




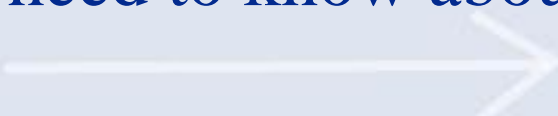
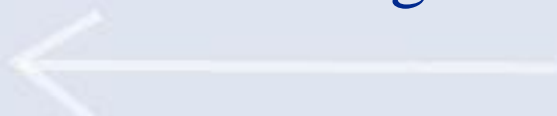
# Chapter 1

## Managing the Digital Firm





## Objectives

1. What is the role of information systems in today's competitive business environment? 
2. What exactly is an information system? What do managers need to know about information systems? 
3. How are information systems transforming organizations and management? 



Objectives

4. How have the Internet and Internet technology transformed business and government?
5. What are the major management challenges to building and using information systems?



Management Challenges

1. Design competitive and effective systems.
2. Understand system requirements of global business environment.
3. Create information architecture that supports organization's goal.

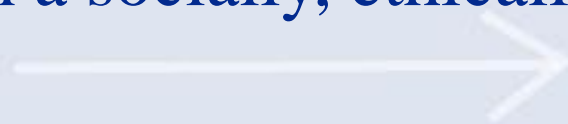


Management Challenges

4. Determine business value of information systems.



5. Design systems people can control, understand and use in a socially, ethically responsible manner.





Why Information Systems?

**The Competitive Business Environment and the Emerging Digital Firm**

Four powerful worldwide changes that have  
altered the business environment:

1. Globalization
2. Rise of the Information Economy
3. Transformation of the Business Enterprise
4. Emergence of the Digital Firm



## Why Information Systems?

### The Competitive Business Environment and the Emerging Digital Firm

# Globalization

The word "Globalization" is centered in a large serif font. A long white arrow points to the right from the end of the word. Below the word, there are two faint, semi-transparent laptop icons. One is positioned above the word, and the other is below it to the right. A long white arrow points to the left from the bottom of the word.

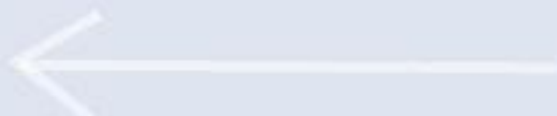
- Management and control in a global marketplace
- Competition in world markets
- Global workgroups
- Global delivery systems



## Why Information Systems?

### The Competitive Business Environment and the Emerging Digital Firm

# Rise of the Information Economy

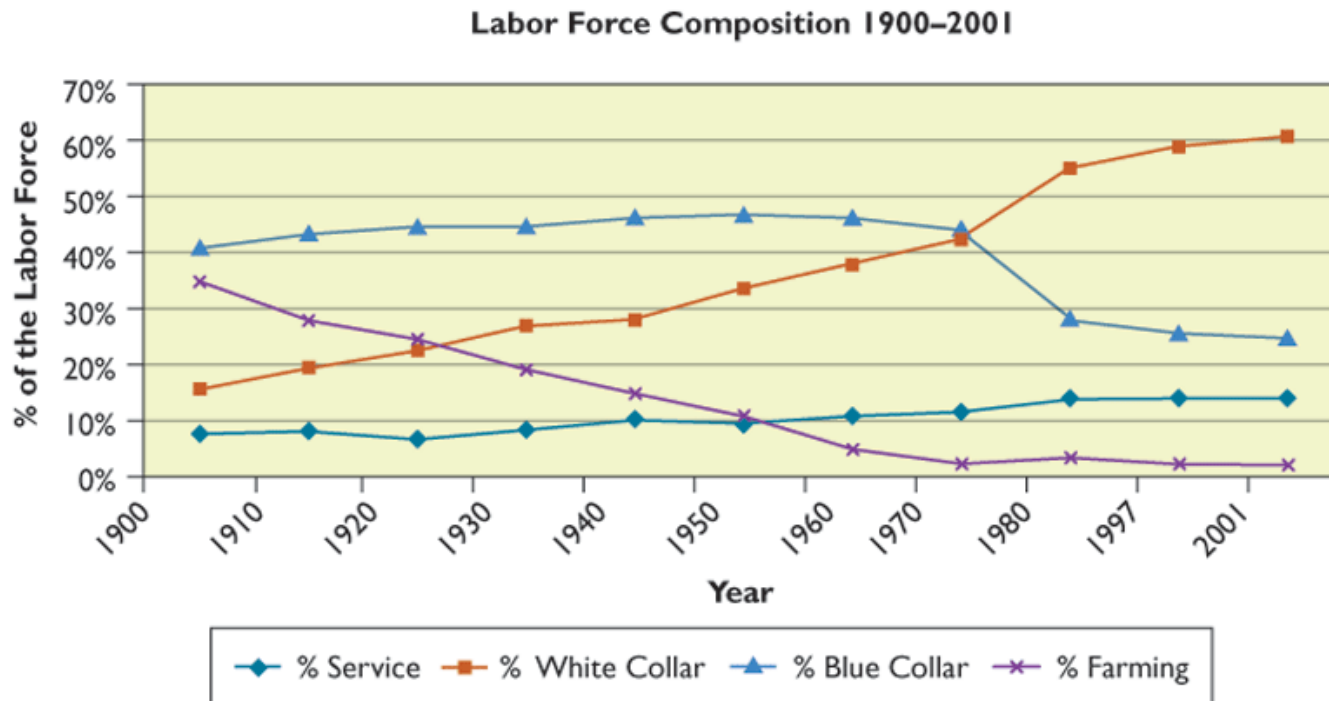
- Knowledge- and information-based economies
  - New products and services
  - Knowledge: a central productive and strategic asset
  - Time-based competition
  - Shorter product life
  - Turbulent environment
  - Limited employee knowledge base
- 





### Why Information Systems?

#### The growth of the information economy



Sources: U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States, 2002*, Table 588; and *Historical Statistics of the United States, Colonial Times to 1970*, Vol. 1, Series D, pp. 182–232.

