Accounting Information Systems: Basic Concepts and Current Issues (4th edition)
Dr. Bob Hurt, C.F.E.
End-of-chapter solutions
Chapter 1: Role and purpose of AIS

1. Reading review questions

a. What is an accounting information system? An accounting information system, like all systems, is a collection of inter-related parts designed to achieve a specific goal. In the case of AIS, that goal is to prepare information for decision making.

b. Explain three reasons AIS is an important area of study for future accountants. (1) Developing a strong AIS helps achieve some of the components of the FASB Conceptual Framework of Accounting. (2) Studying AIS helps students develop many of the core competencies suggested by the AICPA. (3) Acquiring knowledge about AIS helps students learn more about common business processes.

c. List and discuss the five parts of a generic accounting information system. The five generic parts of the AIS are: inputs (such as source documents), processing (such as with general ledger software), outputs (such as the general purpose financial statements), storage (such as in master and transaction files) and internal control (such as separation of duties).

d. Identify five broad criteria you can use to evaluate information on the Internet and in other sources. The University of Maryland University College offered five criteria for information evaluation. They are: authority, accuracy, objectivity, currency and coverage.

e. In a manner specified by your instructor (e.g., individually or with a group, as a written paper or as an oral presentation), prepare an original response to one or more of the questions for this chapter's "AIS in the Business World." As in previous editions, I've posted responses to each chapter's AIS in the Business World on my accounting information systems blog (www.bobhurtais.blogspot.com). Look for the 4th edition's responses in the 15 December 2014 post.

2. Multiple choice review questions. Answers to all of these questions appear at the end of the textbook itself.

3. Reading review problem

a. Consider the five business processes described in the chapter. Which one best applies to the activities described? Why? The activities described are most closely aligned with the sales / collection process, since they involve selling goods to a customer and collecting payment. In addition, preparing the food (Step 4) is an example of a conversion process.

b. Does Richie's need an accounting information system? Why, or why not? Richie's, like all organizations, needs an AIS. If properly designed and implemented, the AIS can produce general purpose financial statements and other outputs which will serve as a basis for decision making.

c. If you were an accountant for Richie's, how might you demonstrate the AICPA core competencies discussed in the chapter in your interaction with management? The chapter discussed six elements of the AICPA core competencies framework. The broad business perspective competencies included strategic / critical thinking and resource management; functional competencies were risk analysis and research. Personal competencies discussed in the chapter were problem solving and decision making and communication. An accountant could demonstrate strategic / critical thinking by focusing on what accounting (and other) data tell management about how to compete more effectively in their markets; resource management competencies come into play, for example, by understanding human motivation and applying theories like Vroom's expectancy theory. All organizations face risk; an accountant could point out risks in interacting with management. Research would be required as part of strategic thinking, since knowing what competitors are doing can inform what Richie's does. Both personal competencies are an integral part of the others.

d. Suggest one example of each generic AIS element within the context of Richie's. Input, customer order. Process, collecting payment. Output, customer bill. Storage, electronic files with accounting data. Internal control, Developing standard procedures for taking orders, preparing and delivering food.

e. Do a Google search on "operating a successful restaurant." Pick one of the articles it produces and evaluate it using the UMUC criteria. One such article is "Start A Killer Restaurant: 6 Tips" by Jeff Haden. It appeared in the 23 January 2012 issue of Inc. magazine. Here is a sample evaluation using the UMUC criteria.

- Authority. The author is a professional journalist; his contact information is provided at the end of the article.
- Accuracy. The article explains that the source of the information is an interview with a successful restaurant owner. It does not appear to have erroneous information.

- Objectivity. The article is not primarily advertising oriented, but it does have some information about the restaurant owner's businesses. The article is available freely.
- Currency. The article is about two years old, which means it could be a bit dated in the fast-paced restaurant industry. But, its advice seems as applicable today as they were in 2012.
- Coverage. The article is completed; it is not particularly deep, but its length seems tailored to both the venue and its audience.

4. Making choices and exercising judgment

Students' answers may vary significantly since the point of these exercises is for them to think critically. Nevertheless, here are a few elements they might include in a discussion of Sebastian and Viola's IT needs.

- Spreadsheets. Commonly available and widely used, but they are not specifically designed for accounting tasks and can be cumbersome.
- General ledger software. Several choices are available and most accountants know how to use at least one or two. Choosing can be challenging.
- Tax preparation software. This tool can make the process of filing tax returns simpler, but it still requires significant recordkeeping.

5. Field exercises

Answers to these exercises will vary significantly. Although I'm not providing solutions to them, don't hesitate to share your students' work with me if they come up with an especially strong response.

6. Look up the following references online or in your school's library. Using the criteria and specific questions from the UMUC Web site referenced in the chapter, evaluate and discuss the quality of each reference. (Note: I found all these articles through ABI Inform; many of them may also be accessible on the publications' own web sites. I'm analyzing the first article in the list to demonstrate how to use the UMUC criteria.)

"Xelltec Reports Laptop Security Microchip." *Wireless News*, 25 February 2011.

Authority: This brief article is very weak in terms of authority, as its author is listed as "anonymous." Presumably, the article was written by someone at Xelltec.

Accuracy: The article appears to have no major errors of fact; however, it does not provide much in the way of facts since its main purpose appears to be publicity for the security microchip.

Objectivity: This article's main purpose is to advertise the security microchip; thus, it is not very objective. Note the last sentence, which states that the company is in the business of selling security devices.

Currency: The article was published in February 2011. Thus, its information is fairly current.

Coverage: As far as it goes, this article does an OK job of coverage. However, in the broader sense, its coverage is inadequate, since it does not compare the company's security microchip to other forms of IT security.

7. Terminology

1. E
2. H
3. D
4. C
5. G
6. F
7. J
8. B
9. I
10. A

8. Multiple choice questions

1. A
2. B
3. B
4. B
5. C

9. Statement evaluation

a. sometimes true. Data can be stored either electronically, on paper or both. When data are stored electronically, they might be stored on a disk, on a flash drive, on a network or in some other medium.

b. never true

c. always true

d. sometimes true. If information found on the Internet meets established criteria, such as those suggested by UMUC, it can be very reliable.

e. always true

f. always true

g. sometimes true. Whether internal and external users can use the information depends on a number of factors, including the type of information and the sophistication / background of the users themselves.

h. never true

i. sometimes true. Source documents can be paper-based; they can also be, and increasingly are, electronic.

j. sometimes true. Some questions in AIS have a single correct answer, such as "what is the journal entry to record the purchase of inventory on account in a perpetual system." On the other hand, many questions in AIS have more than one good answer, such as when someone evaluates the suitability of information.

10. Excel application

RRP Corporation		
Trial balance		
31 December 2013		
Cash	$ 7,700	
Accounts receivable	6,100	
Inventory	8,000	
Supplies	200	
Equipment	9,100	
Accumulated depreciation--equipment		$ 5,800
Land	9,300	
Accounts payable		5,300
Deferred service revenue		800
Notes payable		6,400
Common stock		6,600
Additional paid-in capital		6,300
Treasury stock	1,700	
Retained earnings		15,860
Sales		6,810
Sales discounts	470	
Cost of goods sold	4,600	
Wages expense	6,000	
Depreciation expense	700	
Totals	$ 53,870	$ 53,870
Average balances	$ 4,897	$ 6,734
Largest balances	$ 9,300	$ 15,860
Smallest balances	$ 200	$ 800

11. Conceptual framework of accounting

a) comprehensive income
b) materiality
c) asset
d) economic entity
e) relevance
f) qualitative characteristics
g) expenses
h) consistency
i) purpose

j) matching

1. Reading review questions

a. In your own words, explain the similarities and differences between accounting and bookkeeping. Bookkeeping is the subset of accounting activities specifically concerned with recording transactions in the AIS, leading eventually to the production of the four general purpose financial statements. Although both accounting and bookkeeping require some elements of critical thinking, accounting probably requires more. In addition, the essential elements of bookkeeping can be mastered in a much shorter time than the entire body of knowledge in accounting.

b. What systems do accountants use to create and modify a chart of accounts? In general, most charts of accounts follow a block or hierarchical coding system. In block coding, similar items are coded similarly; for example, all current assets might have account numbers that start with "1." Hierarchical coding is good for more complex charts of accounts, and is a specialized form of block coding. In hierarchical coding, groups of digits have meaning. Such a system might be used in a business that has multiple product lines and / or multiple geographic locations.

c. What internal controls are common in the accounting cycle? Internal controls useful in completing the accounting cycle include: sequentially numbered documents, adequate supervision, training & education and separation of duties. In addition, the requirement that journal entries maintain the equality of debits and credits is also an internal control.

d. How is human judgment involved in the accounting cycle? Human judgment is required to recognize recordable transactions. To the extent that the accounting cycle involves estimates (as with depreciation and bad debts), human judgment is also important.

e. How has information technology been employed in the accounting cycle? Information technology is an important component of most modern accounting information systems; however, the technology is not the system. Common IT tools employed in the accounting cycle include: general ledger software, spreadsheets, relational databases and enterprise resource planning systems. Auditors can also use IT to sample transactions.

f. List and discuss the six common types of adjusting entries found in most accounting information systems. Accrued revenues occur when an organization provides goods or services in one accounting period, but does not bill clients in that same period. Accrued expenses, on the other hand, occur when an organization incurs an expense, but does not pay cash until a subsequent period. Prepaid expenses are assets purchased in one period that are used up over multiple accounting periods, while deferred revenues involve the receipt of cash in one period for work that will be performed in a subsequent period. Depreciation and bad debt adjustments both involve estimates.

g. Explain the purpose and structure of each general-purpose financial statement. AIS outputs associated with the accounting cycle include four general-purpose financial statements. The income statement, which includes revenues and expenses, reports the results of business activity on the accrual basis for a specified period of time. The statement of shareholders' equity tracks the changes in both paid-in capital and retained earnings, also for a period of time. The balance sheet embodies the accounting equation (assets = liabilities + equity), and reports financial position at a specified point in time. The statement of cash flows comprises three sections (operating, investing and financing), and reports the changes in cash for a specified period of time.

h. In a manner specified by your instructor (e.g., individually or with a group, as a written paper or as an oral presentation), prepare an original response to one or more of the questions for this chapter's "AIS in the Business World." As in previous editions, I've posted responses to each chapter's AIS in the Business World on my accounting information systems blog (www.bobhurtais.blogspot.com). Look for the 4th edition's responses in the 15 December 2014 post.

2. Multiple choice review questions

. Answers to all of these questions appear at the end of the textbook itself.

3. Reading review problem

a. How should Regal code its chart of accounts to facilitate financial reporting? Create account numbers for cash, capital stock and advertising expense for the following Regal theatres: Regal O'Fallon Stadium 14 (O'Fallon, Missouri), Regal Windward Stadium 10 (Kaneohe, Hawaii) and Regal Goldstream Stadium 16 (Fairbanks, Alaska). Regal should use some form of hierarchical coding for financial reporting purposes. A three-part code could be appropriate, where one set of digits denotes the state, a second set of digits denotes the specific theatre and a third set of digits denotes the specific account number. The latter should be block coded.

Using that system would yield the results shown below for the accounts and theatres noted. (The state code is based on an alphabetical listing of all 50 states. The theatre code is an assumption; so long as it's consistent within the same theatre, any two digits should be OK. The account code is based on a standard block system.)

- Regal O'Fallon Stadium 14
  - Cash: 25.01.101
  - Capital stock: 25.01.501
  - Advertising expense: 25.01.701

- Regal Windward Stadium 10
  - Cash: 11.01.101
  - Capital stock: 11.01.501
  - Advertising expense: 11.01.701
- Regal Goldstream Stadium 16
  - Cash: 02.01.101
  - Capital stock: 02.01.501
  - Advertising expense: 02.01.501

b. Suggest three source documents Regal would use to complete the steps in the accounting cycle. To pay its bills, Regal would use checks. It would use invoices as the basis for writing those checks. Credit card / receipts for cash would be used for things like ticket and concession sales.

c. What journal entries would Regal make to record the transactions indicated above? Selling tickets: Debit Cash, Credit Sales. Paying employees: Debit Wages Expense, Credit various liability accounts for withholdings, Credit Cash for net pay. Purchasing snack foods: Debit Snack Foods Inventory, Credit Accounts Payable. Advertising new films: Debit Advertising Expense, Credit Accounts Payable. Declaring dividends on its capital stock: Debit Retained Earnings, Credit Dividends Payable.

d. What roles would human judgment and information technology play in Regal's transaction processing activities? Human judgment would be important in deciding when and how much to pay in dividends, as well as in choosing which films to show in which theatres. Information technology would allow Regal to send and receive data electronically from its various theatres, as well as to produce financial statements quickly and easily.

4. Making choices and exercising judgment

Students' answers may vary significantly since the point of these exercises is for them to think critically. Here are a few notes as a guide.

a. Recordable transactions are I and IV.
b. Principles-based accounting will probably not impact the design of the AIS at all, since it focuses more on judgment in recording transactions and reporting information. The steps in the accounting cycle are unlikely to change.
c. Students could calculate any of a variety of ratios, prepare common-size statements or use other techniques.

5. Field exercises

Answers to these exercises will vary significantly. Although I'm not providing solutions to them, don't hesitate to share your students' work with me if they come up with an especially strong response.

6. Journal entries

a	Cash	$ 1,750,000	
	Capital stock		$ 50,000
	Additional paid-in capital		1,700,000
b	Accounts receivable	10,000	
	Sales		10,000
c	Supplies	3,000	
	Accounts payable		3,000
d	Utility expense	1,500	
	Cash		1,500
e	no entry required		
f	Wages expense	$ 6,000	
	Cash		$ 6,000
g	Equipment	50,000	
	Cash		10,000
	Notes payable		40,000
h	Cash	5,000	
	Accounts receivable		5,000
i	Accounts payable	1,400	
	Cash		1,400
j	Interest expense	400	
	Interest payable		400

7. Adjusting entries.

a	Depreciation expense	$ 1,000	
	Accumulated depreciation		$ 1,000
b	Interest expense	100	
	Interest payable		100
c	Wages expense	1,000	
	Wages payable		1,000
d	Deferred fees	300	
	Sales		300
e	Supplies expense	650	
	Supplies		650
f	no entry		
g	Bad debt expense	160	
	Allowance for bad debts		160

GLP Corporation		
Adjusted trial balance		
September 30, 20x4		
Cash	$ 6,000	
Accounts receivable	2,500	
Allowance for bad debts		$ 360
Inventory	4,500	
Supplies	150	
Equipment	15,000	
Accumulated depreciation		11,000
Accounts payable		1,200
Wages payable		1,000
Interest payable		100
Notes payable		6,000
Deferred fees		600
Capital stock		7,000
Additional paid-in capital		8,000
Retained earnings		11,000
Sales		16,300
Cost of goods sold	13,500	
Advertising expense	5,000	
Wages expense	13,000	
Interest expense	100	
Depreciation expense	1,000	
Supplies expense	650	
Bad debt expense	160	
Miscellaneous expense	1,000	
Totals	$ 62,560	$ 62,560

8. Financial statements.

GLP Corporation		
Income statement		
For the quarter ended September 30, 20x4		
Sales		$ 16,300
Cost of goods sold		13,500
Gross profit		$ 2,800
Expenses:		
Advertising expense	$ 5,000	
Wages expense	13,000	
Interest expense	100	
Depreciation expense	1,000	
Supplies expense	650	
Bad debt expense	160	
Miscellaneous expense	1,000	20,910
Net loss		$ (18,110)

GLP Corporation		
Balance sheet		
As of September 30, 20x4		
Assets		
Cash		$ 6,000
Accounts receivable (net)		2,140
Inventory		4,500
Supplies		150
Equipment (net)		4,000
Total assets		$ 16,790
Liabilities & equity		
Accounts payable	$ 1,200	
Wages payable	1,000	
Interest payable	100	
Notes payable	6,000	
Deferred fees	600	$ 8,900
Capital stock	$ 7,000	
Additional paid-in capital	8,000	
Retained earnings (deficit)	(7,110)	7,890
Total liabilities & equity		$ 16,790

9. Coding systems

a. mnemonic
b. sequential
c. sequential
d. hierarchical
e. sequential
f. hierarchical
g. block
h. block
i. block
j. block

10. Terminology

1. F
2. D
3. C

4. B
5. I
6. G
7. A
8. H
9. E
10. J

11. Multiple choice questions

1. B
2. A
3. C
4. B
5. D

12. Statement evaluation

a. never true
b. sometimes true. The adjusting entry for an accrued liability is an example.
c. always true
d. sometimes true. The complexity of the chart of accounts will help determine which system to use.
e. never true
f. sometimes true. The statement describes an accrued revenue adjustment; the term “accrual” could also be used for an accrued expense.
g. never true
h. always true
i. sometimes true. Block coding facilitates closing entries, but not all automated AIS use block coding.
j. always true

13. Excel application

Equipment basis	$ 65,000		
Salvage value	3,000		
Estimated life	5		
TPL Corporation			
Equipment depreciation schedule			
Straight-line			
Year	**Depreciation expense**	**Accumulated depreciation**	**Book value**
1	$12,400	$12,400	$52,600
2	12,400	24,800	40,200
3	12,400	37,200	27,800
4	12,400	49,600	15,400
5	12,400	62,000	3,000
TPL Corporation			
Equipment depreciation schedule			
SYD			
Year	**Depreciation expense**	**Accumulated depreciation**	**Book value**
1	$20,667	$20,667	$44,333
2	16,533	37,200	27,800
3	12,400	49,600	15,400
4	8,267	57,867	7,133
5	4,133	62,000	3,000

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Chapter 3: Internal control

1. Reading review questions

a. What is internal control? Why is internal control important in organizations? Internal control is a system of policies and procedures designed to help an organization run more efficiently and effectively. Without strong internal control, an organization is much more susceptible to various forms of risk which can compromise its operations and its financial reporting.

b. What are the four basic purposes of internal control? Give an example of each one. Internal control helps an organization safeguard its assets, such as by keeping inventory in a physically secure location. It also ensures reliable financial reporting, such as through internal and independent audits. A third purpose of internal control is to promote operating efficiency, which can be accomplished via strong separation of duties. Finally, internal control should also encourage compliance with management directives, possibly through a well-written procedures manual.

c. List and discuss four broad categories of organizational risk exposures. For each broad category, suggest two examples. Brown's risk taxonomy identifies four risk exposure categories: financial risk (running out of money, decreases in stock price), operational risk (accountants making mistakes in recording journal entries, computer viruses), strategic risk (expanding into new markets without sufficient preparation, violating laws like the Foreign Corrupt Practices Act) and hazard risk (violating laws like the Sarbanes-Oxley Act or RICO statutes).

d. What is COSO? Why is the work of COSO important in internal control? COSO is an acronym for the Committee of Sponsoring Organizations of the Treadway Commission on Fraudulent Financial Reporting. Comprising five accounting organizations, COSO has published several documents related to enterprise risk management and internal control. Their internal control framework has been widely applied as organizations respond to the requirements of the Sarbanes-Oxley Act of 2002.

e. Prepare a response to the questions for this chapter's "AIS in the Business World." As in previous editions, I've posted responses to each chapter's AIS in the Business World on my accounting information systems blog (www.bobhurtais.blogspot.com). Look for the 4th edition's responses in the 15 December 2014 post.

