

APPLIED IT FOR BUSINESS

Chapter 1

Foundations of Information Systems in Business

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Learning Objectives

1. Understand the concept of a system and how it relates to information systems
2. Explain why knowledge of information systems is important for business professionals
 - Identify five areas of information systems knowledge needed

Learning Objectives

3. Give examples to illustrate how business applications of information systems can support a firm's
 - Business processes
 - Managerial decision making
 - Strategies for competitive advantage
4. Provide examples of information systems from your experiences with business organizations in the real world

Learning Objectives

5. Identify challenges that a business manager might face in managing the successful, ethical development and use of information technology
6. Provide examples of the components of real world information systems
7. Become familiar with the myriad of career opportunities in information systems

Foundation Concepts

- Why study information systems and information technology?
 - Vital component of successful businesses
 - Helps businesses expand and compete
 - Improves efficiency and effectiveness of business processes
 - Facilitates managerial decision making and workgroup collaboration

What is a System?

- A set of interrelated components
- With a clearly defined boundary
- Working together
- To achieve a common set of objectives

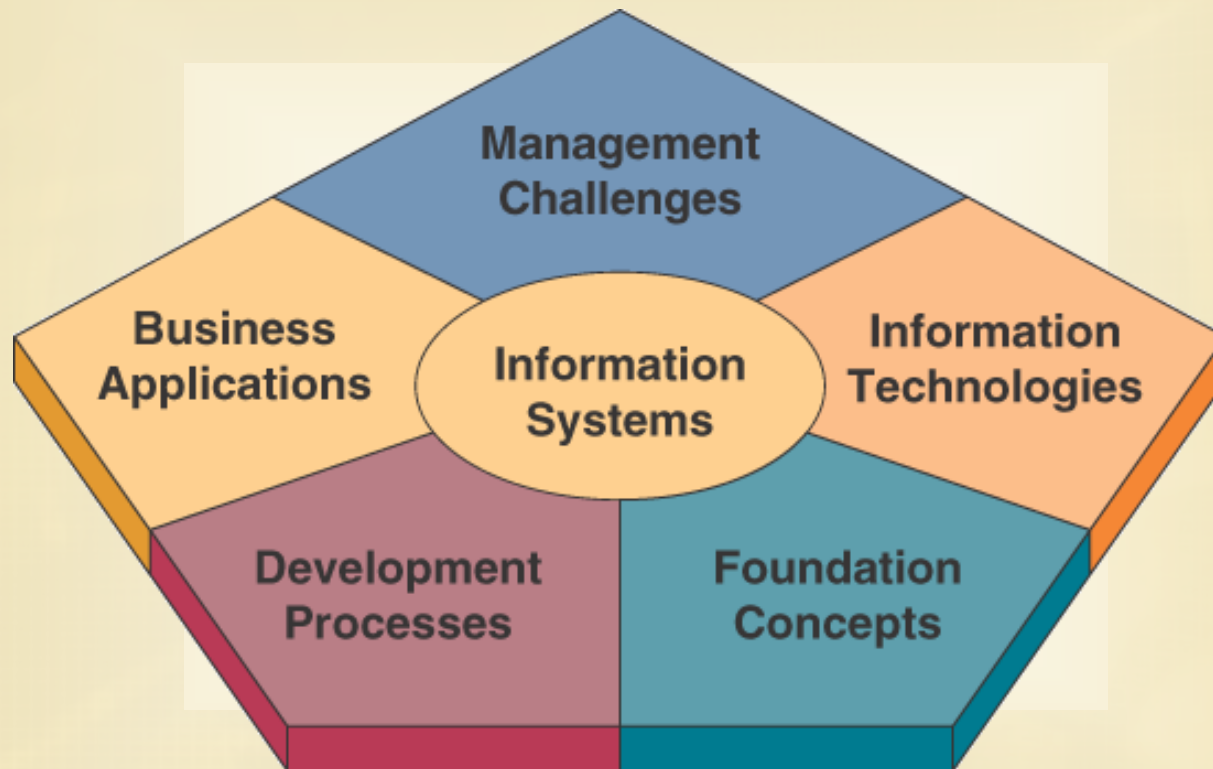
What is an Information System?

- An organized combination of...
 - People
 - Hardware and software
 - Communication networks
 - Data resources
 - Policies and procedures
- This system...
 - Stores, retrieves, transforms, and disseminates information in an organization

