

# MANAGEMENT INFORMATION SYSTEMS

## Chapter 1 Information Systems in Business Today

# Learning Objectives

1. **Understand** the effects of information systems on business
2. **Investigate** the relationship between information systems and globalization.
3. **Explain** why information systems are so essential in business today.
4. **Define** an information system and **describe** its management, organization, and technology components.
5. **Define** complementary assets and explain how they ensure that information systems provide genuine value to an organization
6. **Explain** what is meant by a sociotechnical systems perspective

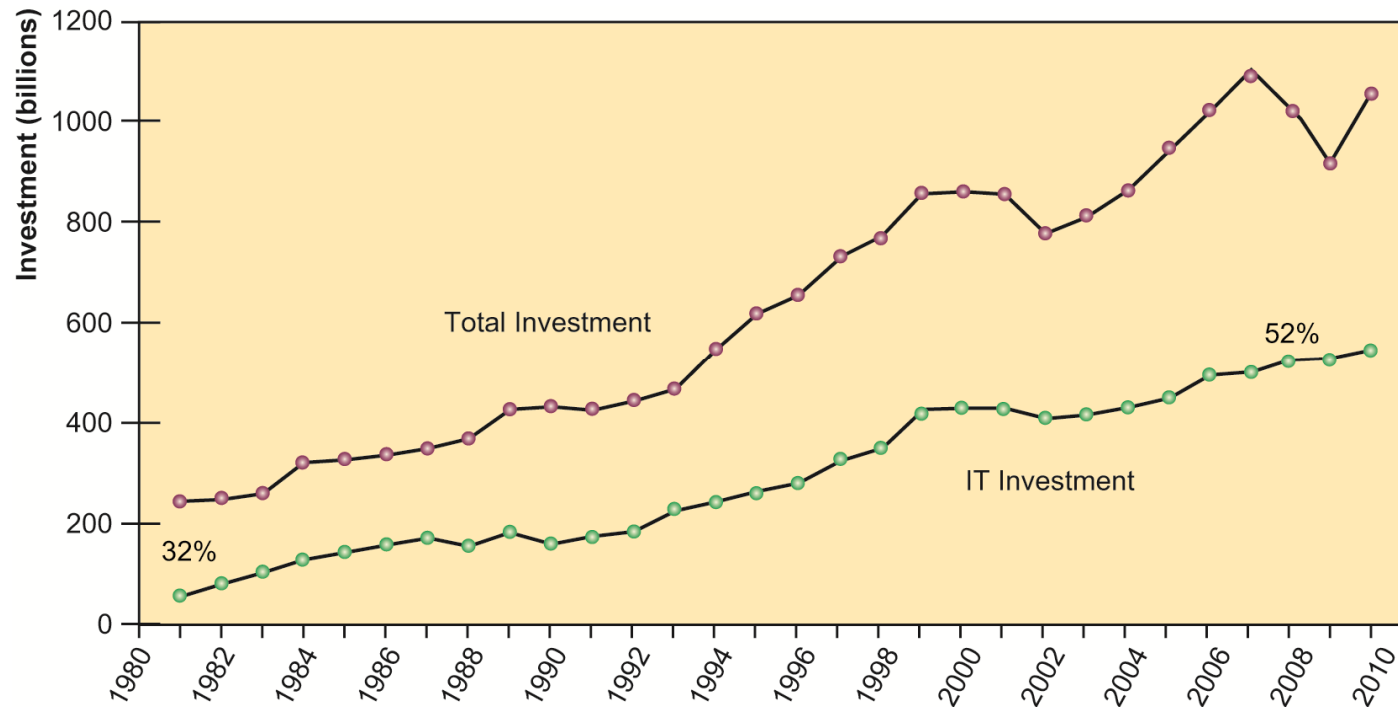
# Managing Lines at Disney World

In Disney World, long lines limit how many rides, shops, and restaurants a customer can visit during a stay, which may cause a problem that has a direct impact on Disney's profit.

