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MANAGEMENT INFORMATION SYSTEMS

**Seventh Edition**

INSTRUCTOR MANUAL

Chapter 1

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# Part ONE: The Information Age

## Textbook Case: Kimball’s Restaurant

This part introduces the “running” case for the entire textbook. This case narrative provides the foundation information on the business as well as the significant personalities involved in the case.

## Part Introduction

The textbook case discusses the setting of the restaurant and its owners. The husband and wife always imagined the goal of owning and operating a restaurant. After several of years of experience in business occupations, they decided to purchase a small restaurant in their town. Liz and Michael understood that the previous owners were not very successful in the operation. The couple approached this new initiative with caution by discussing all of the various business components with friends and advisors in order to gain a realistic perspective and accurate understanding before making a final decision.

* In Chapter 1, “*Business Information Systems: An Overview*,” you learn the various types of information systems businesses use and why familiarity with information technology is important for your career. You also are introduced to some of the major ethical and societal concerns about acquiring, storing, and reporting potentially sensitive information.
* In Chapter 2, “*Strategic Uses of Information Systems*,” you learn how to use information strategically, and how to harness information technology for competitive advantage.
* In Chapter 3, “*Business Functions and Supply Chains*,” you learn how you might best use information technology to help manage a business, whether you need to order inventory and track sales, generate financial statements, or automate payroll systems. You also learn how supply chain management systems serve whole enterprises.
* The section in the case “Researching the Business” is an important narrative to begin the discussion of the textbook case. Instructors should set aside some time in a class to discuss the importance of planning and gathering information when faced with a business decision.
* The instructor can assign a short research task to define the current challenges and issues in the hospitality services or restaurant industries. Students then would gain a strong foundation of business, technology and market issues associated with the textbook case. Future assignments, readings and classroom discussion would be extended by this industry, strategic and operational knowledge.
* Encourage students to assume the roles of the textbook case “characters” (Liz, Michael, Anne Marie, Tom) in order to fully integrate their perspective and input into the process. Explore the importance of each of the steps in the textbook case introduction to a) solidify students’ understanding of the case facts and b) walkthrough the process by the owners and connect the various tasks to business planning and strategy.
* Emphasize the specific events such as discussing the marketing associate (Tom), need for data gathering to estimate sales and expenses, analyzing the operations of the front-house and creating a model for forecasting sales, patrons and expenses.

# Chapter 1 – Business Information Systems: An Overview

## Chapter Objectives

The objectives of this chapter are:

* Explain why information technology matters.
* Define digital information and explain why digital systems are so powerful and useful.
* Explain why information systems are essential to business.
* Describe how computers process data into useful information for problem solving and decision making.
* Identify the functions of different types of information systems in business.
* Describe careers in information technology.
* Identify major ethical and societal concerns created by widespread use of information technology.

## Chapter Case – Kimball’s Restaurant: Business Systems and Information

The case “fast forwards” ahead three years and describes their business as successful and doing well. The capacity of their restaurant during most weeks is at least 50 percent; sometimes at full capacity. Michael believes these ratios are accurate, but it requires significant effort to compile management and financial information using old fashioned paper checks. The case illustrates and describes the process of how guest customer checks are processed. Their son, Tyler, is introduced into the case as a significant role in the development, strategic and operational facets of the restaurant.

* Establish a discussion of the factors from the textbook case introduction that helped to “create” the successful business. What did Liz and Michael do right? How did it affect the three years of success?
* Demonstrate and discuss the process of customer checks, ordering and tallying revenue. Remind students to visualize their experiences with restaurants (since this is a common experience). Encourage them to picture how inefficient this process is. What are the “points of failure” to the process? Inefficiencies?
* Discuss the information that is contained on a customer check. Use the CH01-GuestCheck image as an example. Discuss … Legibility issues from handwriting? Accuracy? Completeness? What data needed by management is needed from the check? What data is NOT available from the check?
* Case discussion questions … 1) If you were Michael, what would frustrate you about this business? 2) What do you believe is needed to manage the business?

## Why Is This Chapter Important for the Students?

As professionals, the students are bound to be at least users of IT, if not developers of ISs. The more they know about the technology and its use, the more successful they will be throughout their careers.

This point must be stressed in the first meeting. Emphasize that the purpose of this course is not necessarily to make them IS professionals, but to make them prudent consumers of information and IT services, and to give them tools that will enable them to wisely evaluate technological developments and their potential in business.

