Chapter 14 Objectives

- Discuss the special information requirements of an enterprise-sized corporation.
- Identify information systems used in the functional units of an enterprise.
- List general purpose and integrated information systems used throughout an enterprise.
- List types of technologies used throughout an enterprise.
- Explain how e-retailing works.
- Identify e-commerce market sectors.
- Discuss the computer hardware needs and solutions for an enterprise.
- Determine why computer backup is important and how it is accomplished.
- Discuss the steps in a disaster recovery plan.
- Discuss the importance of computer security in an enterprise.

What is Enterprise Computing?

What is a enterprise?

- A large organization such as multinational corporation, university, hospital, research laboratory, or government organization.
- Requires special computing solutions because of its size.

How does information flow within an enterprise?

- Enterprise manages large amounts of information over an extensive geographical area and disparate groups of people.

How are enterprises organized?

- Most are organized in a hierarchy.

What are the four categories of users?

- Executive management:
  - Strategic decisions
- Middle management:
  - Tactical decisions
- Operational management:
  - Operational decisions
- Nonmanagement employees:
  - On-the-job decisions
What is Enterprise Computing?

What is enterprise information?

Information gathered in ongoing operations of enterprise

Collected, combined, and analyzed over time

Allows managers to make better decisions

Information Systems in the Enterprise

What is an information system?

- Set of hardware, software, data, people, and procedures that work together to produce information
- Procedures are instructions users follow to accomplish activities

What is a functional unit?

- Individual operating entity, which can include departments, centers, and divisions

Information Systems in the Enterprise

What is Enterprise Computing?

What are the four management activities?

1. Planning
   - Objectives
   - Strategies
   - Tactics

2. Organizing
   - Money
   - People
   - Management structure

3. Leading
   - Communications
   - Instructions
   - Motivation

4. Controlling
   - Performance
   - Measurement
   - Corrective action

Information Systems in the Enterprise

What is a human resources information system (HRIS)?

- Manages human resources function
- Employee relationship management (ERM) system facilitates communication with employees

Information Systems in the Enterprise

What are the functions of accounting and finance systems?
**Information Systems in the Enterprise**

**What is computer-aided design (CAD)?**
- Uses special software to aid in product design
- Computer-aided engineering (CAE) uses computers to test product designs

**What is computer-aided manufacturing (CAM)?**
- Use of computers to control production equipment
- Computer-integrated manufacturing (CIM) integrates operations of manufacturing process

**What is Material Requirements Planning (MRP)?**
- Uses software to monitor and control production processes
- Focuses on inventory of parts
- Manufacturing Resource Planning II (MRP II) is an extension of MRP
  - Helps in scheduling, tracking production, and monitoring product quality

**What is a marketing information system?**
- Central repository for marketing tasks
- Market research system analyzes data gathered from surveys

**What are sales force automation (SFA) software?**
- Tools for traveling salespeople
- Runs on PDAs or notebook computers

**What are distribution systems?**
- Provide forecasting for inventory control
- Track shipments of products
- Provide tracking of product shipments
**Information Systems in the Enterprise**

**What is customer interaction management (CIM) software?**
- Manages interactions with customers
  - Telephone calls
  - E-mail
  - Web interactions
  - Instant Messaging sessions

**What is information architecture?**
- Overall technology strategy for an enterprise
  - IT department uses software to maintain hardware and software applications

**What is an office information system (OIS)?**
- Enables employees to perform tasks using computers and other electronic devices instead of manually
  - Users create graphics and documents, send messages, schedule appointments, and browse the Web
  - Sometimes called office automation

**What is a transaction processing system (TPS)?**
- Captures and processes data from day-to-day transactions
  - Transaction — individual business activity

**What is a management information system (MIS)?**
- Generates accurate, timely, and organized information so managers can track progress and make decisions

**What is a decision support system (DSS)?**
- Helps users analyze data and make decisions
- Uses data from internal and external sources, as needed
- Executive information system (EIS) supports needs of executive management
Information Systems in the Enterprise

What is an expert system?

Captures and stores knowledge of human experts and then imitates human reasoning and decision making.

Consists of two components:
- Knowledge base—combined subject knowledge and experiences of human experts.
- Inference rules—set of logical judgments applied to the knowledge base.

Information Systems in the Enterprise

What is an example of an expert system?

Step 1. Select from a menu or click a picture for a diet program.
Step 2. Select the type of fat-loss diet based on the initial selection.
Step 3. Specify the caloric goals and current calorie intake.
Step 4. Review the diet summary.

Information Systems in the Enterprise

What are some common types of expert systems?

- Artificial intelligence is application of human intelligence to computers.
- Knowledge management is process by which enterprise collects, archives, indexes, and retrieves knowledge.

Information Systems in the Enterprise

What is enterprise resource planning (ERP)?

- Provides software applications to coordinate activities of functional units.

Information Systems in the Enterprise

What is a customer relationship management (CRM) system?

- Manages information about customers, interactions with customers, past purchases, and interests.

Mainly used in three departments:
- Marketing—learns about customers and then develops new products.
- Sales—tracks sales process from initial contact through final purchase.
- Customer service department—tracks ongoing correspondence with customers.

Information Systems in the Enterprise

What is content management system (CMS)?

