



Chapter 2

Fundamentals of business processes and transaction processing

Instructor's Manual

Learning Objectives:

1. Describe the four parts of the data processing cycle and the major activities in each of them.
2. Describe documents and procedures used to collect and process transaction data.
3. Describe the ways information is stored in computer-based information systems.
4. Discuss the types of information that an AIS can provide.
5. Discuss how organisations use enterprise resource planning (ERP) systems to process transactions and provide information.

Introduction

This chapter considers the fundamentals of business processes and how business transactions are processed. It introduces the data processing cycle and the importance of accurate data input to ensure the quality of information output and thus the usefulness of information. The chapter also introduces enterprise resource planning (ERP) systems as a means of integrating entity data to enable better quality information and decision-making.

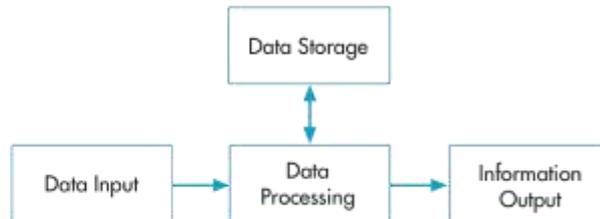
Learning Objective One

Describe the four parts of the data processing cycle and the major activities in each of them.

Transaction Processing: The Data Processing Cycle

Four Major Steps in the Data Processing Cycle

FIGURE 2-1
The Data Processing Cycle



1. Data Input
2. Data Storage
3. Data Processing
4. Information Output

Data Input

The first step in processing transactions is to capture the data for each transaction that takes place and enter them into the system. Data must be collected about three aspects of each business activity:

1. Each activity of interest.
2. The resource(s) affected by each activity.
3. The people who participate in each activity.

For example, for a sales transaction, the following data should be collected:

1. Date and time of day the sale occurred.
2. Employee who made the sale and the checkout clerk who processed the sale.
3. Checkout register where the sale was processed.
4. Item(s) sold.
5. Quantity of each item sold.
6. List price and actual price of each item sold.
7. Total amount of the sale.
8. For credit sales: delivery instructions, customer bill-to and ship-to addresses, customer name.

Data Processing

Data processing involves four main activities:

1. Creation of new data records.
2. Read, retrieve and view existing data records.
3. Update existing data records.
4. Delete data or records.

Information Output

This is the final stage of the data processing cycle.

Forms of Information Output

Documents are records of transaction or other company data, such as cheques and invoices.

Documents generated at the end of transaction processing activities are called operational documents to distinguish them from source documents, which are used at the beginning of the process.

Reports are prepared for both internal and external users. Accounting students are likely to be familiar with the external reports called financial statements.

Information needs cannot always be satisfied strictly by documents or periodic reports. Instead, problems and questions constantly arise that need rapid action or answers. To respond to this problem, personal computers or terminals are used to query the system and produce ad hoc reports.

When the queried information is displayed on the computer monitor, the output is referred to as a 'soft copy'. When it is printed out on paper, it is referred to as a 'hard copy'.

Purpose of Output

There are four main types of financial reports that were covered in Principles of Accounting I & II courses, the balance sheet, income statement, statement of owner's equity or statement of shareholder's equity and the statement of cash flows. Sometimes a statement of retained earnings is used instead of the statement of shareholder's equity. Both external and internal users use these financial statements.

The management of the firm uses budgets. Budgets require estimating future revenue/sales, cost and expenses. This is called the operational budget. There are also cash budgets and capital expenditure budgets.

Multiple Choice 1

Which of the following is NOT a step in the data processing cycle?

- a. data collection
- b. data input
- c. data storage
- d. data processing

Learning Objective Two

Describe documents and procedures used to collect and process transaction data.

Collection and Processing of Data

Source Documents are documents used to collect data about their business activities. Source documents are also used to support the validity of the business activities.

If paper documents are exchanged with customers or suppliers, data input accuracy and efficiency is improved by using **turnaround documents**, which are records of company data sent to an external party and then returned to the system as input.

TABLE 2.1 Common business activities and source documents

Business activity	Source document
Revenue cycle	
Take customer order	Sales order
Deliver or ship order	Delivery docket or bill of lading
Receive cash	Remittance advice or remittance list
Deposit cash receipts	Deposit slip
Adjust customer account	Credit memo
Expenditure cycle	
Request items	Purchase requisition
Order items	Purchase order
Receive items	Receiving report
Pay for items	Cheque or electronic funds transfer
HRM cycle/ Payroll subcycle	
Collect employee PAYG data	Tax file number declaration
Record time worked by employees	Time cards
Record time spent on specific jobs	Job time cards or time sheet

Table 2.1 on **page 39** (shown above) provides a listing of Common business activities and source documents for the revenue, expenditure and human resources cycles that students should become familiar with.

Source data automation is yet another means to improve the accuracy and efficiency of data input. An example would be once the sale of merchandise is rung up on the cash register, it would be interfaced with accounting to automatically record the sale and also interfaced with the warehouse to automatically reduce the level of inventory for the item that was sold. This would also be interfaced with purchasing in which the purchase order would automatically be printed out for delivery to the vendor.