This chapter provides an overview of ISs and description of the major IT careers. The students may have some questions about topics that are covered in other chapters. It would be wise to give them a brief answer and say that the topic will be discussed in more detail later in the course.

## Lecture Notes

1. The purpose of information systems.
	* Discuss the need that information systems provide to businesses. The ability to lower the cost of doing business, maintain management control over operations, and implement and consistent business functions, tasks, rules and guidelines.
2. Data vs. information.
	* Show the students that there is a difference between data and information. This is not just a semantic difference; this is the difference between facts that can do nothing to assist managers in their work and information that makes their work more efficient and more effective. All retailers have been able to collect huge amounts of data from customers, but Wal-Mart knew how to glean useful information from the data while the others lagged behind.
3. Systems and subsystems.
	* The students should understand that any array of parts that work together make up a system. It may be a living organism, e.g., one cell or an animal; it may be a machine; or it may be a group of people (an organization). It may also be a combination of machines, people, and procedures. An information system is an example of such a combination.
4. Information and managers.
	* Ask the students to describe what managers do, preferably in a place where they have worked. Make them realize that managers never perform physical work or operate machines. Almost their entire workday is devoted to planning and monitoring. They must have useful information for planning; they pass information (orders, instructions, and directions) to their subordinates, and they receive information that helps them monitor what is happening under their supervision. In other words, information is involved in almost everything they do.
5. Information systems in organizations.
	* Introduce the newest trends relating to mobile computing, software-as-a-service and cloud computing.
6. Transaction processing systems.
	* These systems are usually used merely for recording data. Ask the students what happens to the data that are entered into a point-of-sale machine when they check out in a supermarket. What happens to the data recorded through an online system when you purchase a book or CD? Ask students to provide other examples of other TPSs (payroll, ATM, online banking, etc.). Ensure they understand that some TPSs are linked to Web pages, mobile devices, and some are activated by devices such as EZ-Pass and “pay-at-the-pump” transceivers. Blend the need for integrated transaction processing systems needed to supply chain management systems and enterprise applications.
7. Management information systems.
	* Emphasize the difference between mere recording of data by a TPS and the processing of the data into information by management information systems. Explain that different ISs in the organization may use the same data to produce different information. For example, managers of product lines may want to know how specific products sell that are manufactured by their units. They manipulate the sales data to produce totals by product. Regional sales managers use the same raw data to produce reports that show total sales of all products in specific regions.
8. Knowledge workers.
	* Explain that a growing number of the working force is made up of knowledge workers. Knowledge workers are people who are often called “professionals.” Anyone whose work involves the production and use of information is a knowledge worker. All of your students will be knowledge workers when they graduate and get a job. These people are increasingly dependent on IT for their work. Many, if not all business workers, fulfill the role as a knowledge worker.
9. Information systems careers.
	* If it is important to you to encourage students to consider an IT career, this is the first opportunity to do so. It is important to emphasize that IT professionals should first of all understand business and management. In addition, they should be well versed in IT. A balanced knowledge in these areas is a prerequisite for a successful career.

## Teaching Thoughts

1. To demonstrate the difference between data and information, do a simple exercise. Tell the students that you need to know the average number of text messages that they are charged for on their mobile account. Ask them how they should approach this task. You must first receive the number of text messages of each student and how many students there are in the group. This is data collection. You then add the text messages value, total the number of students, and divide the first number by the second number. This is processing. The result is a single number, the average text messages charged by their carrier, which is information. This is also an example of the principle of input, processing, and output. Now ask the students to give you an example, from a business setting, of producing information from data.
2. The mentioning of synergy is a good opportunity to mention that people work in teams to create synergy.
	* Give an example: If either of two men had to lift a 200-pound rock, they wouldn’t be able to do it. However, both men can lift several such rocks, one rock at a time, when they work together. This is a good opportunity to demonstrate to the students why teamwork is so important, why it is emphasized in your school, and why you will assign a team project (if you intend to assign one).
3. Discuss the importance of geographic information systems for strategy, financial impact and success of businesses. Relate this topic to location-based services and the impact of this technology.
4. Ethical and Societal Issues (pg. 22): The Downside
	* A discussion of various privacy issues and challenges associated with the use of information technology. The proliferation of consumer and organizational use of technology … and the increased reliance of interconnected systems and multi-device access … has created several challenges (six discussed) for businesses.
	* Customer privacy, employee privacy, freedom of speech, online annoyances, phishing/identify theft and IT professionalism.
	* The integration of the Internet and devices that are placed outside of corporate buildings (ATMs, credit card readers, cash registers, tablets, etc.) which have direct and real-time access to an organizations data, systems and application software has accentuated these challenges. And the liability of the business. AKA Target Corporation.