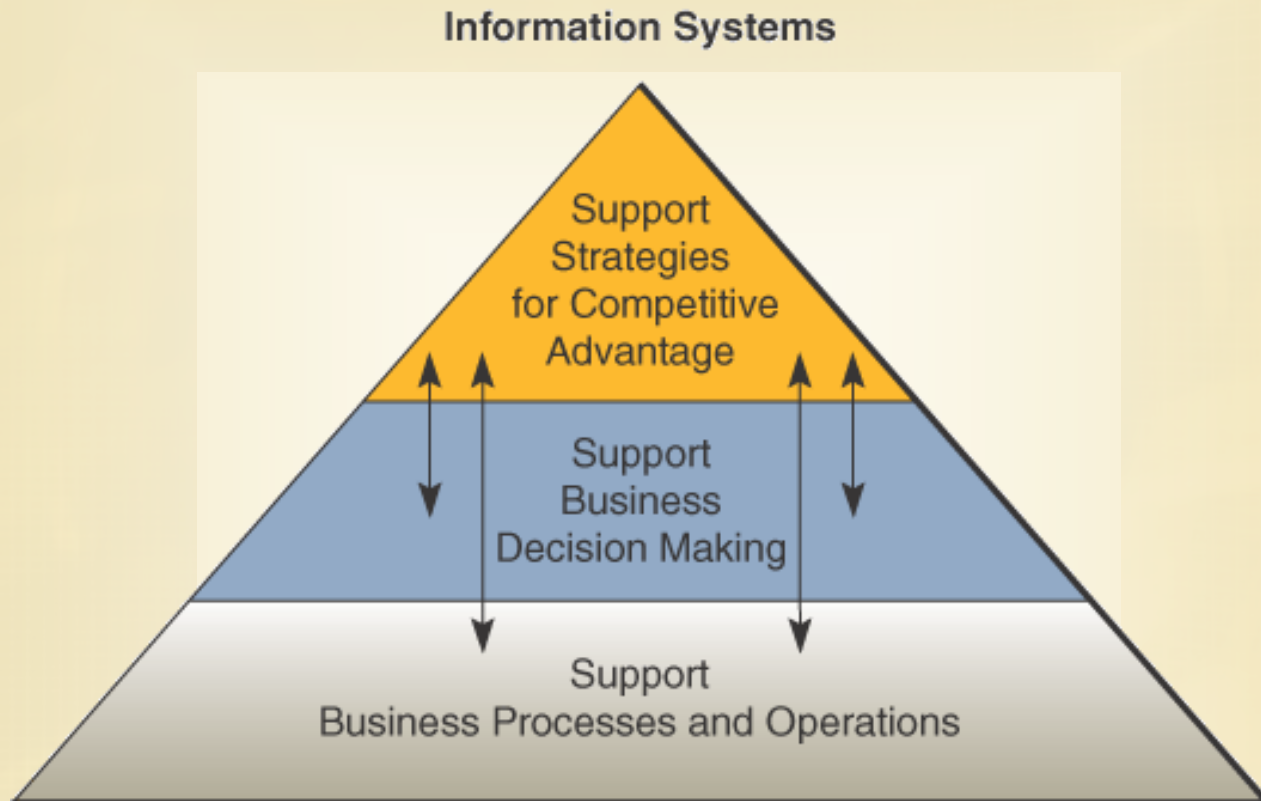
Information Technologies

- Information Systems
 - All the components and resources necessary to deliver information and functions to the organization
 - Could be paper based
- Information Technologies
 - Hardware, software, networking, data management
- Our focus will be on computer-based information systems (CBIS)

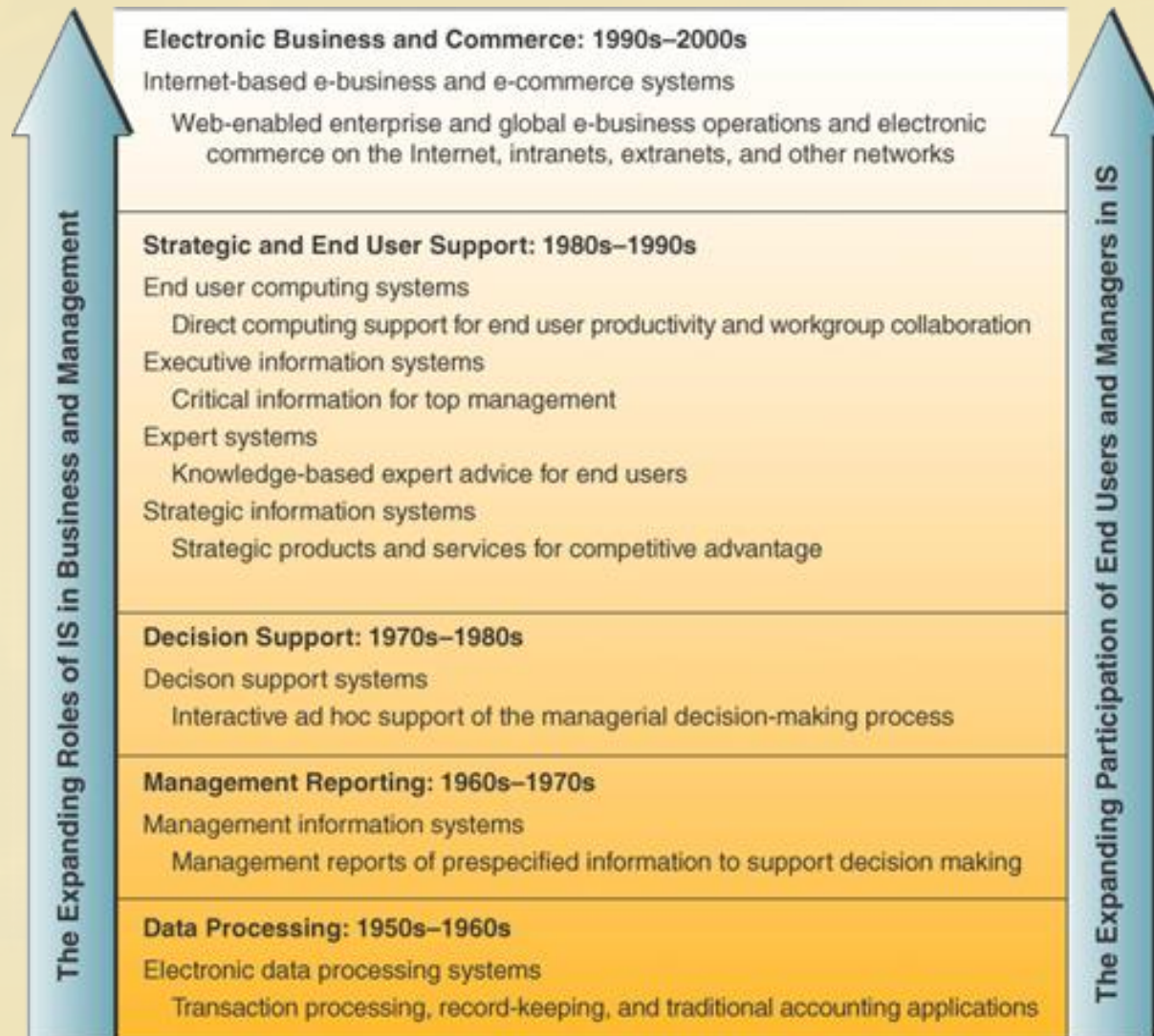
What Should Business Professionals Know?



