Different types of Business Information Systems

Information and Decision Support Systems

Introduction

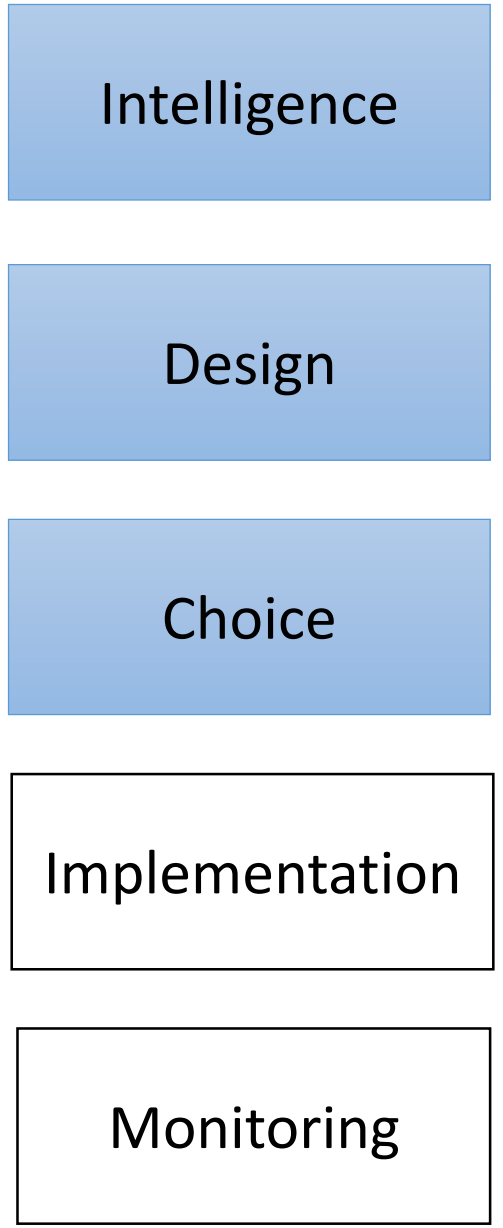
- Information and decision support are lifeblood of today's organization
  - Managers / employees can obtain useful information in real time.
  - when data is filtered and manipulated
  - Help manages and executives to make better decisions and solve important problems.
  - Increase revenue, reduce cost and realization of problem goals.

Decision Making and Problem Solving

- Once a problem is identified, begin the problem-solving process with decision making.
- Decision making process
  - The first part of problem solving
  - Includes Intelligence, Design and Choice
- Intelligence
  - Potential problems or opportunities are identified and defined
  - Investigate resource an environment constraints
- Design
  - Alternative solution to the problems are developed.
  - Evaluate the feasibility
- Choice
  - Selection of a course of action

Decision Making and Problem Solving

- Problem solving goes beyond decision making
- Includes implementation stage and monitoring stage
- Implementation stage
  - A solution is put into effect
- Monitoring stage
  - Decision makers evaluate the implementation.
  - Involve feedback and adjustment.



Decisions/Choices?

What / How

WHAT

- Programmed decisions
  - Decision made using a rule, procedure or quantitative method
  - Easy to computerize using data gathered using TPS
  - E.g. ordering more inventory when inventory levels drop to specified levels.
- Non-programmed decisions
  - Deal with unusual or exceptional situations
  - Difficult to quantify
  - E.g. decide whether to start a new type of product line, determine the appropriate training program for a new employee

