INTERNATIONAL TRAINING INSTITUTE

COST & BUDGETING 1 BOOK 1

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Preface

I am very delighted to present the revised edition of Cost and Budgeting 1 for students taking Business Studies majoring accounting at International Training Institute. Many of the topics of this Student Study Guide have been rewritten, restructured and simplified but without sacrificing the theme of the theories. Thus, the quality of this course has been improved by consulting other books in this field.

The main aim of this study material is to facilitate easy understanding of the subject mater without facing any problems in grasping a particular topic and its illustrations. Many illustrations have been taken from the latest Cost Accounting Text books. The illustrations have been either replaced or added at appropriate places. Thus, the opportunity of reviewing this student study guide has been well utilized for careful checking of the whole student study Guide.

Students taking this course are hereby advice that this is just provided to you as a guide. Therefore, topics taken and reviewed for this study guide should be taken as a guide to do your own research to broaden your knowledge in areas of cost accounting.

It is of my view that both Lecturers and students will find this Study Guide more useful. Suggestions for any improvement to this study Guide in the future are warmly welcome.

I sincerely would like to thank my nephew Kopale Don for his wonderful funs and jokes and special thanks to the management of International Training Institute for granting me the opportunity to review this study guide.

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Re-written in 2013 by:

Mr. Nelson Nere Pain
DCOM, BCOM, UPNG

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Chapter 1

Introduction to cost accounting

Learning Objectives
When you have completed this Chapter, you should be able to:

- Define Cost Accounting
- Understand the purpose and roles of cost accounting
- Define cost and its elements or components of costing
- Distinguish the relationship between cost accounting and financial Accounting
- Define cost and define it cost terms used in cost accounting system
- Prepare manufacturing account
- Prepare profit and loss statement of a manufacturing industry

Introduction

In order to determine and take a dispassionate view about what lies beneath the surface of accounting figures, a financial analyst has to make use of different management accounting techniques. Cost techniques have a precedence over the other techniques since accounting treatment of cost is often both complex and financially significant. For example, if a firm proposes to increase its output by 10%, is it reasonable to expect total cost to increase by less than 10%, exactly 10% or more than 10%? Such questions are concerned with the cost behavior, i.e. the way costs change with the levels of activity. The answers to these questions are very much pertinent for a management accountant or a financial analyst since they are basic for a firm's projections and profits which ultimately become the basis of all financial decisions. It is, therefore, necessary for a financial analyst to have a reasonably good working knowledge about the basic cost concepts and patterns of cost behavior. All these come within the ambit of cost accounting.

What is a cost accounting?

Previously, cost accounting was merely considered to be a technique for the ascertainment of costs of products or services on the basis of historical data. In course of time, due to competitive nature of the market, it was realized that ascertaining of cost is not so important as controlling costs. Hence, cost accounting started to be considered more as a technique for cost control as compared to cost ascertainment. Due to the technological developments in all fields, cost reduction has also come within the ambit of cost accounting. Cost accounting is, thus, concerned with recording, classifying and summarizing costs for determination of costs of products or services, planning, controlling and reducing such costs and furnishing of information to management for decision making.

According to Charles T. Horngren, cost accounting is a quantitative method that accumulates, classifies, summarizes and interprets information for the following three major purposes:

- Operational planning and control

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- Special decisions
- Product decisions

According to the Chartered Institute of Management Accountants, London, cost accounting is the process of accounting for costs from the point at which its expenditure is incurred or committed to the establishment of the ultimate relationship with cost units. In its widest sense, it embraces the preparation of statistical data, the application of cost control methods and the ascertainment of the profitability of the activities carried out or planned.

Cost accounting, thus, provides various information to management for all sorts of decisions. It serves multiple purposes on account of which it is generally indistinguishable from management accounting or so-called internal accounting. Wilmot has summarized the nature of cost accounting as "the analyzing, recording, standardizing, forecasting, comparing, reporting and recommending" and the role of a cost accountant as "a historian, news agent and prophet." As a historian, he should be meticulously accurate and sedulously impartial. As a news agent, he should be up to date, selective and pithy. As a prophet, he should combine knowledge and experience with foresight and courage.

Objectives of Cost Accounting

The main objectives of cost accounting can be summarized as follows:

1. **Determining Selling Price**

Business enterprises run on a profit-making basis. It is, thus, necessary that revenue should be greater than expenditure incurred in producing goods and services from which the revenue is to be derived. Cost accounting provides various information regarding the cost to make and sell such products or services. Of course, many other factors such as the condition of market, the area of distribution, the quantity which can be supplied etc. are also given due consideration by management before deciding upon the price but the cost plays a dominating role.

2. **Determining and Controlling Efficiency**

Cost accounting involves a study of various operations used in manufacturing a product or providing a service. The study facilitates measuring the efficiency of an organization as a whole or department-wise as well as devising means of increasing efficiency.

Cost accounting also uses a number of methods, e.g., budgetary control, standard costing etc. for controlling costs. Each item viz. materials, labor and expenses is budgeted at the commencement of a period and actual expenses incurred are compared with budget. This greatly increases the operating efficiency of an enterprise.

3. **Facilitating Preparation of Financial and Other Statements**

The third objective of cost accounting is to produce statements whenever is required by management. The financial statements are prepared under financial accounting generally once a year or half-year and are spaced too far with respect to time to meet the needs of management. In order to operate a business at a high level of efficiency, it is essential for management to have a frequent review of production, sales and operating results. Cost accounting provides daily,

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weekly or monthly volumes of units produced and accumulated costs with appropriate analysis. A developed cost accounting system provides immediate information regarding stock of raw materials, work-in-progress and finished goods. This helps in speedy preparation of financial statements.

4. **Providing Basis for Operating Policy**

Cost accounting helps management to formulate operating policies. These policies may relate to any of the following matters:

- Determination of a cost-volume-profit relationship
- Shutting down or operating at a loss
- Making for or buying from outside suppliers
- Continuing with the existing plant and machinery or replacing them by improved and economic

Financial accounting versus cost accounting

The purpose of accounting is to provide the information that is needed for sound economic decision making. The main purpose of financial accounting is to prepare financial reports that provide information about a firm's performance to external parties such as investors, creditors, and tax authorities. Managerial accounting contrasts with financial accounting in that managerial accounting is for internal decision making and does not have to follow any rules issued by standard-setting bodies. Financial accounting, on the other hand is performed according to Generally Accepted Accounting Principles (GAAP) guidelines.

Concept of Cost

The Cost accounting is concerned with cost and therefore is necessary to understand the meaning of term cost in a proper perspective.

What is a cost?

In general, cost means the amount of expenditure (actual or notional) incurred on, or attributable to a given thing. A cost represents the value of resources consumed to achieve a specific objective. The conventional accounting measure of cost is in terms of money outlaid for resources, that is historical or outlay cost. We talk about the cost of *something*, be it the cost of a product produced, the cost of a service provided, the cost of running a department for a month, the cost of an hour of labour, or the cost of a kilowatt-hour of electricity.

