

Solution Manual for Management Information Systems 3rd Edition Rainer Prince and Watson 111889538X 9781118895382

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CHAPTER 1: Introduction to Information Systems

Chapter Overview

- 1.1 Why Should I Study Information Systems?
- 1.2 Overview of Computer-Based Information Systems
- 1.3 How Does IT Impact Organizations?
- 1.4 Importance of Information Systems to Society

Learning Objectives

- 1. Identify the reasons why being an informed user of information systems is important in today's world.
- 2. Describe the various types of computer-based information systems in an organization.
- 3. Discuss ways in which information technology can affect managers and nonmanagerial workers.
- 4. Identify positive and negative societal effects of the increased use of information technology.

Teaching Tips and Strategies

Most students believe that they possess an extensive knowledge of information systems because they use the Internet. In reality, they have only scratched the surface of the power of modern technology when they use Facebook or Twitter. Businesses have been using information technology and information systems for decades, far longer than the newest social media sites have been available.

An example that you can use to illustrate the power of technology is your school. One suggestion for bringing the technology to the students is to invite someone from either the help desk or the information technology department to talk to the students about how computers help the school function. Some examples are student records, including grades; human resources; and specialized software used in some departments (such as the sciences, mathematics, engineering, and others). An explanation of how the computer laboratories are designed and used, including access to the Internet, will be of interest to the students.

Technology also exists in the smart phones, tablets, and other mobile devices that are prevalent today. Students have become used to using these devices, and they don't realize that what they are really using is a hand-held computer. The devices have an operating system, just like the laptop or desktop computer that they own. Pointing this out to students will give them a new understanding of the power of technology.

Although the text is aimed at business students, there may be some students who are interested in a career in the IT world. Once again, the information technology department could provide a guest speaker to discuss the positions that are available in that department. The world of e-commerce has also opened opportunities for IT jobs, and many business students may be interested in that area for the future. The director of your IT department would also be a good guest speaker. If you have access to a smart classroom, you could even invite someone from an IT department in a business to speak to the students virtually.

It is very important to link computer systems to the business world. Business students are aware of the need for information systems in marketing, accounting, finance, and other aspects of business. Information technology ranks right up there with those critical systems in a business, and it is important to emphasize this to students. Computers are used for much more than simply playing games and keeping up with friends. Rather, they are a very important part of the business world today.

OPENING CASE – AngelList Helps Entrepreneurs Build Companies

1. *What are the advantages offered by AngelList to entrepreneurs?*

AngelList provides entrepreneurs with access to capital funding without the hassle of building its own network of investors. The relatively systematic funding process through AngelList is more transparent and, as a result, reduces fraud and creates trust among the involving parties.

2. *What are potential disadvantages that entrepreneurs might encounter by using AngelList? (Hint: What if you listed your company profile on AngelList and no investor provided funding?)*

Entrepreneurs will incur expenses related to creating an initial profile to attract potential investors. AngelList also restricted the service to startups trying to obtain funding for the first time. If the startup failed to acquire funding initially, the negative records on AngelList could make it even more difficult to obtain funding in the future.

Review Questions

Section 1.1 – Before you go on...

1. *Rate yourself as an informed user. (Be honest; this isn't a test!)*

The definition of ‘informed user’ is someone who is knowledgeable about information systems and information technology. Students may list the things they know about how to use the Internet (downloading music and movies, using Facebook and Twitter, using e-mail), but most non-technical students have only scratched the surface of information technology. You can give them some examples from business about how computers are used. (For example, do they know that an ATM machine at a bank is really a computer terminal?) Knowing more about this technology will enhance their use of it in the future.

2. *Explain the benefits of being an informed user of information systems.*

Being an informed user helps users to understand what information systems can do so that they can make better decisions about how to apply this technology in the business world. Employees can make a better contribution to their work (and home) environment when they understand what the technology can do for them. Being able to recommend an aspect of information systems that may not have been introduced in the past will make a new graduate a more valuable asset to an organization. Keeping up with technology is very difficult in today’s fast-paced, constantly changing technological world. Knowing about the technology and where to find information is critical to keeping up with that technology.