HOW

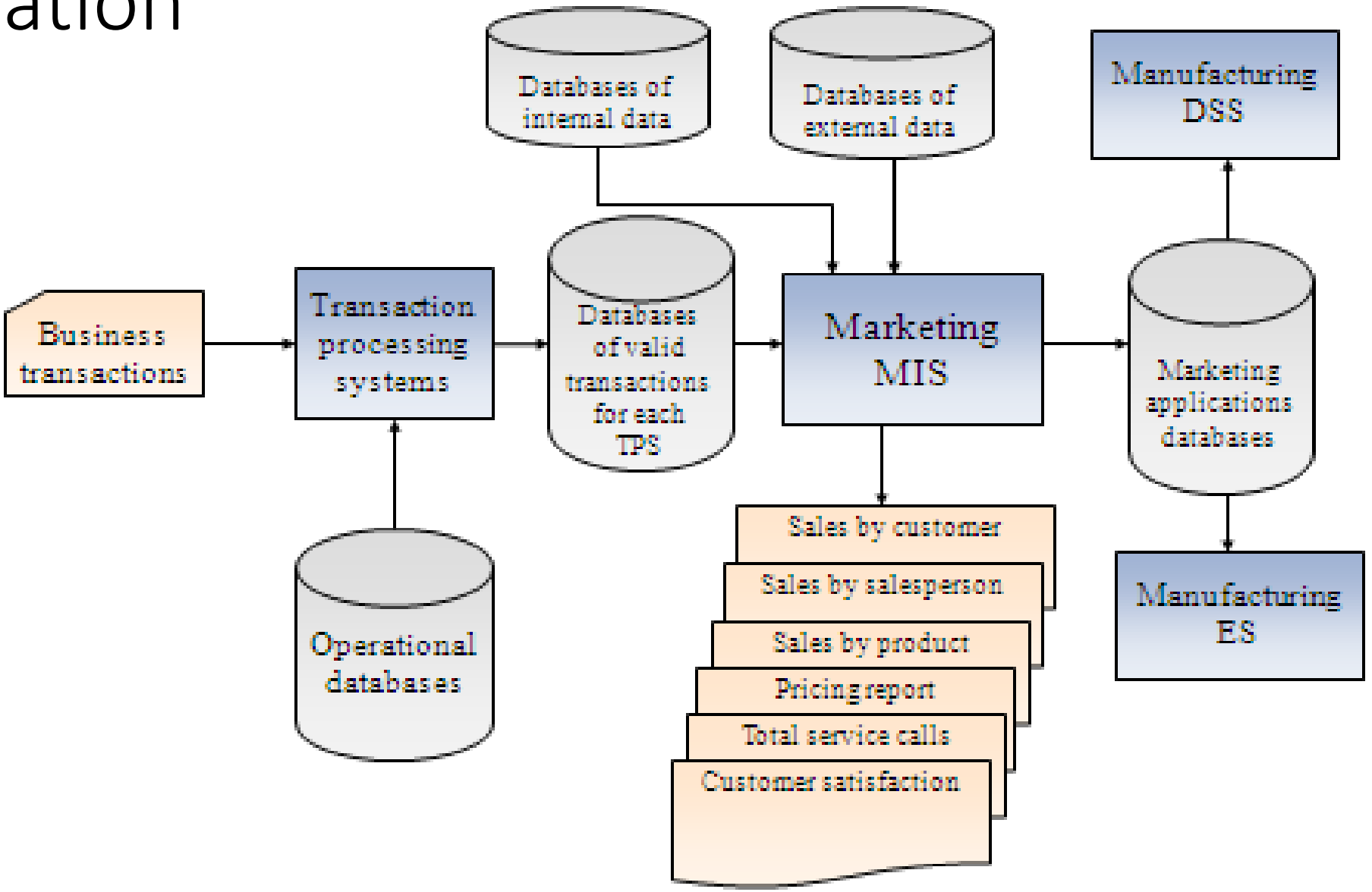
- Optimization model
  - The process to find the best solution to help the organization to meet its goals.
  - E.g. Find the appropriate number of products that an organization should produce to meet a profit goal based on certain conditions and assumptions.
- Satisficing model
  - Find a good but not necessarily the best problem solution
  - Because finding an optimal solution would be difficult, complex or cosly.
- Heuristics
  - Rules of thumb
  - Commonly accepted guidelines or procedures that usually find a good solution.

Management Information Systems (MIS)

What is MIS?

- An integrated collection of people, procedures, databases and devices.
- Provides managers with information and support for effective decision making and provides feedback on daily operations.
- Help to achieve organizational goals.
- Important role : to provide right information to the right person in the right format at the right time.

The role of MISs within the flow of an organization's Information



Inputs to a MIS

- Originates from both internal and external sources including the company's supply chain.
- Internal data sources
  - various TPS, ERP systems and related databases
- External data sources
  - customer, supplier and competitor information

Outputs of MIS

Collection of reports that are distributed to managers.