- Combination of databases, software, and procedures.
- Organizes and allows access to documents and other files.
What is a portal?
- Collection of links, content, and services presented on Web page
- Designed to guide users to information they are likely to find interesting for a particular job function

What is a data warehouse?
- Huge database that stores data required to analyze historical and current transactions

What is an extranet?
- Portion of network that allows customers or suppliers to access parts of enterprise’s intranet
- Replaces or supplements existing EDI systems
- EDI (electronic data interchange)—Set of standards that controls transfer of business data among companies

What are Web services?
- Technologies that allow businesses to create products and B2B (business-to-business) interactions on Internet

What is a workflow?
- Steps involved in completing project or business process
- Workflow application is a program that tracks process from start to finish

What is a virtual private network (VPN)?
- Provides secure connection for user connecting to company network server using Internet
The E-Retailing Market Sector

What is e-retail?

Retailers use Web to sell products and services

Also called "e-commerce"

E-money allows customer to make payment over Internet from cash account

Also called electronic money, digital cash, or cyber cash

Merchant account is an account set up with credit card company so retailer can accept credit card payments from customers

Other E-Commerce Market Sectors on the Web

What are online banking and online trading?

Online banking allows users to pay bills and view their bank accounts and statements from their computers

Online trading allows users to invest without using broker, often with a lower transaction fee

Other E-Commerce Market Sectors on the Web

What entertainment, media, and travel services are on the Web?

Music, videos, news, sporting events, and games

Airline, hotel, and car reservations

Shopping bot — searches for best price on product or service

Other E-Commerce Market Sectors on the Web

What health-related information can you find on the Web?

Medical, fitness, nutrition, and exercise

Databases of doctors and dentists, chat rooms, online pharmacies

Enterprise Hardware

What is enterprise hardware?

Allows large organizations to manage and store data

Often includes levels of redundancy

One goal is to maintain high level of availability

Redundancy if one piece breaks, another part can assume tasks

Availability means other hardware is online

What is a RAID?

Redundant array of independent disks

Group of two or more integrated hard disks

More reliable than traditional hard disks
Enterprise Hardware

**How does a RAID system work?**
- **Mirroring**—writes data on two disks at the same time
  - Enhances reliability
- **Striping**—splits data across multiple disks
  - Improves access time

Enterprise Hardware

**What is network attached storage (NAS)?**
- Server that provides storage to users and information systems
- Storage area network (SAN) is a high-speed network that provides storage to other servers to which it is attached

Enterprise Hardware

**What is an enterprise storage system?**
- Strategy that focuses on storage availability, protection, organization, and backup
- Uses combination of techniques
  - CD-ROM server, or DVD-ROM server, holds hundreds of CD-ROMs or DVD-ROMs

Enterprise Hardware

**What is a blade server?**
- Sometimes called ultradense server
- Complete server on single card, or blade, rather than system unit
- Saves space, requires less maintenance, uses less energy, generates less heat, and is easily replaced or upgraded
- Blade server chassis holds many blades

Enterprise Hardware

**What are high-availability systems?**
- **Availability (uptime)** of at least 99 percent
- Often includes hot-swapping
- May include redundant components
- Hot-swapping allows component to be replaced while rest of system continues to perform tasks
- Redundant component takes over task of similar component that fails

Enterprise Hardware

**What are scalability and interoperability?**
- **Scalability** is measure of how well computer hardware system, software application, or information system can grow to meet increasing needs
- **Interoperability** is ability to share information with other information systems within enterprise
- Adding hardware in the correct method to grow
- System that shares information easily is said to be open
Backup Procedures and Security

What are the four types of backups?

<table>
<thead>
<tr>
<th>TYPE OF BACKUP</th>
<th>ADVANTAGES</th>
<th>DISADVANTAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full</td>
<td>Instantaneous. All files are used.</td>
<td>Longer backup time.</td>
</tr>
<tr>
<td>Differential</td>
<td>Instant backup method. Requires minimal storage space to back up.</td>
<td>Recovery is time consuming because the last full backup plus the incremental backups are needed.</td>
</tr>
<tr>
<td>Incremental</td>
<td>Instant backup method. Requires minimal storage space to back up. Only track recent changes.</td>
<td>Recovery is time consuming because the last full backup and all incremental backups since the last full backup are needed.</td>
</tr>
<tr>
<td>Deduplicated</td>
<td>Instant backup method. Provides great flexibility.</td>
<td>Difficult to manage multiple backups. Can manage all of the backup methods.</td>
</tr>
</tbody>
</table>

Backup Procedures and Security

What is a backup procedure?

- Regular plan of copying and storing data and program files
- Can use combination of full backups and differential or incremental backups

Backup Procedures and Security

What is a disaster recovery plan?

- Written plan for restoring computer operations in event of disaster
- Test plan simulates various levels of disaster and records ability to recover
- Emergency plan steps to be taken immediately after disaster
- Recovery plan actions to be taken to restore full information processing
- Test plan simulates various levels of disaster and records ability to recover

Backup Procedures and Security

What is a computer security plan?

- Summarizes in writing all safeguards in place to protect company’s information
- International Computer Security Association (ICSA) provides assistance with computer security plans

Summary of Enterprise Computing

Special computing requirements present in an enterprise-sized organization
E-retailing and types of businesses that use e-commerce
Complex hardware including SANs, RAID, and blade servers
Requirements for enterprise hardware including high-availability, scalability, and interoperability
Backup procedures and security needs present in a larger organization

Chapter 14 Complete