Accounting Information Systems 3rd edition Richardson Solutions Manual

SKU: 9781259969539-SOLUTIONS

Chapter 1 – Accounting Information Systems and Firm Value

Multiple Choice Questions

1. c
2. a
3. a
4. c
5. d
6. b
7. d
8. a
9. d
10. a
11. a
12. c
13. b
14. d
15. a

Discussion Questions

1. How would an AIS help a company identify the products with the highest profit margin?
   Accounting information systems keep track of the revenues and the costs of each product. If the information is reliable, exhibiting the faithful representation qualities, AIS can compute the highest profit margin and highest profit margin percentages. This will help the company know how best to grow its profits, potentially by increasing sales of the products with highest profit margins and perhaps deemphasizing those of lowest profit margin.
2. Brainstorm a list of discretionary information that might be an output of an accounting information system and be needed by Starbucks. Prioritize which items might be most important and provide support.

   Answers will vary. Here are some potential answers:

   The cost of a cup of coffee, by type: Breakfast blend, Cafe estima, caffe Verona, espresso roast, Ethiopia sidamo, French roast, Gold Coast blend, Guatemala Antigua, house blend, Italian roast, Kenya coffee, komodo dragon blend, organic Serena blend, organic shade grown Mexico, Sumatra, decaf caffe Verona, decaf espresso roast, decaf house blend, and decaf Sumatra!

   Monthly Sales per square foot of retail space.

   Employee cost for each operating hour.

   Advertising expenditures per dollar of sales.

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The cost of condiments per dollar sales of coffee. Condiments might include sweeteners, liquid creamers, cream canisters, sugar packets, sugar canisters, stir sticks!

The cost of electricity per operating hour each month of the year.

3. Explain the information value chain. How do business events turn into data then into information and then into knowledge? Give an example starting with the business event of the purchase of a Super Smash Bros. Nintendo Switch Game at GameStop all the way to giving useful information for the CEO and other decision makers.

   The information value chain represents the overall transformation from a business need and business event (like each individual sale of U.S. flag) to an ultimate decision. The information value chain might be represented considering the purchase of a Nintendo Switch Game at Best Buy in the following way:
   The game will be recorded as sales revenue and then after deducting its costs will add to or subtract from corporate income. The cash from the game sale will also add to the operating cash flows.
   The specific game will be recorded in the information as a sale to monitor which games are selling within Best Buy. This will help Best Buy and its suppliers know which games are selling and which type of games should be reordered. The type of game will also help the marketing department better understand its customers and their respective demographic profile to better market to them.
   In addition, knowing the location of the game sale will also help decision makers know where its sales are occurring.
   The CEO can look at the profitability of games overall, the specific types of games that are selling and the location of those sales all due to the information value chain.

4. Give three examples of types of discretionary information at your college or university and explain how the benefits of receiving that information outweigh the costs.

   Answers will vary. The following represents potential answers:

   Universities are often interested in their freshmen retention (the percentage of sophomores that return after their freshman year). They also quite interested in their four- or five-year graduation rates.

   Universities are also interested in their production of research grants. This is often used to monitor the success of their research and their ability to get interested sponsors (such as the National Institute of Health or the National Science Foundation).

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Information for each of these three examples can be gained by the information system at the university. However, a university generic information system does not usually offer this information as a standard report or standard output of the system. Therefore, work must be done to capture (and potentially digitize) this information, ensure its validity and then report it in an appropriate useful format. The cost of getting useful information will depend on the university and its technology. However, since these represent three keys metrics of a university and will likely be used as a key input to manage the university, the benefits will potentially outweigh those costs.

5. After a NCAA women's basketball game, a box score is produced detailing the number of points scored, assists made and rebounds retrieved (among other statistics). Using the characteristics of useful information discussed at the beginning of the chapter, please explain how this box score meets (or does not meet) the characteristics of useful information.

   A box score of a NCAA women's basketball game (or other sports) produces overall team statistics by half and quarter and details player performance including minutes played, shots taken, shots made, free throw shots taken and made, assists, rebounds, steals, blocks and fouls.

   To be relevant, the information must potentially impact a decision that a decision maker must make. Relevant information is usually characterized by having predictive value, feedback value and receiving it on a timely basis. This information provides feedback value to explain how players performed in the game. The box score provides predictive value to the extent that prior performance (as reflected in the box score) is predictive of future performance. Since box scores are available immediately following the game, it is also received on a timely enough basis to make decisions for a subsequent game.