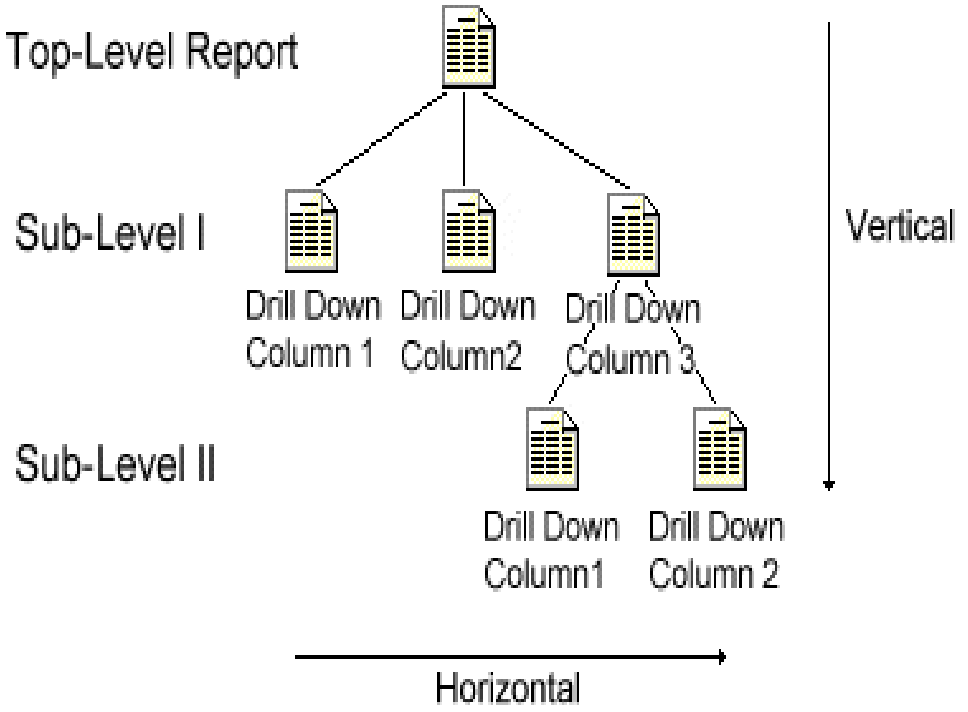
- **Scheduled reports**
  - produced periodically or on a schedule, such as daily, weekly, or monthly (i.e., a monthly summary report that list total payroll costs).
  - A key indicator report is a special type of scheduled report that summarizes the previous day's critical activities (i.e., inventory levels or sales volume).

- **Demand reports**
  - produced to give certain information at a manager's request (i.e., an inventory report for a particular item).

Outputs of MIS

- **Exception reports**
  - reports that are automatically produced when a situation is unusual or requires management action (i.e., a report of all customers that are late in their payments.)

- **Drill Down Reports**
  - reports that provide detailed data about a situation



Characteristics of MIS

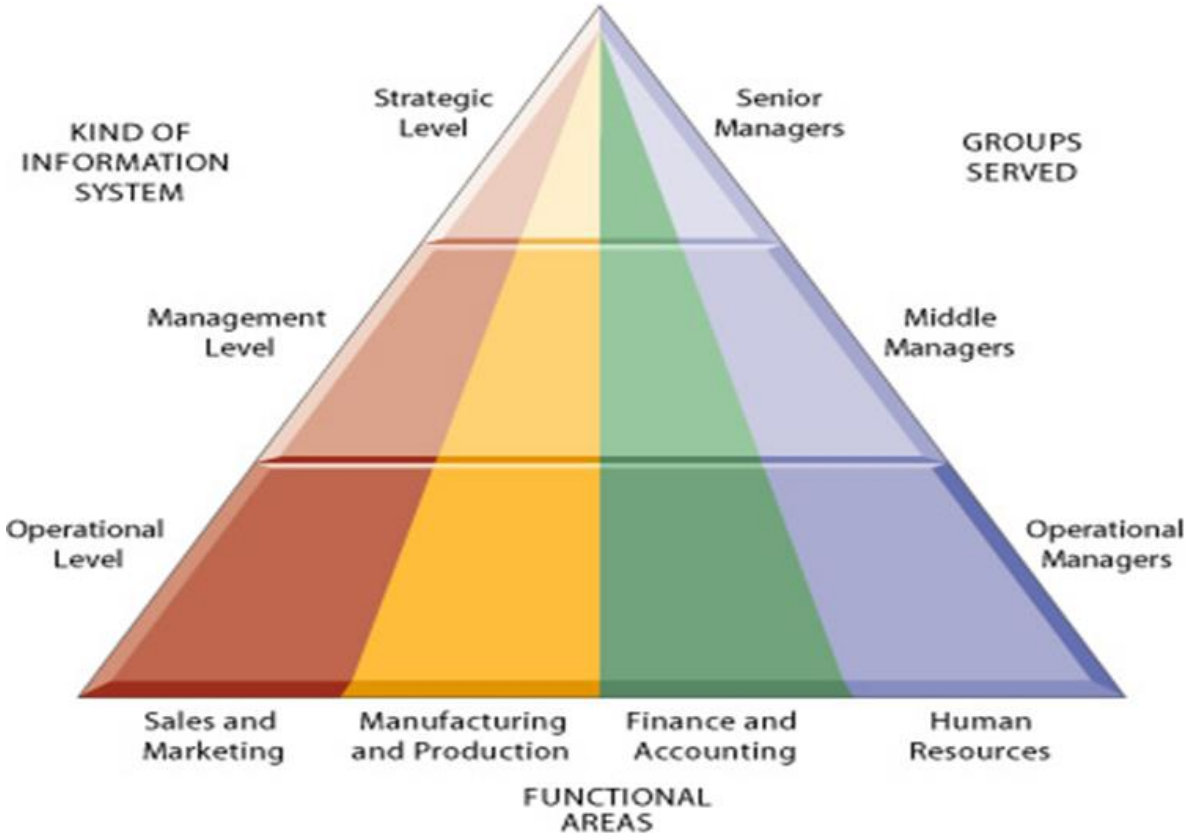
- Produce scheduled, demand, exception and drill down reports
- Provide reports with fixed and standard formats
- Produce hard-copy and soft-copy reports
- Use internal data stored in the computer system
- Allow users to develop their own custom reports.
- Require user requests for reports developed by system personnals.

