Solutions for Management Information Systems 16th Edition by Laudon

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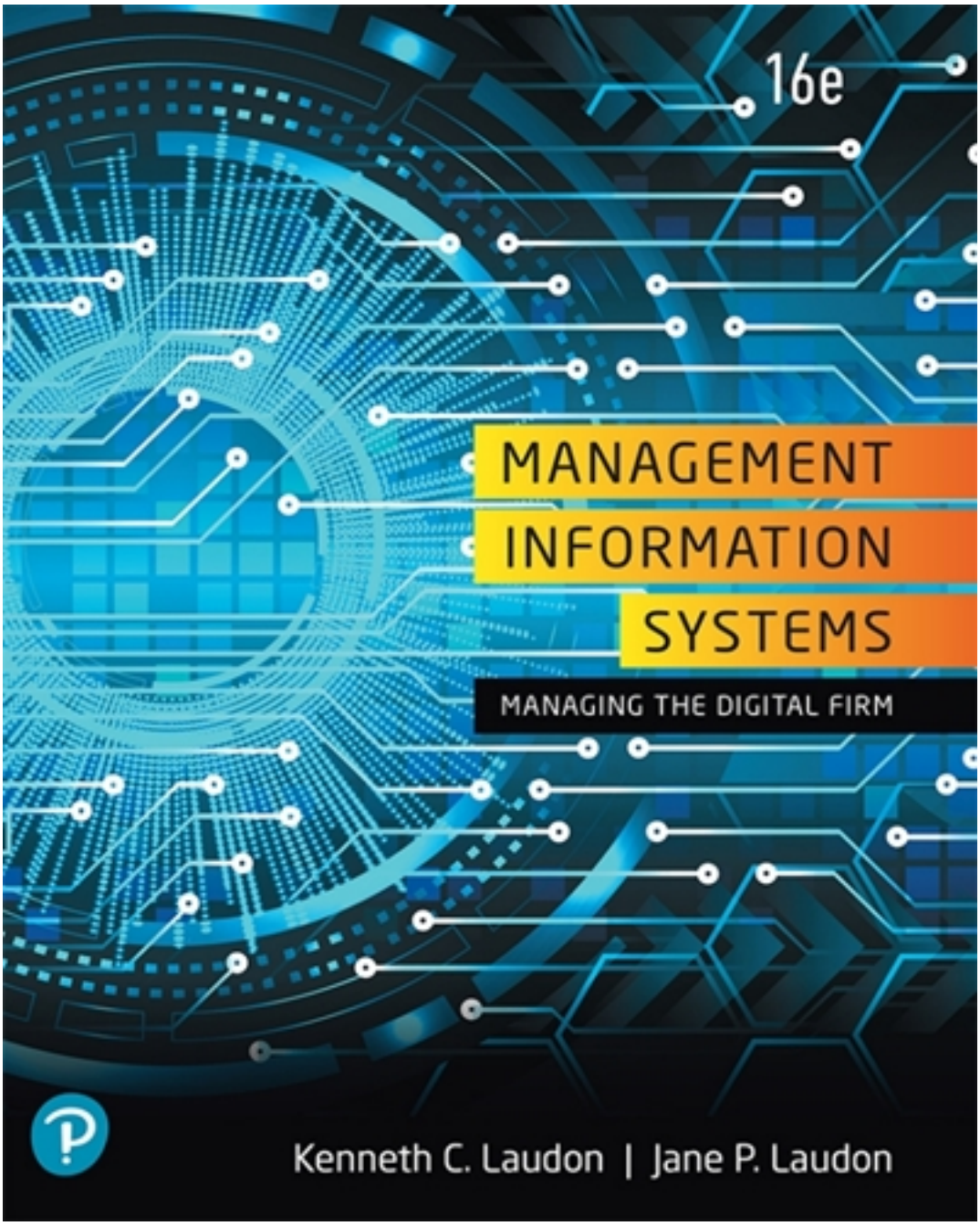

Solutions

Chapter 1 Hands-on MIS Application Software Exercise Solution

This exercise helps students understand how a raw file of sales transactions can be analyzed using database software to produce valuable information for managers. The solutions provided here were created using the query wizard and report wizard capabilities of Access. Students can of course create more sophisticated reports if they wish, but much valuable information can be obtained from simple query and reporting functions. The main challenge is to get students to ask the right questions about the information.

