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# MIS COURSE

# Chapter 1

# INFORMATION SYSTEMS IN BUSINESS TODAY

## Learning Objectives

- **Define an information system and describe its management, organization, and technology components. (Perspectives on Information Systems)**

- **Define complementary assets and explain how they ensure that information systems provide genuine value to an organization. (Perspectives on Information Systems)**

- **How will a four-step method for business problem solving help you solve information system-related problems?** (A Business Problem-Solving Approach)

- **Explain why information systems are so essential in business today.** (The Role of Information Systems in Business Today)

- **Information system:**

    - **Set of interrelated components**

    - **Collect, process, store, and distribute information**

    - **Support decision making, coordination, and control**

- **Information vs. data**

    - **Data are streams of raw facts**
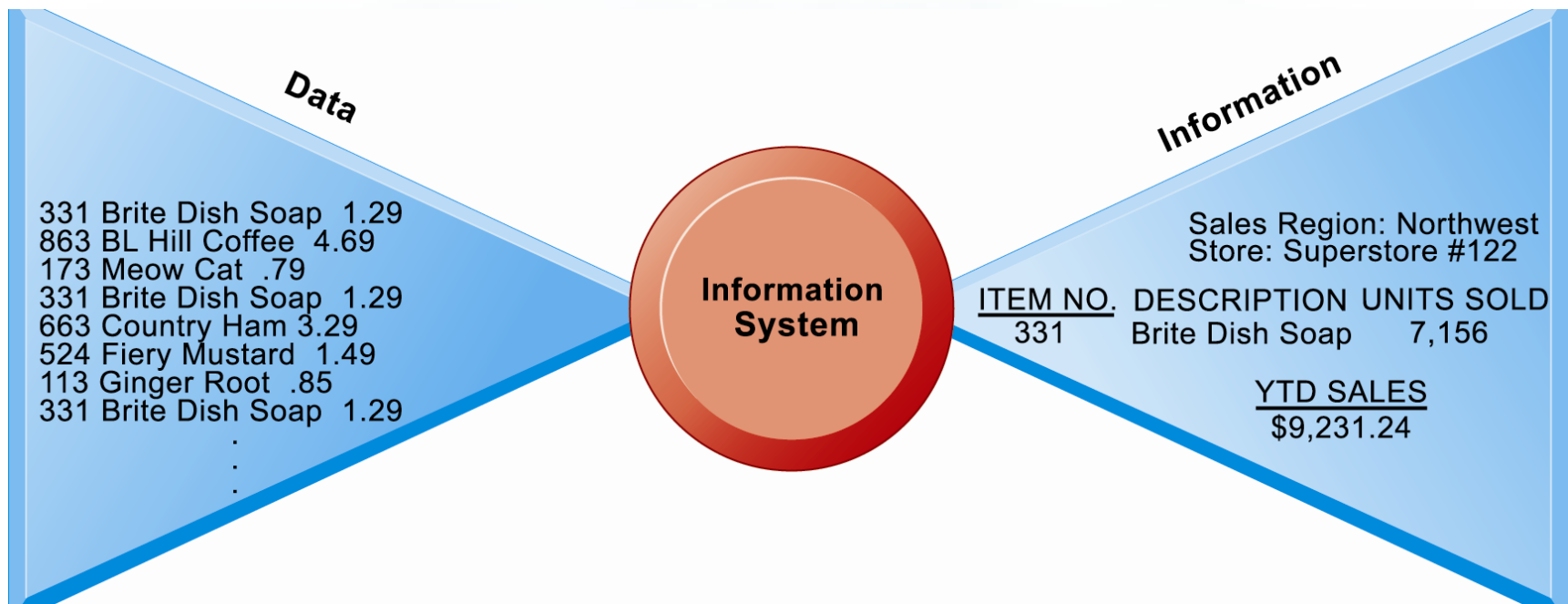
    - **Information is data shaped into meaningful form**

# Data and Information

## Data and Information

Data Characteristics Required for Good Information:

- ➢ Accurate
- ➢ Timely
- ➢ Relevant to subject
- ➢ Sufficient
- ➢ Worth its cost

# Three activities of information systems produce information organizations need

1.  **Input:** Captures raw data from organization or external environment

2.  **Processing:** Converts raw data into meaningful form

3.  **Output:** Transfers processed information to people or activities that use it

- **Feedback:**
  - **Output returned to appropriate members of organization to help evaluate or correct input stage**