3. *Discuss the various career opportunities offered in the IT field.*

The primary IT career positions are programmers, business analysts, systems analysts, and designers. These are the traditional positions that are filled in an IT department. Newer positions have also been added because of the extensive use of the Internet by organizations. Security, mobile commerce, networks, and telecommunications and multimedia are some of the newer career positions in IT. Many managerial positions also exist, including: CIO; Director of IS; Computer Center Manager; Project, Systems, Operations, and Programming Managers; Network and Database Managers; Database Administrator; Webmaster and Web Designer.

Section 1.2 - Before you go on...

1. *What is a computer-based information system?*

A computer-based information system gathers information, processes and analyzes the information, and then distributes that information to those employees in the organization who will use the information for business purposes. These processes are performed by a computer system of some type, either a PC or a mainframe that is maintained by the organization

2. *Describe the components of computer-based information systems.*

A computer-based information system is composed of six parts: (1) hardware, which is the physical computer itself; (2) software, which refers to the programs that do the work required of the computer; (3) a database, which is made up of files that are related in some way; (4) the network, which is the way that all the computers talk to one another in the organization (and outside of it); (5) procedures —sometimes called protocols — which are the rules or instructions on how all the other components work together to

generate the required information; and (6) people; specifically, the individuals who provide the input and use the output from the computer system.

3. *What is an application program?*

An application program performs a specific function in a computer system. For instance, an organization might use a payroll program to collect information on all of its employees, keep track of changes in employment status, and generate paychecks. Only one department accesses this application program. Other specific application programs could be a set of programs for the accounting department, programs that run machinery in a production department, or application programs that provide information for stockholders. Office productivity software such as word processors and spreadsheets are also application programs.

4. *Explain how information systems provide support of knowledge workers.*

Knowledge workers are those employees who have specific knowledge about a certain aspect of the organization. Information systems that support these workers need to be those application programs that provide information specific to their area of expertise. This involves application programs that allow the knowledge workers to provide information to upper management to help the organization reach its goals.

5. *As we move up the organization's hierarchy from clerical workers to executives, how does the type of support provided by information systems change?*

Information is needed in different formats and for different reasons as you move up the organization's hierarchy. The data and knowledge needed at the lowest levels of the hierarchy are used for interacting directly with customers or suppliers (office automation software). Middle managers need more general information to allow them to make decisions about sales data or inventory analysis. Upper management needs systems like decision-support systems or expert systems to make long-term decisions based on past data and to provide information needed to forecast future trends for the organization.

Section 1.3 - Before you go on

1. *Why should employees in all functional areas become knowledgeable about IT?*

Computer systems are a part of most jobs today. As information systems become more sophisticated, they make employees more efficient, allowing a company to operate with fewer employees in some positions (particularly middle management). Because modern companies value employees who possess computer skills, it is in the employees' best interest to stay educated about the computers used in their jobs.

2. *Describe how IT might change the manager's job.*

Information technology systems have provided managers with a wide array of information in a real-time environment. This gives the manager much more information to use to make decisions, while also making the job somewhat more stressful. However, because the manager can now control many of the applications himself/herself, it is possible to get information faster than it was previously, when the manager had to wait for information from the IT department. IT also allows

employees to work at geographically dispersed locations. The manager may have to supervise employees who are not located in a single place.

3. *Discuss several ways in which IT impacts employees at work.*
Computerized systems can have some negative impacts on employees. For example, the increased use of computers and the requirement to constantly learn new systems can generate job stress. Employees can also suffer from injuries related to the constant use of the keyboard, particularly carpal tunnel syndrome. On the positive side, computers with larger print screens and graphical user interfaces have provided opportunities for individuals with disabilities to work in an environment that might have been inaccessible in the past.