Chapter 1
Information Systems in Global Business Today

Student Learning Objectives

1-1 How are information systems transforming business and why are they so essential for running and managing a business today?

1-2 What is an information system? How does it work? What are its management, organization, and technology components? Why are complementary assets essential for ensuring that information systems provide genuine value for organizations?

1-3 What academic disciplines are used to study information systems and how does each contribute to an understanding of information systems?

1-4 How will MIS help my career?

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Key Terms

The following alphabetical list identifies the key terms discussed in this chapter. The page number for each key term is provided.

Business functions, 19
Business model, 14
Business processes, 12
Complementary assets, 26
Computer hardware, 21
Computer literacy, 18
Computer software, 21
Culture, 20
Data, 16
Data management technology, 21
Data workers, 19
Digital firm, 12
Extranets, 21
Feedback, 17
Information, 16
Information technology (IT) infrastructure, 22
Input, 17
Internet, 21
Intranets, 21
Knowledge workers, 19
Management information systems (MIS), 18
Middle management, 19
Network, 21
Networking and telecommunications technology, 21
Operational management, 19
Organizational and management capital, 26
Output, 17
Processing, 17
Production or service workers, 19
Senior management, 19

Teaching Suggestions

You are probably meeting in the first class session to introduce yourself, the course, and to meet the students. It is good to get to the classroom early and meet the students as they come in. Learn a few names as the students enter.

After going over any requirements you may have for the course, try to give an overview of the course stressing that this is not a technical course. Usually, you can't do enough to put non-technical types at ease.

The opening case, "PCL Construction: The New Digital Firm," shows students that even the most successful businesses must continually embrace technology upgrades and improvements as a way to enhance customer value and increase a business's competitive advantage. Students will become familiar with the idea that many different kinds of businesses have had to change the way they operate.

PCL, a group of independent general contracting construction companies, has digitized most of its paper-based work tools like blueprints, project documents, cost estimates, and subcontractor tracking. Electronic touch-screen kiosks throughout the job site and electronic plan rooms provide access to digitized, updated blueprints so team members don't have to waste time tracking down paper versions. By performing much of the design and planning work on the computer, PCL is able to identify and resolve conflicts and constructability issues early in the construction process to help keep projects ahead of schedule and within budget.

A secure project-based web site provides real-time storage and management of information in a single shared, accessible location. Construction contractors, subcontractors, consultants, suppliers, and clients can work from the same documents wherever they are.

Staff working on PCL projects can access information from cloud-based systems at any time and location using mobile devices as well as conventional desktop machines and an Internet connection. PCL saves 80 percent of the cost of backing up its corporate data by using the Azure platform.

Section 1-1, "How are information systems transforming business and why are they so essential for running and managing a business today?" gives students a feel for the importance of information systems in business today and how they have transformed businesses on the world stage. A good discussion of the six important business objectives outlined in this section allows the instructor and students to discuss why businesses have

become so dependent on information systems today and the importance of these systems for the survival of a firm. Stress to students that information systems are not a luxury. In most businesses they are the core of survival. This would be a good time to ask students to discuss how their own schools are using information systems to enhance their product offering.

Globalization is affecting virtually every country in the world. The most striking evidence of this trend is the increasing presence of cell phones in the very small villages of Africa. As technology becomes more pervasive and, in some cases easier to use, globalization will continue its steady march. China, Singapore, and Russia are good examples of how globalization has flattened the world. They have become major exporters to other countries, especially industrialized and advanced countries like the United States and many European countries. Emerging countries, like Poland, the Ukraine, and Ireland, are excellent examples of increasing globalization.

Ask students to provide examples of truly digital firms (Cisco Systems and Dell Computers) as opposed to those businesses (local mom-and-pop stores or a local doctor's office) that still perform many business processes outside of integrated information systems.

Review the six strategic business objectives: operational excellence; new products, services, and business models; customer and supplier intimacy; improved decision making; competitive advantage; and survival. The rest of the text will continually refer to these six objectives as reasons why firms should incorporate and integrate business processes with information systems.