To cope with this problem, Disney uses information systems to spot gridlock and improve crowd flow. More specifically, Disney has used operational command center video cameras, digital maps, computer programs, and mobile apps to monitor attendance, registers, and spot and prevent gridlock.

This will eventually Enhance customer satisfaction and spending (IT improves customers experience).

# n Technology Capital Investment



Information technology capital investment, defined as hardware, software, and communications equipment, grew from 32 percent to 52 percent of all invested capital between 1980 and 2009.

# of Information Systems in Business Today

” How information systems are transforming businesses?

Answer, through changes in three main themes in businesses:

- . Technological Advancements
- . Management Responsibilities
- . Organizational Redesign

# of Information Systems in Business Today

## ” Technological Advancements:

- . Emerging mobile digital platform
- . Growing business use of “big data”
- . Growth in cloud computing
- . All of the above have influenced Globalization
  - ” Internet has drastically reduced costs of operating on global scale
  - ” Increases in foreign trade, outsourcing
  - ” Presents both challenges and opportunities
  - ” Flexibility (time and space/location)

# Take Business from the Palm of your Hand

- “ What kinds of applications are described in the case? What business functions do they support? How do they improve operational efficiency and decision making?
- “ Identify the problems that businesses in this case study solved by using mobile digital devices.
- “ What kinds of businesses are most likely to benefit from equipping their employees with mobile devices?
- “ Discuss the implications of this statement: “The iPhone is not a game changer, it’s an industry changer.

# of Information Systems in Business Today

## ” Management Responsibilities:

- . Managers adopt online collaboration and social networking to improve coordination and knowledge sharing
- . Management interaction with employees
- . Powerful data analytics provide real time performance information to managers
- . Virtual meeting to reduce cost, travel time, while improving collaboration and decision making
- . Greater flexibility



# f Information Systems in Business Today

## ” Organizational Redesign:

- . Use social networking to increase collaboration and interaction with customers and suppliers.
- . Time shift: working 24/7
- . Space shift: working anywhere , working away from offices, or remote work



# f Information Systems in Business Today

” All the changes in Technology, Management, and Organization have created the conditions for what is called a “Digital Firm”

