Solutions – Chapter 1

Information Systems @ Work

Welcome to Mobile Banking

Discussion Questions

1. Student responses will vary. The banking industry would need to address security concerns. Sending private financial data over wireless networks poses more risk than sending voice and text communications.

2. Students should consider that many new mobile phones are integrating Wi-Fi services; therefore, traditional hacking methods may soon come into play with mobile banking.

Critical Thinking Questions

1. Student responses will vary.

2. Mobile phone viruses and malware should be considered.

Ethical and Societal Issues

Green Data Centers

Discussion Questions

1. Student responses may vary. One study reports the manufacture of the average PC requires 10 times the weight of the product in chemicals and fossil fuels. Many of the chemicals are toxic, while the use of fossil fuels helps contribute to global warming.

2. The report from the EPA projects that data center power consumption could be cut by as much as 20 percent if data center managers take simple steps such as using power management systems, turning off unused servers, and consolidating resources.

Critical Thinking Questions

1. Data centers require a lot of power to run and to cool and therefore increases the demand for energy. This would adversely affect global warming.

2. Student responses will vary. Issues include:

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- Warmer waters and more hurricanes
- Increased probability and intensity of droughts and heat waves
- Polar ice caps melting

Review Questions

1. A computer-based information system or CBIS is a single set of components that collect, manipulate, store, and process data into information. The six components of a CBIS are hardware (computer equipment), software (programs), people, telecommunications (link computer systems into effective networks), databases (organized collections of facts and information), and procedures detailing use.

2. 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.

3. Knowledge management systems are organized collections of people, procedures, software, databases and devices used to create, store, share, and use the organization's knowledge and experience. Examples will vary.

4. 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.

5. System performance is measured in various ways. Efficiency is a measure of what is produced divided by what is consumed. System efficiency can be determined through an assessment of waste. Effectiveness is a measure to the extent to which system goals are achieved.

6. 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.

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7. Feedback is output that is used to make changes to input or processing activities. Inadequate feedback could lead to an organization not meeting its goals (e.g., loss of profit or poor customer service).

8. Boeing used virtual reality and computer simulation to help design and build its Dreamliner 787. Boeing used 3-D models from Dassault Systems to design and manufacture the new aircraft. Retail stores like Saks Fifth Avenue and Neiman-Marcus are using virtual reality to help advertise high-end products on the Internet. The Obama campaign paid for in-game advertising in Burnout Paradise.

9. The components of an information system are: input, processing, and output.

10. A transaction processing system (TPS) and a management information system (MIS) are both common types of information systems used in business. Both are organized collections of people, procedures, databases and devices used to perform computing functions. The TPS is specifically used to record completed business transactions and store this information in a database. The MIS uses the information collected by the TPS and summarizes it into routine reports used by managers and occasionally decision-makers. A decision support system (DSS) is an organized collection of people, procedures, databases and devices used to support the problem-specific decision making function within a firm. An expert system (ES) is a form of artificial intelligence used to capture and use the wisdom of experts and specialists. The DSS supports the decision making process while the ES suggests a solution derived from its knowledge base.

11. Elements of artificial intelligence include: robotics, vision systems, learning systems, expert systems, neural networks, natural language processing.

12. Mobile commerce (m-commerce) can be used anytime, anywhere. Examples of m-commerce include services and goods bought using a wireless device (e.g., phone, laptop, or PDA).
13. Characteristics of valuable information include: accurate, complete, economical, flexible, reliable, relevant, simple, timely, verifiable, accessible, and secure.

14. Both intranets and extranets are based on Web technologies. An intranet is all internal to an organization while an extranet allows in select outsiders.

15. 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.

16. The functions of a transaction processing system include: input, processing, and output.

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17. 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. Our lives are changed through our business interactions, online commerce, and in a variety of other ways that are impacted by information technology. Information systems can improve our lives in the following ways: a) speed up processes; b) automate redundant tasks; c) reduce information overload; d) present information in graphical, easy-to-understand formats; e) standardize processes; f) provide monitoring mechanisms; g) provide entertainment opportunities; h) enhance communication.

Discussion Questions

1. A decision support system (DSS) is an organized collection of people, procedures, software, databases, and devices used to support problem-specific decision making. A knowledge management system (KMS) is an organized collection of people, procedures, software, databases, and devices to create, store, share, and use the organization's knowledge and experience.

2. A computer based information system facilitates the use of the Internet to conduct research, as the web provides access to literally millions of documents.

3. E-commerce is any business transaction executed electronically between parties such as companies (business-to-business), companies and consumers (business-to-consumer), consumers and other consumers (consumer-to-consumer), business and the public sector, and consumers and the public sector. M-commerce is mobile commerce—transactions conducted anytime, anywhere. M-commerce is a form of e-commerce.

4. The information systems architecture consists of business processes, business information systems, and the technology infrastructure. As is the case with all components of a business, the corporate mission and strategic planning must drive implementation. Planning is an ongoing function that provides a framework for operational activities and decision-making. The mission is a single, broad statement of an organization's purpose.

