

Chapter 1

Information Systems in Global Business Today

Management Information Systems

Chapter 1 Information Systems in Global Business Today

The Role of Information Systems in Business Today

“ How information systems are transforming business

- “ Increase in wireless technology use, Web sites
- “ Shifts in media and advertising
- “ New federal security and accounting laws

“ Globalization opportunities

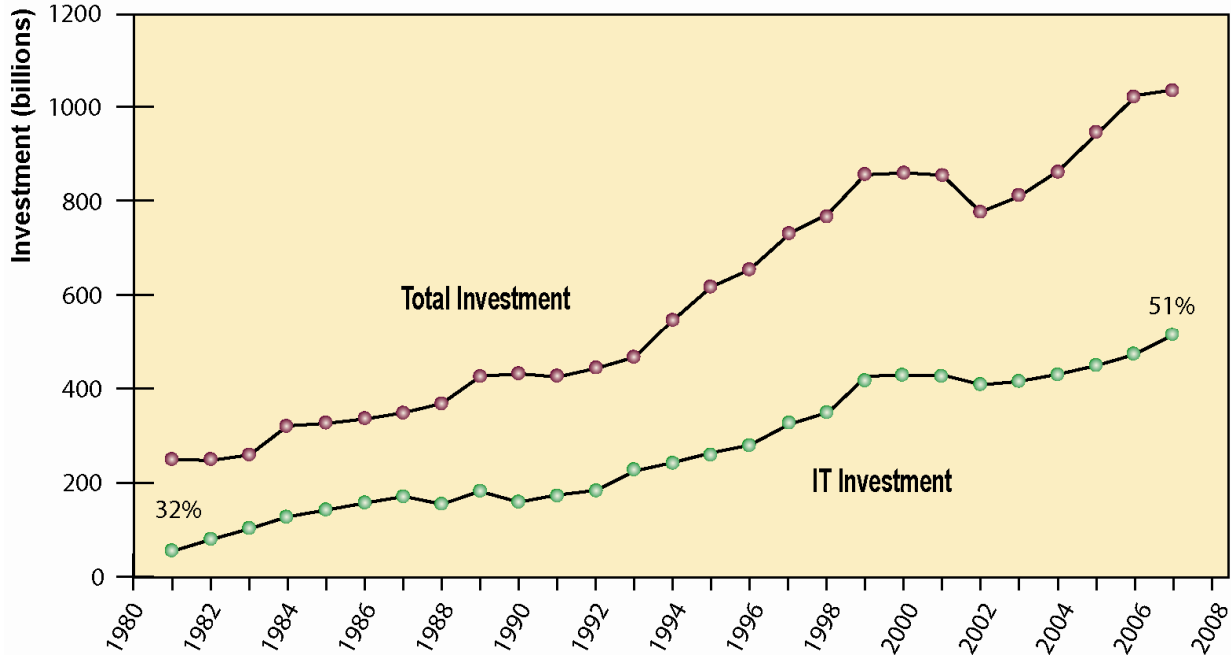
- “ Internet has drastically reduced costs of operating on global scale
- “ Presents both challenges and opportunities

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Information Technology Capital Investment



Information technology investment, defined as hardware, software, and communications equipment, grew from 32% to 51% between 1980 and 2008.
Source: Based on data in U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts*, 2008.

Figure 1-1

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- **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

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Virtual Meetings: Smart Management

Read the Interactive Session and then discuss the following questions:

- “ What are the advantages of using videoconferencing technologies? What are the disadvantages?**
- “ What is telepresence and what sorts of companies are best suited to use it as a communications tool?**
- “ What kinds of companies could benefit from using videoconferencing? Are there any companies that might not derive any benefits from this technology?**

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- **Growing interdependence between ability to use information technology and ability to implement corporate strategies and achieve corporate goals**
- **Business firms invest heavily in information systems to achieve six strategic business objectives:**
 - Operational excellence
 - New products, services, and business models
 - Customer and supplier intimacy
 - Improved decision making
 - Competitive advantage
 - Survival

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- **Operational excellence:**
 - Improvement of efficiency to attain higher profitability
 - Information systems, technology an important tool in achieving greater efficiency and productivity
 - Wal-Mart's RetailLink system links suppliers to stores for superior replenishment system

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- **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 iPod, iTunes, and iPhone, Netflix's Internet-based DVD rentals

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- **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 use to monitor and customize environment
 - Intimacy with suppliers allows them to provide vital inputs, which lowers costs
 - ✦ Example: J.C.Penney's information system which links sales records to contract manufacturer

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- **Improved decision making**
 - Without accurate information:
 - ✦ Managers must use forecasts, best guesses, luck
 - ✦ Leads to:
 - Overproduction, underproduction of goods and services
 - 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, etc.