It is important in the processing of transactions that the data captured is accurate and complete. One way to increase accuracy and completeness is to use well-designed turnaround documents and data entry screens, as well as source data automation.

Multiple Choice 2

Which of the following documents is most likely to be used in the expenditure cycle?

- a. sales orders
- b. credit memo
- c. receiving report
- d. job time ticket

Learning Objective Three

Describe the ways information is stored in computer-based information systems.

Computer-Based Storage Concepts

An **entity** is something about which information is stored. For example, employees, inventory items and customers. Each entity has **attributes or** characteristics of interest, which need to be stored. For example, an employee's hourly rate of pay, unit cost of an inventory item and a customer's address.

Figure 2.3 on **page 45** provides examples of data storage elements:

1. Data values are stored in a physical space called a **field**. In the figure the fields are Customer number, Customer name, Address, Credit limit and Balance.
2. The set of fields that contain data about various attributes of the same entity forms a **record**. In the figure the records are represented by each of the three rows; so there are three records.
3. The contents of each field within a record are called a **data value**. Sometimes, not mentioned in this book, the contents of each field are called a specific **data element**, which contains value the data.
4. In turn, data elements/data value is composed of **characters** such as letters, numbers and symbols.
5. Related records are grouped to form a **file**.
6. Two basic types of files exist:
 - A **master file** is conceptually similar to a ledger in a manual AIS.
 - The second basic type of file is called a **transaction file**, which is conceptually similar to a journal in a manual AIS.

Data Processing

Once data about a business activity have been collected and entered into the system they must be processed. Data processing implies the execution of a certain procedures, usually involving a series of tasks.

There are four different types of file processing:

1. **Updating data** previously stored about the activity, the resources affected by the activity or the people who performed the activity. Figure 2.4 on page 46 provides The Accounts Receivable File Update Process.
2. **Changing data**, such as changing a customer's address when they move or their credit limit when their financial situation changes.
3. **Adding data**, such as adding a new employee to the payroll master file or database after they have been hired.
4. **Deleting data**, such as purging the vendor master file of all vendors that the company no longer does business with.

Periodic updating of data is referred to as **batch processing**. This approach may be combined with either the off-line or on-line entry of data. Under the **online entry/batch processing** method of processing, individual transactions are entered directly into the computer via a terminal as they occur. Updating as each transaction occurs is referred to as **online, real-time processing**.

The **online entry/online processing method** differs from **online entry/batch processing** in the following two respects:

1. Master files are updated concurrently with data entry.
2. A transaction log is produced that consists of a chronological record of all transactions.

Multiple Choice 3

Recording and processing information about a transaction at the time it takes place is referred to as which of the following?

- a. batch processing
- b. online, real-time processing
- c. captured transaction processing
- d. chart of accounts processing

Learning Objective Four

Discuss the types of information that an AIS can provide.

Information from an AIS

An effective accounting information system (AIS) enables the accountant to access accounting data to produce required reports. The AIS has the four elements of the data processing cycle; data input, data processing, data storage and information output.

A company's data is one of its most important resources and appropriate management of this data can assist in business decision-making and in particular the ability to make timely decisions.

Ledgers

General Ledger contains summary-level data for every asset, liability, equity, revenue and expense account of the organisation.

Subsidiary Ledger records all the detailed data for any general ledger account that has many individual subaccounts. These subsidiary ledgers would be used for **accounts receivable** and **accounts payable**.

- **Accounts receivable subsidiary ledger** would record detailed data for customers whom buy products or services on credit. The accounts receivable subsidiary ledger would support the accounts receivable general ledger controlling account.
- **Accounts payable subsidiary ledger** would record detailed data for the individual vendor credit purchases of merchandise or supplies made by the company. The accounts payable subsidiary ledger would support the accounts payable general ledger controlling account.

Coding Techniques

Coding is the systematic assignment of numbers or letters to items to classify and organise them.

1. With **sequence codes**, items are numbered consecutively to ensure that there will be no gaps in the sequence.
2. With a **block code**, blocks of numbers within a numerical sequence are reserved for categories having meaning to the user.

S&S had the specific range of code numbers for their following major product categories:

Product Code	Product Type
1000000-1999999	Electric range
2000000-2999999	Refrigerator
3000000-3999999	Washer
4000000-4999999	Dryer

3. **Group codes** are often used in conjunction with the block code. S&S uses a seven-digit product code number, for example, the group coding technique might be applied as follows:

Digit Position	Meaning
1-2	Product line, size, style
3	Colour
4-5	Year of manufacture
6-7	Operational features

In designing a coding system, the following **guidelines** will result in a better coding system:

1. The code should be consistent with its intended use, which requires the code designer to determine the types of system outputs desired by users prior to selecting the code.
2. Make sure the code allows for growth in the number of items to be coded.
3. Make the coding system as simple as possible in order to minimise costs, facilitate memorisation and interpretation of coding categories and ensure employee acceptance.

