Information Systems
ISM 3011

Fall 2004
Unit 2A

Assignment for Next Class

- Read and prepare the case studies 1, 2, and 3.

Put In Nonsense, Get Out Chaos

- Accurate data is crucial.
- False or ambiguous data propagates and puts the integrity of the whole Information System at risk.
- This is an even bigger danger when multiple systems work together and exchange data.

System and Modeling Concepts

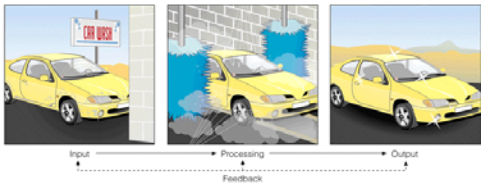
System

- A set of elements or components that interact to accomplish goals

- Input
- Processing mechanism
- Output
- Feedback
- System boundary

Components of a System

FIGURE 1-3
Components of a System
A system's four components consist of input, processing, output, and feedback.



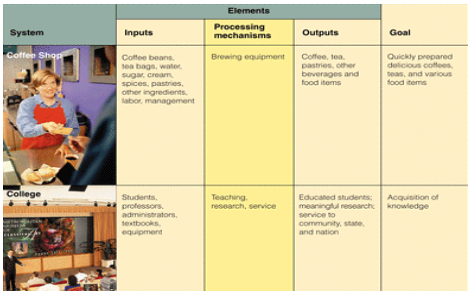


FIGURE 1.4
Examples of Systems and Their Goals and Elements

System Performance and Standards

- Efficiency: output/input
- Effectiveness: extent to which system attains its goals
- Performance standard: specific objective of a system

System Variables and System Parameters

- System variable - item controlled by decision-maker
- System parameter - value that cannot be controlled

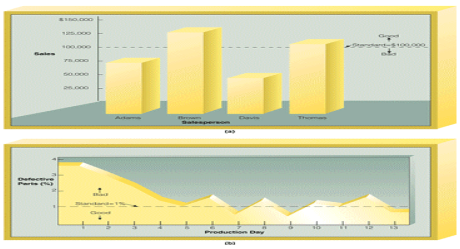
Systems Classification

TABLE 1.3
Systems Classifications and Their Primary Characteristics

Simple	**Complex**
Has few components, and the relationship or interaction between elements is uncomplicated and straightforward	Has many elements that are highly related and interconnected
Open	**Closed**
Interacts with its environment	Has no interaction with the environment
Stable	**Dynamic**
Undergoes very little change over time	Undergoes rapid and constant change over time
Adaptive	**Nonadaptive**
Is able to change in response to changes in the environment	Is not able to change in response to changes in the environment
Permanent	**Temporary**
Exists for a relatively long period of time	Exists for only a relatively short period of time

System Performance and Standards

FIGURE 1.5
System Performance Standards



Modeling a System

- A model is an abstraction that is used to represent reality
  - 4 major types of models
    - A narrative model is based on words
      - Logical, not physical
    - A physical model is tangible
    - A schematic model is a graphic representation
      - Graphs and charts
    - A mathematical model is an arithmetic representation

Why makes it sense to use models instead of reality?

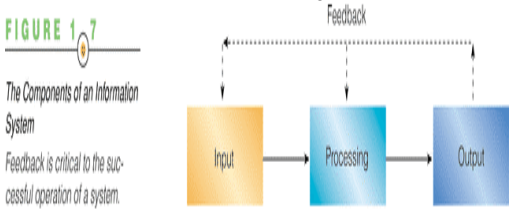
- Reality is complex. It is easier to understand the functionality of a system once it has been reduced to its essential structure.
- Automation implies that we treat a set of individuals or items equally. That means, we must find a form of representation which is suited for each.

Modeling a System

Models should be validated!

