# chapter 1

# accounting information systems: An overview

# Suggested Answers to Discussion Questions

**1.1 Discuss the concept of a system and the issues of goal conflict and goal congruence.**

A system is a set of two or more components that are somehow interrelated and interact together to achieve a specific goal. A system usually consists of smaller components called subsystems. These subsystems have specific and defined functions, which interact with and support the larger system. The concept of systems is key to information technology and AIS. All systems, including the AIS, must work to achieve one or more organizational goals. Goal conflict results when a decision or action of a subsystem is inconsistent with another subsystem or the system (organization) as a whole. Goal congruence results when a subsystem achieves its goals while contributing to the organization's overall goal. Subsystems should maximize organizational goals.

**1.2 Give an example of how an AIS can improve decision making and describe the multistep activities involved in the process.**

Decision making is a complex, multistep activity: identify the problem, collect and interpret information, evaluate ways to solve the problem, select a solution methodology, and implement the solution. An AIS can provide assistance in all phases of decision making. Reports can help to identify potential problems. Decision models and analytical tools can be provided to users. Query languages can gather relevant data to help make the decision. Various tools, such as graphical interfaces, can help the decision maker interpret decision model results, evaluate them, and choose among alternative courses of action. In addition, the AIS can provide feedback on the results of actions.

An AIS can help improve decision making in several ways:

* It can identify situations requiring management action. For example, a cost report with a large variance might stimulate management to investigate and, if necessary, take corrective action.
* It can reduce uncertainty and thereby provide a basis for choosing among alternative actions.
* It can store information about the results of previous decisions, which provides valuable feedback that can be used to improve future decisions. For example, if a company tries a particular marketing strategy and the information gathered indicates that it did not succeed, the company can use that information to select a different marketing strategy.
* It can provide accurate information in a timely manner. For example, Walmart has an enormous database that contains detailed information about sales transactions at each of its stores. It uses this information to optimize the amount of each product carried at each store.
* It can analyze sales data to discover items that are purchased together and can use such information to improve the layout of merchandise or to encourage additional sales of related items. For example, Amazon uses its sales database to suggest additional books for customers to purchase.

**1.3 A software company in Munich is organizing a competition, inviting business ideas that promote the use of smartphone technology to conduct business. You enter your business plan, an initiative to involve unemployed teenagers and young adults from local communities to generate business and employment, and it was so well received that you were awarded a special prize of €5,000. You plan on using your prize money to implement your idea.**

1. **Identify key decisions you need to make, the information you require to make these key decisions, and the five major business processes you need to engage in.**
2. **Identify the external parties with whom you would need to exchange information and specify the information you will receive from these parties and the information that you will send to these parties.**

The author uses this as a class discussion: the typical process the author follows is that students work through the content of a chapter before it is covered in class. Students are required to answer questions (such as this one) and submit it before the lecture. The author then assesses the answers, and, based on problems identified within the answers, the lecture content would be determined.

Students are thus required to complete the questions before coming to the class. In class, the students are divided into small groups (about 4 – 5 students per group). Each small group has to come to some consensus about the answers that they will present to the class. The groups could be randomly allocated, or the groups could be based on similarity in initial ideas.

A group is then selected (or a group can volunteer) to present their answers to the class. Since all students have had the opportunity to engage with the content prior to the presentation in class, there should be meaningful contributions and discussions about how the presented solutions could be improved.

Answers will vary, but the main aim is to get students to understand (for part a) how the business processes, key decisions, and information needs are all intertwined (as shown in Table 1-2). This then links to the external parties (part b) in Figure 1-1.

Since the scenario indicated the use of mobile phones to conduct business, students should ideally relate their answers to some form of retail (buying / selling of goods / services).

**1.4**  **How do an organization’s business processes and lines of business affect the design of its AIS? Give several examples of how differences among organizations are reflected in their AIS.**

An organization’s AIS must reflect its business processes and its line of business. For example:

* Manufacturing companies will need a set of procedures and documents for the production cycle; non-manufacturing companies do not.
* Government agencies need procedures to track separately all inflows and outflows from various funds, to ensure that legal requirements about the use of specific funds are followed.
* Financial institutions do not need extensive inventory control systems.
* Passenger service companies (e.g., airlines, bus, and trains) generally receive payments in advance of providing services. Therefore, extensive billing and accounts receivable procedures are not needed; instead, they must develop procedures to account for prepaid revenue.
* Construction firms typically receive payments at regular intervals, based on the percentage of work completed. Thus, their revenue cycles must be designed to track carefully all work performed and the amount of work remaining to be done.
* Service companies (e.g., public accounting and law firms) do not sell physical goods and, therefore, do not need inventory control systems. They must develop and maintain detailed records of the work performed for each customer to provide backup for the amounts billed. Tracking individual employee time is especially important for these firms because labor is the major cost component.