**Figure 1-1**



## Why Information Systems?

### The Competitive Business Environment and the Emerging Digital Firm

# Transformation of the Business Enterprise

- Flattening
- Decentralization
- Flexibility 
- Location independence
- Low transaction and coordination costs
- Empowerment
- Collaborative work and teamwork 



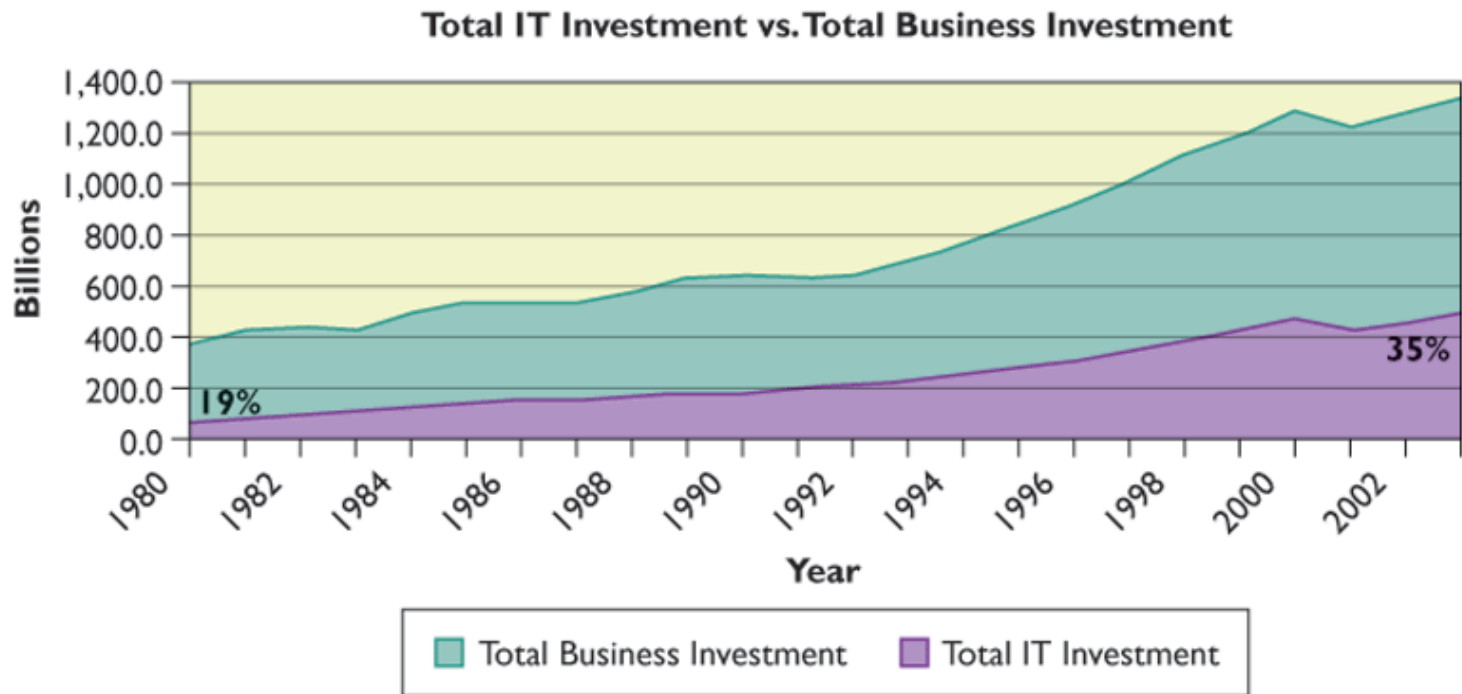


# Essentials of Management Information Systems, 6e

## Chapter 1 Managing the Digital Firm

### Why Information Systems?

#### Information technology capital investment 1980-2003



Source: Based on data in U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts, Tables 5.2 and 5.8, 2003.

Figure 1-2



## Why Information Systems?

### The Competitive Business Environment and the Emerging Digital Firm

# Emergence of the Digital Firm

- Digitally enabled relationships with customers, suppliers, and employees
- Core business processes accomplished via networks
- Digital management of key corporate assets
- Rapid sensing and responding to environmental changes



## Why Information Systems?

### **What Is an Information System?**

A set of interrelated components that collect (or retrieve), process, store, and distribute information to support decision making and control in an organization



## Why Information Systems?

### What Is an Information System?

- **Data:** Streams of raw facts representing events such as business transactions
- **Information:** Clusters of data that are meaningful and useful to human beings