Section 1.4 – Before you go on...

1. *What are some of the quality-of-life improvements made possible by IT? Has IT had any negative effects on our quality of life?*
Information technology has made it easier to work in an anytime/any place environment. This flexibility (if allowed by an employer) can help working parents to care for their children, children to care for elderly or ill parents, and employees around the world to work for any company in any country. A drawback is that some employers expect employees to check e-mail and text messages at all times, reducing the number of free hours for relaxation away from the job.
2. *Describe the robotic revolution, and consider its possible implications for humans.*
Robotics can make life easier for humans, by doing mundane, repetitive, or even dangerous tasks. Such robots have been used in factories for some time (e.g. automotive factories), but they have now moved into the home market in the form of robotic vacuum cleaners and lawn mowers. Some robots are also used in a hospital environment.
3. *Explain how IT has improved healthcare practices.*
Information technology has allowed healthcare workers to better serve their patients. Doctors can make faster diagnoses by utilizing expert systems that collect data on many patients and then determine the source of an illness based on the previous information that has been stored in the computer. IT has also been used to research and develop new drugs, to plan complex surgeries, and allows doctors to discuss complex problems interactively through videoconferencing

Apply the Concept

Apply the Concept 1.1

Student answers may vary. A potential student answer is provided below.

Five reasons why it is important for you to be an informed user of information technology (IT).

1. Most business major careers require computer knowledge. The following are examples of job descriptions along with tools and technology used in each position.
 - a. Accountant <http://www.onetonline.org/link/summary/13-2011.01>,
 - b. Marketing Manager <http://www.onetonline.org/link/summary/11-2021.00>,
 - c. Human Resources Specialist <http://www.onetonline.org/link/summary/13-1071.00>,
 - d. Financial Analyst <http://www.onetonline.org/link/summary/13-2051.00>,
 - e. Logistics Manager <http://www.onetonline.org/link/summary/11-3071.03>
 - f. Computer System Analyst <http://www.onetonline.org/link/summary/15-1121.00>
2. Informed users of IT may take advantage of the benefits that IT has to offer in everyday activities such as communication, entertainment, personal security, etc. (See <http://delphiconnect.com/>)
3. If used appropriately, IT helps increase efficiency so we can accomplish more with less.
4. Increasing reports on data security concerns raise the flag on how our personal data is actually protected by organizations. It's best to learn about these threats so we are aware of what could happen and how to protect ourselves. (See <http://www.npr.org/2014/09/09/347007380/home-depot-confirms-data-breach-at-u-s-canadian-stores>)
5. The Internet is a massive collection of knowledge that supports life-long learning and, for many people, the pursuit of happiness.

Apply the Concept 1.2

Student answers may vary. Below is an example of the deliverable.

	Transaction Processing	Management Information System	Decision Support System
Marketing/Sales	Enter sales data	Monthly sales report	Customer credit approval
Accounting/ Finance	Process accounts receivable and accounts payable	Financial statements	Investment portfolio analysis
Human Resources	Update employee benefit selection	Payroll reporting	Employee scheduling
Manufacturing	Enter purchase order for raw materials	Inventory reporting	Delivery route optimization and scheduling

Apply the Concept 1.3

Student answers may vary. A potential student answer is provided below.

Ways in which information technology (IT) can affect managers and non-managerial workers in Human Resource (HR) area include:

1. IT empowers HR personnel and potentially reduces the number of managers.

2. HR managers have to understand how a Human Resource Information System (HRIS) could positively and negatively impact the HR process in organizations.
3. HR managers must be aware of potential IT security breaches involving sensitive personal information and other data. He or she must also evaluate risks and develop action plans for dealing with threats to IT security.
4. Non-managerial HR employees have to learn how to use an HRIS effectively in order to perform day-to-day functions. This could potentially increase work-related stress.
5. Non-managerial HR employees must be trained about data security. They should know how to appropriately handle sensitive personal data and what to do when they are suspicious that the system security might be compromised.