Interactive Session: Management: Can You Run the Company with Your iPhone? Case Study Questions

1. **What kinds of applications are described here? What business functions do they support? How do they improve operational efficiency and decision making?**

Email, messaging, social networking, and salesforce management are described in this case study. The applications support business functions including collaboration, location-based services, and communications with colleagues. These applications improve operational efficiency and decision making by allowing people to communicate from wherever they are. They are no longer tethered to one place or one machine. They can receive information and data instantaneously which allows them to make better, faster decisions.

2. **Identify the problems that businesses in this case study solved by using mobile digital devices.**

Network Rail uses a group of custom apps for its 22,000 iPhone and iPad devices to streamline maintenance operations, quickly capture incident data, and immediately share critical information.

One of Network Rail's app helps employees report hazards as they are found so problems can be addressed quickly. Workers can take pictures of dangerous situations immediately with their phones which speeds up the time it takes to fix problems in the rail lines. Another app allows field managers to electronically scan ID cards to verify that workers are qualified to perform specific tasks.

British Airways agents use phones to scan boarding passes, review customer books, look up alternate flight options, and rebook and reticket passengers within four minutes. That creates a lot of customer satisfaction.

The company also uses mobile apps to shorten and streamline the aircraft turnaround process which generates huge business benefits. Turnaround managers are able to monitor the aircraft loading process and share data with pilots and back-office staff in real time. The apps helped British Airways achieve an industry-leading benchmark for aircraft turnaround.

3. What kinds of businesses are most likely to benefit from equipping their employees with mobile digital devices such as iPhones and iPads?

Any business with a need to communicate with customers, suppliers, and business colleagues can benefit from equipping employees with mobile digital devices.

Student answers will vary as they relate their own experiences and knowledge of using mobile digital devices. Try to encourage student creativity and imagination with this question. Here are a couple examples:

Insurance companies: claims adjusters or agents writing new policies or updating old ones, can take pictures of property as-is or that's been damaged, update data on the condition of a property, and document property damage for claims processing.

Real estate agents: can take pictures of homes for sale and send to prospective buyers, send information to other agents or prospective buyers and sellers, answer questions and complete documents related to buying and selling property.

Winemakers: can receive up-to-date weather forecasts, track crop information via GPS coordinates, store and access data on crop varieties for later analysis, track employee productivity during harvest time, take pictures of crops to include in a database, and communicate with suppliers and customers.

4. One company deploying iPhones has said, "The iPhone is not a game changer, it's an industry changer. It changes the way that you can interact with your customers and with your suppliers." Discuss the implications of this statement.

First and foremost, those that effectively and efficiently deploy mobile digital device technology gain a huge competitive advantage over those who do not use the technology to stay in constant touch with customers and suppliers. Sales and Marketing can take a hit by not having access to information that can close business deals faster and more efficiently. Costs can increase without the ability to contact suppliers and track product shipments, especially for those companies who use just-in-time supply chains.

Section 1-2, "What is an information system? How does it work? What are its management, organization, and technology components? Why are complementary assets essential for ensuring that information systems provide genuine value for organizations?" gives students the facts and definitions that underpin information systems and allow students to knowledgeably discuss information systems. Students do not need the knowledge of a technical person, but they do need to understand the role of information technology and how it must support the organization's business strategy. They must also understand how information technology can be used to help transform a business. Note that the chapter's definitions and terms help prepare students to discuss information systems as an intricate part of business systems. Encourage students to see that technology is subordinate to the organization and its purposes.

This is also a good place to reinforce the differences between information systems literacy and computer literacy. When asked to describe company information systems, students often depict information systems in terms of technology. It is important to stress that information systems are more than just technology, and that they have management, organization, and technology dimensions. Figure 1-5 and the diagram at the beginning of the chapter can be used to illustrate this point.

Ask students why some companies can achieve much better results using information systems while others cannot. That will help them understand the concept of complementary assets and show that there is much more to building a digital firm than simply buying the latest, greatest hardware and software. It will also help them understand the delicate relationship between technology, management, and organizations assets.

Interactive Session: Technology: UPS Competes Globally with Information Technology

Case Study Questions

1. **What are the inputs, processing, and outputs of UPS's package tracking system?**

   Inputs: The inputs include package information, customer signature, pickup, delivery, time-card data, current location (while en route), and billing and customer clearance documentation.

   Processing: The data are transmitted to a central computer and stored for retrieval.

