Chapter 15
Using Technology to Manage Information

Learning Goals

1. Distinguish between data and information and explain the role of management information systems in business.
2. Identify and briefly describe the different types of information system programs.
3. Describe the hardware and software used in managing information.
4. Identify how software can help businesspeople.
5. Explain the importance of special network technologies.
6. List the ways that companies can protect themselves from computer crimes.
7. Explain how companies anticipate, plan for, and recover from information system disasters.
MANAGEMENT INFORMATION SYSTEMS

Data…

Information Knowledge _________ from processing data.

Management information system (MIS) Organized method for providing past, present, and projected information on _________ operations as well as _________ intelligence to support decision making.

• Usually headed by a _________ _________ who reports directly to the CEO.
• Generally assists multiple _________ throughout an organization.
**Databases**

**Database** Centralized integrated collection of data resources.

- Data available online: Census Bureau, Bureau of Labor Statistics.
- Commercial online services, such as LexisNexis and Infotrac.

**Business Intelligence**

- *Data mining* or *business intelligence* Using computer-based technology to retrieve and evaluate data in a database to identify useful trends.
  - Can help create customer profiles, pinpoint reasons for customer loyalty, analyze the impact of pricing changes, and forecast sales.
INFORMATION SYSTEMS FOR DECISION MAKING

Decision Support System

Decision support system (DSS) Information system that quickly provides relevant data to help _________ make decisions and choose _________ of action.

Executive Support Systems

• System that allows _________ managers to access a firm’s primary databases.

Expert Systems

• Computer program that _________ human _________ through complicated sets of “if-then” rules.
Trends in Information Systems

Local Area and Wide Area Networks

• **Local area networks (LANs)** Computer networks that connect machines within limited areas, such as a building or several buildings near one another.

• **Wide area networks (WANS)** Tie larger geographical regions together by using telephone lines and microwave and satellite transmission.

Expert Systems

• Computer program that imitates human thinking through complicated sets of “if-then” rules.

**Wi-Fi** Wireless network that connects various devices and allows them to communicate with one another through radio waves.

How **Wi-Fi** works
Application Service Providers and On-Demand Computing

Application service provider (ASP) Specialist in providing both the computers and the application support for managing information systems for clients.

- Allows buyer to focus on core business functions.
- **On-demand computing** Firms essentially rent software time from application providers and pay only for their usage of the software.
COMPUTER HARDWARE AND SOFTWARE

• Computers have become indispensable as they have gotten more powerful and less expensive.

Types of Computer Hardware

• **Hardware** All tangible elements of a computer system—the input devices, the components that store and process data and perform required calculations, and the output devices that present the results to information users.

• **Minicomputer** An intermediate-size computer, more compact and less expensive than a mainframe but also somewhat slower and with less memory.

• **Handheld devices** Personal digital assistant (PDA) and smart phones.
15.2 Types of Computers

- COMPUTERS
  - Mainframes
    - Minicomputers
      - Supercomputers
  - Personal Computers
    - Desktop Computers
    - Notebook Computers
    - Tablet Computers
    - Handheld Devices
**Types of Computer Software**

**Software** Set of instructions that tell the computer hardware what to do.

- **Operating system** The software that controls the basic workings of a computer system is its operating system.
  - More than 80 percent of personal computers use a version of Microsoft’s Windows operating system.

- **Application software** A program that performs the specific tasks that the user wants to carry out.
HOW COMPUTERS HELP BUSINESSPEOPLE

• Enhanced speed and quantity of information available improves the speed and effectiveness of decision making.
• Computers make accurate, unbiased data available to everyone.
• Information-sharing capabilities support team decision making at low levels of an organization’s hierarchy.
  • Example: Great Harvest International’s internal Web site, Breadboard, contains internal company news and information.
• Can allow multiple users to collaborate on reports and other projects from different locations.
Enterprise Resource Planning System

Enterprise resources planning (______) system Information system that collects, processes, and provides _________ about an organization’s various functions.

Word Processing

Word processing Software that uses a computer to input, store, retrieve, edit, and print various types of _________.

• **Desktop publishing** Computer technology that allows users to _________ and _________ attractively formatted printed material themselves rather than hiring professionals.

Spreadsheets

Spreadsheet Software package that creates the ___________ equivalent of an accountant’s work- sheet, allowing the user to manipulate variables and see the impact of alternative decisions on operating results.
Electronic Mail

• Popular programs include Microsoft Outlook, Outlook Express, and Eudora.
• Instant messaging allows users to create private chat rooms with other individuals on their personal lists.

Presentation Graphics

Presentation software Computer program that includes graphics and tools to produce a variety of charts, graphs, and pictures.

Multimedia and Interactive Media

• Technologies that integrate two or more types of media.
INTRANETS, VIRTUAL PRIVATE NETWORKS, AND VoIP

Intranets

Intranet A computer network that links employees and other authorized users.

• Firewall Software or hardware that blocks outside users from accessing an intranet without a valid password.

Virtual Private Networks

• Virtual private networks Secure connections between two points on the Internet.

VoIP

• VoIP Voice over Internet protocol; special software that transmits phone conversations over the Internet, rather than through telephone lines.

• Example: Skype
PROTECTING INFORMATION SYSTEMS

E-Crime

• Common types of e-crimes:
  • Changing or inventing data to produce inaccurate or misleading information.
  • Modifying computer programs to create false information or illegal transactions or to insert viruses.
  • Unauthorized people accessing computer systems for other reasons.
• According to a recent survey of IT professionals and managers:
  • 70 percent of respondents reported at least one e-crime.
  • The total cost of these crimes was estimated at $700 million.
• Equipment theft has become easier as computer hardware becomes smaller.
Computer Viruses, Worms, Trojan Horses, and Spyware

- **Computer virus** Program that ________ attaches itself to other programs (called hosts) and changes them or destroys ________.
  - Spreads as users install infected software on their systems or exchange files with others.
- **Worm** A small piece of software that exploits a security ________ in a network to replicate itself.
- **Trojan horse** A program that ________ to do one thing, but in reality does something else, usually something ________.
- **Spyware** Software that covertly gathers ________ information through the user’s Internet connection without his or her knowledge, usually for advertising purposes.
- All of them can ________, in addition to computers, handheld devices such as cell phones.

Example of computer protection software: Norton Internet Security
DISASTER RECOVERY AND BACKUP

• Natural disasters, power failures, equipment malfunctions, software glitches, human error, and terrorist attacks can disrupt computer systems.

• Companies use disaster recovery planning to decide how to prevent system failures and continue operations if computer systems fail.

• Most basic precaution is routinely backing up software and data.

• Some companies offer data backup and disaster recovery services.

  • Example: Jacksonville-based PSS/World protected its business during Hurricane Katrina by contracting with SunGard Availability Services.