### Why Information Systems?

#### Data and information

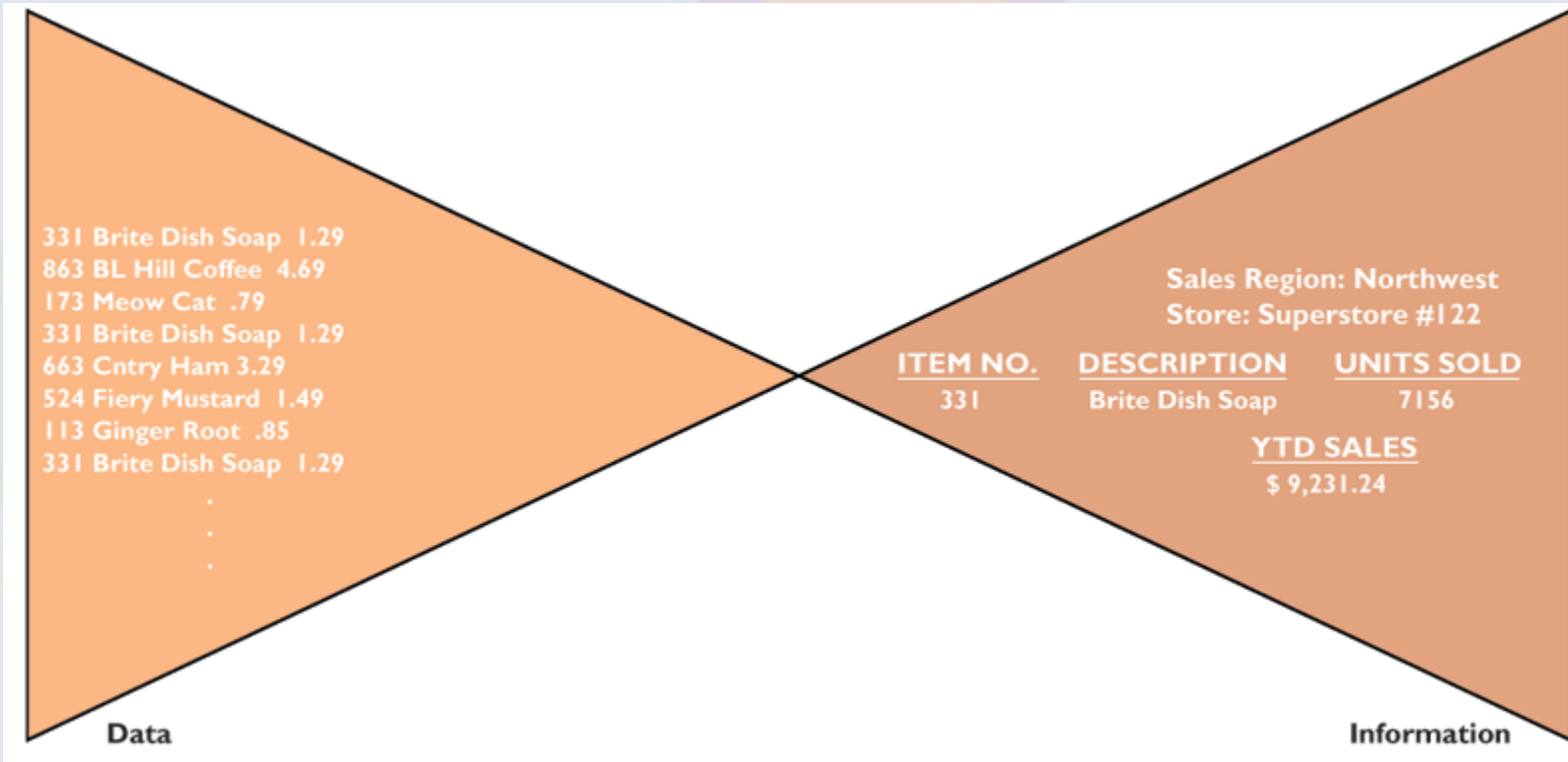


Figure 1-3



### Why Information Systems?

#### Functions of an information system

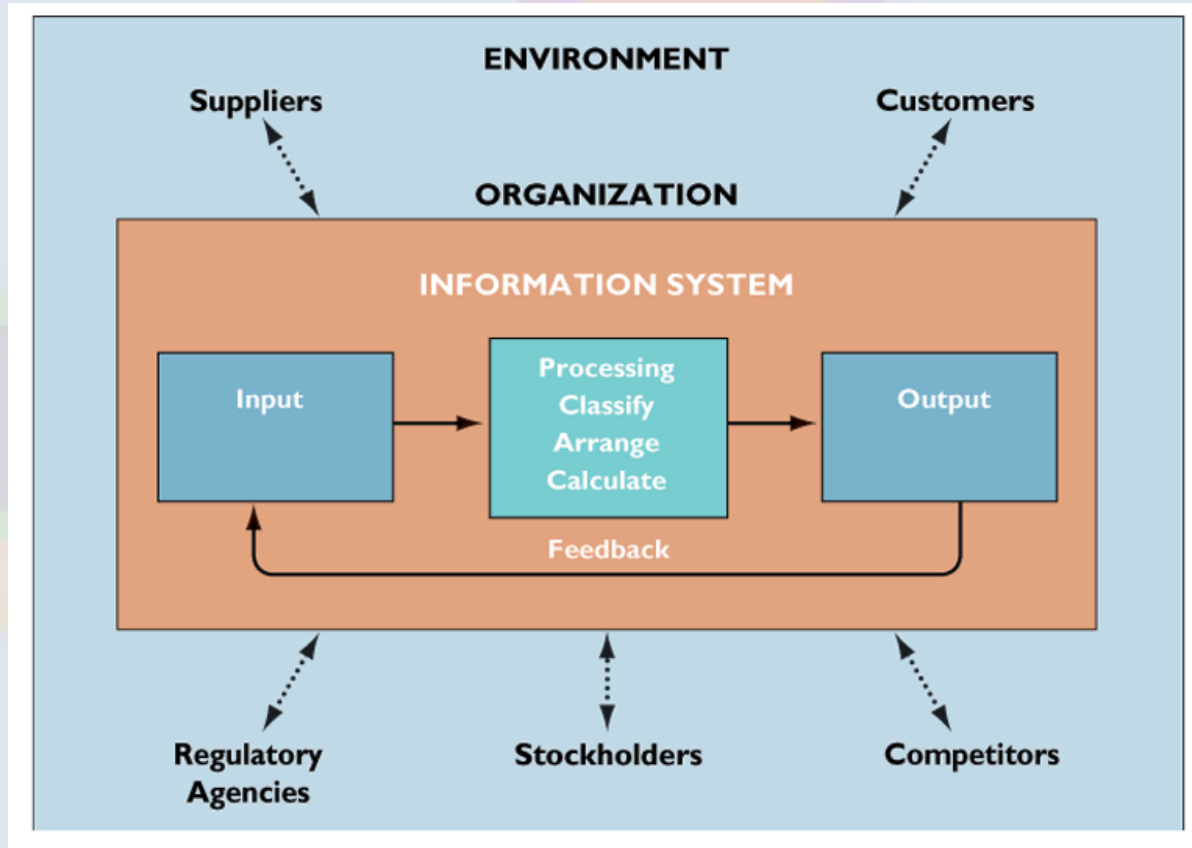


Figure 1-4





## Why Information Systems?

### What Is an Information System?

#### Formal Systems

- Fixed definitions of data and procedures for collecting, storing, processing, disseminating, and using these data
- Can be computer-based or manual

#### Computer-based Information Systems

- Use computer hardware and software to process and disseminate information



## Why Information Systems?

### Window on Technology

# UPS Competes Globally with Information Technology

- What are the inputs, processing, and outputs of UPS's package tracking system?
- What technologies are used?
- How are these technologies related to UPS's business strategy? How do they provide value for the company?
- What would happen if these technologies were not available?