Guidelines for Developing MIS reports

Guideline	Explanation
Tailor each report to user needs	Involve user in the design
Produce only needed reports	If no one reads the report, do not produce it
Pay attention to report content and layout	Display the information most desired Use user accepted words and phrases Do not use unnecessary data
Use management by exception in reporting	Produce reports to solve a problem or take action
Set parameters carefully	Low parameters may result in too many reports, while high parameters may overlook valuable information
Produce all reports in a timely fashion	Outdated reports are of little or no value

Functional aspects of the MIS

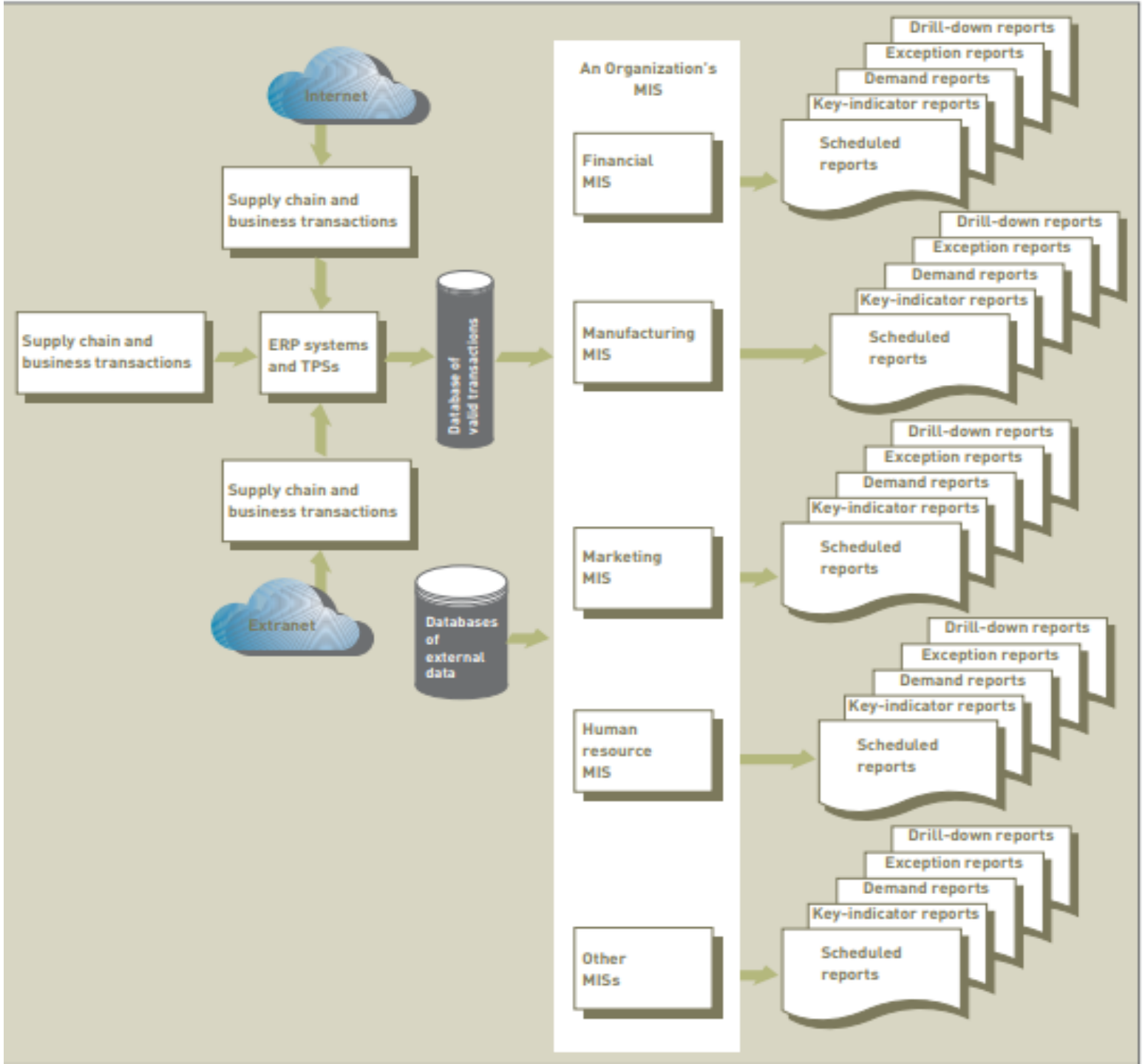
- MIS is an integrated collection of functional information systems, each supporting particular functional area.