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- Operational excellence:
 - Improvement of efficiency to attain higher profitability
- New products, services, and business models:
 - Enabled by technology
- Customer and supplier intimacy:
 - Serving customers raises revenues and profits
 - Better communication with suppliers lowers costs
- Improved decision making
 - More accurate data leads to better decisions

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- **Competitive advantage**
 - Delivering better performance
 - Charging less for superior products
 - Responding to customers and suppliers in real time
 - Example: Toyota and TPS (Toyota Production System) enjoy a considerable advantage over competitors . information systems are critical to the implementation of TPS

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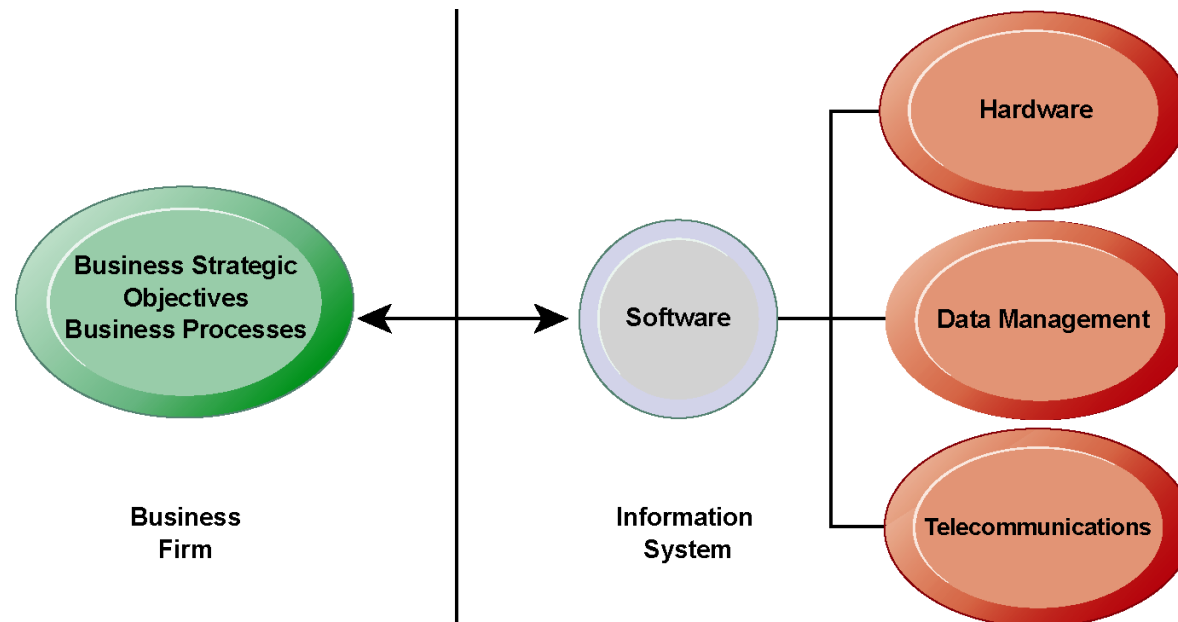
- **Survival**
 - Information technologies as necessity of business
 - May be:
 - ✦ Industry-level changes, e.g. Citibank's introduction of ATMs
 - ✦ Governmental regulations requiring record-keeping
 - Examples: Toxic Substances Control Act, Sarbanes-Oxley Act

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The Interdependence Between Organizations and Information Technology



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.