   The mission is translated into operational objectives through planning activities. Goals are general statements of what is to be accomplished. Strategies are corporate sanctioned approaches to achieving goals. Objectives are statements of measurable goals to be achieved. Plans and budgets break down objectives in terms of time frames and monetary amounts. Finally, policy limits behavior to what the form considers moral, ethical and acceptable. Information systems can be used to enhance a manager's ability to formulate, control, and analyze

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corporate planning activities. These functions should be implemented for all levels of management. Many times, management will desire a tool that allows them to iteratively analyze various plans of actions and compare the outcomes. Information technology has ushered in an entirely new era of planning. Three simple steps ensure IS planning is at least somewhat effective. First, IS objectives must be clear. Second, IS planning tools are discussed and agreed upon. Third, progress is monitored and evaluated.

5. A database is an organized collection of facts and information. It is an important part of a CBIS because it contains information on customers, employees, inventory, competitors' sales information, online purchases, and much more.

6. An ideal automated license plate renewal system can be broken down by inputs, processing, outputs, and feedback, which might include such features as: Inputs – Web site form that asks for existing number and expected expiration date; Processing – provides a renewal form, a date for next renewal, and payment options; Output – immediate on-screen and e-mail confirmations and a report detailing result; and, Feedback – given to determine if the process is working appropriately.

7. Software is invaluable. Software consists of the computer programs that govern the operation of the computer. 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.

8. Students could research applications used in the computer lab.

9. Examples of how information systems are used in the workplace:
   - High-speed Internet access and networks connect organizations around the world creating international opportunities
   - Companies can get products and services from around the world
   - Employee information can be kept within a database to be accessed by Human Resources

   Examples of how information systems are used in schools:
   - 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

   Registration programs can be used in colleges and Universities

10. Building a model is a less expensive method of finding the problems and shortcomings of a real-world system. First create a narrative, which would provide a better understanding of the functioning of preschoolers. Then, create a schematic model to provide summary details of what was discovered. This

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schematic model would enable future research. Each model performs a distinct function in the development process so it is important to include both.

11. 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."

Problem-Solving Exercises

1. Student should create folders for each chapter and save their problem-solving exercises and computer-based assignments to two disks, one labeled Working Copy and the other Backup.

2. Students should prepare a one-page summary of the different resources they tried and their ease of use and effectiveness.

3. Students should create the table based on their possible career areas and print the table twice. First with the table sorted by annual salaries from high to low, and then sorted by most liked to least liked.

4. Students should research the rate growth of sites like MySpace and Facebook and produce a bar chart of that growth over a number of years. The following Website contains a complete history of the rate of growth of the Internet including bar charts as examples: *www.zakon.org/robert/internet/timeline/*

Team Activities

1. Students should print and hand in a database with team information.

2. Students should write a one page summary of what their team hopes to gain from the course and what they are willing to do to accomplish those goals. Possible gains/goals could include: gain an understanding of the principles of information systems and gain knowledge of job roles in IS.

Web Exercises

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1. After accessing the Web site, students could look for information about Course Technology. Note also that there are other IS books available.

2. Students should use the Internet to search for information about virtual reality and write a brief report summarizing their findings.

3. Students should search for information on the use of information systems in a company or organization that interests them and explain how the organization uses technology to help it accomplish its goals.

Career Exercises

1. Students should write a brief report on their career choice and two additional careers of interest.

2. Students should write a report describing the job opportunities, job duties, and starting salaries for careers in accounting, marketing, information systems, and two other careers of their interest.

Case Studies

Case 1: New York City Cabbies Strike Over New Information System

Discussion Questions

1. Students' answers will vary. Some may echo the concerns of the drivers about the GPS system tracking movements after hours.

2. The New York City's Taxi & Limousine Commission could have spent more time educating the drivers about the new technology. A phased-in approach could have been considered.

Critical Thinking Questions

1. Students' answers will vary. Some may agree that there is some truth to the statement. The city has an urgent need to innovate by keeping up to date with changing technology.

2. Students' answers will vary. The new system's ability to allow customers to pay via credit card and automate the process of keeping business records of fares and trips could be viewed as incredibly attractive.

Case 2: Yansha Leans on IS to Stay Competitive

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Discussion Questions

1. While some businesses seek opportunities to reduce costs, others consider the sharing of technical know-how to companies overseas as a threat to their competitive advantage.

2. Student responses will vary.

Critical Thinking Questions

1. Yansha already has the technical infrastructure in place. In addition, there are no cultural barriers or language difficulties.

2. Student responses will vary.

Questions for Web Case

Whitmann Price Consulting: A New Systems Initiative

Discussion Questions

1. The proposed Advanced Mobile Communications and Information System would provide Whitmann Price Consulting with several advantages. Not only would communication between team members be free flowing, but Whitmann Price professionals would have access to communication and information systems outside the office, allowing them to deliver services at the client's site, rather than at headquarters. This system could eliminate any lag time between meeting with clients and going back to the WPC headquarters to access the information system. Since many of WPC's projects involve collaboration between several Whitmann Price professionals, the new system will allow them to communicate using the Mobile Communications System.

2. Josh and Sandra have probably been asked to interview the six managers as the first step to learn the expectations they may have from the Advanced Mobile Communications and Information System. Josh and Sandra can learn the other managers' concerns and/or suggestions regarding the new system.

   Although including the other managers in the planning stage may complicate the process, the more people they question, the more suggestions they will receive which may prove helpful with the planning.

Critical Thinking Questions

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1. I would ask each unit manager what their expectations are with the new system. What do they plan to accomplish with the new system? What problems do they hope the new system will eliminate?

2. I would ask the IT staff to conduct research on other companies who have implemented a similar system so we can learn what the advantages and disadvantages were.

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