Functional aspects of the MIS

Take home Assignment
Read 405 pg – 417 pg

- Make short notes on different MIS
- Identify different types of reports generated through these systems.



Decision Support Information Systems

Introduction

- collection of people, procedures, software, databases, and devices used to help make decisions that solve problems.
- with unstructured or semi structured business problems
- Offer the potential to generate higher profits, lower costs, and better products and services.

Characteristics of a Decision Support System

- 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.
- Perform complex, sophisticated analysis and comparisons using advanced software packages.
- Support optimization, satisficing, and heuristic approaches.
- Perform simulation analysis—the ability of the DSS to duplicate the features of a real system, where probability or uncertainty is involved.

Capabilities of a Decision Support System

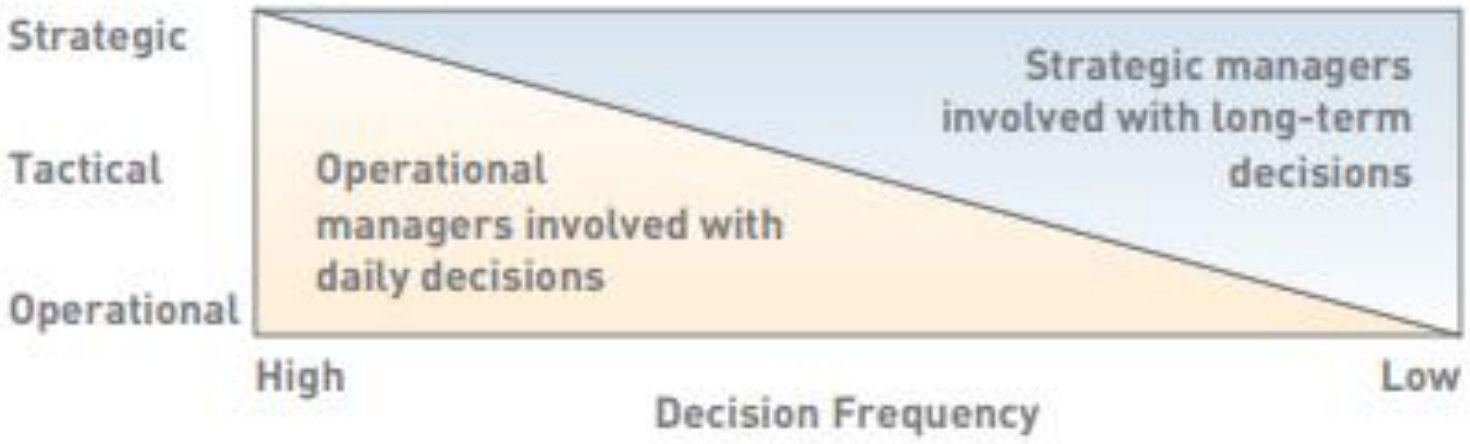
- Support for Problem-Solving Phases
  - assist decision makers with the phases of problem solving.
  - include intelligence, design, choice, implementation, and monitoring.
  - specific DSS might support only one or a few phases.
- Support for Different Decision Frequencies
- Support for Different Problem Structures
  - decisions can range from highly structured and programmed to unstructured and non programmed

Capabilities of a Decision Support System

- Highly structured problems
  - straightforward,
  - requiring known facts and relationships.
- Semi structured or unstructured problems
  - more complex
  - relationships among the pieces of data are not always clear, the data might be in a variety of formats, and it is often difficult to manipulate or obtain.