2. Multiple choice review questions. Answers to all of these questions appear at the end of the textbook itself.

3. Reading review problem

a. What is internal control? According to COSO, internal control is "a process, effected by an entity's board of directors, management and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in the following categories: effectiveness and efficiency of operations, reliability of financial reporting and compliance with applicable laws and regulations.

b. Explain the importance of COSO's 2013 Internal Control—Integrated Framework in establishing strong internal control. The COSO framework gives organizations some guidance in developing an internal control system. It lays out the pieces of that important task in a comprehensive, yet detailed way. Additionally, many organizations use the framework as part of SOX compliance.

c. Consider the following risk exposures at Enron: insufficient cash for operations, fraudulent accounting, too close a relationship with auditors, declines in stock price. For each risk exposure, indicate the relevant category of the Brown taxonomy; suggest at least one internal control to address the risk.

Risk	Category	Internal control
Insufficient cash for operations	Liquidity risk	Prepare an annual cash budget to estimate needs
Fraudulent accounting	Legal & regulatory risk	Establish an independent internal audit function to review transactions
Too close a relationship with auditors	Business strategy risk	Enforce the corporate code of conduct regarding conflicts of interest
Declines in stock price	Market risk	Monitor stock price daily via some automated system

4. Making choices and exercising judgment

Students' answers may vary significantly since the point of these exercises is for them to think critically. Here are some notes on possible responses:

a. Alphabet Soup Consulting: establish and enforce a policy that prohibits Richard's actions. Gary & Dan: Store blank checks more securely. Southern State University: set a time limit on initial passwords, after which they must be created again if not used. Village Bookstore: Institute periodic inventory counts.

b. Risks include: insufficient cash for operations, inability to attract enough business, hiring employees with insufficient experience / qualifications, locating in an area where competition is heavy, information system breakdowns.

5. Field exercises

Answers to these exercises will vary significantly. Although I'm not providing solutions to them, don't hesitate to share your students' work with me if they come up with an especially strong response.

6. Internal control has four basic purposes: safeguarding assets, ensuring financial statement reliability, promoting operational efficiency, and encouraging compliance with management's directives. Consider each of the internal control procedures described below. For each procedure, indicate which purpose(s) of internal control it is designed to address.

a. safeguarding assets
b. promoting operating efficiency, encouraging compliance with management directives
c. safeguarding assets, promoting operating efficiency
d. safeguarding assets, encouraging compliance with management directives
e. all four purposes
f. ensuring financial statement reliability, promoting operating efficiency
g. safeguarding assets
h. safeguarding assets, promoting operating efficiency
i. safeguarding assets, ensuring financial statement reliability
j. safeguarding assets, promoting operating efficiency

7. Visit the web site of the Wild Cat Zoo in southern California (www.cathouse-fcc.org). Classify each of the following risks using Brown's taxonomy. Also suggest one or more internal controls to address each risk. For each internal control you suggest, specify which broad purpose(s) of internal control it satisfies, as well as whether it is preventive / detective / corrective in nature. Explain your responses.

	Brown	Internal control	Purpose
a. The zoo fails to attract a sufficient number of visitors.	Liquidity risk	Established policy on marketing and advertising	Preventive
b. One or more animals get sick.	Legal & regulatory risk	Regular veterinary checkups	Preventive, detective
c. The zoo's web site becomes unavailable due to a computer virus.	Systems risk	Disaster recovery plan	Corrective
d. Promotional and educational literature contain errors of fact about the animals and the zoo's operating hours.	Human error	Independent review of promotional & educational literature	Detective, corrective
e. One of the animals escapes because a keeper fails to lock its cage securely.	Human error	Audible alarm	Detective
f. An employee falsifies his / her credentials to obtain a position as a veterinarian.	Human error	Background checks	Preventive, detective
g. The zoo's admission prices are prohibitively high for school groups.	Liquidity risk	Discounted pricing for school groups	Preventive
h. The zoo loses its 501(c)(3) status with the Internal Revenue Service.	Business strategy risk	Internal audits of activity vis-a-vis IRS requirements	Detective
i. The gift shop runs out of a popular souvenir item.	Liquidity risk	Ordering based on historic demand	Preventive
j. A disgruntled former volunteer attempts to set a fire at the zoo.	Liquidity risk	Insurance	Corrective

8. Do a Google search for the Fortune 100 companies. Choose two of the companies from the list and prepare a risk / control matrix similar to the one illustrated in the chapter. Include five to seven risks for each company you choose. Here is an example for Verizon Communications.

Risk	Risk category	Internal control	Internal control purpose	Comments
Falling stock prices	Market risk	Frequent stock price monitoring	Detective	Stock prices can be checked frequently with information technology.
Communication network failure	Systems risk	Built-in network redundancy	Preventive	Building in redundancy can be costly, but may be worth the money.
Losing customers to competing firms	Strategic risk	Periodic surveys of customers who switched	Detective	Surveys can be done electronically.
Customers fail to pay amounts owed	Credit risk	Checking customer credit before creating an account	Preventive	Customers can be required to provide a form of payment before they establish an account.
Fraud	Legal & regulatory risk	Regular fraud audits	Preventive, detective	These audits can sometimes be done by internal auditors.

9. In each of the following independent situations, identify internal control deficiencies and make suggestions regarding their correction/improvement

a. This company should take steps to make its inventory more secure, such as by keeping it in a locked storage area or implementing some form of video surveillance. In addition, the company should have a clear policy on the consequences of theft.

b. This company needs stronger separation of duties; the controller should not be able to order inventory and approve invoices for payment. Further, the company should set up a stronger policy requiring authorization for setting up new offices.

c. Terminated employees need to be removed from the information system immediately. The company could also discontinue paper checks, opting instead for electronic payments and direct deposit. Regular bank reconciliations would also be helpful.

10. MailMed Inc.

Risk	Control
The computer is installed on the ground floor behind plate glass windows.	Relocate the computer to a more secure location.
Documentation is developed only on a "time available" basis.	Develop systems documentation as a regular part of systems development and implementation.
The company backs up data "periodically."	Backups need to be regularly scheduled, preferably at least daily.
The computer equipment can be damaged by flooding.	Equipment needs to be insured and stored in a place that minimizes this risk.

11. Richards Furniture Company

a. What risks does Richards face? Sales staff could make errors or commit fraud by manipulating prices and discounts. The cashier could approve credit for customers that are not creditworthy. The manager could steal cash from the bank deposit.

b. If you were an unethical customer and/or employee of Richards, how could you defraud the company given their current procedures? Customers and / or employees could collude with the sales staff and cashier to falsify records.

c. What internal control strengths does the company possess? What risks are those strengths designed to address? Documents are sequentially numbered, thus addressing the risk that they will be misused. Cash is deposited daily in the bank, addressing the risk of theft. The bank account is reconciled monthly, also addressing the risk of embezzlement.

d. How could internal control be improved at Richards? Richards should establish a separate department in charge of authorizing credit. They should also have an independent party reconcile the bank statement more frequently. They could consider employee bonding, and also need a separate department for processing returns.

12. Price Right Electronics

a. Identify at least two internal control strengths of PEI's system. Indicate why each is a strength. The system is being developed and implemented gradually; doing so both enhances cash flow and helps ensure that software is matched to the organization's needs. Credit checking is done automatically; it is not in the hands of sales staff, who might be tempted to grant credit to customers who do not deserve it. The company has a separate department that evaluates credit for new customers, thus promoting objectivity in the process.

b. Identify at least three internal control weaknesses in PEI's system. Explain the nature of each weakness and recommend a way to address it. The system generates multiple copies of the sales order, but we have no idea how many copies, where they go or if they are sequentially numbered. That lack of control could lead to fictitious sales orders and should be addressed simply by incorporating all the above information.

Credit manager issues credit memos based on customer requests, reflecting weak separation of duties. Returned merchandise transactions should be handled independently.

We do not know what happens to returned merchandise. The Warehouse should receive some documentation indicating what merchandise is being returned so as to keep inventory records up to date.

The Warehouse, which has physical custody of inventory, should not be handling the recordkeeping for inventory (i.e., updating the inventory database). Such weak separation of duties could lead to inventory shrinkage. The database should be updated by personnel outside the Warehouse function.

Shipping and Receiving should be separated.

The Billing department should not be pricing the sales orders; in addition, pricing should take place before shipment. Sales orders should be priced automatically when the order is generated to improve internal control.

Billing prepares sales journals, but Accounts Receivable updates customer records directly from source documents. Such duplication of effort may lead to errors.

13. Terminology

1. G
2. A
3. C
4. H
5. I
6. J
7. B
8. D
9. F
10. E

14. Multiple choice questions

1. C
2. A
3. B
4. A
5. D

15. Statement evaluation

a. Sometimes true. The cost and time of an audit depends on the type of audit and many factors other than internal controls.

b. Always true.

c. Sometimes true. Having more than one person authorized to sign checks does not necessarily weaken internal control.

d. Always true.

e. Never true.

f. Sometimes true. Internal controls can also detect / correct fraud. In addition, even organizations with strong internal controls can be the victims of fraud.

g. Sometimes true. The importance of a given risk vis-a-vis other risks depends on the nature of the business.

h. Sometimes true. The cost of controls is not exclusively associated with the purpose of a control. For example, installing video surveillance equipment may be significantly less expensive than maintaining an internal audit staff.

i. Never true.

j. Sometimes true. Many things impact stock prices; in addition, internal control breaches are not always made public.

16. Excel application

t-Test: Two-Sample Assuming Equal Variances			
	Variable 1	*Variable 2*	
Mean	6310.526316	9440.947368	
Variance	319401.3743	3104316.275	
Observations	19	19	
Pooled Variance	1711858.825		
Hypothesized Mean Difference	0		
df	36		
t Stat	-7.37446613		
P(T<=t) one-tail	5.32946E-09		
t Critical one-tail	1.688297714		
P(T<=t) two-tail	1.06589E-08		
t Critical two-tail	2.028094001		
Conclusion: There is a significant difference between purchase orders			
processed in the first half vs the second half of the month. Therefore,			
an internal control breach may be occurring, and further investigation is			
necessary. Please note that the above results do not establish			
conclusive proof of anything, other than a difference in the means of			
the two groups.			

1. Reading review questions

a. What are the elements of COSO's enterprise risk management framework?
COSO's ERM framework comprises eight elements: internal environment, objective setting, event identification, risk assessment, risk response, control activities, information and communication, and monitoring.

b. What is business process management? List and discuss the steps managers often use to change a business process. Business process management, as the name implies, is a way organizations can make their business processes more effective and efficient. By doing so, organizations can create value for their stakeholders. The generalized model of BPM discussed in the chapter comprises seven steps: Select the process and define its boundaries. Observe document, and map the process steps and flow. Collect process-related data. Analyze the collected data. Identify and prioritize potential process improvements. Optimize the process. Implement and monitor process improvements.

c. List and discuss seven principles of business process management.
Eppele suggested seven principles to keep in mind in a BPM project:
Understand how business processes interact with / support organizational strategy. Move away from the "we've always done it this way" mentality. Enlist top management support. Managing business processes is fundamentally about people, not technology / documents. Don't rely on external consultants to the exclusion of internal employees. When using consultants, make sure the task is well defined, with specific deliverables defined by the company. Communicate early; communicate often.

d. What are the elements of expectancy theory? Give examples of each one.
Vroom suggested that motivation depends on three factors: expectancy, instrumentality and valence. Expectancy is the strength of someone's belief that effort will lead to accomplishment; for example, a student may believe that completing all their accounting homework will lead to passing the course. Instrumentality is the strength of someone's belief that achieving a goal will lead to a reward; for example, a student may believe that graduating with a 4.0 GPA will lead to a good job. Finally, valence is the extent to which a reward is valued; for example, a student may really want a good job.

e. In a format specified by your instructor, respond to the questions for this chapter's "AIS in the Business World." As in previous editions, I've posted responses to each chapter's AIS in the Business World on my accounting information systems blog (www.bobhurtais.blogspot.com). Look for the 4th edition's responses in the 15 December 2014 post.

2. Reading review problem

a. Use COSO's framework to develop an enterprise risk management plan for McDonald's corporate office. Ensure that the risks you identify are focused on the corporate office, not individual locations.

- Internal environment. In its quarterly earnings announcement conference, the CEO and CFO discuss the role ERM plays in McDonald's operations.
- Objective setting. One of the corporation's goals is to increase earnings per share by at least 1% annually.
- Event identification. Corporate profits may be insufficient to achieve that goal.
- Risk assessment. Moderate to high.
- Risk response. Accept, reduce.
- Control activities. Use data analytics and related tools to monitor profitability continuously. Take corrective actions as needed.
- Information and communication. McDonald's includes the broad structure of its ERM plan in its corporate annual report.
- Monitoring. The corporate internal audit department reviews the ERM plan annually and makes suggestions for its improvement.

b. The corporate office has many business processes, including establishing new franchises, paying dividends to shareholders and communicating with news agencies. Choose one of those processes and at least three of Eppele's basic principles of business process management. Explain how the process you chose should be aligned with the principles you chose.

- Process. Communicating with news agencies.
- Principle 1. Understand how business processes interact with / support organizational strategy.
- Alignment. In its communications with news agencies, McDonald's should emphasize its strategic plan whenever possible.
- Principle 2. Move away from the "we've always done it this way" mentality. Be open to alternatives.
- Alignment. McDonald's corporate communications department should explore uses of new social media tools to communicate with news agencies.
- Principle 3. Communicate early; communicate often.
- Alignment. The corporate office should plan a regular schedule of communications with news agencies, leaving room for "special communications" as the need arises.

c. Consider the process of establishing a new franchise from two perspectives: the person requesting the franchise and the McDonald's employee evaluating the application. In a format similar to Table 4.1 in the chapter, apply the elements of expectancy theory to explain each party's motivation.

Factor	Application from requestor's perspective	Application from corporate perspective
Expectancy	If I submit a good application, will it be approved?	If I make a recommendation on this application, will it be followed?
Instrumentality	If the application is approved, will I be able to start a successful franchise?	If my recommendation is followed, will I be rewarded in some way—perhaps with a pay bonus?
Valence	Do I value the rewards of such a franchise?	Do I value the pay bonus or other method of reward?

3. Multiple choice review questions. Answers to all of these questions appear at the end of the textbook itself.

4. Making choices and exercising judgment

Students' answers may vary significantly since the point of these exercises is for them to think critically. But, here are a few points students may raise in responding to the various parts of this problem.

a. Objective setting: Increase market share. Event identification: Competitors develop more innovative product offerings. Control activity: Invest more in research and development, as well as market research.

b. Data to collect: Cost of processing each expense reimbursement. Analysis tools: activity-based costing, spreadsheets. Suggestion for improvement: Automate the process for expenses below a specified threshold.

c. Expectancy: If AOL's corporate officers follow the recommendations, will they achieve a lower overall cost? Instrumentality: If they achieve a lower overall cost, will their stock price increase? Valence: Is a stock price increase important to them?