**1.5** **Figure 1-5 shows that organizational culture and the design of an AIS influence one another. What does this imply about the degree to which an innovative system developed by one company can be transferred to another company?**

Since people are one of the basic components of any system, it will always be difficult to transfer successfully a specific information systems design intact to another organization. Considering in advance how aspects of the new organizational culture are likely to affect acceptance of the system can increase the chances for successful transfer. Doing so may enable the organization to take steps to mitigate likely causes of resistance. The design of an AIS, however, itself can influence and change an organization’s culture and philosophy. Therefore, with adequate top management support, implementation of a new AIS can be used as a vehicle to change an organization. The reciprocal effects of technology and organizational culture on one another, however, mean that it is unrealistic to expect that the introduction of a new AIS will produce the same results observed in another organization.

**1.6** **Why are accounting software packages designed with separate transaction modules?**

Since every organization does not necessarily use all of the transaction cycles in its operations, it is to the advantage of the organization to be able to “pick and choose” from among various software modules that track and record different transaction cycles. For example, a law firm would have no need to implement a production cycle module. Also, the nature of a transaction cycle varies across the broad spectrum of business organizations. Again, a law firm would have a revenue cycle, but it would not involve the purchase, receipt, and payment for products or merchandise; likewise, a retail store chain may not sell any consulting services to its customers.

**1.7 Apply the value chain concept to S&S. Explain how it would perform the various primary and support activities.**

The value chain classifies business activities into two categories: primary and support.

The five primary activities at S&S:

1. **Inbound logistics** includes all processes involved in ordering, receiving, and temporarily storing merchandise that is going to be sold to S&S customers.
2. S&S does not manufacture any goods, thus its **operations** activities consists of displaying merchandise for sale and protecting it from theft.
3. **Outbound logistics** includes delivering the products to the customer.
4. **Sales & marketing** includes ringing up and processing all sales transactions and advertising products to increase sales.
5. **Service** includes repairs, periodic maintenance, and all other post-sales services offered to customers.

The four support activities at S&S:

1. **Firm infrastructure** includes the accounting, finance, legal, and general administration functions required to start and maintain a business.
2. **Human resource management** includes recruiting, hiring, training, evaluating, compensating, and dismissing employees.
3. **Technology** includes all investments in computer technology and various input/output devices, such as point-of-sale scanners. It also includes all support activities for the technology.
4. **Purchasing** includes all processes involved in identifying and selecting vendors to supply goods and negotiating the best prices, terms, and support from those suppliers.
   1. **Information technology enables organizations to easily collect large amounts of information about employees. Discuss the following issues:**

These questions involve traditional economic cost/benefit issues and less well-defined ethical issues.

1. **To what extent should management monitor employees’ e-mail?**

Generally, the courts have held that organizations have the right to monitor employees’ email. Such monitoring can have disastrous effects on employee morale, however. On the other hand, it might provide legitimate information about group members’ individual contributions and productivity.

1. **To what extent should management monitor which Web sites employees visit?**

Students are likely to argue whether or not this should be done. One potential benefit that could be argued is the likelihood that if employees are aware that they will be monitored they will be less prone to surf the Web for non-work-related uses.

1. **To what extent should management monitor employee performance by, for example, using software to track keystrokes per hour or some other unit of time? If such information is collected, how should it be used?**

Arguments pro and con can be generated about the effects of such monitoring on performance and on morale. Clearly, the specifics of any incentive schemes tied to such metrics are important.

1. **Should companies use software to electronically “shred” all traces of e-mail?**

Arguments can be raised on both sides of this issue. Try to get students to go beyond the legal ramifications of recent news stories and to explore the ethical implications of destroying different kinds of email.

