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| Solutions – Chapter 1 |

***Information Systems @ Work***

*With ERP Access, Small Companies Are Reaching for the Skies*

*Discussion Questions*

1. ERP offerings include:

* ERP Cloud for Midsize Companies from Oracle
* Microsoft Dynamics – ERP Solution for Midsize Companies
* Allows companies of all sizes to manage their entire business organizations, including supply chain, procurement, human resources, financials, and projects.

*Source:* [*http://www.microsoft.com/en-us/dynamics/erp.aspx*](http://www.microsoft.com/en-us/dynamics/erp.aspx)

1. SAP’s ERP system offered CIBS a single shared database to store its information and coordinate its operations, automated processes, and real-time reporting.

*Critical Thinking Questions*

1. Problems:

* CIBS could not grow.
* Data was scattered across spreadsheets and paper files.
* Invoices were prepared and sent invoices only once per month.
* Invoices were based on paper records often had errors.
* Management was not aware of cost overruns until it was too late to correct them.

1. Small businesses can take advantage of an ERP’s ability to provide a centralized database, automated processes, and real-time reporting

***Ethical & Societal Issues***

*Facebook Has User Privacy Problems*

*Discussion Questions*

1. Student responses may vary. One could argue that both Facebook and its users should be held responsible for issues regarding privacy.
2. Student responses will vary. Facebook users should be careful about what they reveal about themselves on the site and should be reminded that it is a public forum and that information posted can show up elsewhere on the Web.

*Critical Thinking Questions*

1. Student responses may vary. Personal profiles that are no longer private may cause some people to stop using the site.
2. Student responses will vary. The privacy policy should clearly state how student information will be used, disclosed, and managed.

***Review Questions***

1. An information system is a set of interrelated elements or components that collect (input), manipulate and store (process), and disseminate (output) data and information and provide a feedback mechanism to meet an objective.
2. Data is the raw material from which information is composed. Information includes a context for the data. Knowledge is an awareness of how to apply the information.
3. Five attributes that describe the quality of data:

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| **Characteristics** | **Definitions** |
| Accessible | Information should be easily accessible by authorized users so they can obtain it in the right format and at the right time to meet their needs. |
| Accurate | Accurate information is error free. In some cases, inaccurate information is generated because inaccurate data is fed into the transformation process. This is commonly called garbage in, garbage out (GIGO). |
| Complete | Complete information contains all the important facts. For example, an investment report that does not include all important costs is not complete. |
| Economical | Information should also be relatively economical to produce. Decision makers must always balance the value of information with the cost of producing it. |
| Flexible | Flexible information can be used for a variety of purposes. For example, information on how much  inventory is on hand for a particular part can be used by a sales representative in closing a sale, by  a production manager to determine whether more inventory is needed, and by a financial executive  to determine the total value the company has invested in inventory. |