5. Field exercises

Answers to these exercises will vary significantly. Although I'm not providing solutions to them, don't hesitate to share your students' work with me if they come up with an especially strong response.

6. Enterprise risk management

Which element of the COSO ERM framework is most closely associated with each of the following?

a. ALG Corporation bonds key employees. Control activities

b. Based on previous experience, TRG Corporation's management believes the risk of inventory shortages is moderate. Risk assessment

c. BPC Corporation implements a profit sharing plan as a way to motivate managers to control costs. Control activities

d. BRN Corporation's board of directors hires a consultant to explain ERM. Internal environment

e. CNV Corporation's managers accept the risk of stock price decreases. Risk response

f. DTI Corporation holds quarterly staff lunches where employees discuss how they manage risk. Information and communication

g. EIV Corporation's president organizes monthly meetings for managers to discuss books and articles related to ERM. Internal environment

h. FLM Corporation operates manufacturing plants on three continents. Event identification

i. FPO Corporation follows a top-down model for strategic planning. Objective setting

j. HRP Corporation's internal audit department assesses and tracks the effectiveness of its ERM plan. Monitoring

k. Management at CNV Corporation determines the probability of a decrease in stock value is very high. Risk assessment

l. MGG Corporation occasionally hires a consultant to provide feedback on its ERM plan. Monitoring

m. RCH Corporation's enterprise risk management department prepares and distributes a monthly ERM newsletter. Information and communication

n. SSO Corporation reviews and revises its strategic plan annually. Objective setting

o. TRG Corporation's managers want to avoid inventory shortages. Risk response

p. WRL Corporation does not use data encryption in its wireless network. Event identification

7. Expectancy theory elements

Which element of expectancy theory is described in each of the following independent scenarios?

a. Anh completed the steps for licensure as a Certified Public Accountant and received a pay raise. Instrumentality. Achieving licensure (accomplishment) leads to reward (pay raise).

b. Claudia completed a BPM project early; her boss said she could either have extra time off or a small pay raise. Claudia chose the pay raise. Valence. Claudia values the pay raise over the time off.

c. Ethan put in many extra hours in January, and was pleased to be named "employee of the month." Instrumentality. Effort (extra hours) leads to reward (employee of the month).

d. Lupe believes her company's new general ledger software is too complex to master. Expectancy. Effort will not lead to accomplishment.

e. Mark changed his major from finance to accounting because he heard jobs are more plentiful in accounting. Valence. Mark values having a good job.

f. Richard has stopped suggesting business process improvements because his ideas are never implemented. Expectancy. Effort (suggestions) did not lead to accomplishment (ideas are never implemented).

8. Expectancy theory and employee motivation

In the previous problem, you identified one relevant element of expectancy theory. Consider each scenario again; "fill in" the other two elements. Here's an example: Expectancy: Anh studied hard and took a review course that enabled her to pass the CPA exam on her first attempt. Instrumentality: Anh completed the steps for licensure as a Certified Public Accountant and received a pay raise. Valence: Anh celebrated her pay raise with her family and close friends.

Case	Expectancy	Instrumentality	Valence
a	Anh studied hard and took a review course that enabled her to pass the CPA exam on her first attempt.	Anh completed the steps for licensure as a Certified Public Accountant and received a pay raise.	Anh celebrated her pay raise with her family and close friends
b	Claudia believed that completing the BPM project early would "get her noticed" by her boss.	Claudia believed that being noticed would result in some sort of reward.	Claudia chose the pay raise.
c	Ethan believed that putting in extra hours would go a long way toward being recognized as employee of the month.	Ethan put in extra hours and was named employee of the month.	Ethan was very proud to be named employee of the month.
d	Lupe believed the general ledger software was too complex to master.	Lupe believed that, even if she mastered the software, she wouldn't be rewarded for her effort.	Lupe was content with her present job, salary and responsibilities; she was not interested in any change to them.
e	Changing his major would lead to success in the new major.	Success in the new major would lead to a better job.	Mark values having a good job, so he changed majors.
f	Richard stopped making suggestions because his ideas were never implemented.	Even if his ideas were implemented, Richard was uncertain he would benefit.	Richard was happy as he was, and didn't want any changes in his position at work.

9. Business process management principles

Which of Eppele's seven principles is violated in each of the following independent cases? Justify your responses. (Each case may violate more than one principle.)

a. Amanda objected to her company's new approach to training because they had never used it before. Be open to alternatives.

b. Esther started a BPM project by looking for appropriate information technology tools. Managing business processes is fundamentally about people, not about technology or documents.

c. Eugene, an entry-level employee, implemented a new system for taking inventory. Understand how business processes interact with / support organizational strategy. Enlist top management support.

d. Jeff decided to change his company's purchasing process because their current process seemed too cumbersome. Understand how business processes interact with / support organizational strategy. Enlist top management support

e. Minh told the consultants for a BPM project to prepare and submit reports as they felt it appropriate. Don't rely on external consultants to the exclusion of internal employees. When using external consultants, make sure the task is well defined, with specific deliverables defined by the company.

f. Molly told employees that all their concerns would be addressed at the end of the BPM project. Communicate early; communicate often. Deal immediately with objections / issues as they arise.

g. Raul argued strongly that a proposed BPM project be managed by a consulting firm. Don't rely on external consultants to the exclusion of internal employees.

10. ERM plan

Here is an ERM plan for Verizon Communications:

COSO element	Verizon example
Internal environment	The CEO and CFO of Verizon conduct a webinar emphasizing the importance of risk management and giving an overview of upcoming activities.
Objective setting	One of Verizon's goals could be to increase its dividend payouts to shareholders.
Event identification	Verizon might have insufficient cash flow to increase its dividend payouts.
Risk assessment	The ERM team assesses the risk as moderate to high on both inherent and residual levels.
Risk response	Verizon might choose to reduce the risk of insufficient cash flow.
Control activities	One way to reduce the risk of insufficient cash flow is setting aside cash or other assets specifically to pay dividends.
Information and communication	The ERM plan would be publicized throughout Verizon, perhaps through another webinar.
Monitoring	Verizon might create a "risk management" department, specifically charged with monitoring the ERM plan.

11. Terminology

1. B
2. F
3. A
4. G
5. H
6. J
7. E
8. D
9. I
10. C

12. Multiple choice questions

1. B

2. C

3. C

4. D

5. C

13. Statement evaluation

1. Sometimes true. Depending upon the project / goal, someone outside the accounting department might be in the best position to determine valence.

2. Always true.

3. Always true.

4. Sometimes true. Not all BPM projects use information technology.

5. Never true.

6. Sometimes true. The usefulness of cost variances would depend on the nature of the BPM project.

7. Never true.

8. Sometimes true. Whether production workers are in the best position depends upon the BPM project.

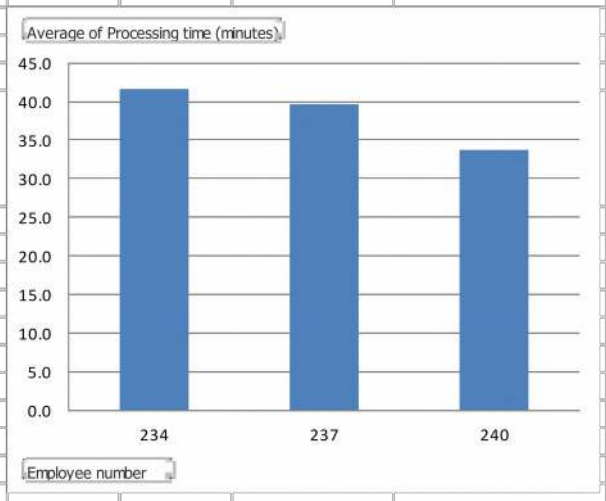
9. Never true.

10. Always true.

14. Excel application

Employee number	Processing time (minutes)
234	41
234	46
234	38
237	36
237	41
237	42
240	23
240	25
240	47
240	40

Row Labels	Average of Processing time (minutes)
234	41.7
237	39.7
240	33.8
Grand Total	**37.9**



1. Reading review questions

a. What are the steps in the systems development life cycle? What activities does each step involve? The systems development life cycle comprises the seven steps listed and described below:

- Initiation / planning: A need for a new / revised system is identified. This phase often involves feasibility studies.
- Requirements analysis: Analysts determine what needs the system should meet; data collection methods include surveys, interviews, observation and focus groups.
- Design: Designers develop the first "concept sketches" of the system.
- Build: Based on the design specifications, one or more systems professionals build the system.
- Test: Users test the system and provide feedback on what works and what doesn't work.
- Implementation: The system "goes live."
- Operations and maintenance: The system is operated and maintained, which includes needed modifications.

b. What are the costs and benefits of using the SDLC? The SDLC is a well-structured methodology that provides for plenty of user input. It can, however, be inflexible; changes may be difficult and expensive once the process is underway.

c. How can the SDLC be useful in accounting information systems? The SDLC can be used to design, create and implement an accounting information system or some part(s) of it. It can also be used to select off-the-shelf software.

d. What are the levels in the capability maturity model? What characteristics distinguish each level? The CMM comprises five levels, listed and described below:

- Chaotic: Processes lack cohesion; they may be specific to an individual who does not share them.
- Repeatable: Processes become more mature; they are developed and implemented according to a schedule, with major milestones indicated throughout.
- Defined: Processes are developed from broader organizational standards, rather than being viewed in isolation from one another.
- Managed: The efficiency and effectiveness of a process are measured through benchmarks and other standards.
- Optimized: An attitude of quality pervades the organization.

e. What factors should managers consider when choosing information technology resources? Managers should consider "big picture" issues such as organizational need, strategic fit, personnel involvement and financing methods. They should also consider factors more closely related to individual projects, such as cost, adaptability, training requirements and vendor reliability.

f. Prepare a response to the questions for this chapter's "AIS in the Business World." As in previous editions, I've posted responses to each chapter's AIS in the Business World on my accounting information systems blog (www.bobhurtais.blogspot.com). Look for the 4th edition's responses in the 15 December 2014 post.

2. Reading review problem

a. Use the steps in the systems development life cycle (SDLC) to explain how a company like Amazon, Apple or some other firm would develop a product or service to compete with the Google product you chose.

- Initiation / planning. Amazon believes there is a need for it to develop its own blogging tool, similar to Google's Blogger.
- Requirements analysis. Through an analysis of Blogger and market research, Amazon determines the desired characteristics of a blogging tool.
- Design. Amazon uses the requirements analysis to create screen layouts of the tool.
- Build. After feedback from potential users, Amazon develops a prototype.
- Test. Amazon gives the prototype to a small group of potential users. They provide feedback and Amazon makes changes.
- Implementation. Amazon "rolls out" its new tool, probably with a large comprehensive advertising campaign.
- Operations and maintenance. A dedicated team of Amazon employees responds to user concerns and suggestions for improvement.

b. Does using the SDLC correspond to any particular level of the capability maturity model (CMM)? Why, or why not? Using the SDLC does not correspond to any particular level of the CMM. The SDLC is a fairly generic process; the CMM classifies business processes based on a particular organization. For example, if only one user in an organization used the SDLC, the process might be considered chaotic. On the other hand, if it was more widely used in a standardized way, the process would likely be more mature.

c. Consider at least one macro-level and one micro-level factor from Figure 5.3 in the context of the product / service you suggested in (a). Prepare a short written summary and / or oral presentation relating the factors to your product / service.

- Need (macro-level factor). Is there a market need for a new blogging tool?
- Training (micro-level factor). Will customers be able to use the new tool effectively with minimal training? If more extensive training is needed, how will Amazon provide it?

3. Multiple choice review questions. Answers to all of these questions appear at the end of the textbook itself.

4. Making choices and exercising judgment

Students' answers may vary significantly since the point of these exercises is for them to think critically. Here are a few points they may raise in responding to each question.

a. If an organization does not already have a culture of continuous improvement, it may be difficult to reach the "optimized" level of the CMM. Even previous levels produce some benefits, such as consistency over time.

b. With general ledger software, a company could: (1) produce general purpose financial statements, (2) prepare an aging of accounts receivable, (3) monitor payables due dates to take advantage of any discounts.

c. The first FTP software in the list on Download.com is JasFTP. If the factors are ease of use (10), cost (9) and cross-platform utilization (6) and its scores are 8, 6 and 7 respectively, its score using the weighted rating technique would be 176.

5. Field exercises

Answers to these exercises will vary significantly. Although I'm not providing solutions to them, don't hesitate to share your students' work with me if they come up with an especially strong response.

6. Capability maturity model classification

a. Repeatable—Alastor sets a goal, so he is engaging in some planning that may result in consistency over time.

b. Managed—The process is measured in terms of time and money. This process is not optimized because the president focuses on just one of the three projects.

c. Optimized—Monthly meetings focused on process improvement indicate it is ingrained in the organization.

d. Repeatable—Each day, Christina sets a goal by deciding how many clients she will contact.

e. Chaotic—The two people disagree about the best way to build a doghouse, likely leading to each one doing it in the way that seems best to them.

f. Managed—Magdy compares the actual capital structure with the optimal capital structure (a form of measurement).

g. Optimized—The company has an overall quality improvement plan.

h. Chaotic—Sebastian had no legitimate methodology for hiring a new employee.

i. Defined—The payroll manager is acting in accordance with broader organizational policies.

j. Defined—Management seeks to understand relationships.

7. Systems development life cycle

a. Build—Dolores is actually creating the database tables.

b. Operations and maintenance—Answering questions is an element of operating the system.

c. Design—Esther is thinking conceptually about the form.

d. Test—Liliane is working with simulations.

e. Requirements analysis—The DFDs are used as a basis for discussing the sales / collection process with sales staff.

f. Initiation / planning—Tony has identified a goal / need.

g. Implementation—The system has been implemented using a direct cutover methodology.

8. Requirements analysis

a. Questions to ask as part of requirements analysis might include: What don't you like about the current system? How comfortable are you working with computers? How often do you need to consult the current inventory tracking system? Do you need to track inventory from remote locations? How many kinds of inventory should the system track?

b. Questions to ask as part of requirements analysis might include: How many appointments do you usually take in a day? How comfortable are you working with computers? What problems are you experiencing with the paper-based system? Does anyone schedule appointments for you other than you? How much would you be able to budget for this project?

9. AICPA Top Technology Initiatives

The AICPA develops the list based on surveys of its members. The 2013 United States list includes:

- Managing and retaining data
- Securing the IT environment
- Managing IT risks and compliance
- Ensuring privacy
- Managing system implementation
- Preventing and responding to computer fraud
- Enabling decision support and analytics
- Governing and managing IT investment and spending
- Leveraging emerging technologies
- Managing vendors and service providers

10. Terminology

1. I
2. G
3. H
4. B
5. C
6. F
7. D
8. J
9. A
10. E

11. Multiple choice questions

1. A
2. D
3. D
4. A
5. D

12. Statement evaluation

1. Sometimes true. The SDLC is one alternative for systems development; in some cases, it may be the best.

2. Never true.

3. Always true.

4. Always true.

5. Always true.

6. Sometimes true. While organizations should try to move through the CMM on an organization-wide basis, that doesn't always happen. Thus, processes in two different departments can be at two different levels.

7. Sometimes true. Organizations can skip levels of the CMM, although doing so isn't a really good idea most of the time.

8. Always true.

9. Sometimes true. The "managed" stage focuses on both defining and measuring. ABM can be used for those purposes, but it isn't always.

10. Never true.

13. Excel application

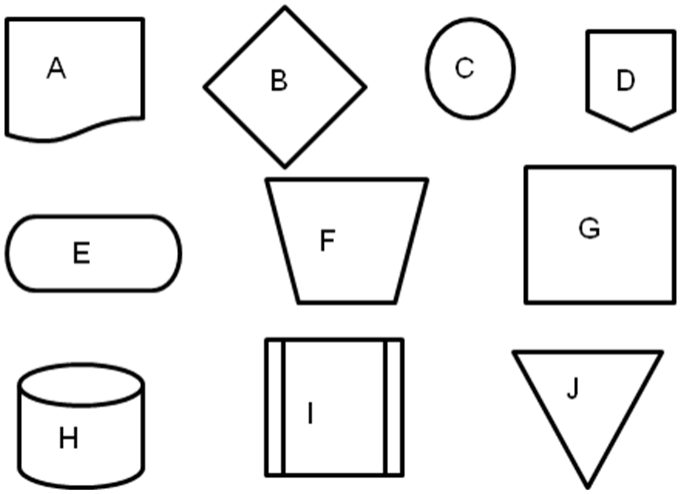
Software cost	$ 80,000		**Year**	**Cash flow**
Additional revenue generated annually	12,000		0	$ (80,000)
Annual cost savings	6,000		1	18,000
Anticipated life of the software	5		2	18,000
Discount rate	3%		3	18,000
			4	18,000
			5	18,000
Net present value	$2,364			
Internal rate of return	4%			
The numerical results are an indicator that AGN should buy the software.				
However, they should only be used as a guide, not as an absolute.				