However, the term cost cannot be exactly defined. Its interpretation depends upon the following factors:

- The nature of business or industry
- The context in which it is used

In a business where selling and distribution expenses are quite nominal the cost of an article may be calculated without considering the selling and distribution overheads. At the same time, in a business where the nature of a product requires heavy selling and distribution expenses, the calculation of cost without taking into account the selling and distribution expenses may prove very costly to a business. The cost may be factory cost, office cost, cost of sales and even an item of expense. For example, prime cost includes expenditure on direct materials, direct

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labor and direct expenses. Money spent on materials is termed as cost of materials just like money spent on labor is called cost of labor and so on. Thus, the use of term cost without understanding the circumstances can be misleading.

Different costs are found for different purposes. The work-in-progress is valued at factory cost while stock of finished goods is valued at office cost. Numerous other examples can be given to show that the term "cost" does not mean the same thing under all circumstances and for all purposes. Many items of cost of production are handled in an optional manner which may give different costs for the same product or job without going against the accepted principles of cost accounting. Depreciation is one of such items. Its amount varies in accordance with the method of depreciation being used. However, endeavor should be, as far as possible, to obtain an accurate cost of a product or service.

Elements of product cost

Following are the three broad elements of cost:

- Materials
- Labor/Labour and:
- Manufacturing overheads

1. Materials Cost

The substance from which a product is made is known as a material. It may be in a raw or a manufactured state. It can be direct as well as indirect.

Direct materials refer to the raw materials which are an integral part of the finished good, and traceable to it. For example, in a wooden desk the principal direct material is the timber of which it is made, and its cost is referred to as the direct materials cost. Some materials which might properly be regarded as direct materials are sometimes, in fact, not treated as such. In the wooden desk referred to there might be glue in the joints, but to actually trace the cost of a few dabs of glue to each unit would probably not be cost-effective. Therefore, direct materials are classified as those which are traceable to individual units in an economically feasible manner.

Indirect Material

The material which is used for purposes ancillary to the business and which cannot be conveniently assigned to specific physical units is termed as indirect material. Consumable stores, oil and waste, printing and stationery material etc. are some of the examples of indirect material. Indirect material may be used in the factory, office or the selling and distribution divisions.

2. Labor

For conversion of materials into finished goods, human effort is needed and such human effort is called labor. Labor can be direct as well as indirect.

Direct Labor - The labor which actively and directly takes part in the production of a particular commodity is called direct labor. Direct labor costs are, therefore, specifically and conveniently

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traceable to specific products. Direct labor can also be described as process labor, productive labor, operating labor, etc.

Indirect Labor - The labor employed for the purpose of carrying out tasks incidental to goods produced or services provided, is indirect labor. Such labor does not alter the construction, composition or condition of the product. It cannot be practically traced to specific units of output. Wages of storekeepers, foremen, timekeepers, directors' fees, salaries of salesmen etc, are examples of indirect labor costs. Indirect labor may relate to the factory, the office or the selling and distribution divisions.

3. Manufacturing overhead consists

This term refers to all factory expenses which are not direct material or direct labor costs. It comprises indirect materials, indirect labor and other factory expenses.

Manufacturing overhead does not usually include any expenses which are typically regarded as administrative or selling expenses. In some service organizations the term manufacturing overhead is probably not appropriate, but should be called simply, *overhead*. A few cost items might be regarded as direct expense. This category includes payments such as royalties on each unit produced or on inputs consumed, or payments for subcontract services. The term prime cost is used to describe the sum of direct materials and direct labor (and any direct expense where incurred). Conversion cost refers to the sum of direct labor and manufacturing overhead expenses. It is the cost of converting raw materials into a finished product.

The term manufacturing overhead includes indirect material, indirect labor and indirect expenses. Thus, all indirect costs are overheads. A manufacturing organization can broadly be divided into the following three divisions:

- Factory or works, where production is done
- Office and administration, where routine as well as policy matters are decided
- Selling and distribution, where products are sold and finally dispatched to customers

The Manufacturing Overheads may be incurred in a factory or office or selling and distribution divisions. Thus, overheads may be of three types:

(1) Factory Overheads

They include the following things:

- Indirect material used in a factory such as lubricants, oil, consumable stores etc.
- Indirect labor such as gatekeeper, timekeeper, works manager's salary etc.
- Indirect expenses such as factory rent, factory insurance, factory lighting etc.

(2) Office and Administration Overheads

They include the following things:

- Indirect materials used in an office such as printing and stationery material, brooms and dusters etc.
- Indirect labor such as salaries payable to office manager, office accountant, clerks, etc.

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- Indirect expenses such as rent, insurance, lighting of the office

(3) Selling and Distribution Overheads

They include the following things:

i. Indirect materials used such as packing material, printing and stationery material etc.
ii. Indirect labor such as salaries of salesmen and sales manager etc.
iii. Indirect expenses such as rent, insurance, advertising expenses etc.

Thus, the total costs of a final finished good constitute the following:

1. Prime Cost

Prime cost consists of costs of direct materials, direct labors and direct expenses. It is also known as basic, first or flat cost.

2. **Factory Cost**

Factory cost comprises prime cost and, in addition, works or factory overheads that include costs of indirect materials, indirect labors and indirect expenses incurred in a factory. It is also known as works cost, production or manufacturing cost.

3. **Office Cost**

Office cost is the sum of office and administration overheads and factory cost. This is also termed as administration cost or the total cost of production.

Total Cost

Selling and distribution overheads are added to the total cost of production to get total cost or the cost of sales.

Various components of total cost can be depicted with the help of the table below:

Components of total cost	
Direct material Direct labor Direct expenses	Prime cost or direct cost or first cost
Prime cost plus overheads	factory overhead cost or production cost or manufacturing cost
Factory overhead cost plus office and administration overheads	total cost of production
Office cost plus selling and distribution overheads	Cost of sales or total cost

Source: E.J.Vanderbeck (2008), "The Principles of Cost Accounting" South Western Cenagage Learning, USA, PP.17

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Manufacturing Firms/Organizations

There are three (3) types of business entities and they are manufacturing business, Merchandising and Service Business. Each of them are explained as follows:

1. **Manufacturing Company:** A company that uses labor and technology to convert raw materials into goods computes cost of goods sold by adding cost of goods manufactured to beginning finished goods inventory and then subtracting ending finished goods inventory. C. Horngren he define it as a firm that purchase raw materials and components and convert or change them to other finished products. For example, Food producing companies, textile companies and automotive companies.

2. **Merchandising Sector Companies: A** company that purchases merchandise for resale, and computes *cost of goods sold* by adding the amount of merchandise it purchased to beginning merchandise inventory, then subtracting the amount of ending inventory. According to C. Horngren he define it as a company that purchase and sells finished goods only without changing their basic form. These sector includes companies engaged in retailing, such as books stores or department stores, distribution or wholesaling

3. **Service Sector Companies:** These kind of business entity provides service (in tangible products), for example, legal advice or accounting service to their customers. Such firm includes law firms, accounting firms, banks, insurance firms, radio and television stations and so forth.

Types of Inventory:

The manufacturing sector companies purchase materials and components and convert them into various forms of finished products. These companies typically have one or more of the following types of inventory:

Direct Material: Its balance contains the cost of all materials purchased and still on hand. It can also mean direct materials in stock awaiting use in the manufacturing process. To put it simply, it refers to unfinished products awaiting further processing process. For examples, computer chips, and components needed to manufacture cell phones.

Work – in – process: Its balance includes the manufacturing costs to date for unfinished goods. It can also be referred to goods partly worked on but not yet completed. For examples, cell phones at various states of completion in the manufacturing process.