## Points of Interest

| **Page** | **Title** | **Topic/Subject** |
| --- | --- | --- |
| 7 | Tornados in Oklahoma City, Is Mom OK? | Use of social media to notify, communicate and increase safety of citizens during threatening weather. |
| 20 | Texting to Help Social Causes | Use of mobile phone texting technology to increase donations in a cost-effective, efficient and timely manner. |
| 23 | Malware Attacks Target Social Media and Mobile Devices | The rapid explosion in the use of portable devices has gained the attention of hackers to develop and distribute virus attacks. |
| 24 | Technology Jobs and Women | There are significant career opportunities for women in technology-based positions. |

## Why You Should

| **Page** | **Title** | **Topic/Subject** |
| --- | --- | --- |
| 8 | Be Well-Versed in Information Systems | Connection of solid and current skills relating to information technology and systems to integrate into all business careers and positions. |

## Websites for Lectures and Assignments

| **Description/URL** |
| --- |
| Association for Information Systems. The site provides links to a wealth of information on IS topics, including pedagogy.[www.isworld.org](http://www.isworld.org) |
| Information Technology Association of America, a not-for-profit organization representing some of the largest corporations in the hardware and software industries. Among other information, it provides statistics and forecasts of careers in IT.[www.itaa.org](http://www.itaa.org) |
| CIO online magazine published by The IDG Network. This contains many articles, white papers, analyses, blogs and videos on information technology topics.[www.cio.com](http://www.cio.com) |

## Kimball’s Revisited

### What is Your Advice?

1. *What would you suggest to Tyler to improve the restaurant’s operational efficiency? Examine the business’s inputs, processing, and outputs. Formulate recommendations to streamline the business transactions. What type of reports do Liz and Michael need? How would you alter the back-office work to better suit their needs?*
	* Consistent completion of customer checks by wait staff. Management needs reports which will outline several data points needed for management oversight and decision making. Most importantly, the data contained on customer checks needs to be viewed differently … not only for operational purposes (cooking and servicing food orders, but also for management needs to better manage the operations and strategy of the restaurant.
	* Students should be encouraged to “draw” or outlined the process from the initial visit to the customer’s table to the payment (retention) of the customer check. Such data elements as Date, Time Seated, Time Left, Number of Adults/Children, items ordered, etc.
	* Michael will need reports showing the number of customers for a time frame (day, week, month). Possibly with a comparison to the previous time period or illustrated across a series of columns (by month). Discuss the operational component of a restaurant in terms of “table turns” that measure the time (minutes) that is needed for dining. In restaurants (like inventory turnover), the faster you “turn” the tables for new patrons, the more efficient your fixed space (and expenses) are for maximizing revenue.
2. *Based on Tyler’s request, his parents provided some questions. Michael knows that some meals are selling better than others, but he can only guess which ones. What sales and operational data do they need to maximize revenues and profits while minimizing costs? What data will help them to make decisions on how to operate and manage their business? What information technology system(s) would you recommend for gathering and reporting the necessary information?*
	* For each meal, the number ordered (purchased). An integration of the meals purchased to better manage the purchase of food components and materials. Example: If you knew the number of steak dinners (sirloin for example) that the restaurant sells over various time periods (day, week), management may be able to a) order more efficiently to reduce spoilage and shrinkage, b) better forecast expenses and c) negotiate better pricing from vendors based on accurate forecasting and delivery of products.
	* The customer checks would require consistent and legible data to accurately memorialize the transaction. It would be important for menu management and strategy to understand which menu items are a) most popular, b) are not popular, c) are only popular during specific seasonal times and d) generate highest sales/profits. Accurate sales data and tracking of customer checks to determine which menu items, how many, when (date served), etc.

