



Chapter 1

Information Systems in Business Today

VIDEO CASES

Case 1: UPS Global Operations with the DIAD IV

Case 2: Google Data Center Efficiency Best Practices

Instructional Video 1: Green Energy Efficiency in a Data Center Using Tivoli Architecture

Instructional Video 2: Tour IBM's Raleigh Data Center

Learning Objectives

- How are information systems transforming business, and why are they so essential for running and managing a business today?
- What is an information system? How does it work? What are its management, organization, and technology components? Why are complementary assets essential for ensuring that information systems provide genuine value for organizations?
- What academic disciplines are used to study information systems and how does each contribute to an understanding of information systems?

The Role of Information Systems in Business Today

- **How information systems are transforming business**
 - Emerging mobile digital platform
 - Growing business use of “big data”
 - Growth in cloud computing
- **Globalization opportunities**
 - Internet has drastically reduced costs of operating on global scale
 - Increases in foreign trade, outsourcing
 - Presents both challenges and opportunities



Management Information Systems

Chapter 1: Information Systems in Global Business Today

Information Technology Capital Investment

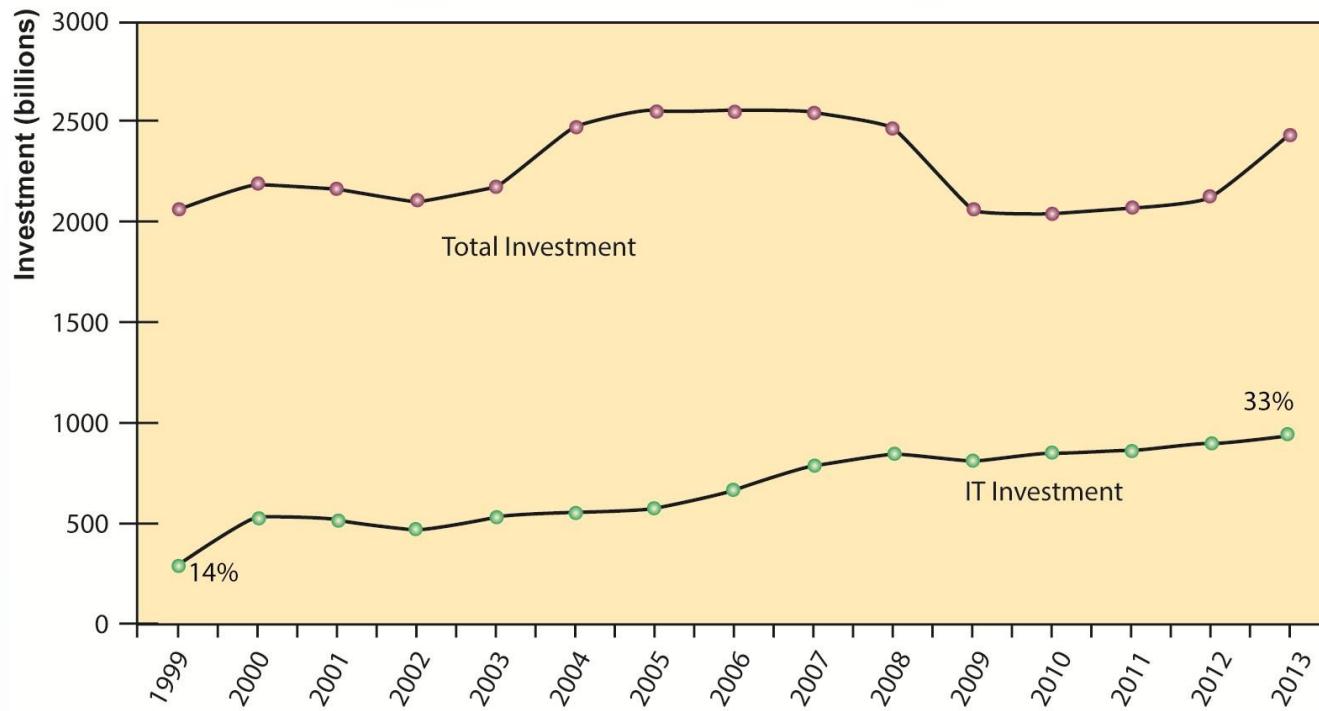


FIGURE 1-1 Information technology capital investment, defined as hardware, software, and communications equipment, grew from 14 percent to 33 percent of all invested capital between 1999 and 2013.

The Role of Information Systems in Business Today

- **In the emerging, fully digital firm:**
 - Significant business relationships are digitally enabled and mediated.
 - Core business processes are accomplished through digital networks.
 - Key corporate assets are managed digitally.
- **Digital firms offer greater flexibility in organization and management.**
 - Time shifting, space shifting

The Role of Information Systems in Business Today

- **Growing interdependence between:**
 - Ability to use information technology and
 - Ability to implement corporate strategies and achieve corporate goals

The Role of Information Systems in Business Today

- **Firms invest heavily in information systems to achieve six strategic business objectives:**
 1. Operational excellence
 2. New products, services, and business models
 3. Customer and supplier intimacy
 4. Improved decision making
 5. Competitive advantage
 6. Survival



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The Interdependence Between Organizations and Information Technology

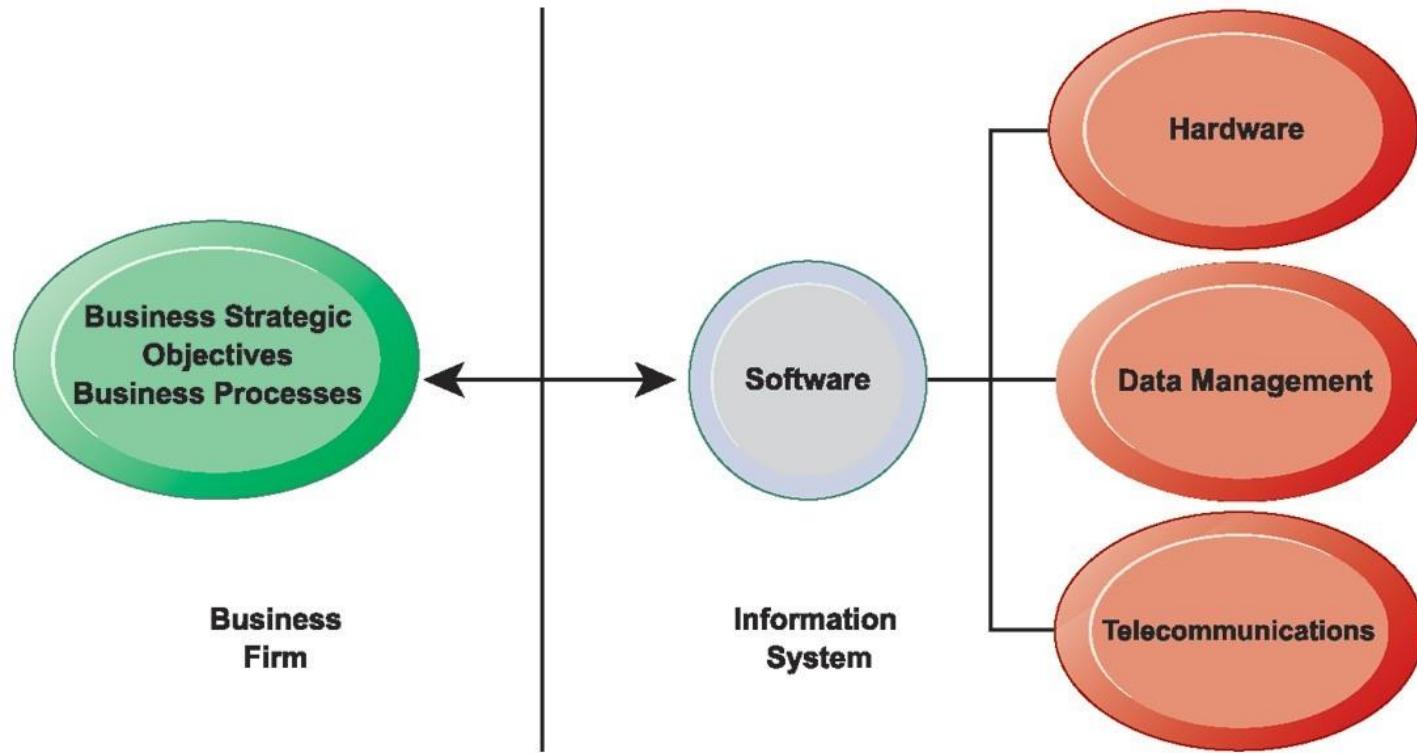


Figure 1.2

In contemporary systems there is a growing interdependence between a firm's information systems and its business capabilities. Changes in strategy, rules, and business processes increasingly require changes in hardware, software, databases, and telecommunications. Often, what the organization would like to do depends on what its systems will permit it to do.

The Role of Information Systems in Business Today

- **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

The Role of Information Systems in Business Today

- **New products, services, and business models:**
 - **Business model:** describes how company produces, delivers, and sells product or service to create wealth
 - **Information systems and technology a major enabling tool for new products, services, business models**
 - Examples: Apple's iPad, Google's Android OS, and Netflix

The Role of Information Systems in Business Today

- **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 and 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

The Role of Information Systems in Business Today

- **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**

The Role of Information Systems in Business Today

- **Competitive advantage**
 - Delivering better performance
 - Charging less for superior products
 - Responding to customers and suppliers in real time
 - Examples: Apple, Walmart, UPS

The Role of Information Systems in Business Today

- **Survival**

- **Information technologies as necessity of business**
- **Industry-level changes**
 - Example: Citibank's introduction of ATMs
- **Governmental regulations requiring record-keeping**
 - Examples: Toxic Substances Control Act, Sarbanes-Oxley Act
 - Dodd-Frank Act

What Is an Information System?

- **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.



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Data and Information

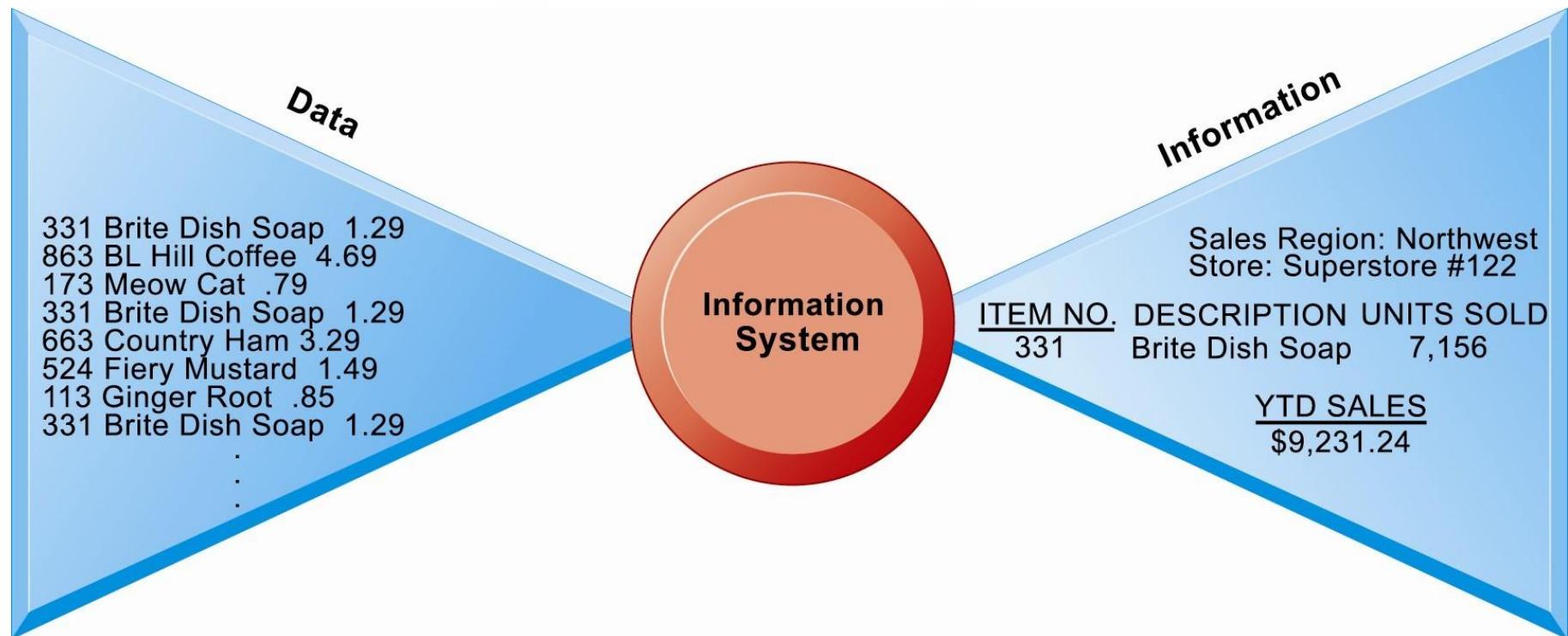


Figure 1.3

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.

What Is an Information System?

- **Three activities of information systems produce information organizations 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

What Is an Information System?

- **Feedback:**
 - Output is 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.



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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.

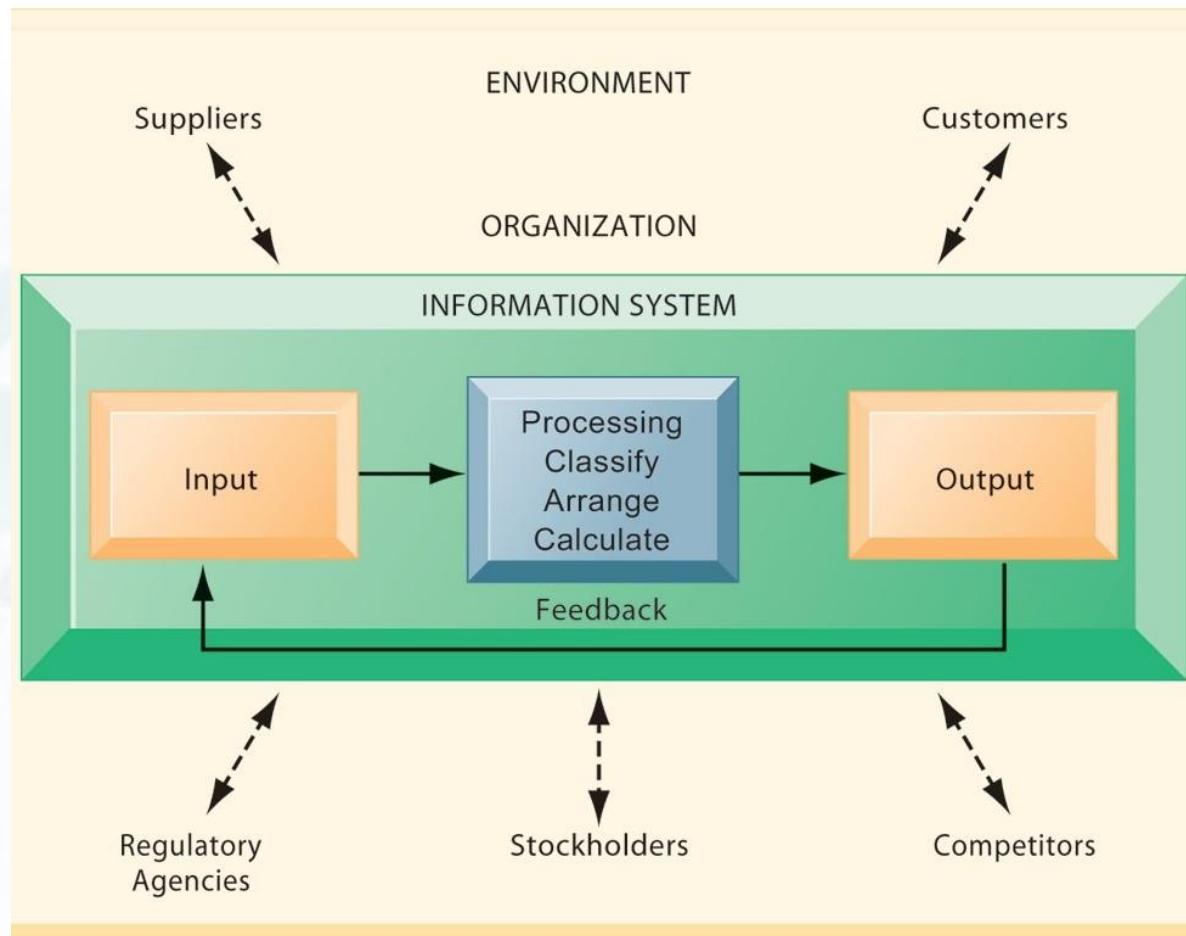


Figure 1.4



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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.

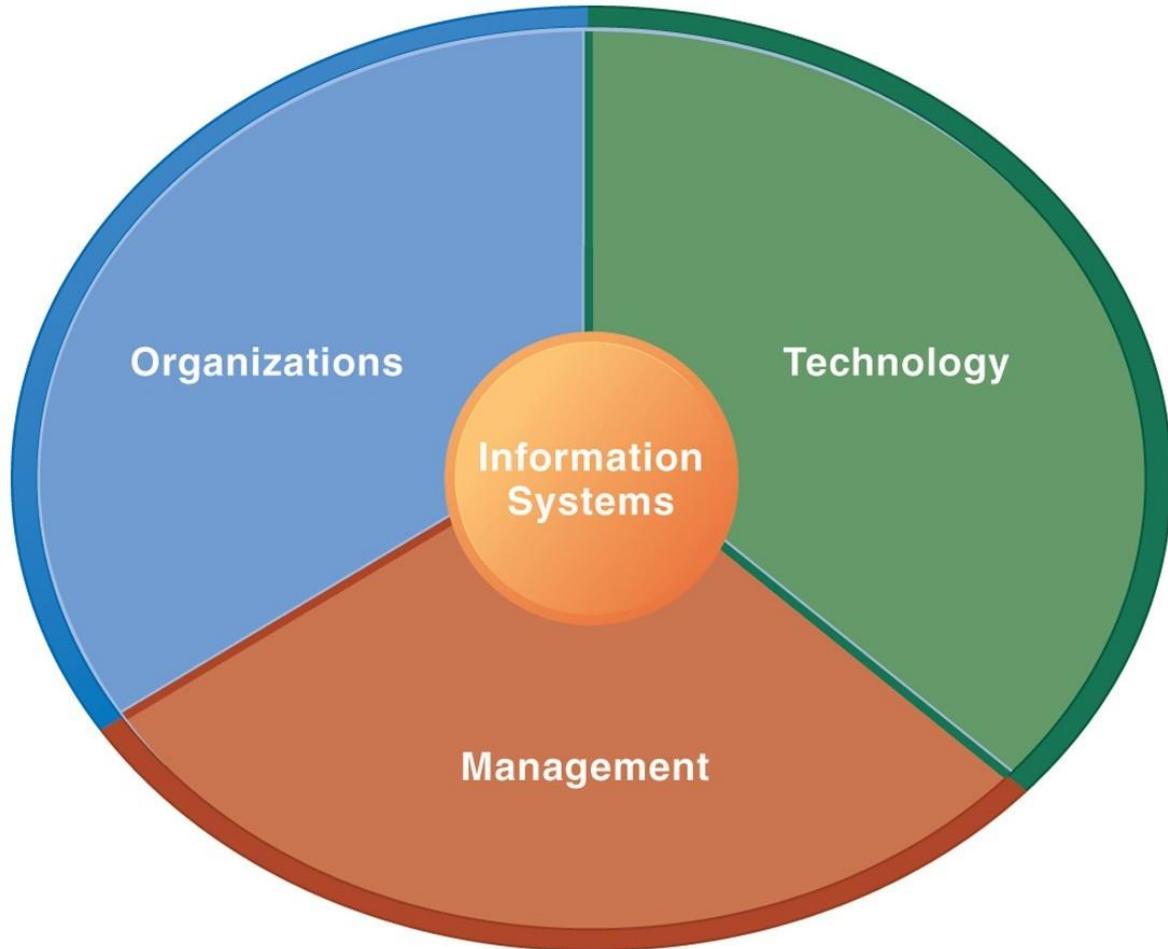


Figure 1.5

What Is an Information System?