1. **Under what circumstances and to whom is it appropriate for a company to distribute information it collects about the people who visit its Web site?**

Direct students to the guidelines followed by organizations that certify how various web sites use the information they collect. Students are likely to make the argument that personal information is inherently private and sacrosanct. To challenge that view, ask them about the legitimacy of developing and maintaining a reputation. Doesn’t that involve the divulgence and sharing of personal information among strangers? Ask the class if it is feasible (or undesirable) to totally prevent or prohibit such sharing of information.

The instructor should also refer the students to GAPP, as one of its criteria concerns sharing information with 3rd parties. The instructor and the students could read the GAPP criterion about sharing data together, and then discuss what they think. Remind the students that GAPP is not regulatory law – just recommended best practice.

**Suggested Answers to the Problems**

**1.1 IT is changing the nature of accounting and the role of accountants. Write a two-page report describing what you think will be the nature and the value of the accounting function in a large company in the future.**

Numerous answers are possible. Several articles addressing this topic have appeared in *Strategic Finance* and the *Journal of Accountancy.*

**1.2** **The annual report is considered by some to be the single most important printed document that companies produce. In recent years, annual reports have become large documents. They now include such sections as letters to the stockholders, descriptions of the business, operating highlights, financial review, management discussion and analysis, a discussion of company internal controls, segment reporting, inflation data, and the basic financial statements. The expansion has been due in part to a general increase in the degree of sophistication and complexity in accounting standards and disclosure requirements for financial reporting.**

**The expansion also is reflective of the change in the composition and level of sophistication of users. Current users include not only stockholders but also financial and securities analysts, potential investors, lending institutions, stockbrokers, customers, employees, and—whether the reporting company likes it or not—competitors. Thus, a report originally designed as a device for communicating basic financial information now attempts to meet the diverse needs of an ever-expanding audience.**

**Users hold conflicting views on the value of annual reports. Some argue that they fail to provide enough information, whereas others believe disclosures in annual reports have expanded to the point where they create information overload. Others argue that the future of most companies depends on acceptance by the investing public and by its customers; therefore, companies should take this opportunity to communicate well-defined corporate strategies**. Adapted from the CMA Examination

**a. Identify and discuss the basic factors of communication that must be considered in the presentation of the annual report.</para></listitem>**

The annual report is a one-way communication device. This requires an emphasis on clarity and conciseness because there is no immediate feedback from the readers as to what messages they are receiving.

The preparer must attempt to identify the users/audience of the report, and to determine their values, beliefs, and needs. Then the preparer can determine the language, i.e., words and phrases that would be appropriate and familiar to the users/audience.

The preparer must also consider the organization of the material in the report. Logical ordering and attractive formatting facilitate the transmission of ideas.

**b. Discuss the communication problems a corporation faces in preparing the annual report that result from the diversity of the users.**

</para></listitem>The different users of annual reports have differing information needs, backgrounds, and abilities. For some users, the annual report may serve as an introduction to the company and/or the only significant information about the company. By using the report to communicate to all users, the problems the corporation faces include the following.

* In an attempt to reach several audiences, a company may include information for each audience. Consequently, the annual report may grow in size and complexity to the point where it contains more information than many users want to receive or are able to comprehend, i.e., information overload. In some cases, technical concepts may be reduced to concepts that are more common; this reduces precision and conciseness thereby leading to more generalizations.
* Care must be taken in the presentation of information. Words and phrases familiar to one user group may not be understood by those in other user groups. Graphic displays that are meaningful to some may be meaningless to others.

**c. Select two types of information found in an annual report, other than the financial statements and accompanying footnotes, and describe how they are helpful to the users of annual reports.**

</para></listitem>Other than the financial statements and accompanying footnotes, an annual report provides information concerning

* Management's discussion and analysis of results.
* Organizational objectives, strategies, and management's outlook for the future.
* Board of Directors members and the officers and top management of the organization.
* Segment data and performance information.
* New initiatives and research information.
* Recent stock price history and stock information.

Students will have many and varied answers as to how the information is helpful, which should lead to a rich class discussion. This discussion can be combined with the discussion of part e.

**d. </inst>Discuss at least two advantages and two disadvantages of stating well-defined corporate strategies in the annual report.</para></listitem>**

Stating well-defined corporate strategies in a company's annual report accomplishes the following:

Advantages:

* Communicates the company's plan for the future and resolves any disparate issues.
* Provides a vehicle for communicating the company's strengths.
* Builds investor confidence and portrays a positive image.