Fundamental Roles of IS in Business



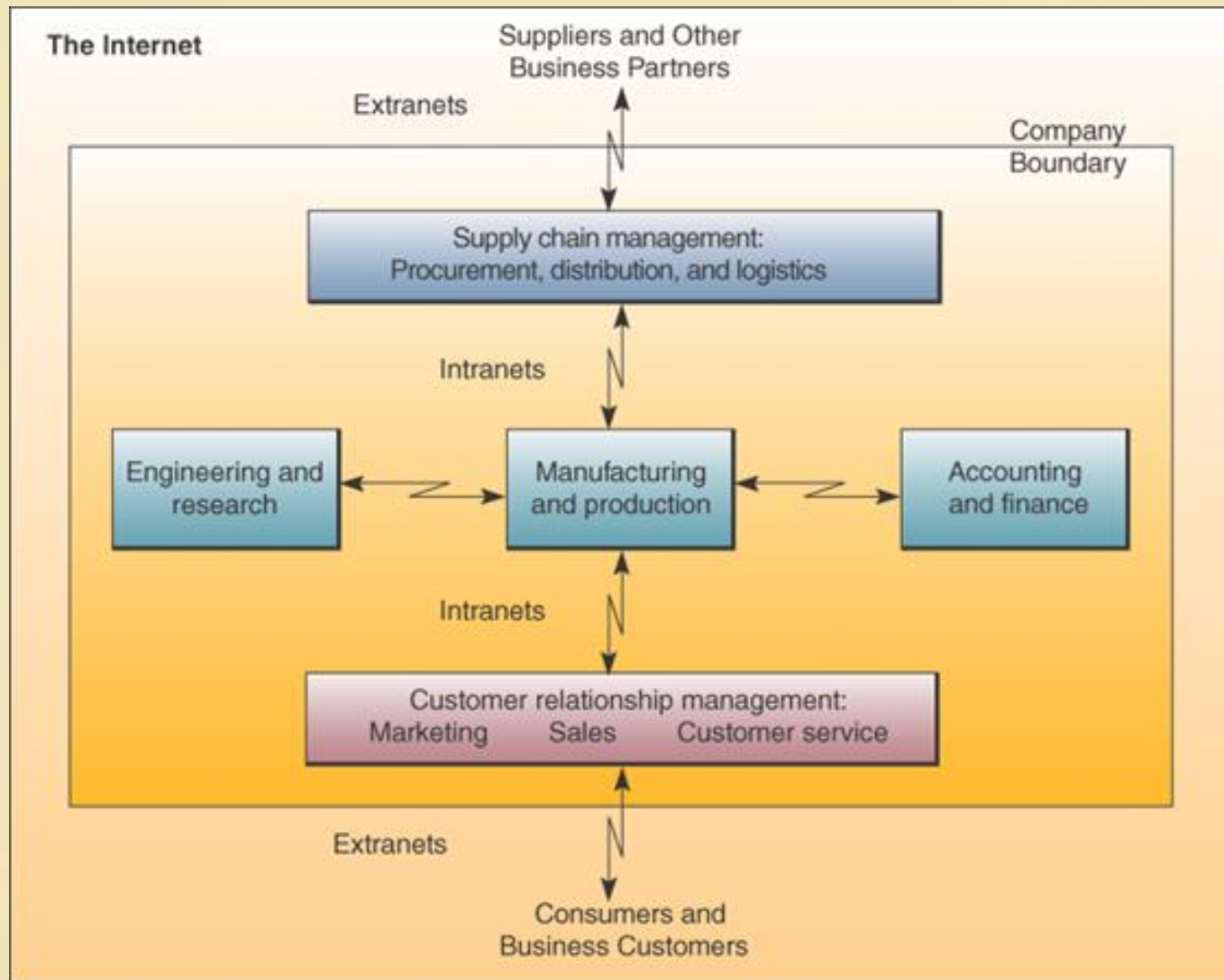
Trends in Information Systems



What is E-Business?

- Using Internet technologies to empower...
 - Business processes
 - Electronic commerce
 - Collaboration within a company
 - Collaboration with customers, suppliers, and other business stakeholders
- In essence, an online exchange of value