### Why Information Systems?

#### The business information value chain

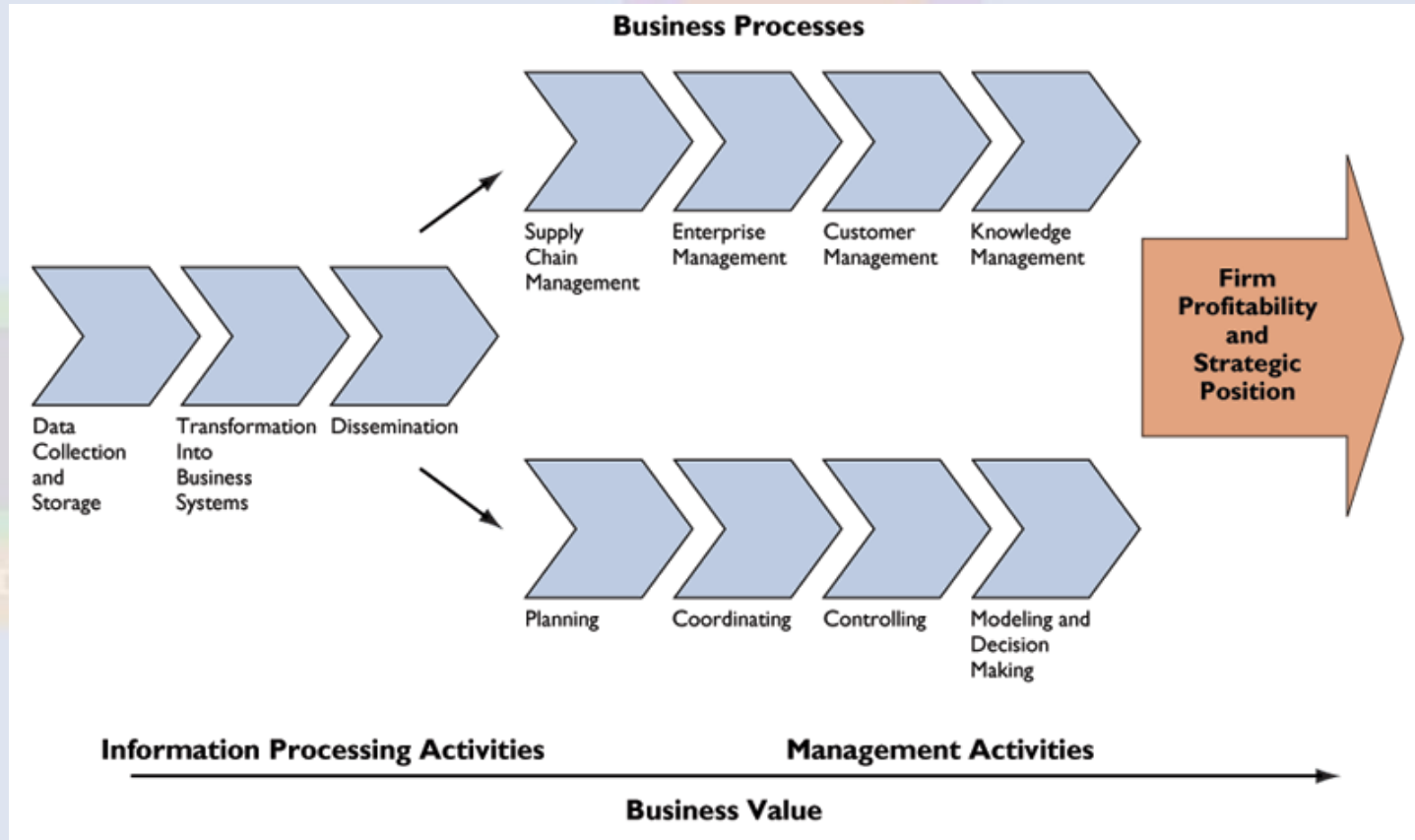


Figure 1-5



**Why Information Systems?**

**Information systems are more than computers**



**Figure 1-6**



## Why Information Systems?

### **A Business Perspective on Information Systems**

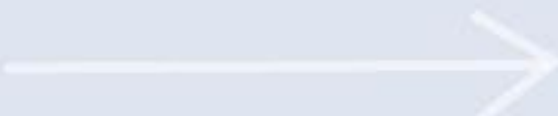
- **Information systems literacy:** Broad-based understanding of information systems that includes behavioral knowledge about organizations and individuals using information systems and technical knowledge about computers
- **Computer literacy:** Knowledge about information technology, focusing on understanding how computer-based technologies work



## Why Information Systems?

### A Business Perspective on Information Systems

## Major Business Functions

- Sales and marketing
  - Manufacturing
  - Finance 
  - Accounting
  - Human resources
- 





## Why Information Systems?

### A Business Perspective on Information Systems

## Key Elements of an Organization

- People
  - Structure
  - Operating Procedures 
  - Politics
  - Culture
- 

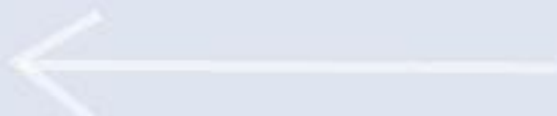




## Why Information Systems?

### A Business Perspective on Information Systems

#### Management Levels

- Senior managers: make long-range strategic decisions about products and services
- Middle managers: carry out the programs and plans of senior management
- Operational managers: monitor the firm's daily activities 






## Why Information Systems?

### **A Business Perspective on Information Systems**

# Information Technology (IT) Infrastructure

- Computer hardware
- Computer software
- Storage technology 
- Communications technology