Disadvantages:

* Locks management into fulfilling stated objectives and strategies, causing inflexibility.
* Communicates to unintended users who could put the company at risk (i.e., competitors).

**e. Evaluate the effectiveness of annual reports in fulfilling the information needs of the following current and potential users: shareholders, c</para></listitem>reditors</para></listitem>, <listitem><para><inst></inst>employees</para></listitem>, c<ustomers, and f</para></listitem>inancial analysts</para></listitem></orderedlist></listitem>**

Annual reports fulfill users' information needs as discussed below.

1. Shareholders. Annual reports meet the statutory requirement that publicly held corporations are to report annually to stockholders and report on the stewardship of management to both current and potential stockholders. The annual report gives shareholders financial and operating information such as income from operations, earnings per share, the Balance Sheet, Cash Flow Statement, and related footnote disclosure that potential shareholders need to evaluate the risks of and potential returns on investment. However, the volume of data presented in annual reports can result in information overload that reduces the value of the reports. Confusion can result from reducing technical concepts to common concepts or by the presentation of duplicate messages by different forms of media.

2. Creditors. The annual report of public companies provides financial information as well as trend information. This allows creditors to project financial solvency and to evaluate the company’s ability to repay loans.

3. Employees. The annual report gives the employees information such as a description of the company's pension plan and the employee stock incentive plan. This gives employees a base from which to compare their benefits program to those of other companies. Annual reports also provide employees with a year-end review of the results to which they have contributed during the year. In this sense, the annual report provides reinforcement and rewards. The annual report also informs or reminds employees of the organization's values and objectives and sensitizes them to the aspects of the organization with which they are not familiar. On the other hand, the employee already knows how the organization is performing so the annual report does not provide any substantive additional information.

4. Customers. The annual report provides customers with trend information and management performance information. They can use this to assess the company's past and current performance.

5. Financial analysts. The set of audited comparative financial statements provides the basis for analysis done by financial analysts. Notes, which are an integral part of the statements, describe or explain various items in the statements, present additional detail, or summarize significant accounting policies. Financial analysts are the most sophisticated class of users of annual reports. However, some data may be too condensed. Analysts may also need information in addition to that provided in annual reports to facilitate their analyses.

**f. Annual reports are public and accessible to anyone, including competitors. Discuss how this affects decisions about what information should be provided in annual reports.**

</para></listitem></orderedlist>Management may omit information entirely from the annual report or disguise it because competitors have access to annual reports. The objective of reporting should be to reveal as much as possible without giving away proprietary information or a competitive edge.

**1.3** **Alexander Forbes, a diversified financial services organization, is one of the major financial services organizations in Africa, providing financial solutions to individual and corporate customers. Their services include retirement planning, asset and wealth management, medical insurance, and consulting. Headquartered in Johannesburg, South Africa, the company has operations in eight regions across sub-Saharan Africa and the Channel Islands, employing over 3,000 people. It reported operating income of ZAR 3,647 million (South African rand) for the year 2017–18.**

**In recent years, Alexander Forbes has embarked on simplifying the company structure to enable better collaboration across divisions. One of the structural changes was the separation of the technology function from the operations function to create an information technology (IT) function as a revenue-generating cluster.**

**The IT function is responsible for modernizing systems to provide, among other services, a single customer view. This made it possible for Alexander Forbes to use IT as a strategic tool. One of the ways in which this is being achieved is the company’s health insurance services.**

**The company keeps track of its customers in an integrated database so that customer care representatives are able to handle queries and transactions for customers across all healthcare products.**

**The database tracks all claims submitted by their customers, including visits made by healthcare professionals, medication, procedures, and treatments. In case of prescriptions for which cheaper options, often in the form of generic alternatives, are available, customers are immediately informed via text message to their mobile phones. However, it is often found that customers prefer the more expensive medication rather than the generic alternative. A record of co-payment is maintained on the database for such customers since the company does not cover the full cost of relatively expensive medication.**

**All claims submitted by customers are digitized and can be easily retrieved if any queries arise. Customers can also access their historical records through the company’s website.**

**Customers can install the company’s mobile application to submit claims and check their status.**

1. **Why should Alexander Forbes collect data on the drugs that are prescribed? What could the company do with this data?**

The benefits a company realizes from gathering and storing data should be greater than the cost of collecting the data. Since customers will submit their claims anyway, the company has access to all the claim data, so there should not be no additional costs incurred for gathering data. The biggest cost incurred would be for storing the data, followed by the processing and aggregating of the data.

