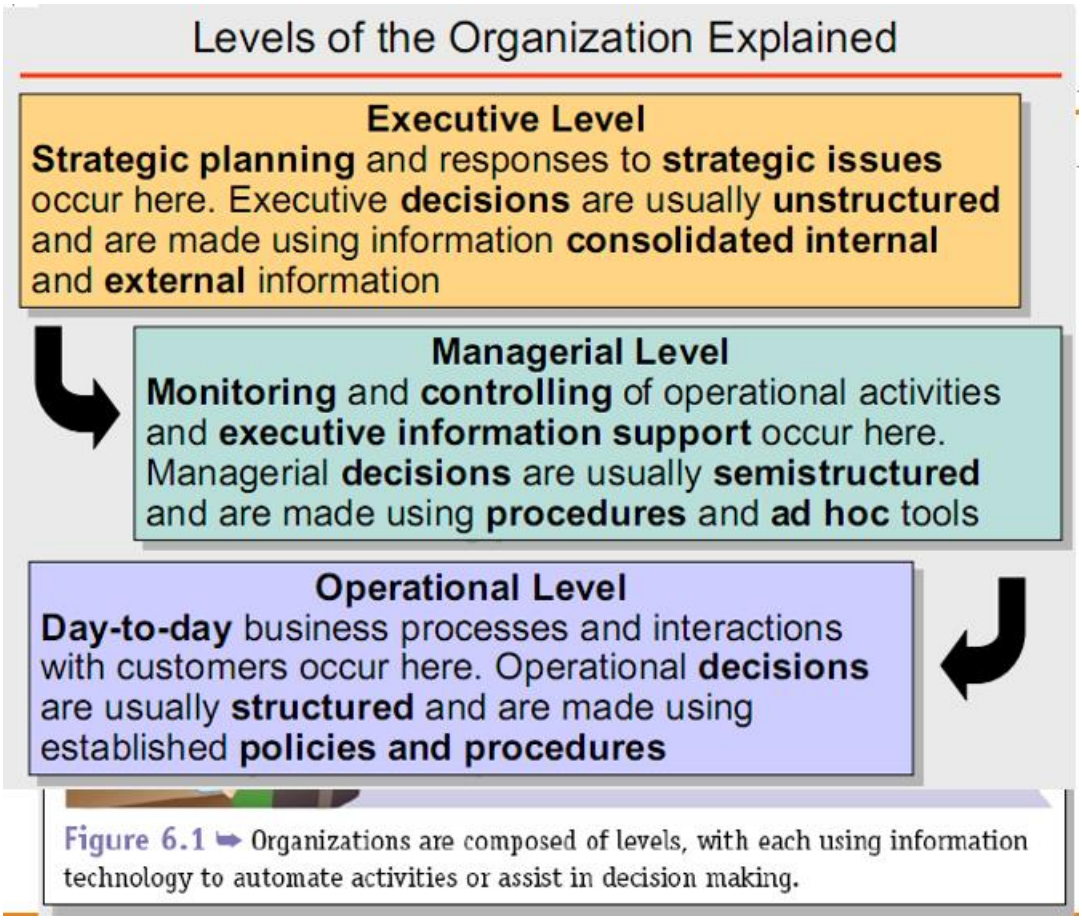


Figure 6.1 ➥ Organizations are composed of levels, with each using information technology to automate activities or assist in decision making.

TPSs are special class of information systems designed to process business events and transactions. Contoh : Payroll System