# f Information Systems in Business Today

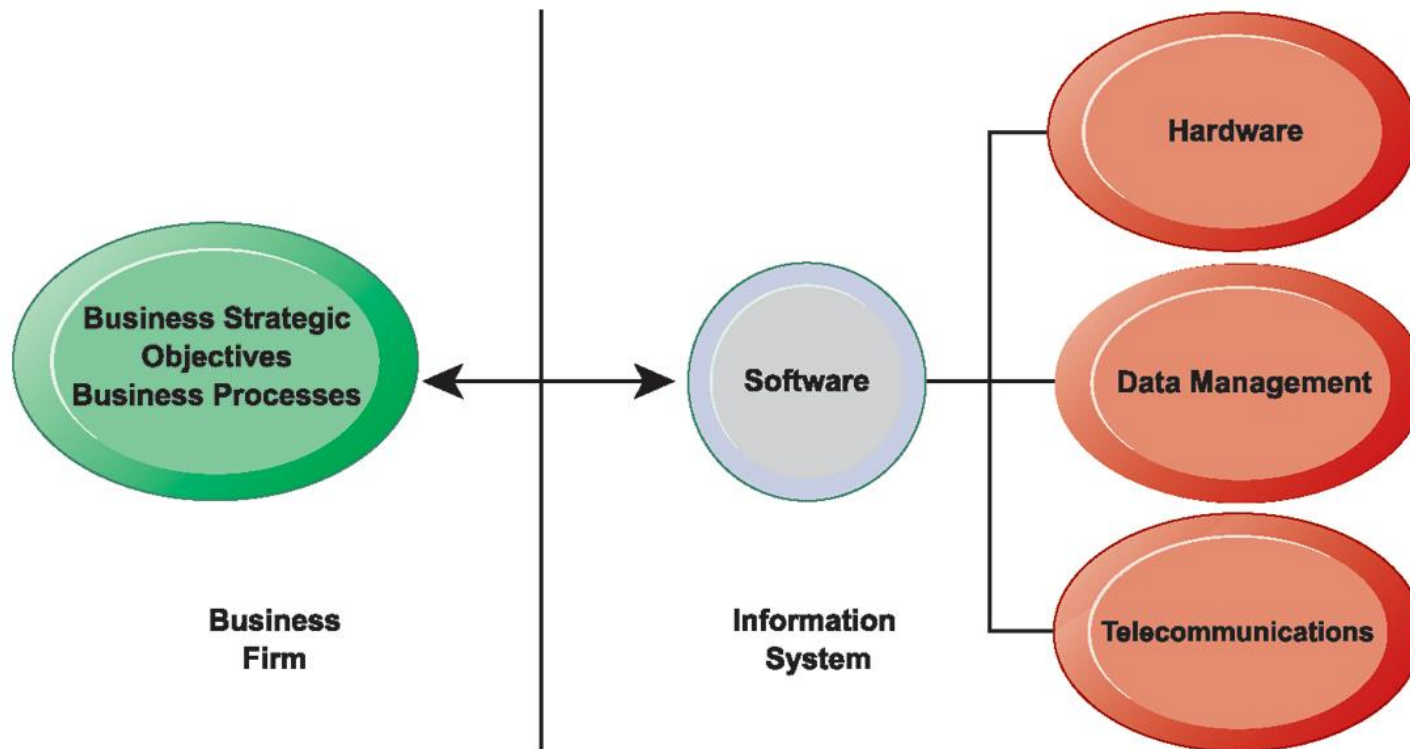
- “ Digital Firm: is the one in which nearly all of the organizations significant business relationships with customers, suppliers, and employees are digitally enabled.
- “ In a digital firm, Core Business Processes are accomplished through digital networks spanning the entire organization.

# n Systems and Strategic Business Objectives

>> Greater interdependence between the firm's strategic objectives and Information systems, How?

Answer, changes in firm's strategy and rules require changes in hardware, software, database, and telecommunications (all are components of an information system).

# n Systems and Strategic Business Objectives



There is a growing interdependence between a firm's information systems and its business objectives.

# n Systems and Strategic Business Objectives

- “ Looking to the future, what an organization would like to do depends on what its systems will permit it to do.
- “ Therefore, business firms invest heavily in developing their information systems
- “ In general, firms attempt to achieve six strategic objectives (listed next) when developing information systems

# Information Systems and Strategic Business Objectives

- ” Six strategic business objectives:
1. Operational excellence
  2. New products, services, and business models
  3. Customer and supplier strategic relationships
  4. Improved decision making
  5. Competitive advantage
  6. Survival

# n Systems and Strategic Business Objectives

## ” Operational excellence:

- . Improvement of efficiency to attain higher profitability
- . Information systems, technology an important tool in achieving greater efficiency and productivity
- . Walmart’ s Retail Link system links suppliers to stores for superior replenishment system



# Information Systems and Strategic Business Objectives

- ” New goods, services, and business models:
  - . Information systems and technology a major enabling tool for new products and business models
  - . Business model: describes how company produces, delivers, and sells product or service to create wealth
    - ” Examples: Apple’s iPod/iPad vs. regular music stores, and Netflix vs. Blockbuster video/DVD stores

# Information Systems and Strategic Business Objectives

- ” Customer and supplier intimacy:
  - . Serving customers well leads to customers returning, which raises revenues and profits.
    - ” Example: High-end hotels that use computers to track customer preferences, used to monitor and customize environment
  - . Intimacy with suppliers allows them to provide vital inputs, which lowers costs.
    - ” Example: JCPenney’s information system which links sales records to contract manufacturer