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



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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.

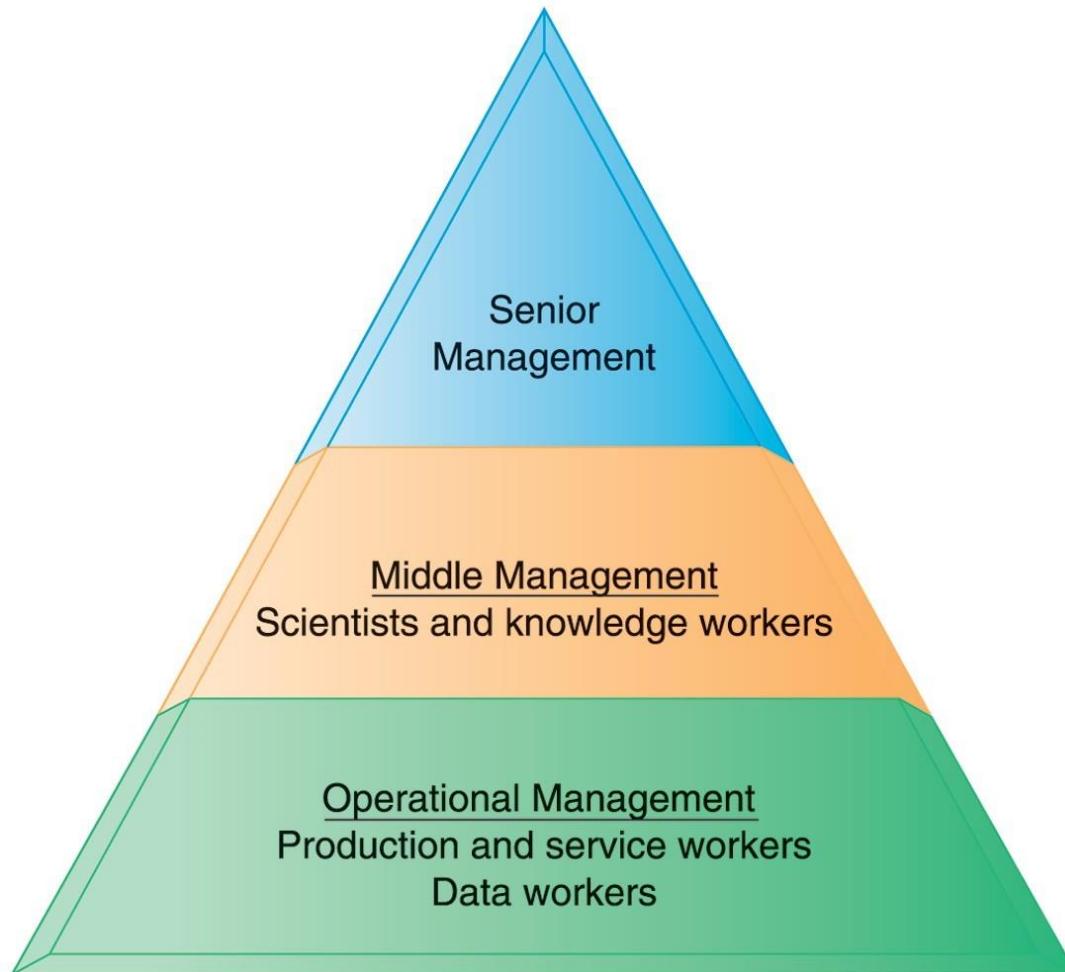


Figure 1.6

What Is an Information System?

- **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**

What Is an Information System?

- **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

What Is an Information System?

- **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: Organizations

UPS COMPETES GLOBALLY WITH I.T.

Read the Interactive Session and discuss the following questions

- **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?**

What Is an Information System?

- **Dimensions of UPS tracking system**
 - **Organizational:**
 - Procedures for tracking packages and managing inventory and provide information
 - **Management:**
 - Monitor service levels and costs
 - **Technology:**
 - Handheld computers, bar-code scanners, networks, desktop computers, and so on

What Is an Information System?

- **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

What Is an Information System?

- **Business information value chain**
 - Raw data acquired and transformed through stages that add value to that information
 - Value of information system determined in part by extent to which it leads to better decisions, greater efficiency, and higher profits
- **Business perspective:**
 - Calls attention to organizational and managerial nature of information systems



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The Business Information Value Chain

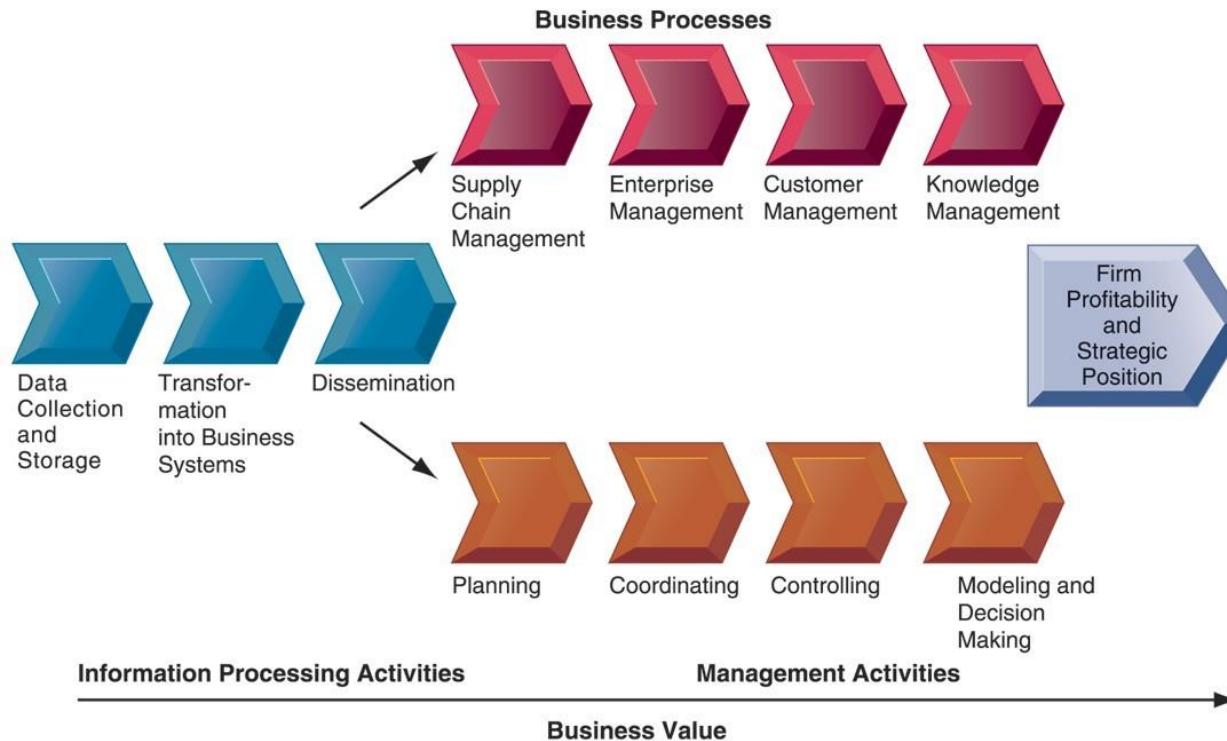


Figure 1-7

From a business perspective, information systems are part of a series of value-adding activities for acquiring, transforming, and distributing information that managers can use to improve decision making, enhance organizational performance, and, ultimately, increase firm profitability.

What Is an Information System?

- Investing in information technology does not guarantee good returns.
- There is considerable variation in the returns firms receive from systems investments.
- Factors:
 - Adopting the right business model
 - Investing in complementary assets (organizational and management capital)



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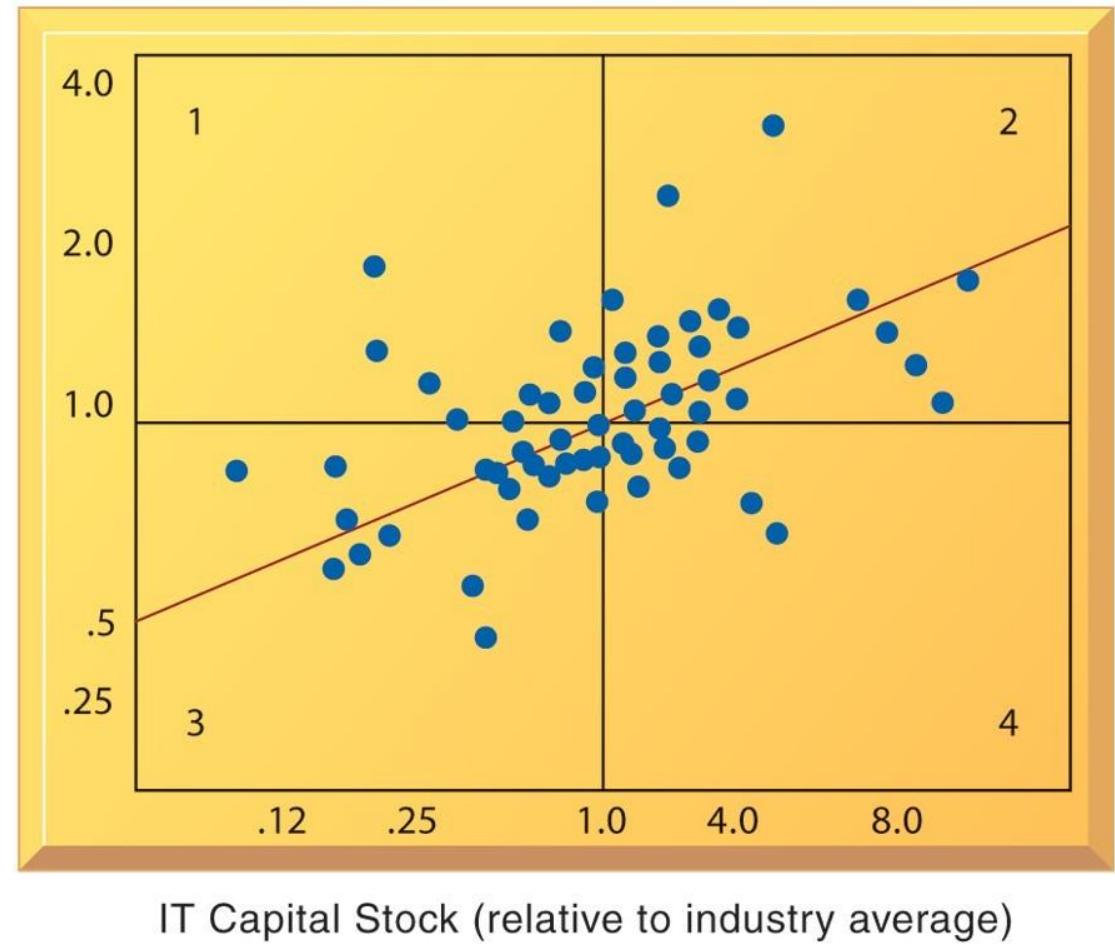
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Variation in Returns on Information Technology Investment

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

Productivity
(relative to
industry
average)

Figure 1.8



IT Capital Stock (relative to industry average)

What Is an Information System?

- **Complementary assets:**
 - Assets required to derive value from a primary investment
 - Firms supporting technology investments with investment in complementary assets receive superior returns
 - Example: Invest in technology and the people to make it work properly

What Is an Information System?

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



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Contemporary Approaches to Information Systems

The study of information systems deals with issues and insights contributed from technical and behavioral disciplines.

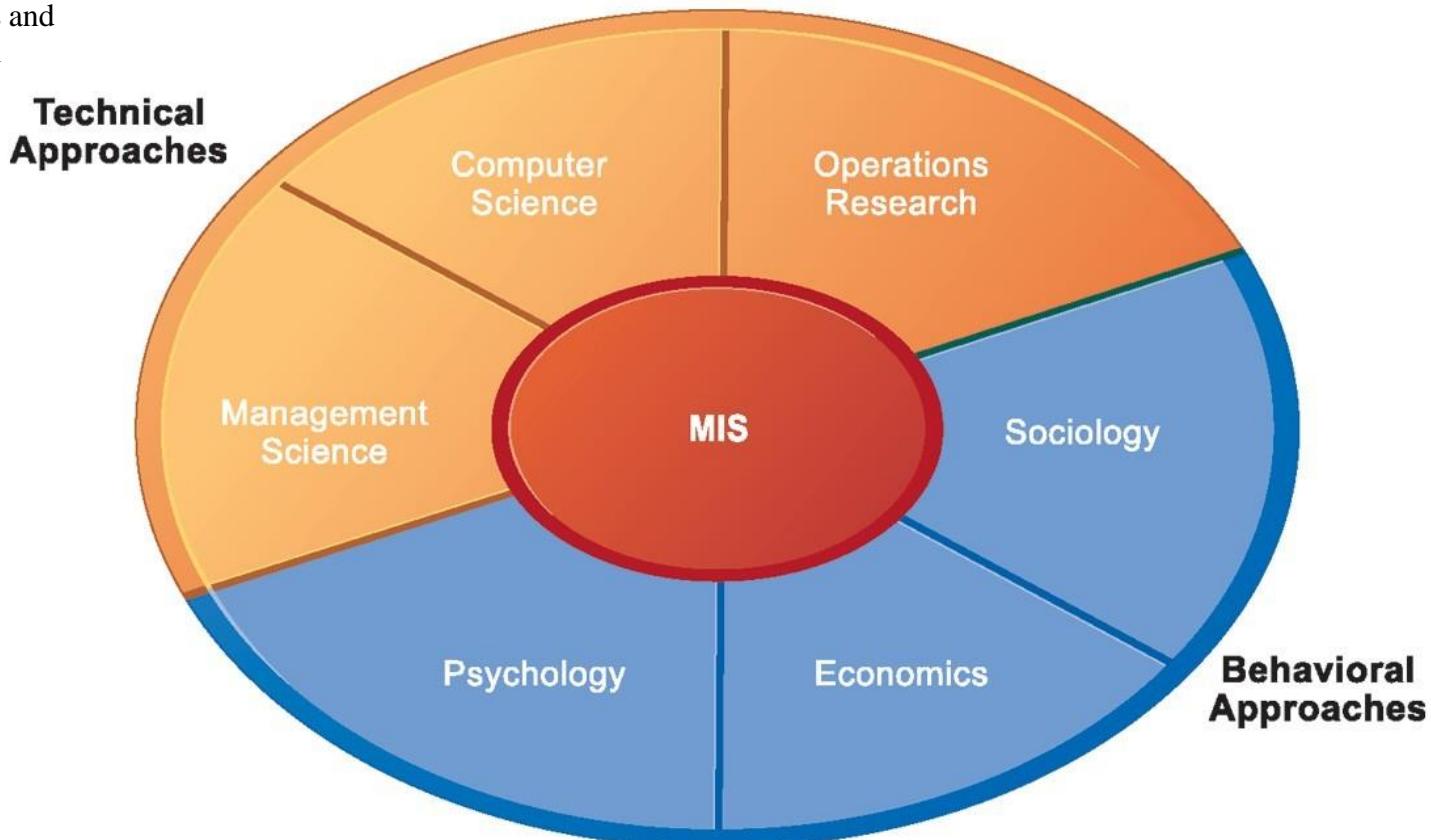


Figure 1.9

Studying 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

Studying 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)

Studying 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



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A Sociotechnical Perspective on Information Systems

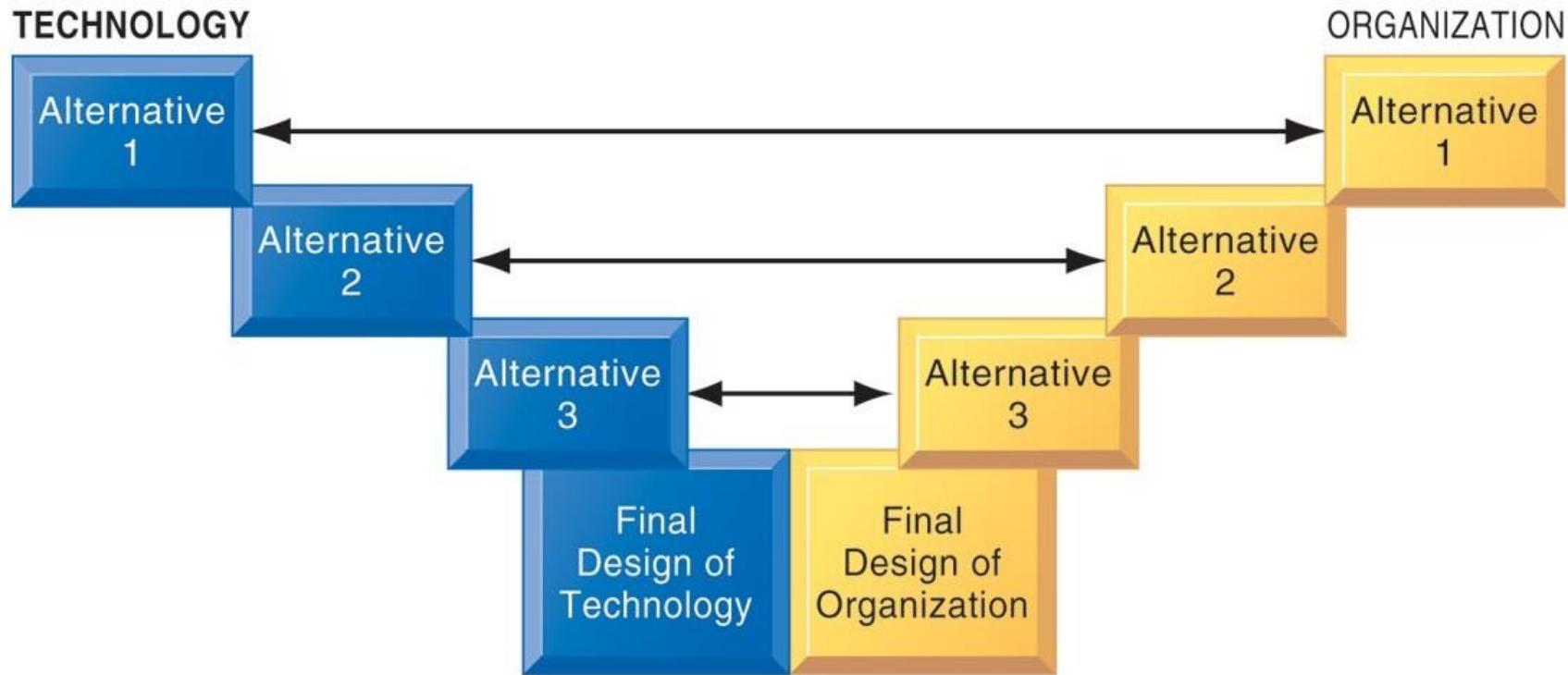


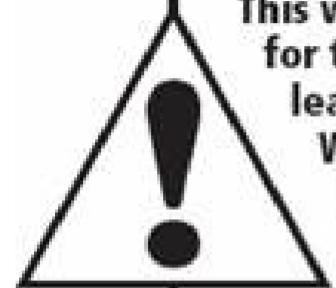
Figure 1-10

In a sociotechnical perspective, the performance of a system is optimized when both the technology and the organization mutually adjust to each other until a satisfactory fit is obtained.