Finished Goods: Its balance represents the cost to manufacture goods completed but still on hand. It can also mean finished products ready for sale. For examples, Cell phones.

Merchandising – sector - companies purchase tangible products and then sell them without changing their basic form. They hold only one type of product called merchandising inventory.

Classification of manufacturing Cost:

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There are five (5) terms that are most commonly used in are manufacturing industry and they are:

1. **Direct Material cost:** Refers to any cost that are directly associated with the product which can be traced to the cost object in a most economically feasible way. It become part of and can be readily identified with the item being manufactured. The cost of direct materials includes, freight inward chargers, sales tax, and custom duty fees.

2. **Indirect Material cost:** Refers to any cost that are not directly associated with the product which even can not be traced to the cost object in a most economically feasible way. They are those that cannot be readily identified with the finished product or are insignificant in cost. The cost of indirect materials includes, packaging supplies in the case of a canning industry.

3. **Direct labour cost:** Refers to amount of money paid to workers as salaries to those who are directly involved in the production. It is the cost of labor for those employees who work directly on converting the raw materials to finished goods. In a fish canning factory wages paid to canners, packers, butchers are direct labour cost

4. **Indirect labour cost:** Includes those who are essential to the manufacturing process, but who do not work directly on the units being produced. It can also Refers to amount of money paid to workers as salaries to those who are not directly involved in the production. In a fish canning factory wages paid to factory managers and supervisors are indirect cost because they are not directly involved in the production process.

5. **Factory overhead cost:** It includes indirect materials, indirect labor, and all other manufacturing costs incurred in production but not identifiable directly with a specific product. It refers all manufacturing cost that is related to the cost-object but they can not be traced to the cost object. When I say, they can not be traced to cost object, I mean those kind of cost can not be added together as total material cost to determine the total cost of the product to calculate or compute total product cost.

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The cost can be classified in the following manner.

Classification of cost

Cost elements		**(k)**
Direct material		250,000
Direct Labor		120,000
Other direct expenses		10,000
Prime cost		**380,000**
Add:		
Indirect Labor	25,000	
Factory Overhead expenses	20,000	
Other administration Overhead expenses	25,000	120,000
Total Production cost		**450,000**

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Let us look at this example.
Apulin Pawa CO. LTD had the following transactions during year ended 31 December 2004.

Stock on hand 1 January 2004:

Raw Materials	36,000
Work in Progress	8,400
Finished Goods	5,500

Transactions during the year:

Purchases of Raw Materials	120,000
Purchases of Finished Goods	10,000
Direct Labor incurred	50,000

Factory Expenses incurred:

Indirect Labor	20,000
Rent	5,000
Insurance	1,000
Light and Power	500
Repairs and Maintenance	2,000
Depreciation	5,000
General Expenses	1,000

Stock on hand 31 December 2004

Raw Materials	40,000
Work in Progress	6,000
Finished Goods	12,000

Normal Operational Expense

Administration Expenses	20,000
Financial Expenses	10,000

Sales for the year were **250,000**

Required:
Using the above information provided to prepare:
(a) Statement of cost of goods manufactured
(b) Income Statement

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Solutions

The Manufacturing Account and Trading Account may be prepared as follows:

Apulin Pawa CO. LTD

The statement of cost of Goods manufactured for the year 31st December 2004

Work in Progress at 1 Jan 2004		8,400
Raw Material on hand at 1 Jan 2004	36,000	
Raw Materials Purchased	120,000	
	156,000	
Less: Raw Materials on hand 31 Dec. 2004	40,000	
Raw Materials Used/Issued		116,000
Direct Labor		50,000
Add: Factory Overhead Expenses		
Indirect Labor	20,000	
Rent	5,000	
Insurance	1,000	
Light & Power	500	
Repairs & Maintenance	2,000	
Depreciations	5,000	
General Expenses	1,000	34,500
		208,900
Less: Work In Progress at 31 Dec 2004		6,000
The cost of goods manufactured b/d:		**202,900**

The cost of goods manufactured figure of K202, 900 has been carried forward to Income statement. Thus, the income statement for the year ended 31 December 2004 is presented as follows:

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Apulin Pawa CO. LTD
The Income statement for the Year ended 31st December 2004

SALES		250,000
Less: COST OF GOODS SOLD		
Stock on hand at 1 Jan 2004 (Finished Goods)	5,500	
Cost of Manufacturing Goods	202,900	
Purchases of Finished Goods	10,000	
	218,400	
Less: Stock on hand 31 Dec. 2004 (Finished Goods)	12,000	
COST OF GOODS SOLD		206,400
GROSS PROFIT		**43,600**
OPERATING EXPENSES		
Less: Operational Expenses		
Administration Expenses	20,000	
Financial Expenses	10,000	
Total Operating Expenses		30,000
Net income before Tax		**13,600**

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Chapter One Summary

In this introductory unit we began by identifying the. field of management accounting. Although there is some overlap with financial accounting, management accounting is primarily concerned with providing information to assist managers in running a business. Management accounting work is driven by three factors, compliance, control and competitive support. A large part of this work can be achieved by carefully designing and operating product costing systems and control systems.

Cost is the value of resources consumed to achieve a specific objective. A thing being costed is known as the cost object. Costs may be classified as variable or fixed. Unit costs are averages. Variable cost per unit does not change with variations in the activity level of a cost driver; fixed cost per unit varies inversely with changes in cost driver activity level.

Product costing is the process of assigning a fair share of all manufacturing or service costs to individual units of output. Direct costs are traced to units of product; indirect costs are allocated to units of product. Product costs serve four major purposes: financial reporting, assessment of productive efficiency, inputs to decision making, and price justification. There are three major elements of product cost: direct materials, direct labour and (manufacturing) overhead.

In a manufacturing organization there are three types of inventory account, raw materials, work in process and finished goods. All production costs attach to products and are not expensed until the goods are sold. Costs of production are accumulated in the Work-in Process account(s), transferred to the Finished Goods account on completion, and then to the Cost of Goods Sold account on sale.

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Chapter One Revision Exercises

Q1. What is the main objective of cost accounting?

Q2. Using your own words to describe the three types of cost components

Q3. Discuss the difference between financial accounting and management accounting

Q4. What do you understand by the term "cost"?

Q5. Explain the difference between administration overheads and selling and distribution overheads. Give at least two examples each.

Q6. Distinguish the difference between direct material indirect materials. Give at least two examples each.

Q7. Distinguish the difference between direct labor indirect labor. Give at least two examples each.

Problem

On 1/8/2000, Apulin Ultange manufacturing company which produces a single product had the following inventory balances.

	(K)
Raw materials	5,000
Work in Progress	10,000
Finished good	20,000

During the month following transaction also took place

Raw materials purchased	10,000
Direct labor incurred	20,000
Other expenses	
Factory supervision	12,000
Depreciation of plant	10,000
Electricity and water	5,000

On 31/8/2000, following inventory Balances were recorded

Raw materials	4,000
Work in Progress	11,000
Finished	18,000
Sales during the month	50,000

Required: Prepare Manufacturing statement at the end of the month to determine cost of goods manufactured and the cost of goods sold for the month.