1. Reading review questions

a. What is a flowchart? Describe four different kinds of flowcharts and explain which are most often used in an accounting information system. A flowchart is one form of systems documentation used in accounting information systems. Flowcharts come in at least four varieties: systems (give a "big picture" look at a business process), document (show the flow of a document through a system), hardware (map the hardware components of a system along with their relationships to one another) and program (describe the rules and logic of a specific computer program). Systems flowcharts are widely used in AIS, with document and hardware flowcharts being used occasionally. Program flowcharts are rarely used in AIS work.

b. Summarize the rules and conventions commonly observed in the preparation of flowcharts. The conventions associated with flowcharting are meant to facilitate reading and interpretation. Flowcharts should be read from top to bottom and left to right; they should not be crowded. They should be organized in columns based on areas of responsibility, and should always have a complete title. Documents in a flowchart should always have clear points of origin and termination.

c. List and explain the meaning and use of 10 common flowcharting symbols. What sources would you consult for learning about additional symbols not on your list? The illustration below depicts common flowcharting symbols discussed and used throughout the text.



Symbol A is a document symbol, commonly used for items like purchase orders and sales invoices. Symbol B is a decision symbol; it should be used for decisions that have a binary outcome (yes or no). Symbols C and D are connectors; the former is an on-page connector, the latter is an off-page connector. Symbol E is a terminator; it should be used at the beginning and end of a flowchart. Symbol F is a manual process symbol, while Symbol G is a generic process symbol. Symbol H represents an electronic database. Symbol I is a predefined process symbol. Finally, Symbol J is a

manual file symbol. Additional symbols can be found in a variety of software packages and online.

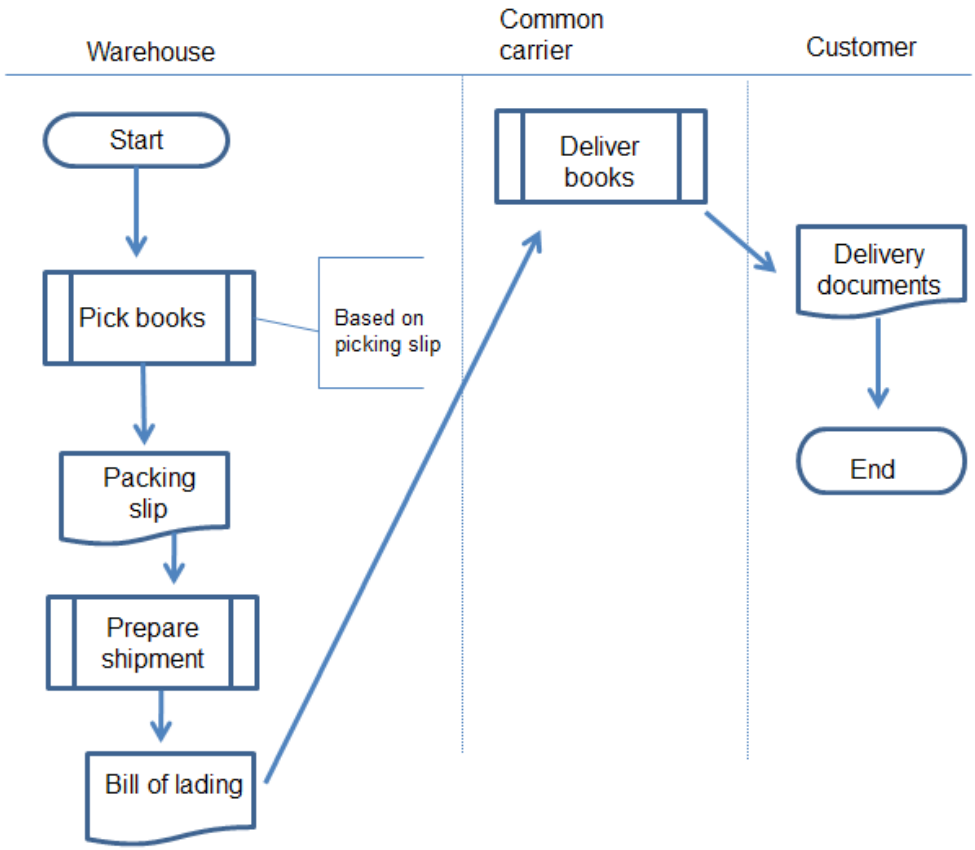
d. How are flowcharts used in working with accounting information systems?
Flowcharts can be used to understand how a business process works. They can also be used to spot internal control deficiencies and to recommend business process improvements.

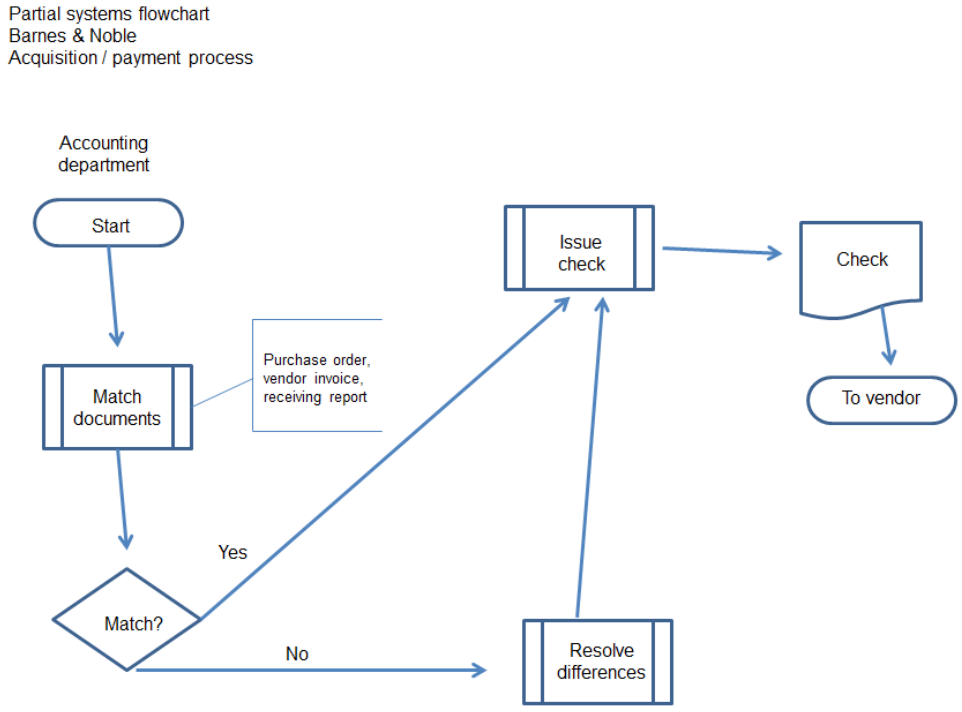
e. Respond to the questions for this chapter's "AIS in the Business World."
As in previous editions, I've posted responses to each chapter's AIS in the Business World on my accounting information systems blog (www.bobhurtais.blogspot.com). Look for the 4th edition's responses in the 15 December 2014 post.

2. Reading review problem

a. Prepare flowcharts of the steps described above—one flowchart for the sales / collection steps and a separate one for the acquisition / payment steps.

Partial systems flowchart
Barnes & Noble
Sales / collection process





b. Explain how you would use the flowcharts you created and / or those illustrated in the chapter as an independent auditor for Barnes & Noble and / or as the bookstore's director of training and development.

Independent auditors would use the flowcharts for at least two purposes: to understand the business process depicted and as one tool to evaluate internal controls. The director of training and development would likely use the flowcharts to teach employees about how business processes function at Barnes & Noble.

c. List and discuss at least two internal control strengths / weaknesses based on the flowcharts you created.

There is some separation of duties in both processes, although it could be stronger. Additionally, there is no mention of insuring the goods with the common carrier. Document matching before paying a vendor invoice is a strength, but the process for resolving discrepancies could be more detailed.

3. Multiple choice review questions. Answers to all of these questions appear at the end of the textbook itself.

4. Making choices and exercising judgment

Students' answers may vary significantly since the point of these exercises is for them to think critically. Here are some points students may include in their responses:

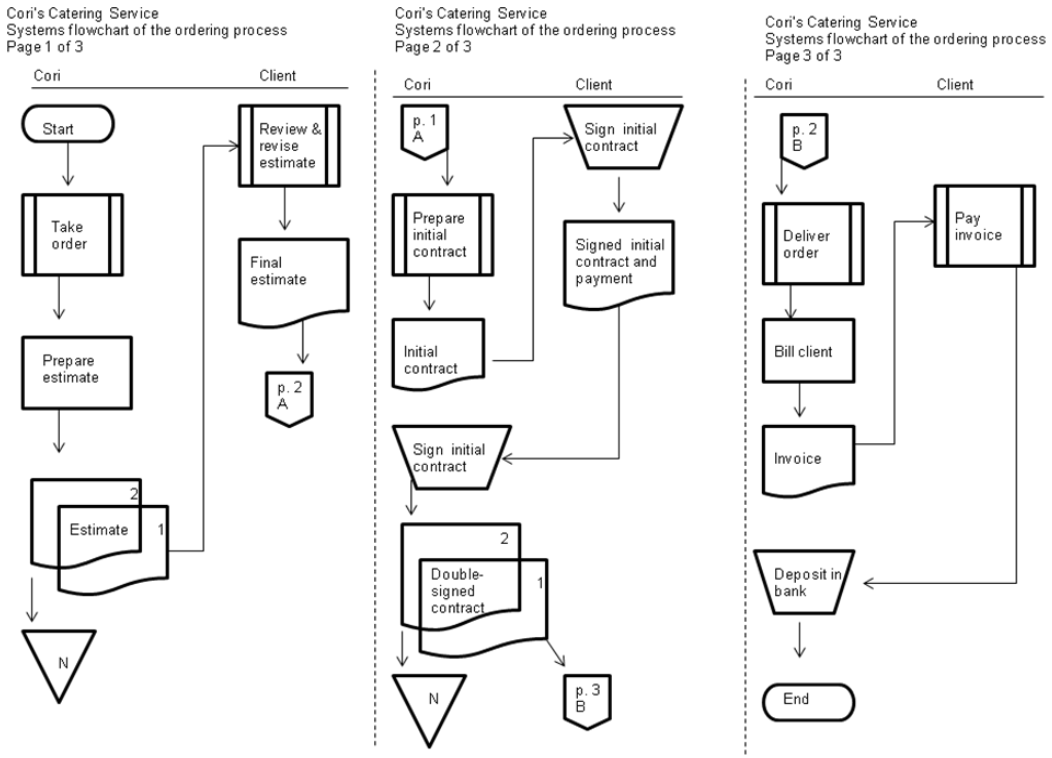
> SmartDraw is relatively easier to learn and use than Visio. Visio has the advantage (or disadvantage, depending on your perspective) of being part of Microsoft Office, so users will have some familiarity with its interface. Visio is also more expensive than SmartDraw.

5. Field exercises

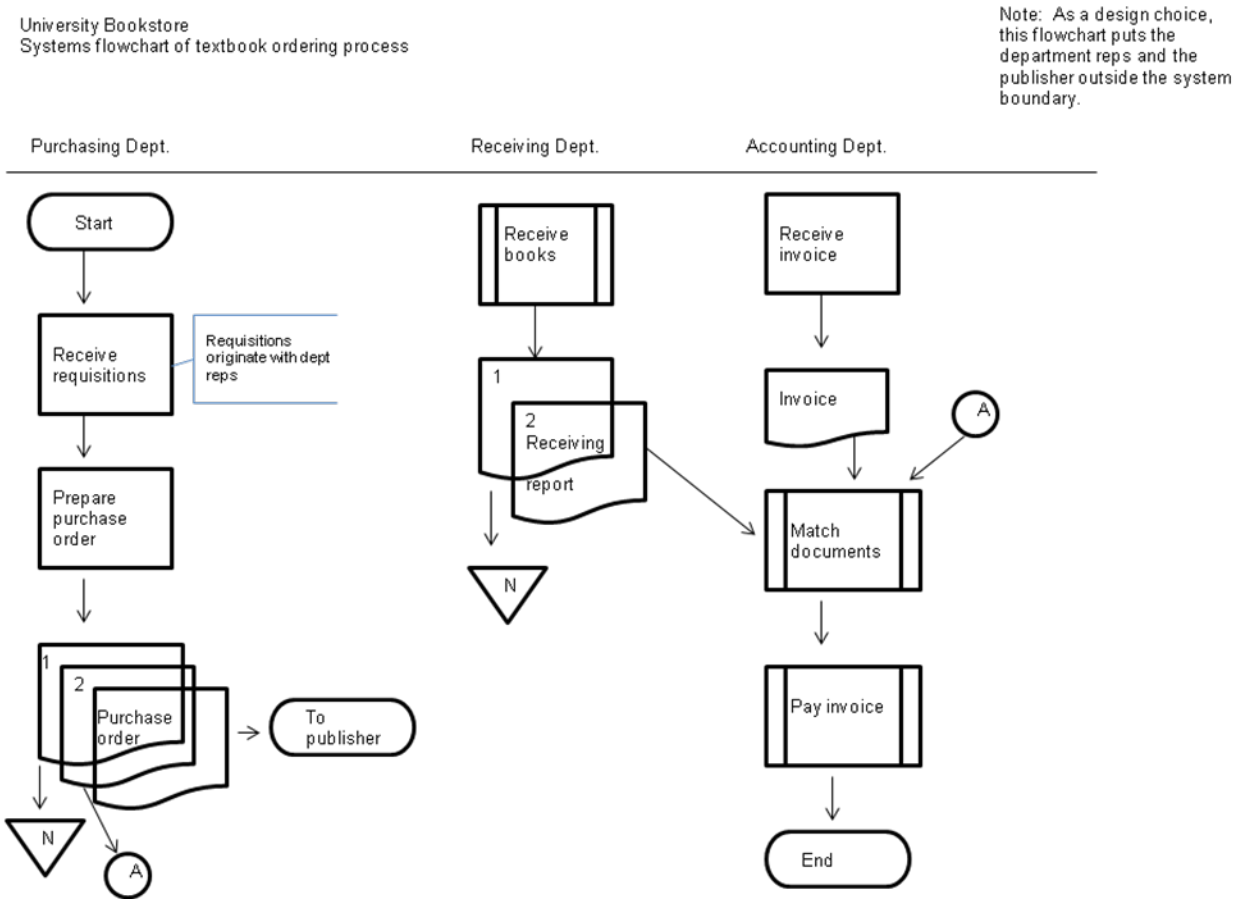
Answers to these exercises will vary significantly. Although I'm not providing solutions to them, don't hesitate to share your students' work with me if they come up with an especially strong response.