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Chapter 2

Global E-business and Collaboration

VIDEO CASES

Case 1: Walmart's Retail Link Supply Chain

Case 2: Salesforce.com: The Emerging Social Enterprise

Case 3: How FedEx Works: Inside the Memphis Hub

Instructional Video 1: US Foodservice Grows Market with Oracle CRM on Demand

Learning Objectives

- **Define and describe business processes and their relationship to information systems.**
- **Evaluate the role played by systems serving the various levels of management in a business and their relationship to each other.**
- **Explain how enterprise applications improve organizational performance.**



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Chapter 2: Global E-business and Collaboration

Learning Objectives (cont.)

- Explain the importance of collaboration and teamwork in business and how they are supported by technology.
- Assess the role of the information systems function in a business.



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TELUS Embraces Social Learning

- **Problem:** Need to capture employee knowledge as 40% of workforce nears retirement
- **Solutions:** New technology for collaborative knowledge sharing
- **Microsoft SharePoint Server 2010** provided companywide platform for collaboration, knowledge acquisition and transfer, and social tools
- Demonstrates IT's role in collaboration and documenting knowledge
- Illustrates the need for changing organizational culture and business processes to use information systems effectively

Business Processes and Information Systems

- **Business processes:**
 - Flows of material, information, knowledge
 - Sets of activities, steps
 - May be tied to functional area or be cross-functional
- **Businesses: Can be seen as collection of business processes**
- **Business processes may be assets or liabilities**

Business Processes and Information Systems

- **Examples of functional business processes**
 - Manufacturing and production
 - Assembling the product
 - Sales and marketing
 - Identifying customers
 - Finance and accounting
 - Creating financial statements
 - Human resources
 - Hiring employees



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The Order Fulfillment Process

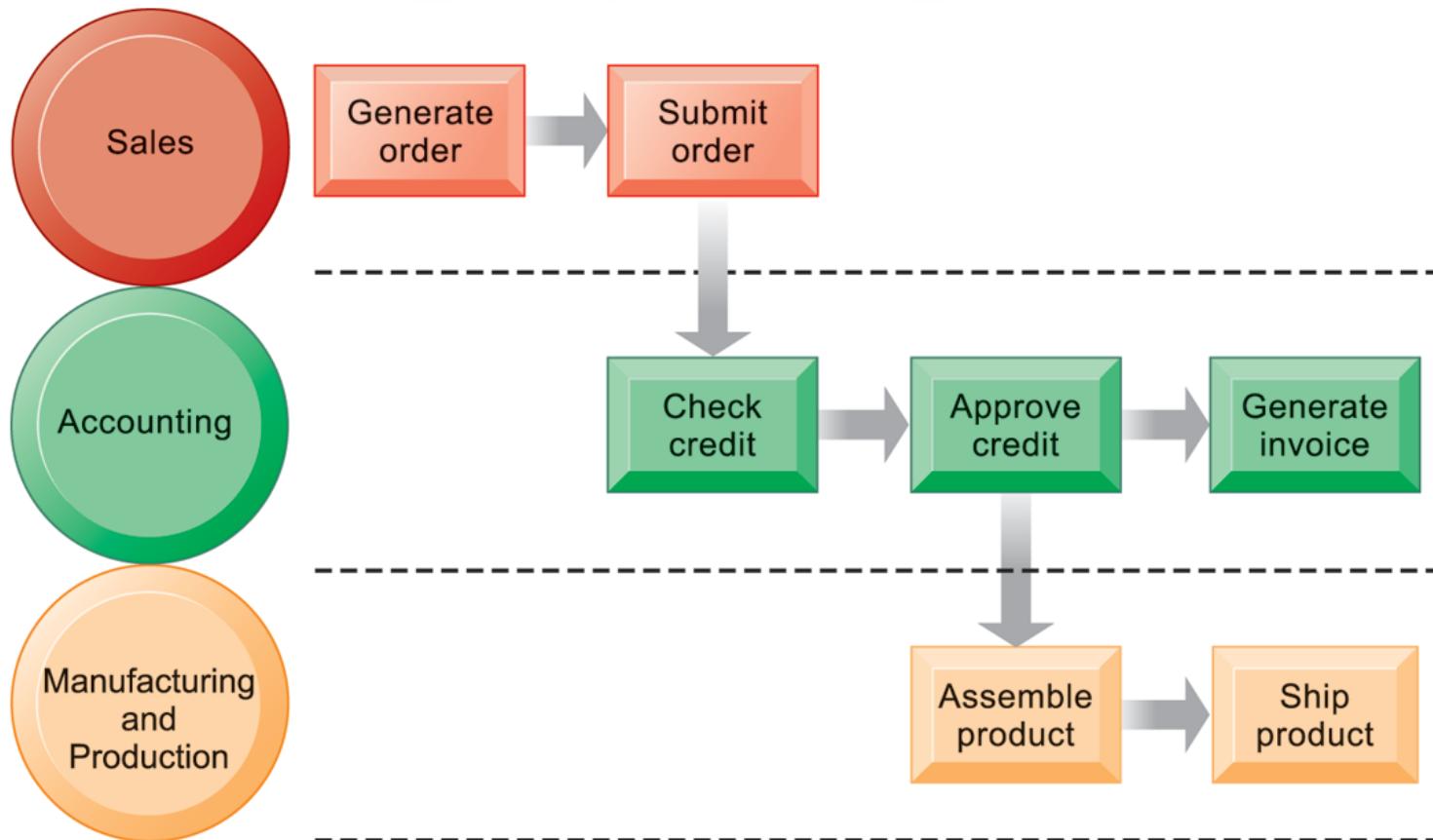


FIGURE 2-1 Fulfilling a customer order involves a complex set of steps that requires the close coordination of the sales, accounting, and manufacturing functions.

Business Processes and Information Systems

- **Information technology enhances business processes by:**
 - **Increasing efficiency of existing processes**
 - Automating steps that were manual
 - **Enabling entirely new processes**
 - Change flow of information
 - Replace sequential steps with parallel steps
 - Eliminate delays in decision making
 - Support new business models

Types of Information Systems

- **Transaction processing systems**
 - Serve operational managers and staff
 - Perform and record daily routine transactions necessary to conduct business
 - Examples: sales order entry, payroll, shipping
 - Allow managers to monitor status of operations and relations with external environment
 - Serve predefined, structured goals and decision making



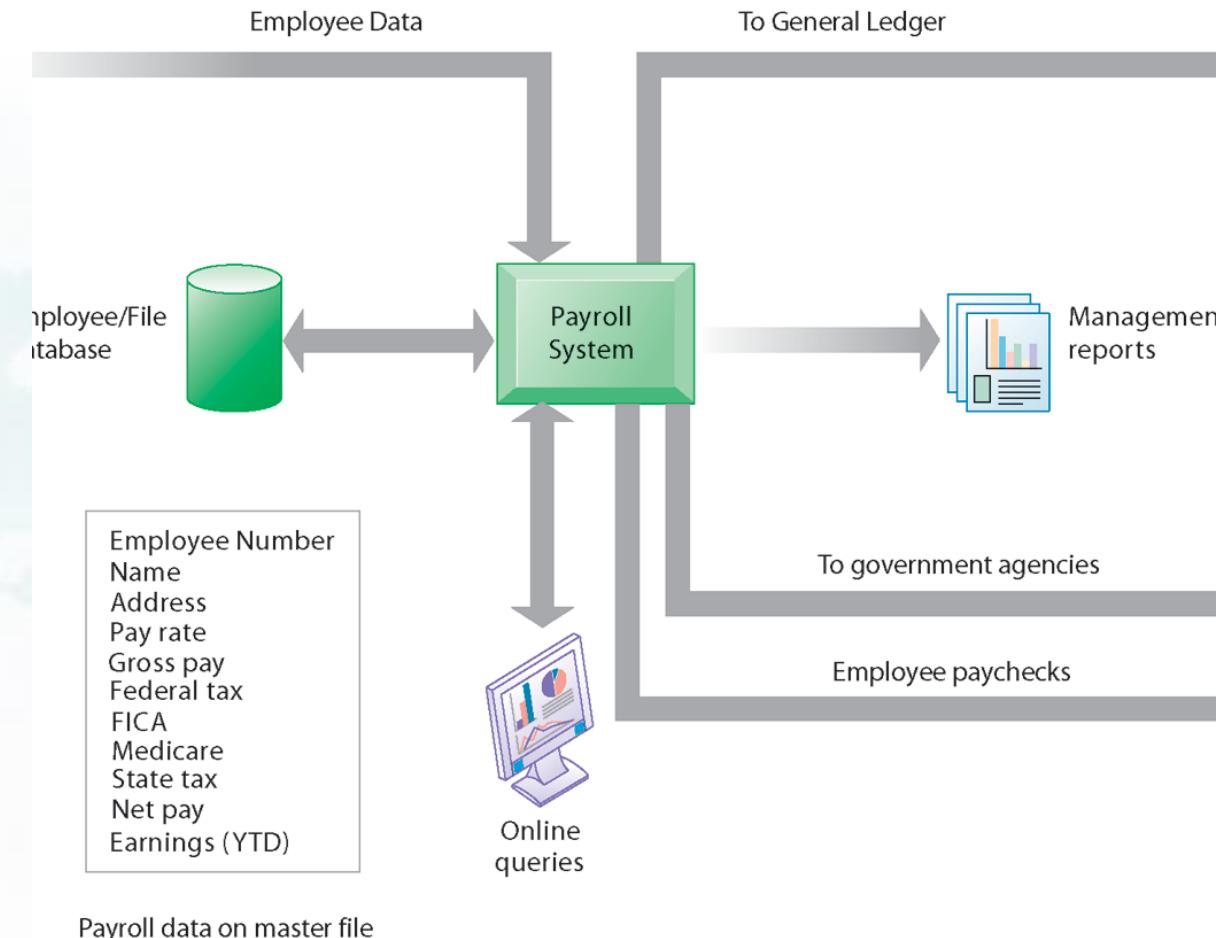
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A Payroll TPS

A TPS for payroll processing captures employee payment transaction data (such as a time card). System outputs include online and hard-copy reports for management and employee paychecks.

FIGURE 2-2





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Types of Information Systems

- **Business intelligence**
 - Data and software tools for organizing and analyzing data
 - Used to help managers and users make improved decisions
- **Business intelligence systems**
 - Management information systems
 - Decision support systems
 - Executive support systems



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Interactive Session: Technology

CAN AIRLINES SOLVE THEIR BAGGAGE HANDLING PROBLEMS?

Read the Interactive Session and discuss the following questions

- **What types of transactions are handled by baggage handling systems?**
- **What are the management, organization, and technology components of baggage handling systems?**
- **What is the problem these baggage handling systems are trying to solve? Discuss the business impact of this problem. Are today's baggage handling systems a solution to this problem?**
- **What kinds of management reports can be generated from the data from these systems?**

Types of Information Systems

- **Management information systems**
 - Serve middle management
 - Provide reports on firm's current performance, based on data from TPS
 - Provide answers to routine questions with predefined procedure for answering them
 - Typically have little analytic capability



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How MIS Obtain Their Data from the Organization's TPS

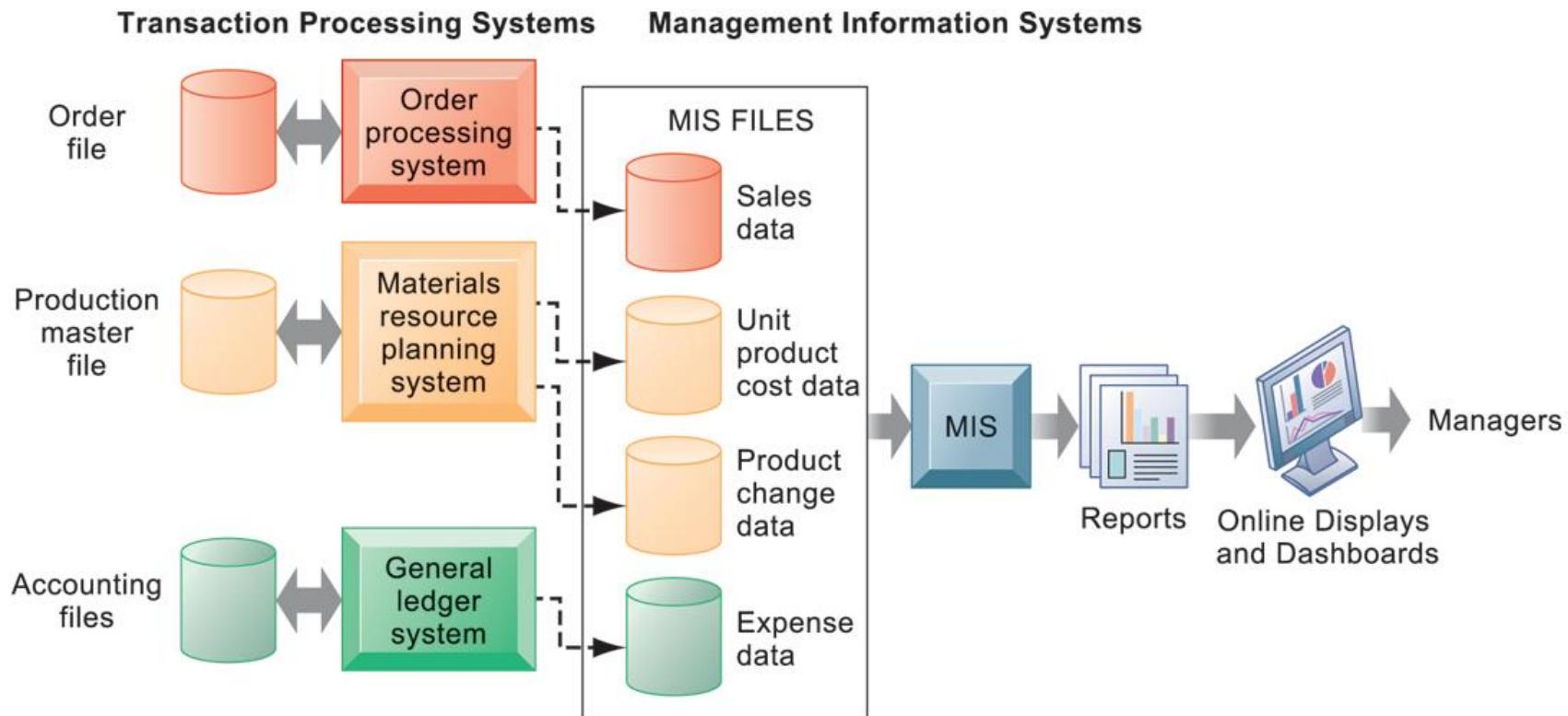


FIGURE 2-3 In the system illustrated by this diagram, three TPS supply summarized transaction data to the MIS reporting system at the end of the time period. Managers gain access to the organizational data through the MIS, which provides them with the appropriate reports.



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Sample MIS Report

Consolidated Consumer Products Corporation Sales by Product and Sales Region: 2013

PRODUCT CODE	PRODUCT DESCRIPTION	SALES REGION	ACTUAL SALES	PLANNED	ACTUAL versus PLANNED
4469	Carpet Cleaner	Northeast	4,066,700	4,800,000	0.85
		South	3,778,112	3,750,000	1.01
		Midwest	4,867,001	4,600,000	1.06
		West	4,003,440	4,400,000	0.91
	TOTAL		16,715,253	17,550,000	0.95
5674	Room Freshener	Northeast	3,676,700	3,900,000	0.94
		South	5,608,112	4,700,000	1.19
		Midwest	4,711,001	4,200,000	1.12
		West	4,563,440	4,900,000	0.93
	TOTAL		18,559,253	17,700,000	1.05

FIGURE 2-4 This report, showing summarized annual sales data, was produced by the MIS in Figure 2-3.