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Chapter 2

Introduction to cost terms and purposes

Learning Objectives
When this chapter ends students should be able to:
Define Cost

Understand the different terms used in a cost accounting system

Know how to trace and assign cost to products

Know the different types of inventory

Classify Cost According to their forms

Calculate Unit Cost

Introduction

The managers need to understand cost in order to interpret and act on accounting reports. An organization such as SP Brewery LTD generates reports containing variety of cost concepts and terms that managers need to run their operations. The managers who understand these cost terms and concepts are best able to interpret and analyze reports and can make better decisions. Thus, this chapter discusses cost concepts and terms that are the basis of accounting information used for internal and external reporting.

Cost and Terminologies

What is a "cost"? The cost can be defined as a resource sacrificed or forgone to achieve a specific objective. To put it simply, a cost refers to a value of asset sacrificed to gain another asset. For example, Pain LTD purchased a motor vehicle costing K20, 000. In this case, Pain LTD sacrificed or committed K20, 000 to acquire the Motor Vehicle. Thus, K20, 000 was spent [cost] to acquire [achieve] the motor vehicle.

Actual cost versus Budgeted Cost

An actual cost can also be referred to as a historical cost. It talks about the actual cost incurred while acquiring something where as budgeted cost refers to predicted or estimated cost. It can also be called future cost.

Cost Object versus Cost Accumulation

Cost object refers to anything for which measurement of cost is desired where as cost accumulation refers to the collection of cost data in some organized way by means of an accounting system. The cost assignment is a general term which explains how a cost is assigned to a particular product.

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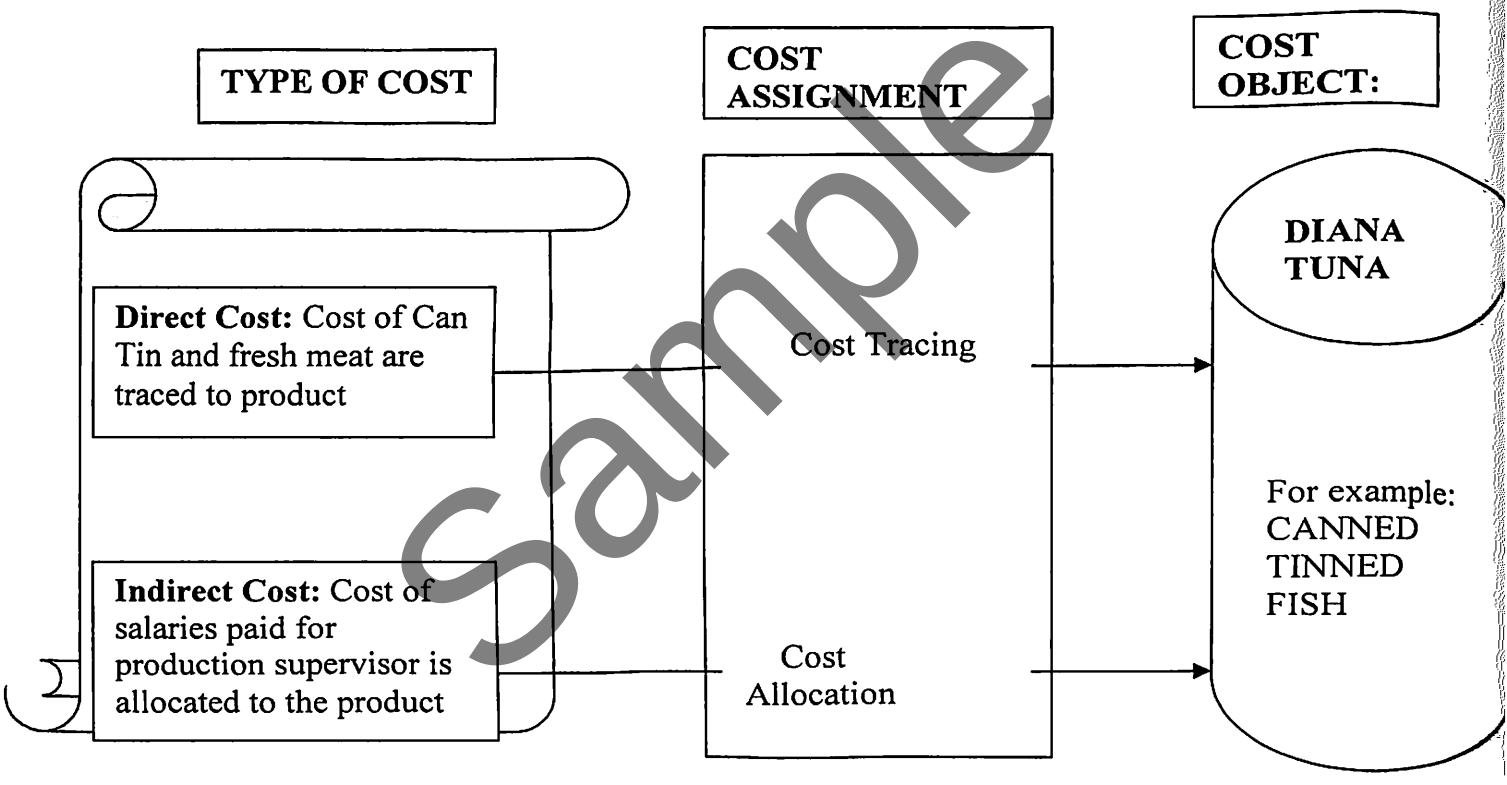
Direct Cost versus Indirect Cost

The direct cost refers to a cost that is directly traceable to the particular product. For example, in Coca cola LTD the cost of the cans or bottles is a direct cost because it can be easily traced or identified with the drink. The indirect cost refers to particular cost object that can not be directly traced to the production. For example, in Coca cola LTD, salaries of supervisors who overseas the production of many different soft drink product are a indirect product.

Cost Tracing versus Cost Assignment

The term cost tracing is use to describe the assignment of direct cost to a product where as cost allocation is use to describe the assignment of indirect cost to a particular product. Refer to Exhibit 2 – 2 which explain this illustration.

Exhibit 2 – 2



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Source: W. Go (2004), "**Cost and Management Accounting**" University of Papua New Guineas Printers, Papua New Guinea, pp.15

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Variable Cost versus Fixed Cost

The costing system record the cost of resources acquired, such as materials, labor and equipment and track how those resources are used to produce and sell product or services. Recording the cost of resources acquired and used allows managers to see how cost behaves. There are two basic types of cost behaviors and they are variable cost and fixed cost.

A variable cost is a cost that changes in direct proportion to the number of units produced. Examples of variable cost may include commissions on sales where as Fixed costs refers to any cost that remain unchanged in total for a given time period despite wide changes in the related level of total activity or volume. For example, rent expense remains unchanged for a fixed period of time until such a time when the landlord decided to increase the bill

To illustrate these two types of cost consider cost at Coca cola LTD for its can drinks productions. For example, the company buys can tins at K1.50 for each can drinks produced. And pays rentals bills for K3,500 per month. Thus, the total cost of can drinks produce is K1.50 x the number of can drinks produced. In other words, the total cost of production depends on the number of cans purchased as the following table illustrates.

No of Can drinks produced	Variable cost per unit	Fixed cost [rent expense]	Total cost
1 Can drink	K1.50	K3,500	K3,501.50
1,000 can drinks	K1,500	K3,500	K5,000
2,000 can drinks	K3,000	K3,500	K6,500

Thus, the cost of can tin is an example of a variable cost because total costs changes in direct proportion to the changes in the number of can drinks produced. The rent expense does not change even if the company increases its production; hence, it is a fixed cost. This kind of cost behavior can also be illustrated using a graph. Please refer to Exhibit 2 – 2 which shows this relationship graphically.