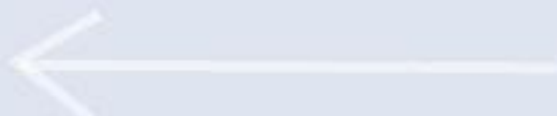




## Why Information Systems?

### **A Business Perspective on Information Systems**

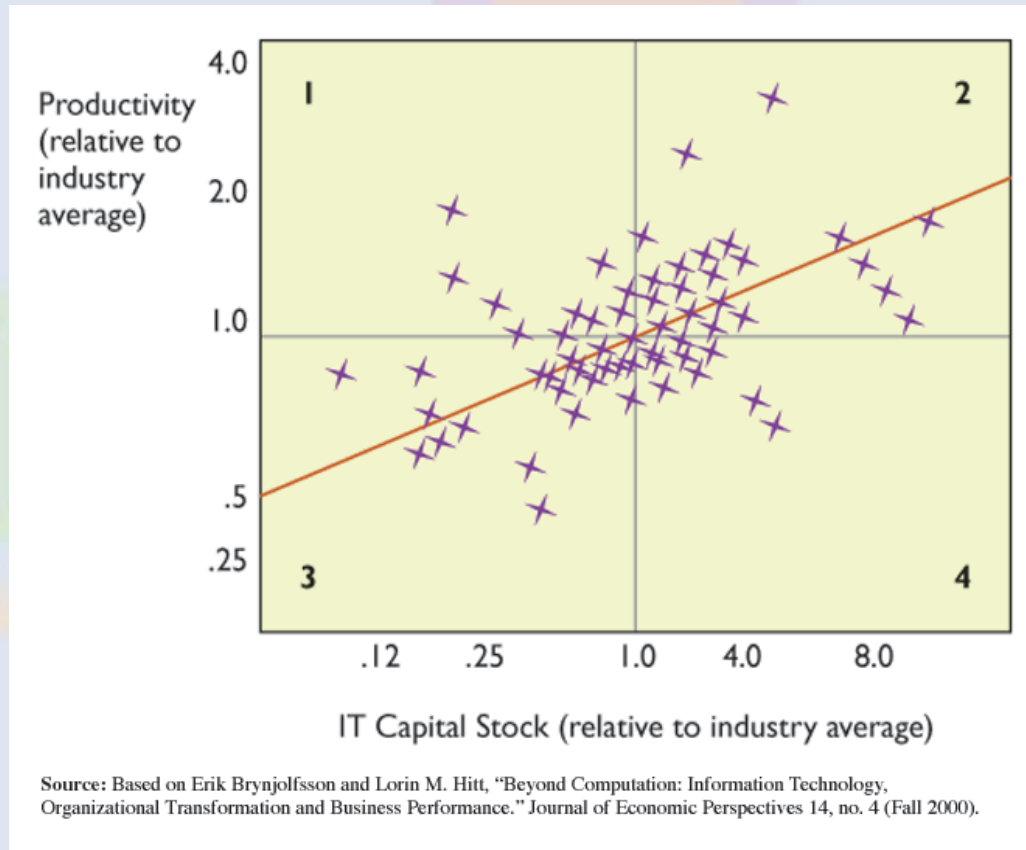
## Complementary Assets

- Assets required to derive value from a primary investment
- Can be organizational, managerial, or social assets 
- Technology investments supported by investment in complementary assets receive superior returns 



### Why Information Systems?

#### Variation in returns on information technology investment



**Figure 1-7**



## Why Information Systems?

### **A Business Perspective on Information Systems**

## Organizational Assets

- Supportive organizational culture valuing efficiency and effectiveness
- Efficient business processes
- Decentralized authority
- Distributed decision-making rights
- Strong IS development team



## Why Information Systems?

### **A Business Perspective on Information Systems**

## Managerial Assets

- Strong senior management support for technology investment and change
- Incentives for management innovation
- Teamwork and collaborative work environments
- Management training programs
- Management culture valuing flexibility and knowledge-based decision making



## Why Information Systems?

### **A Business Perspective on Information Systems**

## Social Assets

- The Internet and telecommunications infrastructure
- IT-enriched educational programs
- Governmental and private-sector standards
- Laws and regulations creating fair, stable market environments
- Technology and service firms in adjacent markets to assist implementation



**A Business Perspective on Information Systems**

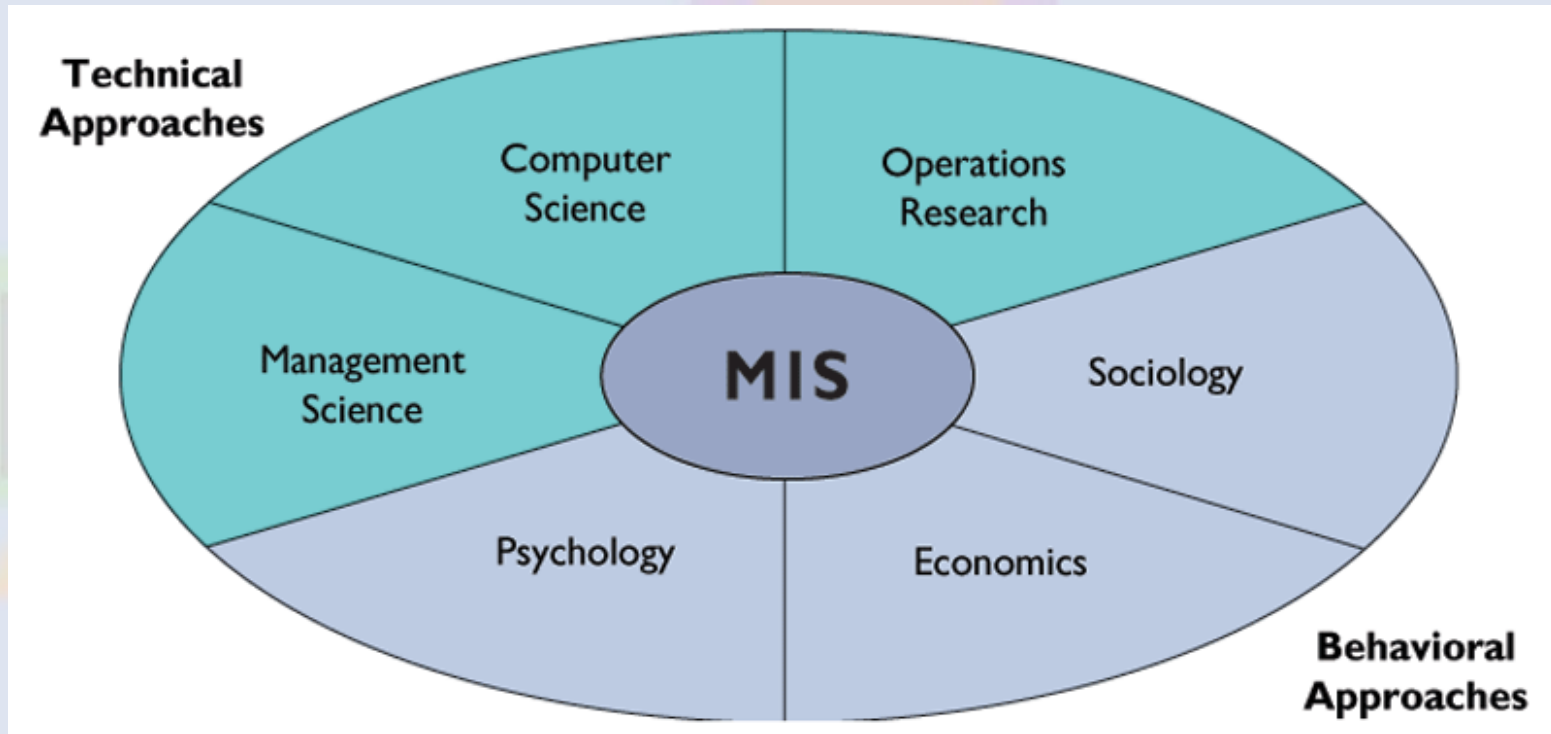
## Social Assets

- Technical approach: emphasizes mathematically based models, physical technology, and formal capabilities of systems
- Behavioral approach: studies issues arising from development and maintenance of systems, such as business integration and utilization