Types of Information Systems

- **Decision support systems**
 - **Serve middle management**
 - **Support non-routine decision making**
 - Example: What is the impact on production schedule if December sales doubled?
 - **May use external information as well TPS / MIS data**
 - **Model driven DSS**
 - Voyage-estimating systems
 - **Data driven DSS**
 - Intrawest's marketing analysis systems



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Voyage-Estimating Decision Support System

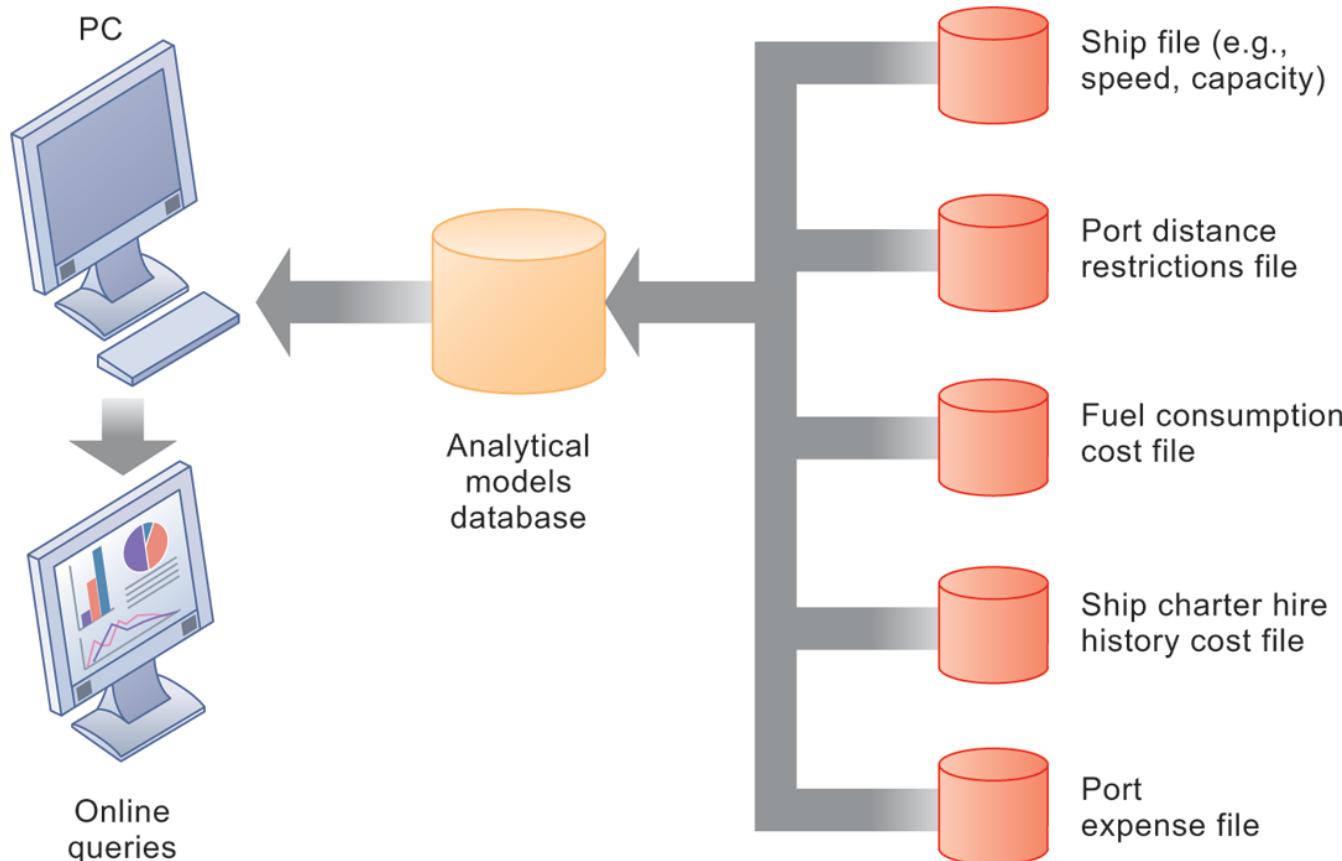


FIGURE 2-5

This DSS operates on a powerful PC. It is used daily by managers who must develop bids on shipping contracts.

Types of Information Systems

- **Executive support systems**
 - Support senior management
 - Address non-routine decisions
 - Requiring judgment, evaluation, and insight
 - Incorporate data about external events (e.g. new tax laws or competitors) as well as summarized information from internal MIS and DSS
 - **Example:** Digital dashboard with real-time view of firm's financial performance: working capital, accounts receivable, accounts payable, cash flow, and inventory



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Interactive Session: Technology

PILOTING PROCTER & GAMBLE FROM DECISION COCKPITS

Read the Interactive Session and discuss the following questions

- **What management, organization, and technology issues had to be addressed when implementing Business Sufficiency, Business Sphere, and Decision Cockpits?**
- **How did these decision-making tools change the way the company ran its business? How effective are they? Why?**
- **How are these systems related to P&G's business strategy?**

Types of Information Systems

- **Enterprise applications**
 - **Systems for linking the enterprise**
 - **Span functional areas**
 - **Execute business processes across firm**
 - **Include all levels of management**
 - **Four major applications:**
 - Enterprise systems
 - Supply chain management systems
 - Customer relationship management systems
 - Knowledge management systems



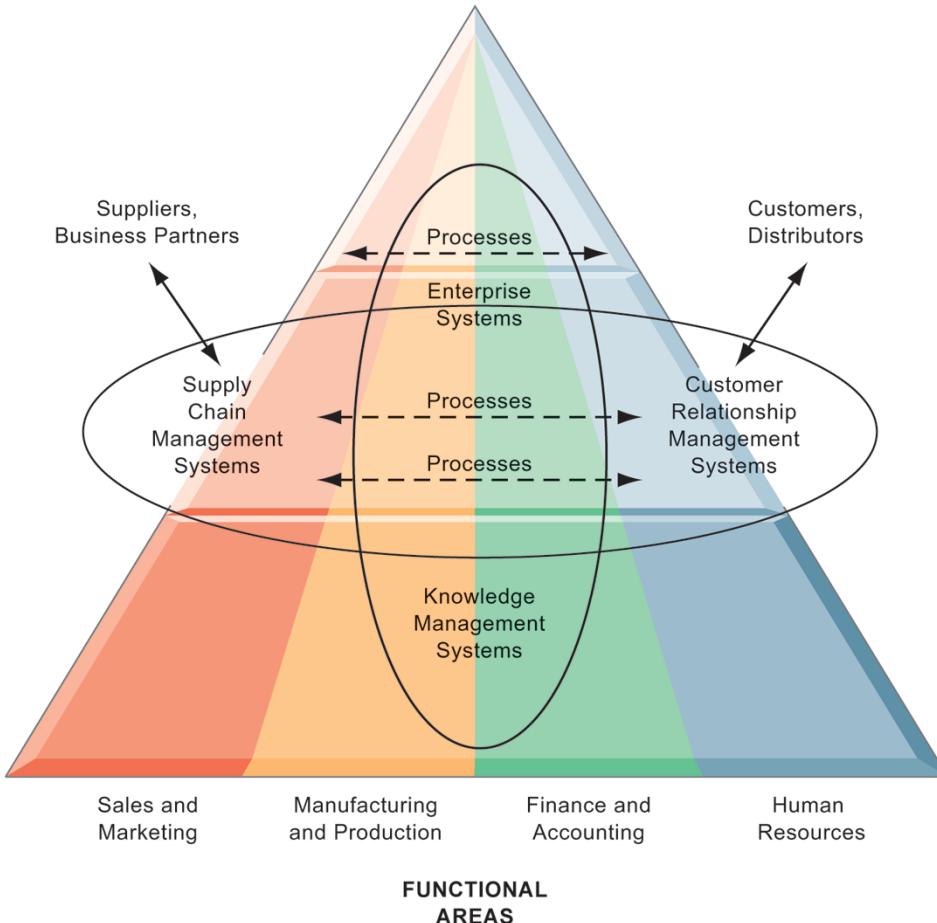
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Enterprise Application Architecture

Enterprise applications automate processes that span multiple business functions and organizational levels and may extend outside the organization.

FIGURE 2-6



Types of Information Systems

- **Enterprise systems**

- Collects data from different firm functions and stores data in single central data repository
- Resolves problem of fragmented data
- Enable:
 - Coordination of daily activities
 - Efficient response to customer orders (production, inventory)
 - Help managers make decisions about daily operations and longer-term planning



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Types of Information Systems

- **Supply chain management (SCM) systems**
 - Manage firm's relationships with suppliers
 - Share information about:
 - Orders, production, inventory levels, delivery of products and services
 - Goal:
 - Right amount of products to destination with least amount of time and lowest cost

Types of Information Systems

- **Customer relationship management systems:**
 - Provide information to coordinate all of the business processes that deal with customers
 - Sales
 - Marketing
 - Customer service
 - Helps firms identify, attract, and retain most profitable customers

Types of Information Systems

- **Knowledge management systems (KMS)**
 - Support processes for capturing and applying knowledge and expertise
 - How to create, produce, deliver products and services
 - Collect internal knowledge and experience within firm and make it available to employees
 - Link to external sources of knowledge

Types of Information Systems

- **Also used to increase integration and expedite the flow of information**
 - **Intranets:**
 - Internal company Web sites accessible only by employees
 - **Extranets:**
 - Company Web sites accessible externally only to vendors and suppliers
 - Often used to coordinate supply chain

Types of Information Systems

- **E-business**
 - Use of digital technology and Internet to drive major business processes
- **E-commerce**
 - Subset of e-business
 - Buying and selling goods and services through Internet
- **E-government:**
 - Using Internet technology to deliver information and services to citizens, employees, and businesses

Systems for Collaboration and Teamwork

- **Collaboration:**

- Short-lived or long-term
- Informal or formal (teams)

- **Growing importance of collaboration:**

- Changing nature of work
- Growth of professional work—“interaction jobs”
- Changing organization of the firm
- Changing scope of the firm
- Emphasis on innovation
- Changing culture of work



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Systems for Collaboration and Teamwork

- **Social business**

- Use of social networking platforms, internal and external
- Engage employees, customers, and suppliers
- Goal is to deepen interactions and expedite information sharing
- “Conversations”
- Requires information transparency
 - Driving the exchange of information without intervention from executives or others

Systems for Collaboration and Teamwork

- **Business benefits of collaboration and teamwork**
 - Investments in collaboration technology can bring organization improvements, returning high ROI
 - Benefits:
 - Productivity
 - Quality
 - Innovation
 - Customer service
 - Financial performance
 - Profitability, sales, sales growth



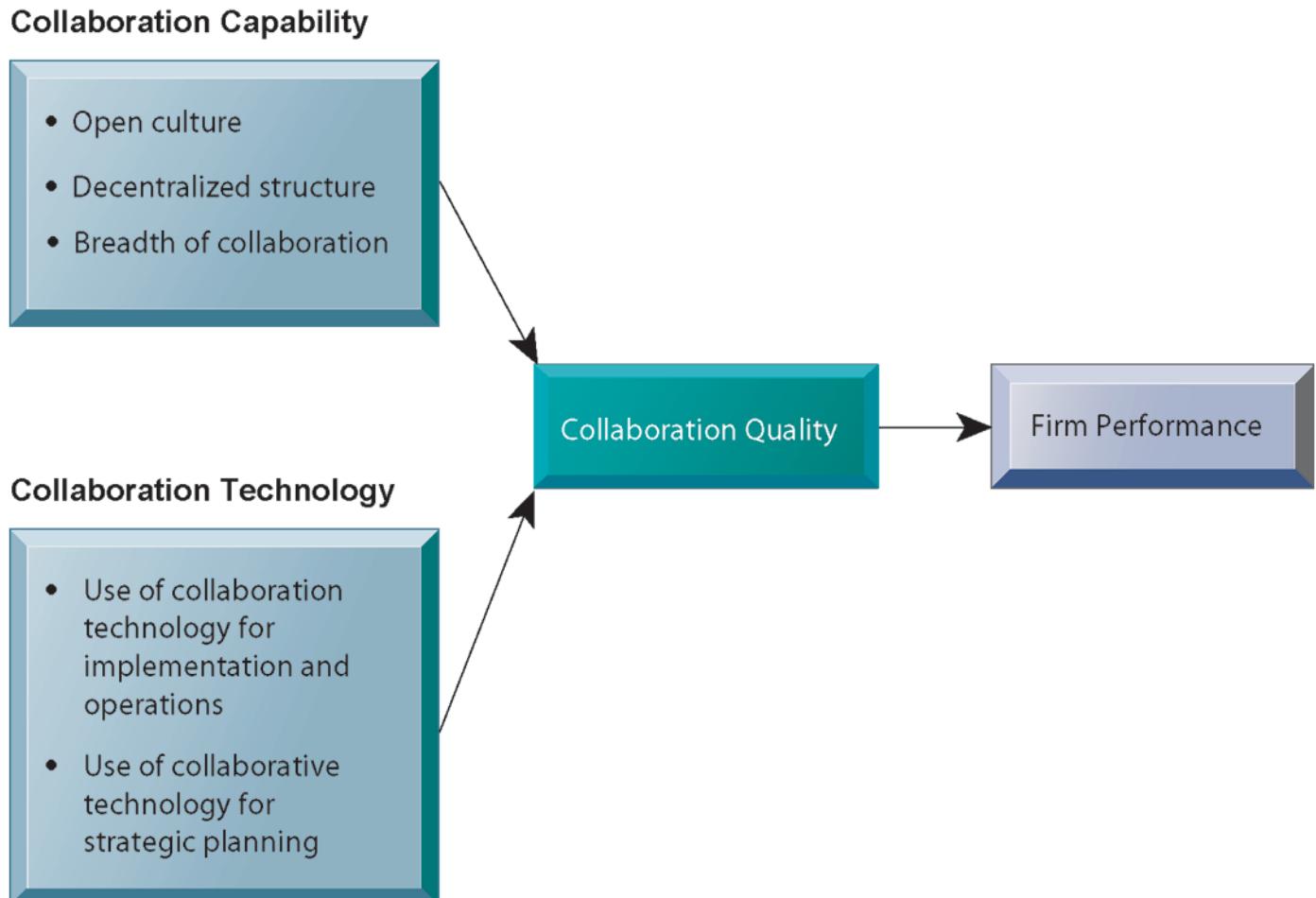
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Requirements for Collaboration

Successful collaboration requires an appropriate organizational structure and culture, along with appropriate collaboration technology.

FIGURE 2-7





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Systems for Collaboration and Teamwork

- **Building a collaborative culture and business processes**
 - “Command and control” organizations
 - No value placed on teamwork or lower-level participation in decisions
 - **Collaborative business culture**
 - Senior managers rely on teams of employees.
 - Policies, products, designs, processes, and systems rely on teams.
 - The managers purpose is to build teams.



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Systems for Collaboration and Teamwork

- **Tools for collaboration and teamwork**
 - E-mail and instant messaging
 - Wikis
 - Virtual worlds
 - Collaboration and social business platforms
 - Virtual meeting systems (telepresence)
 - Google Apps/Google sites
 - Cyberlockers
 - Microsoft SharePoint
 - Lotus Notes
 - Enterprise social networking tools



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Systems for Collaboration and Teamwork

- **Enterprise social networking software capabilities**
 - Profiles
 - Content sharing
 - Feeds and notifications
 - Groups and team workspaces
 - Tagging and social bookmarking
 - Permissions and privacy



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Systems for Collaboration and Teamwork

- **Two dimensions of collaboration technologies**
 - Space (or location)—remote or co-located
 - Time—synchronous or asynchronous
- **Six steps in evaluating software tools**
 1. What are your firm's collaboration challenges?
 2. What kinds of solutions are available?
 3. Analyze available products' cost and benefits.
 4. Evaluate security risks.
 5. Consult users for implementation and training issues.
 6. Evaluate product vendors.



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The Time/Space Collaboration Tool Matrix

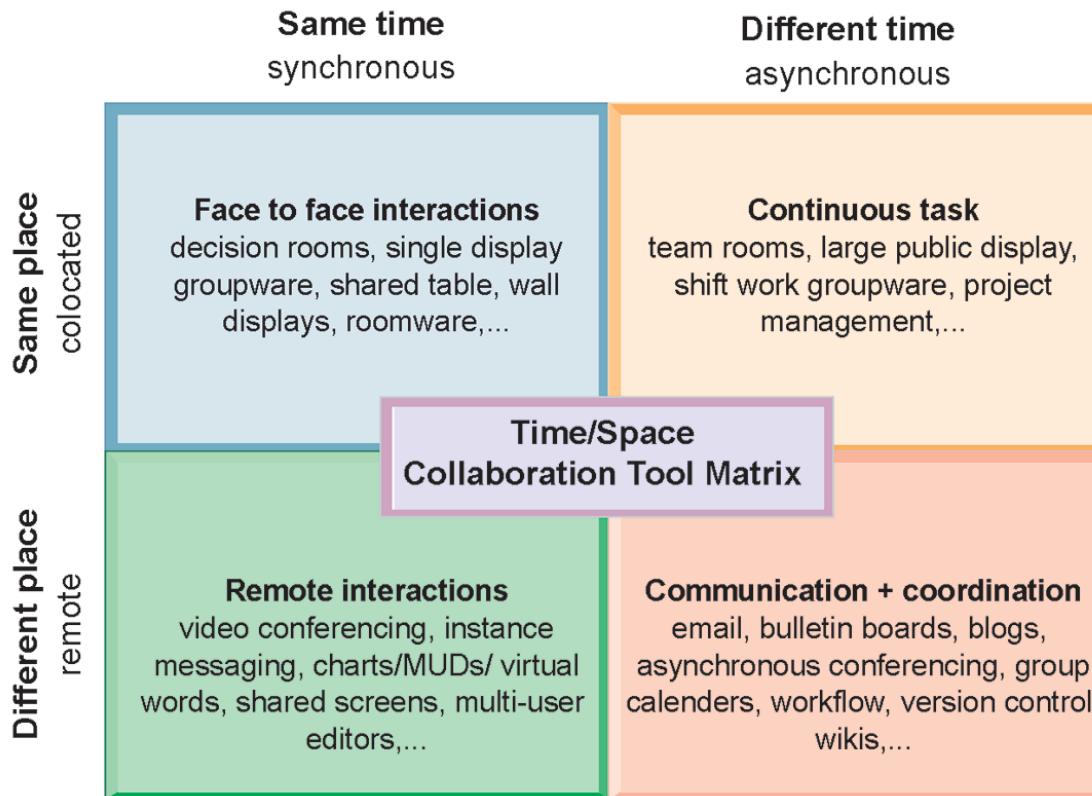


FIGURE 2-8

Collaboration technologies can be classified in terms of whether they support interactions at the same or different time or place or whether these interactions are remote or co-located.