### New Perspectives

1. *The restaurant industry is not static; new competitors and challenges always arise. Consider the following challenges: Economic trends, operational efficiency and marketing and promotional data.*
	* Discuss the need for understanding trends and patterns of customers, sales, expenses and purchasing behaviors (menu items). The restaurant industry, due to the economic issues, has been required to ‘reinvent’ itself for low-cost meals, efficient operations and promotions to maintain their existence.
	* It will be important to begin this dialogue in this chapter to leverage with future topics of social media, online presence, mobile computing, data analytics and information technology.
	* You may wish to integrate any thoughts from the industry research that the students may have completed.
	* Integrating business challenges and industry trends are an important facet to consider with information technology initiatives and implementation.
2. *Explain how information technology and systems can help Kimball’s to comply with gathering this data.*
	* Students can be assisted to discuss the various points in the front- and back-house operations that can be “efficient-ized” by the benefits associated with information systems.
	* Students should be encouraged to focus less attention (and resources) on mundane and tedious tasks (data entry) by management in order to direct their attention on management and strategic issues.
	* What is the “low hanging fruit” that the operation must face?
	* What are those problems and opportunities that can increase the value to customers and the business?

## Answers to Review Questions

1. Processing means any action that produces information from data, such as finding totals, averages, ratios, and trends.
2. Names, addresses, and educational experience of employment candidates, consumers, and members of professional organizations are some examples. They are data, but are also used as information, because they are often needed as is, without processing.
3. Some examples of data that are used as information:
	* (1) The entire record of an employee who is considered for a promotion to a high position; the record was data when first entered when the employee was hired, and then periodically updated; all of it is used as information now. This information can also be used to analyze labor expenses or staffing levels for a business (department, division, etc.).
	* (2) Management invited all employees to select a Christmas present from a list of four options; the entire list will later be used to deliver the items to the employees. Three examples of data that must be processed: To purchase the items, the quantities of each of the four items must be calculated so that they can be ordered. When purchasing raw materials for the production of an item, the purchasing manager must receive data on forecast sales from the marketing manager so that she can know quantities required. The information is the result of manipulating data collected in a market research survey of a large sample of the targeted population.
	* (3) An investor who invests in stock according to its past performance must have information in the form of trends. This information is the result of processing thousands of daily price changes of many stocks.
4. Some examples of subsystems are:
	* (1) Government agencies (all working to enhance the welfare of the countries citizens).
	* (2) The steering wheel, transmission box, and fuel-injection mechanism of a car (all working together to ensure a smooth and safe ride).
	* (3) A soccer team (training and playing to score as many goals as possible).
5. A TPS merely records transactions and channels them into files and databases. It does not analyze the data nor create any information. A DSS contains software (models and formulas) that help make decisions. It provides useful information gleaned and manipulated from raw data.
6. A problem is any undesired situation, such as a trend of decreasing sales. Some examples are:
	* By providing trends of sales of different products, an IS can pinpoint the product or products that contribute to the sales decline more than other products. Management can then decide to stop making these products, thereby improving overall sales.
	* Sales steadily increase in all regions except one. Apparently there is a problem in that region. An information system can analyze the demographic characteristics of the population in each region. Managers may find out that the population in that particular region is significantly younger than in the other regions, and therefore the company’s products are not suitable for these consumers. Management may decide to redirect resources from that region to other regions. This way, it will avoid the losses in that region and increase revenue in the others.
7. Because an IS consists of more components: telecommunications (often), people, and procedures.
	* People probably being the most expensive and complex of the components to manage; but also the most important. A discussion that business initiatives, analysis and decision making cannot be accomplished without talented, experienced and engagement personnel.
8. Whenever there may be more than one good solution to a problem.
	* The various alternatives to resolve a problem or consider an opportunity must be evaluated and assessed to fully understand the implications, costs, disadvantages and benefits of each alternative.
9. A DSS is capable of processing large amounts of data and culling out the best solution from a multitude of possible solutions. It can accomplish this task much faster than a person can.
10. Because we should not allow any computer-based systems, including DSSs, to have the last say in decision making. We should often scrutinize the decisions they offer.
11. Knowledge workers are people who use information and produce information in their respective fields. These workers usually possess higher education and training.
	* They include scientists, managers, and other workers who are often also referred to as “professionals.”
	* The work of knowledge workers revolves around information: They use information for their work and produce information as the output of their work. Information systems can help them in both parts of their jobs.
12. When an organization’s strategy, customers and/or business operations can derive positive benefits to support the use of mobile computing or web-based information system. Some examples are:
	* A hotel chain whose customers would want to be able to reserve, cancel or view a hotel reservation. These functions would support increased customer service while also increasing revenue.
	* Tracking a package through text messages or a mobile application. Creating a connection as well as additional value and convenience for customers.
13. TPSs (transaction processing systems) are the most prevalent ISs, because they are needed to record the many transactions of organizations: sales, purchases, hiring of new employees, payments, deposits, money withdrawals, etc. A boundary is the place where an organization executes transactions with external entities such as other organizations, customers, suppliers, and government agencies. Examples: a. a cash register at a supermarket, b. a purchase order entry system, c. a human resource management system used to record the details of a new hire.