The Cost Driver versus Relevant Range

The cost driver is a variable, such as the level of activity or volume that usually affects or having direct impact on the cost. To put it simply, it refers to anything/factor that drives the cost to increase or decrease. In the case of the above example, cost driver is the number of can drinks produced. The relevant range, is the band of normal activity level or volume in which there is a specific relationship between the level of activity or volume (at which the company is expected to operate) and only for a given time span.

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Inventoriable Cost Versus period cost:

The inventoriable costs refers to all the cost of a product that considered as assets in the balance sheet when they are incurred and that becomes the cost of goods sold when the product is sold. For manufacturing companies, all manufacturing cost are regarded as *inventoriable cost.* The period cost refers to all cost in the income statement other than cost of goods sold. The period costs are treated as expense of the accounting period in which they are incurred because they are expected to benefit revenue in that period and not expected to benefit revenue in the future period, thereby, expensing theses cost against the revenue generated in that same period.

The difference between inventoriable costs and period cost are necessary for financial reporting in both the manufacturing and merchandising sectors of the economy. The service sector companies provide only service or intangible products. Because they do not hold inventories or tangible products for sale, the concept of inventoriable cost and period cost do not apply to service sector companies. As background, we will look at the different types of inventory that companies hold and some commonly used classification of manufacturing cost.

Cost finding

Some important concepts in relation to *'cost finding'* must be defined at this early stage. The cost finding itself is defined as:

The process of accounting for cost from the point at which expenditure is incurred or committed to the establishment of its ultimate relationship with cost units or cost centre. The expression 'incurred or committed' covers the normal procedure of accrual accounting. The 'establishment of ultimate relationship' is' the process of objective analysis to which reference has already been made. It remains to describe the nature of cost units and cost centre.

Cost units

It will be helpful to an understanding of this term to revert to the costing profit and loss account illustrated earlier. This showed the sales quantity of various products (A-D) and the total cost of those sales under the headings materials, wages and expenses.

The following additional calculations could be made from that· example.

Calculation of cost per unit for month ended 30/xx/19x0

	Product A (k)	Product B (k)	Product C (k)	Product D (k)
Materials	0.16	1.23	0.93	3.02
Wages	0.13	0.92	0.25	1.07
Other expenses	0.07	0.78	0.22	0.53
Total cost/Unit	**0.36**	**2.93**	**1.40**	**4.62**

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We have taken the total costs attributable to each product in a month (any other period could have been used) and arrived at the average cost per unit of each product by dividing the totals by the number of units involved. The 'cost unit in this instance is the unit of product sold.
The unit might have been apiece, a pack, a kilogram, a litre or any other measure appropriate to what was being produced.

Averaging cost
It should be noted that in practice the business would probably have produced more units than it sold in the period, the unsold quantity being taken into stock. In such a case the costs of production would have been collected and divided by the number of units produced to give the average unit cost. This would have been applied to the number of units sold to give the cost of sales, and to the number of units remaining to give the costs of the residual stock.

This average unit cost approach is used whenever production is continuous and leads to uniform product units, as in the case of many chemical plants, food processors or extractive operations such as mining and quarrying.

Job Cost
Some businesses however under take special jobs for their customers. A workshop making tools and jigs does this and so on a much larger scale does the contractor building bridges or putting up a. factory. In such cases costs are first analyzed between the various jobs or contracts, and then the costs of the jobs invoiced will be gathered together into the periodic summary profit and loss account. For such businesses, in other words, the 'cost unit' is the job or contract.

Batch Cost
A third situation may be exemplified in the manufacture of mechanical or electrical components or products, which are customarily made in batches of say 1,000 or 10,000 items, according to the circumstances of the case. In this type of business the cost of each batch is determined, and the batch is the primary 'cost unit'. Thus, it is possible to calculate the average cost per item in the batch.

In summary, therefore, a cost unit has been defined as a quantitative unit of product or service in relation to which costs are associated; and the purpose of product costing is to arrive at the cost of the cost unit appropriate to the business concerned.

Cost centers
A cost centre is defined as a location, function or equipment in respect of which casts may be ascertained and related to cost units for control purposes.

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In other words, any costs which do not relate directly to cost units, what is the money being spent on. The following are the examples of cost centre:

a) the machine lubricating and cleaning materials, and the setting and cleaning time of a lathe all relate to the provision of a machining facility; and so would the repair and maintenance costs, the power usage and the depreciation of the machine;
b) the rent, rates and maintenance of buildings would relate to the provision of premises in which a business would operate.
c) the wages and salaries of storekeepers, sales staff and the accounts department would relate to. the services provided by those various groups of people, and so. would the stationery they used, the telephone calls they made, the traveling expenses they incurred and so on.

Responsibility centre

Control can only be exercised by people, and for every cost somebody must be responsible. So whether it is a cost centre or responsibility center personal or impersonal or personal there must always be a manager responsible for all cost incurred.

Overhead costs, therefore, will always be identified with cost centers; and because cost centers are the responsibility of particular functional managers one will find over heads classified according to the main functional divisions of the business.

Controllable and uncontrollable cost

With a well designed cost control system the analysis variances by responsibility is basicall simple because the organization will have been subdivided into cost centers which represe areas of responsibility and· separate operating statements will be prepared for the variou budget centers.

As part of any system aimed at improving the performance of a business or any part of th business, it is necessary to be able to trace actions to the door of the person responsible. Th immediately gives the impression of 'laying the blame', but it is equally possible to 'la praise'. It is important, though, to be able to investigate variances from the norm, bot favorable and unfavorable and to this end we must locate the relevant controller. The gener title for such a system is responsibility accounting; that is, a system which recognizes variou decision centers within a business and traces costs etc to the individual managers who ar primarily responsible for making decisions about the costs in question. In practice this ma be an almost impossible task as some costs may be part controlled by a number o individuals and some' considered controlled by none, especially within a limited time perio However, compromises can be made and the. majority of costs identified to specific person Performance reports can then be produced for the various centers or managers and by th means the individuals can appreciate the effect of· their efforts on performance again budget. It is sometimes suggested that the costs of their departments over which they hav no control, such as the use of common facilities should also be included to aid in th appreciation of the overall contribution of their area.

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Chapter One Summary

The cost refers to resource sacrificed or forgone to achieve a specific objective.

The actual cost and the budgeted cost are explained as: An actual cost can also be referred to as a historical cost. It talks about the actual cost incurred while acquiring something where as budgeted cost refers to predicted or estimated cost. It can also be called future cost.

The responsibility center is where cost are allocated and controlled

A cost centre is defined as a location, function or equipment in respect of which casts may be ascertained and related to cost units for control purposes.

The cost driver is a variable, such as the level of activity or volume that usually affects or having direct impact on the cost.