1. Knowledge management is a strategy by which an organization determinedly and systematically gathers, organizes, stores, analyzes, and shares its collective knowledge and experience. The goal is to deal with issues and problems in an effective manner by unleashing the collective value of the organization’s best thinking.
2. In information systems, feedback is information from the system that is used to make changes to input or processing activities.
3. The components of computer-based information system (CBIS) include hardware, software, telecommunications, people, and procedures.
4. A business’s technology infrastructure includes all the hardware, software, databases, telecommunications, people, and procedures that are configured to collect, manipulate, store, and process data into information. The technology infrastructure is a set of shared IS resources that form the foundation of each computer-based information system.
5. A decision support system (DSS) is an organized collection of people, procedures, software, databases, and devices that support problem-specific decision making. The focus of a DSS is on making effective decisions. Expert systems give the computer the ability to make suggestions and function like an expert in a particular field, helping enhance the performance of the novice user. The unique value of expert systems is that they allow organizations to capture and use the wisdom of experts and specialists. Therefore, years of experience and specific skills are not completely lost when a human expert dies, retires, or leaves for another job.
6. An intranet is an internal network based on Web technologies that allows people within an organization to exchange information and work on projects. An extranet is a network based on Web technologies that allows selected outsiders, such as business partners and customers, to access authorized resources of a company’s intranet.
7. Mobile commerce (m-commerce) is the use of mobile, wireless devices to place orders and conduct business. M-commerce relies on wireless communications that managers and corporations use to place orders and conduct business with handheld computers, portable cell phones, laptop computers connected to a network, and other mobile devices.
8. Two retailers that have recognized the need to improve the mobile shopping experience are makeup retailer Sephora and Amazon.com. Sephora has gone so far as to build two apps for mobile shoppers, one for shoppers with smartphones and one for shoppers with tablet computers. Each app provides consumers with very different experiences. The strategy seems to be paying off, with mobile orders increasing by 167 percent during the 2012 holiday season. Amazon.com generated about $4 billion in mobile sales last year, about 8 percent of total sales.
9. The types of CBISs that organizations use can be classified into four basic groups: (1) e-commerce and m-commerce, (2) transaction processing and enterprise systems, (3) management information and decision support systems, and (4) specialized business information systems.
10. Virtual reality is the simulation of a real or imagined environment that can be experienced visually in three dimensions. Augmented reality, a newer form of virtual reality, has the potential to superimpose digital data over real photos or images
11. Computer literacy is knowledge of computer systems and equipment and the ways they function. Information systems literacy builds on computer literacy and expands to encompass knowledge of how data and information are used by individuals, groups, and organizations. While knowledge of computers and technology is essential in a corporate environment, the application of this technology to solve business problems is absolutely required to remain competitive. Using information systems to achieve organizational goals can help make an organization successful.
12. Organizations have applied information systems to a variety of applications and have realized a wide array of benefits. Among these are increased market share, increased revenue, reduced costs, increased customer service, enhanced inventory control, more scientific decision-making, and improved communication.
13. The five steps of systems development and related goals are: 1) systems investigation – understand the problem to be solved; 2) systems analysis – define problems and opportunities of system; 3) systems design – determining how a new system is to work; 4 systems implementation – create a system and put it into operation; and 5) systems maintenance and review – check and modify the system to keep up with changing business needs.
14. Global challenges associated with information systems include:

* **Cultural challenges**: Countries and regional areas have their own cultures and customs that can significantly affect individuals and organizations involved in global trade.
* **Language challenges**: Language differences can make it difficult to translate exact meanings from one language to another.
* **Time and distance challenges**: Time and distance issues can be difficult to overcome for individuals and organizations involved with global trade in remote locations.
* **Infrastructure challenges**: High-quality electricity and water might not be available in certain parts of the world. Telephone services, Internet connections, and skilled employees might be expensive or not readily available.
* **Currency challenges**: The value of various currencies can vary significantly over time, making international trade more difficult and complex.
* **Product and service challenges**: Traditional products that are physical or tangible, such as an automobile or a bicycle, can be difficult to deliver to the global market.
* **Technology transfer issues**: Most governments don’t allow certain military-related equipment and systems to be sold to some countries. Even so, some believe that foreign companies are stealing intellectual property, trade secrets, and copyrighted materials and counterfeiting products and services.
* **State, regional, and national laws**: Laws restricting how data enters or exits a country are often called transborder data-flow laws. Keeping track of these laws and incorporating them into the procedures and computer systems of multinational and transnational organizations can be very difficult and time consuming, requiring expert legal advice.
* **Trade agreements**: Countries often enter into trade agreements with each other.

***Discussion Questions***

1. Regardless of major or interest areas, information systems will play a central role in all business careers. Even now, students use information technology daily ranging from grocery purchases to filing taxes to using the postal system. Information technology is present in all aspects of life and business. Information systems improve planning, communication, data management, report formatting and generation, input collection, and decision-making. A student may respond with a statement similar to this, “By becoming information systems literate, I hope to be competitive in the work force and develop skills that enhance my career and make me an asset to the business I join.”
2. Examples of how information systems can be used by teachers:
   * Teachers can post lesson plans and grades for parents and other staff to view
   * Student and teacher information can be kept in a database to be accessed by the county schools
3. There are two types of software. System software, such as Microsoft Windows, manages basic computer operations such as start-up, controls access to system resources, and manages computer memory and files. Application software, such as Microsoft Excel, allows you to accomplish specific tasks, including word processing, creating graphs, and playing games. Just a few examples of software used at work or school include: MS Access, MS Word, MS Excel, MS Power Point, ArcView, Adobe Acrobat, Adobe Photoshop, and Norton AntiVirus software.
4. The increase in digital data means a huge increase in database storage needs, which will require more storage devices, more space to house the additional storage devices, and additional electricity to operate them.
5. Computer literacy is defined as the knowledge and ability to use computers and related technology effectively. Information systems literacy is the knowledge of how data and information are used by individuals, groups, and organizations. It includes knowledge of computer technology and the broader range of information systems. Information literacy is the ability to recognize a need for additional information, and then to find, access, evaluate, and effectively use that information to deal with the issue or problem at hand.
6. Student responses will vary.
7. Student responses will vary. Note that businesses around the globe are enjoying better safety and service, greater efficiency and effectiveness, reduced expenses, and improved decision making and control because of information systems.
8. Student responses will vary. Note that Fidelity Investments, as well as most other investment companies, offers its customers a wide range of powerful investment tools and access to extensive online research. Automobiles are available with advanced navigation systems that not only guide you to your destination but also incorporate the latest weather and traffic conditions to help you avoid congestion and traffic delays. Digital cameras, mobile phones, music players, and other devices rely on CBISs to bring their users the latest and greatest features.
9. Student response will vary. To learn history, virtual reality can be used to recreate the civil war, tour battlefields, and meet soldiers.
10. Student response will vary. An expert system could be created to help with financial planning.