# Information Systems and Strategic Business Objectives

- ” Improved decision making
  - . Without accurate information:
    - ” Managers must use forecasts, best guesses, luck
    - ” Results in:
      - . Overproduction, underproduction
      - . Misallocation of resources
      - . Poor response times
    - ” Poor outcomes raise costs, lose customers
  - . Example: Verizon’s Web-based digital dashboard to provide managers with real-time data on customer complaints, network performance, line outages, and so on

# Information Systems and Strategic Business Objectives

- ” Competitive advantage
  - . All of the previous objectives create competitive advantage for firms
    - ” Delivering better performance
    - ” Charging less for superior products
    - ” Responding to customers and suppliers in real time
    - ” Examples: Apple, Walmart, UPS

# Information Systems and Strategic Business Objectives

## ” Survival

- . Information technologies as necessity of business
- . Industry-level changes
  - ” Example: Citibank’ s introduction of ATMs



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# es on Information Systems

## ” Information vs. Data

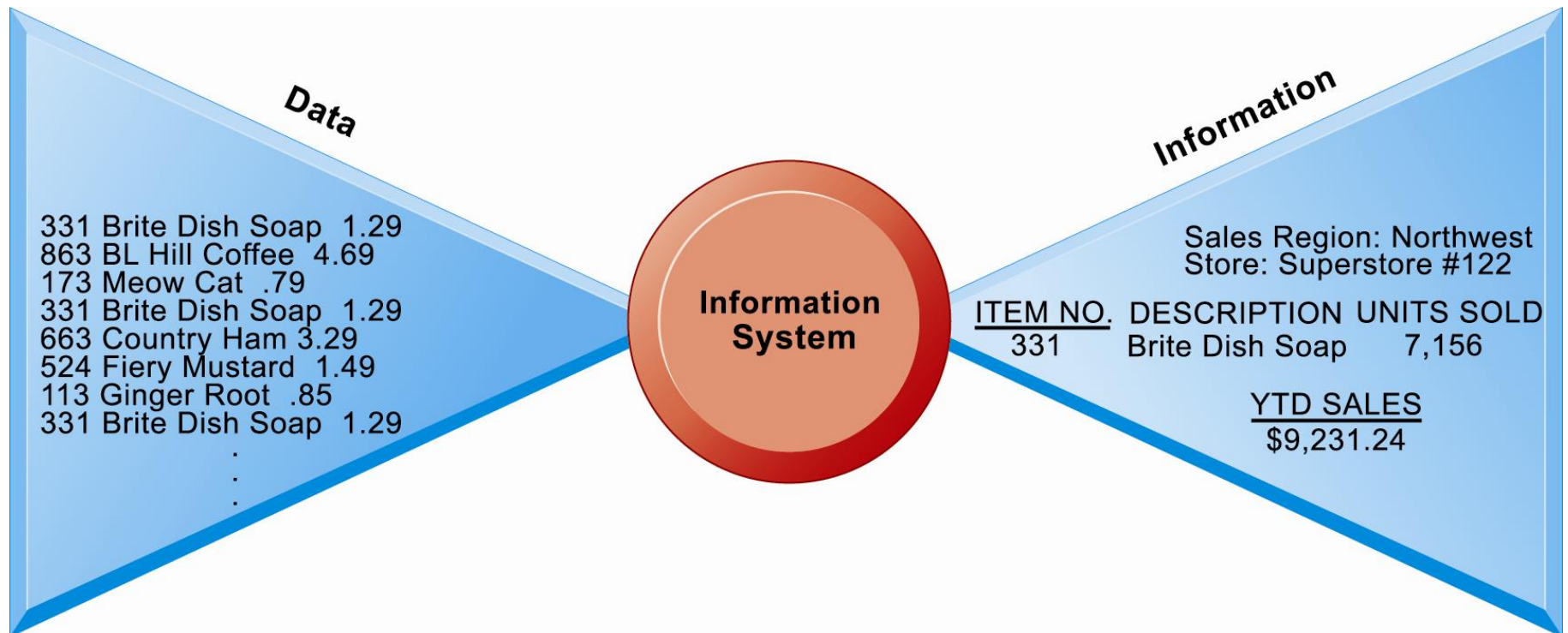
- . Data are streams of raw facts.
- . Information is data shaped into meaningful form