The coding system must be consistent with the company's organisational structure and across the different divisions of an organisation. A lack of consistency does not allow for the output of quality information.

Chart of Accounts

A chart of accounts is a list of all general ledger accounts an organisation uses with each general ledger account being assigned a specific number.

Audit Trail: the accounting data and records should provide a trail starting with the source document that supports the transaction (for example, let's use credit sales) all the way through to the final posting in the general ledger accounts to the financial statements. An audit trail provides a means to check the accuracy and validity of ledger postings.

In auditing, this technique would be called **tracing**. In the opposite direction; from the general ledger to the journals and subsidiary ledgers to the source document; this is called **vouching** for auditors. This is covered in more detail in Auditing Theory and Practice courses.

Multiple Choice 4

How does the chart of accounts list general ledger accounts?

- a. alphabetical order
- b. chronological order
- c. size order
- d. the order in which they appear in financial statements

Learning Objective Five

Discuss how organisations use enterprise resource planning (ERP) systems to process transactions and provide information.

Enterprise Resource Planning Systems

Enterprise resource planning (ERP) systems are designed to overcome these problems as they integrate all aspects of a company's operations with its traditional AIS. A key feature of ERP systems is the integration of financial with other nonfinancial operating data. An example of this is the integration in the human resource area of staff details and wage payments.

Multiple Choice 5

Which of the following is NOT an advantage of an ERP system?

- a. Better access control.
- b. Standardisation of procedures and reports.
- c. Improved monitoring capabilities.
- d. Simplicity and reduced costs.

ANSWERS to Multiple Choice Questions:

Multiple Choice Number	Multiple Choice Answer
1	A
2	C
3	B
4	D
5	D

Answer to Chapter quiz:

Number	Answer	Number	Answer
2.1	A	2.6	C
2.2	B	2.7	D
2.3	B	2.8	D
2.4	A	2.9	A
2.5	C	2.10	B

ETHICAL ISSUE

Ethical issue – note: students' responses may vary	
Question to ask	Decision
1. What is the ethical issue?	1. Recognise the ethical issue or dilemma. <ul style="list-style-type: none"> Data collected via third party websites without the knowledge or consent of the visitor.
2. What are the principle elements in this situation?	2. Move towards an ethical resolution by answering these questions in sequence.
a. What parties (stakeholders) may be harmed?	<ul style="list-style-type: none"> Third party website owners Website visitors
b. Whose rights or claims may be violated?	<ul style="list-style-type: none"> Website visitors
c. Which specific interests are in conflict?	<ul style="list-style-type: none"> You have a professional obligation to act in accordance to ethical standards set by the accounting professions.
d. What are your responsibilities and obligations?	<ul style="list-style-type: none"> Based on the professional ethics standards you must act in the best interests of the stakeholders. You have a duty of confidentiality with your employer, however have a broad duty to act in the public interest (APES 110)
3. What are your options and what are the consequences?	3. Specify alternatives and weigh up impacts of each on various stakeholders. <ul style="list-style-type: none"> - Alternatives <ol style="list-style-type: none"> Accept the practice (do nothing). Discuss your concerns with company management. Obtain advice on the privacy issue identified. Consider resigning from job. - Impact of alternative on stakeholders <ol style="list-style-type: none"> Website visitors will remain in the dark regarding the practice. Management may identify issues that you have not considered (e.g. inclusion of information regarding the practice included in the third party websites terms of use policy) Gives you clearer understanding of the legal situation and clarity of mind. Does not solve the problem of the practice in the first place.
4. What shall I do?	4. Select the best or most ethical alternative considering all the circumstances and consequences. <ul style="list-style-type: none"> Alternative 3b is the most appropriate initial alternative. You should be clear as to the full details of the situation identified. Consideration may be required of whistle-blower legislation.

SUGGESTED ANSWERS TO DISCUSSION QUESTIONS

D2.1 Table 2.1 lists some of the documents used in the revenue, expenditure and human resources cycle. What kinds of input or output documents or forms would you find in the production (or conversion) cycle?

Students will not know the names of the documents but they should be able to identify the tasks about which information needs to be gathered. Here are some of those tasks:

- Requests for items to be produced.
- Documents to plan production.
- Schedule of items to be produced.
- List of items produced, including quantity and quality.
- Form to allocate costs to products.
- Form to collect time spent on production jobs.
- Form requesting raw materials for production process.
- Documents showing how much raw materials are on hand.
- Documents showing how much raw materials went into production.
- List of production processes.
- List of items needed to produce each product.
- Documents to control movement of goods from one location to another.

D2.2 With respect to the data processing cycle, explain the phrase 'garbage in, garbage out'. How can you prevent this from happening?

When garbage, defined as errors, is allowed into a system that error is processed and the resultant erroneous (garbage) data stored. The stored data at some point will become output. Thus, the phrase 'garbage in, garbage out'. Data errors are even more problematic in ERP systems because the error can affect many more applications than an error in a non-integrated database.