## Answers to Discussion Questions

1. Even if one needs help with simple activities such as word processing or recording and calculation with spreadsheets, one can be more efficient and effective with information systems.
2. Application software and office productivity tools have been designed to assist with many daily activities and operational functions of the business. In addition, non-technical business professionals can develop and integrate information systems into their functions for productivity and organizational effectiveness. New applications can be developed by non-technical professionals to use in their daily responsibilities and tasks.
3. No. People will always need to communicate among themselves, for which they need human language. Written language will most probably be necessary in the foreseeable future because people often prefer visual text rather than listening to messages and reports. Often it is easier to quickly skim a typed document rather than listen to its oral equivalent, because it is easier to move the eyes back and forth when looking for certain details than run an oral message back and forth.
4. Many problems are so unstructured that no IS can help answer these questions. Some are:
	* Will a merger of our company with XYZ, Inc. increase the total market share of the companies?
	* How much of the crop we are planting now will be ruined by hurricanes and other disasters?
	* How long will the recently hired manager remain employed with the company?
5. Because it is impractical to process all the data they must process manually rather than with the help of information systems. With the proliferation of information technology both within and outside of businesses, it will be incumbent on business professionals to possess more experience and knowledge of information system use.
	* Discussion that the value of business professionals will be how to leverage information technology, data and business operations to develop creative, value-oriented solutions to its stakeholders.
6. ❓Students will likely list companies such as Amazon or eBay. The Web is a natural medium for selling information or providing customers with access to catalogs.
	* Students may also wish to consider the use of the Web by traditional catalog retailers such as L.L. Bean.
	* Such new marketplace models such as Restaurant.com, ebates.com and Tripit.com.
7. ❓Almost every business uses the Internet or other networks for a significant amount of its organizational transactions. We do not call business by phone “p-Business” and business by fax “f-Business” and soon will (and maybe already have) refrained from referring electronic business … e-Business.
8. They use that term because businesses use ISs, in which computers are only one component. Other components are software, telecommunications, procedures, and people. The expertise required may not be only in the hardware (computers) but in software, telecommunications, determining procedures, and managing IS personnel.
9. Traditional commerce is conducted from physical structures (“brick and mortar”) such as stores. E-commerce does not require physical access of the buyer to the location of the seller. The shopping, purchase, and payment are done electronically via telecommunications networks.
10. Information technology can create relationships (work, social) between people thanks to telecommunication, but the same technology may isolate people: now they can work from any location in the world (as long as they can communicate and perform their jobs online) without ever seeing their “coworkers.” Considering this environment, social interaction can (and will) deteriorate.
11. Some examples are:
	* Software piracy was not a problem before the advent of the personal computer (in 1981) and started to be a concern only when the machines became popular tools in offices and at home in the late 1980s.
	* For the same reason, computer viruses were not a concern. In fact, the first computer virus that caused significant damage appeared in 1988. Early computer viruses spread through the importation of software on a disk from one computer to another. The concern is greater now, because of the wide use of the Internet, which is an excellent (for lack of another word) vehicle for spreading viruses.
	* The opening of the Internet for public use, and especially the popularity of the World Wide Web, discuss the important concern of free speech and censorship, because it is technically difficult to control the content of information on the Web. However, there are strict rules for other information vehicles: the postal service, radio, television, and motion pictures.
12. ❓There are several possible responses which include:
	* “Teasing” someone to visit a website that they didn’t originally intend to visit.
	* Asking for my personal details whenever I want to receive certain information or services; waiting so long for pages to download; poorly designed website to find information efficiently.
	* Finding an organization’s contact number to speak to a “live person” instead of a chat.
	* The entire issue of malware, cookies and identify theft by using a website.
13. ❓Possible responses include lack of mathematical skills in children due to reliance on calculators and computers; physical ailments due to spending too much time with computers for work and entertainment (obesity, poor eyesight). Adults and young people in general may rely on technology to “think” or make choices (route planning) and reduce their ability to reason for themselves.
14. ❓Educating the public about the risk and its characteristics can make people more careful when responding to fraudulent e-mail and providing their personal information on the Internet. The problem of identity theft over the Internet is usually not a technical one. Without the victim’s cooperation, this crime is usually preventable.

