

3.1: Define and Describe the Components of an Accounting Information System

Today, when we refer to an **accounting information system (AIS)**, we usually mean a computerized accounting system, because computers and computer software that help us process accounting transactions have become relatively inexpensive. The benefits of using a computerized accounting system outweigh the costs of purchasing one, and almost all companies, even very small ones, can afford to and do use a computerized accounting system. That is not to say that paper-based or manual accounting systems and processes have disappeared. Most businesses have some form of both noncomputerized and computerized systems. **QuickBooks** is an example of a relatively inexpensive accounting software application that is popular with small and medium-sized businesses.

Manual and Computerized Accounting Information Systems

Interestingly, the term *accounting information system* predates computers. Technically, an AIS is a system or set of processes for collecting data about accounting transactions; recording, organizing, and summarizing the data; and culminating with the preparation of financial statements and other reports for internal and external users. These systems or processes can exist as a series of paper ledgers, computer databases, or some combination of the two. Examples of external users include banks that might lend the company money, investors, and the Securities and Exchange Commission (SEC), which requires that publicly traded companies submit audited financial statements. Since business enterprises needed to produce financial statements long before computers existed, they used manual accounting systems to gather the data needed. **Data** is the term for parts of accounting transactions that constitute the input to an AIS. You have examined many forms of data in this course, for example, the cash received upon the sale of an item is one data point, the reduction of the inventory account related to that specific sold item is another data point, and both the revenue and the cost of goods sold would be additional data points associated with that single transaction of a sale. These data points are summarized and aggregated (in other words “processed”) into more meaningful and useful numbers that appear in the financial statements, and all this data is typically referred to as financial information. A company that may have used a manual AIS years ago likely uses a computerized AIS today. It is important to remember that a computerized accounting system does not change *what* we do with accounting transactions, it only changes *how* we do it, and how we can present the information to different users.

Let’s consider the example of a company that came into existence before we had computers, the department store **Macy’s**, which currently operates stores in nearly all fifty US states. **Macy’s** began as a small, fancy dry goods store that opened in New York City in 1858, became a department store, R.H. Macy & Co., in 1877 using the same red star logo it still uses today. We can assume that even one hundred years ago, **Macy’s** needed to perform the same tasks it does today:

- purchase merchandise inventory to sell to customers;
- record returns of some of the inventory;
- record sales made to customers at the sales price;
- record the cost of the goods sold at the amount Macy’s paid to purchase them;
- record payments from customers;
- record returns from customers;
- purchase other kinds of items needed for operations, like office supplies and fixed assets;
- pay for prior purchases;
- pay for rent, utilities, and other services;
- pay employees;
- enter all of these transactions;
- post all transactions;
- record adjusting journal entries;
- record closing journal entries;
- keep track of its receivables, payables, and inventory; and
- produce financial statements for internal and external users as well as other reports useful to managers in assessing various performance measures needed to evaluate the success of the company.

As you might imagine, doing all this without computers is quite different than performing these tasks with the aid of computers. In a manual system, each business transaction is recorded, in the form of a journal entry in the general journal or one of the four common other special journals, using pen and paper. Journal entries are then posted to a general ledger; balances would be computed by hand or with an adding machine/calculator for each general ledger account; a trial balance is prepared; adjusting journal entries are prepared; and finally, financial statements prepared, all manually.

Concepts in Practice: Modernization of Accounting Systems

In 1955, in one of the earliest uses of a true computer to facilitate accounting tasks, **General Electric Company** used a UNIVAC computer to process its payroll. Initially, it took the computer forty hours just to process payroll for one pay period. The first modern-era spreadsheet software for personal computers, VisiCalc, became available in 1978. Thus, between these time periods, there were minor improvements to the use of computerized accounting tools, but it was not until the mid-1980s that comprehensive computerized accounting programs became widely used. Thus, prior to the mid-1980s, much accounting was done manually or using a variety of less-advanced computer systems in conjunction with manual systems. Imagine the number of bookkeepers it would take to record the transactions of many companies. For example, on the first day of business at **Macy's** in 1858, the store had revenues of \$11.06.¹ The actual accounting ledger used to record those sales is shown in Figure 3.1.1, which seems quite simple. Today **Macy's** has over \$24 billion in sales revenue—can you imagine accounting for all of those transactions (along with all expenses) by hand?