Apply the Concept 1.4

Student answers may vary. Below is an example of the deliverable.

	Positive	Negative
Quality of life	IT provides access to information and tools that make life easier and more comfortable.	The digital divide becomes a more significant problem for people with limited resources.
Robotics	Improve efficiency	Robots can take jobs away from humans.
Healthcare	Easy access to medical information and healthy lifestyle	Misdiagnosis of symptoms using the Internet search results instead of seeking help from medical professionals could lead to inaccurate treatments.
Work/life balance	Many parents could work remotely from home or shift their work around to accommodate family schedules	Many workers have a hard time ‘tuning off’ from work when they always have access to work emails or always on call.

“ I T’s A bo ut Bu si nes s” Ques ti o ns

1.1– Information Technology Supports Students in Georgia

1. *Describe how the University System of Georgia manages its information resources vis-à-vis the individual universities in the system.*

The University System of Georgia (USG) centralized their IT services. Member universities have options to receive the high-quality services at a relatively lower cost through USG.

2. *What are the advantages of central management of information systems in the University System of Georgia?*

There are several advantages of center management of information systems at USG. First, because utilizing USG's IT services are optional to universities, USG's IT services must maintain high quality in order to stay competitive with other vendors. Second, the central management of the system allows IT resources to be allocated more efficiently, e.g. cross-registration system and shared data center. Finally, centralizing the system creates higher demand for IT resources, providing bargaining power which helps lower the costs of IT overall.

3. *What are the disadvantages of central management of information systems in the University System of Georgia?*

Some disadvantages of central IT management include inflexibility of the IT services incurred by member universities. For example, if a university would like to utilize a learning management system other than Desire2Learn, they have to do so on their own expense.

1.2– Different Types of Robots

1. *Discuss some disadvantages of (a) telepresence robots, (b) autonomous cars, and (c) drones.*

a. Disadvantages of telepresence robots

Interacting with a telepresence robot removes the “human touch” and may put off customers who like personal service. Students may resent not getting to interact with their professors on a personal level. Patients in need of surgery are often not as confident about the surgery when they cannot talk to and meet their doctors, a more difficult task with telepresence robots.

b. Disadvantages of autonomous cars

An autonomous car is currently allowed in only four states in the US. The cost is also very high compared to traditional vehicles.

c. Disadvantages of drones

The usage of drones, especially for surveillance purposes by authorities, raises the privacy concerns of many involved parties.

2. *Would you be willing to ride in an autonomous car? Why or why not?*

Student answers may vary. For example, some students would be willing to ride in an autonomous car because they might not like driving and they can do other things such as completing their homework while commuting. Many students, on the other hand, would rather drive their own car because the technology is still in an infancy stage where safety is still a major concern, the cost of vehicle is still relatively high, and the service is available in a limited area.

3. *Which occupations are most at risk from a widespread adoption of autonomous cars? Support your answer.*

The first at-risk occupation would be personal chauffeur because wealthy individuals who can afford a personal driver could easily afford an autonomous car, reducing the need for human drivers. Public bus and taxi drivers might also lose their jobs if modes of transportation utilizing the same technology as those in autonomous cars.

4. *Debate the privacy issues associated with domestic use of drones by law enforcement agencies.*

On the one hand, law enforcement agencies utilize drones in order to improve public safety and increase the efficiency and effectiveness of their efforts, hence, better utilization of taxpayer money. On the other hand, increasing aerial surveillance with inadequate privacy law protection raises the concern of personal privacy among affected citizens.

1.3– Getting Kids in Shape

1. *Why is Zamzee using games to help kids lose weight?*

Because games are fun! Children (and humans in general) are more inclined to participate in enjoyable activities with the potential for virtual or monetary rewards.