- **Computer/Computer program vs. information system**
  - **Computers and software are technical foundation and tools, similar to the material and tools used to build a house**
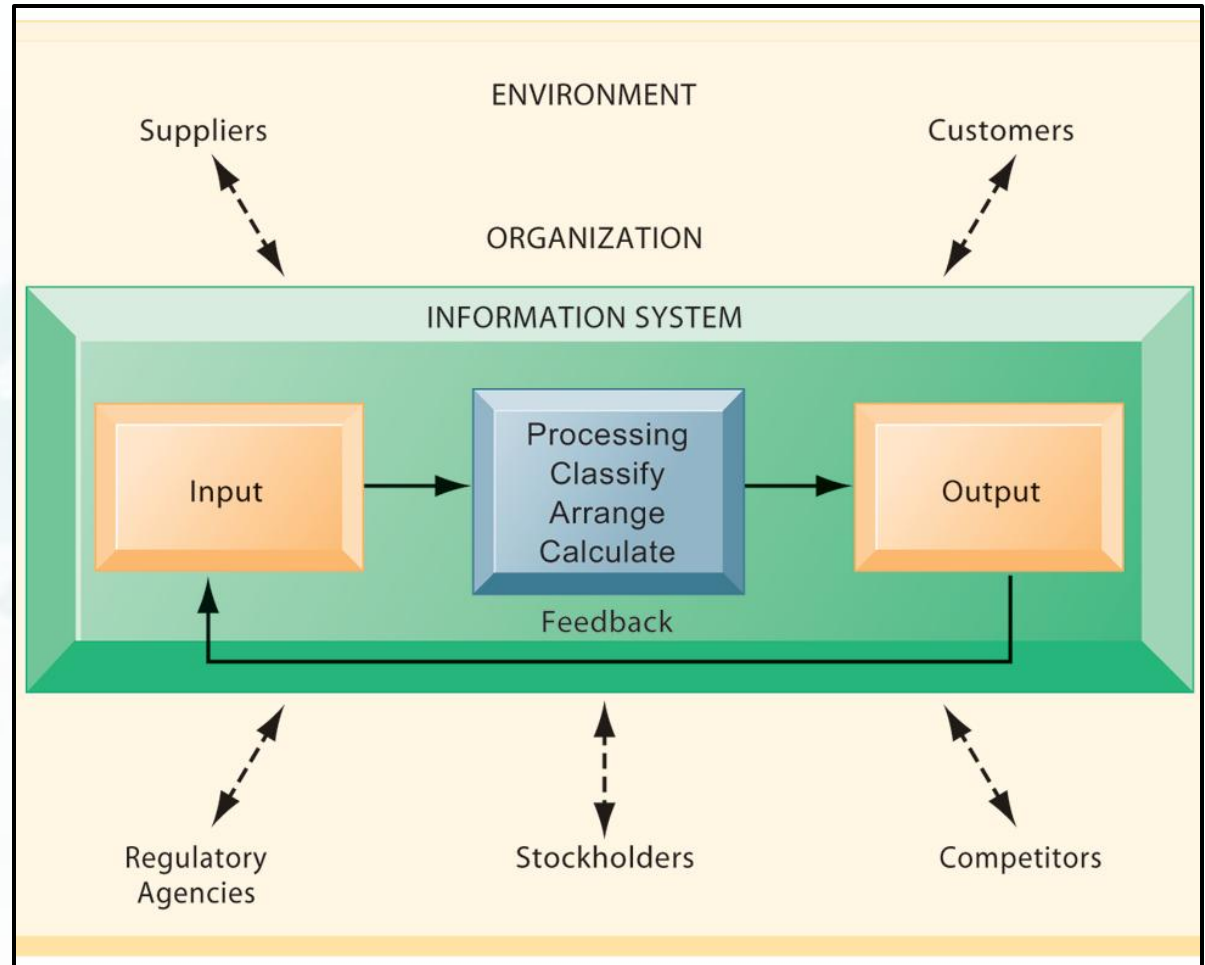
## Perspectives on Information Systems

### Functions of an Information System

An information system contains information about an organization and its surrounding environment. Three basic activities—input, processing, and output—produce the information organizations need. Feedback is output returned to appropriate people or activities in the organization to evaluate and refine the input. Environmental actors, such as customers, suppliers, competitors, stockholders, and regulatory agencies, interact with the organization and its information systems.

## Perspectives on Information Systems

### Information Systems Are More Than Computers

Using information systems effectively requires an understanding of the organization, management, and information technology shaping the systems. An information system creates value for the firm as an organizational and management solution to challenges posed by the environment.

**Information System (IS) versus Information Technology (IT)**

# IS = IT +organization + People

## Avoid common mistake: You cannot buy an IS

➤ Can buy or lease hardware, software licenses, databases and predesigned procedures.

➤ People require training, overcoming employees' resistance to change, managing employees using new system.