Figure 1-2

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Perspectives on Information Systems

- **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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Perspectives on Information Systems

Data and Information

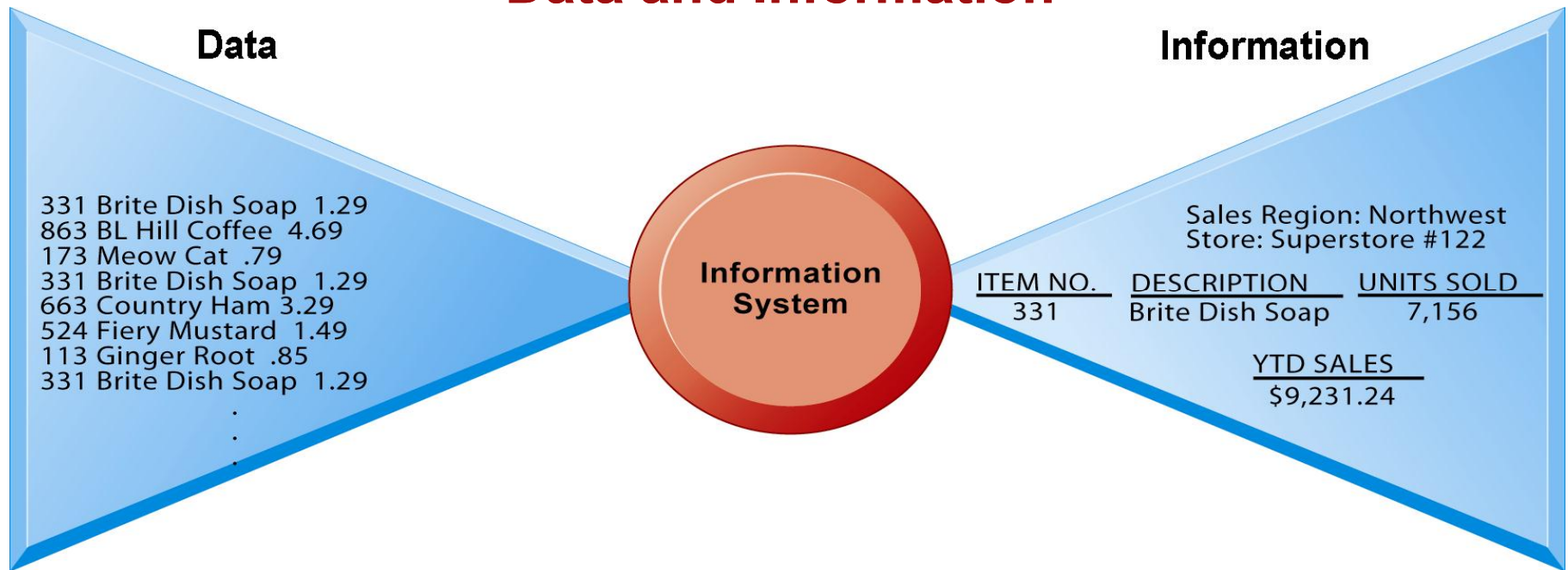


Figure 1-3

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.

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Perspectives on Information Systems

- **Information system:** Three activities 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

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Perspectives on Information Systems