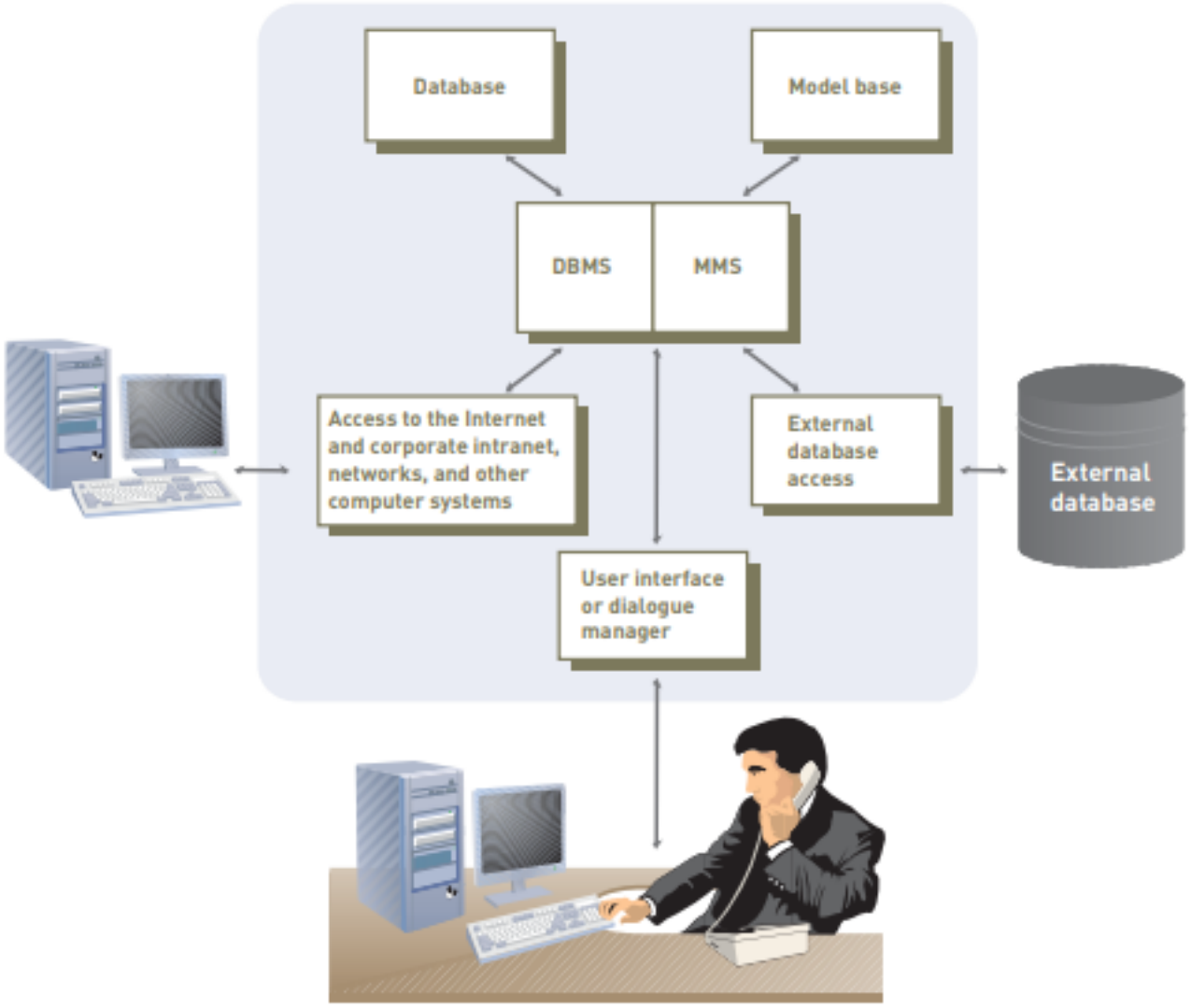
Capabilities of a Decision Support System