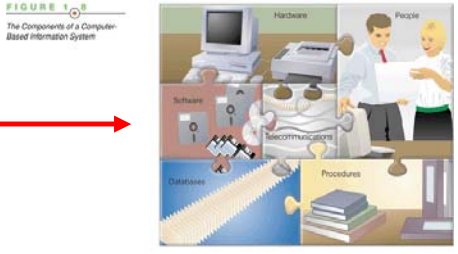
What Is An Information System?

Components of an Information System



Computer-Based Information Systems (CBIS)

Components of a CBIS

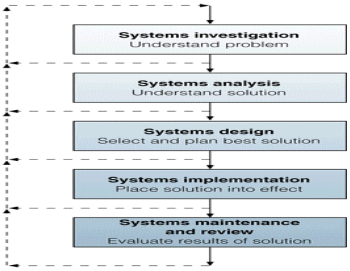


"…changing the way organizations conduct business."

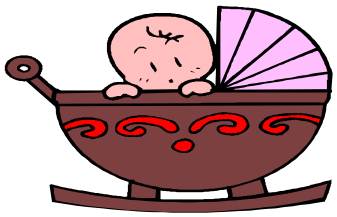
What do you think is the better approach:

a) Write an individual program that exactly represents a company's current processes?
b) Change the company's processes to those already available in standard software?
c) First reengineer all processes and then write respective software.

Systems Development



The Cradle Building Problem



Information Systems in Organizations

Principles of Information Systems
Sixth Edition - Chapter 2

Organizations & Information Systems

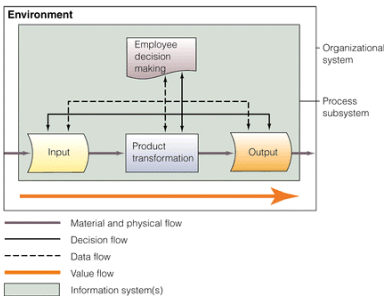


FIGURE 2-1
A General Model of an Organization
Information systems support and work within all parts of an organizational process. Although not shown in this simple model, input to the process subsystem can come from internal and external sources. Just prior to entering the subsystem, data is external. Once it enters the subsystem, it becomes internal. Likewise, goods and services can be output to either internal or external systems.

Value Chain

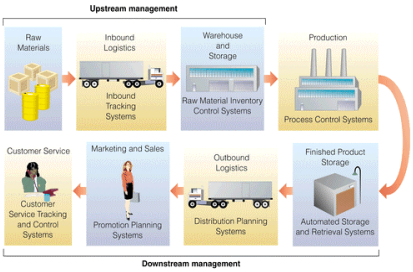


FIGURE 2-2
The Value Chain of a Manufacturing Company
The management of raw materials, inbound logistics, and warehouse and storage facilities is called upstream management, and the management of finished product storage, outbound logistics, marketing and sales, and customer service is called downstream management.

Organizational Structure

- Organizational subunits and their relationship with the overall organization
- Categories of organizational structure:
  - Team
  - Traditional
  - Multidimensional
  - Project
  - Virtual

Traditional Organizational Structure

FIGURE 2-3
A simplified model of the organization, showing the managerial pyramid from top-level managers to nonmanagement employees.

Example of a Traditional Structure

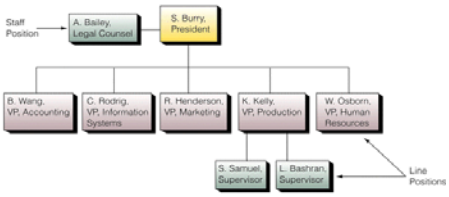


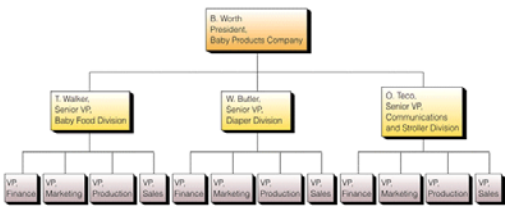
FIGURE 2-4
A Traditional Organizational Structure