6. Flowchart creation

a. Cori's Catering Service

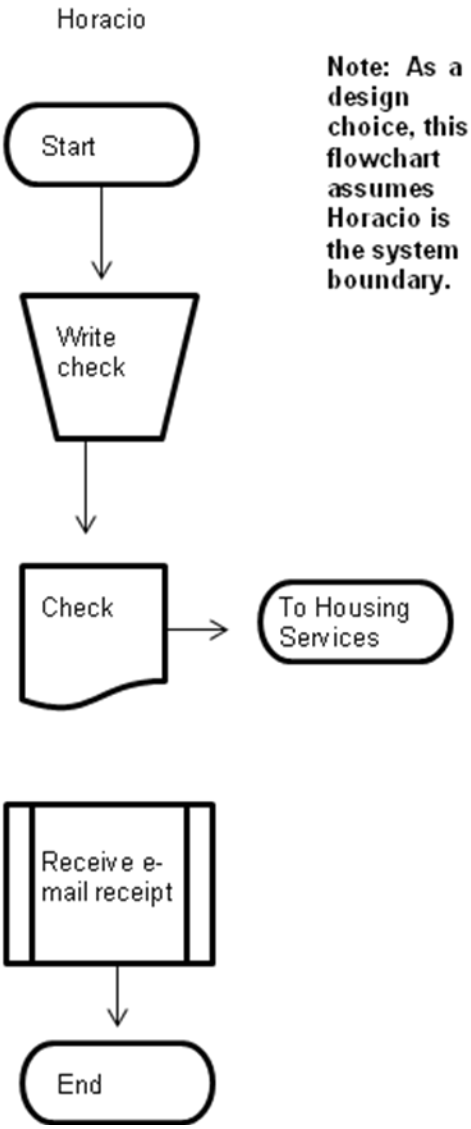


b. University Bookstore



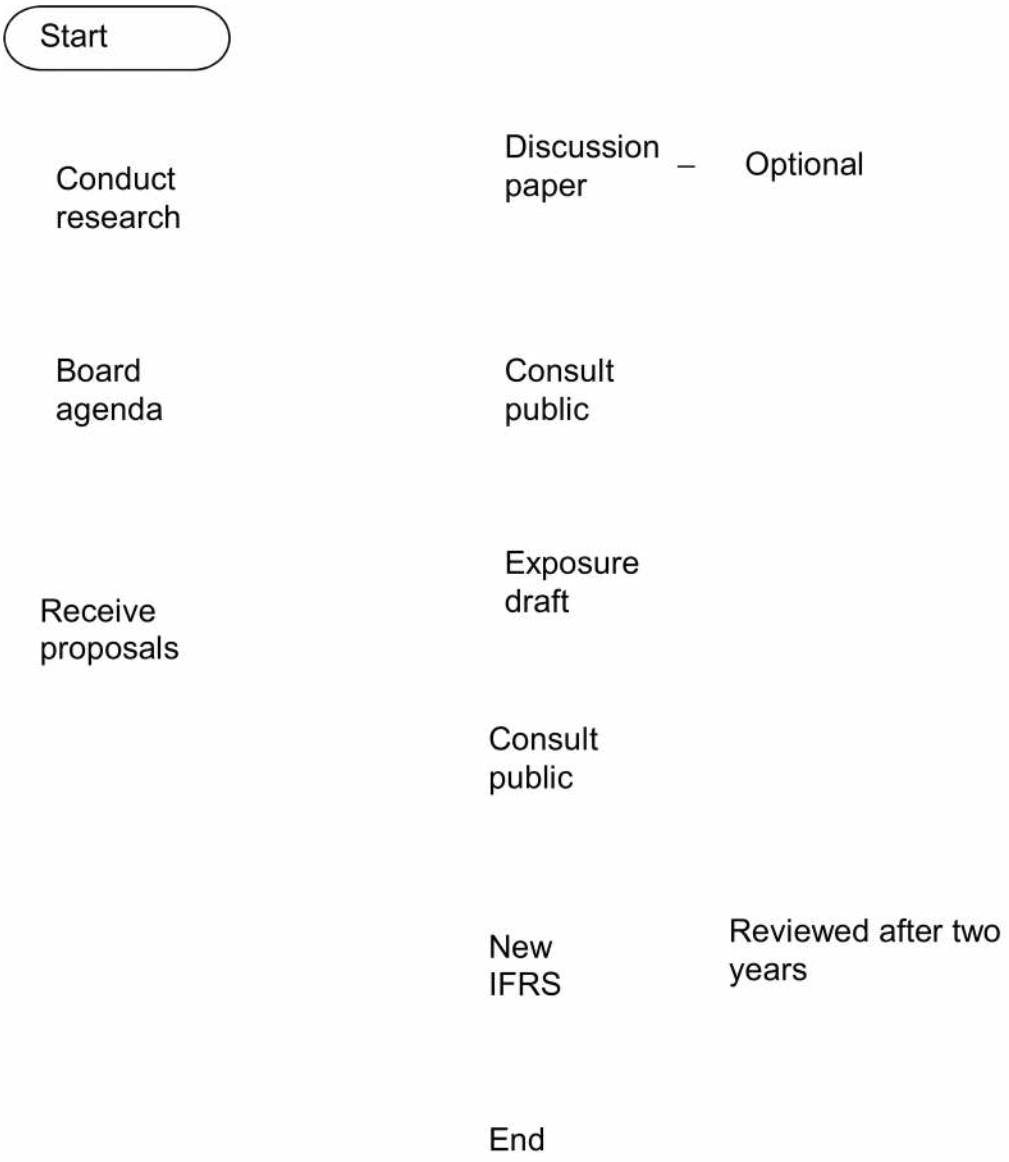
c. Horacio

Horacio
Systems flowchart of rent payment process



d. International Accounting Standards Board

International Accounting Standards Board
Systems flowchart of the standard development process



7. Narrative preparation from a flowchart

a. A salesperson for Richards Furniture Company manually prepares a sales invoice with four copies. The salesperson keeps one, and sends the other three to the cashier. The cashier approves and processes the sale; the invoice copies are distributed to the customer, the cashier's file and the assistant manager. After approving the sale, the cashier assigns a consecutive transaction number and inputs the sale to the cash register. The assistant manager reconciles the cash register tape to the invoices. Someone (probably the manager) prepares, makes and reviews the bank deposit.

b. A customer at PriceRight Electronics submits an order to the marketing department, where it is input to the sales order system. Copies of the sales order go to the customer and the warehouse; the warehouse assembles the order. The credit department checks credit for new customers only. The warehouse, after assembling the order, sends a copy to the shipping and receiving department, where the order is packed and shipped. An additional copy of the sales order goes to the customer. The warehouse also maintains the inventory master file.

8. Flowchart and system critiques

a. Strengths of the flowchart: The flowchart is organized in columns depicting areas of responsibility. Some of the symbols are used correctly. Weaknesses of the flowchart: It does not include a proper heading, nor does it include appropriate terminator symbols. Strengths of the process depicted: Cash is deposited in the bank, although we cannot tell how often. Bank deposit documents are filed in case they are needed for later reference. Weaknesses of the process depicted: The cashier should not be approving the sale; as an improvement, a separate department should perform that function. The process of preparing the reconciled report, as well as its content, is very jumbled and confused; Richards should develop a stronger, more cohesive process to improve internal control.

b. Strengths of the flowchart: The flowchart is organized in columns depicting areas of responsibility. Some of the symbols are used correctly. Weaknesses of the flowchart: The lines do not have arrows, so it is impossible to tell which direction things are flowing. The system boundary is also poorly defined; the flowchart includes both information on the sales order process AND on the maintenance of the inventory master file. Strengths of the process depicted: The company maintains a master file of customer credit limits. Credit is checked and approved by the credit department, although not nearly often enough. Weaknesses of the process depicted: The credit department should check everyone's credit—not just new customers. The sales order serves far too many purposes; the company should develop and use additional documents for things like packing and shipping.

9. Terminology

1. J
2. C
3. H
4. G
5. D
6. I
7. B
8. F
9. A
10. E

10. Multiple choice questions

1. B
2. A
3. B
4. C
5. A

11. Statement evaluation

1. Always true

2. Sometimes true. Document flowcharts are focused on documents; other flowchart types have a different focus.

3. Sometimes true. Off-page connectors may be needed if a flowchart is long or complex.

4. Never true.

5. Sometimes true. In most cases, flowcharts will require revision when processes change.

6. Always true

7. Always true

8. Never true.

9. Sometimes true. Although possible, this situation is highly unlikely.

10. Sometimes true. Visio is sometimes the best tool, but not always.

12. Excel application

Flowchart skill rank	Employee ID	Start date
1	131	2/11/2008
2	197	3/19/2009
3	112	4/17/2009
4	293	5/20/2009
5	117	11/5/2008
6	205	10/9/2007
7	137	11/5/2007
8	135	6/18/2009
9	195	12/28/2008
10	278	12/1/2008
11	237	9/14/2007
12	133	2/18/2009
13	178	10/10/2008
14	231	7/11/2008
15	128	5/4/2008
16	186	4/7/2008
17	100	6/8/2008
18	165	3/7/2008
19	245	1/8/2008
20	103	9/11/2008
21	174	12/4/2007
22	235	1/22/2009
23	129	8/18/2007
24	198	7/19/2009
25	196	8/11/2008
Highest skill rank	131	

Time with TNG	Employee ID	Start date
4.51	198	19-07-2009
4.59	135	18-06-2009
4.67	293	20-05-2009
4.76	112	17-04-2009
4.84	197	19-03-2009
4.93	133	18-02-2009
5.00	235	22-01-2009
5.07	195	28-12-2008
5.14	278	01-12-2008
5.21	117	05-11-2008
5.28	178	10-10-2008
5.36	103	11-09-2008
5.45	196	11-08-2008
5.53	231	11-07-2008
5.62	100	08-06-2008
5.72	128	04-05-2008
5.79	186	07-04-2008
5.88	165	07-03-2008
5.95	131	11-02-2008
6.04	245	08-01-2008
6.13	174	04-12-2007
6.21	137	05-11-2007
6.29	205	09-10-2007
6.36	237	14-09-2007
6.43	129	18-08-2007
Longest tenure	129	
Target date for time with TNG	22-01-2014	
*Note to instructor: For the YearFrac function to work		
properly, dates must be entered with the DATE function.		
If dates are entered as text, errors are likely to result.		

1. Reading review questions

a. What is the distinguishing characteristic of e-business that makes it different from traditional brick-and-mortar businesses? The principal defining feature of e-business is transacting business via some form of computer network.

b. The chapter discusses five basic types of e-business arrangements. Identify and describe each one; give an example of each type other than the example in the chapter. Business-to-business: Inventory suppliers selling goods to Home Depot. Business-to-consumer: Barnes and Noble selling books and related items to individuals. Government-to-business: The City of Los Angeles Business Assistance Virtual Network (http://www.labavn.com/) posts RFPs on its web site. Government-to-consumer: The United States Department of State (http://www.state.gov/) posts travel alerts for US citizens abroad. Consumer-to-consumer: Via Angie's List, individuals can create and disseminate reviews to potential customers of local businesses.

c. What is an enterprise resource planning system? An ERP system is a sophisticated form of relational database software. Typically organized in modules, an ERP system can provide more integrated information for running a business than separate information systems for the various disciplines.

d. What common problems cause ERP implementations to fail? What can managers do to promote successful ERP implementations? The chapter discusses ten common problems that lead to ERP failure: poor leadership from top management, automating existing redundant processes, unrealistic expectations, poor project management, inadequate education and training, trying to maintain the status quo, bad match between software and processes, inaccurate data, "IT project" view, and significant technical difficulties. Successful implementations can be promoted by: obtaining organizational commitment, communicating strategic goals clearly, viewing the project as an enterprise-wide venture, selecting a compatible system, resolving multi-site issues and ensuring data accuracy.

e..Prepare a response to the questions for this chapter's "AIS in the Business World." As in previous editions, I've posted responses to each chapter's AIS in the Business World on my accounting information systems blog (www.bobhurtais.blogspot.com). Look for the 4th edition's responses in the 15 December 2014 post.

2. Reading review problem

The following responses are based on Google.

a. What forms of e-business does Google engage in? Google engages in both B2B and B2C e-business. Google's AdWords service is an example of B2B, while applications like Blogger are examples of B2C.

b. Which common ERP system modules would Google use to calculate the net sales reported on the income statement? How would they be used? Net sales is calculated as (Sales – Sales Returns & Allowances – Sales Discounts). So, Google would access the Customer Relationship Management module of an ERP system to calculate the figure. They would set up a query for the relevant tables (sales / inventory, for example) for the calculation itself.

c. Could Google be considered an application service provider? Why, or why not? Google can definitely be considered an ASP. It hosts a variety of software applications, such as Blogger, Gmail and Calendar, that can be accessed from the Internet.

3. Multiple choice review questions

Answers to all of these questions appear at the end of the textbook itself.

4. Making choices and exercising judgment

Students' answers may vary significantly since the point of these exercises is for them to think critically. Nevertheless, here are some points students may raise as they respond to this question:

a. Carr's article identifies three major causes of Hershey's initial difficulties with ERP. "The Big Bang" exemplifies several of Umble and Umble's failure causes, including unrealistic expectations and poor project management. "Unentered Data" is an example of inaccurate data in the system. Finally, "no leadership" is connected to poor leadership from top management.

b. The value of e-business may be limited in the real estate industry. Almost no-one buys a house over the Internet! (That's not to say that the real estate industry doesn't use the Internet and e-business in other ways, but simply to say that its value may be limited.)

5. Field exercises

Answers to these exercises will vary significantly. Although I'm not providing solutions to them, don't hesitate to share your students' work with me if they come up with an especially strong response.

6. Internal controls in e-business

Internal controls appropriate to e-business might also include:

Password rotation. Employees should be required to change their passwords periodically—perhaps every six months.

Password composition. Passwords should be "strong." They should incorporate upper- and lower-case letters, as well as digits. They should be at least eight digits long, and not comprise words you'd find in a dictionary.

Adequate documentation. Steps for common business processes should be developed with user consultation and documented.

Daily file back-ups. All data should be backed up at the end of each business day on a secure server or other media.

Virus protection. Software should be installed to promote data integrity.

7. Types of computer networks

a. Local-area network: A **Local Area Network** (**LAN**) is a computer network covering a small local area, like a home, office, or small group of buildings such as a home, office, or college.

b. Network architecture: In computing, **network architecture** is the design of a computer network.

c. Network protocol: The set of standard rules for data representation, signaling, authentication, and error detection required to send information over a communications channel.

d. Network topology: A **network topology** is the pattern of links connecting pairs of nodes of a network.

e. Node: A **node** is a device that is connected as part of a computer network. Nodes can be computers, personal digital assistants (PDAs), cell phones, or various other network appliances, such as routers, switches, and hubs.

f. Server: In information technology, a **server** is a computer system that provides services to other computing systems—called clients—over a network. The term is most commonly applied to a complete computer system today, but it is also used occasionally to refer only to the hardware or software portions of such a system

g. Wide-area network: A **wide area network** or **WAN** is a computer network covering a wide geographical area, involving a vast array of computers.

8. Forms of e-business

a. Buying materials for professional practice from www.aicpa.org: B2B

b. Electronic reporting of state unemployment taxes: G2B

c. Filing personal income taxes with TaxSlayer.com: B2B and G2C

d. Getting medical advice from www.webmd.com: B2C

e. Making appointments with the Department of Motor Vehicles: G2C

f. Online banking: B2C or B2B

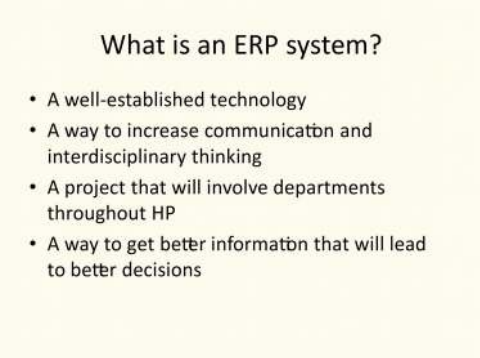
g. Paying traffic citations online: G2C

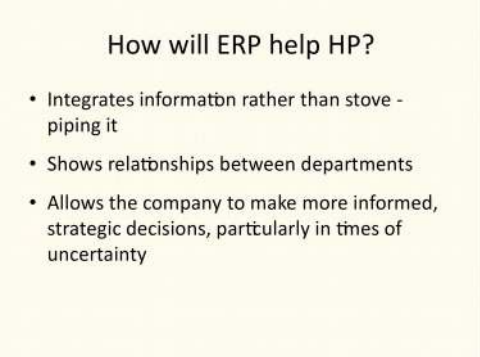
h. Purchases from Amazon.com: B2C

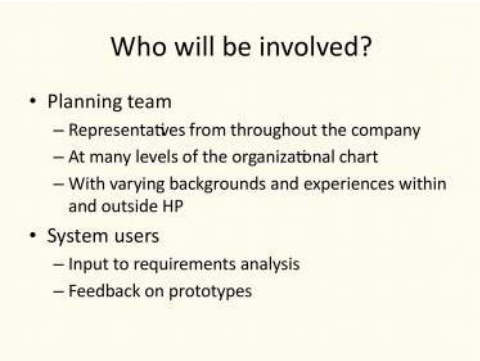
i. Receiving the online newsletter from the Institute of Management Accountants: B2C

j. Registration for seminars sponsored by the Association of Certified Fraud Examiners: B2C

9. Promoting ERP success







10. Application service providers

a. After needs identification, organizations might:

Write a request for proposal which identifies the purpose of and specifications for potential ASPs.

Select a committee to evaluate the proposals. The committee should include members with backgrounds in information technology and accounting; it should also incorporate the people who will actually be using the ASP.

Develop an objective set of evaluation criteria for the proposals.

Evaluate the proposals using the criteria; select a small number for further consideration.

Arrange interviews and / or demonstrations of the finalists.

Contact clients of the finalists to get their points of view.

Select an ASP.

b. SSAE 16 statements

i. Not true

ii. True

iii. True

iv. True

v. Not true

c. The database would include at least two tables. The first would contain client names and identification information (name, address, phone); it could also include licenses and certifications. The second table would incorporate the primary key from the client table and details about CPE units completed, such as subject, source and number of hours. Internal controls would likely include password protection and backing up files daily.

11. Terminology

1. B
2. J
3. G
4. F
5. E
6. C
7. H
8. D
9. A
10. I

12. Multiple choice questions

1. B
2. A
3. B
4. C
5. B

13. Statement evaluation

a. Sometimes true. E-business doesn't necessarily lead to higher profit margins.

b. Always true.

c. Sometimes true. It can, but doesn't necessarily do so in every case.

d. Never true.

e. Sometimes true. Due to the modular structure of ERP systems, an organization may use modules other than financial management.

f. Never true.

g. Always true.

h. Always true.

i. Always true.

j. Always true.