Data are also reorganized so that they can be tracked by customer account, date, driver, and other criteria.

Outputs: The outputs include pickup and delivery times, location while en route, and package recipient. The outputs also include various reports, such as all packages for a specific account or a specific driver or route, as well as summary reports for management.

2. **What technologies are used by UPS? How are these technologies related to UPS's business strategy?**

Technologies include handheld computers (DIADs), barcode scanning systems, wired and wireless communications networks, desktop computers, UPS's central computer (large mainframe computers), and storage technology for the package delivery data. UPS also uses telecommunication technologies for transmitting data through pagers and cellular phone networks. The company uses in-house software for tracking packages, calculating fees, maintaining customer accounts and managing logistics, as well as software to access the World Wide Web.

UPS has used the same strategy for over 90 years. Its strategy is to provide the "best service and lowest rates." One of the most visible aspects of technology is the customer's ability to track his/her package via the UPS web site. However, technology also enables data to seamlessly flow throughout UPS and helps streamline the workflow at UPS. Thus, the technology described in the scenario enables UPS to be more competitive, efficient, and profitable. The result is an information system solution to the business challenge of providing a high level of service with low prices in the face of mounting competition.

3. **What strategic business objectives do UPS's information systems address?**

- **Operational excellence:** UPS has maintained leadership in small-package delivery services despite stiff competition from FedEx and the U.S. Postal System by investing heavily in advanced information technology.

- **New products, services, and business models:** UPS is now leveraging its decades of expertise managing its own global delivery network to manage logistics and supply chain activities for other companies. It created a UPS Supply Chain Solutions division that provides a complete bundle of standardized services to subscribing companies at a fraction of what it would cost to build their own systems and infrastructure. These services include supply chain design and management, freight forwarding, customs brokerage, mail services, multimodal transportation, and financial services in addition to logistics services.

- **Customer and supplier intimacy:** Customers can download and print their own labels using special software provided by UPS or by accessing the UPS web site. UPS spends more than $1 billion each year to maintain a high level of customer

service while keeping costs low and streamlining its overall operations.

- **Improved decision making:** Special software creates the most efficient delivery route for each driver that considers traffic, weather conditions, and the location of each stop. UPS estimates its delivery trucks save 28 million miles and burn 3 million fewer gallons of fuel each year as a result of using this technology.

- **Competitive advantage:** UPS is leveraging its decades of expertise managing its own global delivery network to manage logistics and supply chain activities for other companies. Its Supply Chain Solutions division provides a complete bundle of standardized services to subscribing companies at a fraction of what it would cost to build their own systems and infrastructure. In this manner UPS provides a highly differentiated product that its competitors cannot easily duplicate.

4. What would happen if UPS's information systems were not available?

Arguably, UPS would not be able to compete effectively without technology. UPS could not provide the same level of services to its customers at reasonable prices. From the customers' perspective, these technologies provide value because they help customers complete their tasks more efficiently. Customers view UPS's technology as value-added services as opposed to increasing the cost of sending packages.

Section 1-3, "What academic disciplines are used to study information systems and how does each contribute to an understanding of information systems?"

Too often, information systems are thought to be all about hardware and software. Issues that focus on human behavioral aspects of information systems are overlooked or minimized. That can lead to disaster. Figure 1-9 may help you explain contemporary approaches to information systems.

After contrasting the technical and behavioral approaches, you should stress to your students that the sociotechnical approach does not ignore the technical but considers it as a part of the organization.

Section 1-4, "How will MIS help my career?" addresses how the chapter's elements and information can help in securing a good job as a financial client support and sales assistant. These types of jobs are becoming more popular as information technology becomes more important in the workplace.

Review Questions

1-1 How are information systems transforming business and why are they so essential for running and managing a business today?

Describe how information systems have changed the way businesses operate and their products and services.

Wireless communications, including computers and mobile hand-held computing devices, are keeping managers, employees, customers, suppliers, and business partners connected in every way possible. Email, online conferencing, the web, and the Internet, are providing new and diverse lines of communication for all businesses, large and small. Through increased communication channels and decreased costs of communication, customers are demanding more of businesses in terms of services and products, at lower costs. E-commerce is changing the way businesses must attract and respond to customers. (Learning Objective 1-1: How are information systems transforming business and why are they so essential for running and managing a business today? AACSB: Application of knowledge.)