Who, What, Why: Organizational Level

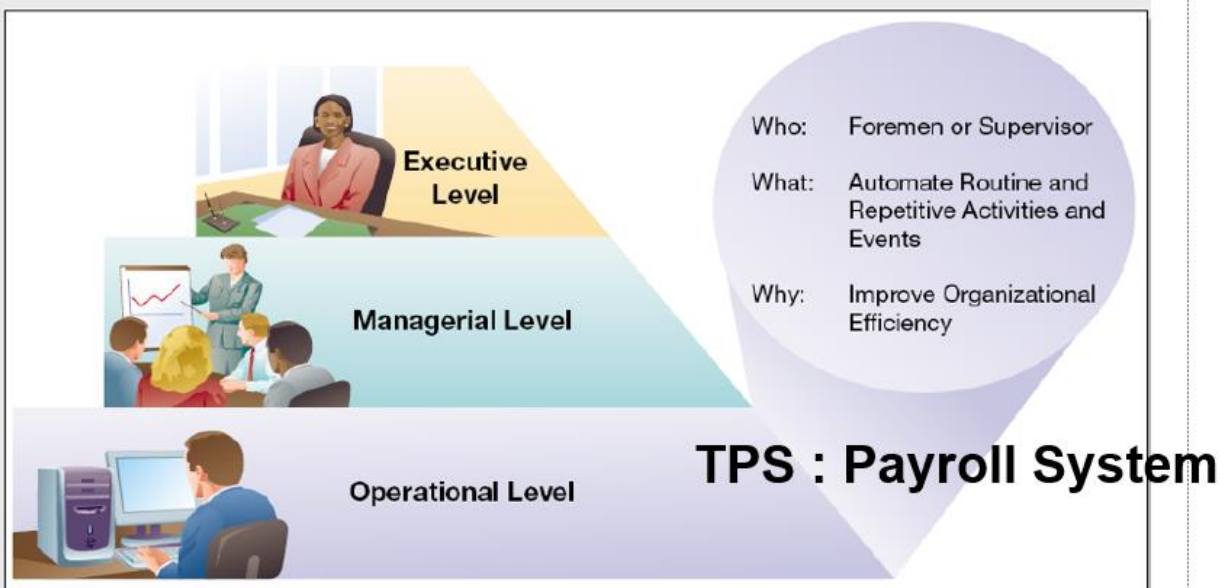
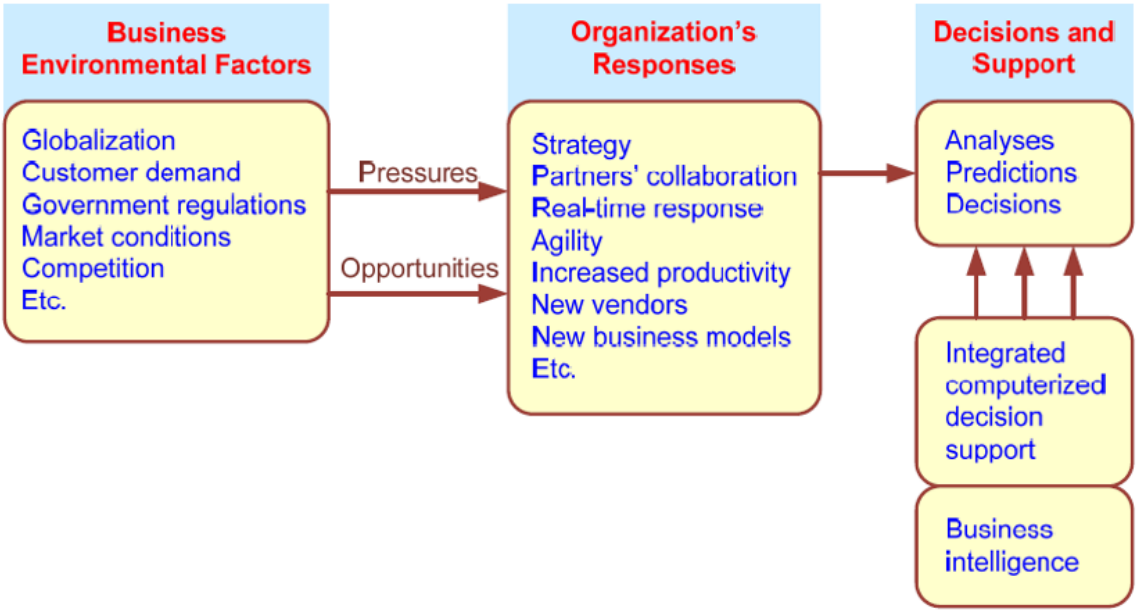


Figure 6.2 ➥ The operational level of an organization uses information systems to improve efficiency by automating routine and repetitive activities.

Changing Business Environment

- Companies are moving aggressively to computerized support of their operations => Business Intelligence
- Business Pressures–Responses–Support Model
  - Business pressures result of today's competitive business climate
  - Responses to counter the pressures
  - Support to better facilitate the process

Business Pressures–Responses–Support Model



The Business Environment

- The environment in which organizations operate today is becoming more and more complex, creating:
  - opportunities, and
  - problems
  - Example: globalization
- Business environment factors:
  - markets, consumer demands, technology, and societal…