How E-Business is Being Used



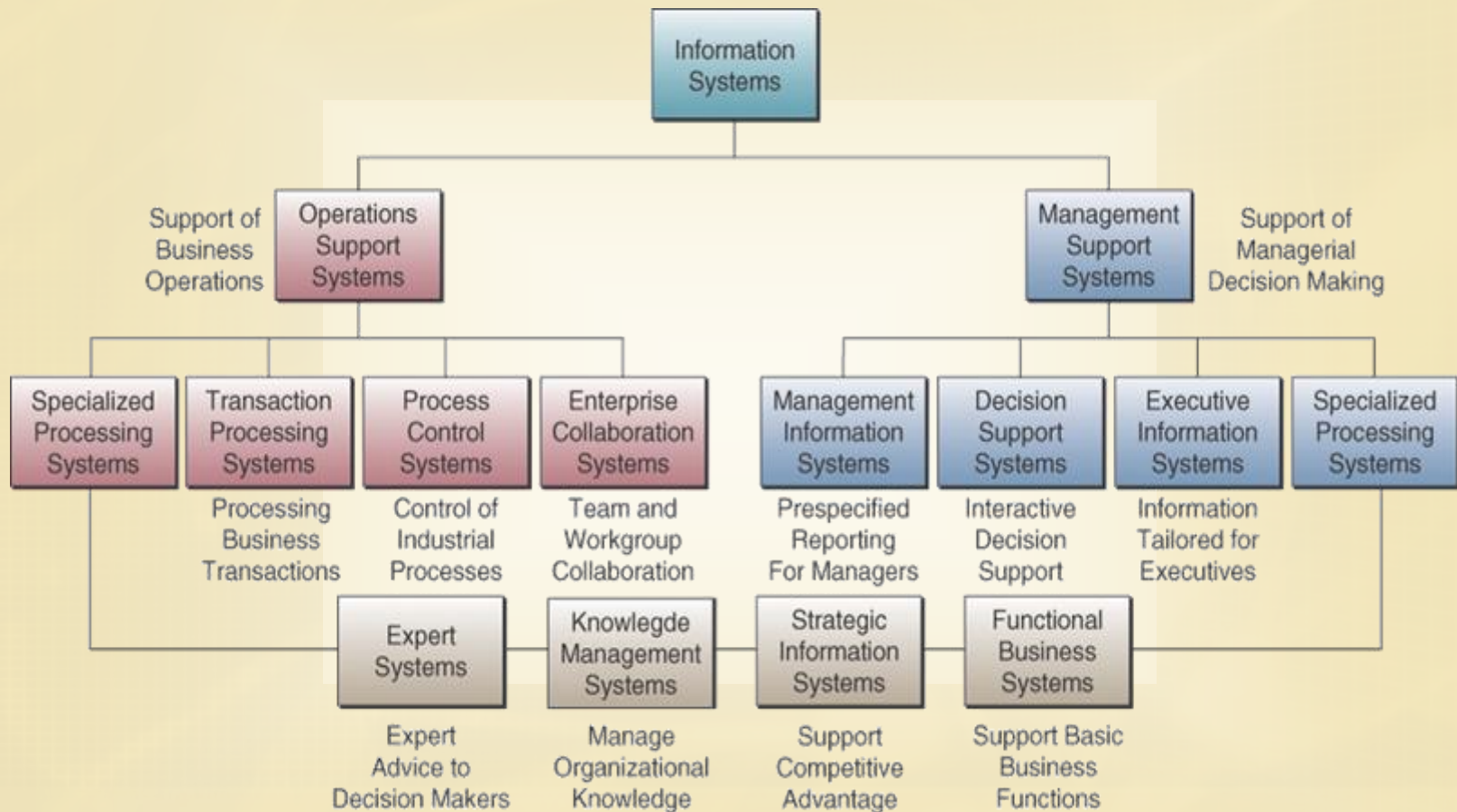
E-Business Use

- Reengineering
 - Internal business processes
- Enterprise collaboration systems
 - Support communications, coordination and coordination among teams and work groups
- Electronic commerce
 - Buying, selling, marketing, and servicing of products and services over networks