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Chapter Two Revision Exercises

1. Distinguish between cost unit and cost center with illustrative examples.
2. Define controllable and uncontrollable cost.
3. Name the three main types of cost. Give examples as much as possible.
4. What is the difference between uncontrollable cost and controllable cost
5. Distinguish between direct and indirect cost. Provide examples
6. What is the difference between prime cost and production cost. Provide example

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Chapter 3

The cost behavior

Learning Objectives

Explain the two assumptions used in cost behavior estimations

Define variable and fixed cost

Calculate fixed and Variable cost using high-low method

Calculate Contribution Margin

Calculate Contribution Margin using High Low Method

Define sales mix method

Calculate weighted average contribution margin using sales mix method

Introduction

The managers must understand how cost behaves to make strategic and operational decisions of the firm. The decisions to answer questions such as to increase or decrease sales, purchase or to design new products, to manage sales and cost variances or do you think you could make 25 sales to achieve Break Even? Or what if the Permit cost was k1, 000, requiring 250 sales to Break Even, are you still as confident? To answer such questions, the managers must have good knowledge about how cost behaves in a certain way.

What is a cost behavior? A cost behavior is a way in which the overall cost of production reacts to the overall level of units produced. The direct material and direct materials are classified as variable cost. A variable cost is a cost that varies in direct proportion to volume changes. In contrast, fixed costs are those cost that remains the same in total when producing levels increase or decease. Semi variable costs are any costs that have the characteristics of both variable and fixed cost. They are also referred to as mixed cost

Whether a particular cost, such as labor, is classified as variable or fixed depends on how it reacts to changes in business activity. For example, workers at a fast food restaurant are only guaranteed a few hours per shift. If business is slow they are sent home, this is an example of labor as a variable cost because the amount of labor used is tied to the business activity. By comparison, the restaurant manager's salary would be a fixed cost because the business needs a manager whether the business is busy or slow.

The factory overhead expenses include cost that may be classified as variable, fixed or mixed. Thus, factory overhead creates a difficult problem for most companies because they must predict cost that will be incurred at various level of production. The factory overhead cost such as labor cost are considered variable cost and are readily forecasted because they move up or down proportionately with production volume changes. Such factory overhead cost includes plant managers salary remains unchanged when production changes.

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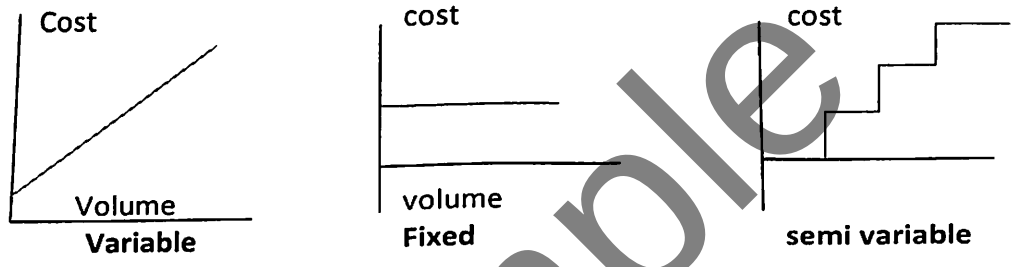
The variable, fixed, and semi variable factory overhead cost includes the following:

Variable: The electricity used to power the machines, depreciation expenses computed on the units of production basis, supplies and small tools expenses

Fixed: The electricity used to heat and light the factory, factory property taxes; depreciation of equipments computed on straight line basis, plant manages salary, insurance on factory building and equipment.

Semi variable: It changes as various level of production is reached. It is also know as step-variable cost. It will remain constant over a range of production then abruptly changes when production reaches another level.

The Graphical representations of cost behavior patterns are as follows:



Analyzing semi variable Factory overhead cost

There are many different theories and techniques exist regarding the prediction of future events. Most mathematical techniques attempt to establish a pattern from the historic evidence available, and then use the pattern as module for predicting future outcomes. There are two (2) popular methods used to calculate the variable cost from the semi variable cost. (a) High-Low method (b) Scatter Graph Method

High-Low Method:

This method compares high production volume with its related cost to a low production volume with its related cost. The difference in volume between the two points being compared is linear and will fall along a straight line. To illustrate this point, assume that the following overhead costs were incurred at two different levels of production.

	1,000 units	**2,000 units**
Depreciation (fixed)	K2,000	K2,000
Electricity cost (semi variable)	K3,000	K5,000
Factory supplies (variable)	K1,000	K2,000
Total Cost	**K6,000**	**K9,000**

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Analysis:
Depreciation is a fixed cost and remained unchanged in total as production doubled. Factory supplies are a variable cost (K1 per unit). However, electricity expense was neither fixed nor variable nor did it change proportionately to volume. It had an element of variable cost, the cost to run the machines that produces the product, and it also has a fixed cost element: the cost to light and heat the plant. Thus, by using the high-low technique part of the electricity cost will be determined to be variable, and remaining part fixed. The variable cost portion is determined as follows:

	Units produced	Electricity cost
High Volume	2,000	K5,000
Low Volume	1,000	K3,000
Change	**1,000**	**K1,000**

Thus, variable cost (electricity) per unit = change in cost/change in units = 2000/1000 = **K2.00 per unit**
Now, the amount of fixed cost which will be the same for either level of volume is computed by subtracting total variable cost from total cost at each volume level.

Fixed cost:

	1,000 units	2,000 units
Total cost	K3,000	K5,000
Variable cost at K2 per unit	K2,000	K4,000
Fixed cost (reminder)	**K1,000**	**K1,000**

The electricity cost at various level of production can now be estimated using the following formula: Electricity cost = Fixed cost + Variable cost = K1, 000 + (K2 x number of units produced)

Assume that the management wishes to estimate total factory overhead for a month at the production level of 4,000 units. Using previous data and formula for the semi variable cost, the projected factory overhead cost for the month would be K15, 000 computed as follows.

Depreciation (fixed)	K2, 000
Electricity cost (semi variable, K1, 000 + (2x4000)	K9, 000
Factory supplies (variable, K1, 000 x 4000)	K4,000
Total projected factory overhead @ 4,000 units is:	**K15, 000**

Thus, cost per unit is (15,000/4000 = **K3.75 per unit**

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Note that the cost per unit is K3.75 if 4,000 units were produced. If only 1,000 units are produced then cost per unit is K6.00, the difference exist because the fixed cost remains the same in total as the number of units increases, thus, lowering the unit cost as more units are produced.

The managers are able to understand cost behavior through cost functions. A cost function is a mathematical description of how a cost changes with changes in the level of an activity relating to that cost. In this chapter, well look at fixed and variable cost as a point of study.

Consider the following example; you are going to sell bouquets of roses on the corner. You purchase an annual permit for K100. The selling price of a bouquet is k10. Your cost per bouquet is k6.

Profit per bouquet is K4;
Number of bouquet sales to break even? 25 (100/4)

Sales	25 x K10	250
Less: Variable Cost	25 x K6	150
Contribution Margin		100
Less: Fixed Cost Permit		100
Operating Income		0

Note that for every unit over 25 we sell the contribution Margin will be higher than break even and therefore produce Operating Income (profit)

Fixed Costs: No matter how many units you produce the cost remains the same. It is not activity related, for example: Rent, Straight-line Depreciation, Supervisors salary

Variable Cost: You only incur the cost if an activity occurs/ or if level of activity increases. For example if I produce a unit I incur the direct materials and direct labor cost of that unit. If I produce 10 of those units I incur 10 times the cost than if I only produced 1. f I sell a unit I incur a sales commission. The activity is selling.