Date	Description	Amount
1858	Cash	
Oct 27	Monday	
	First Days Sales	\$ 11 06
Oct 28	Tuesday	
	Cash on hand	11 06
	Dr. to bank on bal	2 57
	Sales by Ticket Book	51 76
		65 39
Oct 29	Wednesday	
	Cash on hand	60 72
	Sales by Ticket	34 89
		95 61
Oct 30	Thursday	
	Cash on hand	

Figure 3.1.1: Macy's Accounting Ledger. Accounting ledger showing the transactions for Macy's first day. Total revenues were \$11.06 or a little over \$340 in today's dollars. (credit: used with permission of Macy's Corporation)

Today, **Macy's** and other large and small companies perform the same accounting tasks using computer hardware (computers, printers, and keyboards), and software. For example, cashiers can enter transactions into a computer using a keyboard, scanner, or touch screen. The screen displays the data entered or fields available for data entry. As an example, most retail stores have a

point-of-sale system (POS) that enters the sale by scanning the item at the **point of sale**, meaning at the time the transaction is made. This system records the sale and at the same time updates inventory by reducing it based on the number of items purchased.

Later, you will be provided with a series of transactions for a small business and you will be asked to first enter the transactions manually into the appropriate journal, post the information from the journals to the general ledger, prepare trial balances, adjusting and closing entries, and manually produce financial statements just as **Macy's** or any other business would have done prior to the use of various computer technologies. You will then perform the same tasks using QuickBooks, a popular accounting software program used by many small and medium-sized businesses. A company as large as **Macy's** has stores in locations all over the country and a large volume of transactions, so it is more likely to use a software package designed to meet the needs of a very large business. This is often referred to as an enterprise resource planning (ERP) system which stands for enterprise resource planning (ERP) system. An ERP system integrates all of the company's computerized systems including accounting systems and nonaccounting systems. That is, large companies have various accounting subsystems such as the revenue system (sales/accounts receivable/cash receipts), the expenditure system (purchasing/accounts payable/cash disbursements), the production system, the payroll system, and the general ledger system. Nonaccounting systems might include research and development, marketing, and human resources, which, while not an integral part of the accounting system, in a large companywide ERP system are integrated with the accounting modules. Examples of popular ERP software systems are PeopleSoft and SAP.

Like many businesses today, **Macy's** also maintains a company website and engages in e-commerce by offering the sale of many company products online. Accounting software companies like QuickBooks and larger software vendors have upgraded the ways in which they can provide AIS software to meet these needs. For example, a small local retail shoe store can purchase QuickBooks software provided on an electronic storage device such as a CD and upload it to be stored on the hard drive of the company's computers, or the store can purchase a "cloud" version. The cloud version provides the shoe store purchasing the software with access to the QuickBooks software online via a user ID and password with no need to load the software on the store's computers. QuickBooks updates the software when new versions are released and stores the company's accounting data in the cloud. **Cloud computing** refers to using the internet to access software and information storage facilities provided by companies rather than, or in addition to, storing this data on the company's computer hard drive or in paper form. An advantage of cloud computing is that company employees can access the software and enter transactions from any device with an internet connection at any location. The company pays a monthly fee for access to updated software, which can be less costly than buying software stored on individual computers. Potential disadvantages include security concerns because an outside company is storing company programs and data, and if the hosting company experiences technical difficulties, companies paying for these services may temporarily be unable to access their own data or conduct business. Nevertheless, cloud services are increasingly popular.

Here, we illustrate the concepts and practices of an AIS using Intuit QuickBooks, a popular and widely used AIS.

While a company typically selects an AIS to suit its specific needs, all systems should have components capable of:

- inputting/entering data (e.g., entering a sale to a customer);
- storing data;
- processing data and computing additional amounts related to transactions (e.g., computing sales tax on the sale, as well as shipping costs and insurance fees; computing an employee's pay by multiplying hours worked by hourly pay rate; processing inventory changes from both inventory purchases and inventory sales and data from any other transaction that occurs in the business);
- aggregating/summarizing data (e.g., computing total sales for the year);
- presenting data (e.g., producing a balance sheet and other financial statements and reports for the year); and
- storing data (such as the customer's name, address, shipping address, and credit limit).