Alexander Forbes could share the collected, processed data with pharmaceutical companies as well as pharmacies / dispensaries to show trends in the types of medication prescribed over time. This would assist the pharmaceutical companies with their production schedules, and it would assist pharmacies / dispensaries in having accurate stock levels.

1. **Although customers are informed of cheaper generic alternatives to expensive medication, many customers opt for the more latter even though they have to make a co-payment. How can Alexander Forbes use its AIS to persuade pharmacies to encourage customers to opt for the more affordable generic alternatives?**

The company could publish summary figures on the types of medication dispensed and the co-payments incurred by customers at the different dispensing groups, thus demonstrating to the public where medication might be more affordable.

Another influence could be that pharmacies / dispensaries could use the information to more aggressively promote cheaper alternatives.

1. **How does digitizing the claims add value to the organization?**

Digitizing the claims adds value since the business process is streamlined and queries can be handled more effectively and efficiently. It is no longer necessary for customer representatives to search manually through paper documents – searches can be done electronically. It is easy to lose paper documents (for example separate pages of claims or payments made) or to misfile paper documents in incorrect folders. These issues with paper documents resulted in delays when issues had to be resolved. With digitized documents, it is much easier to search for information and resolve issues, as documents are rarely missing or misfiled. Customer service representatives can easily access all required information while the representative is talking to the customer over the phone (or while handling queries online / via the mobile application).

1. **How does the mobile application add value to the organization?**

The mobile application allows customers to submit claims and query anything at any time and any place that suits them. Customers can scan (or take a picture) of a claim whenever it is convenient for the customer – the customer is not restricted to specific times and locations. The customer does not have to visit a branch or get to a post office to either deliver or send off claim documentation.

Queries can be handled via the application too – the customer need not phone a customer service representative and have a conversation – the customer can handle queries online and can search through claims and communication history because the integrated database makes this information available to both the customer and the customer representative.

1. **Use the Internet to find other IT improvements that Alexander Forbes has introduced outside of their healthcare division. Write a short paragraph on each new application or other newsworthy item you find.**

Students should be able to find newsworthy items that might be of interest. Here are some interesting articles – not necessarily all positive news, but newsworthy nonetheless. Ensure that the links are still active before sharing them with students.

https://www.dimensiondata.com/en/insights/case-studies/2015/11/alexander-forbes

https://www.businesslive.co.za/bd/companies/financial-services/2018-12-11-failed-it-upgrade-drags-alexander-forbes-into-a-loss/

https://www.moneyweb.co.za/moneyweb-radio/cancelled-it-project-impacts-alexander-forbes-interims/

**1.4** **Match the description in the right column with the correct information characteristic in the left column**.

|  |  |
| --- | --- |
| **I** 1. Access restricted | a. A report was carefully designed so that its data was easily comprehended by the reader. |
| **E** 2. Accurate | b. A manager working on the weekend needed information about a customer’s production requests and found it on the company’s network. |
| **B** 3. Available | c. Before production reports are accepted, two clerks working  independently must produce the same information. |
| **H** 4. Reputable | d. An accounts receivable aging report included all customer  accounts. |
| **D**  5.Complete | e. A report was checked by three different people to make sure it was correct. |
| **K** 6. Concise | f. An accounts receivable aging report is used in credit-granting  decisions. |
| **L** 7. Consistent | g. An accounts receivable aging report was received before the  credit manager had to decide whether to extend credit to a customer. |
| **M** 8. Current | h. Needing help with a decision, a manager sought the opinion of a highly regarded expert. |
| **N** 9. Objective | i. To protect intellectual property, a company encrypted the data, stored it in a very secure facility, and limited its use to five people. |
| **F** 10. Relevant | j. Tired of keying supplier prices into a database, a purchasing manager insisted the data be sent in machine readable form. |
| **G** 11. Timely | k. After a lengthy, rambling presentation, a CEO insisted future presentations contain only pertinent facts and last no more than 30 minutes. |
| **J**  12. Useable | l. A new manager insisted that monthly reports look the same so she could compare a new month’s results to previous months. |
| **A** 13. Understandable | m. After making a decision based on outdated data, a new CFO required all analysis to be conducted with up-to-date data. |
| **C** 14. Verifiable | n. Reluctant to rely on his personal feelings about a decision, a manager sought the opinion of an outside expert. |