14. Prior material application.

a. When an organization implements an ERP system or enters into the e-business arena, it is exposed to a variety of risks. Use the COSO ERM framework discussed in Chapter 4 to design a generic risk management plan for one of those two situations.

ERM plan for a company entering the e-business arena:

Internal environment: Company executives discuss the importance of enterprise risk management, relating it to the proposed e-business venture.

Objective setting: The company sets a goal of increasing its sales from e-business by 10% in the coming year.

Event identification: Price points on merchandise offered might be too high.

Risk assessment: The risk of prices being too high is at least moderate, particularly without sufficient market research.

Risk response: Avoid.

Control activities: Engage in continuous market research on prevailing prices for similar goods and services.

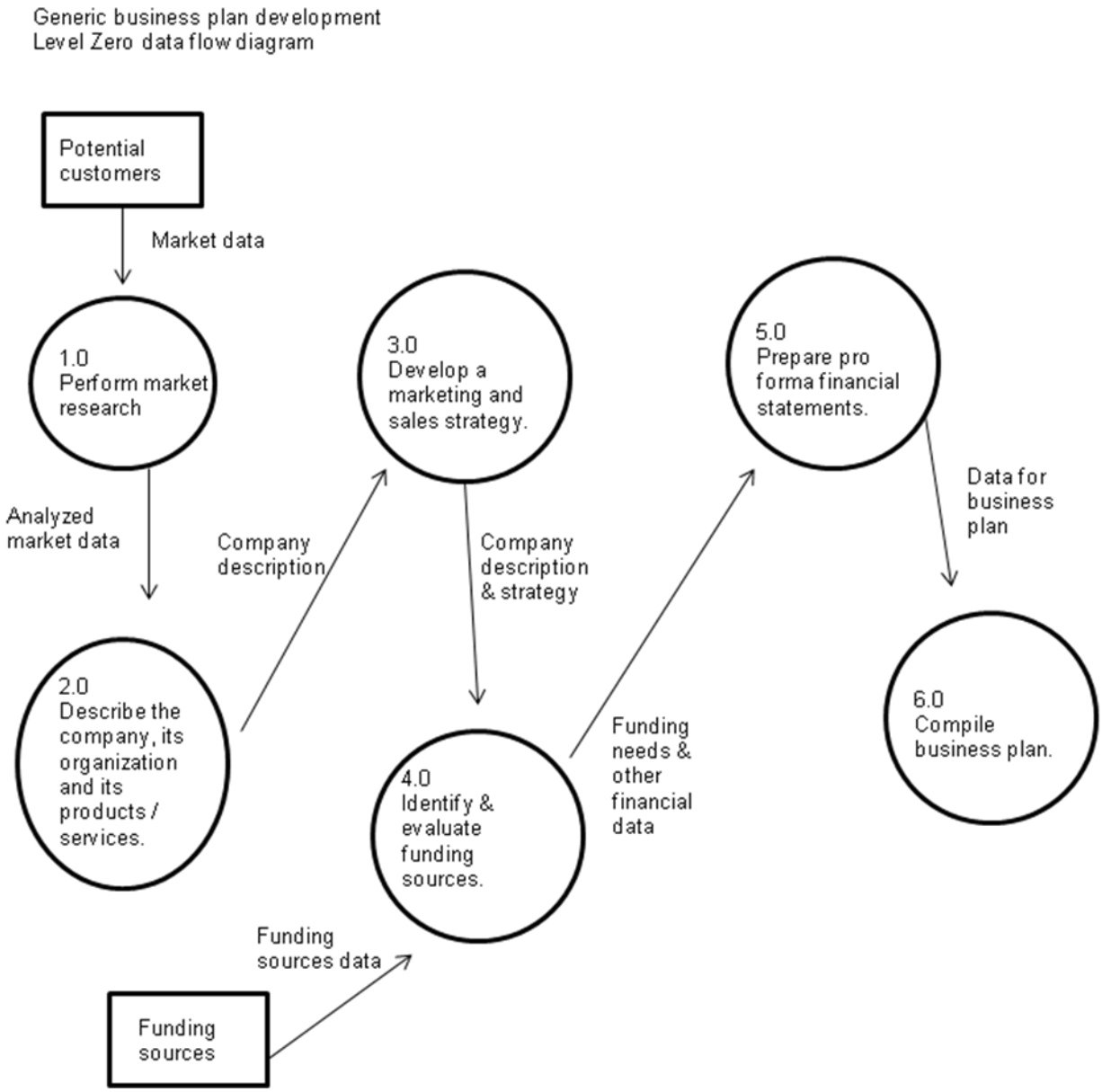
Information and communication: Post the ERM plan on the corporate intranet where it can be accessed by employees only. Send periodic e-mail reminders to look at the plan.

Monitoring: Assign a dedicated group of employees to monitor the plan on a regular schedule and propose modifications to it as necessary.

b. A small bookstore wants to expand its operations to include e-business. Use the generalized model of business process management discussed in Chapter 4 to develop a plan for doing so.

Generic step	Bookstore example
1. Select the process and define its boundaries.	The bookstore could initially focus on the process of buying inventory from vendors.
2. Observe, document and map the process steps and flow.	Develop a systems flowchart of the current inventory purchase process.
3. Collect process-related data.	Collected data could include: transaction processing times, cost per transaction (other than the inventory itself), employee satisfaction with the current process.
4. Analyze the collected data.	Graph the time and cost data to see trends more clearly; summarize the results of employee satisfaction surveys. Determine if the expansion into e-business is justified.
5. Identify and prioritize potential process improvements.	Develop a list of specific ways to move the inventory purchase process into e-business. Consider, for example, if initial forays should focus on a subset of vendors / inventory.
6. Optimize the process.	Design the new process; develop a new systems flowchart or other form of systems documentation.
7. Implement and monitor process improvements.	Pilot test the new system; continue monitoring the data collected and analyzed in Steps 3 and 4. Make appropriate changes and expand the system as necessary.

c. A business plan is essential for starting an e-business venture. Do some research on how to develop a business plan; you might start by consulting www.sba.gov or by asking a strategy / entrepreneurship professor at your university. Document the steps for developing a business plan using one of the formats discussed in Part Two of the book.



15. Excel application

Case A: BBT Corp.	
Total lease price	$ 50,000
Number of periods	3
Interest rate	3%
Annual payment	**$17,677**
*The actual payment number will come out as	
negative in Excel; I've used the absolute value	
formula (=ABS) to make it positive.	
Case B: RDN Corp.	
Number of periods	48
Total lease price	$ 40,000
Monthly payment	(1,200)
Annual interest rate	**19%**
*The monthly payment must be entered as a	
negative number. Also, the number of periods	
must be converted from years to months.	
Finally, to get the **annual** interest rate, the	
formula result must be multiplied by 12.	
Case C: JPD Corp.	
Total lease price	$ 32,000
Annual interest rate	6%
Monthly payment	(1,500)
Length of lease	**22.6**
*In the formula, the annual interest rate	
must be converted to a monthly	
rate to make it consistent with the	
timing of the payments.	

1. Reading review questions

a. What four common classifications are often associated with computer crime? Carter's taxonomy includes: target (where the computer is the object of the crime), instrumentality (where the computer is instrumental in committing the crime), incidental (where the computer simplifies criminal action) and associated (where the presence of computers has created new forms of crime).

b. What computer crime–related risks and threats are associated with information systems? The chapter discusses eleven types of risks and threats: fraud, error, service interruption & delays, disclosure of confidential information, intrusions, information theft, information manipulation, malicious software, denial of service attacks, web site defacements and extortion.

c. What categories are commonly associated with computer criminals? Describe each category. "Script kiddies" use code written by others to perpetrate computer crime. Hackers may be motivated simply by the challenge; cyber-criminals, by the potential for financial gain. Organized crime has also made significant inroads in computer crime. Corporate spies may be former employees or consultants, attempting to compromise an organization's information system. Terrorists have also become involved in computer crime; and, corporate insiders may engage in computer crime if disgruntled or otherwise unhappy.

d. How can organizations safeguard against computer crime? How can they detect it and recover from it if it happens? What role does CoBIT play in those tasks? Organizations can safeguard against computer crime via a strong system of internal controls. Internal controls can focus on the CIA triad: confidentiality, integrity and availability of information. Information systems controls fall into three major categories: physical (such as fire suppression systems), technical (such as requirements for strong passwords) and administrative (such as procedures manuals). COBIT stands for Control Objectives for Information and Related Technology; developed by the Information Systems Audit and Control Association (ISACA), COBIT can guide managers and others in developing a strong internal control system.

e. What is CoBIT? What are the seven information criteria discussed in the CoBIT framework? COBIT is a set of standards which gives accountants and other information systems professionals clear guidance in establishing strong internal controls, thereby deterring fraud. The seven information criteria are: effectiveness, efficiency, confidentiality, integrity, availability, compliance and reliability of information.

f. Respond to the questions for this chapter's "AIS in the Business World." As in previous editions, I've posted responses to each chapter's AIS in the Business World on my accounting information systems blog (www.bobhurtais.blogspot.com). Look for the 4th edition's responses in the 15 December 2014 post.

2. Reading review problem

a. The following answers will be based on Standard 1: Install and maintain a firewall configuration to protect cardholder data.

b. Failure to install and maintain a proper firewall could lead to comprised data, which fits into Carter's taxonomy under "target."

c. Targeting the system data could lead to several kinds of business risks / threats, including disclosure of confidential information.

d. In terms of COBIT's enablers, installing a firewall is an example of "services, infrastructure and applications."

e. Installing a firewall is an example of a technical control.

3. Multiple choice review questions

. Answers to all of these questions appear at the end of the textbook itself.

4. Making choices and exercising judgment

Students' answers may vary significantly since the point of these exercises is for them to think critically. Nevertheless, here are some points students may raise as they respond to this question:

5. Field exercises

Answers to these exercises will vary significantly. Although I'm not providing solutions to them, don't hesitate to share your students' work with me if they come up with an especially strong response.

6. Applying Carter's taxonomy

a. Incidental.

b. Target (the computer is the object of the attack) and associated (computers themselves have "created" this form of computer crime)

c. Target (computer is the object) and instrumentality (the backdoor allows the former employee access to the information system)

d. Incidental (theft of assets can happen even without computers) and associated (identity theft has increased because of the presence of computers)

e. Incidental (illegal pyramid schemes have existed for quite some time) and instrumentality (since e-mail was used to perpetrate the crime)

f. Incidental (espionage is not limited to scenarios involving IT)

g. Target (changing data), instrumentality (computer is used to change grades)

h. Incidental

7. Identifying business risks and threats

a. Extortion

b. Denial of service attack

c. Web site defacement

d. Disclosure of confidential information

e. Intrusions

f. Fraud

g. Error

h. Service interruption & delay

i. Information manipulation

j. Information theft

k. Malicious software

8. Classification of controls

a. Technical. Access control software restricts access to an organization's information system via passwords or other means.

b. Administrative. Employees should be supervised to promote strong internal control.

c. Administrative. Authorized employees and others can be required to wear identification badges while on an organization's premises.

d. Technical. Encrypted data are "garbled" so that they cannot be read without decryption keys.

e. Technical. Firewall software restricts both incoming and outgoing traffic.

f. Administrative. Internal auditors can check systems for both security and efficiency.

g. Technical. Organizations can employ, for example, automatic lockouts after three attempts to access a system without an authorized user name and password.

h. Physical. Information systems should be kept behind locked and alarmed doors.

i. Administrative. Organizations can require online or in-person seminars on a periodic basis.

j. Physical. Security guards can restrict access to sensitive areas.

k. Administrative. A well-developed security policy can outline specific acceptable and unacceptable actions.

l. Physical. If a fire breaks out, smoke detectors can help minimize the damage.

m. Physical. UPS protect an organization against electrical failures.

9. Terminology

1. C
2. F
3. E
4. H
5. B
6. A
7. J
8. G
9. D
10. I

10. Multiple choice questions

1. A
2. C
3. A
4. D
5. D

11. Statement evaluation

a. Always true.

b. Sometimes true. Computer crime can also involve the computer as a target, associated with or incidental to the crime.

c. Sometimes true. Computer crime can be committed by organized crime groups, but other types of computer criminals can engage in similar activities.

d. Always true.

e. Never true.

f. Always true.

g. Always true.

h. Never true.

i. Sometimes true. Criminals can be internal or external to the organization.

j. Always true.

12. Prior material application

a. Consider the five generic elements of most accounting information systems. For each element, suggest one way it could be compromised via computer crime.
Inputs, such as source documents, could be electronically altered / falsified. The AIS processing function could be compromised in myriad ways, including the use of malicious software. To the extent that outputs are disseminated electronically, they could also be electronically altered; many companies post key financial data on their web sites, opening up the opportunity for web site defacement. Storage of AIS data could be compromised by deleting key data; internal controls can be compromised with malicious software, as illustrated in the reading review problem.

b. Read "Protect Small Business" by Joseph T. Wells in the March 2003 issue of Journal of Accountancy; consider the case presented in the opening paragraphs of the article (Denise, a bookkeeper for a small trucking firm). Work with a group of students and / or interview a forensic accountant / certified fraud examiner to suggest a series of steps you could use to investigate the fraud. Document your steps using one of the techniques described in Part Two of the text.

In the August 2003 issue of Journal of Accountancy, Wells wrote an article titled "Sherlock Holmes—Part One." In that article, he lays out a generic process often used to conduct a fraud examination. The steps are summarized below:

1. Gather data, such as from the AIS, interviews and other sources.

2. Analyze the data to detect abnormalities or evidence of unusual activity.

3. If sufficient predication exists, develop a fraud theory—a hypothesis about how the fraud occurred.

4. Gather additional evidence. Revise the fraud theory as needed.

5. Interview people to gain more information. Interviews should start with neutral third-party witnesses, and end with the suspect(s).

6. Prepare a report as to the findings.

7. If necessary, testify in court.

c. This chapter provided a three-part taxonomy for IT controls; earlier in the text, you learned that internal controls have four broad purposes. Fill in the table below with appropriate examples; be prepared to explain your reasoning.

Internal control purpose	Physical controls	Technical controls	Administrative controls
Safeguard assets	Lock rooms containing IT assets	Require login credentials before using IT assets.	Establish & enforce a policy of no eating / drinking around IT assets.
Ensure financial statement reliability	Set up an alarm that will detect unauthorized intrusions to the AIS.	Prepare financial statements using appropriate forms of IT.	Create & utilize an internal audit function.
Promote operating efficiency	Create sufficient, but not excessive, copies of documents used in the AIS.	Utilize IT to perform appropriate tasks.	Make operating efficiency part of performance evaluation.
Encourage compliance with management directives	Require managers to interact with workers, rather than trying to manage from behind a desk.	Create a dedicated web site where employees can make suggestions for process improvements.	Make compliance with management directives part of performance evaluation.

13. COBIT 5

a. Fill in the blanks according to COBIT 5's principles.

i. single integrated
ii. end-to-end
iii. holistic
iv. stakeholder
v. governance, management

b. Which of COBIT 5's enablers is described by each of the following items?

i. organizational structures
ii. culture, ethics and behavior
iii. processes
iv. service, infrastructure and applications
v. people, skills and competencies
vi. principles, policies and frameworks
vii. information

c. For each of the following independent cases, indicate at least one relevant COBIT principle and at least one relevant COBIT enabler.

Company	Principle	Enabler
UPT Corporation	Meeting stakeholder needs Enabling a holistic approach	Processes Culture, ethics and behavior
YWN Corporation	Separating governance from management Enabling a holistic approach	Processes People, skills and competencies

14. Excel application

SUMMARY OUTPUT					Question B(iii)			
					IT employees	60		
Regression Statistics					Acctg. employees	22		
Multiple R	0.999				Annual sales	$ 7,000		
R Square	**0.999**	**Question B(i)**						
Adjusted R Square	0.998				Predicted fraud amt.	$ 5,392		
Standard Error	23.967							
Observations	10.000							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	3.000	2754566.326	918188.775	1598.437	0.000			
Residual	6.000	3446.574	574.429					
Total	9.000	2758012.900						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-209.057	97.151	-2.152	**0.075**	-446.778	28.664	-446.778	28.664
Number of IT employees	-0.837	0.628	-1.332	**0.231**	-2.374	0.701	-2.374	0.701
Number of accounting employees	1.177	0.890	1.323	**0.234**	-1.000	3.354	-1.000	3.354
Annual sales	0.804	0.014	59.220	**0.000**	0.770	0.837	0.770	0.837
				Question B(ii)				
				Annual sales is significant				

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End-of-chapter solutions
Chapter 12: Sales / collection process

1. Reading review questions

a. What activities are accounted for in the sales / collection process? The sales / collection process accounts for activities associated with selling goods and services to clients, along with the related cash collections.

b. What are the steps in the sales / collection process? The process comprises seven steps: (1) Take a customer order. (2) Approve customer credit. (3) Fill the order based on approved credit. (4) Ship the product (if necessary). (5) Bill the customer. (6) Collect payment. (7) Process uncollectible receivables as necessary.

c. How are the five generic elements of the AIS exemplified in the sales / collection process? Inputs to the sales / collection process include customer orders. Processes include both the steps identified in (b) above, along with transaction processing steps in the accounting cycle. Outputs of the sales / collection process include invoices, accounts receivable aging reports and others. Data in the sales / collection process are stored in customer files, transaction files, inventory files and junction files.

d. What recordable transactions are commonly associated with the sales / collection process? How are they recorded in the AIS? Common transactions include: sales of inventory on account (debit accounts receivable and cost of goods sold, credit sales and inventory), cash collections on account (debit cash and credit accounts receivable), bad debt write-offs (debit allowance for bad debts, credit accounts receivable) and others.