The Information Systems Function in Business

- **Information systems department:**
 - Formal organizational unit responsible for information technology services
 - Often headed by chief information officer (CIO)
 - Other senior positions include chief security officer (CSO), chief knowledge officer (CKO), chief privacy officer (CPO)
 - Programmers
 - Systems analysts
 - Information systems managers

The Information Systems Function in Business

- **End users**
 - Representatives of other departments for whom applications are developed
 - Increasing role in system design, development
- **IT Governance:**
 - Strategies and policies for using IT in the organization
 - Decision rights
 - Accountability
 - Organization of information systems function
 - Centralized, decentralized, and so on



Management Information Systems

Chapter 2: Global E-business and Collaboration

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Chapter 3

Information Systems, Organizations, and Strategy

VIDEO CASES

Case 1: National Basketball Association: Competing on Global Delivery with Akamai OS Streaming

Case 2: IT and Geo-Mapping Help a Small Business Succeed (2009)

Case 3: Materials Handling Equipment Corp: Enterprise Systems Drive Corporate Strategy for a Small Business

Instructional Video 1 SAP BusinessOne ERP: From Orders to Final Delivery and Payment

Learning Objectives

- **Identify and describe important features of organizations that managers need to know about in order to build and use information systems successfully.**
- **Demonstrate how Porter's competitive forces model helps companies develop competitive strategies using information systems.**
- **Explain how the value chain and value web models help businesses identify opportunities for strategic information system applications.**

Learning Objectives (cont.)

- Demonstrate how information systems help businesses use synergies, core competencies, and network-based strategies to achieve competitive advantage.
- Assess the challenges posed by strategic information systems and management solutions.

Will Sears' s Technology Strategy Work This Time?

- **Problem:** Fading brand, powerful competitors, technology costs
- **Solutions:**
 - Customer data mining to improve customer intimacy, design sales floors, implement customer programs and promotions
- Demonstrates IT's central role in defining competitive strategy

Organizations and Information Systems

- **Information technology and organizations influence each other**
 - Relationship influenced by organization's
 - Structure
 - Business processes
 - Politics
 - Culture
 - Environment
 - Management decisions



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Chapter 3: Information Systems, Organizations, and Strategy

THE TWO-WAY RELATIONSHIP BETWEEN ORGANIZATIONS AND INFORMATION TECHNOLOGY

This complex two-way relationship is mediated by many factors, not the least of which are the decisions made—or not made—by managers. Other factors mediating the relationship include the organizational culture, structure, politics, business processes, and environment.

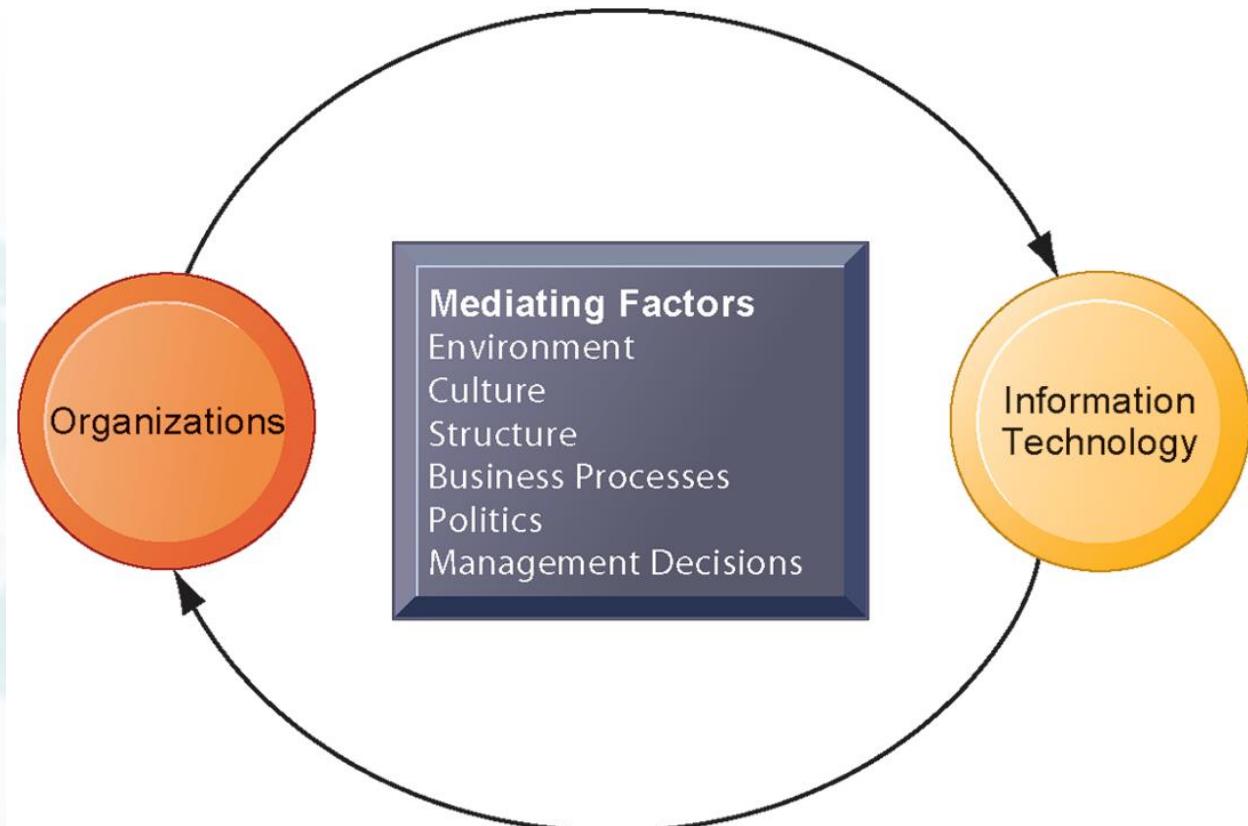


FIGURE 3-1

Organizations and Information Systems

- **What is an organization?**

- **Technical definition:**

- Formal social structure that processes resources from environment to produce outputs
 - A formal legal entity with internal rules and procedures, as well as a social structure

- **Behavioral definition:**

- A collection of rights, privileges, obligations, and responsibilities that is delicately balanced over a period of time through conflict and conflict resolution



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THE TECHNICAL MICROECONOMIC DEFINITION OF THE ORGANIZATION

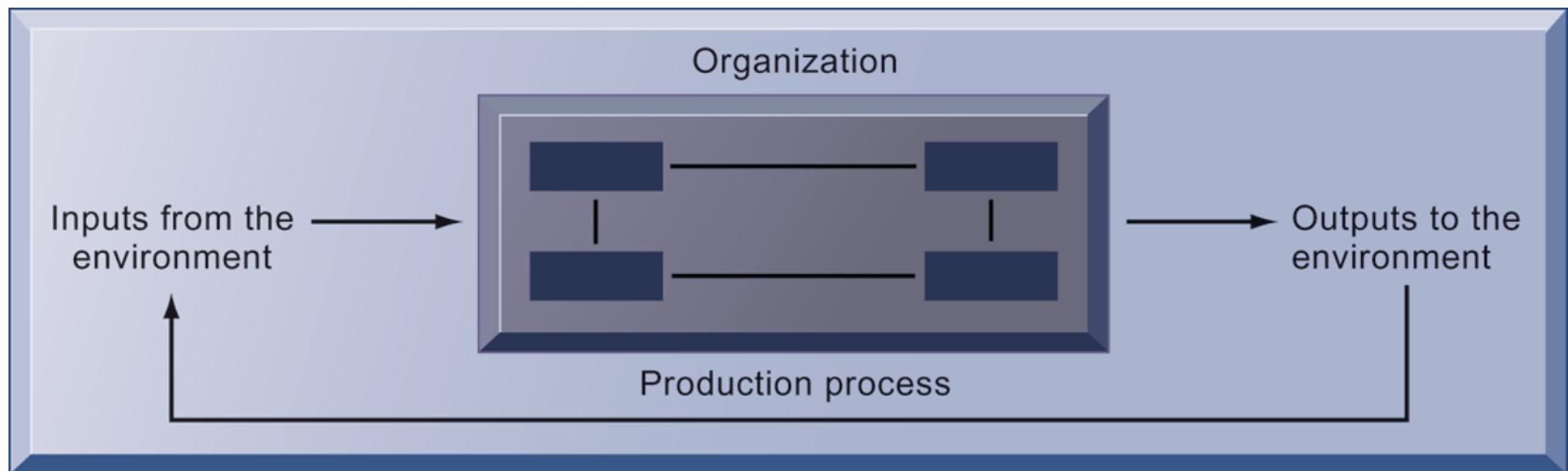


FIGURE 3-2 In the microeconomic definition of organizations, capital and labor (the primary production factors provided by the environment) are transformed by the firm through the production process into products and services (outputs to the environment). The products and services are consumed by the environment, which supplies additional capital and labor as inputs in the feedback loop.



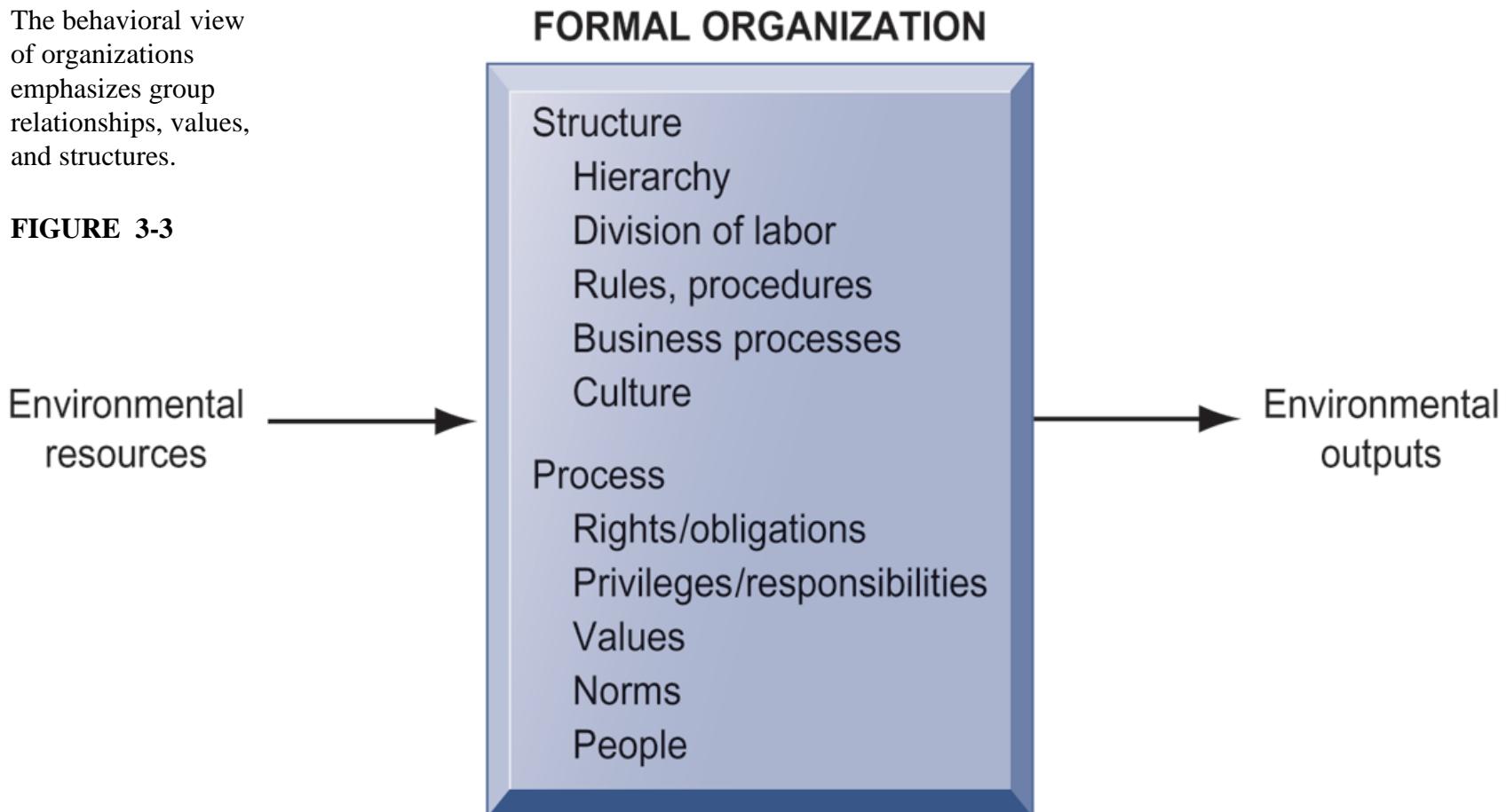
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THE BEHAVIORAL VIEW OF ORGANIZATIONS

The behavioral view of organizations emphasizes group relationships, values, and structures.

FIGURE 3-3



Organizations and Information Systems

- **Features of organizations**

- Use of hierarchical structure
- Accountability, authority in system of impartial decision making
- Adherence to principle of efficiency
- Routines and business processes
- Organizational politics, culture, environments, and structures

Organizations and Information Systems

- **Routines and business processes**
 - **Routines (standard operating procedures)**
 - Precise rules, procedures, and practices developed to cope with virtually all expected situations
 - **Business processes: Collections of routines**
 - **Business firm: Collection of business processes**



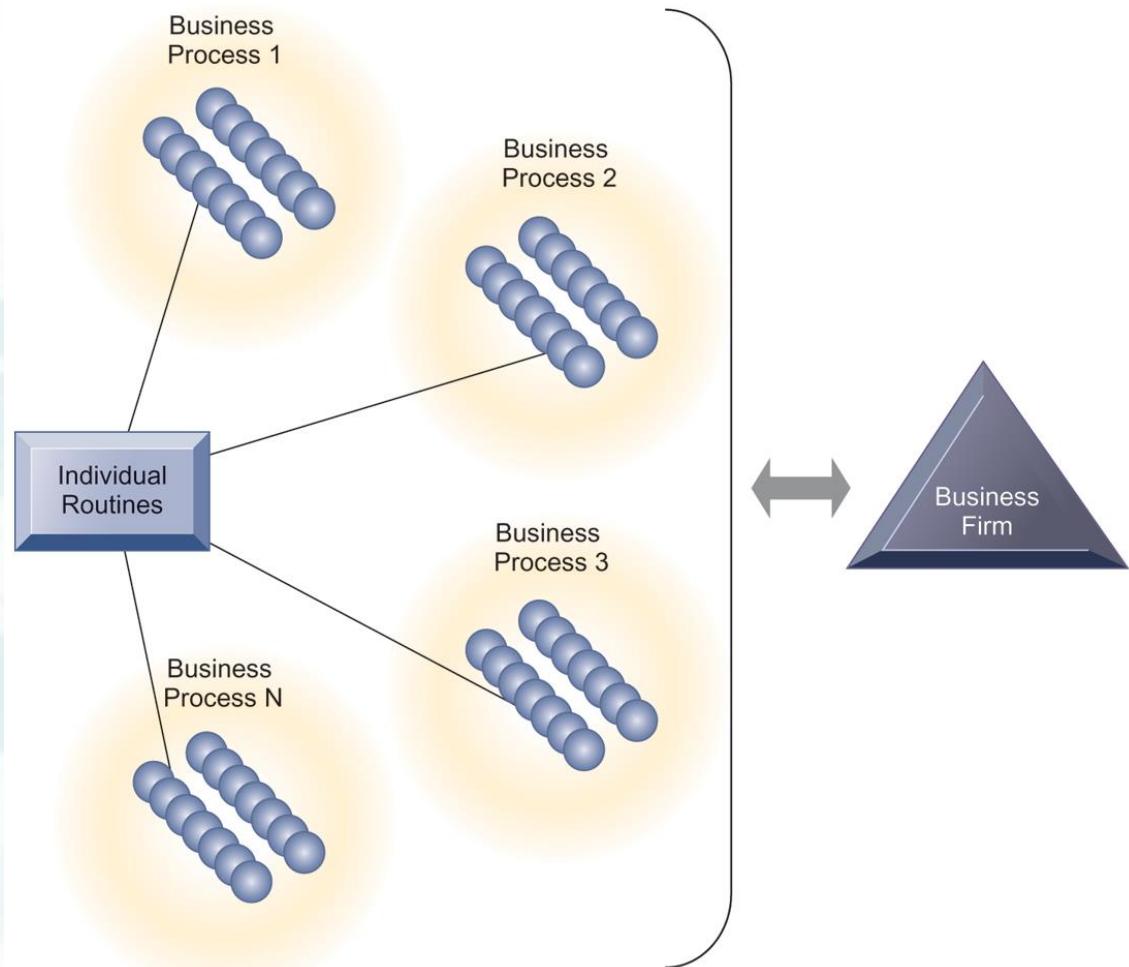
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ROUTINES, BUSINESS PROCESSES, AND FIRMS

All organizations are composed of individual routines and behaviors, a collection of which make up a business process. A collection of business processes make up the business firm. New information system applications require that individual routines and business processes change to achieve high levels of organizational performance.

FIGURE 3-4



Organizations and Information Systems

- **Organizational politics**
 - Divergent viewpoints lead to political struggle, competition, and conflict.
 - Political resistance greatly hampers organizational change.