# es on Information Systems

” Information system:

- . A Set of interrelated components that work together (hardware, software, database, telecommunications, personnel, and procedures)
- . These components collect, process, store, and distribute information
- . In order to, support decision making, coordination, and control

# es on Information Systems



Raw data from a supermarket checkout counter can be processed and organized to produce meaningful information, such as the total unit sales of dish detergent or the total sales revenue from dish detergent for a specific store or sales territory.



# es on Information Systems

- ” Four activities of information systems produce information the firm need
- Input: Captures raw data from organization or external environment
  - Processing: Converts raw data into meaningful form
  - Output: Transfers processed information to people or activities that use it
  - Feedback:
    - ” Output is returned to appropriate members of organization to help evaluate or correct input stage.

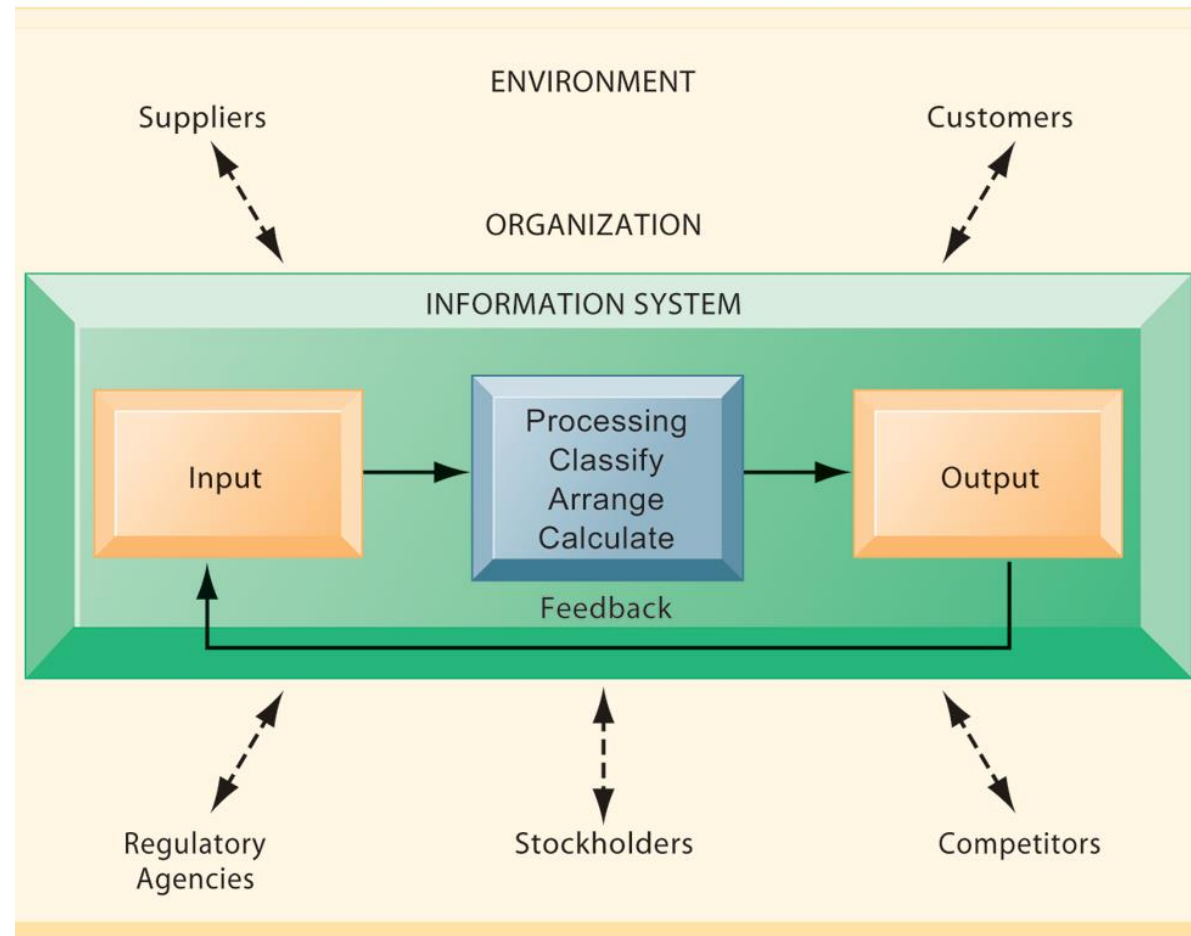
# es on Information Systems

- ” Computer/Computer program vs. information system
- . Computers and software are technical foundation and tools,
  - . They are similar to the material and tools used to build a house. Tools and materials don't just suddenly become a completed house—outside (human) input is required.

# Systems

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.

## of an Information



# Information Systems



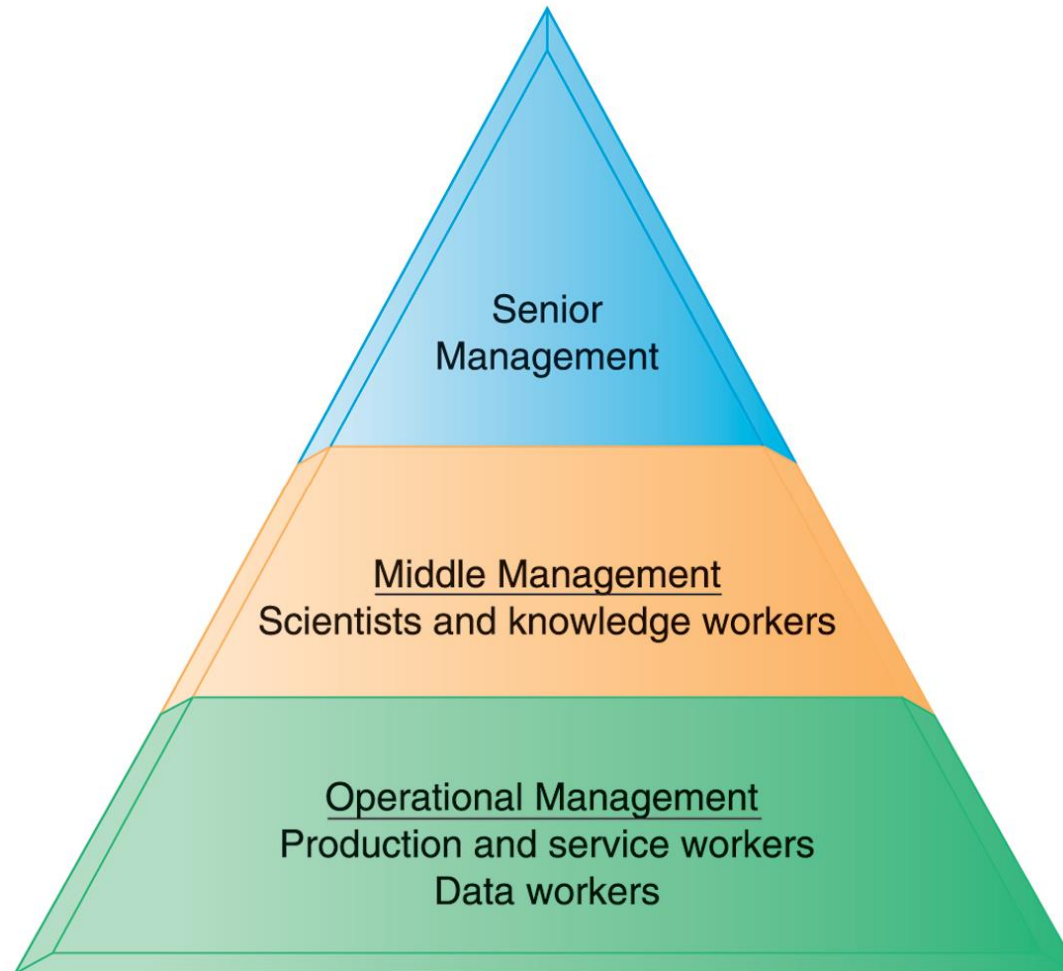
Information systems are more than computers. Using information systems effectively requires an understanding of the organization, management, and information technology shaping the systems. An information system creates value for the firm as an organizational and management solution to challenges posed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