AISs, whether computerized or manual, generally involve three stages: input, processing, and output. We enter raw data into our system at the input stage and try to correct any errors prior to going on to the next stage of processing the data. We ultimately produce "output," which is in the form of useful information.


Inputting/Entering Data

A **source document** is an original document that provides evidence that a transaction occurred. If you hire a company to paint your house, it will most likely provide a document showing how much you owe. That is the company's sales document and your

invoice. When you pay, your check or digital transaction record is also a source document for the company that provided the service, in this case, the home painter.

Assume you go into the university bookstore to purchase a school sweatshirt, and it is sold out. You then fill out a document ordering a size medium sweatshirt in blue. The form you fill out is a purchase order to you, and it is a sales order to the university bookstore. It is also a source document that provides evidence that you have ordered the sweatshirt. Assume the bookstore does not ask you to pay in advance because it is not sure it will be able to obtain the sweatshirt for you. At that point, no sale has been made, and you owe no money to the bookstore. A few days later, the bookstore manages to acquire the sweatshirt you ordered and sends you an email notifying you of this. When you return to the bookstore, you are presented with the sweatshirt and an invoice (also known as a bill) that you must pay in order to take your sweatshirt home. This invoice/bill is also a source document. It provides evidence of the sale and your obligation to pay that amount. Let's look at an example.

Figure 3.1.2 is a source document—an invoice (bill) from **Symmetry Mold Design** for mold design services. Note the terms (agreements about payments) are listed at the top and how the company calculates those outcomes at the bottom.


**SYMMETRY
MOLD DESIGN**

Invoice

INVOICE: 537
DATE: 3/17/2019

BILL TO:
Any Tool Co.
652 Roselawn Dr.
Sagebrush, IN 55555

REMIT TO:
Symmetry Mold Design LLC
6700 Forest Park Dr.
DeForest, WI 53532

CUSTOMER P.O.	SMD JOB	PAYMENT TERMS	DUE DATE
100063597	201563	4% 30, 2% 60, Net 90	6/15/2019

DESCRIPTION	AMOUNT
<p>(Modeling Only) Design a (4) cavity T-set injection mold to produce Spacer Flange # 659-0002-41586 Custom base with floating B-plate to activate "reverse" lifter center core, latch locks for plate travel, insulator boards top and bottom. Inserted cavity and core - 1 parts / block. Gate sub-inserts, core pins. Cartridge heat in A and B Plates. Special locating ring and sprue. Flat wide runner to gate shut-off pins. Two-stage ejection for gate shut-off. Guided ejection, standard KO pins to eject parts. Vacuum vents. P/L locks.</p> <p>Included: - 3D solid models of the entire mold assembly - Final files will be in STEP format (others on request)</p>	1,126.80
<p>Total Reimbursable Expenses: Revise mold design with new shrink rate</p>	400.00

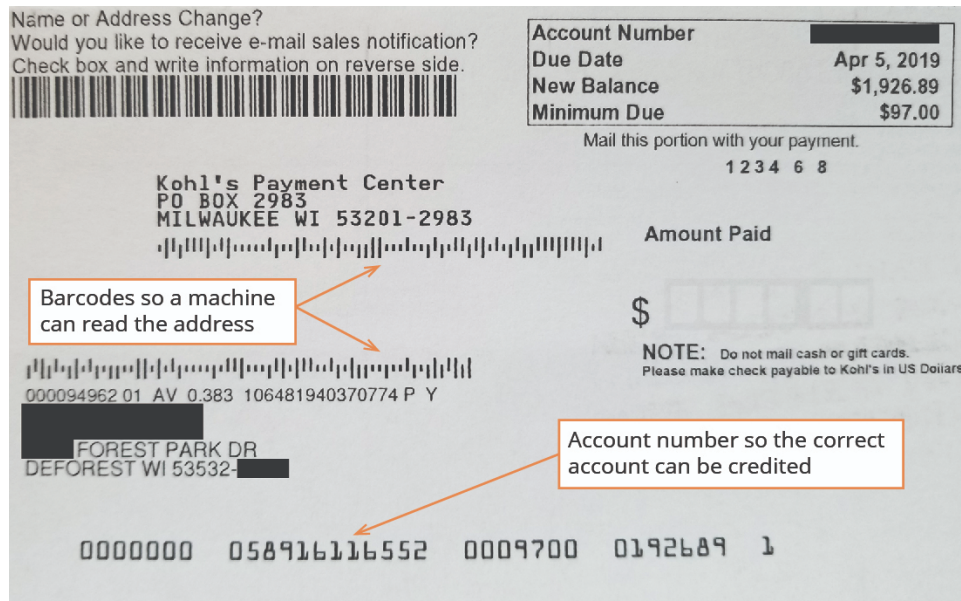
If paid by 4/16/19, pay \$1,466.32.
If paid by 5/16/19, pay \$1,496.56.
If paid by 6/15/19, pay \$1,526.80.