Mixed Cost: It has a portion that is fixed and a portion that is activity related. For example, I rent a truck and have to pay K30 plus a charge per mile. The K30 is **fixed** whether I drive the truck or not, the charge per mile is dependent on the miles driven (**variable**).

I pay my sales persons a base salary of K20,000 per year plus they receive 5% of what they sell. It costs me K30 for the base phone service and a charge for every toll or long distance call I make.

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Activity Base: The activities that create costs. For example, An airline's fuel expense will be related to the air miles flown.

Contribution Margin

The Contribution margin is the amount of funds left from a sale after the variable costs have been paid. The Contribution margin is used to pay the fixed costs of the business. Once all fixed costs have been covered, any contribution margin left represents profit;

The following are the rues to take note of regarding contribution margin;

If your CM = Fixed Cost you are at Break even and If your CM is equal to or greater than Fixed Cost then for every unit you sell after that, the contribution margin of that unit will increase Net Income. Therefore the contribution margin ratio tells what percent of each sales dollar is contribution margin. Once again, if sales are above break-even, this percentage represents profit. The formulae to calculate contribution margin is as follow;

CM = Sales - Variable Costs, where CM Ratio = CM/Sales

Study this example;

Pain Company produces the total sales and cost information is based on the sale of **20,000** units.

	Total	Per Unit
Sales	K570,000	K28.50
Variable costs	K387,600	K19.38
Fixed costs	K140,000	

Required; Compute;

[a] the total contribution margin

[b] The contribution margin ratio

[c] The unit contribution margin for this company.

[d] Compute the increase in net income that will result from a k50, 000 increases in sales and a 1,000-unit increase in sales.

Solutions

The answers to this exercise are as follows:

1. Total contribution margin: k182, 400
2. Contribution margin ratio: 32%
3. Unit contribution margin: k9.12
4. Increase in net income from k50, 000 increase in sales: k50, 000 x 32% = k16, 000
5. Increase in net income from 1,000-unit increase in sales: 1,000 x k9.12 = k9,120

Sales mix and break even

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Remember the fact that most companies often sell more than one product. A good example of a Sales Mix: I sell two products Soda and Juice. My Sales Mix is: 40% of sales are from Soda and 60% are from Juice. Please take note that each product may have its own CM per unit. If their Sales mix is constant we can apply our Break-even technique. To calculate the break-even point for a company that sells more than one product, a weighted average contribution margin must be determined.

Example:
Assume that a gourmet food manufacturer has considered renting a booth at a local mall to sell gift boxes of candy, nuts, and cookies during the holiday season. The fixed costs to rent and operate the booth would be K27, 900. The unit contribution margins and sales mix anticipated by the company are as follows:

	Unit Contribution Margin	Sales Mix
Candy	K1.50	50%
Nuts	K2.00	30%
Cookies	K1.00	20%

Required: Calculate
[a] A weighted average unit contribution margin
[b] How many boxes do you think this company will have to sell to reach breakeven?

Solutions
[a]
A weighted average unit contribution margin would be as follows:

K1.50 x 50% =	K0.75
K2.00 x 30% =	0.60
K1.00 x 20% =	0.20
	1.55

[b]
To break even, the company would need to sell 18,000 gift boxes (27,900/1.55). Using the sales mix, the number of each type of gift box can be calculated.

Candy:	18,000 x 50% =	9,000
Nuts:	18,000 x 30% =	5,400
Cookies:	18,000 x 20% =	3,600
		18,000

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Chapter Three Revision Exercises

Q1. What is a Cost behavior?

Q2. Why do you think managers really need to understand cost behavior?

Q3. What is a High Low method?

Q4. What is a contribution margin ratio?

Q5. What are the two assumptions in cost estimation?

Practical Exercise

Question 1
In each of the following cases, you are required to draw cost curves.
$y = x$
$y = a + bx$

Question 2
Using the information provided below to construct a scatter graph.

Units produced	150	300	450	600	750	900	1050
Total cost per week	3,000	4,000	5,200	6,800	7,500	8,900	9,100

Using High-low method to Compute;
[a] Variable cost
[b] Fixed Cost

Question 3
Pain Company produces the total sales and cost information is based on the sale of **30,000** units.

	Total	Per Unit
Sales	K855,000	K28.50
Variable costs	K58,1400	K19.38
Fixed costs	K150,000	

Required; Compute;

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[a] the total contribution margin
[b] The contribution margin ratio
[c] The unit contribution margin for this company.
[d] Compute the increase in net income that will result from a k50, 000 increases in sales and a 1,000-unit increase in sales.

Question 4

Assume that a gourmet food manufacturer has considered renting a booth at a local mall to sell gift boxes of candy, nuts, and cookies during the holiday season. The fixed costs to rent and operate the booth would be K35,000. The unit contribution margins and sales mix anticipated by the company are as follows:

	Unit Contribution Margin	Sales Mix
Candy	K1.50	50%
Nuts	K2.00	30%
Cookies	K1.00	20%

Required: Calculate

[a] A weighted average unit contribution margin
[b] How many boxes do you think this company will have to sell to reach breakeven?

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Chapter 4

Accounting for manufacturing cost

Learning Objectives
After studying this chapter, you should be able to:

LO1. Explain the uses of cost accounting information.

LO2. Describe the ethical responsibilities and certification requirements for management accountants, as well as corporate governance.

LO3. Describe the relationship of cost accounting to financial and management accounting.

LO4. Identify the three basic elements of manufacturing costs.

LO5. Illustrate basic cost accounting procedures.

LO6. Distinguish between the two basic types of cost accounting systems.

LO7. Illustrate a job order cost system.

An article in the August 22, 2008 *Wall Street Journal*, "Burger King Battles Costs with Small Whooper Jr.," describes Burger King's attempt to "overcome high ingredient costs that are eating into its profit." Chief Executive John Chidsey said, "To combat costs, Burger King is testing its k1 Whopper Jr. with small humbugger pattie – down to two ounces apiece from 2.2 ounces – in some markets and experimenting with different beverage sizes." The article went on to explain that "McDonald's is testing modification to its k1 double cheeseburger, including selling a different version and raising the price of the traditional double cheeseburger."

- What is the total cost to make and sell each Whopper Jr. or McDonald's double cheeseburger?
- How many burgers must be sold and what prices to cover costs and to provide shareholders with an acceptable return on their investment?
- Given that fast-food prices are constrained by competitors' prices, what other cost-cutting measures might Burger King employ to return operations to normal profit margins?

These questions can be best answered with the aid of cost information introduced in this and the following chapters.

Sample

he importance of cost accounting information to the successful operation of a business has long been recognized. However, in the current global economic environment, such information is more crucial than ever. Automobiles from Korea, clothing from China, electronic equipment from Japan, and laptop computers from Poland are just a few examples of foreign-made products that have provided stiff competition to U.S. manufacturers both at home and abroad. As a result of these pressures, companies today are placing more emphasis on controlling costs in an attempt to keep their products competitive. For example, U.S. companies are outsourcing production and service activities to other countries, such as production operations in Honduras and Indonesia and technical support call centres in India.

The Cost accounting thus, provides the detailed cost information that management needs to control current operations and plan for the future. Figure 1-1 illustrates the production process for goods and services for which cost accounting provides information. Management uses this

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information to decide how to allocate resources to the most efficient and profitable areas of the business.