Organizations and Information Systems

- **Organizational culture:**
 - Encompasses set of assumptions that define goal and product
 - What products the organization should produce
 - How and where it should be produced
 - For whom the products should be produced
 - May be powerful unifying force as well as restraint on change

Organizations and Information Systems

- **Organizational environments:**

- **Organizations and environments have a reciprocal relationship.**
- **Organizations are open to, and dependent on, the social and physical environment.**
- **Organizations can influence their environments.**
- **Environments generally change faster than organizations.**
- **Information systems can be instrument of *environmental scanning*, act as a lens.**



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ENVIRONMENTS AND ORGANIZATIONS HAVE A RECIPROCAL RELATIONSHIP

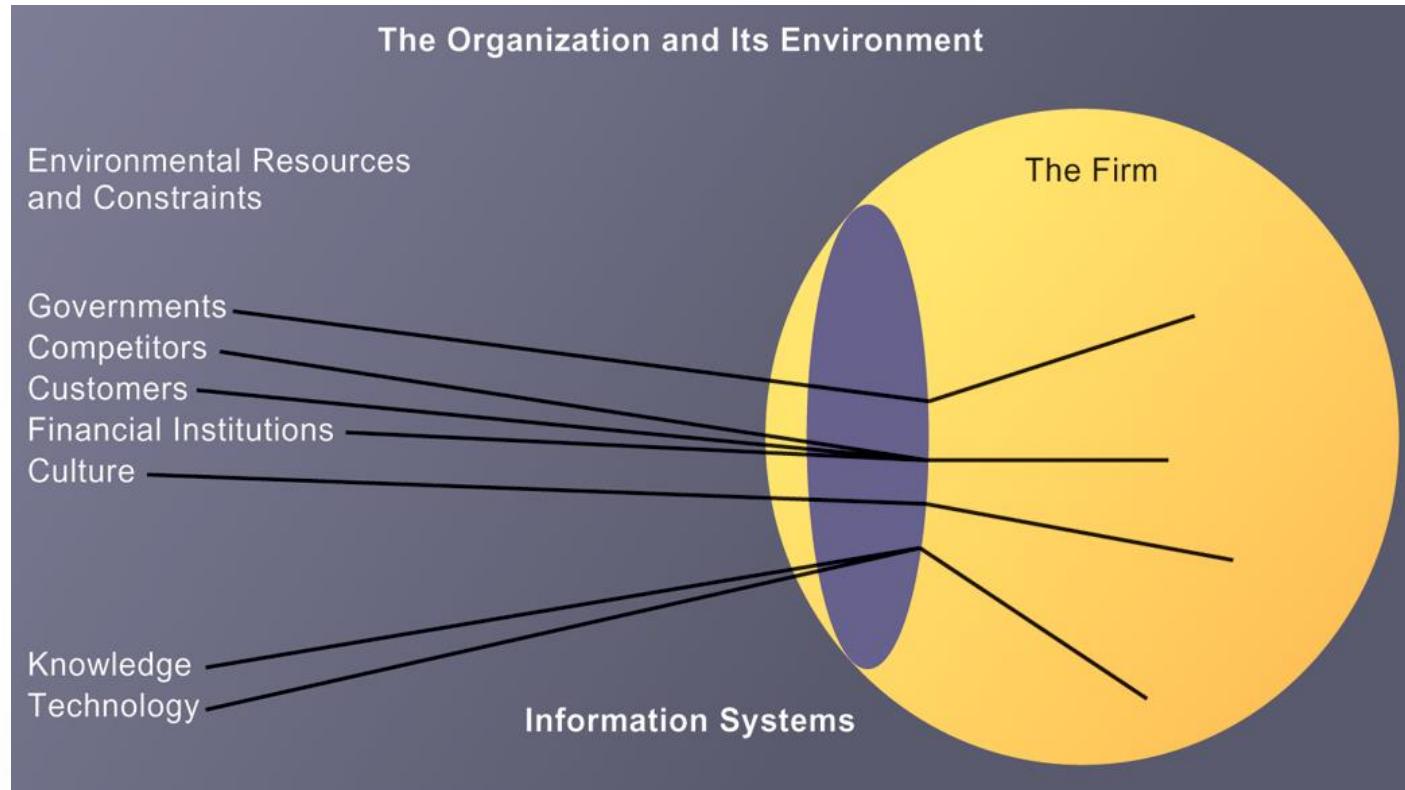


FIGURE 3-5 Environments shape what organizations can do, but organizations can influence their environments and decide to change environments altogether. Information technology plays a critical role in helping organizations perceive environmental change and in helping organizations act on their environment.

Organizations and Information Systems

- **Disruptive technologies**
 - Technology that brings about sweeping change to businesses, industries, markets
 - Examples: personal computers, word processing software, the Internet, the PageRank algorithm
 - First movers and fast followers
 - First movers— inventors of disruptive technologies
 - Fast followers—firms with the size and resources to capitalize on that technology

Organizations and Information Systems

- **5 basic kinds of organizational structure**
 - **Entrepreneurial:**
 - Small start-up business
 - **Machine bureaucracy:**
 - Midsize manufacturing firm
 - **Divisionalized bureaucracy:**
 - Fortune 500 firms
 - **Professional bureaucracy:**
 - Law firms, school systems, hospitals
 - **Adhocracy:**
 - Consulting firms

Organizations and Information Systems

- **Other organizational features**
 - Goals
 - Coercive, utilitarian, normative, and so on
 - Constituencies
 - Leadership styles
 - Tasks
 - Surrounding environments

How Information Systems Impact Organizations and Business Firms

- **Economic impacts**

- **IT changes relative costs of capital and the costs of information**
- **Information systems technology is a factor of production, like capital and labor**
- **IT affects the cost and quality of information and changes economics of information**
 - Information technology helps firms contract in size because it can reduce transaction costs (the cost of participating in markets)
 - Outsourcing

How Information Systems Impact Organizations and Business Firms

- **Transaction cost theory**

- Firms seek to economize on transaction costs (the costs of participating in markets).
 - Vertical integration, hiring more employees, buying suppliers and distributors
- IT lowers market transaction costs for firm, making it worthwhile for firms to transact with other firms rather than grow the number of employees.

How Information Systems Impact Organizations and Business Firms

- **Agency theory:**
 - Firm is nexus of contracts among self-interested parties requiring supervision.
 - Firms experience agency costs (the cost of managing and supervising) which rise as firm grows.
 - IT can reduce agency costs, making it possible for firms to grow without adding to the costs of supervising, and without adding employees.

How Information Systems Impact Organizations and Business Firms

- **Organizational and behavioral impacts**
 - **IT flattens organizations**
 - Decision making is pushed to lower levels.
 - Fewer managers are needed (IT enables faster decision making and increases span of control).
 - **Postindustrial organizations**
 - Organizations flatten because in postindustrial societies, authority increasingly relies on knowledge and competence rather than formal positions.



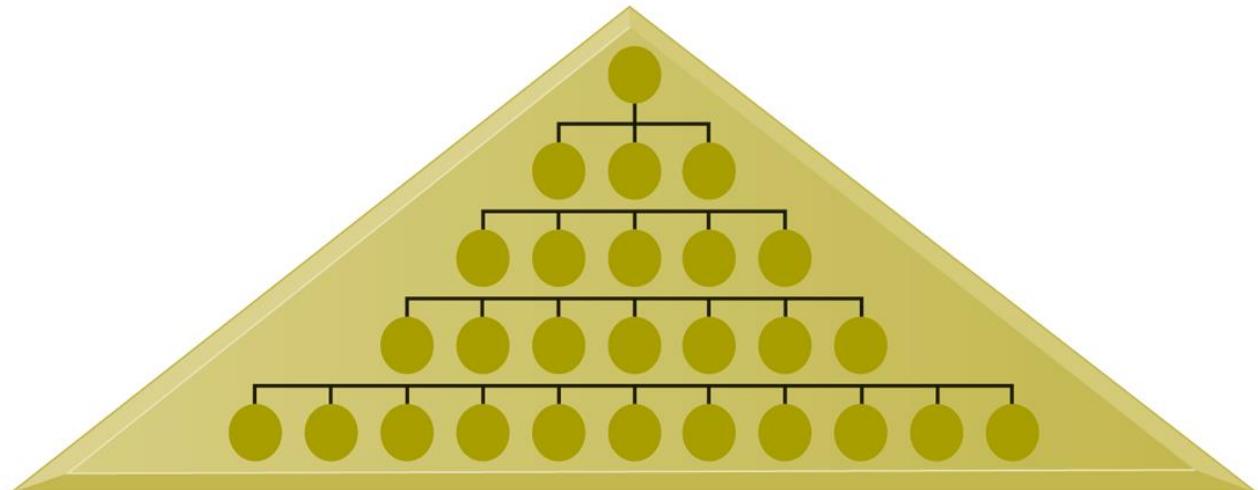
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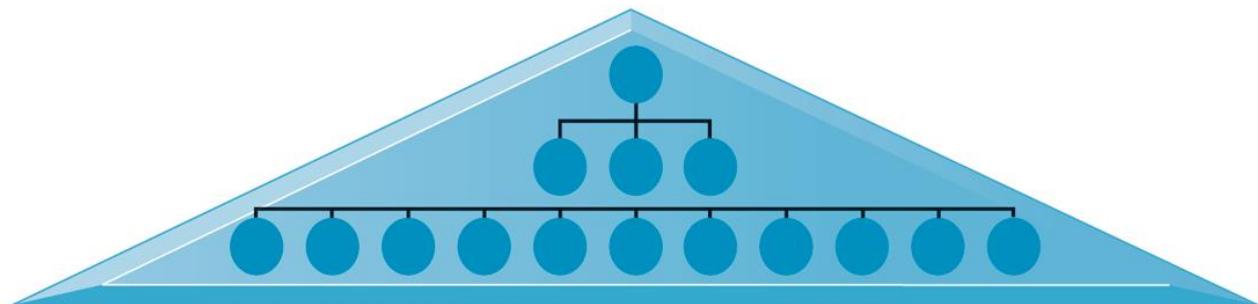
FLATTENING ORGANIZATIONS

Information systems can reduce the number of levels in an organization by providing managers with information to supervise larger numbers of workers and by giving lower-level employees more decision-making authority.

FIGURE 3-6



A traditional hierarchical organization with many levels of management



An organization that has been "flattened" by removing layers of management

How Information Systems Impact Organizations and Business Firms

- **Organizational resistance to change**
 - Information systems become bound up in organizational politics because they influence access to a key resource—information.
 - Information systems potentially change an organization’s structure, culture, politics, and work.
 - Most common reason for failure of large projects is due to organizational and political resistance to change.



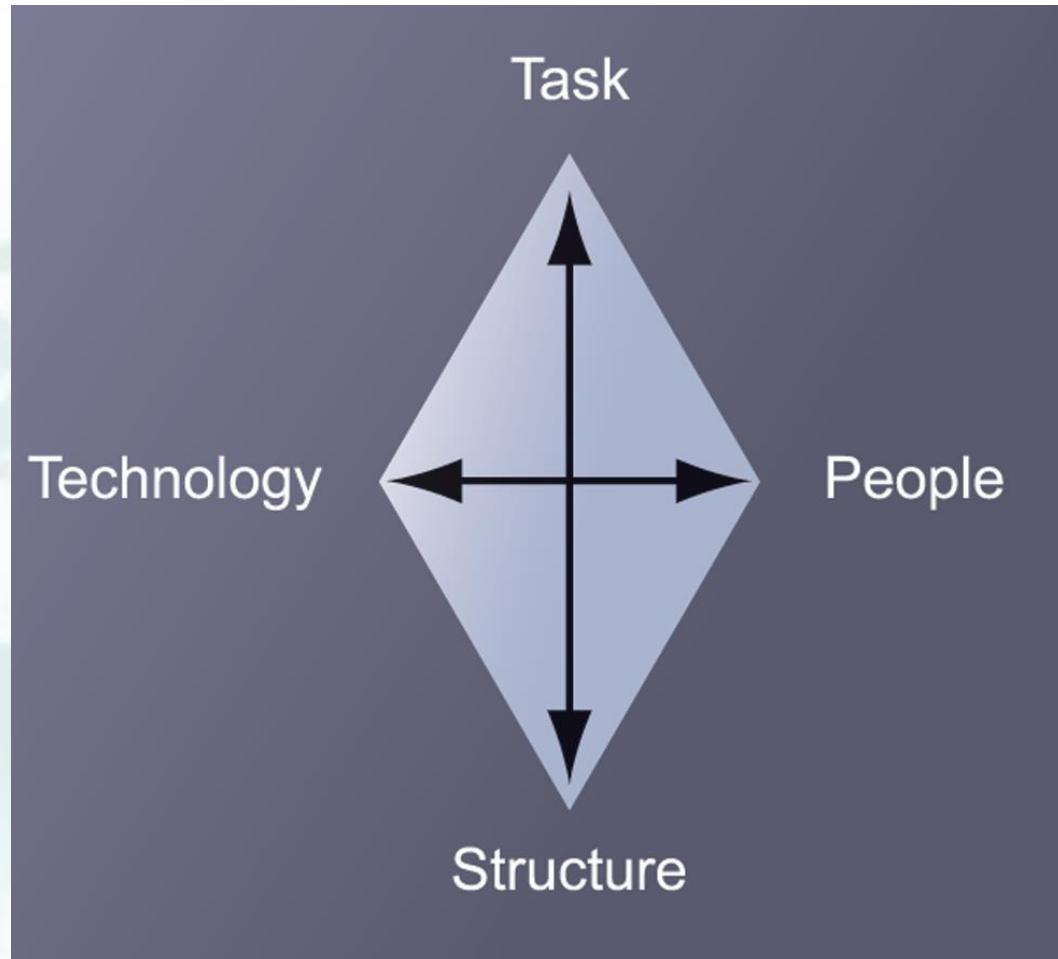
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ORGANIZATIONAL RESISTANCE AND THE MUTUALLY ADJUSTING RELATIONSHIP BETWEEN TECHNOLOGY AND THE ORGANIZATION

Implementing information systems has consequences for task arrangements, structures, and people. According to this model, to implement change, all four components must be changed simultaneously.

FIGURE 3-7



How Information Systems Impact Organizations and Business Firms

- **The Internet and organizations**
 - The Internet increases the accessibility, storage, and distribution of information and knowledge for organizations.
 - The Internet can greatly lower transaction and agency costs.
 - Example: Large firm delivers internal manuals to employees via a corporate Web site, saving millions of dollars in distribution costs

How Information Systems Impact Organizations and Business Firms

- **Organizational factors in planning a new system:**
 - Environment
 - Structure
 - Hierarchy, specialization, routines, business processes
 - Culture and politics
 - Type of organization and style of leadership
 - Main interest groups affected by system; attitudes of end users
 - Tasks, decisions, and business processes the system will assist

Using Information Systems to Achieve Competitive Advantage

- Why do some firms become leaders in their industry?
- Michael Porter's competitive forces model
 - Provides general view of firm, its competitors, and environment
 - Five competitive forces shape fate of firm:
 1. Traditional competitors
 2. New market entrants
 3. Substitute products and services
 4. Customers
 5. Suppliers



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PORTER'S COMPETITIVE FORCES MODEL

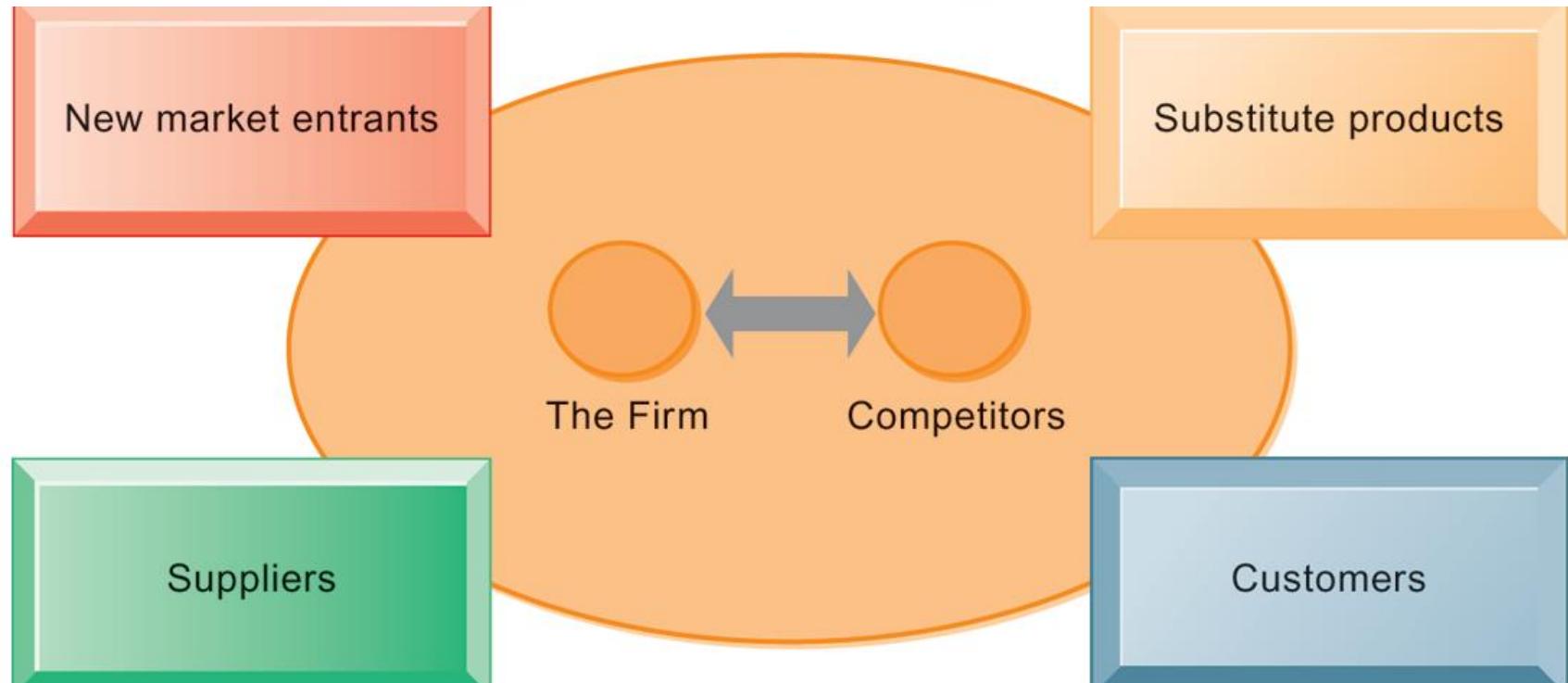


FIGURE 3-8 In Porter's competitive forces model, the strategic position of the firm and its strategies are determined not only by competition with its traditional direct competitors but also by four other forces in the industry's environment: new market entrants, substitute products, customers, and suppliers.

Using Information Systems to Achieve Competitive Advantage

- **Traditional competitors**
 - All firms share market space with competitors who are continuously devising new products, services, efficiencies, and switching costs.
- **New market entrants**
 - Some industries have high barriers to entry, for example, computer chip business.
 - New companies have new equipment, younger workers, but little brand recognition.