Project Organizational Structure

- Centered on major products and services
- Temporary project teams

Project Organizational Structure

FIGURE 2-5
A Project Organizational Structure



Team Organizational Structure

- Temporary or permanent teams
- Work groups
- Various sizes

Multidimensional Organizational Structure

- May incorporate several structures at the same time
- Advantage:
  - ability to simultaneously stress both traditional corporate areas and important product lines
- Disadvantage:
  - multiple lines of authority

Multidimensional Organizational Structure

FIGURE 2.6

A Multidimensional Organizational Structure

Employees in each group may have two bosses—a project boss and a functional boss.

	Vice President, Marketing	Vice President, Production	Vice President, Finance
Publisher, College Division	Marketing Group	Production Group	Finance Group
Publisher, Trade Division	Marketing Group	Production Group	Finance Group
Publisher, High School Division	Marketing Group	Production Group	Finance Group

Virtual Organizational Structure

- Employs business units in geographically dispersed areas
- People may never meet face to face
- Can be permanent or temporary

Organizational Culture

- Shared understandings, values, and assumptions in an organization
- Influences information systems

Organizational Change

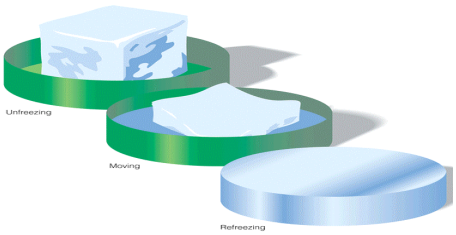


FIGURE 2.7

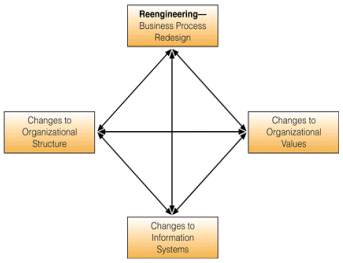
A Change Model

Reengineering

FIGURE 2.8

Reengineering

Reengineering involves the radical redesign of business processes, organizational structure, information systems, and values of the organization to achieve a breakthrough in business results.



Reengineering

Rule	Original Rationale	Potential Problem
Small orders must be held until full-truckload shipments can be assembled.	Reduce delivery costs.	Customer delivery is slowed—lost sales.
No order can be accepted until customer credit is approved.	Reduce potential for bad debt.	Customer service is poor—lost sales.
All merchandising decisions are made at headquarters.	Reduce number of items carried in inventory.	Customers perceive organization has limited product selection—lost sales.

TABLE 2.1

Selected Business Rules That Affect Business Processes

Continuous Improvement

- Constantly seeking ways to improve business processes
- Benefits:
  - Increased customer loyalty
  - Reduction in customer dissatisfaction
  - Reduced opportunity for competitive inroads

Continuous Improvement vs. Reengineering

Business Process Reengineering	Continuous Improvement
Strong action taken to solve serious problem	Routine action taken to make minor improvements
Top-down driven by senior executives	Worker driven
Broad in scope; cuts across departments	Narrow in scope; focus is on tasks in a given area
Goal is to achieve a major breakthrough	Goal is continuous, gradual improvements
Often led by outsiders	Usually led by workers close to the business
Information system integral to the solution	Information systems provide data to guide improvement team

TABLE 2.2

Comparing Business Process Reengineering and Continuous Improvement

"…changing the way organizations conduct business."

What do you think is the better approach:

a) Write an individual program that exactly represents a company's current processes?
b) Change the company's processes to those already available in standard software?
c) First reengineer all processes and then write respective software.

Technology Diffusion, Infusion, and Acceptance

- Technology diffusion - measure of widespread use of technology
- Technology infusion - extent to which technology permeates a department

Total Quality Management (TQM)

- Quality: ability of a product or service to meet or exceed customer expectations
- TQM: approaches and techniques used to achieve quality throughout the organization

→ Feedback ←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