Companies go to great lengths to make sure that errors are not entered into a system. To prevent data input errors:

- Data captured on source documents and keyed into the system are edited by the computer to detect and correct errors and critical data is sometimes double keyed.
- Companies use turnaround documents to avoid the keying process.
- Companies use source data automation devices to capture data electronically to avoid manual data entry with its attendant errors.
- Well-designed documents and screens improve accuracy and completeness by providing instructions or prompts about what data to collect, grouping logically related pieces of information close together, using check off boxes or pull-down menus to present the available options and using appropriate shading and borders to clearly separate data items.
- Data input screens are preformatted to list all the data the user needs to enter.
- Pre-numbered source documents are used or the system automatically assigns a sequential number to each new transaction. This simplifies

verifying that all transactions have been recorded and that none of the documents has been misplaced.

- The system is programmed to make sure company policies are followed, such as approving or verifying a transaction. For example, the system can be programmed to check a customer's credit limit and payment history, as well as inventory status, before confirming a sale to a customer.

D2.3 What kinds of documents are most likely to be turnaround documents? Do an Internet search to find the answer and to find example turnaround documents.

Documents that are commonly used as turnaround documents include the following:

- Utility bills such as Electricity, Gas and Water
- Subscription renewal notices
- Inventory stock cards
- Invoices that include a remittance advice
- Cheques (banks encode account info on the bottom of cheques)

Students will find many other turnaround documents.

Here are some turnaround document images (1 long URL):

http://images.google.com/images?q=turnaround+document&oe=utf-8&rls=org.mozilla:en-US:official&client=firefox-a&um=1&ie=UTF-8&ei=N7yBSpbAF4KiswO39JnwCA&sa=X&oi=image_result_group&ct=title&resnum=4

D2.4 The data processing cycle in Figure 2.1 is an example of a basic process found throughout nature. Relate the basic input/process/store/output model to the functions of the human body.

There are a number of ways to relate the input/process/store/output model to the human body. Here are a few of them:

- Brain. We read, see, hear and feel things. We process that input in order to understand what it is and how it relates to us. We store that data in our brains and then process it again in order to produce, solve problems, make decisions, etc. which represent output.
- Stomach. We take food in as input. It is processed to produce energy to fuel all bodily functions. If we eat more food than the body needs at any one time it is stored as fat. The output is walking, talking, thinking – all functions fuelled by the energy produced. Human waste is also an output of that process.

Students will come up with other examples of how the input/process/store/output model applies to the human body.

D2.5 Some individuals argue that accountants should focus on producing financial statements and leave the design and production of managerial reports to information systems specialists. What are the advantages and disadvantages of following this advice? To what extent should accountants be involved in producing reports that include more than just financial measures of performance? Why?

There are no advantages to accountants focusing only on financial information. Both the accountant and the organisation would suffer if this occurred. Moreover, it would be very costly to have two systems rather than one that captures and processes operational facts at the same time as it captures and reports financial facts.

The main disadvantage of this is that accountants would ignore much relevant information about the organisation's activities. To the extent that such non-financial information (e.g. market share, customer satisfaction, measures of quality etc.) is important to management, the value of the accounting function would decline. Moreover, accountants have been trained in how to design systems to maximise the reliability of the information produced. If relevant information is not produced by the AIS, there is danger that the information may be unreliable because the people responsible for its production have not been trained in or adequately aware of, the potential threats to reliability and the best measures for dealing with those threats.

SUGGESTED ANSWERS TO THE PROBLEMS

P2.1 The chart of accounts must be tailored to an organisation's specific needs. Discuss how the chart of accounts for the following organisations would differ from the one presented for S&S in Table 2.2.

Some of the changes in the chart of accounts for each type of entity include the following:

a. University

- No equity or summary drawing accounts. Instead, have a fund balances section for each type of fund.
- Several types of funds, with a separate chart of accounts for each. The current fund is used for operating expenses but not capital expenditures. Loan funds are used to account for scholarships and loans. Endowment funds are used to account for resources obtained from specific donors, generally with the objective that principal be preserved and that income be used for a specific purpose. Plant funds are used for major capital expenditures. Most fund categories would be further divided into restricted and unrestricted categories.
- Unlikely to have Notes Receivable, but may have Accounts Receivable for students who pay tuition in instalment payments.
- Tuition and fees would be one source of revenue. Others include gifts, investment income, sales of services and for public universities, state appropriations.
- Student loans are an asset; student deposits are a liability.

b. Bank

- Loans to customers would be an asset, some current others noncurrent, depending upon the length of the loan.
- No inventory
- Customer accounts would be liabilities.
- Classification of revenue would be among loans, investments, service charges, etc.
- No cost of goods sold.

c. Government Unit

- No equity or summary drawing accounts. Instead, have fund balances.
- Balance sheet shows two major categories: (1) assets and (2) liabilities and fund equity.
- Separate chart of accounts for each fund (general fund, special revenue fund, capital projects fund and debt service fund).
- Revenue and expenditure accounts would be grouped by purpose (e.g. police, highways, sanitation, education etc.).
- Encumbrance accounts

- Revenues would include taxes, licenses and permits, fines and charges for specific services.
 - Taxes receivable as a separate category due to importance.
 - No cost of goods sold.
- d. Manufacturing Company
- Several types of inventory account (raw materials, work-in-process and finished goods).
 - Additional digits to code revenues and expenses by products and to code assets/liabilities by divisions.
- e. Expansion of S&S
- Additional digits to code:
 - Revenues and expenses by products and by stores.
 - Assets/liabilities by stores.