TOTAL	\$1,526.80
PAYMENTS/CREDITS	\$0.00
BALANCE DUE	\$1,526.80

Thank you for your business!

Figure 3.1.2: Invoice from **Symmetry Mold Design** showing payment terms. (credit: modification of "Invoice" by James Czeszyk/Flickr, CC B 4.0)

Some companies send paper bills in the mail, often asking the recipient to tear off part of the bill and return it with the payment. This tear-off portion is a **turn-around document** and helps ensure that the payment is applied to the correct customer account and invoice. Generally, this document began as printed output, an invoice, from the billing part of the AIS. When the customer tears off a part of it and returns it in the envelope with a check to the company, it has now been “turned around” and will be used as an input source document, called a remittance advice. A remittance advice is a document that customers send along with checks and informs the recipient as to which invoice the customer is paying for. Figure 3.1.3 is an example of a turn-around document.



Name or Address Change?
Would you like to receive e-mail sales notification?
Check box and write information on reverse side.

Account Number
Due Date Apr 5, 2019
New Balance \$1,926.89
Minimum Due \$97.00

Mail this portion with your payment.
1 2 3 4 6 8

Kohl's Payment Center
PO BOX 2983
MILWAUKEE WI 53201-2983

Amount Paid
\$

NOTE: Do not mail cash or gift cards.
Please make check payable to Kohl's in US Dollars

000094962 01 AV 0.383 106481940370774 P Y

FOREST PARK DR
DEFOREST WI 53532

00000000 058916116552 0009700 0192689 1

Figure 3.1.3: Turn-Around Document from Kohl's. The use of automation (bar codes) saves time and ensures accuracy since a machine can read the address, the account number, and even the amount on the check. (credit: modification of “Bill” by Kerry Ceszyk/Flickr, CC BY 4.0)

Both manual and computerized accounting systems utilized source documents. E-commerce systems have some additional source documents related to online transactions. Source documents help to establish an **audit trail**, which is a trail of evidence documenting the history of a specific transaction starting from its inception/source document and showing all the steps it went through until its final disposition. The trail of source documents and other records (the audit trail) makes it easier to investigate errors or questions by customers, vendors, employees, and others. For example, when a customer places an order by phone, by mail, or online, the sales order becomes the source document. If the customer does not receive the product ordered, the company can locate the original order, see if a picking ticket was generated (a picking ticket tells warehouse employees what inventory items the customer ordered, that now need to be picked off the shelf), locate the shipping documents, which provide evidence that the product was given to the shipper, and check for customer signature confirming receipt of goods. The trail of documents and entries in journals and ledgers and their electronic equivalent generated by this transaction provides evidence of all the steps that took place along the way. This makes it easy for anyone to verify or investigate, and perhaps find the weak links, where the process may have broken down. It allows the company to identify the reason why the customer never received the goods ordered. Maybe the order was never shipped because the company was out of stock of this specific product, maybe it was shipped and left at the customer's doorstep with no signature requested, or maybe the order was shipped to the wrong customer or to an incorrect address. An audit trail will help company personnel investigate any of these common issues. It should also help them identify weaknesses in their processes and precipitate improvements.

Businesses need a way to input data from the source document such as a sales invoice or purchase order. This was previously done with pen and paper and is currently done by keying it in on a computer keyboard; scanning, with a scanner such as one that reads MICR (magnetic ink character recognition) symbols (found on bank checks) or POS system scanners at cash registers that scan product bar codes/UPC symbols; or receiving it by e-transmission (or electronic funds transfer [EFT]). Input often involves the use of hardware such as scanners, keypads, keyboards, touch screens, or fingerprint readers called biometric devices. Once data has been input, it must be processed in order to be useful.