Types of Information Systems

- **Operations Support Systems**
 - Efficiently process business transactions
 - Control industrial processes
 - Support communication and collaboration
 - Update corporate databases
- **Management Support Systems**
 - Provide information as reports and displays
 - Give direct computer support to managers during decision-making

Purposes of Information Systems



Operations Support Systems

- What do they do?
 - Efficiently process business transactions
 - Control industrial processes
 - Support communications and collaboration
 - Update corporate databases

Types of Operations Support Systems

- Transaction Processing Systems
 - Record and process business transactions
 - Examples: sales processing, inventory systems, accounting systems
- Process Control Systems
 - Monitor and control physical processes
 - Example: using sensors to monitor chemical processes in a petroleum refinery
- Enterprise Collaboration Systems
 - Enhance team and workgroup communication
 - Examples: email, video conferencing

Two Ways to Process Transactions

- Batch Processing
 - Accumulate transactions over time and process periodically
 - Example: a bank processes all checks received in a batch at night
- Online Processing
 - Process transactions immediately
 - Example: a bank processes an ATM withdrawal immediately

Management Support Systems

- What do they do?
 - Provide information and support for effective decision making by managers
 - Management information systems
 - Decision support systems
 - Executive information systems

Types of Management Support Systems

- Management Information Systems (MIS)
 - Reports and displays
 - Example: daily sales analysis reports
- Decision Support Systems (DSS)
 - Interactive and ad hoc support
 - Example: a what-if analysis to determine where to spend advertising dollars
- Executive Information Systems (EIS)
 - Critical information for executives and managers
 - Example: easy access to actions of competitors

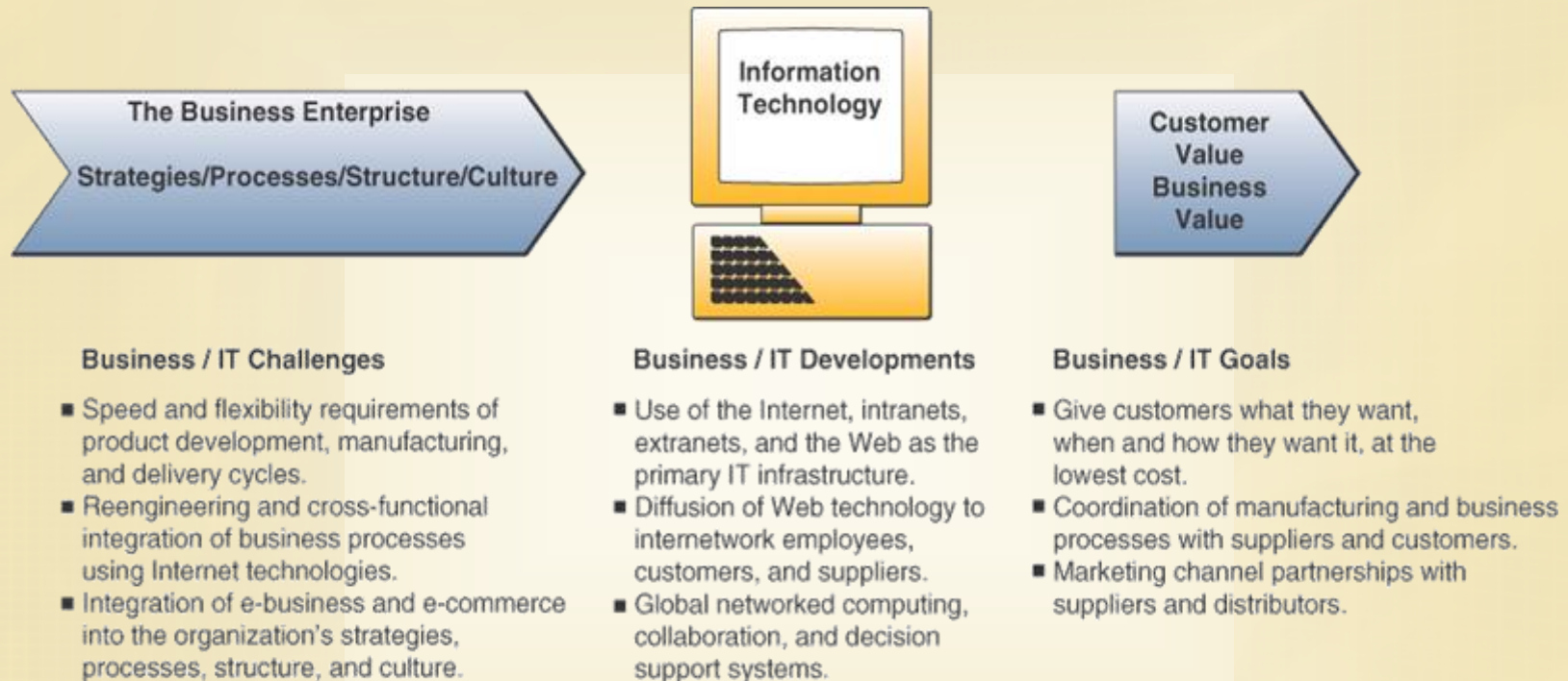
Other Information Systems

- Expert Systems
 - Provide expert advice
 - Example: credit application advisor
- Knowledge Management Systems
 - Support creation, organization, and dissemination of business knowledge throughout company
 - Example: intranet access to best business practices