Contemporary Approaches to Information Systems

**Contemporary approaches to information systems**




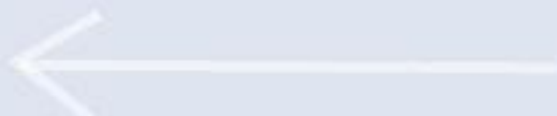
**Figure 1-8**





## Sociotechnical Systems



- Management Information Systems (MIS)
  - System performance optimized when technology and organization adjust to each other for a satisfactory fit
- 
- 



### Contemporary Approaches to Information Systems

#### A sociotechnical perspective on information systems

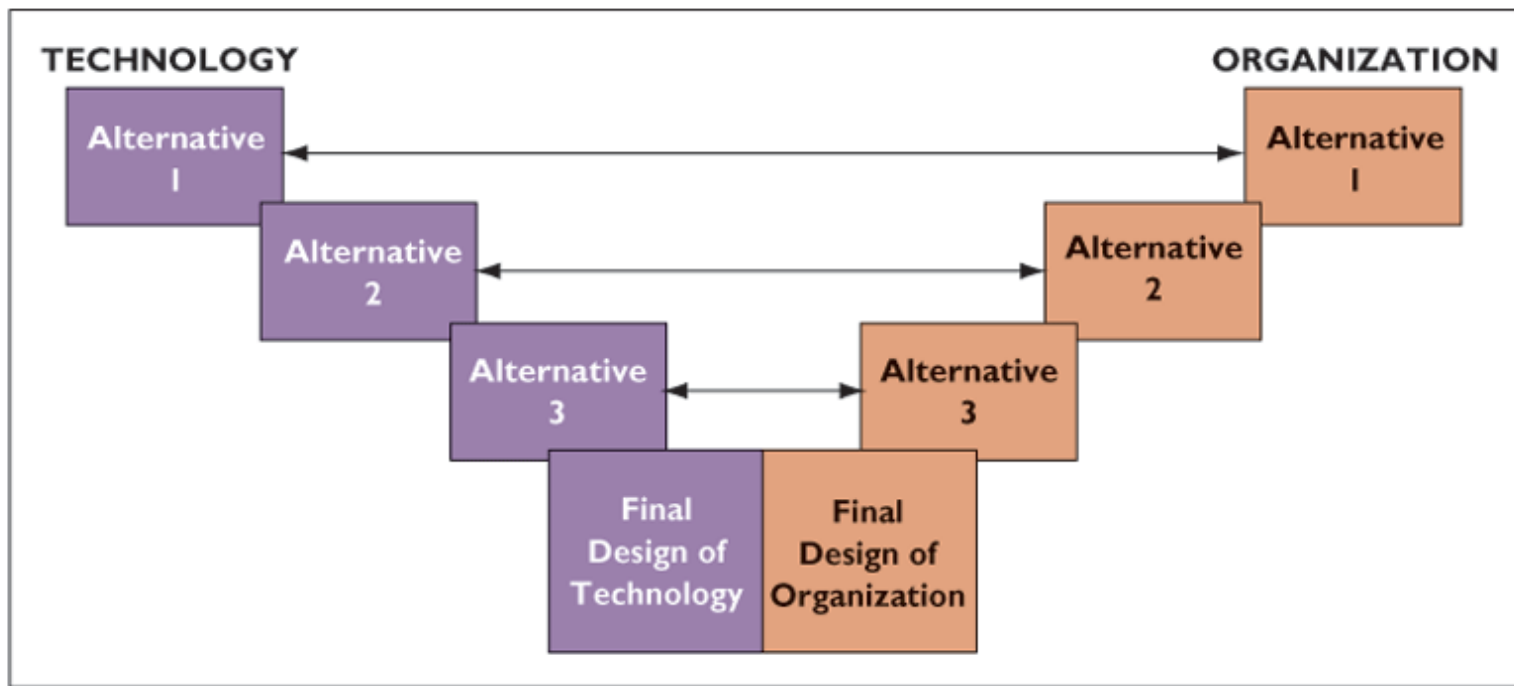


Figure 1-9



### Toward the Digital Firm

#### The interdependence between organizations and information systems

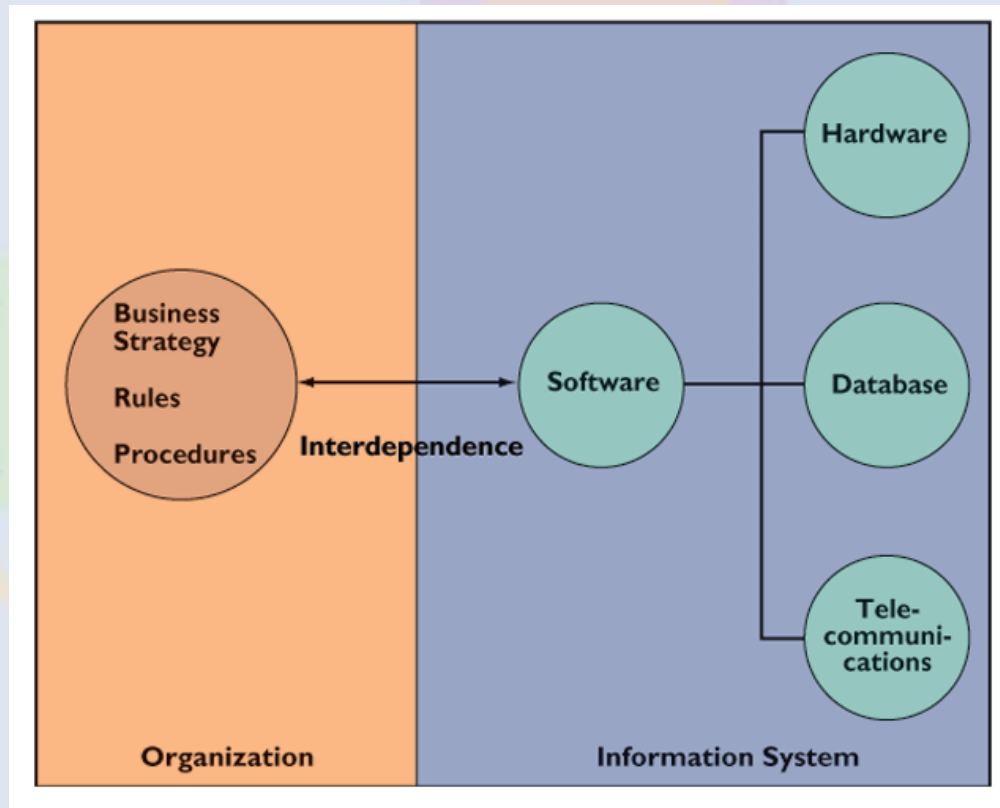


Figure 1-10



Toward the Digital Firm

**The Widening Scope of Information Systems**

- 1950s: **Technical changes**
- 1960s-70s: **Managerial controls**
- 1980s-90s: **Institutional core activities**
- Today: **Digital information webs extending beyond the enterprise**