Using Information Systems to Achieve Competitive Advantage

- **Substitute products and services**
 - Substitutes customers might use if your prices become too high, for example, iTunes substitutes for CDs
- **Customers**
 - Can customers easily switch to competitor's products? Can they force businesses to compete on price alone in transparent marketplace?
- **Suppliers**
 - Market power of suppliers when firm cannot raise prices as fast as suppliers

Using Information Systems to Achieve Competitive Advantage

- **Four generic strategies for dealing with competitive forces, enabled by using IT:**
 - Low-cost leadership
 - Product differentiation
 - Focus on market niche
 - Strengthen customer and supplier intimacy

Using Information Systems to Achieve Competitive Advantage

- **Low-cost leadership**
 - Produce products and services at a lower price than competitors
 - Example: Walmart's efficient customer response system
- **Product differentiation**
 - Enable new products or services, greatly change customer convenience and experience
 - Example: Google, Nike, Apple
 - Mass customization

Using Information Systems to Achieve Competitive Advantage

- **Focus on market niche**
 - Use information systems to enable a focused strategy on a single market niche; specialize
 - Example: Hilton Hotels' OnQ system
- **Strengthen customer and supplier intimacy**
 - Use information systems to develop strong ties and loyalty with customers and suppliers
 - Increase *switching costs*
 - Example: Netflix, Amazon

Interactive Session: Organizations

Technology Helps Starbucks Find New Ways to Compete

Read the Interactive Session and discuss the following questions

- Analyze Starbucks using the competitive forces and value chain models.**
- What is Starbucks' business strategy? Assess the role played by technology in this business strategy.**
- How much has technology helped Starbucks compete? Explain your answer.**

Using Information Systems to Achieve Competitive Advantage

- **The Internet's impact on competitive advantage**
 - Transformation or threat to some industries
 - Examples: travel agency, printed encyclopedia, media
 - Competitive forces still at work, but rivalry more intense
 - Universal standards allow new rivals, entrants to market
 - New opportunities for building brands and loyal customer bases

Using Information Systems to Achieve Competitive Advantage

- **Value chain model**

- Firm as series of activities that add value to products or services
- Highlights activities where competitive strategies can best be applied
 - Primary activities vs. support activities
- At each stage, determine how information systems can improve operational efficiency and improve customer and supplier intimacy
- Utilize benchmarking, industry best practices



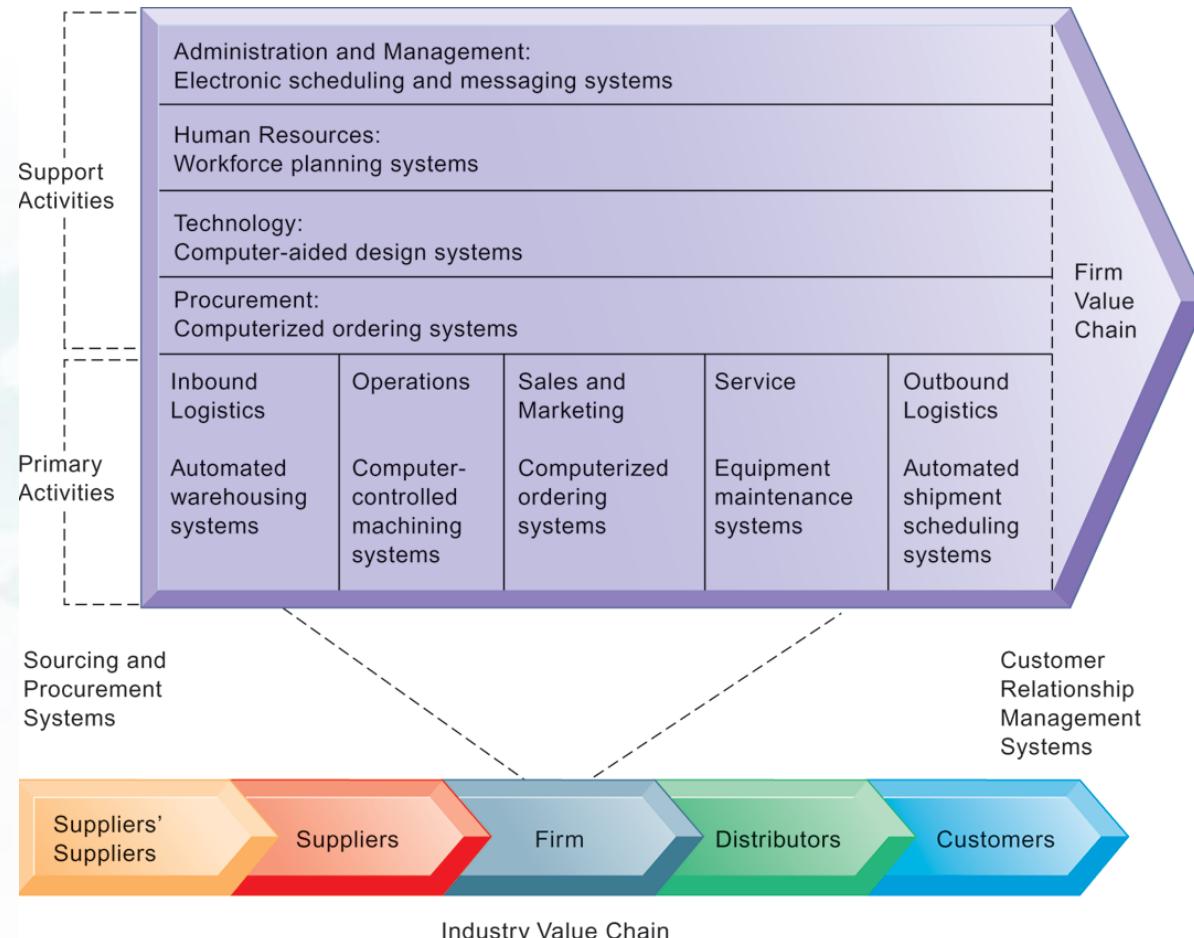
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THE VALUE CHAIN MODEL

This figure provides examples of systems for both primary and support activities of a firm and of its value partners that can add a margin of value to a firm's products or services.

FIGURE 3-9



Interactive Session: Technology

Automakers Become Software Companies

Read the Interactive Session and discuss the following questions

- How is software adding value to automakers' products?
- How are the automakers benefiting from software-enhanced cars? How are customers benefiting?
- What value chain activities are involved in enhancing cars with software?
- How much of a competitive advantage is software providing for automakers? Explain your answer.

Using Information Systems to Achieve Competitive Advantage

- **Value web:**
 - Collection of independent firms using highly synchronized IT to coordinate value chains to produce product or service collectively
 - More customer driven, less linear operation than traditional value chain



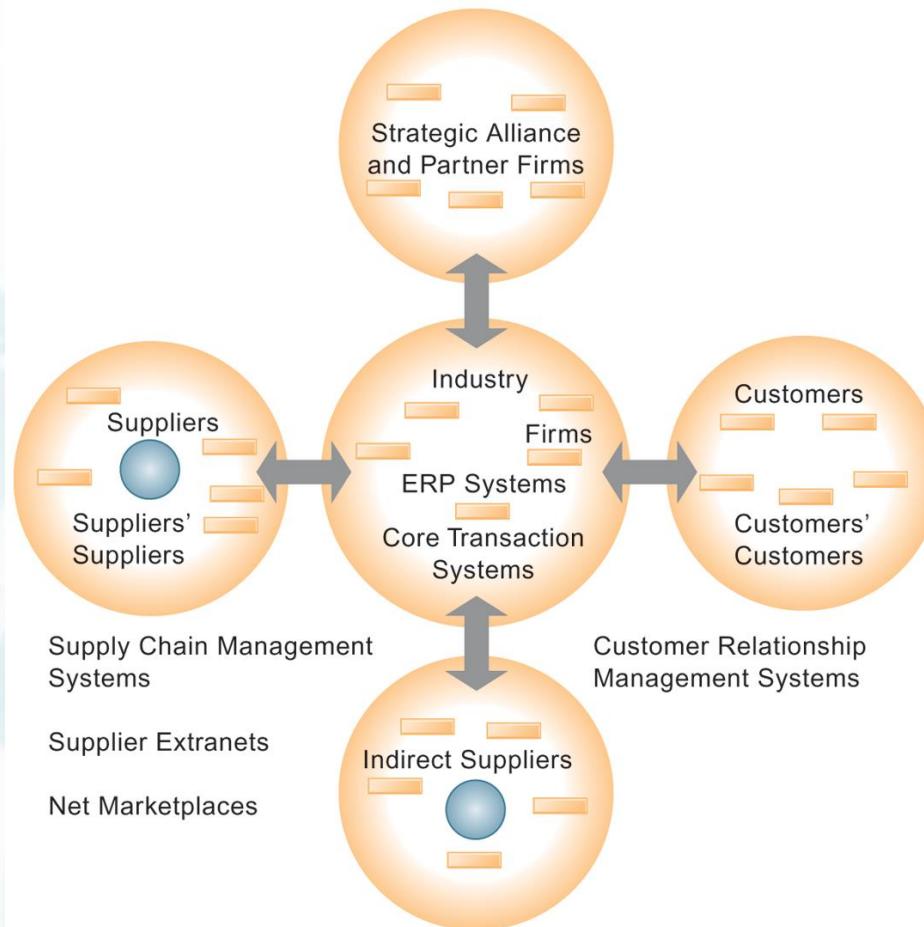
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THE VALUE WEB

The value web is a networked system that can synchronize the value chains of business partners within an industry to respond rapidly to changes in supply and demand.

FIGURE 3-10



Using Information Systems to Achieve Competitive Advantage

- **Information systems can improve overall performance of business units by promoting synergies and core competencies**
 - **Synergies**
 - When output of some units used as inputs to others, or organizations pool markets and expertise
 - Example: merger of Bank of NY and JPMorgan Chase
 - Purchase of YouTube by Google

Using Information Systems to Achieve Competitive Advantage

- **Core competencies**
 - Activity for which firm is world-class leader
 - Relies on knowledge, experience, and sharing this across business units
 - Example: Procter & Gamble's intranet and directory of subject matter experts

Using Information Systems to Achieve Competitive Advantage

- **Network-based strategies**
 - Take advantage of firm's abilities to network with each other
 - Include use of:
 - Network economics
 - Virtual company model
 - Business ecosystems

Using Information Systems to Achieve Competitive Advantage

- **Traditional economics: Law of diminishing returns**
 - The more any given resource is applied to production, the lower the marginal gain in output, until a point is reached where the additional inputs produce no additional outputs
- **Network economics:**
 - Marginal cost of adding new participant almost zero, with much greater marginal gain
 - Value of community grows with size
 - Value of software grows as installed customer base grows

Using Information Systems to Achieve Competitive Advantage

- **Virtual company strategy**
 - Virtual company uses networks to ally with other companies to create and distribute products without being limited by traditional organizational boundaries or physical locations
 - Example: Li & Fung manages production, shipment of garments for major fashion companies, outsourcing all work to more than 7,500 suppliers

Using Information Systems to Achieve Competitive Advantage

- **Business ecosystems**

- **Industry sets of firms providing related services and products**
 - Microsoft platform used by thousands of firms
 - Walmart's order entry and inventory management
- **Keystone firms:** Dominate ecosystem and create platform used by other firms
- **Niche firms:** Rely on platform developed by keystone firm
- **Individual firms can consider how IT will help them become profitable niche players in larger ecosystems**



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AN ECOSYSTEM STRATEGIC MODEL

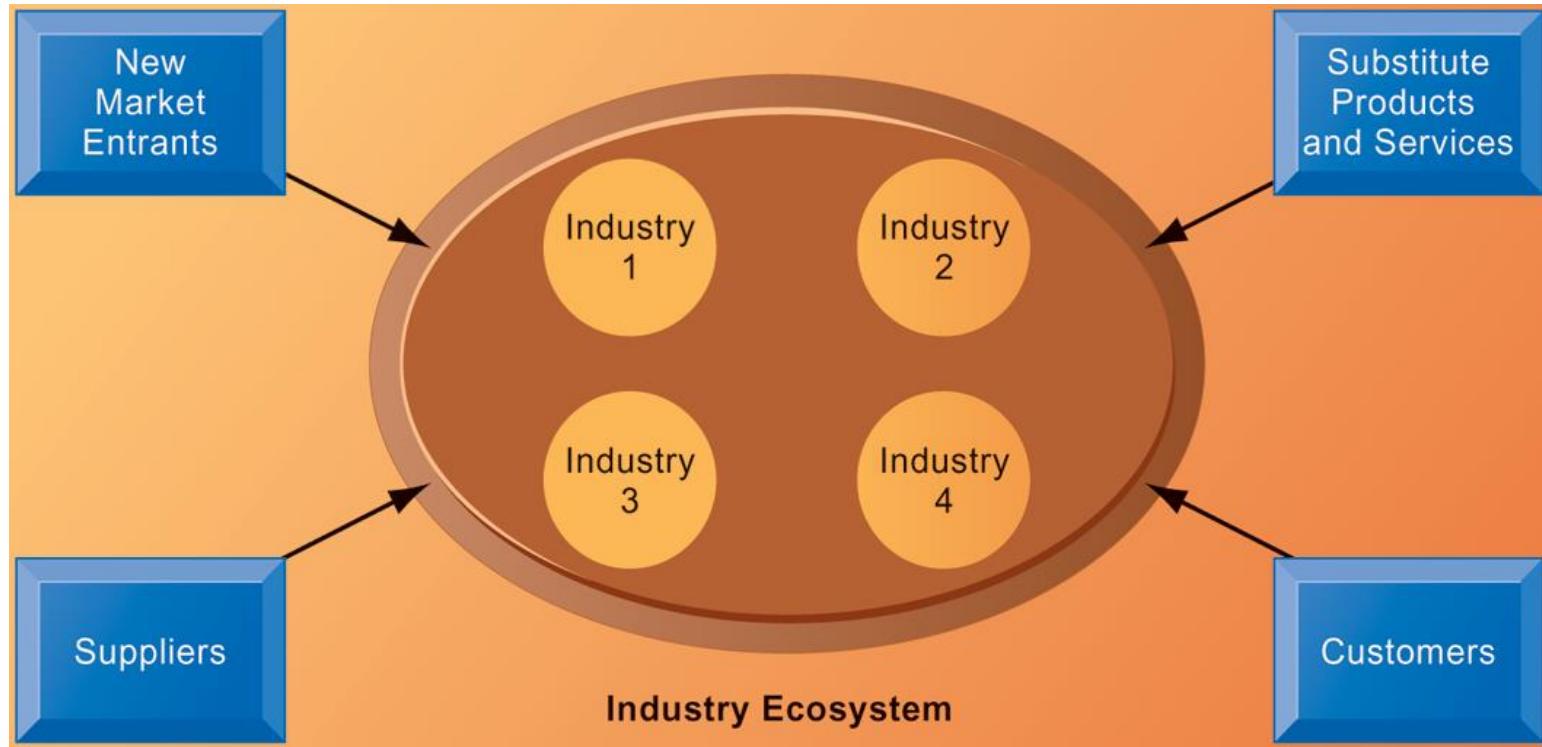


FIGURE 3-11 The digital firm era requires a more dynamic view of the boundaries among industries, firms, customers, and suppliers, with competition occurring among industry sets in a business ecosystem. In the ecosystem model, multiple industries work together to deliver value to the customer. IT plays an important role in enabling a dense network of interactions among the participating firms.

- **Sustaining competitive advantage**
 - Competitors can retaliate and copy strategic systems
 - Systems may become tools for survival
- **Aligning IT with business objectives**
 - Performing strategic systems analysis
 - Structure of industry
 - Firm value chains
- **Managing strategic transitions**
 - Adopting strategic systems requires changes in business goals, relationships with customers and suppliers, and business processes



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Chapter 4

Ethical and Social Issues in Information Systems

Video cases:

Case 1: "What Net Neutrality Means for You "

Case 2: Facebook Privacy

Case 3: Data Mining for Terrorists and Innocents

Instructional Video 1: "Victor Mayer Schonberger on the Right to be Forgotten "

LEARNING OBJECTIVES

- **What ethical, social, and political issues are raised by information systems?**
- **What specific principles for conduct can be used to guide ethical decisions?**
- **Why do contemporary information systems technology and the Internet pose challenges to the protection of individual privacy and intellectual property?**
- **How have information systems affected everyday life?**

Behavioral Targeting: Your Privacy Is the Target

- **Problem:** Need to efficiently target online ads.
- **Solutions:** Behavioral targeting allows businesses and organizations to more precisely target desired demographics.
- Google uses tracking files to monitor user activity on thousands of sites; businesses monitor activity on their own sites to better understand customers.
- Demonstrates IT's role in organizing and distributing information.
- Illustrates the ethical questions inherent in online information gathering.