Identify three major new information system trends.

Three information system trends that are influencing the way businesses interact with employees, customers, suppliers, and business partners include IT innovations, new business models, e-commerce expansion, management changes, and changes in firms and organizations.

(Learning Objective 1-1: How are information systems transforming business and why are they so essential for running and managing a business today? AACSB: Application of knowledge.)

Describe the characteristics of a digital firm.

- Significant business relationships with customers, suppliers, and employees are digitally enabled and mediated.
- Core business processes are accomplished through digital networks spanning the entire organization or linking multiple organizations.
- Key corporate assets—intellectual property, core competencies, and financial and human assets—are managed through digital means.
- They sense and respond to their environments far more rapidly than traditional firms.
- They offer extraordinary opportunities for more flexible global organization and management, practicing time-shifting and space-shifting. (Learning Objective 1-1: How are information systems transforming business and why are they so essential for running and managing a business today? AACSB: Application of knowledge.)

Describe the challenges and opportunities of globalization in a "flattened" world.

Customers no longer need to rely on local businesses for products and services. They can shop 24/7 for virtually anything and have it delivered to their door or desktop.

Companies can operate 24/7 from any geographic location around the world. Jobs can just as easily move across the state or across the ocean. Employees must continually develop high-level skills through education and on-the-job experience that cannot be outsourced. Business must avoid markets for goods and serves that can be produced offshore much cheaper. The emergence of the Internet into a full-blown international communications system has drastically reduced the costs of operating and transacting business on a global scale. (Learning Objective 1-1: How are information systems transforming business and why are they so essential for running and managing a business today? AACSB: Application of knowledge.)

List and describe six reasons why information systems are so important for business today.

Six reasons why information systems are so important for business today include:

(1) Operational excellence.
(2) New products, services, and business models.
(3) Customer and supplier intimacy.
(4) Improved decision making.
(5) Competitive advantage.
(6) Survival.

Information systems are the foundation for conducting business today. In many industries, survival and even existence without extensive use of IT is inconceivable, and IT plays a critical role in increasing productivity. Although information technology has become more of a commodity, when coupled with complementary changes in organization and management, it can provide the foundation for new products, services, and ways of conducting business that provide firms with a strategic advantage. (Learning Objective 1-1: How are information systems transforming business and why are they so essential for running and managing a business today? AACSB: Application of knowledge.)

1-2 What is an information system? How does it work? What are its management, organization and technology components? Why are complementary assets essential for ensuring that information systems provide genuine value for organizations?

Define an information system and describe the activities it performs.

An information system is a set of interrelated components that work together to collect, process, store, and disseminate information to support decision making, coordination, control, analysis, and visualization in an organization. In addition to supporting decision making, information systems may also help managers and workers analyze problems, visualize complex subjects, and create new products. (Learning Objective 1-2: What is an information system? How does it work? What are its management, organization and technology components? Why are complementary assets essential for ensuring that information systems provide genuine value for organizations? AACSB: Application of knowledge.)

List and describe the organizational, management, and technology dimensions of information systems.

- **Organization:** The organization dimension of information systems involves issues such as the organization's hierarchy, functional specialties, business processes, culture, and political interest groups.
- **Management:** The management dimension of information systems involves setting organizational strategies, allocating human and financial resources, creating new products and services and re-creating the organization if necessary.
- **Technology:** The technology dimension consists of computer hardware, software, data management technology, and networking/telecommunications technology. (Learning Objective 1-2: What is an information system? How does it work? What are its management, organization and technology components? Why are complementary assets essential for ensuring that information systems provide genuine value for organizations? AACSB: Application of knowledge.)

Distinguish between data and information and between information systems literacy and computer literacy.

- Data are streams of raw facts representing events occurring in organizations or the physical environment before they have been organized and arranged into a form that people can understand and use.
- Information is data that have been shaped into a form that is meaningful and useful to human beings.
- Information systems literacy is a broad-based understanding of information systems. It includes a behavioral as well as a technical approach to studying information systems.
- In contrast, computer literacy focuses primarily on knowledge of information technology. It is limited to understanding how computer hardware and software works. (Learning Objective 1-2: What is an information system? How does it work? What are its management, organization and technology components? Why are complementary assets essential for ensuring that information systems provide genuine value for organizations? AACSB: Analytical thinking.)