   To exhibit the quality of faithful representation, the information must be verifiable, be representationally faithful and be neutral. There are often some allegations that the statistics included in a box score is affected by the bias of the scorekeeper. While the actual points scored by the team is verified by the officials, more minute details are not verified and may be subject to bias, thus limiting their reliability.

   The information is potentially relevant to the coach in helping to figure out which players are most efficient and productive. Which players play well against different teams and which players are good at particular aspects of offense and defense, among others.

6. Some would argue that the role of accounting is simply as an information provider. Will a computer ultimately completely take over the job of the accountant? As part of your explanation, explain how the role of accountants in information systems continues to evolve.

   Accountants have a role as a business analyst. That is, they gather information to solve business problems or address business opportunities. They determine what information is relevant in

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solving business problems, then create or extract that information and finally analyze the information to solve the problem. An AIS provides a systematic means for accountants to get needed information and solve a problem.

While a computer is very good at reliably collecting, processing and producing information, the role of the accountant when serving as a business analyst will continue to be able to assess the problems the business is facing and work to provide information that will address it.

7. How do you become a Certified Internal Auditor (CIA)? What do they do on a daily basis?

   An individual can earn a CIA designation with a combination of required education, professional experience, character references and passing of the CIA exam.

   The CIA designation identifies accountants with a broad range of knowledge about the company. They work inside an individual company, generally providing an independent assessment of the company's operations, including the effectiveness of a company's internal controls. They may be called upon to investigate the possibility of fraud in financial statement reporting, or investigate the throughput of a manufacturing system, among many other things. On a daily basis, CIAs might evaluate internal controls associated with financial reporting, help devise a more efficient financial reporting system, or help audit an operational issue which the audit committee needs to better understand.

8. How do you become a Certified Information Technology Professional (CITP)? What do they do on a daily basis?

   A CPA can earn a CITP designation with a combination of business experience, lifelong learning and an optional exam.

   The CITP designation identifies accountants (CPAs) with a broad range of technology knowledge and experience. On a daily basis, CITPs may help devise a more efficient financial reporting system, help figure out how an information system can provide needed decision-relevant information, help the accounting function go paperless or consult on how an IT function may transform the business.

9. Explain the value chain for an appliance manufacturer, particularly the primary activities. Which activities are most crucial for value creation (or in other words, which activities would you want to make sure are the most effective)? Rank the five value-chain enhancing activities in importance for an appliance manufacturer.

   The value chain goes all the way from product design, through sourcing to manufacturing to shipping the final product to the warranty and repair business. Many would consider the product design, which ensures that the appliance has the desired functionality at the right priced points, to be a critical activity for value creation. Sourcing the product components to low cost, yet high quality component providers is also key to creating value. Final assembly (or operations) of the product components is also key to ensuring high product quality at

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reasonable prices. Marketing the final product through appropriate distribution channels and supporting the final product through the warranty and repair process also are crucial parts of the value chain.

My opinion of the ranking of the five primary activities would be that product design would be the most important, then sourcing (inbound logistics), then marketing, then warranty and repair and finally final assembly (or operations).

10. Which value chain supporting activities would most be most important to support a health insurance provider's primary activities? How about the most important primary activities for a university?

    Of course, all of the supporting activities are important. Human Resources perhaps can be viewed as most important to make sure the right nurses and right doctors with the appropriate skills are available at the right time to service the sick and injured. Technology is increasingly becoming an important part of hospitals, especially with the digital medical records are becoming increasingly available and useful. Certainly, other arguments can be made for other supporting activities.

    The primary activities of a university would be to attract students, educate them and then helping them find a good job once they have graduated. Educating students is probably the most important primary activities in the university as that is its primary mission.

11. List and explain three ways that an AIS can add value to the firm.

    Accounting Information Systems add value by providing decision relevant information to management.

    Three specific examples would include the following: Customer relationship management (CRM) techniques could attract new customers, generating additional sales revenue. Enterprise systems can significantly lower the cost of support processes included. Supply Chain Management Software allows firms to carry the right inventory and have it in the right place at the right time.

12. Where does new product development fit in the value chain for a pharmaceutical company? Where does new product development for a car manufacturer fit in the value chain?

    The support activity of technology generally would include research and development for both a pharmaceutical company as well as a car manufacturer. In either case, this is a support activity that can drive the value for a company.