P2.2 Design a chart of accounts for SDC. Explain how you structured the chart of accounts to meet the company's needs and operating characteristics. Keep total account code length to a minimum, while still satisfying all of Mace's desires.
(Adapted from the CMA Exam)

A six-digit code (represented by letters ABCDEF) is sufficient to meet SDC's needs:

- A This digit identifies the four divisions plus the corporate office. One digit can accommodate up to nine different divisions, assuming that no division would be zero. Thus, the number of divisions would have to more than double before the chart of accounts would have to be revised.
- B This digit represents major account types (asset, liability, equity, revenue, expense). There are only six categories so one digit is sufficient.
- C This digit represents the major classification within account type:
- For balance sheet accounts, this represents specific sub-categories (current assets, plant and equipment etc.), as only six categories are needed.
 - For expense and revenue accounts, this digit represents the product group, as again there are only five products plus general costs.
- D This digit represents specific accounts or cost centres:
- For balance sheet accounts, this is the control account; one digit is adequate because the problem says no more than 10 categories.

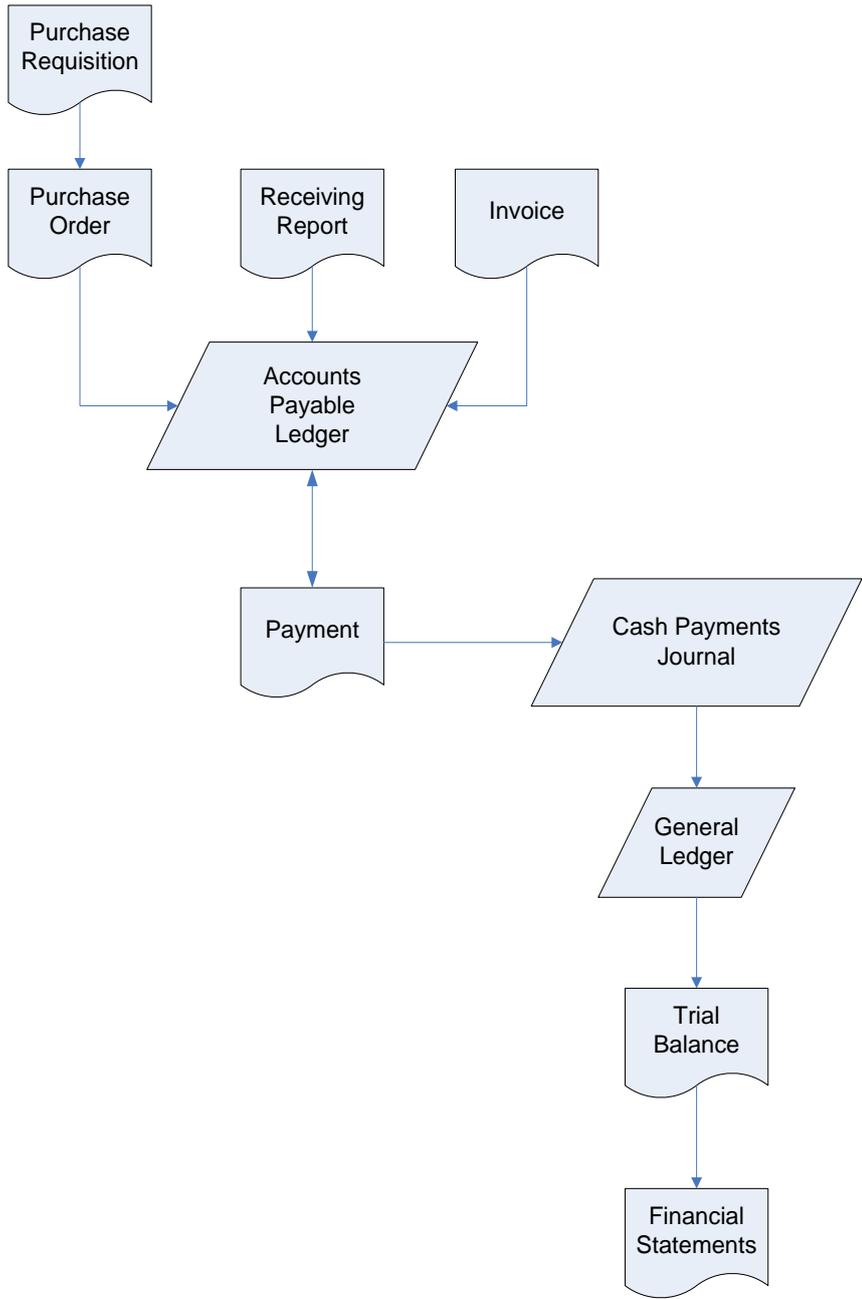
- For expense accounts, this is the cost centre; one digit is adequate because the problem indicates no more than six cost centres.