Understanding Ethical and Social Issues Related to Systems

- Recent cases of failed ethical judgment in business:
 - Barclay's Bank, GlaxoSmithKline, Walmart
 - In many, information systems used to bury decisions from public scrutiny
- Ethics
 - Principles of right and wrong that individuals, acting as free moral agents, use to make choices to guide their behaviors

Understanding Ethical and Social Issues Related to Systems

- **Information systems and ethics**
 - **Information systems raise new ethical questions because they create opportunities for:**
 - Intense social change, threatening existing distributions of power, money, rights, and obligations
 - New kinds of crime

Understanding Ethical and Social Issues Related to Systems

- A model for thinking about ethical, social, and political Issues
 - Society as a calm pond
 - IT as rock dropped in pond, creating ripples of new situations not covered by old rules
 - Social and political institutions cannot respond overnight to these ripples—it may take years to develop etiquette, expectations, laws
 - Requires understanding of ethics to make choices in legally gray areas



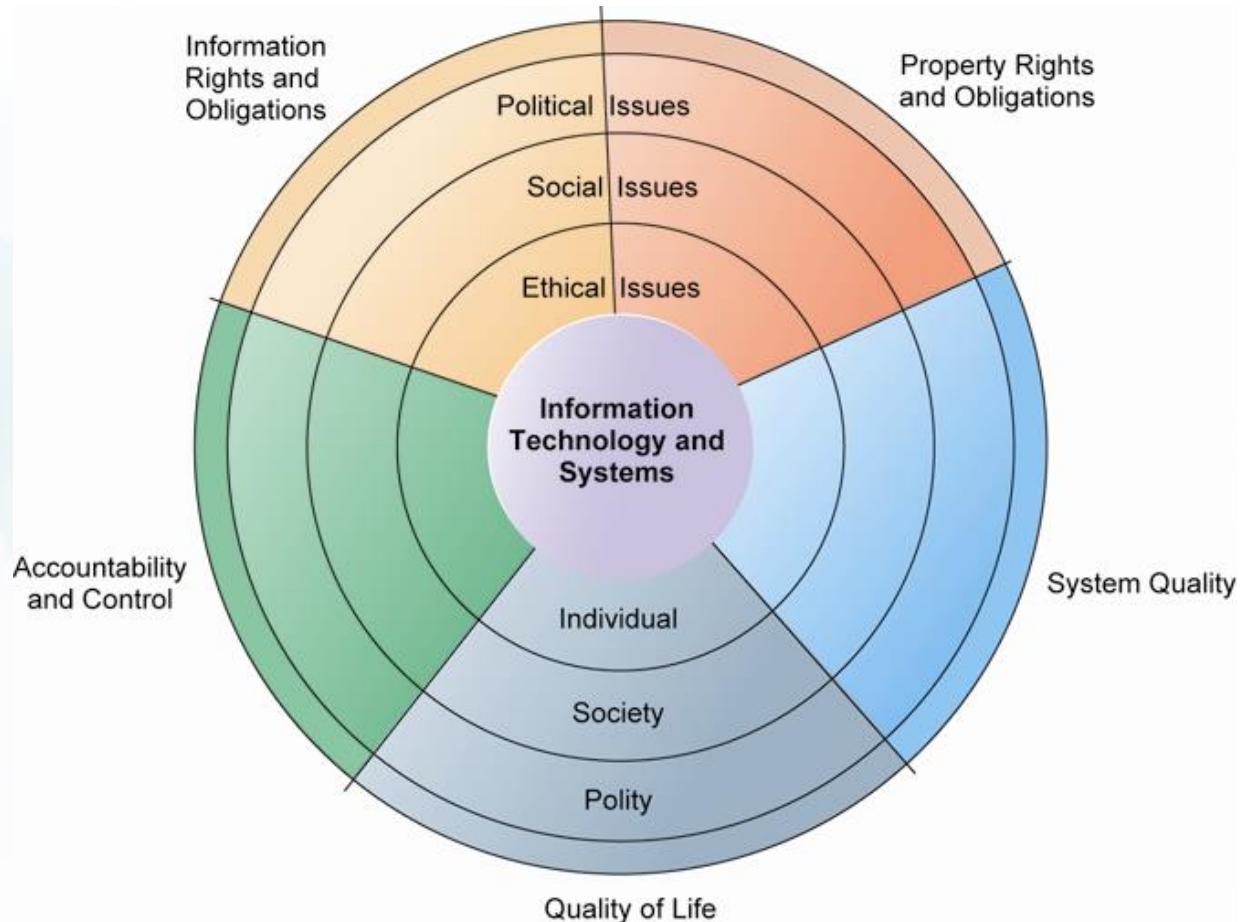
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Chapter 4: Ethical and Social Issues in Information Systems

THE RELATIONSHIP AMONG ETHICAL, SOCIAL, POLITICAL ISSUES IN AN INFORMATION SOCIETY

The introduction of new information technology has a ripple effect, raising new ethical, social, and political issues that must be dealt with on the individual, social, and political levels. These issues have five moral dimensions: information rights and obligations, property rights and obligations, system quality, quality of life, and accountability and control.

Figure 4-1



Understanding Ethical and Social Issues Related to Systems

- **Five moral dimensions of the information age:**
 - **Information rights and obligations**
 - **Property rights and obligations**
 - **Accountability and control**
 - **System quality**
 - **Quality of life**

Understanding Ethical and Social Issues Related to Systems

- **Key technology trends that raise ethical issues**
 - **Doubling of computer power**
 - More organizations depend on computer systems for critical operations.
 - **Rapidly declining data storage costs**
 - Organizations can easily maintain detailed databases on individuals.
 - **Networking advances and the Internet**
 - Copying data from one location to another and accessing personal data from remote locations are much easier.

Understanding Ethical and Social Issues Related to Systems

- **Advances in data analysis techniques**
 - Profiling
 - Combining data from multiple sources to create dossiers of detailed information on individuals
 - Nonobvious relationship awareness (NORA)
 - Combining data from multiple sources to find obscure hidden connections that might help identify criminals or terrorists
- **Mobile device growth**
 - Tracking of individual cell phones



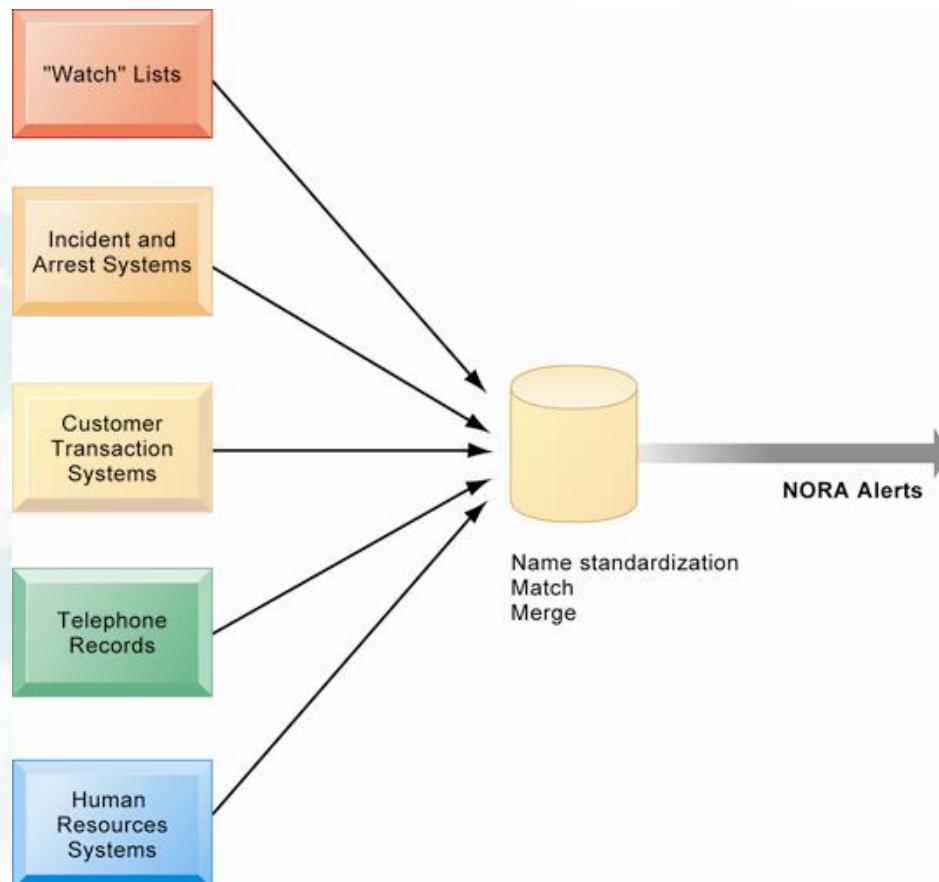
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Chapter 4: Ethical and Social Issues in Information Systems

NONOBVIOUS RELATIONSHIP AWARENESS (NORA)

NORA technology can take information about people from disparate sources and find obscure, nonobvious relationships. It might discover, for example, that an applicant for a job at a casino shares a telephone number with a known criminal and issue an alert to the hiring manager.

Figure 4-2



Ethics in an Information Society

- **Basic concepts for ethical analysis**

- **Responsibility:**

- Accepting the potential costs, duties, and obligations for decisions

- **Accountability:**

- Mechanisms for identifying responsible parties

- **Liability:**

- Permits individuals (and firms) to recover damages done to them

- **Due process:**

- Laws are well-known and understood, with an ability to appeal to higher authorities

Ethics in an Information Society

- **Five-step ethical analysis**
 1. Identify and clearly describe the facts.
 2. Define the conflict or dilemma and identify the higher-order values involved.
 3. Identify the stakeholders.
 4. Identify the options that you can reasonably take.
 5. Identify the potential consequences of your options.

Ethics in an Information Society

- **Candidate ethical principles**
 - **Golden Rule**
 - Do unto others as you would have them do unto you.
 - **Immanuel Kant's Categorical Imperative**
 - If an action is not right for everyone to take, it is not right for anyone.
 - **Descartes' Rule of Change**
 - If an action cannot be taken repeatedly, it is not right to take at all.

Ethics in an Information Society

- Candidate ethical principles (cont.)
 - **Utilitarian Principle**
 - Take the action that achieves the higher or greater value.
 - **Risk Aversion Principle**
 - Take the action that produces the least harm or potential cost.
 - **Ethical “No Free Lunch” Rule**
 - Assume that virtually all tangible and intangible objects are owned by someone unless there is a specific declaration otherwise.

Ethics in an Information Society

- **Professional codes of conduct**
 - **Promulgated by associations of professionals**
 - Examples: AMA, ABA, AITP, ACM
 - **Promises by professions to regulate themselves in the general interest of society**
- **Real-world ethical dilemmas**
 - **One set of interests pitted against another**
 - Example: right of company to maximize productivity of workers versus workers right to use Internet for short personal tasks

The Moral Dimensions of Information Systems

- **Information rights: privacy and freedom in the Internet age**

- **Privacy:**

- Claim of individuals to be left alone, free from surveillance or interference from other individuals, organizations, or state; claim to be able to control information about yourself

- **In the United States, privacy protected by:**

- First Amendment (freedom of speech)
 - Fourth Amendment (unreasonable search and seizure)
 - Additional federal statutes (e.g., Privacy Act of 1974)

The Moral Dimensions of Information Systems

- **Fair information practices:**

- Set of principles governing the collection and use of information
 - Basis of most U.S. and European privacy laws
 - Based on mutuality of interest between record holder and individual
 - Restated and extended by FTC in 1998 to provide guidelines for protecting online privacy
- Used to drive changes in privacy legislation
 - COPPA
 - Gramm-Leach-Bliley Act
 - HIPAA
 - Do-Not-Track Online Act of 2011

The Moral Dimensions of Information Systems

- **FTC FIP principles:**
 - **Notice/awareness (core principle)**
 - Web sites must disclose practices before collecting data.
 - **Choice/consent (core principle)**
 - Consumers must be able to choose how information is used for secondary purposes.
 - **Access/participation**
 - Consumers must be able to review and contest accuracy of personal data.

The Moral Dimensions of Information Systems

- **FTC FIP principles (cont.)**
 - **Security**
 - Data collectors must take steps to ensure accuracy, security of personal data.
 - **Enforcement**
 - Must be mechanism to enforce FIP principles.

The Moral Dimensions of Information Systems

- European Directive on Data Protection:
 - Companies must inform people information is collected and disclose how it is stored and used.
 - Requires informed consent of customer.
 - EU member nations cannot transfer personal data to countries without similar privacy protection (e.g., the United States).
 - U.S. businesses use *safe harbor* framework.
 - Self-regulating policy and enforcement that meets objectives of government legislation but does not involve government regulation or enforcement.

The Moral Dimensions of Information Systems

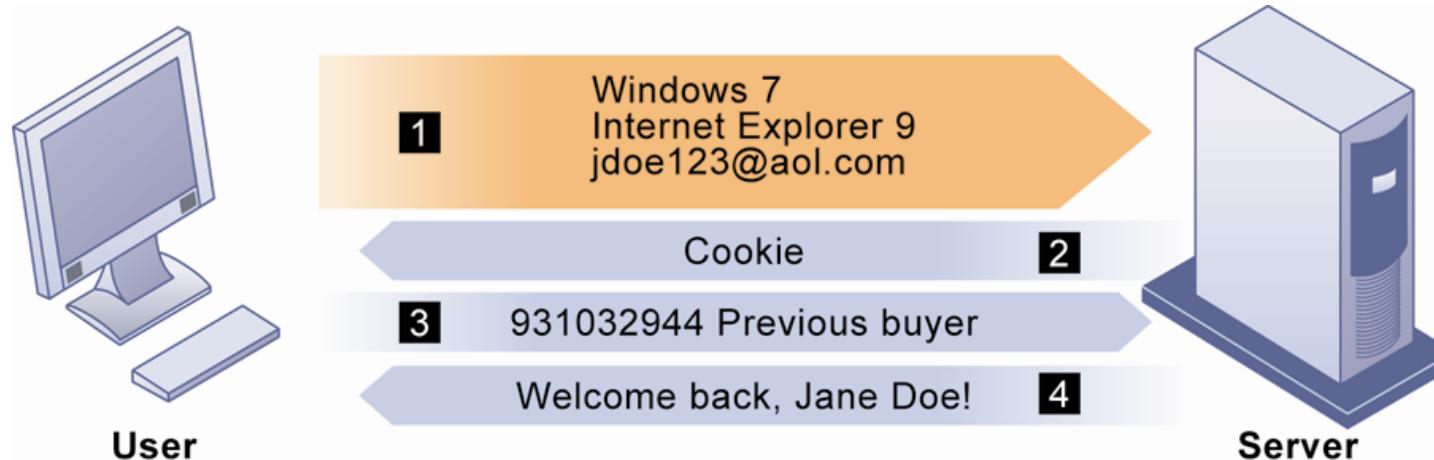
- **Internet challenges to privacy:**
 - **Cookies**
 - Identify browser and track visits to site
 - Super cookies (Flash cookies)
 - **Web beacons (Web bugs)**
 - Tiny graphics embedded in e-mails and Web pages
 - Monitor who is reading e-mail message or visiting site
 - **Spyware**
 - Surreptitiously installed on user's computer
 - May transmit user's keystrokes or display unwanted ads
 - **Google services and behavioral targeting**



Management Information Systems

Chapter 4: Ethical and Social Issues in Information Systems

HOW COOKIES IDENTIFY WEB VISITORS



1. The Web server reads the user's Web browser and determines the operating system, browser name, version number, Internet address, and other information.
2. The server transmits a tiny text file with user identification information called a cookie, which the user's browser receives and stores on the user's computer hard drive.
3. When the user returns to the Web site, the server requests the contents of any cookie it deposited previously in the user's computer.
4. The Web server reads the cookie, identifies the visitor, and calls up data on the user.

Figure 4-3

Cookies are written by a Web site on a visitor's hard drive. When the visitor returns to that Web site, the Web server requests the ID number from the cookie and uses it to access the data stored by that server on that visitor. The Web site can then use these data to display personalized information.

The Moral Dimensions of Information Systems

- The United States allows businesses to gather transaction information and use this for other marketing purposes.
 - Opt-out vs. opt-in model
- Online industry promotes self-regulation over privacy legislation.
- However, extent of responsibility taken varies:
 - Complex/ambiguous privacy statements
 - Opt-out models selected over opt-in
 - Online “seals” of privacy principles

The Moral Dimensions of Information Systems

- **Technical solutions**
 - E-mail encryption
 - Anonymity tools
 - Anti-spyware tools
 - Browser features
 - “Private” browsing
 - “Do not track” options
 - Overall, few technical solutions

Interactive Session: Technology

Life on the Grid: iPhone becomes iTrack

Read the Interactive Session and discuss the following questions

- Why do mobile phone manufacturers (Apple, Google, and BlackBerry) want to track where their customers go?
- Do you think mobile phone customers should be able to turn tracking off? Should customers be informed when they are being tracked? Why or why not?
- Do you think mobile phone tracking is a violation of a person's privacy?

The Moral Dimensions of Information Systems

- **Property rights: Intellectual property**
 - **Intellectual property:** intangible property of any kind created by individuals or corporations
 - Three main ways that intellectual property is protected:
 - **Trade secret:** intellectual work or product belonging to business, not in the public domain
 - **Copyright:** statutory grant protecting intellectual property from being copied for the life of the author, plus 70 years
 - **Patents:** grants creator of invention an exclusive monopoly on ideas behind invention for 20 years

The Moral Dimensions of Information Systems

- Challenges to intellectual property rights
 - Digital media different from physical media (e.g., books)
 - Ease of replication
 - Ease of transmission (networks, Internet)
 - Difficulty in classifying software
 - Compactness
 - Difficulties in establishing uniqueness
- Digital Millennium Copyright Act (DMCA)
 - Makes it illegal to circumvent technology-based protections of copyrighted materials

The Moral Dimensions of Information Systems

- **Accountability, liability, control**
 - Computer-related liability problems
 - If software fails, who is responsible?
 - If seen as part of machine that injures or harms, software producer and operator may be liable.
 - If seen as similar to book, difficult to hold author/publisher responsible.
 - What should liability be if software seen as service? Would this be similar to telephone systems not being liable for transmitted messages?

The Moral Dimensions of Information Systems

- **System quality: Data quality and system errors**
 - **What is an acceptable, technologically feasible level of system quality?**
 - Flawless software is economically unfeasible.
 - **Three principal sources of poor system performance:**
 - Software bugs, errors
 - Hardware or facility failures
 - Poor input data quality (most common source of business system failure)

The Moral Dimensions of Information Systems

- **Quality of life: Equity, access, boundaries**
 - **Negative social consequences of systems**
 - Balancing power: although computing power decentralizing, key decision making remains centralized
 - Rapidity of change: businesses may not have enough time to respond to global competition
 - Maintaining boundaries: computing, Internet use lengthens work-day, infringes on family, personal time
 - Dependence and vulnerability: public and private organizations ever more dependent on computer systems

The Moral Dimensions of Information Systems

- **Computer crime and abuse**
 - Computer crime: commission of illegal acts through use of computer or against a computer system—computer may be object or instrument of crime
 - Computer abuse: unethical acts, not illegal
 - Spam: high costs for businesses in dealing with spam
- **Employment:**
 - Reengineering work resulting in lost jobs
- **Equity and access—the digital divide:**
 - Certain ethnic and income groups in the United States less likely to have computers or Internet access

The Moral Dimensions of Information Systems

- **Health risks:**

- **Repetitive stress injury (RSI)**
 - Largest source is computer keyboards
 - Carpal tunnel syndrome (CTS)
- **Computer vision syndrome (CVS)**
 - Eyestrain and headaches related to screen use
- **Technostress**
 - Aggravation, impatience, fatigue

Interactive Session: Organizations

WASTING TIME: THE NEW DIGITAL DIVIDE

Read the Interactive Session and discuss the following questions

- How does information technology affect socioeconomic disparities?
- Why is access to technology insufficient to eliminate the digital divide?
- How serious a problem is the “new” digital divide?
- Why is the digital divide problem an ethical dilemma?



Management Information Systems

Chapter 4: Ethical and Social Issues in Information Systems



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