Processing Data

Companies need the accounting system to process the data that has been entered and transform it into useful information. In manual accounting systems, employees process all transaction data by journalizing, posting, and creating financial reports using paper. However, as technology has advanced, it became easier to keep records by using computers with software programs specifically developed for accounting transactions. Computers are good at repetition and calculations, both of which are involved in accounting, and computers can perform these calculations and analyses more quickly, and with fewer errors, thus making them a very effective tool for accounting from both an input and an output standpoint.

Link to Learning

See a list of popular bookkeeping software packages. With this information, potential options for sample accounting software options can be evaluated.

Output: Presenting Information

An AIS should provide a way to present system output (printed page, screen image, e-transmission). Any accounting software application such as that used by large companies (an ERP system) or one used by smaller businesses (QuickBooks) can easily print financial statements and other documents as well as display them on the screen.

Some financial information must be provided to other sources such as banks or government agencies, and though in past decades everything was presented and submitted on paper, today, most of this information is submitted electronically, and AISs help facilitate having the information in the necessary electronic format. Many banks require electronic data, and the Internal Revenue System (IRS) accepts your information as a digital transmission instead of a paper form. In 2017, 92 percent of all taxpayers who filed their own taxes did so electronically.² Most corporations choose to file their taxes electronically, and those with assets over \$10 million are required to file electronically with the IRS.³ Since May 5, 1996, all publicly traded companies are required to submit their filings, such as financial statements and stock offerings, to the SEC electronically.⁴ The SEC places all the data into an electronic database known as the Electronic Data Gathering, Analysis, and Retrieval System (EDGAR). This database allows anyone to search the database for financial and other information about any publicly traded company. Thus, AISs facilitate not only internal access to financial information, but the sharing of that information externally as needed or required. Just as the EDGAR system used by the SEC stores data for retrieval, an AIS must provide a way to store and retrieve data.

Storing Data

Data can be stored by an AIS in paper, digital, or cloud formats. Before computers were widely used, financial data was stored on paper, like the journal and ledger shown in Figure 3.1.4.

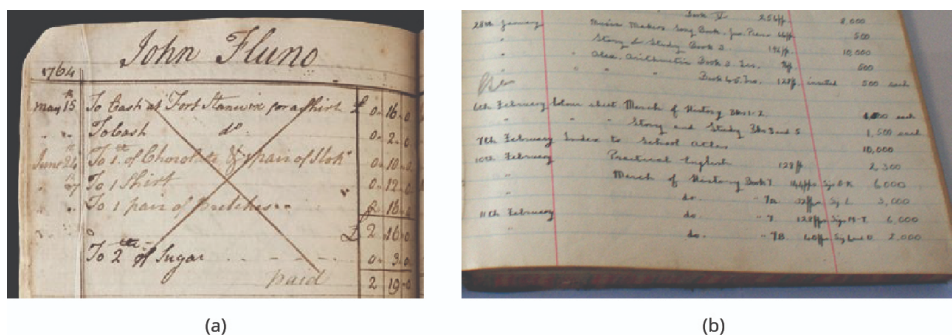


Figure 3.1.4: Data Storage. (a) General journal and (b) general ledger. (credit a: modification of “Entry in Barent Roseboom’s ledger detailing transactions with John Fluno in 1764” by National Park Service, Public Domain; credit b: modification of “Print Order Book, Holmes McDougall” by Edinburgh City of Print/Flickr, CC BY 2.0)

As technology has evolved, so have storage systems—from floppy disks to CDs, thumb drives, and the cloud. The hard drive on your computer is a data storage device, as is an external hard drive you can purchase. Data that is stored must have the ability to be retrieved when needed. As you can see from Figure 3.1.5, stored data comes from and/or flows through the three main functions of an AIS (input, processes, and output) with the end result being the use of the data in forms needed for decision-making, such as financial statements. Access to the ability to input data, manage processes, or retrieve data requires adequate controls to prevent fraud or unauthorized access and requires the implementation of data security measures. Figure 3.1.5 illustrates the key functions performed by an AIS.