## 1. **Organizational** dimension of information systems

- **Hierarchy of authority, responsibility**
  - Senior management
  - Middle management
  - Operational management
  - Knowledge workers
  - Data workers
  - Production or service workers

## Perspectives on Information Systems

### Levels in a Firm

Business organizations are hierarchies consisting of three principal levels: senior management, middle management, and operational management. Information systems serve each of these levels. Scientists and knowledge workers often work with middle management.



Senior Management

Middle Management
Scientists and knowledge workers
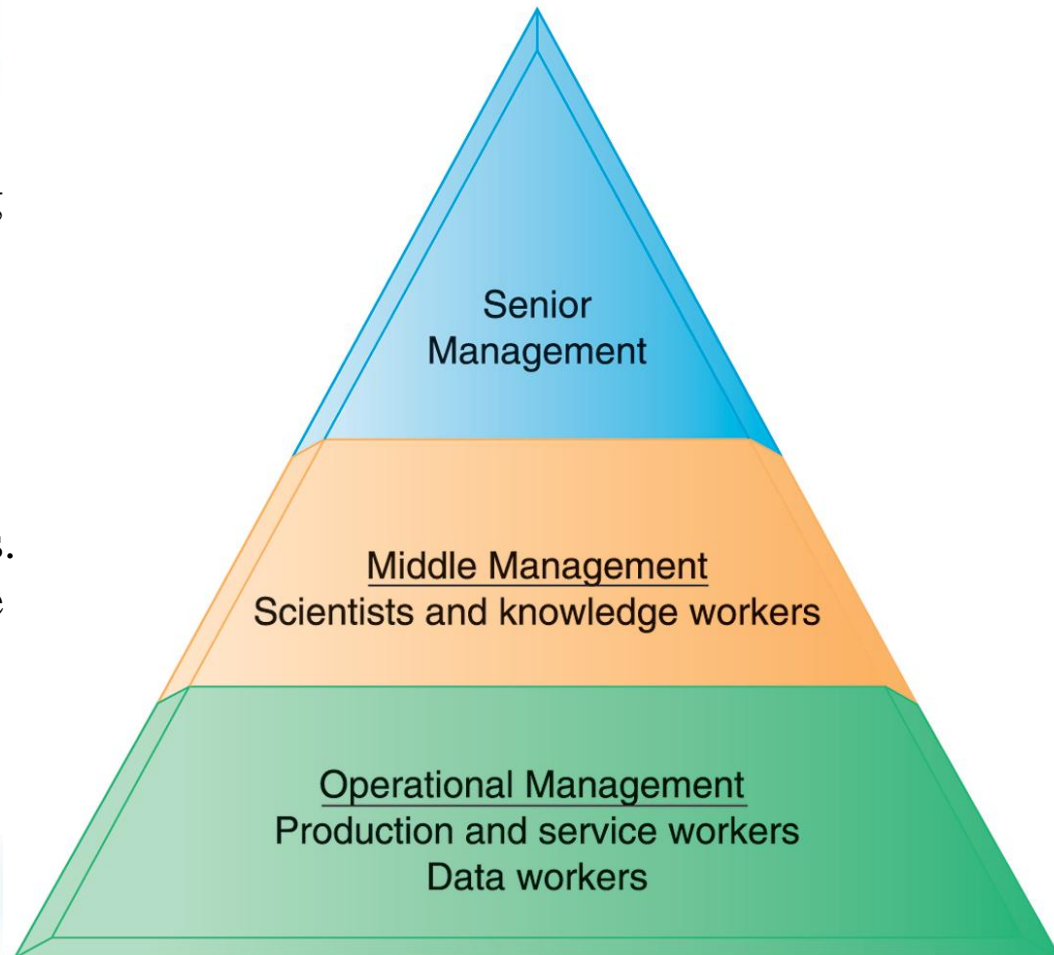
Operational Management
Production and service workers
Data workers

# 1. **Organizational** dimension of information systems (cont.)

- **Separation of business functions**
  - Sales and marketing
  - Human resources
  - Finance and accounting
  - Manufacturing and production
- **Unique business processes**
- **Unique business culture**
- **Organizational politics**

## 2. Management dimension of information systems

- Managers set organizational strategy for responding to business challenges

- In addition, managers must act creatively:
    - Creation of new products and services
    - Occasionally re-creating the organization

# 3. Technology dimension of information systems

- Computer hardware and software
- Data management technology
- Networking and telecommunications technology
  - Networks, the Internet, intranets and extranets, World Wide Web
- IT infrastructure: provides platform that system is built on