EF These two digits represent the subsidiary accounts and natural expense categories:

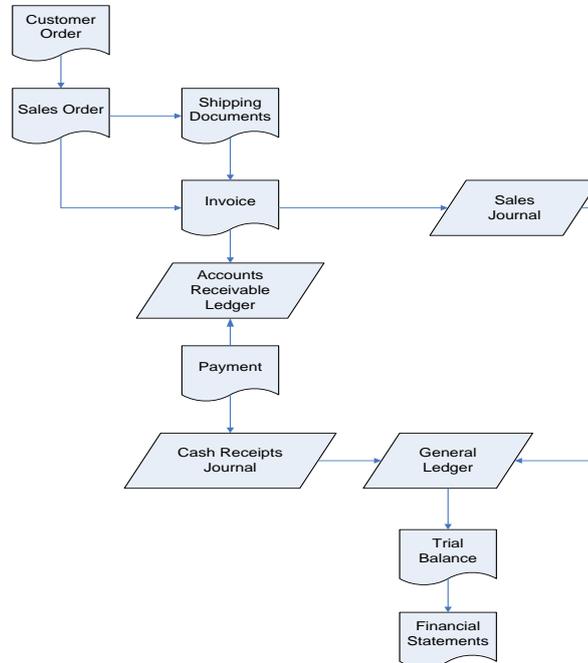
- For expense accounts, these represent the 56 natural expense categories and variances for each cost centre.
- For the balance sheet, these two digits accommodate up to 100 subsidiary accounts.

P2.3 An audit trail enables a person to trace a source document to its ultimate effect on the financial statements or work back from amounts in the financial statements to source documents. Describe in detail the audit trail for the following:

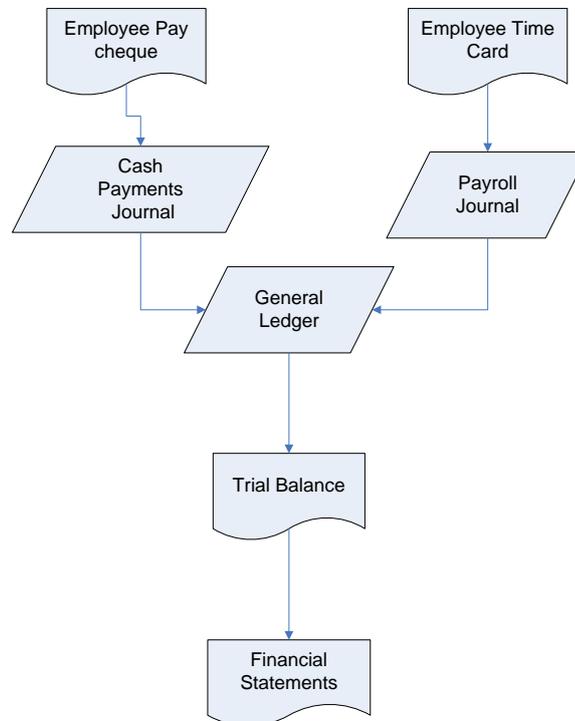
- a. The audit trail for **inventory purchases** includes linking purchase requisitions, purchase orders and receiving reports to vendor invoices for payment. All these documents would be linked to the cheque or EFT transaction used to pay for an invoice and recorded in the Cash Payments Journal. In addition, these documents would all be linked to the journal entry made to record that purchase. There would be a general ledger account number at the bottom of each column in the journal. The journal reference would appear in the General Ledger, Inventory Ledger and Accounts Payable ledger.



b. The audit trail for the **sale of inventory** links the customer order, sales order and shipping document to the sales invoice. These documents are linked to the journal entry recording the sale of that merchandise. The invoice would also be linked to the cash received from the customer and to the journal entry to record that receipt.



- c. The audit trail for **employee payroll** links records of employee activity (time cards, time sheets etc.) to pay cheques and to the journal entry to record payment of payroll. In a manufacturing company, there would also be links to the job-time tickets used to allocate labour costs to specific products or processes.



P2.4 Your nursery sells various types and sizes of trees, bedding plants, vegetable plants and shrubs. It also sells fertiliser and potting soil. Design a coding scheme for your nursery.

Grading depends upon the instructor's judgment about the quality of the coding scheme. The coding scheme should be either a group or block coding. In addition, the student's solutions should provide sufficient detail in order to determine whether the solution represents a group or block coding scheme.

An example block code is as follows (under each major heading the student would list the specific products offered for sale, such as 701 – Fuji apple tree). Four digits instead of three would allow the nursery to list more products for sale.