**1.5** **EC Coaches is a privately held, medium-sized company that operates a fleet of luxury coaches, semi-luxury and commuter buses, and a variety of luxury and standard vehicles. Ranging from five to 60 seaters, these vehicles are leased to tour operators, universities, schools, charitable organizations, and other businesses. To protect their investment in their vehicles and ensure that they provide their customers with vehicles in immaculate condition, EC Coaches has a maintenance facility where they do basic repairs and maintenance on their vehicles. Scheduled vehicle services are handled by agents according to the maintenance plans agreed at the time of purchase of the vehicle.**

**You were recently hired by EC Coaches and you are eager to demonstrate your worth to the company. Your supervisor asked you to prepare an accounts payable aging report as of the end of the year for use in the upcoming audit of the company’s financial statements.**

Student solutions will vary based on their background and education. The following are possible solutions.

1. **What is an accounts payable aging report?**

An accounts payable aging report lists outstanding supplier / vendor account balances by the length of time outstanding. For example, in this case, this is a list of all agents with whom maintenance plans are agreed with the outstanding balances owed to them, as well as the length of time the balances had been outstanding.

1. **Why is an accounts payable aging report needed for an audit?**

An accounts payable aging report is needed during an audit to determine which invoices are due and which invoices are overdue. Whenever the report is scrutinized, it is important to remember that not all supplier payment terms are the same – some may, for example, be that payment is made after 60 days, then invoices listed in the “before 60 days” column is not overdue yet.

1. **What is an accounts payable aging report used for in normal company operations?**

An accounts payable aging report is used in normal company operations to provide information for:

* Identifying major creditors – how much the business owes each creditor, and how long the outstanding balance has been owed.
* Monitoring expenses – this helps with managing the cash flow of the business.
* Identifying obligations that are due – and when those are due.
* Makes budgeting, and ultimately financial stability, possible, as expenses and obligations can be identified and managed.

1. **What data will you need to prepare the report?**

To prepare an accounts payable aging report, all credit purchases from suppliers are needed – this information can be obtained from invoices indicating the amount outstanding, the length of time the balance had been outstanding, and the due date for payment.

1. **Where will you collect the data you need to prepare the report?**

The data needed to prepare the accounts payable aging report can be collected from the purchase transactions, cash disbursement files, and cash disbursement tables.

1. **How will you collect the necessary data for the report?**

If the data is in machine-readable form, it can be collected by preparing and running programs or queries that will extract the purchases and cash payment data. If the data is maintained on paper, it can be collected from daily or monthly purchase reports and daily or monthly cash disbursements reports.

1. **What will the report look like (i.e., how will you organize the data collected to create the information your supervisor needs for the audit)? Prepare an accounts payable aging report template in Excel or another spreadsheet software.**

The accounts receivable aging report should look something like the following, whether it is prepared on paper or in Excel:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Supplier Number | Supplier Name | 0-30 Days Outstanding | 31-60 Days Outstanding | 61-90 Days Outstanding | 91+ Days Outstanding |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

1. **How will you distribute the report? How many copies will you make? Who should receive the copies? What security features will you implement?**

The accounts payable aging report should be restricted to employees with operational or authoritative responsibility for supplier accounts, such as the accounts payable clerk and the controller. If the report is in an electronic form, access to the report should be restricted to appropriate authorized personnel. If the report is distributed on paper, only as many copies as necessary should be produced and they should be delivered in a manner that ensures the confidentiality of the data. Security features could include placing the report on a password-protected server or encrypting the file prior to emailing it or placing it on a server.