Other Information Systems

- Strategic Information Systems
 - Help get a strategic advantage over customer
 - Examples: shipment tracking, e-commerce Web systems
- Functional Business Systems
 - Focus on operational and managerial applications of basic business functions
 - Examples: accounting, finance, or marketing

IT Challenges and Opportunities



Measuring IT Success

- Efficiency
 - Minimize cost, time, and use of information resources
- Effectiveness
 - Support business strategies
 - Enable business processes
 - Enhance organizational structure and culture
 - Increase customer and business value

Developing IS Solutions



Challenges and Ethics of IT

- Application of IT
 - Customer relationship management
 - Human resources management
 - Business intelligence systems
- Potential Harm
 - Infringements on privacy
 - Inaccurate information
 - Collusion

Challenges and Ethics of IT

- Potential Risks
 - Consumer boycotts
 - Work stoppages
 - Government intervention
- Possible Responses
 - Codes of ethics
 - Incentives
 - Certification

Ethical Responsibilities

- What uses of IT might be considered improper or harmful to other individuals or society?
- What is the proper business use of the Internet or a company's IT resources?
- How can you protect yourself from computer crime?

IT Careers

- Economic downturns have affected all job sectors, including IT
- Rising labor costs are pushing jobs to India, the Middle East, and Asia-Pacific countries
- However, IT employment opportunities are strong, with new jobs emerging daily
- Shortages of IT personnel are frequent
- The long-term job outlook is positive and exciting

IT Careers

Systems Analyst	System Consultant	Business Applications Consultant
Chief Information Officer	Computer Operator	Computer Serviceperson
Network Administrator	Data Dictionary Specialist	Network Manager
Database Administrator	Database Analyst	Documentation Specialist
IS Auditor	End-User Computer Manager	Equipment Manufacturer Representative
PC Sales Representative	Programmer	Program Librarian
Project Manager	Records Manager	Hardware Sales Representative
Scheduling and Control Person	Security Officer	Office Automation Specialist
Senior Project Leader	Service Sales Representative	Software Sales Representative
Technical Analyst	Software Quality Evaluator	Technical Writer
Telecommunications Specialist	Training & Standards Manager	User Interface Specialist

IT Careers

- Job increases will be driven by...
 - Rapid growth in computer system design and related services
 - The need to backfill positions
 - Information sharing and client/server environments
 - The need for those with problem-solving skills
 - Falling hardware and software prices, which will fuel expanded computerization of operations

The IS Function

- The IS function is...
 - A major functional area of business
 - An important contributor to operational efficiency, employee productivity, morale, customer service and satisfaction
 - A major source of information and support for decision making
 - A vital ingredient in developing competitive products and services in the global marketplace
 - A dynamic and challenging career opportunity
 - A key component of today's networked business

System Concepts: A Foundation

- System concepts help us understand...
 - Technology: hardware, software, data management, telecommunications networks
 - Applications: to support inter-connected information systems
 - Development: developing ways to use information technology includes designing the basic components of information systems
 - Management: emphasizes the quality, strategic business value, and security of an organization's information systems

What is a System?

- A system is...
 - A set of interrelated components
 - With a clearly defined boundary
 - Working together
 - To achieve a common set of objectives
 - By accepting inputs and producing outputs
 - In an organized transformation process