13. An enterprise system is a centralized database that collects and distributes information throughout the firm. What type of financial information would be useful for both the marketing and manufacturing operations might both need?
    Both marketing and manufacturing operations might both need records of the past sales as well as projections of which products are selling best. For the marketing group, this information would be helpful to optimize marketing campaigns, understand the demographics of the customer, and make predictions of future products. Manufacturing operations might need

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product information to decide which products to produce as well as needed changes to be able to produce future products. The enterprise systems might be able to provide answers to questions like, what manufacturing equipment might be needed to produce new products or is the existing manufacturing capacity sufficient to fulfill future product needs.

14. Customer Relationship Management software is used to manage and nurture a firm's interactions with its current and potential clients. What information would Airbus want to know about its current and potential airplane customers? Why is this so critical?

    For Airbus, understanding its customers is of paramount importance. Airbus would want to know who their potential customers are, who the key contacts are, what the customer's business models are (e.g., short flights, long flights, fuel efficiency, loads on each flight, cargo volume and capacity, etc., who their key supplier has been in the past (Boeing, Airbus, Embraer, Comac, etc.) , what they value in a plane manufacturer (e.g., financing, customer service, after sale service, parts, etc.).

    This information is critical as it helps Airbus tailor its offering and propose new offerings based on the needs of the customer.

Problems

(Note – Problems with **"Connect"** in parentheses below are available for assignment within Connect.)

1. Accenture recently wrote an article entitled, "Meet the Finance 2020 Workforce" (2017) suggesting that accountants will need to not only embrace traditional financial questions of "What happened" and "Why did it happen" questions, but also the questions of "What should we do"? How is that consistent with the idea that the accountant should serve as a business analyst argued in the chapter?

   It may be useful to stakeholders if some accounts are reported on a daily basis, such as sales revenue or employee expenses, as long as that information exhibits faithful representation. Other accounts are only needed periodically, such as estimates and allowance accounts, so real-time reporting would be less useful.

   As information becomes more timely, it generally becomes more relevant. A stakeholder could make decisions based on current account balances versus the balances reported two-to-three months ago. Even periodic data that was reported daily would provide insight into when estimates are generated and adjusted.

   However, there is a risk that real-time reporting will exhibit less faithful representation. Periodic financial statements are reviewed for errors and audited. Real-time reports would be more likely to include material errors that could result in poor decisions by stakeholders. Managers would need to provide better controls or disclose the risks if others are to use the information.

2. Accenture recently wrote an article entitled, "Meet the Finance 2020 Workforce" (2017) suggesting that accountants will need to embrace new financial roles to analyze new

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business opportunities and way the organization can profit from them. Consider the internal and external business processes and give ideas of how they might allow the accountant to analyze business opportunities and how the company might able to profit from them.

3. If enterprise systems do much of the traditional work of recording transactions and processing journal entries and other accounting information, what role is left for the accountant to perform?

   Answers may vary. With computers doing much of the recording and processing of accounting information, the accountant can become more of a business analyst, knowing what information is available and knowing what information is needed to help management make important decisions.

4. **(Connect)** Match the value chain activity in the left column with the scenario in the right column.

   1. Service Activities matches best with B. Warranty Work
   2. Inbound Logistics matches best with F. Receiving dock for raw materials
   3. Marketing and sales activities matches best with A. Surveys for prospective customers
   4. Firm Infrastructure matches best with G. CEO and CFO
   5. Human Resource Management matches best with I. Worker recruitment
   6. Technology matches best with E. New-product development
   7. Procurement matches best with H. Buying (sourcing) raw materials
   8. Outbound Logistics matches best with D. Delivery to the firm's customer
   9. Operations matches best with C. Assembly Line

5. **(Connect)** Match the value chain activity in the left column with the scenario in the right column.

   1. Customer Call Center matches best with G. Service Activities
   2. Supply Schedules matches best with B. Inbound Logistics
   3. Order Taking matches best with I. Marketing and sales activities
   4. Accounting Department matches best with D. Firm Infrastructure
   5. Staff Training matches best with E. Human Resource Management
   6. Research and Development matches best with F. Technology
   7. Verifying quality of raw materials matches best with C. Procurement
   8. Distribution Center matches best with H. Outbound Logistics
   9. Manufacturing matches best with A. Operations

6. In 2002, John Deere's $4 billion commercial and consumer equipment division implemented supply chain management software and reduced its inventory by $500 million. As sales continued to grow, they have been able to keep their inventory growth flat. How did the supply chain management software implementation allow them to reduce inventory on hand? How did this allow them to save money? Which income statement accounts (e.g., revenue, cost of goods sold, SG&A expenses, interest expense, etc.) would this affect?