- 100 Flowers - Annual
- 200 Flowers – Perennial
- 300 Vegetables
- 400 Fruits
- 500 Shrubs
- 600 Trees- Flowering
- 700 Trees – Fruit and Nut

If the nursery had four locations, a group code could be used with the first digit indicating the location (2 location digits would allow for more growth). Other digits could be added to the group code to indicate other ways of identifying products.

P2.5 Match the following terms with their definitions.

TERM	DEFINITION
10 a. data processing	1. Contains summary-level data for every asset, liability, equity, revenue and expense account.
23 b. source documents	2. Items are numbered consecutively to account for all items; missing items cause a gap in the numerical sequence.
7 c. turnaround documents	3. Path of a transaction through a data processing system from point of origin to final output or backwards from final output to point of origin.
16 d. source data automation	4. List of general ledger account numbers; allows transaction data to be coded, classified and entered into proper accounts; facilitates preparation of financial statements and reports.
1 e. general ledger	5. Contents of a specific field, such as 'George' in a name field.
13 f. subsidiary ledger	6. Portion of a data record that contains the data value for a particular attribute, like a cell in a spreadsheet.
26 g. control account	7. Company data sent to an external party and then returned to the system as input.
21 h. coding	8. Used to record infrequent or non-routine transactions.
2 i. sequence code	9. Characteristics of interest that need to be stored.
25 j. block code	10. The steps a company must follow to efficiently and effectively process data about its transactions.
19 k. group code	11. Something about which information is stored.
22 l. mnemonic code	12. Stores cumulative information about an organisation; like a ledger in a manual AIS.
4 m. chart of accounts	13. Contains detailed data for any general ledger account with many individual subaccounts.
8 n. general journal	14. Contains records of individual business transactions that occur during a specific time period.
17 o. specialised journal	15. Updating each transaction as it occurs.
3 p. audit trail	16. Devices that capture transaction data in machine-readable form at the time and place of their origin.
11 q. entity	17. Used to record large numbers of repetitive transactions.
9 r. attribute	18. Set of interrelated, centrally coordinated files.
6 s. field	19. Two or more subgroups of digits are used to code items.
24 t. record	20. Updating done periodically such as daily.
5 u. data value	21. Systematic assignment of numbers or letters to items to classify and organise them.
12 v. master file	22. Letters and numbers, derived from the item description, are interspersed to identify items, usually easy to memorise.
14 w. transaction file	23. Initial record of a transaction that takes place;

	usually recorded on pre-printed forms or formatted screens.
18 x. database	24. Fields containing data about entity attributes; like a row in a spreadsheet.
20 y. batch processing	25. Sets of numbers are reserved for specific categories of data.
15 z. online, real-time processing	26. The general ledger account corresponding to a subsidiary ledger, where the sum of all subsidiary ledger entries should equal the amount in the general ledger account.

P2.6 For each of the following scenarios identify which data processing method (batch or online, real-time) would be the most appropriate.

Some students will respond that all can and ought to be done with online-real time processing. While all can certainly be done that way, batch processing does have its advantages (cheaper, more efficient etc.). In making the decision between batch and online-real time processing, designers must consider the need for current and accurate data. Batch processing is often used for data that does not need frequent updating and naturally occurs or is processed at fixed times. For example, while employee check-in and checkout times may be gathered in real time, payroll is usually only processed at a fixed interval such as weekly, biweekly or monthly.

a. Make an airline reservation.	online-real time
b. Register for a university course.	online-real time
c. Prepare biweekly payroll cheques.	batch
d. Process an order through an e-commerce website.	online-real time
e. Prepare a daily bank deposit.	batch
f. Preparation of customer bills by a local utility.	batch
g. Accumulate daily costs from a production run of a single automobile part.	batch
h. Identify the replacement drill bit size for a bit broken during a recent production run.	online-real time

P2.7 After viewing the websites and based on your reading of the chapter, write a two-page paper that describes how an ERP can connect and integrate the revenue, expenditure, human resources/payroll and financing cycles of a business.

Student solutions will vary depending on the demonstrations they observe. However, the demonstrations should give the students a more concrete and visual understanding of what an ERP system is and does. Student solutions should at least discuss how an ERP could integrate all of the various cycle activities of a business into one integrated system.

P2.8 Which of the following actions update a master file and which would be stored as a record in a transaction file?

- | | |
|---|--------------------|
| a. Update customer address change | – Master file |
| b. Update unit pricing information | – Master file |
| c. Record daily sales | – Transaction file |
| d. Record payroll cheques | – Transaction file |
| e. Change employee pay rates | – Master file |
| f. Record production run variances | – Transaction file |
| g. Record Sales Commissions | – Transaction file |
| h. Change employee office location | – Master file |
| i. Update accounts payable balance | – Master file |
| j. Change customer credit limit | – Master file |
| k. Change vendor payment discount terms | – Master file |
| l. Record purchases | – Transaction file |

P2.9 You were hired to assist Ashton Fleming in designing an accounting system for S&S. Ashton has developed a list of the journals, ledgers, reports and documents that he thinks S&S needs (see Table 2.4). He asks you to complete the following tasks:

No single answer exists with this case. Indeed, solutions will vary depending upon student ingenuity and creativity.