### Toward the Digital Firm

#### The widening scope of information systems

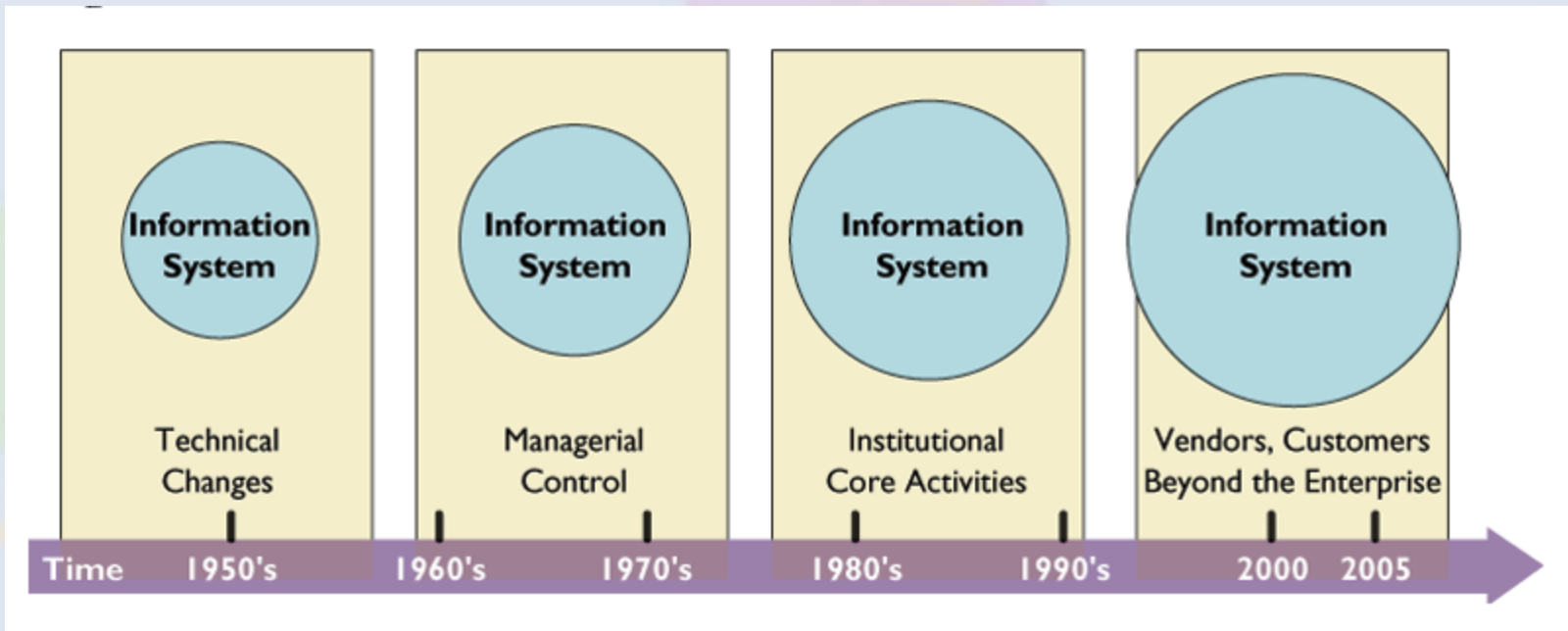


Figure 1-11



Toward the Digital Firm

**The Network Revolution and the Internet**

**The Internet**

- International network of networks
- Universal technology platform: Any computer can communicate with any other computer
- World Wide Web and Web sites



Toward the Digital Firm

**The Network Revolution and the Internet**

What You Can Do on the Internet

- Communicate and collaborate
- Access information
- Participate in discussions
- Supply information
- Find entertainment
- Exchange business transactions



**Toward the Digital Firm**

**New Options for Organizational Design:  
The Digital Firm and the Collaborative Enterprise**

- **Flattening organizations**
- **Separating work from location**
- **Reorganizing workflows**
- **Increasing flexibility**
- **Redefining organizational boundaries**