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The use of supply chain software allowed the business to reduce its inventory and then as sales growth continued, keep its inventory growth flat. This is at least $500 million less that the company had to finance with either liabilities or equity. To the extent it reduced its debt, this would reduce its interest expense. The reduction in inventory also reduced the warehouses to store the inventory, potentially reducing SG&A expenses.

7. Dell Computer used Customer Relationship Management Software called IdeaStorm to collect customer feedback. This customer feedback led the company to build select consumer notebooks and desktops pre-installed with the Linux platform. Dell also decided to continue offering Windows 10 as a pre-installed operating system option in response to customer requests. Where does this fit in the value chain? How will this help Dell create value? By listening to the customer and meeting their needs, will this increase revenues or decreases expenses?

   The use of IdeaStorm at Dell helped Dell get to know its customers and their needs. The primary activity in the value chain that directly addresses the use of CRM is marketing and sales activities, which identifies the needs and wants of their customers to help attract them to the firm's products and buy them.

   Using customer feedback to get to know their customers helps Dell get the right product at the right price to the right customer. It will potentially increase revenues and potentially reduce obsolete inventory by having the products that the customers need.

8. **(Connect)** Ingersoll Rand operates as a manufacturer in four segments: Air Conditioning Systems and Services, Climate Control Technologies, Industrial Technologies, and Security Technologies. They installed an Oracle enterprise system, a supply chain system and a customer relationship management system. They boast the following results:

   - Decreased direct product costs by 11%
   - Increased labor productivity by 16%
   - Increased inventory turns by four times
   - Decreased order processing time by 90% and decreased implementation time by 40%
   - Ensured minimal business disruption
   - Streamlined three customer centers to one

   Please take each of these results and explain which of these systems most directly affected those results.

   1. Decreased direct product costs by 11% - this likely came about by efficiencies gained by the supply chain system.
   2. Increased labor productivity by 16% - this likely came about by efficiencies gained by the supply chain system.
   3. Increased inventory turns by four times - this likely came about by efficiencies gained by a combination of the supply chain system and customer relationship management (by having the right product to the right customer)

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4. Decreased order processing time by 90% and decreased implementation time by 40% (this was likely caused by a combination of the implementation of supply chain management, customer relationship management and enterprise systems).
5. Ensured minimal business disruption - uncertain how this is tied to the implementation of supply chain management, customer relationship management and enterprise systems
6. Streamlined three customer centers to one - uncertain how this is tied to the implementation of supply chain management, customer relationship management and enterprise systems

9. **(Connect)** Using the explanations of each IT strategic role below, suggest the appropriate IT strategic role (automate, informate or transform) for the following types of IT investments. Depending on your interpretation, it is possible that some of the IT investments could include two IT strategic roles.

    1. Digital Health Records - automate
    2. Google Maps that recommend hotel and restaurants along a trip path - transform
    3. Customer Relationship Management Software - informate
    4. Supply Chain Management Software - informate
    5. Enterprise Systems - automate
    6. Airlines Flight Reservations Systems - informate
    7. PayPal - transform
    8. Amazon.com Product Recommendation on your homepage - transform
    9. eBay – informate or transform
    10. Course and Teacher Evaluation conducted online for the first time (instead of on paper) – automate
    11. Payroll Produced by Computer - automate

10. **(Connect)** Information systems have an impact on financial results. Using Figure 1-8 as a guide, which system is most likely to impact the following line items on an income statement? The systems to consider are enterprise systems, supply chain systems and customer relationship management systems.
    1. Revenues
    2. Cost of Goods Sold
    3. Sales, General and Administrative Expenses
    4. Interest Expense
    5. Net Income

Income Statement Item	System
Revenues	Customer relationship management system

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Cost of Goods Sold	Supply chain system
Sales, General and Administrative Expenses	Enterprise system
Interest Expense	Supply chain system
Net Income	All of these

11. **(Connect)** Accountants have four potential roles in accounting information systems: user, manager, designer and evaluator. Match the specific accounting role to the activity performed.
    1. Controller meeting with the systems analyst to ensure accounting information system is able to accurately capture information to meet regulatory requirements -- Designer
    2. Cost accountant gathering data for factory overhead allocations from the accounting information system -- User
    3. IT auditor testing the system to assess the internal controls of the accounting information system -- Evaluator
    4. CFO plans staffing to effectively direct and lead accounting information system – Manager

12. **(Connect)** In 2013, Frey and Osborne wrote a compelling article suggesting that up to 47 percent of total US employment is at risk due to computerization. The chart below suggests the probability that each occupation will lead to job losses in the next 20 years.