# es on Information Systems

- ” **Organizational** dimension of information systems
  - . Hierarchy of authority, responsibility
    - ” Senior management
    - ” Middle management
    - ” Operational management
    - ” Knowledge workers
    - ” Data workers
    - ” Production or service workers

# es on Information Systems

Levels in Firms.  
Business organizations  
are hierarchies  
consisting of three  
principal levels: senior  
management, middle  
management, and  
operational  
management.  
Information systems  
serve each of these  
levels.



# es on Information Systems

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

- . Separation of business functions
  - ” Sales and marketing
  - ” Finance and accounting
  - ” Manufacturing and production
- . Unique business processes
- . Unique business culture

# es on Information Systems

## ” **Management** dimension of information systems

- . Managers set organizational strategy for responding to business challenges
- . Management needs real-time data/ information
- . In addition, managers must act creatively:
  - ” Creation of new products and services
  - ” Occasionally re-creating the organization



# es on Information Systems

## ” **Technology** dimension of information systems

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

## Systems

### UPS COMPETES GLOBALLY WITH I.T.

- “ What are the inputs, processing, and outputs of UPS’ s package tracking system?
- “ What technologies are used by UPS? How are these technologies related to UPS’ s business strategy?
- “ What business objectives do UPS’ s information systems address?
- “ What would happen if these systems were not available?

# es on Information Systems

## ” Dimensions of UPS tracking system

- . Organizational:
  - ” Procedures for tracking packages and connected business functions to ensure superior customer service
- . Management:
  - ” Monitor service levels and costs
- . Technology:
  - ” Handheld computers, bar-code scanners, networks, desktop computers, and so on

# es on Information Systems

- “ Investing in information technology does not guarantee good returns.
- “ There is considerable variation in the returns firms receive from systems investments.
- “ This is due to the lack of investments in complementary assets (organizational and management capital)

# es on Information Systems

## “ Complementary assets:

- . Assets required to derive value from a primary investment
- . Firms supporting technology investments with investment in complementary assets receive superior returns
- . The next slide shows some examples

# es on Information Systems

- ” Complementary assets include:
  - . Organizational assets, for example:
    - ” Appropriate business model
  - . Managerial assets, for example:
    - ” Incentives for management innovation
    - ” Teamwork and collaborative work environments