***Problem-Solving Exercises***

1. Student should prepare a data disk and a backup disk (using USB flash drives) for the problem-solving exercises and other computer-based assignments they will complete in this class.
2. Students should Search through several business magazines (Bloomberg, Businessweek, Computerworld, PC Week, etc.) or use an Internet search engine to find recent articles that describe potential social or ethical issues related to the use of an information system.
3. Students should create a table that lists 10 or more possible career areas, annual salaries, and brief job descriptions, and rate how much they would like the career area on a scale from 1 (don’t like) to 10 (like the most).
4. Students should use a graphics program to create a diagram showing a billing transaction processing system.

***Team Activities***

1. Students should form teams and find out one interesting fact about each member.
2. Students should write a one page summary about the members of their team.

***Web Exercises***

1. Students should access the site [www.cengage.com](http://www.cengage.com) and submit a report about their findings.
2. Students should use the Internet to search for information about citizen journalism and use one example to perform a critical analysis.
3. Students should use a graphics program to illustrate the sales figures of tablets versus laptop and/or desktop computers.

***Career Exercises***

1. Students should identify 10 job characteristics that are important to them in selecting a career.
2. Students should write a report describing the job opportunities, job duties, and starting salaries of three careers.

***Case Studies***

*Case One:* *Campbell Uses Technology to Reach Out to the Younger Generation*

*Discussion Questions*

1. Student response will vary. While some may agree with this career path, it should be noted that today’s CIO requires more than a technical background. He/she should have some experience in project management, procurement management, financial skill, and an ability to adapt to change. He/she should also be a customer relationship manager.
2. Campbell has launched Hack the Kitchen, a contest that invites computer programmers to write code for a Web or mobile tool that helps consumers find good recipes online. The winner receives $25,000 and a $25,000 contract to program for Campbell. By appealing to the online public at large, Campbell hopes to provide innovative online services that boost its image.

*Critical Thinking Questions*

1. Small businesses can also take advantage of cloud services to reduce maintenance costs and spending on hardware and software.
2. Student responses will vary. There are risks involved in sharing resources and there is also the risk of private data being leaked to other clients. Another important risk involves data protection. Is encryption use being enforced and how many people on the cloud services team have access to your data?

*Case Two:**Sketchers USA: Using Loyalty Programs and Customer Data to Grow*

*Discussion Questions*

1. Sketchers used cloud services to help them lighten their IT overhead and to respond more quickly to market opportunities.

1. The system that supports the Elite loyalty program records information about members, their purchases, and the rewards to which they are entitled.

*Critical Thinking Questions*

1. Student response will vary. Some may argue that the decline in revenue would encourage Sketchers to invest more in information systems, specifically cloud services, in order to reduce IT overhead and enable marketing opportunities.
2. Student responses will vary.

***Questions for Web Case***

*Altitude Online: Outgrowing Systems*

*Discussion Questions*

1. The systems need to be able to share information. Four disparate systems make this difficult.
2. Jon’s first step should be to define the system’s requirements: what the system is required to do.

*Critical Thinking Questions*

1. Jon would need to think about the time required to design the system and the costs involved.
2. While visiting the branch offices, Jon could explain the need for the new system and request suggestions for improvement.