- Support for Various Decision-Making Levels

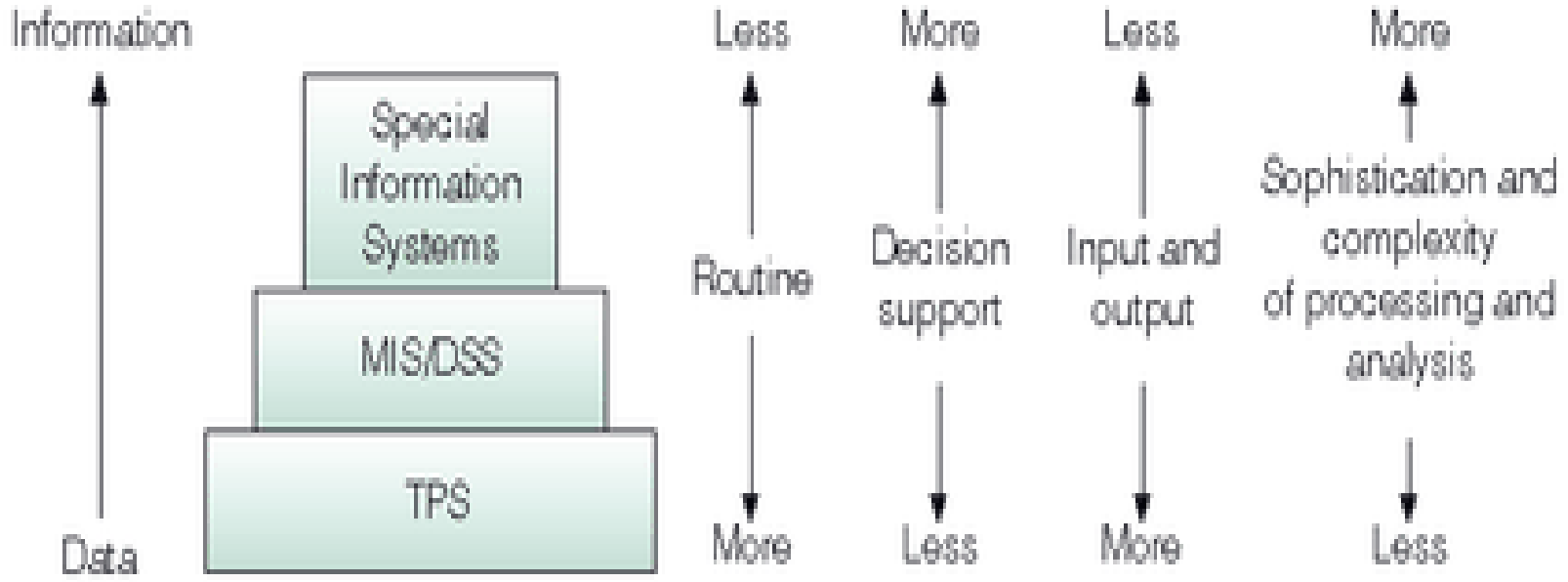


Components of a Decision Support System

- core of a DSS
  - a database and
  - a model base.



TPS, MIS/DSS, and Special Information Systems



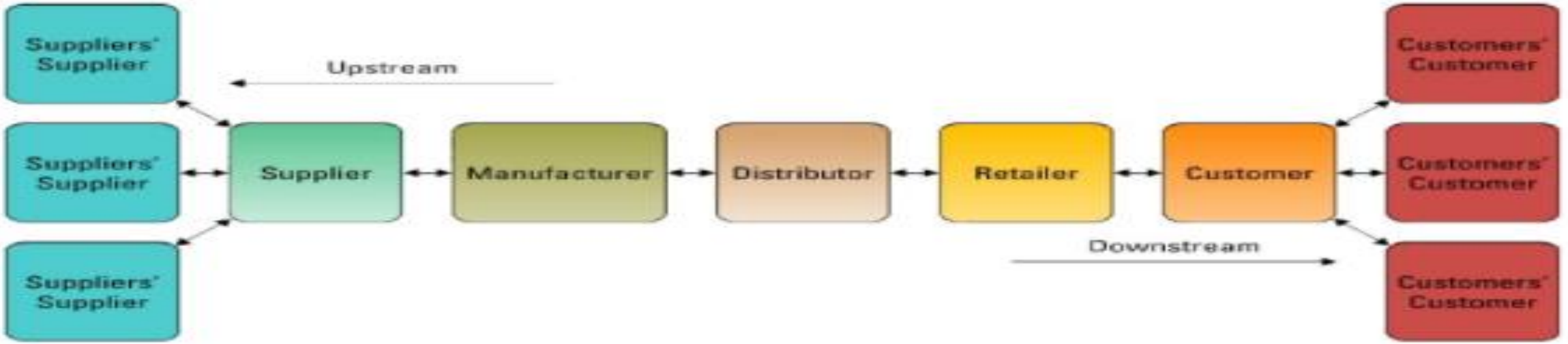
Home work

Compare and Contrast MIS over DSS

What is Supply Chain Management?

Supply Chain Management

- Close linkage and coordination of activities involved in buying, making, and moving a product



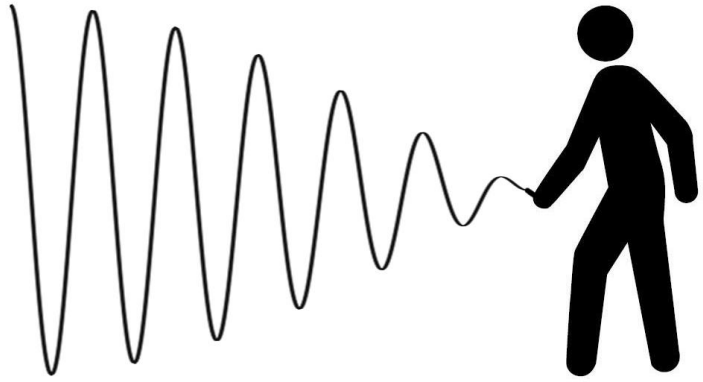
Inefficiencies in the SC

- Parts shortages
- Underutilized plant capacity
- Excessive finished goods inventory
- Runaway transportation costs

Inaccurate / untimely Information

Bullwhip Effect

- Recurring problem in SCM
- Information about the demand for a product gets distorted as it passes from one entity to the next across the SC
- Slight rise in the demand for a particular item can cause different members in the SC to stockpile inventory
- Just-in –Case Scenario
- Ripple through the SC
- Small change from planned orders, creating excess inventory, production, warehousing and shipping costs.
- Need dynamic information



Supply Chain Management Information Systems

- Focus on helping the firm manage its relationship with suppliers.
- Integrates supplier, manufacturer, distributor, and customer logistics processes to reduce time, redundant effort and inventory cost.
- involves the management of information flows between and among stages in a supply chain to maximize total supply chain effectiveness & profitability.