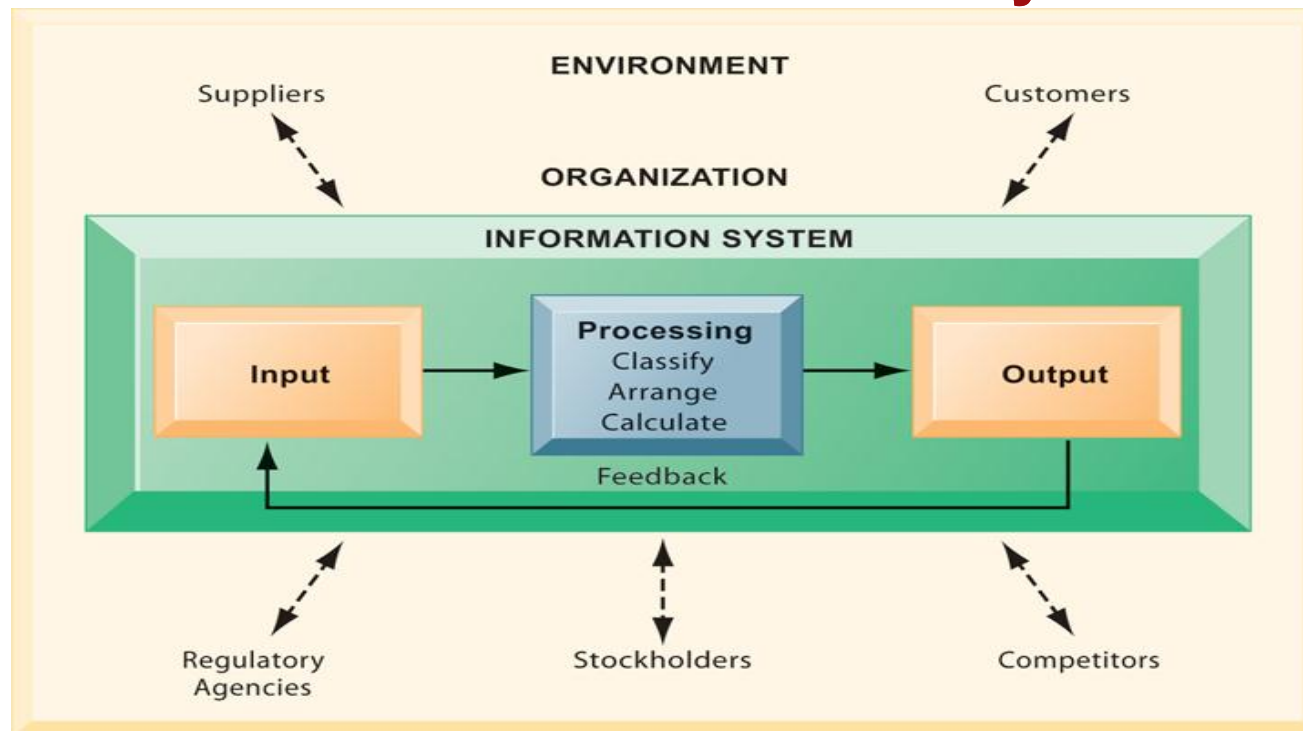
- **Feedback:**
 - Output returned to appropriate members of organization to help evaluate or correct input stage
- **Computer/Computer program vs. information system**
 - Computers and software are technical foundation and tools, similar to the material and tools used to build a house

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Perspectives on Information Systems

Functions of an Information System



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

19
Figure 1-4

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Perspectives on Information Systems

Information Systems Dimensions



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

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Perspectives on Information Systems

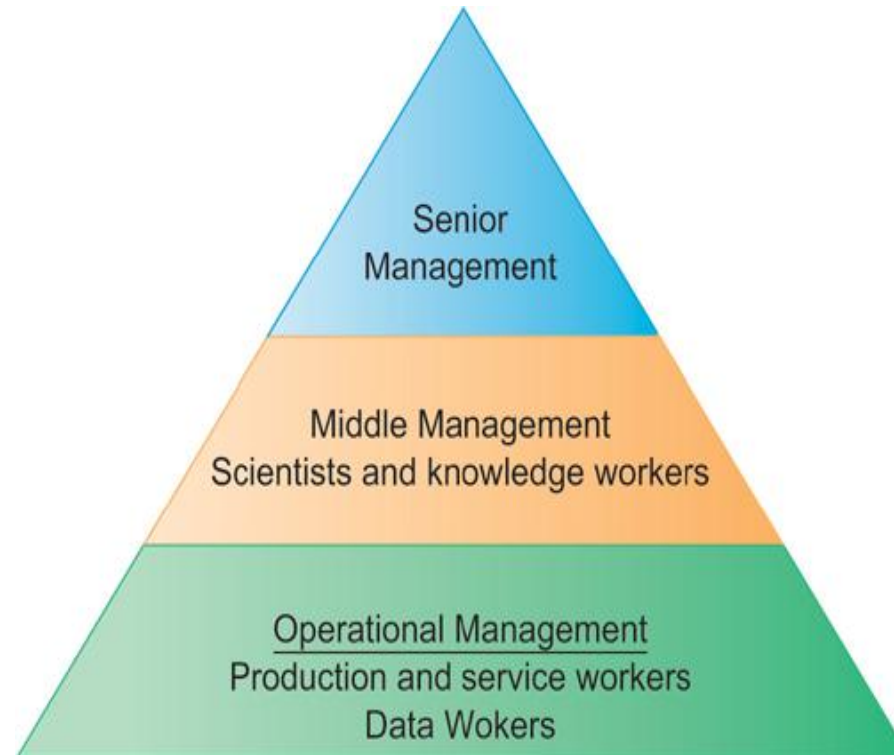
- **Organizational dimension of information systems**
 - Hierarchy of authority, responsibility
 - ✦ Senior management
 - ✦ Middle management
 - ✦ Operational management
 - ✦ Knowledge workers
 - ✦ Data workers
 - ✦ Production or service workers