## Answers to Thinking about the Case Questions

### The Personal and Portable Touch

1. *What is CRM in general? Give examples of different CRM applications.*
	* CRM includes all the activities involved in serving customers and gleaning useful information about them. CRM applications are software programs that enable and support these activities. Examples: An application that brings up contextual help information when customers call in with request for help with a product or service; an application that deduces what online customers’ preferences are in terms of products and presentation, and suggests the products/services in a customized presentation; an application that collects purchasing information and enables sales managers to sort and summarize the information by demographics, seasons, regions, and other factors, so that they can optimize advertising and stocking.
2. *Enumerate and explain the various ways in which the CRM applications discussed here save costs or help in other ways.*
	* Clarify helps serve a caller fast. It provides information that is focused on the customer rather than on the service, so that if the same customer has used different services (e.g., ground shipping and next-day air shipping), the rep can quickly move from a window showing information of one service to another, and the rep does not have to reenter the customer’s details. Clarify also enables call center reps to quickly bring up a map to ensure correct address for delivery. The CRM application saves costs because it enables reps to serve more customers per time unit, and it makes customers more satisfied, which helps retain customers and gain new ones.
3. *Which metrics would you use to measure before and after performance regarding the information technologies implemented in this case? Consider cost, service quality, cycle time, and any other performance factor and provide a specific metric (i.e., ratio, product, or absolute value).*
	* Metrics: Customers served per hour; average time to complete a call; repeating calls from same customer; cost per customer-call.
4. *What are the challenges of implementing mobile technology? Are the savings similar to Web-based systems?*
	* ❓ Mobile technology has some inherent limitations over other information technology alternatives. Specifically, screen display “real estate” is much smaller than monitors on laptop or personal computer systems. Therefore, business functions that are more complex (Example: requiring significant data entry to sign up for an account) cannot be completed using a mobile app.
	* The functionality that is being considered for a mobile application must be analyzed properly. What does the customer want to do on a mobile phone? What functions WOULD they do while away from a traditional computer system? What are the practical functions that they NEED to accomplish? The challenge is to a) find those functions that can be properly designed for a mobile app and b) integrating them with the current information technology infrastructure.
5. *As an executive for FedEx or a similar company, what else would you implement using mobile computing and the Internet?*
	* ❓Suggestions: knowledge management technologies (using artificial intelligence) for online self-help; Instant messaging for help (for customers who prefer to use nonverbal communication, or because they only have access to the Internet at the moment but not to a phone); an application that tracks calls by type of help needed (so more training can be given to reps on those issues).

### Blooming with Technology

1. *Why do point-of-sale systems process business activities more effectively? Can the information be tracked manually in an effective manner? Why or why not? What types of questions could be answered effectively? How could the information be used to better manage the business?*
	* Point-of-sale systems provide for several reasons: a) Eliminating manual data entry through the use of mechanical scanning, b) processing and storing the scanned data immediately at the time of activity, c) interacting with real-time systems based on the processing the scanned data. For example, scanning a UPC code allows the technology to use the product number to determine the current price of the product, thereby, reducing errors or inaccurate pricing. The capturing of data and processing of the business activity at the time of the activity eliminates any time lag or delays to complete the transaction. The real-time processing of the data provides management with the ability to monitor and control operations based on continually updated data and processed business activities.
2. *Why do small business owners avoid the use of information technology?*
	* ❓ Lack of knowledge. Fear and anxiety of relying on technology for business activities.
3. *Consider the types of information systems discussed in the chapter. What other systems could interact with the POS system as it processed a sale?*
	* Accounting system to recognize revenue, sales and cost of goods as well as cash and accounts receivable transactions. Inventory can be updated to reflect the sale of goods.