- a. Specify what data you think should be collected on each of the following four documents: sales invoice, purchase order, receiving report and employee time card.

A sample invoice is presented in the Revenue Cycle chapter. A sample purchase order is presented in the Expenditure Cycle chapter. A sample receiving report also appears in the Expenditure Cycle chapter. Although student designs will vary, each document should contain the following data items:

Sales Invoice

Customer name and address	Product code or number
Customer account number	Product description
Customer order number	Quantity ordered
Salesperson code	Quantity shipped
Shipping Address	Unit price
Shipper and date shipped	Extended price
Terms of sale	Taxes, if applicable
Total Amount due	

Purchase Order

Ship to address	Item numbers ordered
Bill to address	Payment terms
Purchasing agent number	Shipping instructions
Quantity of parts ordered	Supplier name or number
Prices of parts ordered	Date of purchase
Taxes, if any	Total amount of purchase

Receiving Report

Vendor name	Vendor number
Vendor address	Date received
Shipper	Receiving clerk number
Quantity received	Part number received
Description/quality remarks	Purchase order number
Inspected by	

Employee Time Card

Employee name	Total regular hours
Employee number	Time in/ Time out
Pay period	Total overtime hours
Department number	Approved by
Employee signature	

b. Design a report to manage inventory

The report to manage inventory should contain the following information:

- Preferred vendor
- Product number
- Description
- Reorder point
- Quantity on Hand
- Quantity Available
- Vendor performance history
- Quantity on order
- Lead time

c. Design a report to assist in managing credit sales and cash collections.

The report to manage credit sales and cash collections should include:

- Credit sales per period
- Cash collections per period
- Aging of accounts receivable
- Customers by geographic region
- Uncollectible accounts per period

d. Visit a local office supply store and identify what types of journals, ledgers and blank forms for various documents (sales invoices, purchase orders etc.) are available. Describe how easily they could be adapted to meet S&S's needs.

The answers to this will vary depending upon the types of documents carried in the office supplies stores visited by the students.

A fruitful topic for class discussion or a possible additional case assignment is to compare the design of paper documents to the data entry screen layouts used in various popular accounting packages.

SUGGESTED ANSWERS TO THE CASE

Case 2.1 Bar Harbour Blueberry Farm

Data from Case

Date	Supplier Invoice	Supplier Name	Supplier Address	Amount
March 7	AJ34	Bud's Soil Prep	PO Box 34	\$2067.85
March 11	14568	Osto Farmers Supply	45 Main	\$67.50
March 14	893V	Whalers Fertiliser	Route 34	\$5000.00
March 21	14699	Osto Farmers Supply	45 Main	\$3450.37
March 21	10102	IFM Wholesale	587 Longview	\$4005.00
March 24	10145	IFM Wholesale	587 Longview	\$267.88

Purchases Journal

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Date	Supplier	Supplier Invoice	Account Number	Post Ref	Amount
March 7	Bud's Soil Prep	AJ34	23	√	\$2067.85
March 11	Osto Farmers Supply	14568	24	√	\$67.50
March 14	Whalers Fertiliser	893V	36	√	\$5000.00
March 21	Osto Farmers Supply	14699	24	√	\$3450.37
March 21	IFM Wholesale	10102	38	√	\$4005.00
March 24	IFM Wholesale	10145	38	√	\$267.88
March 31	TOTAL				\$14 858.60

General Ledger

Accounts Payable

Account Number: 300

Date	Description	Post Ref	Debit	Credit	Balance
March 1	Balance Forward				\$18 735.55
March 31		√		\$14 858.60	\$33 594.15

Purchases**Account Number: 605**

Date	Description	Post Ref	Debit	Credit	Balance
March 1	Balance Forward				\$54 688.49
March 31		√	\$14 858.60		\$69 547.09

Account Payable Subsidiary Ledger

Account No: 23		Bud's Soil Prep	PO Box 34	Terms: 2/10, Net 30	
Date	Description	Debit	Credit	Balance	
March 1	Balance Forward			0.00	
March 7	Mulch		\$2067.85	\$2067.85	

Account No: 24		Osto Farmers Supply	45 Main	Terms: 2/10, Net 30	
Date	Description	Debit	Credit	Balance	
March 1	Balance Forward			0.00	
Mar 11	Seedling Heat Mat		\$67.50	\$67.50	
Mar 21	Medium Portable Greenhouse		\$3450.37	\$3517.87	

Account No: 36		Whalers Fertiliser	Route 34	Terms: 2/10, Net 30	
Date	Description	Debit	Credit	Balance	
March 1	Balance Forward			0.00	
March 14	Premium Leaf-Blend Fertiliser		\$5000.00	\$5000.00	

Account No: 38		IFM Wholesale	587 Longview	Terms: 2/10, Net 30	
Date	Description	Debit	Credit	Balance	
March 1	Balance Forward			0.00	
Mar 21	Peat Pots		\$4005.00	\$4005.00	
Mar 24	Labels		\$267.88	\$4 272.88	