Principles of Information Systems, Tenth Edition

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Solutions – Chapter 1

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Information Systems @ Work

Hilton Hospitality in the Palm of Your Hand

Discussion Questions

1. Student responses will vary. The app is especially useful for travelers needing a room at a moment's notice.

2. Many businesses inside and outside the travel industry are increasing revenues by expanding their presence to mobile devices. Providing m-commerce applications to customers anywhere anytime through mobile devices increases customer satisfaction and loyalty with better service and availability.

Critical Thinking Questions

1. Student responses will vary. Security would be a major concern.

2. Student responses will vary. Business can invest in both e-commerce and m-commerce.

Ethical and Societal Issues

Who Is Interested in Your Social Network Updates?

Discussion Questions

1. Student responses may vary. Individual privacy is an important social issue. People can inadvertently disclose personal information while using the Internet. Once private information or photos have been placed on the Internet, it can be very difficult to remove them. Selling access to this kind of information may seem unethical.

2. Student response will vary. Companies such as Comcast, a major communications company, hire full-time social media experts who interact with customers online to address problems and complaints. For example, if you complain about Comcast service on Twitter, you might be contacted by a Comcast employee offering to help you.

Critical Thinking Questions

1. Businesses are flocking to social networks to harvest consumer sentiment for use in guiding product development. They are also watching social networks to confront negative publicity and to develop targeted advertisements.

2. A computer-based information system (CBIS) is a single set of hardware, software, databases, telecommunications, people, and procedures that are configured to collect, manipulate, store, and process data into information. This is similar to the monitoring of social media.

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. 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.

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. Types of data:

Data	Represented by
Alphanumeric data	Numbers, letters, and other characters
Image data	Graphic images and pictures
Audio data	Sound, noise, or tones
Video data	Moving images or pictures

4. Efficiency is a measure of what is produced divided by what is consumed. Effectiveness is a measure of the extent to which a system achieves its goals.

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

6. 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).

7. 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.

8. 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.

9. 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.

10. A DSS goes beyond a traditional MIS by providing immediate assistance in solving problems. Many of these problems are unique and complex, and key information is often difficult to obtain. A DSS can include a collection of models used to support a decision maker or user (model base), a collection of facts and information to assist in decision making (database), and systems and procedures (user interface or dialogue manager) that help decision makers and other users interact with the DSS

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

12. Mobile commerce (m-commerce) can be used anytime, anywhere. Today, mobile commerce has exploded in popularity with advances in smartphones, including Apple's iPhone. Customers are using their cell phones to purchase concert tickets from companies such as Ticketmaster Entertainment (www.ticketmaster.com) and Tickets (www.tickets.com). In South Korea, cell phones are used 70 percent of the time to pay for digital content, such as digital music.

13. 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.

14.	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.

15.	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.

16.	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.

17.	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.

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.   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.

4.   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.

5.   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.

6.   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.

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

8.   Student responses will vary.

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

10.   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.

11.   Student responses will vary. Note that computer and information systems literacy are prerequisites for numerous job opportunities, and not only in the IS field.

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 describing potential social or ethical issues related to the use of an information system.

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

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 artificial intelligence 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 finance, management, information systems, and two other careers of their interest.

Case Studies

Case 1: Effectively Managing Resources at Aéroports de Paris

Discussion Questions

1. SAÏGA is responsible for directing the 900 passenger flights arriving each day to one of 240 parking stands and gates. Gates are assigned based on considerations such as fuel and luggage handling, departure and arrival times, security concerns, and airline preference. Along with gates, the system allocates all of the primary ground resources. SAÏGA works in real time, managing unexpected constraints such as flight delays, or it can allocate resources in advance to manage long-term scheduling. As a decision support system, SAÏGA provides useful charts that managers review to spot patterns and problems in scheduling and resources.

2. Each flight arriving at Aéroports de Paris requires a long list of resources, including gates, parking stands, fuel trucks, check-in counters, buses, luggage conveyor belts, a variety of ground equipment, and personnel. Orchestrating the efficient delivery of these resources is beyond the skills of any person. Recently, Aéroports de Paris turned to IBM for help.

Critical Thinking Questions

1. Student responses will vary. Train travel (rail and subway) could benefit from a system like SAÏGA.

2. Student responses will vary.

Case 2: Information System as an Effective Force Against H1N1 Pandemic

Discussion Questions

1. The business intelligence software provided daily reports from the system informing physicians and nurses of the current status in all emergency rooms and of any changes in the status quo.

Using its new information system, EMA was the first to spot the outbreak of H1N1 in the Northeast. Doctors knew that about 6 percent of patients complain of flu-like symptoms on any given day. When the EMA BI system reported that 30 percent of patients were arriving with flu symptoms, the doctors warned the country that H1N1 was on the move.

2. Student responses will vary. However, in this case, doctors knew that about 6 percent of patients complain of flu-like symptoms on any given day. When the EMA BI system reported that 30 percent of patients were arriving with flu symptoms, the doctors warned the country that H1N1 was on the move.

Critical Thinking Questions

1. Business intelligence or BI systems are designed to extract, or mine, useful information out of the data collected by businesses or organizations into databases. That data may consist of detailed sales information collected at the time of a sale or patient symptom information collected at the time of an examination. Tracking medical statistics across their 21 emergency rooms was similar to tracking sales statistics across retail outlets.

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.