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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

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Perspectives on Information Systems

- **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

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- **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

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- **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

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- **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

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Perspectives on Information Systems

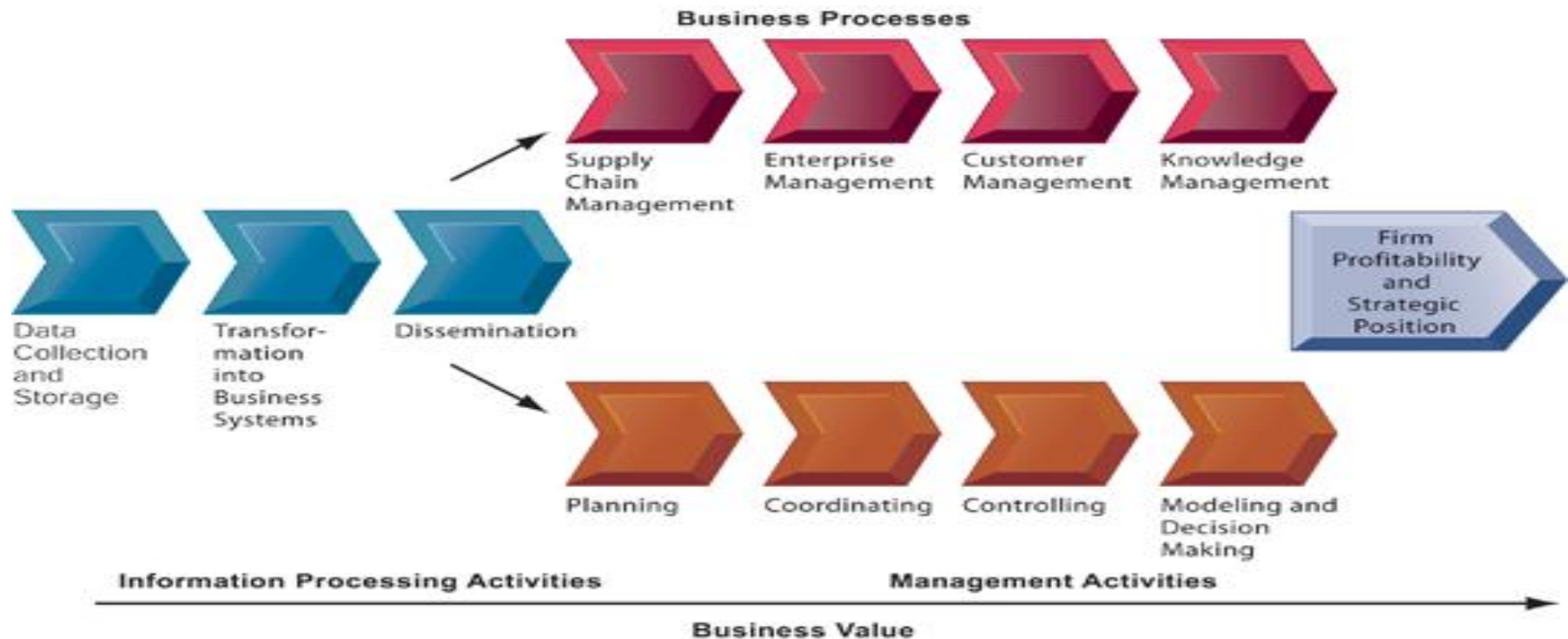
- **Business information value chain**
 - Raw data acquired and transformed through stages that add value to that information
 - Value of information system determined in part by extent to which it leads to better decisions, greater efficiency, and higher profits
- **Business perspective:** Calls attention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

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The Business Information Value Chain



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.

Figure 1-7

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Perspectives on Information Systems

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

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

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