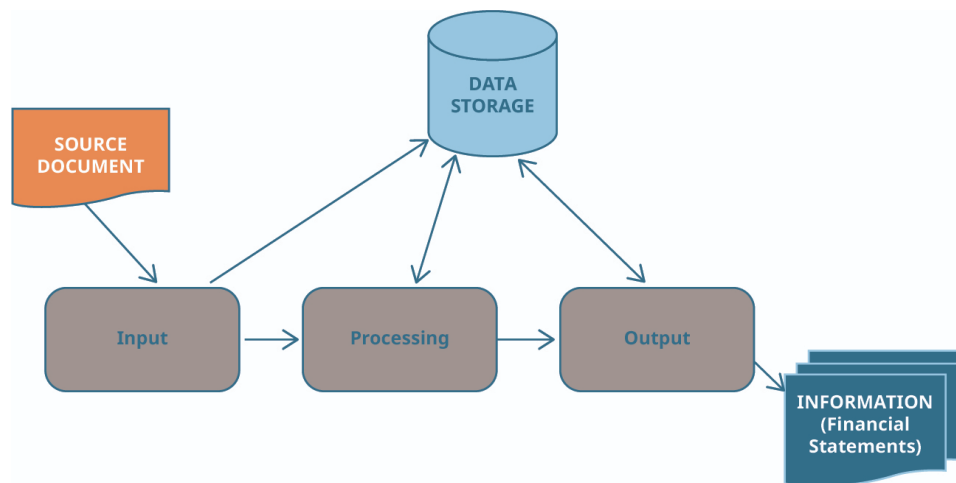


Figure 3.1.5: Accounting Information System. The four key functions performed by an accounting information system. (attribution: Copyright Rice University, OpenStax, under CC BY-NC-SA 4.0 license)

Your Turn: The Steps in an Accounting Information System

The three steps of an accounting information system are input, processing, and output. Data is the raw ingredient used in these processes. Some of the data may be obtained from a source document, and other data is obtained from the database where it had previously been stored. When the data has been processed, the final result is usually information. Information is more useful than data. Take, for example, another process that a bakery might use to bake chocolate chip cookies. While computers might not necessarily need to be involved, we begin the process by assembling a bunch of raw ingredients such as eggs, sugar, flour, chocolate chips, and oil, in a large bowl. Taking a spoonful of what is in the bowl at the time is not very pleasing to the taste buds or “useful” to someone craving a chocolate chip cookie. We process the raw ingredients by mixing them well and turning them into dough, cutting them into shapes, baking them, and glazing them. Similarly, raw data about a single sale contained on the sales invoice, such as customer name, date of sale, and amount of sale, is individually not very useful to a financial statement user such as an investor. However, by processing the data related to the sale, making sure it is correct by checking that the number of items ordered were in stock and actually shipped, aggregating it with other sales for the period, and producing an income statement containing the sales for the period is substantially more useful than the individual pieces of data relating to a single sale.

Can you give an example of each of the three steps, as well as a source document that might be used in the input stage and stored data that might be used in the input and processing stages, first for a grocery store, and then a medical office?

Answer

Grocery store

- **Source Document:** This would include a check to be deposited; totals from each cash register, including total cash; an invoice for produce; an application for employment by a potential new employee; time card information; a W-4 form (employment information); and so on.
- **Input:** This includes entering the data from the source document on the computer keyboard, electronically scanning the bar code of each product purchased at the grocery store (at checkout counter and to receive goods from vendor off the truck), maybe fingerprinting at the time clock, or keying in a price on the register.
- **Processing:** A cash register processes (accumulates and totals) different categories of items (coupons, checks, and charges) by the user; inventory can be tracked by RFID (radio-frequency identification); and software programs can process information gathered by individual cash registers as well as employee information.
- **Output:** Data that has been processed can be viewed on a computer screen, printed as a hard copy (paper output), or sent as electronic output from the cash register to the computer (can be done wirelessly or with a cable).
- **Storage:** Data can be stored in the company database on its computer hard drive or as cloud storage. Hopefully, the store is also paying for safe backup storage offsite (in case of fire at the store or hackers attempting to obtain information), generally accessed through the internet and stored in “the cloud.” Otherwise, storage can be on paper printouts, the

computer hard drive, disks, or external drives. The data that is stored may be retrieved and used at the input, processing, and output stages.