# Library Approaches to Study Information Systems

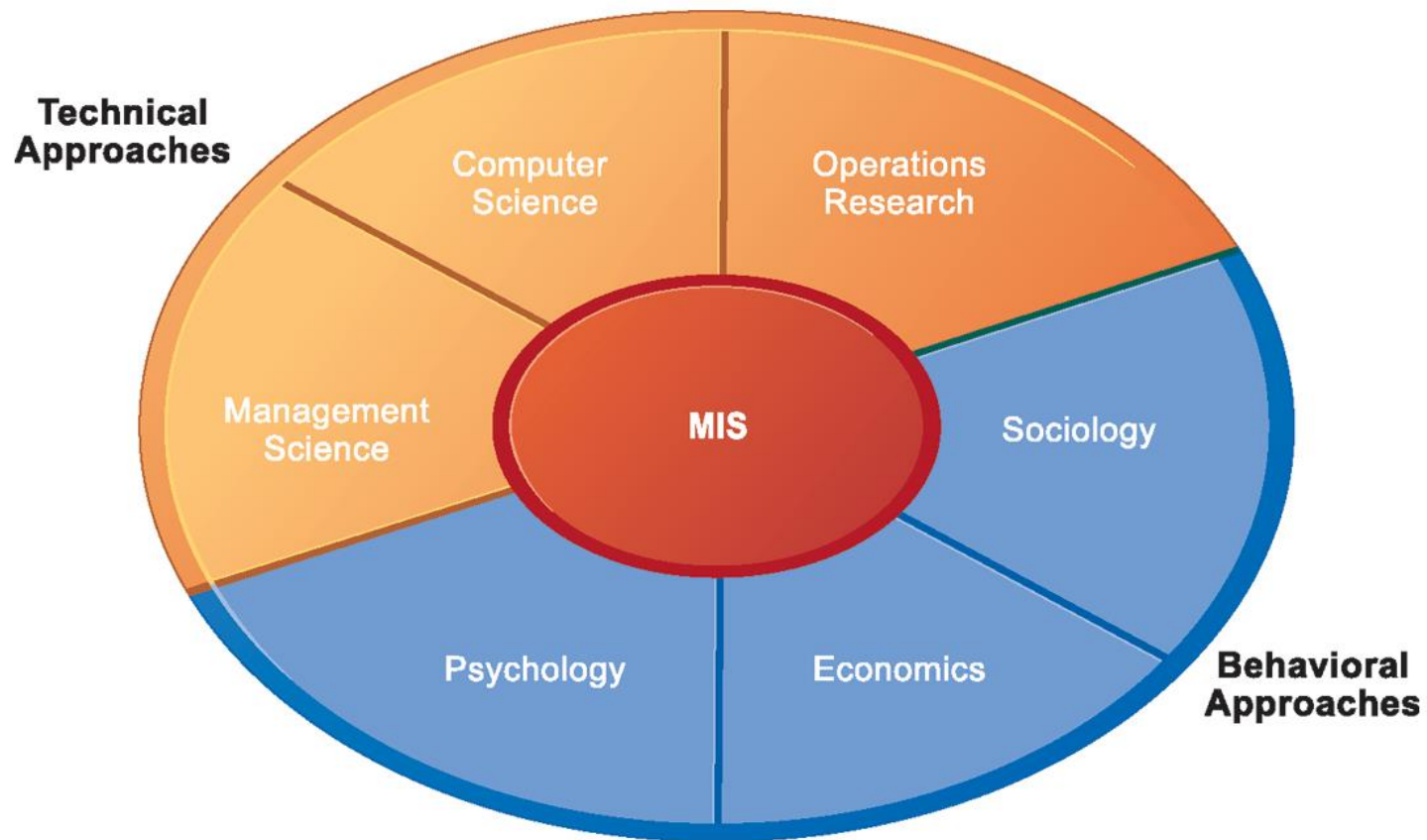
## ” Technical approach

- . Emphasizes mathematically based models
- . Computer science, management science, operations research

## ” Behavioral approach

- . Behavioral issues (strategic business integration, implementation, etc.)
- . Psychology, economics, sociology

# Library Approaches to Study Information Systems





# Library Approaches to Study Information Systems

## ” Management Information Systems

- . Combines computer science, management science, operations research and practical orientation with behavioral issues

## ” Four main actors

- . Suppliers of hardware and software
- . Business firms
- . Managers and employees
- . Firm’ s environment (legal, social, cultural context)

# Library Approaches to Study Information Systems

- ” Approach of this book: Sociotechnical view
- . Optimal organizational performance achieved by jointly optimizing both social and technical systems used in production
  - . Helps avoid purely technological approach

>> Management Information Systems, Managing the Digital Firm, 13 Edition (2014), Laudon and Laudon.