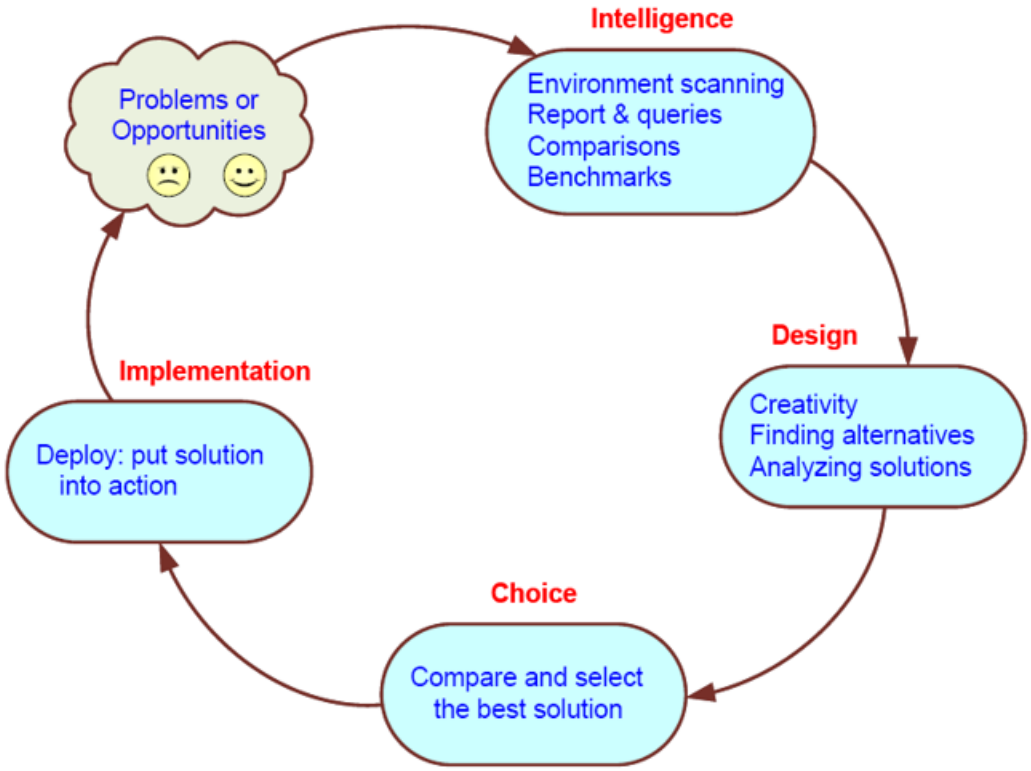
A Decision Support Framework
(by Gory and Scott-Morten, 1971)

Type of Decision	Type of Control: Operational Control	Type of Control: Managerial Control	Type of Control: Strategic Planning
Structured	1 Accounts receivable Accounts payable Order entry	2 Budget analysis Short-term forecasting Personnel reports Make-or-buy	3 Financial management Investment portfolio Warehouse location Distribution systems
Semistructured	4 Production scheduling Inventory control	5 Credit evaluation Budget preparation Plant layout Project scheduling Reward system design Inventory categorization	6 Building a new plant Mergers & acquisitions New product planning Compensation planning Quality assurance HR policies Inventory planning
Unstructured	7 Buying software Approving loans Operating a help desk Selecting a cover for a magazine	8 Negotiating Recruiting an executive Buying hardware Lobbying	9 R & D planning New tech. development Social responsibility planning

A Decision Support Framework – cont.

- Degree of Structuredness (Simon, 1977)
  - Decision are classified as
    - Highly structured (a.k.a. programmed)
    - Semi-structured
    - Highly unstructured (i.e., non-programmed)
- Types of Control (Anthony, 1965)
  - Strategic planning (top-level, long-range)
  - Management control (tactical planning)
  - Operational control