Explain how the Internet and the World Wide Web are related to the other technology components of information systems.

The Internet and World Wide Web have had a tremendous impact on the role that information systems play in organizations. These two tools are responsible for the increased connectivity and collaboration within and outside the organization. The Internet, World Wide Web, and other technologies have led to the redesign and reshaping of organizations. They have helped transform the organization's structure,

scope of operations, reporting and control mechanisms, work practices, work flows, and products and services. (Learning Objective 1-2: What is an information system? How does it work? What are its management, organization and technology components? Why are complementary assets essential for ensuring that information systems provide genuine value for organizations? AACSB: Analytical thinking.)

Define complementary assets and describe their relationship to information technology.

Complementary assets are those assets required to derive value from a primary investment. Firms must rely on supportive values, structures, and behavior patterns to obtain a greater value from their IT investments. Value must be added through complementary assets such as new business processes, management behavior, organizational culture, and training. (Learning Objective 1-2: What is an information system? How does it work? What are its management, organization and technology components? Why are complementary assets essential for ensuring that information systems provide genuine value for organizations? AACSB: Application of knowledge.)

Describe the complementary social, managerial, and organizational assets required to optimize returns from information technology investments.

Table 1-2 lists the complementary social, managerial, and organization assets required to optimize returns from information technology investments. Here are a few of them:

Organizational assets:

- Supportive culture that values efficiency and effectiveness
- Appropriate business model
- Efficient business processes
- Decentralized authority

Managerial assets:

- Strong senior management support for technology investment and change
- Incentives for management innovation
- Teamwork and collaborative work environments

Social assets:

- The Internet and telecommunications infrastructure
- IT-enriched educational programs raising labor force computer literacy
- Standards (both government and private sector) (Learning Objective 1-2: What is an information system? How does it work? What are its management, organization and technology components? Why are complementary assets essential for ensuring that information systems provide genuine value for organizations? AACSB: Application of knowledge.)

1-3 What academic disciplines are used to study information systems and how does each contribute to an understanding of information systems?

List and describe each discipline that contributes to a technical approach to information systems.

A technical approach to information systems emphasizes mathematically-based models to study information systems and the physical technology and formal capabilities of information systems. Students should know the differences between computer science (theories of computability, computation methods, and data storage and access methods), management science (development of models for decision making and managerial practice), and operations research (mathematical techniques for optimizing organizational parameters such as transportation, inventory control, and transaction costs). (Learning Objective 1-3: What academic disciplines are used to study information systems and how does each contribute to an understanding of information systems? AACSB: Application of knowledge.)

List and describe each discipline that contributes to a behavioral approach to information systems.

A behavioral approach to information systems focuses on questions such as strategic business integration, behavioral problems of systems utilization, system design and implementation, social and organizational impacts of information systems, political impacts of information systems, and individual responses to information systems. Solutions to problems created by information technology are primarily changes in attitudes, management, organizational policy, and behavior. (Learning Objective 1-3: What academic disciplines are used to study information systems and how does each contribute to an understanding of information systems? AACSB: Application of knowledge.)

Describe the sociotechnical perspective on information systems.

A sociotechnical perspective combines the technical approach and behavioral approach to achieve optimal organizational performance. Technology must be changed and designed to fit organizational and individual needs and not the other way around. Organizations and individuals must also change through training, learning, and allowing technology to operate and prosper. (Learning Objective 1-3: What academic disciplines are used to study information systems and how does each contribute to an understanding of information systems? AACSB: Application of knowledge.)

Discussion Questions

1-4 Information systems are too important to be left to computer specialists. Do you agree? Why or why not?

Student answers to this question will vary.

1-5 If you were setting up the web site for a Major League Baseball team, what management, organization, and technology issues might you encounter?

Student answers to this question will vary.

1-6 What are some of the organizational, managerial, and social complementary assets that help make UPS's information systems so successful?

Student answers to this question will vary.

Hands-On MIS Projects

This section gives students an opportunity to analyze real world information systems needs and requirements. It provides several exercises you can use to determine if students are grasping the material in the chapter.