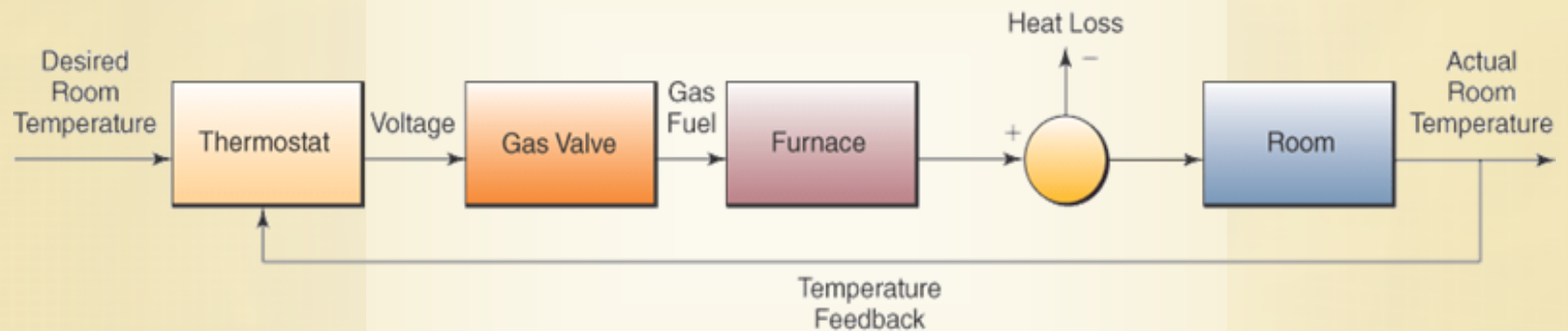
Basic Functions of a System

- **Input**
 - Capturing and assembling elements that enter the system to be processed
- **Processing**
 - Transformation process that converts input into output
- **Output**
 - Transferring transformed elements to their ultimate destination

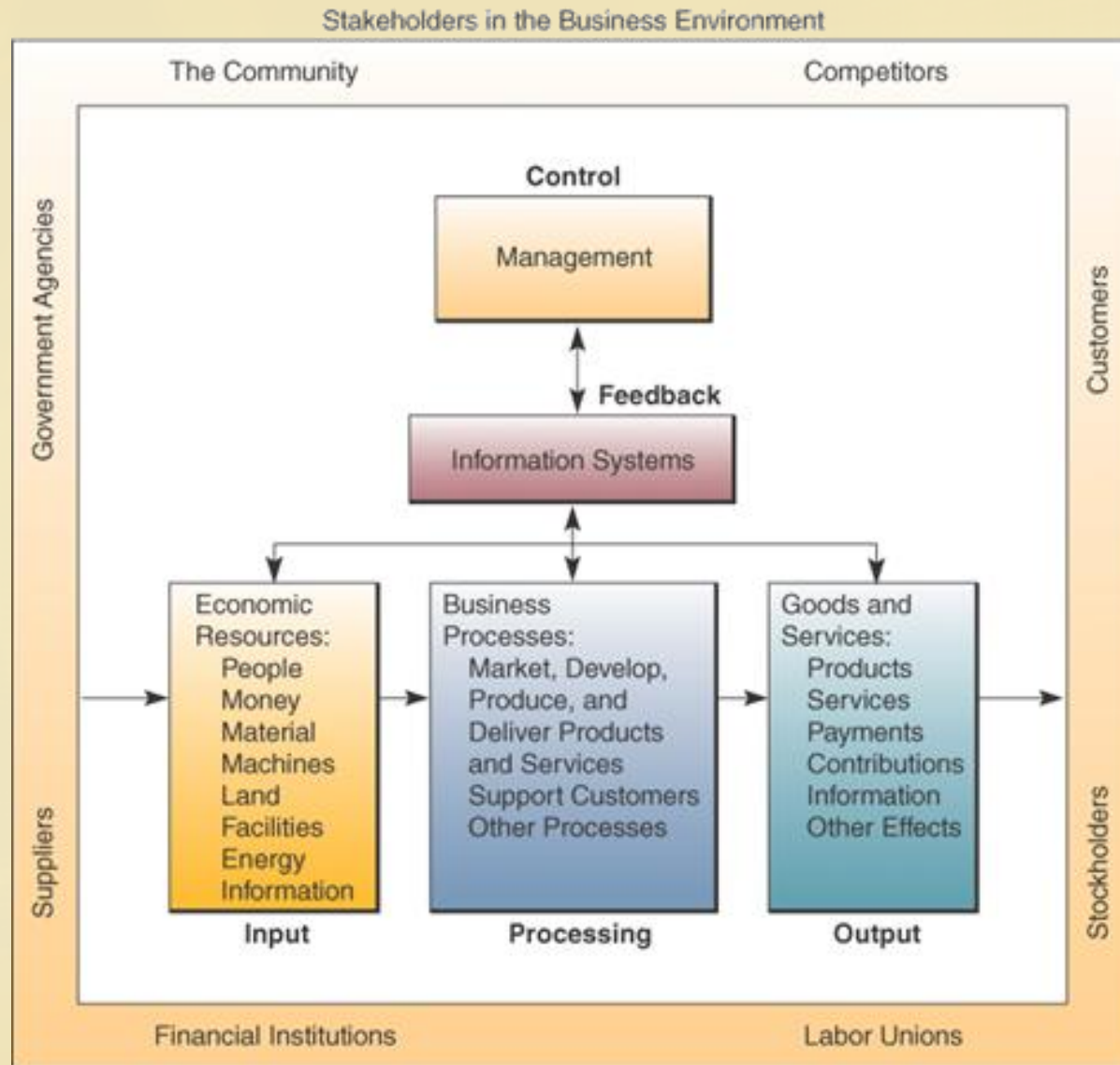
Cybernetic System

- All systems have *input*, *processing*, and *output*
- A **cybernetic system**, a self-monitoring, self-regulating system, adds feedback and control:
 - **Feedback** is data about the performance of a system
 - **Control** involves monitoring and evaluating feedback to determine whether a system is moving toward the achievement of its goal