**1.6** **Albert Heijn (or AH) is arguably the largest retail chain in Europe, owning supermarkets, convenience stores, and online shopping services in food and other goods. AH prides itself on establishing the first modern supermarkets. Founded in 1887 in Oostzaan, the Netherlands, Albert Heijn grew from a humble grocery store to a chain of supermarkets. Its first supermarket was established in 1952 and, over the decades, AH has been the shopping destination of choice for the majority of the people living in the Netherlands, Belgium, and other European countries. The chain comprises more than 850 stores, including more than 200 franchisees.**

**AH is known for being an early adopter of information technology and has been one of the first supermarkets to take on a loyalty-card program. Customers can avail of a discount with a card called ‘Bonuskaart’ in Dutch. It is issued to them after their personal information is entered into a database.**

**This provides AH with a mine of information about its customers. It utilizes this information to expand its business and push sales.**

1. **What kind of information do you think AH gathers?**

* The Bonuskaart application filled out in the store captures data such as customer names, addresses, household size, ages of children, dietary preferences, and income levels.
* When the Bonuskaart is used to qualify for the discounts, Albert Heijn computers record everything a customer purchases.

1. **How do you think the AH has motivated its customers to sign up for the bonus card program?**

* It offers merchandise discounts to customers who sign up and gives card users a point for every pound spent. Points can be used to reduce the price of future purchases or exchanged for frequent flier miles.
* Big spenders are sent special promotions.

1. **What can the AH accomplish with the data it collects? Think in terms of strategy and competitive advantage.**

* *Customized Coupons and promotions.* Albert Heijn analyzes customer purchases and customizes its marketing based on the results. Quarterly, Albert Heijn mails active Bonuskaart customers three coupons for frequently purchased items and three coupons for items they are likely to buy or that Albert Heijn wants them to try. Albert Heijn is so good at understanding their customer’s tastes and preferences that their coupons are 10 to 15 times more likely to be used than other coupons. The quarterly mailing also contains vouchers that allow members to redeem their accumulated points. Some 95% of all vouchers are redeemed.
* *Cross marketing.* Analysis of customer data allows Albert Heijn to discover unique buying habits. For example, men who purchased diapers for newborns buy more beer than the normal male – presumably because they are more likely to stay at home and less likely to go out.
* *Improved decision-making.* Albert Heijn has been able to make better decisions and set better company goals than ever before. Using data on purchases and the ethnic makeup of the neighborhoods surrounding the stores, Albert Heijn is able to stock goods that have greater customer appeal. For example, Albert Heijn noticed that customers in a small store in a South Asian and Arab part of town were not buying complete meals. They went elsewhere to buy certain staple foods and Asian brands. Further analysis led to the decision to replace the small store with a Supercenter that offered more than 800 foreign products. It included a halal butcher shop, the latest movies from India, Arabic and Asian newspapers, and an Indian jewelry counter. Albert Heijn also redesigned its shopping carts to handle the bulk purchases of its customers more easily.
* *Customer loyalty*. Albert Heijn used Bonuskaart data to neutralize Wal-Mart’s most significant advantage. Albert Heijn identified 300 items that price-sensitive shoppers frequently purchased and lowered their prices. This kept the customers most likely to shop at Walmart from defecting.
* *New product rollouts.* Analysis of Bonuskaart data showed that affluent customers were not buying certain products like fruit, cheese, and wine. This led to the introduction of a premium quality brand, “Albert Heijn’s Finest,” that successfully attracted affluent customers. Customer data also allows Albert Heijn to figure out quickly how new initiatives are working. For example, when Albert Heijn rolled out ethnic foods for Indians and Pakistanis, data analysis showed that white affluent customers were also buying the products. The rollout was quickly expanded to include them.
* *Improved supplier relationships.* Outside companies are taking advantage of Albert Heijn’s data to improve their decision-making. When Kimberly-Clark introduced a premium toilet paper, it used Bonuskaart data to track who purchased it and who continued to purchase it. Further analysis showed that those who bought the toilet paper also were big buyers of skin-care products. This allowed Kimberly-Clark to develop a marketing program that offered free beauty treatments to those who continued to buy the toilet paper.

1. **What could be some of the disadvantages of the card program?**

Some critics believe that loyalty card programs

* + Are too expensive to maintain and that companies can buy data to achieve similar results for less than the loyalty program costs.
  + Slow down checkout lines.
  + Are a threat to the customer’s privacy.