2. *In your opinion, would Zamzee be as successful for adult weight loss? Why or why not?*

Zamzee has the strong potential to be successful for adult weight loss because, similar to children, it incorporates the ‘fun’ and ‘competitive’ factors, motivating adults to engage in more physical activities.

Discussion Questions

1. *Describe a business that you would like to start. Discuss how information technology could: (a) help you find and research an idea for a business; (b) help you formulate your business plan; and (c) help you finance your business.*

Student answers may vary. The following paragraphs provide resources for students to do research for their chosen business.

- (a) Starting a business in today’s digital world is much easier than it was in the past, as long as a person has the drive to do some research on the product/service they want to sell and is motivated to pursue his or her goal. The Internet is a great place to start where simple searches could reveal a number of unique ideas and opportunities for startups.
- (b) The Internet provides convenient access to resources on how to write a good business plan. Additional information could also be obtained through websites of organizations supporting small businesses such as <http://www.sba.gov/>
- (c) There are several ways to obtain capital funding for new startups. Information technology, especially the Internet, provides unique sources of funding (see AngelList Opening Case at the beginning of this chapter or visit <https://www.kickstarter.com/>)

2. *Your university wants to recruit high-quality high school students from your state. Provide examples of (1) the data that your recruiters would gather in this process, (2)*

the information that your recruiters would process from these data, and (3) the types of knowledge that your recruiters would infer from this information.

- (1) Recruiters would gather high school students' names, addresses, phone numbers, gender, high school names, clubs to which the students belonged, outside organizations to which they belonged, and parents' and siblings' names.
- (2) The recruiters would create a database with this information to identify regions of the country where the students are located, gender statistics, and statistics on organizations.
- (3) From this information, the recruiters could determine the interests of incoming students and the types of activities in which they might participate.

3. *Can the terms data, information, and knowledge have different meanings for different people? Support your answer with examples.*

People often confuse the topics of data, information, and knowledge and use the terms interchangeably. To a computer programmer, data are the input to a computer program, but to a stock trader, data could be a list of stocks and their prices. Data and information are often used to mean the same thing. Someone may ask you to provide data on a topic (such as the details about a house for sale), but in reality what you are providing is information because it is organized statistics that relate to a specific house. Knowledge is generally defined as what you know, but in the context of information technology, knowledge means interrelated information brought together to form a higher understanding.

4. *Information technology makes it possible to “never be out of touch.” Discuss the pros and cons of always being available to your employers and clients (regardless of where you are or what you are doing.)*

Our society has evolved into one where most people have cell phones or other technology to reach anyone at any time. This is an advantage, for instance, for parents of young children who can keep in touch with them when the children are away from home at school or at friends' homes. It also allows people to install cameras in their home so they can check on pets or just the condition of the home when they away. From a different perspective, some employers want their employees to be available 24 hours a day, 7 days a week. For some people this is fine, for others it is not. This totally connected environment can have some harmful effects on the psyche. Some people are addicted to their technology and have a hard time doing anything that does not involve the technology.

5. *Robots have the positive impact of being able to relieve humans from working in dangerous conditions. What are some negative impacts of robots in the workplace?*

Robots can take jobs away from humans. Such has been the case in the automotive industry, where jobs previously held by humans are now performed by robotic machines. The robots can also malfunction. Robots that are used in a medical

environment need to be closely monitored so that they do not cause harm to a human being undergoing an operation. The use of robots can make the human workers worry that someday they will be replaced by a robot.

6. *Is it possible to endanger yourself by accessing too much medical information on the Web? Why or why not? Support your answer.*

While Web sites like WebMD and Mayo Clinic offer good information for the casual reader, accessing the information and self-diagnosing an illness is very dangerous. Some symptoms of illnesses may be common among many illnesses and unless someone sees a doctor to get an accurate diagnosis, they will not know if what they are witnessing is a real illness or not. Self-prescribing medications to cure an illness based on a Web site is not a good thing.