Management Decision Problems

1-7 Snyder's of Hanover: The financial department uses spreadsheets and manual processes for much of its data gathering and reporting. Assess the impact of this situation on business performance and management decision making.

- Data entry errors from repetitive entry
- No information available on-demand
- Late reporting of critical decision-making information
- Time consuming

(Learning Objective 1-2: What is an information system? How does it work? What are its management, organization and technology components? Why are complementary assets essential for ensuring that information systems provide genuine value for organizations? AACSB: Analytical thinking.)

1-8 Dollar General Corporation: Wants to keep costs as low as possible so it does not use an automated method for keeping track of inventory at each store. What decisions have to be made before investing in an information system solution?

- Determine business problems—mismanagement of inventory, too little or too much inventory, no ability to track inventory.
- Lack of an information system to manage inventory is actually increasing costs rather than decreasing them.
- What is the exact problem the company wants to solve—reduce costs.

(Learning Objective 1-1: How are information systems transforming business and why are they so essential for running and managing a business today? AACSB: Analytical thinking, Application of knowledge.)

Improving Decision Making: Using Databases to Analyze Sales Trends:

Software skills: Database querying and reporting
Business skills: Sales Trend Analysis

1-9 This exercise helps students understand how they can use database software to produce valuable information from raw data. The solutions provided here were created using the query wizard and report wizard capabilities of Microsoft Access. Students can, of course, create more sophisticated reports if they wish, but most information can be obtained from simple query and reporting functions. The main challenge is to get students to ask the right questions about the information.

- **Which products should be restocked?**
- **Which stores and sales regions would benefit from a promotional campaign and additional marketing?**
- **Which times of the year should products be offered at full price?**
- **Which times of the year should products be discounted?**

The answers to these questions can be found in the Microsoft Access File named: MIS16ch01_solutionfile.mdb

(Learning Objective 1-2: What is an information system? How does it work? What are its management, organization and technology components? Why are complementary assets essential for ensuring that information systems provide genuine value for organizations? AACSB: Analytical thinking.)

Improving Decision Making: Using the Internet to Locate Jobs Requiring Information Systems Knowledge

Software skills: Internet-based software
Business skills: Job searching

1-10 In addition to having students research jobs in their chosen career field, it may be quite interesting to have them research jobs in other career fields so they can see that virtually every job and/or career requires information systems skills.

(Learning Objective 1-3: What academic disciplines are used to study information systems and how does each contribute to an understanding of information systems? AACSB: Written and oral communication, Analytical thinking, Reflective thinking, Application of knowledge.)

Collaboration and Teamwork Project

1-11 In MyLab MIS, you will find a Collaboration and Teamwork Project dealing with the concepts in this chapter. You will be able to use Google Drive, Google Docs, Google Sites, or other open source collaboration tools such as Zarafa to complete the assignment.

Case Study: *Did Information Systems Cause Deutsche Bank to Stumble?*

1-12 Identify the problem described in this case study. What people, organization, and technology factors contributed to this problem?

People: The Commodity Futures Trading Commission (CFTC) charged that Deutsche Bank submitted incomplete and untimely credit default swap data, failed to properly supervise employees responsible for swap data reporting, and lacked an adequate business continuity and disaster recovery plan.

Organization: The CFTC complaint also alleged that Deutsche Bank's system outage and subsequent reporting problems occurred in part because Deutsche Bank failed to have an adequate business continuity and disaster recovery plan and other appropriate supervisory systems in place. The bank is now struggling with seismic changes in the banking industry, including recent regulatory change.

Technology: The CFTC complained that on April 16, 2016, Deutsche Bank's swap data reporting system experienced a system outage that prevented Deutsche Bank from reporting any swap data for multiple asset classes for approximately five days. Deutsche Bank's subsequent efforts to end the system outage repeatedly exacerbated existing reporting problems and led to the discovery and creation of new reporting problems.

Swap data reported before and after the system outage revealed persistent problems with the integrity of certain data fields, including numerous invalid legal entity identifiers. U.S. regulators have identified Deutsche Bank's antiquated technology as one reason why the bank was not always able to provide the correct information to the agency.. Poor information systems may have even contributed to the 2008 financial crisis. Banks often had trouble untangling the complex financial products they purchased and sold to determine their underlying value.