Doctor's office:

- **Source Document:** This includes a check to be deposited from the patient; the patient's insurance information on file; a doctor's record of the diagnosis and procedures performed on the patient, to be submitted to the insurance company; and an invoice for medical supplies.
- **Input:** Data from the source document, for example, containing the diagnosis and a treatment plan, would be entered on the computer keyboard.
- **Processing:** The system might retrieve the treatment codes corresponding to every procedure the doctor performed, so it contains the appropriate information for the insurance company.
- **Output:** The treatment form is printed and then mailed to the insurance company for payment.
- **Storage:** The diagnosis and treatment plan are stored on the computer database for retrieval on the next visit for this patient. The form to be sent to the insurance company is also stored electronically so there can be follow-up until the payment from the insurance company is received. Also note that during processing, the system had to retrieve the treatment codes from a file of all of the codes that was stored in the database.

Your Turn: The Accounting Information System (AIS)

What are some of the types of information the accounting information system should be able to provide to the owners, managers, and employees of business, at the end of the day, or week, or month, which they, in turn, may need to provide to other external users?

Answer

- Information for internal purposes will include total sales and how much it cost to generate the sales. Also considered is how much inventory is on hand so a decision can be made as to whether or not to order more inventory.
- The company will need to record all of the economic events of the business in order to find total sales, cost of goods sold, expenses, and net income, as well as the number of hours employees worked, the employee's social security number, and how much the company promised to pay the employee per hour.
- Information for external users, such as the IRS or state and local government agencies, would include income tax returns and sales and payroll tax forms. The business owners and managers will need all sales and expenses, sales tax collected, and employees' earnings.
- In other words, the company needs an AIS.

While an AIS has the primary functions of input, processing, output, and storage, each company or system will decide on the exact steps and processes under each of these broad functions. We know that data is used to create the types of information needed by users to make decisions. One way in which a retail organization may obtain, input, process, and store data related to a sales transaction is through a point-of-sale system (POS). When a customer is ready to buy an item, the cashier scans the product being purchased, the price is retrieved from the price file, the sale is recorded, and inventory is updated. Most POS systems include a scanner, a computer screen, or a tablet with a touch screen. Customer payments are stored in the cash drawer. For noncash sales, credit card readers allow customers to insert, swipe, or tap their cards to pay (which also helps prevent keyboard input errors and keeps the information safer).

Ethical Considerations: Ethical Standards in Retail Stores

Professional sales employees operate the POS systems. There is an ethical code for sales professionals created by the Association of Professional Sales to help sales professionals maintain good judgment.⁵ The organization sets forth standards such as the following:

- Maintain the highest standards of integrity in all business relationships.
- Provide our customers with a buying experience in which we “do the right thing and thereby help get the right results.”
- Promote and protect good sales practices.
- Always act in line with my organization's codes and within the law.

Accountants can assist sales professionals in creating an ethical environment. The ethical environment will permit the users of accounting data to make solid business decisions and to better operate a company.

However, the POS is just part of the AIS. As each sale is entered into the register, other data is collected, recorded, and processed by the AIS and becomes information. Data about each sale is recorded in the information system: what was sold, how much it cost, the sales price, and any sales tax. It also records the time of day, the clerk, and anything else the company programmed the cash register to record. When all the sales for the day are totaled, it provides information in the form of organized and processed data with meaning to the company. A business might want to see which hour of the day resulted in the most sales, or to know which product was the best seller. An AIS can provide this information.

A system is created when processes work together to generate information for the business. The sales process accesses customers, accounts receivable, and inventory data and updates the appropriate files. The purchases process also accesses inventory and accounts payable and updates them, because most companies buy goods on credit. Since no two companies operate exactly the same way, you would expect each company to have a slightly different AIS. Some businesses do not have a cash register, but they will still have a Sales account. Some companies only have cash sales, so they would not have an Accounts Receivable account. Regardless of the type of business—retail, manufacturing, or service—an AIS is an important component of the business as it is this system that provides the information needed by internal and external decision-makers.

Concepts in Practice: Is This an Accounting Information System?

Do you think your average food truck proprietor has an accounting information system?