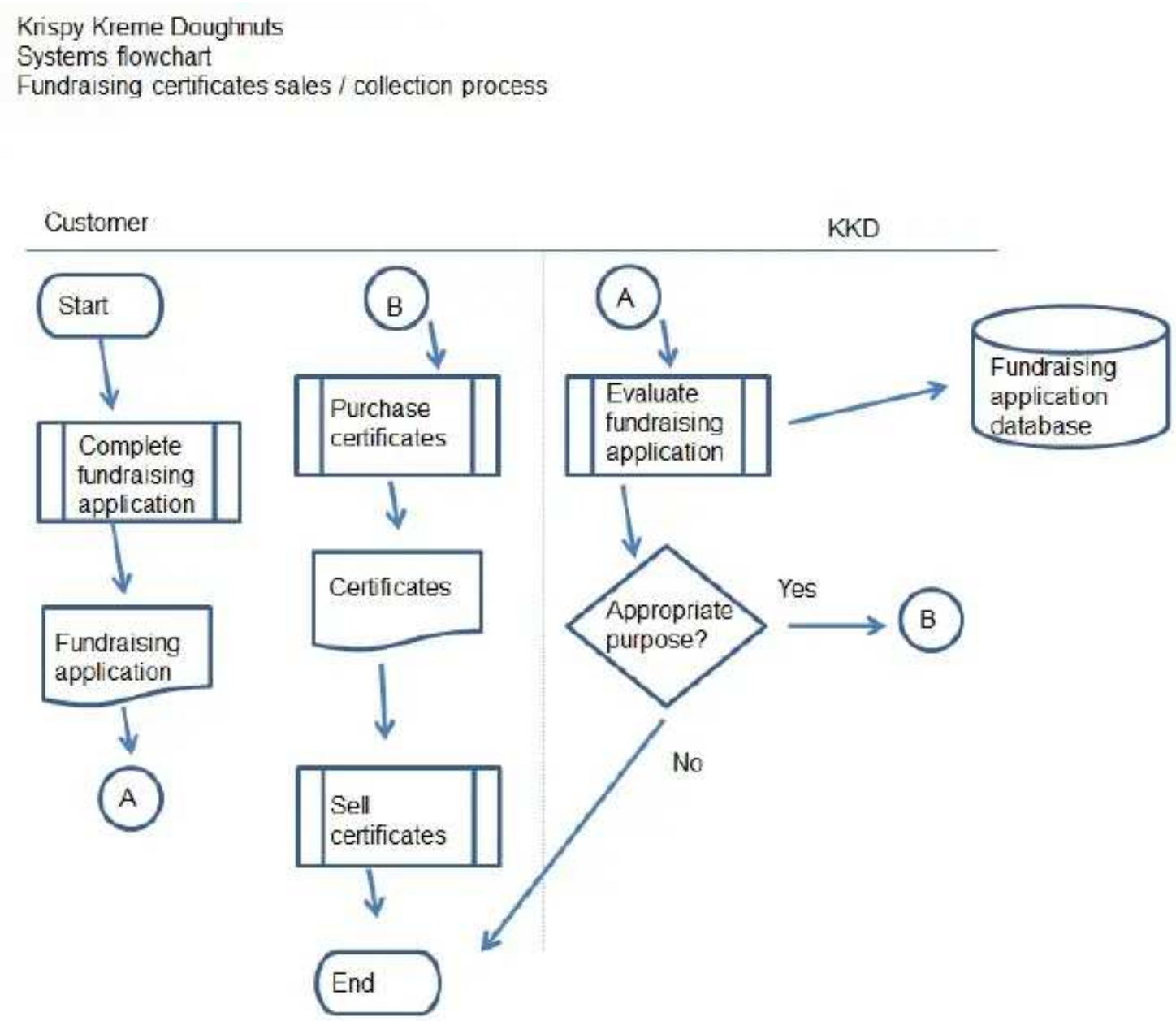
e. What internal controls do organizations use in the sales / collection process? What risks do they address? Risks and related internal controls for the process include: granting credit to customers who are not creditworthy (separation of duties, established credit check procedures), inventory stock-outs (maintaining adequate inventory) and billing the customer incorrectly (document matching).

f. Respond to the questions for this chapter's "AIS in the Business World." As in previous editions, I've posted responses to each chapter's AIS in the Business World on my accounting information systems blog (www.bobhurtais.blogspot.com). Look for the 4th edition's responses in the 15 December 2014 post.

2. Reading review problem

a. What forms and documents would KKD use in the process described? Which generic step(s) in the sales / collection process would use each form? In addition to the fundraising certificates, KKD would need a customer order form (Step 1), an invoice (Steps 5 and 6) and a remittance advice (Step 6).

b. In a manner specified by your instructor, document the process described **from KKD's perspective.**



c. What risks do fundraising groups bear in the process? What internal controls would you recommend to a fundraising group to address those risks?
Fundraising groups' risks include not having their application approved and not being able to sell all the certificates they purchase. They may also have more demand than expected, so inventory may run short. Related internal controls for not having their application approved would include carefully reading the guidelines for applications and talking in advance with a local KKD store manager. For not being able to sell all the certificates, the fundraising group should do an informal survey to assess demand; they might also consider discounting the certificates after a certain period of time. A demand survey would also be helpful to address the risk of too few certificates.

d. Consider the following tables KKD might maintain for the process: fundraising group table, sell fundraising certificates table, redeem fundraising certificates table, redeem fundraising certificates / inventory table. What fields would you include in each table? Indicate primary keys by underlining and foreign keys with brackets.

- Fundraising group table: Fundraising group ID, fundraising group name, date of first application, contact person name, contact person area code, contact person phone number, contact person email.
- Sell fundraising certificates table: Fundraising sales transaction ID, [fundraising group ID], transaction date, first certificate number (e.g., 101), number of certificates sold, price per certificate
- Redeem fundraising certificates table: Fundraising redemption transaction ID, transaction date, certificate number, [employee ID]
- Redeem fundraising certificates / inventory table: [Fundraising redemption transaction ID], [Inventory ID], quantity sold, price per unit

e. Based on the tables you laid out in (d), suggest one simple query and one complex query KKD might use. For each query, explain its purpose and indicate the fields you would incorporate.

- Simple query. Purpose: to calculate the total revenue from selling fundraising certificates. Fields: Quantity sold, price per unit.
- Complex query. Purpose: to determine the number of certificates sold to each group. Fields: Fundraising group ID, fundraising group name, number of certificates sold, price per certificate.

3. Multiple choice review questions. Answers to all of these questions appear at the end of the textbook itself.

4. Making choices and exercising judgment

Students' answers may vary significantly since the point of these exercises is for them to think critically. Nevertheless, here are some points students may raise as they respond to this question:

Steps in the sales / collection process:

- Reliable Reminders would take the customer's order, including the usual information about the customer, but also the key dates the customer wants to include in the service.
- As a startup, Reliable Reminders probably should not extend credit directly to customers; rather, they should rely on third-party credit cards as the main form of payment.
- Reliable Reminders would enter the customer's data into their information system.
- They would query the information system daily to determine clients' needs,

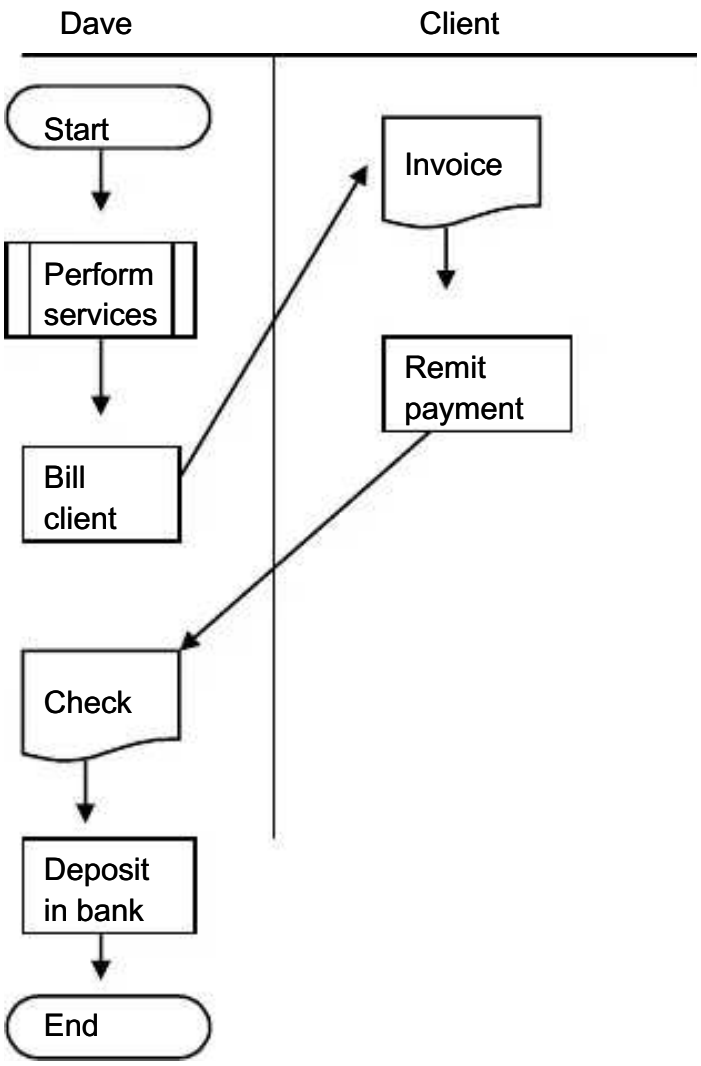
  complete relevant tasks (sending cards, shopping) and bill the client.

5. Field exercises

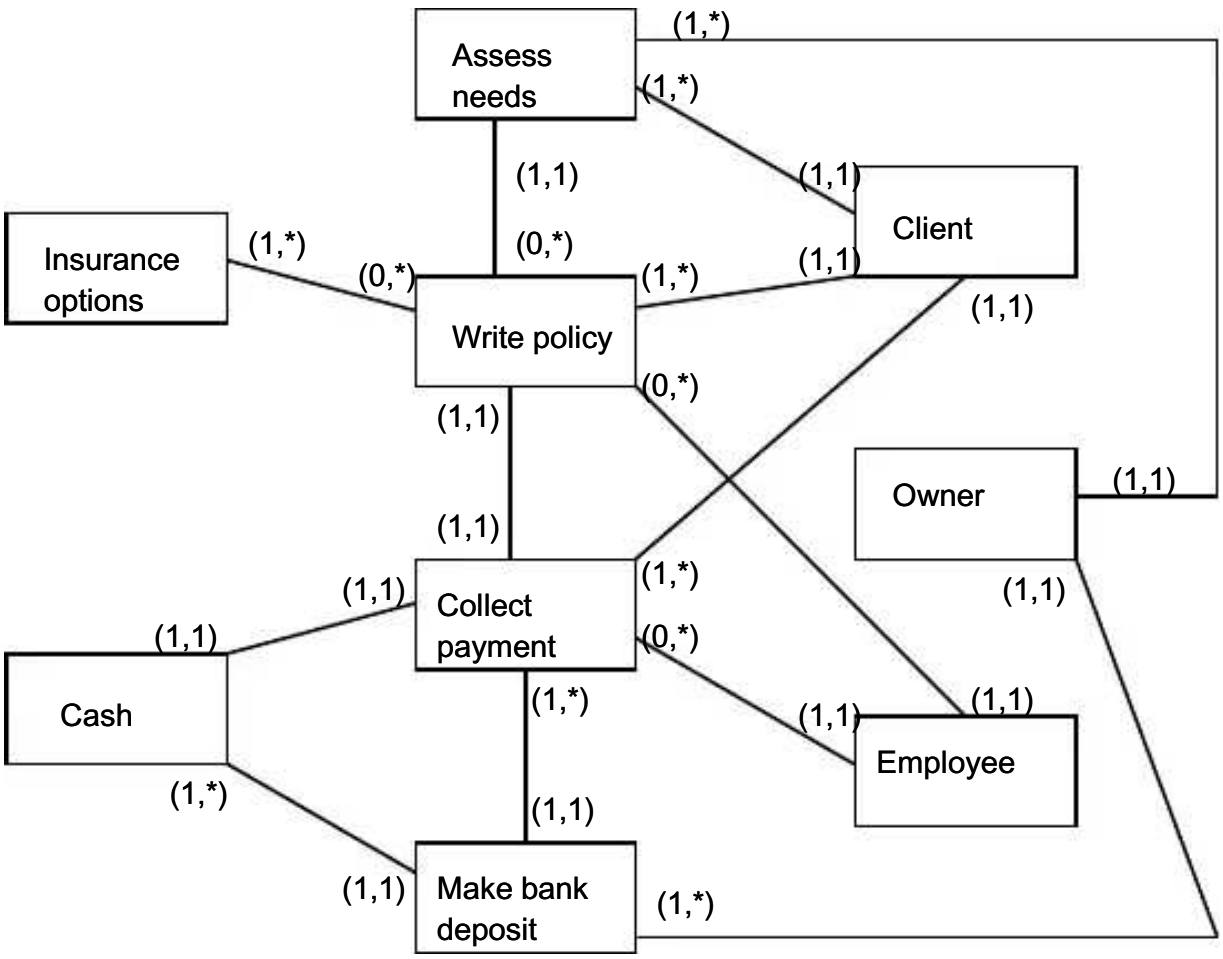
Answers to these exercises will vary significantly. Although I'm not providing solutions to them, don't hesitate to share your students' work with me if they come up with an especially strong response.

6. Modeling sales / collection processes

a. Dave's Pool Service

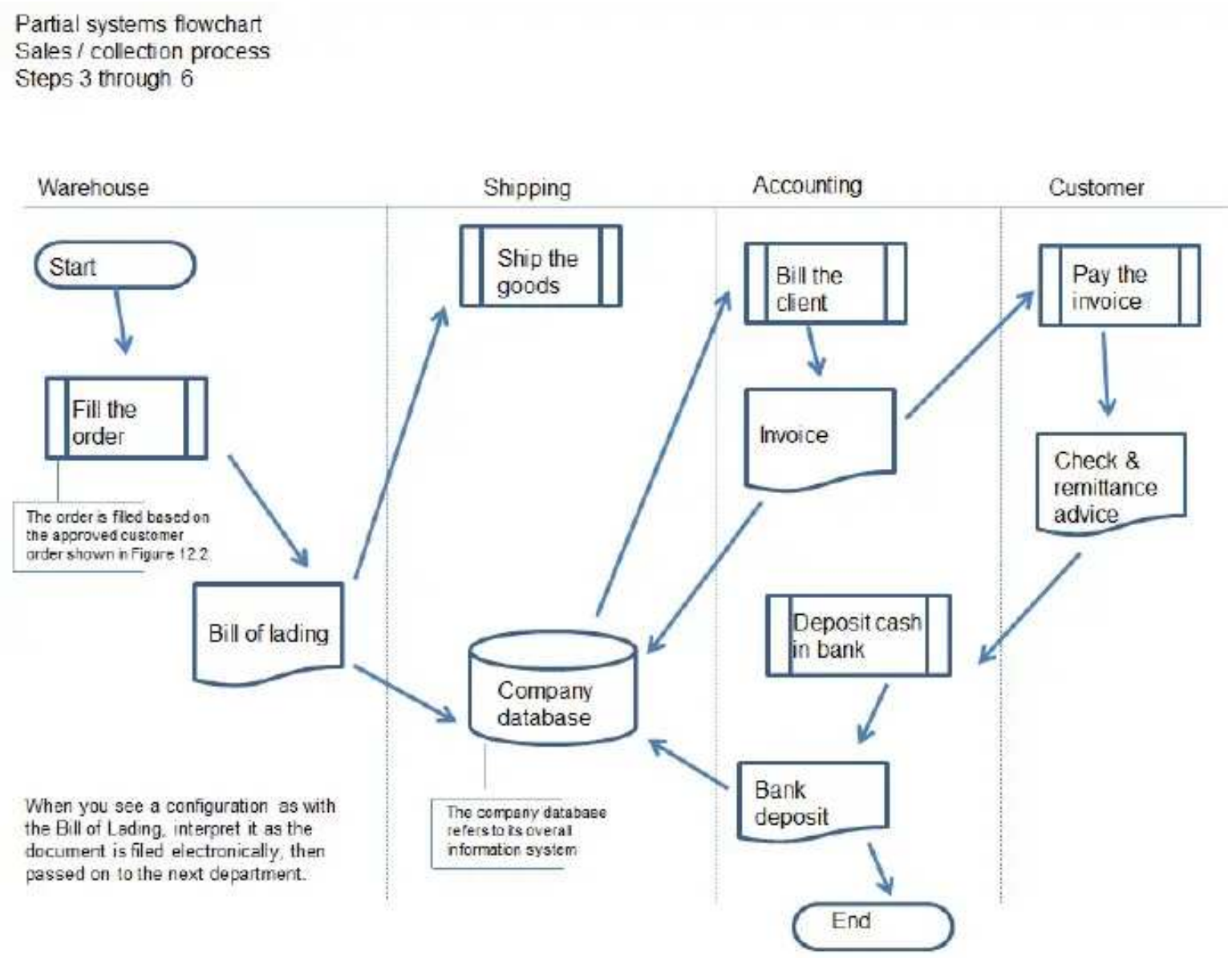


b. Nauertz Insurance



c. Answers will vary.

d. Here is the rest of the systems flowchart, picking up from Figure 12.2:



7. Transaction processing

a.