7. *Describe other potential impacts of IT on societies as a whole.*

Information technology can open up the world to societies that have not had access to worldwide information in the past. The Internet provides many news outlets to show what is going on in the world. One drawback to this is that some news outlets may have a biased opinion and therefore provide information from only one point of view. The Internet can also be used for showing the world what is going on in a specific country, as was seen in the Middle East in 2011 when the official news organizations were showing one side of the conflict, but social media sites were showing videos taken by regular citizens of the actual conflict.

IT can also be a dividing force within societies. There are some technology deserts where citizens do not have access to technology and therefore are being left out of the digital world. This is called the digital divide, and many organizations are attempting to correct it.

8. *What are the major reasons why it is important for employees in all functional areas to become familiar with IT?*

IT has permeated all parts of organizations. The responsibility to maintain an organization's technology is no longer restricted to the IT department. Instead, all employees are more valuable to an organization if they are knowledgeable about IT in their area. That knowledge can then be used to provide information to higher management. In addition, knowledge of technology in general is transferable to other areas. Therefore, if an employee is transferred to another functional area, his or her IT experience will help the employee adapt to the new environment.

9. *Refer to the study at Princess Alexandra Hospital (see "Improvements in Healthcare"). How do you feel about Google searches finding the correct diagnosis in 57 percent of the cases? Are you impressed with these results? Why or why not? What are the implications of this study for self-diagnosis?*

Normally, a success rate of 57% might seem impressive, but in a medical environment, 57% success in diagnosis is not extraordinary. A much higher success rate should be expected for a medical diagnosis. Most people would want a much higher percentage (say 90 or 95%) chance of a successful diagnosis of a medical condition (such as heart disease). With this result, it is clear that self-diagnosis using information from the Internet is not very reliable, and a doctor should be the one who makes the final diagnosis.

10. Is the vast amount of medical information on the Web a good thing? Answer from the standpoint of a patient and from the standpoint of a physician.

Many people like to obtain second opinions about medical conditions, and the Internet can be one way to do this.

For patients, the vast amount of information on the Web offers different viewpoints on various conditions (such as knee replacement surgery) and may provide excellent definitions for terms that a patient needs to understand in order to make medical decisions.

To physicians, however, the amount of information can actually undermine what they are trying to do for their patients. Not all information on the Web is accurate, and if a patient comes into the doctor's office with a specific diagnosis he or she obtained from the Web, the physician may have a hard time convincing the patient that his or her diagnosis is wrong.

Problem-Solving Activities

Each student will have different ideas of what to include in the following:

1. *Visit some Web sites that offer employment opportunities in IT. Prominent examples are: www.dice.com, www.hotjobs.com, www.monster.com, www.collegerecruiter.com, www.careerbuilder.com, www.jobcentral.com, www.job.com, www.career.com, www.simplyhired.com, and www.truecareers.com. Compare the IT salaries to salaries offered to accountants, marketing personnel, financial personnel, operations personnel, and human resources personnel. For other information on IT salaries, check Computerworld's annual salary survey. IT salaries should compare favorably with the other business professions listed. In fact, some of the IT positions such as networking analyst, security specialist, and IT managers should be listed even higher than some business personnel salaries.*
2. *Enter the Web site of UPS (www.ups.com).*
 - a. *Find out what information is available to customers before they send a package.*

Customers can find out how to ship a package, track it, cancel a shipment, schedule a pickup, determine how much it will cost to ship a package, order supplies, and obtain information about international shipping.

- b. *Find out about the “package tracking” system.*

UPS provides a unique shipping number to every customer when he or she ships a package. This ‘package tracking’ system allows the shipper to see where the package is located at all stages of the shipment. The locations listed are the UPS terminals through which the package travels. The system lists the time and date the package arrives at each terminal and the time and date it leaves. It also provides the estimated arrival date for final delivery.