Figure 3.1.6: Food Truck. (credit: modification of “Food Trucks” by Daniel Lobo/Flickr, Public Domain)

Food trucks will have some type of accounting information system whether paper-based or electronic. One common method of creating an accounting information system in this type of business environment is to use an app, such as Square Point of Sale (**Square Inc.**). The Square Point of Sale (POS) software system keeps track of the sales. With this type of system, a food truck will likely have a Square Stand (a tablet-based POS), a cash drawer, and printers. The information input into the Square Stand is stored on Square servers using the cloud (online storage space offered by different companies and products) and is accessible by the company via an online dashboard. This system allows the handling of both cash sales and credit card sales. These components—the Square Point of Sale software, the Square Stand, cash drawer, and the printers—make up part of the accounting information system for a food truck.

IFRS Connection: Accounting Information Systems in an International Business Environment

All companies, regardless of whether they are domestic or international, will have an accounting information system with the features described in this chapter. It would be easy to assume that the accounting information systems created by public companies in the United States are created based on US generally accepted accounting principles (GAAP). This implies that these companies design their processes and controls so that in addition to meeting the reporting and monitoring goals of the company, the system also collects, measures, and reports the information that is required under US GAAP. But is this true? What about companies that have subsidiaries or a portion of their operations in another country? Do purely international companies use accounting information systems similar to their US counterparts?

As previously indicated, all companies will create some sort of accounting information system. **General Electric (GE)**, as a US-based manufacturer, uses an accounting information system that allows it to record, collect, produce, and analyze the operations of its various businesses. Since **GE** is a US corporation, headquartered in Boston, Massachusetts, its accounting

information system is designed around the rules set out by US GAAP. **Fiat Chrysler Automobiles (FCA)** is headquartered in the United Kingdom, and it designs its accounting information system to produce financials under International Financial Reporting Standards (IFRS). On the surface, it looks as though each company will create an information system based on the accounting rules in its own home country. However, it is not quite that simple. Today, companies take advantage of the ability to borrow money across borders. The lenders often require the financial statements of the borrower to be presented using the accounting rules required by the lender's country. For example, if **GE** wanted to borrow money from the **Royal Bank of Scotland**, it would likely have to present its financial statements based on IFRS rules. Similarly, if **FCA** wanted to borrow from **Citibank**, it would need its financial statements in US GAAP form.

Borrowing is not the only reason a company may need to present financial statements based on a different set of accounting principles. As of 2017, **GE** had over 130 subsidiaries, and these businesses were located across 130 countries. A subsidiary is a business over which the parent company has decision-making control, usually indicated by an ownership interest of more than 50 percent. Many of these **GE** subsidiaries established their accounting information systems based on the accepted accounting principles in the countries in which they were located, as required in order to be in compliance with local regulations such as for local taxes. Thus, **GE** must convert the financial information obtained from the subsidiary's accounting information system, often based on IFRS, to US GAAP in order to consolidate the transactions and operations of all of the subsidiaries with those of the parent company to create one set of financial statements.

We have basically become a two GAAP world—IFRS and US GAAP—and many companies will find it necessary to have accounting information systems that can handle both sets of rules due to the global nature of business and the global nature of raising money through borrowing and issuing stock. This may seem crazy, to have two systems, but a little over ten years ago there were more than seventy different GAAP. Today, since many countries now use IFRS, the quality and consistency of financial reporting have improved. As a result, the cost associated with having accounting information systems that can combine many different sets of accounting rules has decreased.

Footnotes

- ¹ Fraser Sherman. "The History of Computerized Accounting." Career Trend. January 14, 2019. <https://careertrend.com/about-632821...ccounting.html>
- ² Income Tax Return Statistics. eFile. May 2018. <https://www.efile.com/efile-tax-retu...it-statistics/>
- ³ Income Tax Return Statistics. eFile. May 2018. <https://www.efile.com/efile-tax-retu...it-statistics/>
- ⁴ There is a hardship exemption for companies that cannot file their documents electronically. See U.S. Securities and Exchange Commission. Important Information about EDGAR. February 16, 2010. <https://www.sec.gov/edgar/aboutedgar.htm>
- ⁵ Association of Professional Sales. "APS Sales Code of Conduct." n.d. www.associationofprofessiona...-code-conduct/

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