Chapter 1 Foundation Concepts

Why Information Systems Are Important. An understanding of the effective and responsible use and management of information systems and technologies is important for managers, business professionals, and other knowledge workers in today’s internetworked enterprises. Information systems play a vital role in the E-business and E-commerce operations, enterprise collaboration and management, and strategic success of businesses that must operate in an internetworked global environment. Thus, the field of information systems has become a major functional area of business administration.

An IS Framework for Business Professionals. The IS knowledge that a business manager or professional needs to know is illustrated in Figure 1.2 and covered in this chapter and text. This includes (1) foundation concepts: fundamental behavioral, technical, business, and managerial concepts like system components and functions, or competitive strategies; (2) information technologies: concepts, developments, or management issues regarding hardware, software, data management, networks, and other technologies; (3) business applications: major uses of IT for business processes, operations, decision making, and strategic/competitive advantage; (4) development processes: how end users and IS specialists develop and implement business IT solutions to problems and opportunities arising in business; and (5) management challenges: how to effectively and ethically manage the IS function and IT resources to achieve top performance and business value in support of the business strategies of the enterprise.

System Concepts. A system is a group of interrelated components working toward the attainment of a common goal by accepting inputs and producing outputs in an organized transformation process. Feedback is data about the performance of a system. Control is the component that monitors and evaluates feedback and makes any necessary adjustments to the input and processing components to ensure that proper output is produced.

An Information System Model. An information system uses the resources of people, hardware, software, data, and networks to perform input, processing, output, storage, and control activities that convert data resources into information products. Data are first collected and converted to a form that is suitable for processing (input). Then the data are manipulated and converted into information (processing), stored for future use (storage), or communicated to their ultimate user (output) according to correct processing procedures (control).

IS Resources and Products. Hardware resources include machines and media used in information processing. Software resources include computerized instructions (programs) and instructions for people (procedures). People resources include information systems specialists and users. Data resources include alphanumeric, text, image, video, audio, and other forms of data. Network resources include communications media and network support. Information products produced by an information system can take a variety of forms, including paper reports, visual displays, multimedia documents, electronic messages, graphics images, and audio responses.

Business Applications of Information Systems. Information systems perform three vital roles in business firms. Business applications of IS support an organization’s business processes and operations, business decision making, and strategic competitive advantage. Major application categories of information systems include operations support systems, such as transaction processing systems, process control systems, and enterprise collaboration systems, and management support systems, such as management information systems, decision support systems, and executive information systems. Other major categories are expert systems, knowledge management systems, strategic information systems, and functional business systems. However, in the real world, most application categories are combined into cross-functional information systems that provide information and support for decision making and also perform operational information processing activities. Refer to Figures 1.18, 1.20, and 1.22 for summaries of the major application categories of information systems.
# Key Terms and Concepts

*These are the key terms and concepts of this chapter. The page number of their first explanation is in parentheses.*

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- a. Machines
- b. Media
- a. Products
- b. Quality
- a. Input
- b. Processing
- c. Output
- d. Storage
- a. Control
- a. Ethics and IT
- b. IT career challenges
- a. Support of business processes and operations
- b. Support of business decision making
- c. Support of strategies for competitive advantage
- a. Programs
- b. Procedures
- a. Cross-functional systems
- b. Management support systems
- c. Operations support systems
Matching

Match one of the previous key terms and concepts with one of the following brief examples or definitions. Look for the best fit for answers that seem to fit more than one key term or concept. Defend your choices.

1. You should know some fundamental concepts about information systems and, their technologies, development processes, business applications, and management challenges.
2. People who spend most of their workday creating, using, and distributing information.
3. Information systems support an organization's business processes, operations, decision making, and strategies for competitive advantage.
4. Using IT to reengineer business processes to support E-business operations.
5. Using Web-based decision support systems to support sales managers.
6. Using information technology for electronic commerce to gain a strategic advantage over competitors.
7. A system that uses people, hardware, software, and network resources to collect, transform, and disseminate information within an organization.
8. An information system that uses computers and their hardware and software.
9. A company that uses the Internet, corporate intranets, and inter-organizational extranets for electronic business operations, E-commerce, and enterprise collaboration.
10. The buying, selling, marketing, and servicing of products over the Internet and other networks.
11. The use of groupware tools to support collaboration among networked teams.
12. A group of interrelated components working together toward the attainment of a common goal.
14. Making adjustments to a system's components so that it operates properly.
15. Facts or observations.
16. Data that have been placed into a meaningful context for an end user.
17. The act of converting data into information.
18. An information system uses people, hardware, software, network, and data resources to perform input, processing, output, storage, and control activities that transform data resources into information products.
19. Machines and media.
20. Computers, disk drives, video monitors, and printers are examples.
21. Magnetic disks, optical disks, and paper forms are examples.
22. Programs and procedures.
23. A set of instructions for a computer.
25. End users and information systems professionals.
26. Using the keyboard of a computer to enter data.
27. Computing loan payments.
28. Printing a letter you wrote using a computer.
29. Saving a copy of the letter on a magnetic disk.
30. Having a sales receipt as proof of a purchase.
31. Information systems can be classified into operations, management, and other categories.
32. Includes transaction processing, process control, and end user collaboration systems.
33. Includes management information, decision support, and executive information systems.
34. Information systems that perform transaction processing and provide information to managers across the boundaries of functional business areas.
35. Information systems have evolved from a data processing orientation to the support of strategic decision making, end user collaboration, and electronic business and commerce.
36. Internet-like networks and websites inside a company.
37. Inter-organizational Internet-like networks among trading partners.
38. You need to be a responsible end user of IT resources in your company.
39. Managing the IT resources of a company effectively and ethically to improve its business performance and value.
40. Using the Internet, intranets, and extranets as the IT platform for internal business operations.
operations, electronic commerce, and enterprise collaboration.

**Discussion Questions**

1. How can information technology support a company's business operations and decision making, and give them a competitive advantage? Give examples to illustrate your answer.

2. How does the use of the Internet, intranets, and extranets by an E-business enterprise support their E-commerce activities?

3. Refer to the Real World Case on Kepler's Books & Magazines in the chapter. Is a bricks-and-clicks strategy the best E-commerce model for a business today? Why or why not?

4. Why do big companies still fail in their use of information technology? What should they be doing differently?

5. How can a manager demonstrate that he or she is a responsible end user of information systems? Give several examples.

6. Refer to the Real World Case on CNET and other companies on in the chapter. What is the single biggest lesson you have learned from the failure of many pure E-commerce companies?

7. What is one major management challenge in developing IT solutions to solve business problems and meet new E-business opportunities?

8. Why are there so many conceptual classifications of information systems? Why are they typically integrated in the information systems found in the real world?

9. In what major ways have the roles of information systems applications in business expanded during the last 40 years? What is one major change you think will happen in the next 10 years?

10. Can the business use of Internet technologies help a company gain a competitive advantage?