### Toward the Digital Firm

#### Flattening organizations

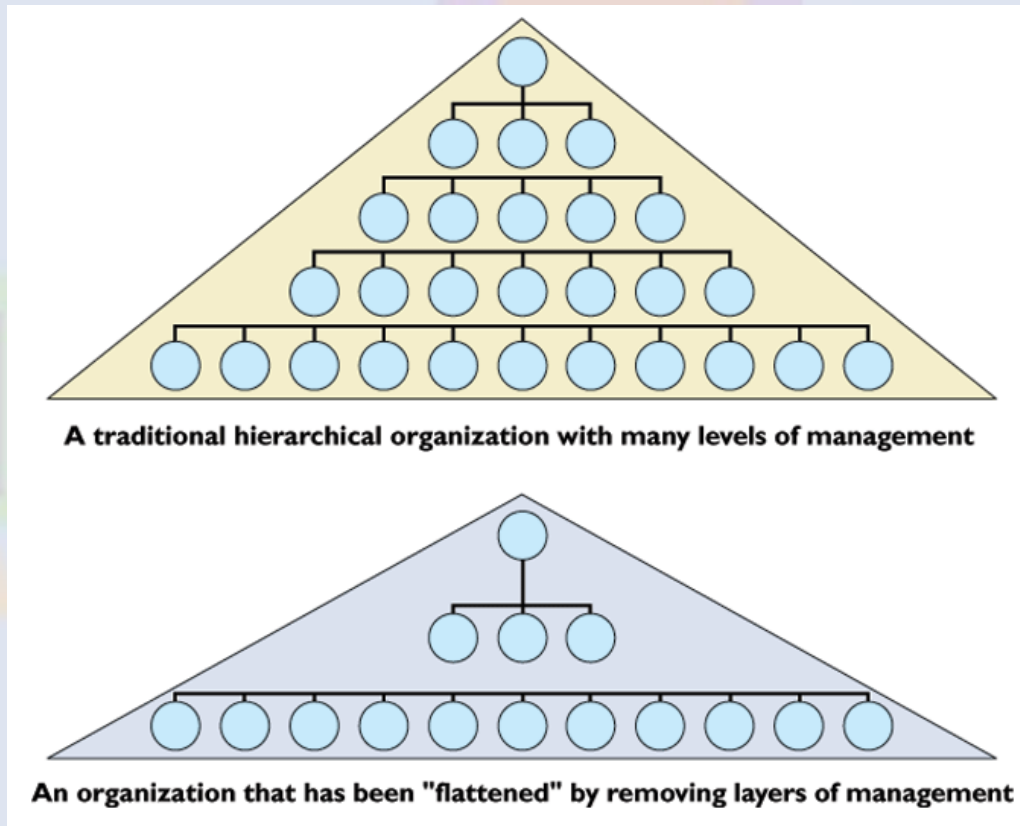


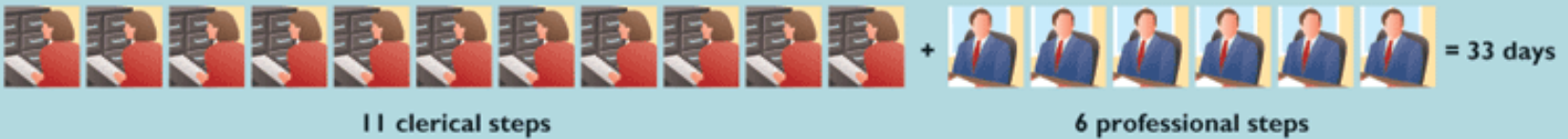
Figure 1-12



### Toward the Digital Firm

#### Redesigned workflow for insurance underwriting

##### Paper system insurance application



##### Imaging system insurance application: New streamlined work flow



Figure 1-13



Toward the Digital Firm

The Digital Firm

- Electronic commerce
- Electronic business
- Digital market: Information system that links buyers and sellers to exchange information, products, services, payments



Toward the Digital Firm

**Window on Organizations**

**A Brazilian Dime Store**

**Becomes an E-Commerce Success** →

- How did the Web change the way Lojas Americanas ran its business?
- How did the Web site provide value for this company?



# Essentials of Management Information Systems, 6e

## Chapter 1 Managing the Digital Firm

### Toward the Digital Firm

#### Electronic business and electronic commerce in the emerging digital firm

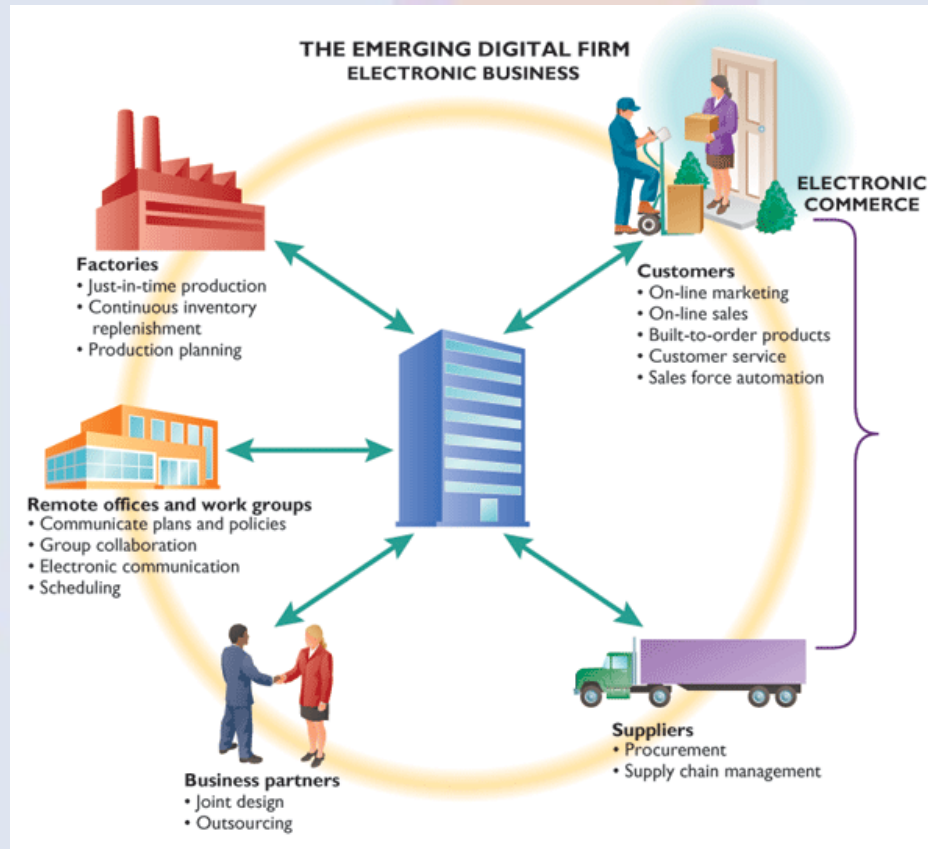


Figure 1-14



## Toward the Digital Firm

### The Digital Firm

- Electronic Commerce (e-commerce): buying and selling goods and services electronically
- Electronic Business: executing all the firm's business processes with Internet technology
- Intranet: private, secure business network based on Internet technology
- Extranet: extension of intranet to authorized external users



**The Challenges of Information Systems: Key Management issues**

## Positive Impacts of Information Systems

- Faster calculations and paperwork
- Analysis of customer purchase patterns and preferences
- More efficient business services
- Medical advances
- Instant global distribution of information



**The Challenges of Information Systems: Key Management issues**

## Negative Impacts of Information Systems →

- Automation leading to job elimination
- Privacy concerns
- System outages and shutdowns
- Health problems, repetitive stress injury
- Illegal distribution of intellectual property ←





Chapter 1 Case Study

**Herman Miller: Information Systems at the Crossroads**

1. Evaluate the role of information systems in the way Herman Miller runs its business. How important are they?
2. Explain why z-Axis was an important step forward in the furniture business. How did it provide value for Herman Miller?
3. Did z-Axis provide a competitive advantage for Herman Miller? Explain your answer.



Chapter 1 Case Study

**Herman Miller: Information Systems at the Crossroads**

4. Should Herman Miller continue to invest in z-Axis? Why or why not?
5. What management challenges does this case study illustrate? Explain in your answer.