## Interactive Session: Technology
## UPS Competes Globally with Information Technology

*Using a handheld computer called a Delivery Information Acquisition Device (DIAD), UPS drivers automatically capture customers' signatures along with pickup, delivery, and time card information. UPS information systems use these data to track packages while they are being transported.*

- **Business perspective on information systems:**

  - **Information system is instrument for creating value**

  - **Investments in information technology will result in superior returns:**

    - Productivity increases

    - Revenue increases

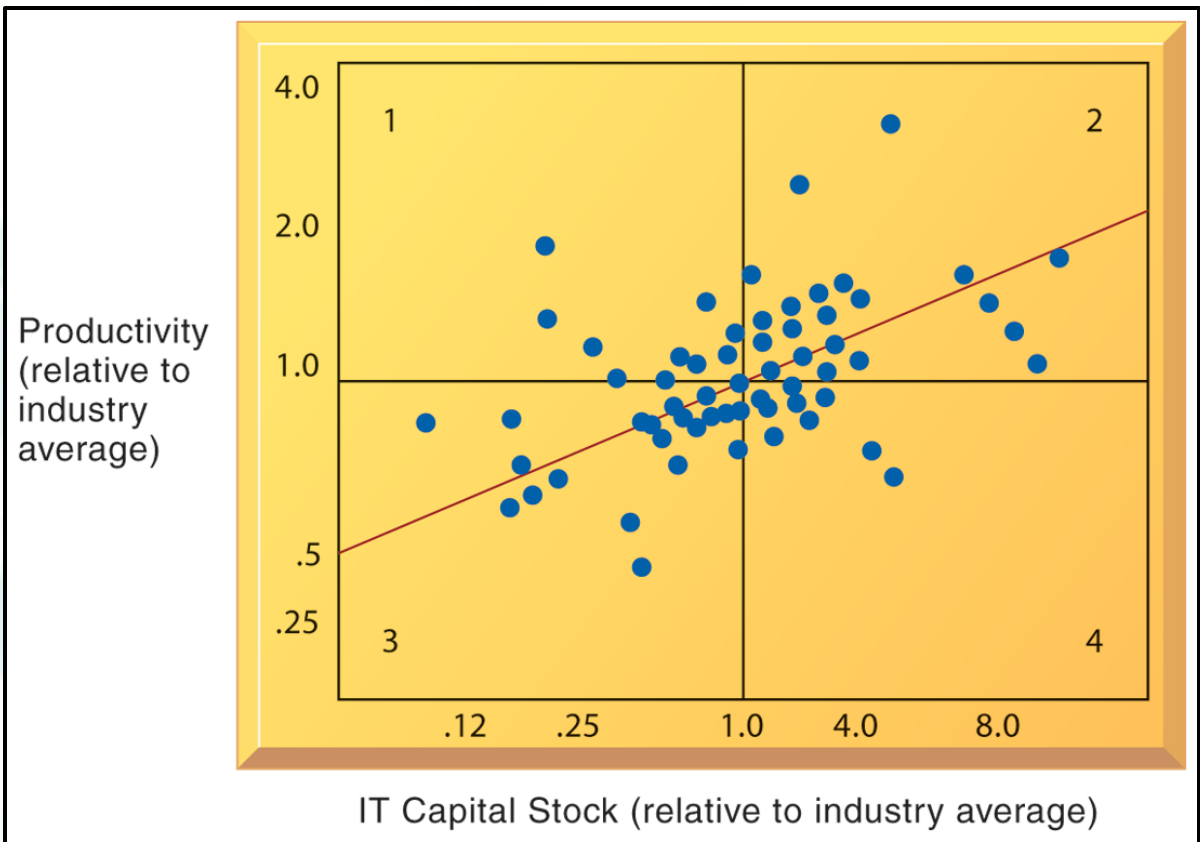    - Superior long-term strategic positioning

## Perspectives on Information Systems

**Variation in Returns On Information Technology Investment**

Although, on average, investments in information technology produce returns far above those returned by other investments, there is considerable variation across firms.

- **Investing in information technology does not guarantee good returns**

- **Considerable variation in the returns firms receive from systems investments**

- **Factors:**
  - **Adopting the right business model**
  - **Investing in complementary assets (organizational and management capital)**

- **Complementary assets:**
  - **Assets required to derive value from a primary investment**
  - **Firms supporting technology investments with investment in complementary assets receive superior returns**
  - **E.g.: invest in technology <u>and</u> the people to make it work properly**

- **Complementary assets include:**
  - **Organizational assets, e.g.**
    - Appropriate business model
    - Efficient business processes
  - **Managerial assets, e.g.**
    - Incentives for management innovation
    - Teamwork and collaborative work environments
  - **Social assets, e.g.**
    - The Internet and telecommunications infrastructure
    - Technology standards