**1.7 Match each of the following terms with its definition.**

|  |  |
| --- | --- |
| 1. \_J\_\_ Accounting information system | a. Exceeding the amount of information a human mind can absorb and process |
| 2. \_P\_\_ Artificial intelligence | b. Use of software and algorithms to find and solve problems and improve business performance |
| 3. \_Y\_\_ Blockchain | c. The benefit provided by information minus the cost of producing it |
| 4. \_D\_\_ Business processes | d. A set of activities and tasks that help accomplish a specific organizational goal |
| 5. \_R\_\_ Data | e. An agreement to exchange goods or services in exchange for cash |
| 6. \_B\_\_ Data analytics | f. Process of capturing, processing, and storing transaction data for later use and for producing information output |
| 7. \_U\_\_ Data dashboard | g. Frequent exchanges such as surrendering cash for inventory and paying employees for labor |
| 8. \_N\_\_ Expenditure cycle | h. Activities associated with selling goods and services in exchange for cash or a future promise of cash |
| 9. \_X\_\_ General ledger and reporting system | i. Value chain activities that produce, market, and deliver products  to customers and provide post-delivery support |
| 10. \_G\_\_ Give-get exchange | j. A system that collects, records, stores, and processes data to  produce information for decision makers |
| 11. \_Z\_ Goal congruence | k. Linking all the primary and support activities in a business |
| 12. \_T\_\_ Information | l. Activities such as firm infrastructure and technology that enable main activities to be performed efficiently and effectively |
| 13. \_O\_\_ Machine-readable | m. An organization’s value chain as well as its vendors, distributors, and customers |
| 14. \_I\_\_ Primary activities | n. Activities associated with purchasing inventory for resale for cash or a promise to pay cash |
| 15. \_S\_ Production cycle | o. Data in a format that can be processed by a computer |
| 16. \_H\_\_ Revenue cycle | p. Computer systems that simulate human intelligence processes such as learning, reasoning, and self-improvement |
| 17. \_M\_\_ Supply chain | q. Procedures and routines that carry out specific activities, achieve objectives, or solve problems |
| 18. \_L\_\_ Support activities | r. Facts collected, recorded, stored, and processed by an information system |
| 19. \_Q\_\_ System | s. Activities associated with using labor, raw materials, and equipment  to produce finished goods |
| 20. \_E\_\_ Transaction | t. Organized and processed data that provide meaning and improve decision making |
| 21. \_K\_\_ Value chain | u. Display of data points and performance indicators in easily understood charts, tables, or gauges |
| 22. \_C\_\_ Value of information | v. Activities associated with hiring, compensating, promoting, and terminating employees |
|  | w. Major give-get exchanges that occur frequently in most companies |
|  | x. Information-processing operations involved in preparing reports for internal and external parties |
|  | y. Individual digital records linked using cryptography in a single list called a chain |
|  | z. A subsystem achieves its goals while contributing to the overall goal |

**1.8. Classify each of the following items as belonging in the revenue, expenditure, human resources/payroll, production, or financing cycle**.

1. Pay pay-as-you-earn (PAYE) payroll taxes–Expenditure Cycle
2. Send material requisition to inventory–Production Cycle
3. Issue stock to investors–Financing Cycle
4. Borrow money from the bank to purchase a new factory – Financing Cycle
5. Complete receiving report – Expenditure Cycle
6. Appoint replacement purchasing clerk Human Resources / Payroll Cycle
7. Measure employee performance using a performance management system – Human Resources / Payroll Cycle
8. Choose suitable supplier of raw materials – Expenditure Cycle
9. Ensure employees are up to date with the latest tax provisions – Human resources / Payroll Cycle
10. Record personal and tax information for new employees – Human Resources / Payroll Cycle
11. Determine labor needs for the next production run – Production Cycle
12. Create purchase requisition – Expenditure Cycle
13. Transfer employee contribution to medical aid – Human Resources /Payroll Cycle
14. Update work-in-progress file to accumulate cost data – Production Cycle
15. Process sales returns – Revenue Cycle
16. Prepare a bill of materials – Production Cycle
17. Extract sold goods from the warehouse – Revenue Cycle
18. Approve payment after receiving all inventory on receiving report – Expenditure Cycle
19. Manage dividend payments – Financing Cycle
20. Confirm hours worked on automated timekeeping system – Human Resources / Payroll Cycle
21. Send unsettled customer accounts to collection agency – Revenue Cycle
22. Pay interest on loan required to buy new factory – Financing Cycle
23. Prepare a purchase order – Expenditure Cycle