A Cybernetic System



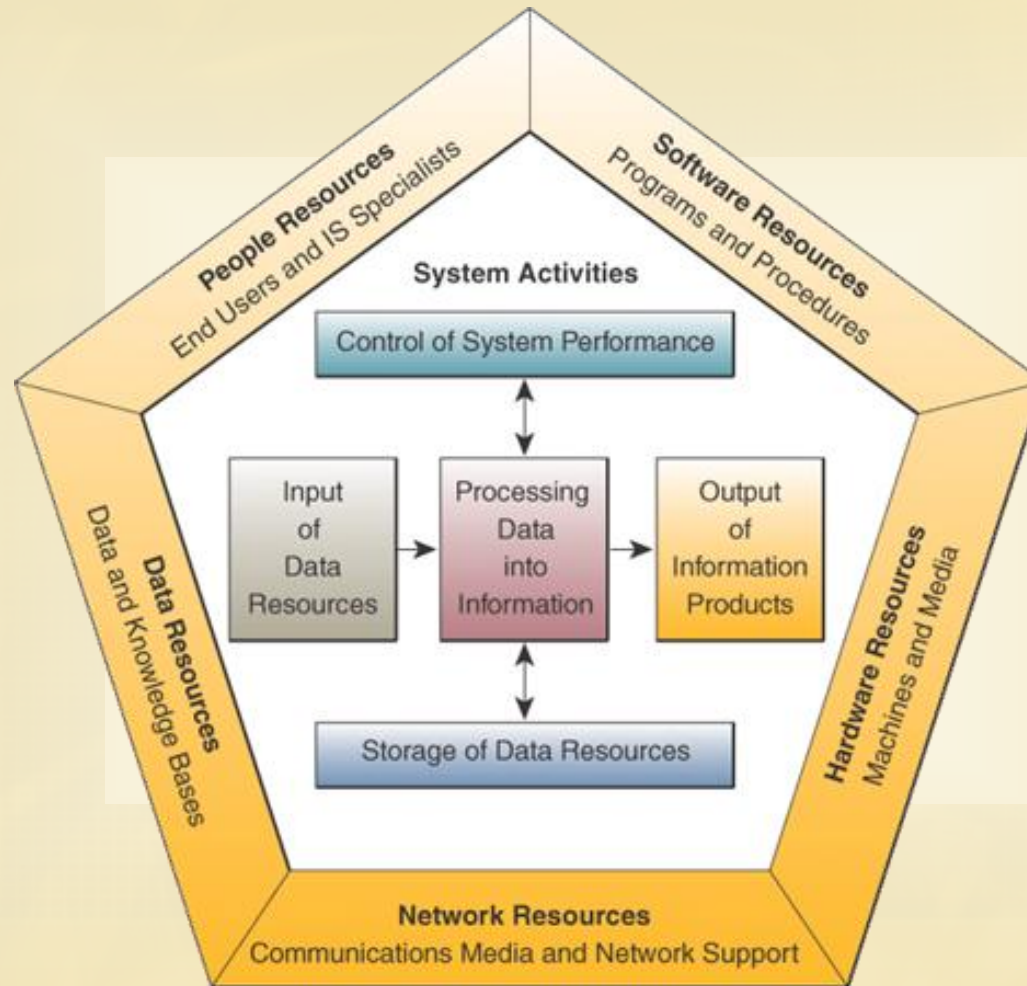
A Business as a System



Other System Characteristics

- If a system is one of the components of a larger system, it is a **subsystem**
 - The larger system is an **environment**
- Several systems may share the same environment
 - Some may be connected via a shared boundary, or **interface**
- Types of systems...
 - Open
 - Adaptive

Components of an IS



Information System Resources

- People Resources
 - Specialists
 - End users
- Hardware Resources
 - Machines
 - Media
- Software Resources
 - Programs
 - Procedures

Information System Resources

- **Data Resources**
 - Product descriptions, customer records, employee files, inventory databases
- **Network Resources**
 - Communications media, communications processors, network access and control software
- **Information Resources**
 - Management reports and business documents using text and graphics displays, audio responses, and paper forms

Data Versus Information

- **Data** are raw facts about physical phenomena or business transactions
- **Information** is data that has been converted into meaningful and useful context for end users
- Examples:
 - Sales data is names, quantities, and dollar amounts
 - Sales information is amount of sales by product type, sales territory, or salesperson

IS Activities

- **Input** of data resources
 - Data entry activities
- **Processing** of data into information
 - Calculations, comparisons, sorting, and so on
- **Output** of information products
 - Messages, reports, forms, graphic images
- **Storage** of data resources
 - Data elements and databases
- **Control** of system performance
 - Monitoring and evaluating feedback

Recognizing Information Systems

- Business professionals should be able to look at an information system and identify...
 - The people, hardware, software, data, and network resources they use
 - The type of information products they produce
 - The way they perform input, processing, output, storage, and control activities

End Of Chapter