Selected Occupation	Probability of Job Loss
Physician and Surgeon	0.004
Preschool Teachers	0.007
Chemical Engineers	0.02
Police	0.10
Commercial Drivers	0.18
Plumbers	0.35
Economists	0.43
Sheet Metal Workers	0.82
Retail Salespersons	0.92
Accountants and Auditors	0.94
Tax Preparers	0.99

1. Given these predictions, which jobs are most likely to be replaced by computerization? Those that primarily have tasks that automate, informate or transform? -- Automate

2. Noticing the high probability of predicted job loss in the accounting and auditing area, are those job losses expected to be due to automate, informate or transform? -- Automate

3. As accountants become business partners in giving critical information to management for decision making, are those tasks automate, informate or transform? -- Informate

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4. Is the use of data analytics by accountants, an example of automate, informate or transform?
   -- Informate

Source: "The Future of Employment: How Susceptible Are Jobs to Computerisation" by. C. Frey and M. Osborne (September 2013)

13. **(Connect)** Which firm information system (Enterprise System, Customer Relationship Management, Supply Chain) would address each of the following questions?

Questions	Information System (Customer Relationship Management, Enterprise System, Supply Chain Management)
What is the value of fixed assets (property, plant and equipment) on the balance sheet?	Enterprise System
How much does Boeing owe General Electric for its turbine engines?	Customer Relationship Management
When will the shampoo products from Procter and Gamble arrive at the Walmart distribution center?	Supply Chain Management
Which customers should we no longer sell to due to poor credit?	Customer Relationship Management
When was the depreciation adjusting journal entry made?	Enterprise System
How long does it take Microsoft to get electronic parts from Taiwan?	Supply Chain Management
Who is Apple's most profitable customer?	Customer Relationship Management
What is the salary of the web page designers most recently hired at Ebay?	Enterprise System

14. **(Connect)** Management has questions. Accountants have answers. These answers should come from either internal or external business processes. And come from which firm information system (Enterprise System, Customer Relationship Management, Supply Chain)?

Questions	Internal or External Business Process	Information System (Customer Relationship Management, Enterprise System, Supply Chain Management)
What is the value of fixed assets (property, plant and equipment) on the balance sheet?	Internal Business Process	Enterprise System
Which shoes are least desired by Zappo's customers?	External Business Process	Customer Relationship Management
When will the United Parcel Service (UPS) deliver the inventory?	External Business Process	Supply Chain Management

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What is the salary of the accounting staff most recently hired at Home Depot headquarters?	Internal Business Process	Enterprise System
How long does it take to close the books at the end of the period?	Internal Business Process	Enterprise System
How long does it take to deliver tires from General Motors to its car dealers?	External Business Process	Supply Chain Management

15. **(Connect)** Identify the certification required to address each of the following questions/tasks including Certified Internal Auditor (CIA), Certified Public Accountant (CPA), Certified Information Technology Professional (CITP) and Certified Information Systems Auditor (CISA)

Questions	Certification (Certified Internal Auditor (CIA), Certified Public Accountant (CPA), Certified Information Technology Professional (CITP) and Certified Information Systems Auditor (CISA))
Who helps determine if the internal controls are designed properly and working?	Certified Internal Auditor (CIA)
Who helps an individual file taxes with the IRS?	Certified Public Accountant (CPA)
Who performs IT audits for PWC (a Big 4 auditor)?	Certified Information Technology Professional (CITP)
Who designs a more efficient financial reporting system?	Certified Information Systems Auditor (CISA)
Who looks for fraudulent financial transactions and works for the audit committee?	Certified Internal Auditor (CIA)
Who performs an external audit for a company before filing with the Securities and Exchange Commission?	Certified Public Accountant (CPA)
Who helps design and implement a financial reporting system be done without paper?	Certified Information Technology Professional (CITP)
Who evaluates whether there is a threat of a cybersecurity breach to the financial reporting system of a company it is auditing?	Certified Information Systems Auditor (CISA)

16. The appropriate amount of an Allowance for Doubtful Accountants (that serves as a contra asset to Accounts Receivable) is generally determined by figuring out how long the underlying receivables have remained unpaid? How might a customer relationship management system be able to help determine whether an outstanding accounting might be paid?

Answers will vary. The CRM might be able to provide the following information about the customer and whether they will be able to be paid. CRMs can help:

- see if the customer has a dispute with the items received (causing the non-payment).
- see if the customer is continuing to purchase from the company.

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- develop statistical models that predict allowances and collections based on all available data in the CRM.

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