Simon's Decision-Making Process

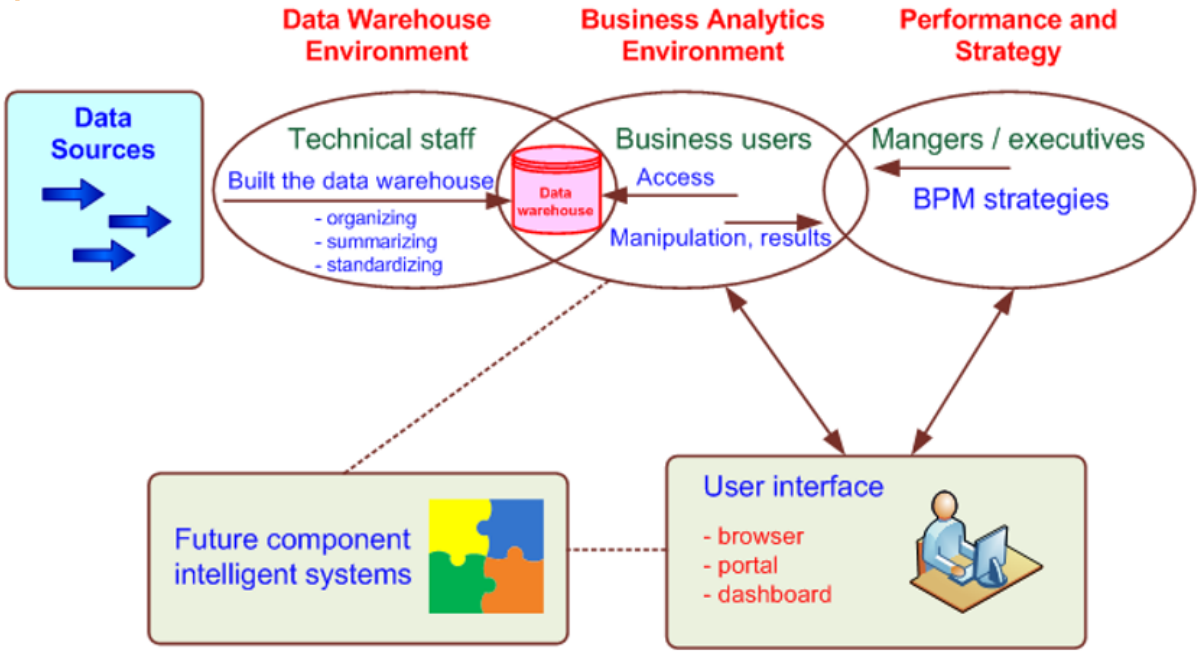


Business Intelligence (BI)

- BI is an umbrella term that combines architectures, tools, databases, analytical tools, applications, and methodologies
- Like DSS, BI a content-free expression, so it means different things to different people
- BI's major objective is to enable easy access to data (and models) to provide business managers with the ability to conduct analysis
- BI helps *transform* data, to information (and knowledge), to decisions and finally to action

The Evolution of BI Capabilities

A High-Level Architecture of BI



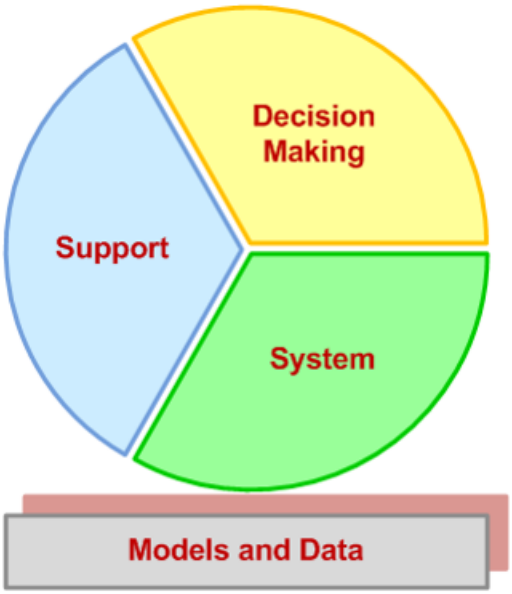
Harrah's Makes a Great Bet Vignette

- Data Warehouse
- Data Mining
- Business Intelligence
- Transaction Processing System
- Customer Relationship Management
- Decision Support System

Decision Support Systems (DSS)

Dissecting DSS into its main concepts

Building successful DSS requires a through understanding of these concepts



Characteristics of Decision Making

- Groupthink
- Evaluating what-if scenarios
- Experimentation with a real system!
- Changes in the decision-making environment may occur continuously
- Time pressure on the decision maker
- Analyzing a problem takes time/money
- Insufficient or too much information

Decisi

tion to situation. As a result, people make decisions in different ways. Although th
general process of decision making, it is far from linear. People do not follow th

- Decision-making styles
  - Heuristic versus Analytic
  - Autocratic versus Democratic
  - Consultative (with individuals or groups)
- A successful computerized system should fit the decision style and the decision situation
  - Should be flexible and adaptable to different users (individuals vs. groups)

Model

- A significant part of many DSS and BI systems
- A model is a simplified representation (or abstraction) of reality
- Often, reality is too complex to describe
- Much of the complexity is actually irrelevant in solving a specific problem
- Models can represent systems/problems at various degrees of abstraction

Decision-Making: The Design Phase

- Normative models (= optimization)
  - the chosen alternative is demonstrably the best of all possible alternatives
  - Assumptions of rational decision makers
    - Humans are economic beings whose objective is to maximize the attainment of goals
    - For a decision-making situation, all alternative courses of action and consequences are known
    - Decision makers have an order or preference that enables them to rank the desirability of all consequences

Decision-Making: The Design Phase

- Heuristic models (= suboptimization)
  - the chosen alternative is the best of only a subset of possible alternatives
  - Often, it is not feasible to optimize realistic (size/complexity) problems
  - Suboptimization may also help relax unrealistic assumptions in models
  - Help reach a good enough solution faster

Decision-Making: The Design Phase

- Descriptive models
  - describe things as they are or as they are believed to be (mathematically based)
  - They do not provide a solution but information that may lead to a solution
  - Simulation - most common descriptive modeling method (mathematical depiction of systems in a computer environment)
  - Allows experimentation with the descriptive model of a system

Decision-Making: The Design Phase

- Risk
  - Lack of precise knowledge (uncertainty)
  - Risk can be measured with probability
- Scenario (what-if case)
  - A statement of assumptions about the operating environment (variables) of a particular system at a given time
  - Possible scenarios: best, worst, most likely, average (and custom intervals)