- c. *Compute the cost of delivering a 10” x 20” x 15” box, weighing 40 pounds, from your hometown to Long Beach, California (or to Lansing, Michigan, if you live in or near Long Beach). Compare the fastest delivery against the least cost.*

Students will have a variety of answers to this question. Below are the list of options and costs to ship a 40lb. box from a Commercial address in Chicago, IL (60601) to a residential address in Long Beach, CA (90749).

- Fastest: \$313.17 (UPS Next Day Air Early A.M.)
- Lowest cost: \$58.97 (UPS Ground)

3. *Surf the Internet for information about the Department of Homeland Security (DHS). Examine the available information, and comment on the role of information technologies in the department.*

Most government agencies provide a wide array of information on their Web sites. The DHS has many options on its Web site to gather information, such as finding information about terrorism advisories, finding a job with DHS, contacting the department with information, filing a complaint about travel, and learning about electronic identity verification. Someone can contact the Department electronically to find information about anything that is connected to national security or to travel-related security.

4. *Access www.irobot.com, and investigate the company’s Education and Research Robots. Surf the Web for other companies that manufacture robots, and compare their products with those of iRobot.*

The www.irobot.com Web site has many resources for students and faculty to use to learn about robots. Some of the activities are interactive. Some comparisons can be made using the robots.net Web site or www.robotspodcast.com

CLOSING CASE 1

Information Technology Impacts a Wide Array of Industries

Questions

1. *Given that information technology is impacting every industry, what does this mean for a company's employees? Provide specific examples to support your answer.*
Employee's roles may change as the use of technology increases. Some tasks may be taken over by technology and the employee may spend more time monitoring the technology. Let's use a pharmacist as an example. In years' past a pharmacist had to look to many sources to determine if medications could be safely taken together. Today computer programs check instantly for potential reactions between medications and provide instant information where laborious and time consuming research was once required. At the same time a pharmacist's job has evolved to include computerized inputting of both prescriptions and inventory.
2. *Given that information technology is impacting every industry, what does this mean for students attending a college of business? Provide specific examples to support your answer.*
Every college curriculum should include teaching technology and computers so as to increase the career potential of their students post graduation.

CLOSING CASE 2– Baxter: Coming to Work Right Next to You

Questions

1. *Rethink Robotics claims that Baxter will not necessarily replace workers; rather, it will enable workers to transition into higher-paying jobs (e.g., programming Baxter robots and supervising Baxter robots). Will Baxter replace workers in small manufacturing companies? Why or why not? Support your answer.*
Student answers may vary. On the one hand, Baxter may replace workers in small manufacturing companies as their jobs were simply performed by the robot. On the other hand, since robots like Baxter are still in an infancy stage, only a handful of companies will adopt the technology. In addition, Baxter's functions are still limited to simple tasks such as packaging, loading/unloading, and material handling. More complicated tasks such as assembling and welding still require human workers (or more complicated and expensive robots).
2. *Discuss the possible reactions of labor unions to Baxter.*
The Labor Union's reaction to Baxter is understandably expected to be a negative one. A human workforce is still necessary for training, supervising, and maintaining the robots. However, widespread utilization of relatively inexpensive robots like Baxter will cause low-skilled manual labor to be removed from the job market, raising concerns by the union.
3. *Discuss additional potential applications for Baxter.*
According to the article, *The Robot Reality: Service Jobs are Next to Go* <http://www.thefiscaltimes.com/Articles/2013/03/26/The-Robot-Reality-Service-Jobs-are-Next-to-Go>, Baxter robots may be extended to the service and retail industries.

Spreadsheet Activity

See Solution file in Wiley Plus and on the book companion site. This exercise can be graded using the Office Grader Application.

Database Activity

See Solution file in Wiley Plus and on the book companion site. This exercise can be graded using the Office Grader Application.