(Learning Objective 1: Why are information systems so essential for running and managing a business today? AACSB: Analytical thinking, Reflective thinking.)

1-13 What was the role of information technology at Deutsche Bank? How was IT related to the bank's operational efficiency, decision-making capability and business strategy?

It turns out that Deutsche Bank, like other leading global financial companies, had undergone decades of mergers and expansion. When these banks merged or acquired other financial companies, they often did not make the requisite (and often far-reaching) changes to integrate their information systems with those of their acquisitions. The effort and costs required for this integration, including a need for coordination across many management teams, were too great. So, the banks left many old systems in place to handle the workload for each of their businesses. This created what experts call "spaghetti balls" of overlapping and often incompatible technology platforms and software programs. These antiquated legacy systems were designed to handle large numbers of transactions and sums of money, but they were not well suited to managing large bank operations. They often did not allow information to be shared easily among departments or provide senior management with a coherent overview of bank operations.

(Learning Objective 2: What is an information system? How does it work? What are its people, organizational, and technology components? AACSB: Analytical thinking, Reflective thinking, Application of knowledge.)

1-14 Was Deutsche Bank using technology effectively to pursue its business strategy? Explain your answer.

No, Deutsche Bank was not using technology to pursue its business strategy.

Individual teams and traders each had their own incompatible platforms. The bank employed a deliberate strategy of pitting teams against each other to spur them on, but this further encouraged the use of different systems because competing traders and teams were reluctant to share their data. Yet the bank ultimately had to reconcile the data from these disparate systems, often by hand, before trades could be processed and recorded.

(Learning Objective 2: What is an information system? How does it work? What are its people, organizational, and technology components? AACSB: Analytical thinking, Reflective thinking, Application of knowledge.)

1-15 What solution for Deutsche Bank was proposed? How effective do you think it will be? Explain your answer.

The solutions that Deutsche Bank is pursuing can be effective in resolving the many problems associated with its technology and organizational structure.

In July 2015, John Cryan became Deutsche Bank's CEO. He has been trying to reduce costs and improve efficiency, laying off thousands of employees. He is focusing on overhauling Deutsche Bank's fragmented, antiquated information systems, which are a major impediment to controlling costs and finding new sources of profit and growth. Cryan noted that the bank's cost base was swollen by poor and ineffective business processes, inadequate technology, and too many tasks being handled manually. He has called for standardizing the bank's systems and procedures, eliminating legacy software, standardizing and enhancing data, and improving reporting.

In February 2015, Deutsche Bank announced a 10-year, multibillion-dollar deal with Hewlett-Packard (HP) to standardize and simplify its IT infrastructure, reduce costs, and create a more modern and agile technology platform for launching new products and services. Deutsche Bank is migrating to a cloud computing infrastructure where it would run its information systems in HP's remote computer centers. HP will provide computing services, hosting, and storage. Deutsche Bank will still be in charge of application development and information security technologies, which it considers proprietary and crucial for competitive differentiation.

Deutsche Bank is withdrawing from high-risk client relationships, improving its control framework, and automating manual reconciliations. To modernize its IT infrastructure, the bank will reduce the number of its individual operating systems that control the way a computer works from 45 to four, replace scores of outdated computers, and replace antiquated software applications.

Thousands of applications and functions will be shifted from Deutsche Bank's mainframes to HP cloud computing services. Automating manual processes will promote efficiency and better control. These improvements are expected to reduce "run the bank" costs by 800 million euros. Eliminating 6,000 contractors will create a total savings of 1 billion euros. Deutsche Bank has also opened four technology centers to work with financial technology startups. In March 2017, the bank opened a new center in New York to work with financial technology startups to improve its technology.

(Learning Objective 1: How are information systems transforming business and why are they so essential for running and managing a business today? AACSB: Analytical thinking, Reflective thinking, Application of knowledge.)

MyLab MIS

Go to the Assignments section of your MyLab MIS to complete these writing exercises.

1-16 What are the strategic objectives that firms try to achieve by using information systems? For each strategic objective, give an example of how a firm could use information systems to achieve the objective.

View rubrics in MyLab MIS.

1-17 Describe three ways in which information systems are transforming how business is conducted.

View rubrics in MyLab MIS.

For an example illustrating the concepts found in this chapter, view the videos in MyLab MIS.