Date	Account		Dr		Cr
2	Accounts receivable	$	1,000		
	Cost of goods sold		300		
	Sales			$	1,000
	Inventory				300
5	Cash	$	900		
	Cost of goods sold		200		
	Sales			$	900
	Inventory				200
10	Cash	$	980		
	Sales discounts		20		
	Accounts receivable			$	1,000
15	Allowance for bad debts	$	500		
	Accounts receivable			$	500
19	Accounts receivable	$	2,000		
	Cost of goods sold		500		
	Sales			$	2,000
	Inventory				500
21	Cash	$	1,100		
	Cost of goods sold		300		
	Sales			$	1,100
	Inventory				300
30	Cash	$	2,000		
	Accounts receivable			$	2,000
30	Bad debt expense	$	30		
	Allowance for bad debts			$	30

b. Net sales = ($1,000 + $900 + $2,000 + $1,100) - $20 = $4,980.
Cost of goods sold = $300 + $200 + $500 + $300 = $1,300.
Gross profit = $4,980 - $1,300 = $3,680.

c. All sales transactions would use a customer order and customer invoice. Cash collections on account would utilize a customer check and a remittance advice.

d. Customer table: Customer ID, customer last name, customer first name, customer address, customer city, customer state, customer ZIP code, customer area code, customer phone number, customer email, date of first sale

Sell inventory table: Sales transaction ID, transaction date, [customer ID], [employee ID]

Receive cash table: Cash receipt transaction ID, transaction date, [customer ID], [bank account ID], amount received

Inventory / sell inventory table: [Sales transaction ID], [Inventory ID], number of units sold, price per unit

e. Purpose: to determine which customers buy which inventory items. Fields: customer ID, customer last name, customer first name, sales transaction ID, inventory ID

8. Internal controls

Item	Control	Purpose
a	Alarm system	Safeguard assets
	Insurance	Safeguard assets
b	Credit check	Ensure reliable financial reporting
	Conduct cash-only business	Promote operating efficiency
c	Sprinkler system	Safeguard assets
	Insurance	Safeguard assets
d	Echo check	Promote operating efficiency
	Adequate supervision	Encourage compliance with management directives
e	Information technology	Promote operating efficiency
	Trial balance	Ensure reliable financial reporting
f	Independent checking Adequate supervision	Safeguard assets Safeguard assets
g	Adequate packing	Safeguard assets
	Insurance	Safeguard assets
h	Adequate supervision	Safeguard assets
	Appropriate company policy	Safeguard assets, encourage compliance with management directives
i	Lockbox system	Safeguard assets; promote operating efficiency
	Video surveillance	Safeguard assets
j	Document matching	Promote operating efficiency
	Adequate supervision	Promote operating efficiency

9. Internal controls and risks

1. No.
2. Yes.
3. No.
4. Yes.
5. No.
6. Yes.
7. Yes.
8. No.
9. Yes.
10. No.

10. Internal controls

Internal control strengths include: follow-ups for delinquent accounts and the use of an external consultant to make recommendations for revision. The two main internal control weaknesses in this system are: the controller extends credit to customers (corrected by establishing a separate credit-granting function), differential credit arrangements based on highly subjective factors (establish a clear policy for granting credit).

11. Flowchart interpretation and internal controls analysis

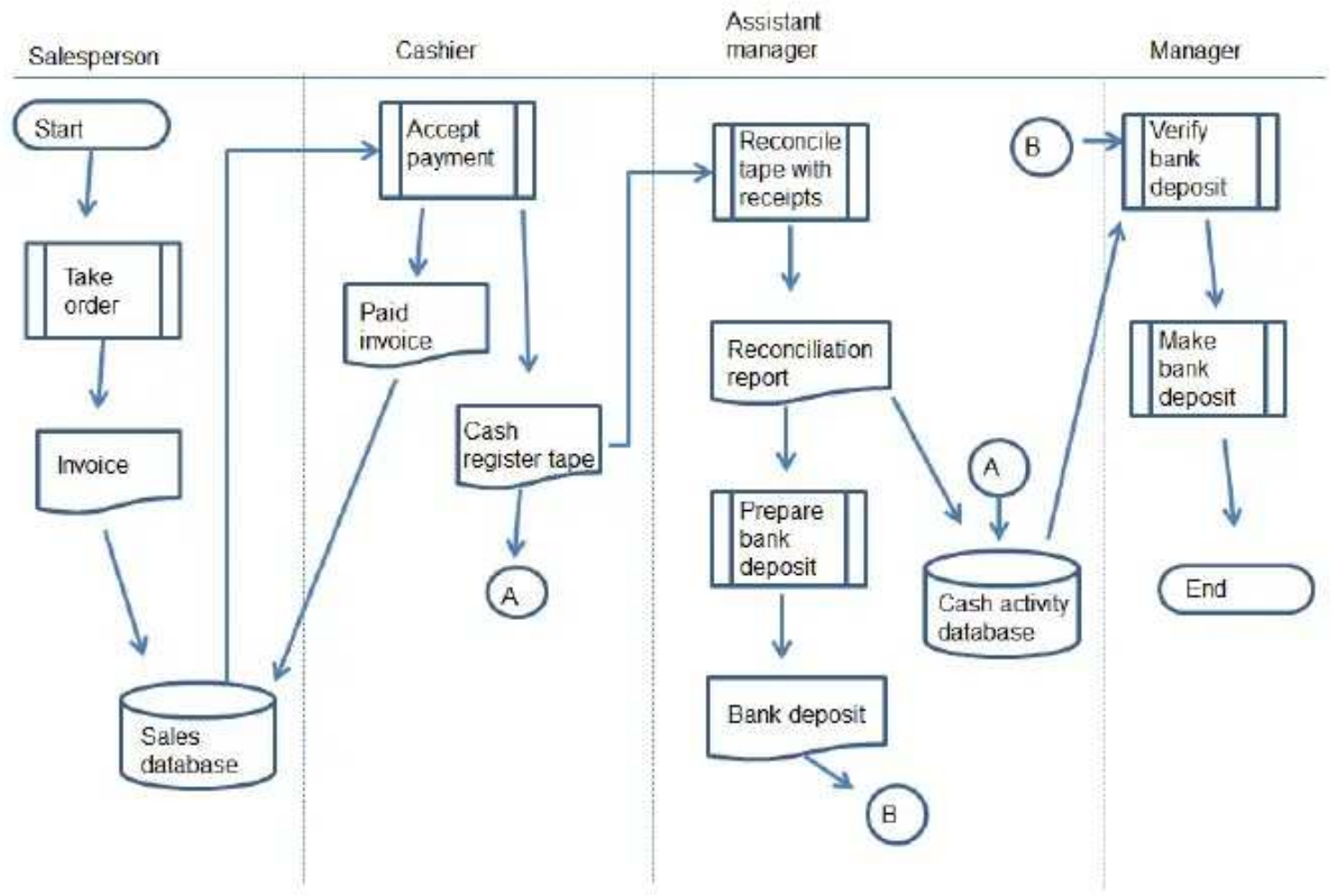
a. Flowchart weaknesses include: inappropriate use of symbols (e.g., 'to bank'), no "end" symbol, symbols spanning multiple columns, many documents lack an appropriate point of termination.

b. The sale is approved after the invoice is created; it should be approved before invoicing. A transaction number is assigned too late in the process; it should be assigned as part of preparing the invoice. The cashier should not be approving the sale; the credit department should do that if Richards extends its own credit to clients. It's unclear from the flowchart who prepares the bank deposit; either the assistant manager / manager should do so.

c. For simplicity, the following steps assume Richards does not extend credit directly to customers; they also assume that the customer pays for the furniture and takes it home immediately, rather than having it shipped. (1) The salesperson takes the customer's order and prepares an electronic invoice. (2) The cashier retrieves the invoice and accepts payment for the order. (3) The cashier marks the invoice "paid" in the database. (4) The assistant manager reconciles the cash register tape with the day's actual receipts, reconciles any differences and prepares a reconciliation report, which is filed electronically. (5) The assistant manager prepares the bank deposit. (6) The manager verifies the amount of the bank deposit against the cash register tape, the day's actual receipts and the reconciliation report. (7) The manager deposits cash receipts daily in the bank.

Here's a systems flowchart of that process:

Richards Furniture Company
Systems flowchart
Sales / collection process



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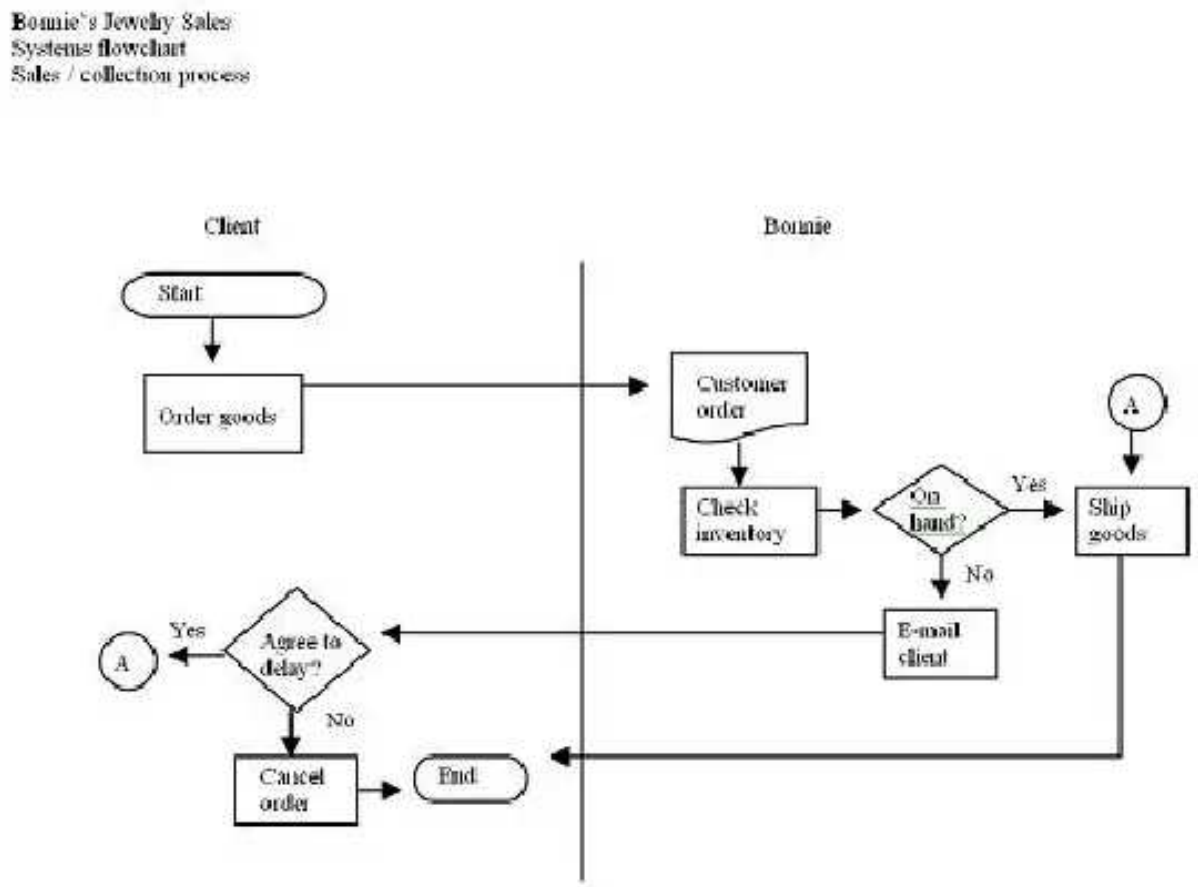
12. Comprehensive problem

a. Here is a system's flowchart of the case; it assumes the bank is outside the system boundary.



b. The following items are illustrative, not exhaustive:

Risk exposure	Existing control (if any)	Recommended control
Insufficient sales	None	Marketing plan
Damaged goods	Secure packing	Insurance
Failure to collect from clients	None	Require payment in advance and / or accept credit cards

c. Inventory table: inventory item number, item name, beginning quantity on hand, beginning date, beginning inventory cost per unit.

Customer table: customer ID, customer last name, customer first name, customer address, customer city, customer state, customer ZIP code, customer e-mail, customer area code, customer phone number, date of first order.

Sales / inventory table: ~~Transaction ID~~, ~~inventory item number~~, quantity sold, price per unit.

d. Responses will vary.

13. Terminology

1. B
2. E
3. C
4. G
5. A
6. D
7. H
8. F
9. I
10. J

14. Multiple choice questions

1. B
2. B
3. B
4. A
5. C

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15. Statement evaluation

a. Sometimes true. If a company sells multiple products / services, a junction table would be required.

b. Never true.

c. Sometimes true. Many companies complete all the activities; some companies, however, specialize in a subset of the value chain activities. For example, Federal Express focuses on inbound & outbound logistics.

d. Sometimes true. Borrowing money is a good idea if the interest rate on debt is less than the implied interest rate from forgoing a cash discount.

e. Always true.

f. Always true.

g. Never true.

h. Sometimes true. In a well-designed internal control system, this statement is always true.

i. Sometimes true. A bill of lading is required if merchandise has to be shipped.

j. Sometimes true. Web sites can facilitate customer orders, but are not used in every firm.

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16. Prior material application

a.

Framework element	ICE example
Internal environment	ICE's executive board conducts a company retreat focused on ERM.
Objective setting	Generate revenue of at least $5,000.
Event identification	Too few people register to generate the required revenue.
Risk assessment	Moderate to high
Risk response	Reduce
Control activities	Conduct more seminars; increase the number of participants allowed in each seminar.
Information & communication	Publicize the plan among ICE employees via meetings and newsletters.
Monitoring	Create an executive board position specifically charged with monitoring the plan on a regular schedule.

b.

BPM principle	ICE example
Be open to alternatives.	Consider a more efficient method for processing registrations and payments, such as via the Internet.
Hire people who see the big picture.	Conduct periodic brainstorming sessions where employees can suggest new ideas for improving the process.
Avoid too much reliance on external consultants.	Create a digital "suggestion box" where employees can submit new ideas whenever they choose.
Communicate!	Provide feedback for suggestions not implemented, and acknowledge the source of those that are implemented.

c. Answers will vary significantly.

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17. Excel application

Transaction number	Sales revenue	Cost of goods sold	Gross profit	COGS / Sales	Gross profit / Sales	COGS / Gross profit
1	$ 4,818	$ 973	$ 3,845	20.20%	79.80%	25.31%
2	1,070	411	659	38.41%	61.59%	62.37%
3	3,783	817	2,966	21.60%	78.40%	27.55%
4	4,862	979	3,883	20.14%	79.86%	25.21%
5	1,510	477	1,033	31.59%	68.41%	46.18%
6	4,419	913	3,506	20.66%	79.34%	26.04%
7	3,269	740	2,529	22.64%	77.36%	29.26%
8	2,477	622	1,855	25.11%	74.89%	33.53%
9	2,409	611	1,798	25.36%	74.64%	33.98%
10	3,643	796	2,847	21.85%	78.15%	27.96%
11	4,163	874	3,289	20.99%	79.01%	26.57%
12	1,926	539	1,387	27.99%	72.01%	38.86%
13	4,659	949	3,710	20.37%	79.63%	25.58%
14	4,421	913	3,508	20.65%	79.35%	26.03%
15	1,120	418	702	37.32%	62.68%	59.54%
16	1,107	416	691	37.58%	62.42%	60.20%
17	3,320	748	2,572	22.53%	77.47%	29.08%
18	4,955	993	3,962	20.04%	79.96%	25.06%
19	3,568	785	2,783	22.00%	78.00%	28.21%
20	2,315	597	1,718	25.79%	74.21%	34.75%

Conditional formatting could be useful in the sales / collection process in several ways, such as by identifying the customers with the largest outstanding balances and / or the inventory items with the highest turnover.