How IS can facilitate SCM

- Decide when and what to produce, store and move
- Rapidly communicate orders
- Track the status of orders
- Check inventory availability and monitor inventory levels
- Reduce inventory, transportation and warehousing costs
- Track shipment
- Plan production based on actual customer demand
- Rapidly communicate changes in product design

SCM

- SCP – Supply chain planning
  - Generate demand forecasts for a product and to develop sourcing and manufacturing plans for that product.
  - Capabilities: Order planning, advanced scheduling and manufacturing planning, Demand planning, distribution planning, Transportation planning
- SCE - Supply chain execution
  - Manage the flow of products through distribution centers and warehouses to ensure that products are delivered to the right locations in the most efficient manner.
  - Capabilities: Order commitments, Final production, replenishments, distribution management, Reverse distribution

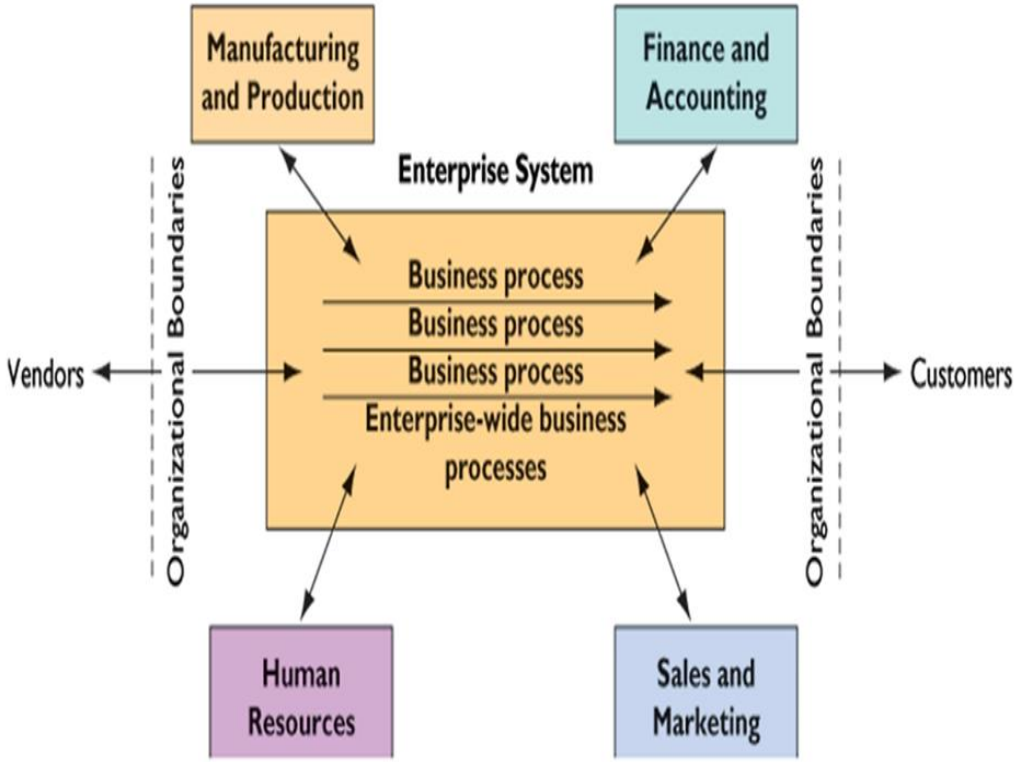
Collaborative Commerce

- Need trust to corporate and to honor the commitments
- Work together on the same goal and to redesign their business processes
- Easy the coordination of activities
- Extend their SCM systems to collaborate more closely.

Use of digital technologies to enable multiple organizations to collaboratively design, develop, build and manage products through their lifecycle – Collaborative commerce

Difference between SCM and ERP

- Supply chain management software handles data on incoming raw materials from outside vendors or suppliers, ERP software is much more focused on internal work processes.
- Nature of the transactions and processes that are handled by each type of application.
  - Supply chain management tools look at shipping materials, but they also involve evaluating key relationships with third party companies that help a production company to source its supplies and inventory.



Inclass Assignment 2

1. Developing decision alternatives is done during what decision-making stage?
    a. initiation stage
    b. intelligence stage
    c. design stage
    d. choice stage

2. Problem solving is one of the stages of decision making. (True or False)

3. The final stage of problem solving is _____.

4. A decision that inventory should be ordered when inventory levels drop to 500 units is an example of a(n) _____.
    a. synchronous decision
    b. asynchronous decision
    c. nonprogrammed decision
    d. programmed decision

5. A(n) _____ model will find the best solution to help the organization meet its goals.

6. A satisficing model is one that will find a good problem solution, but not necessarily the best problem solution. (True or False)?

7. Compare and Contrast TPS over MIS


Best
Wishes