All types of business entities – manufacturing, merchandizing, and service businesses – require cost accounting information systems to track their activities. **Manufacturers** convert purchased raw materials into finished goods buy using labor, technologies, and facilities. They may be **retailers**, who sell products to individuals for consumption, or **wholesalers**, who purchase goods from manufacturers and sell to retailers. **For profit service businesses**, such as health clubs, accounting firms, and NBA basketball teams, sell services rather than products. **Not-for-profit service agencies**, such as charities, governmental agencies, and some health care facilities, provide services at little or no cost to the user.

The nature of the manufacturing process requires that the **accounting information systems** of manufacturers be designed to accumulate detailed cost data relating to the production process. It is common today for manufacturers of all sizes to have **cost accounting systems** that track the costs incurred to produce and sell their diverse product lines. While the cost accounting principles and procedures discussed in the text mostly emphasize manufacturers, many of the same principles apply to merchandising and service businesses. Cost accounting is essential to the efficient operation of fast-food restaurants, athletic teams, fine arts groups, hospitals, social welfare agencies, and numerous other entities.

In many ways, the activities of a manufacturer are similar to those of a merchandiser. They purchase, store, and sell goods; both must have efficient management and adequate sources of capital; and they may employ hundreds or thousands of workers. The manufacturing process itself highlights the differences between the two: merchandisers, such as **Target**, buy goods in marketable form to resell to their customers; manufacturers, such as **Procter & Gamble**, must make the goods they sell. Once the merchandiser has acquired goods, it can perform the marketing function. The purchase of raw materials by a manufacturer, however, is only the beginning of a long and sometimes complex chain of events that results in a finished product for sale.

The **manufacturing process** requires the conversion of raw materials into finished goods through the use of labor and various other factory resources. A manufacturer must make a major investment in physical assets, such as property, plant, and equipment. To produce finished goods, a manufacturer must purchase appropriate quantities of raw materials and supplies, and develop a workforce. In addition to the cost of materials and labor, the manufacturer incurs other expenses in the production process. Many of these costs such as depreciation, taxes, insurance, and utilities, are similar to those incurred by a merchandising concern. Costs such as machine maintenance and repair, materials handling, production setup, production scheduling, and inspection are unique to manufacturers. Other costs such as selling and administrative expenses are similar to those incurred by merchandisers and service businesses. The methods of accounting for sales, cost of goods sold, and selling and administrative expenses for a manufacturer are similar to those of merchandisers. Service businesses, by comparison, have no inventories because the service is consumed at the time it is provided. Service businesses have revenue and operating expenses, but no cost of goods sold.

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Note that product quality is as important a competitive weapon as cost control in the global arena. Originally issued for companies marketing products in Europe, a set of international standards for quality management, known as the **ISO 9000 family**, was designed by the International Organization for Standardization, based in Switzerland. The standards require that manufacturers have a well-defined quality control system, that they consistently maintain a high level of product quality to enhance customer satisfaction, and that they achieve continual improvement of their performance in pursuit of these objectives. The standards are accepted in 158 countries, 106 of which are "member bodies" with full voting rights on technical and policy issues.[1] Major U.S. companies such as **General Electric** and **Procter & Gamble** requires their supplies to obtain ISO 9000 certification.

Uses of Cost Accounting Information

Principles of cost accounting have been developed to enable manufacturers to process the many different costs associated with manufacturing and to provide built-in control features. The information produced by a cost accounting system provides a basis for determining product costs and selling prices, and it helps management to plan and control operations.

Determining Product Costs and Pricing

Cost accounting procedures provide the means to determine product costs that enable the preparation of meaningful financial statements and other reports needed to manage a business. The cost accounting information system must be designed to permit the determination of **unit costs** as well as total product costs. For example, the fact that a manufacturer spent k100,000 for labor in a certain month is not, in itself, meaningful; but if this labor produced 5,000 finished units, the fact that the cost of labor was k20 per unit is significant. This figure can be compared to the company's unit labor cost for prior periods and, often, to the labor cost of major competitors.

Unit cost information is also useful in making a variety of important marketing decisions such as:

1. *Determining the selling price of a product.* Knowing the manufacturing cost of a product aids in determining the desired selling price. It should be high enough to cover the cost of producing the item and the marketing and administrative expenses attributable to it, as well as to provide a satisfactory profit to the owners.
2. *Meeting competition.* If a product is being undersold by a competitor, detailed information regarding unit costs can be used to determine whether the problem can be resolved by reducing the selling price, by reducing manufacturing and selling expenses attributable to the product or by some combination of the above that will still result in a profitable sales.
3. *Bidding on contracts.* Many manufacturers must submit competitive bids in order to be awarded contracts. Knowledge of the unit costs attributable to a particular product is of great importance in determining the bid price.

[1] International Organization for Standardization, "ISO Members," www.iso.org.

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4. *Analyzing profitability.* Unit cost information enables management to determine the amoun of profit that each product earns, thereby allocating the company's scarce resources to thos that are most profitable.

It is not uncommon, however, for some companies to retain the a certain product line, known a a **loss leader**, that yields a very low profit, or even a loss, in order to maintain the produc variety that will attract those customers who also purchase the more profitable items.

Planning and Control

One of the most important aspects of cost accounting is the preparation of reports tha management can use to plan and control operations.**Planning** is the process of establishin objectives or goals for the firm and determining the means by which they will be met. Effectiv planning is facilitated by the following:

1. *Clearly defined objectives of the manufacturing operation.* These objectives may be expressed in terms of the number of units to be produced, the desired quality, the estimated unit cost, th delivery schedules, and the desired inventory levels.
2. *A production plan that will assist and guide the company in reaching its objectives.* This detaile plan includes a description of manufacturing operations to be performed, a projection o human resource needs for the period, and the coordination of the timely acquisition o materials and facilities.

Cost accounting information enhances the planning process by providing historical costs th serve as a basis for future projections. Management can analyze the data to estimate future cos and operating results and to make decisions regarding the acquisition of additional facilitie any changes in marketing strategies, and the availability of capital.

The word "control" is used in many different ways, but from the viewpoint of th manufacturing concern, **control** is the process of monitoring the company's operations an determining whether the objectives identified in the planning process are being accomplishe Effective control is achieved as follows:

1. **Assigning Responsibility.** Responsibility should be assigned for each detail of th production plan. All managers should know precisely what their responsibilities are in terms o efficiency, operations, production, and costs. The key to proper control involves the use o responsibility accounting and cost centers.

The essence of **responsibility accounting** is the assignment of accountability for costs o production results to those individuals who have the most authority to influence them. I requires a cost information system that traces the data to cost centers and their managers.

A **cost center** is a unit of activity within the factory to which costs may be practically an equitably assigned. A cost center may be a department or a group of workers; it could represen one job, one process, or one machine. The criteria for a cost center are (1) a reasonable basis o which manufacturing costs can be traced or allocated and (2) a person who has control over an is accountable for many of the costs charged to that center.

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/ith responsibility accounting, the manager of a cost center is accountable only for those costs iat the manager controls. For example, labor and materials cost will be charged to the cost enter, but the manager may be responsible only for the quantity of materials used and the umber of labor hours worked. This manager would probably not be accountable for the unit ost of raw materials or the hourly rate paid to employees. These decisions are normally beyond ie manager's control and are the responsibility of the purchasing and human resource epartments, respectively. The manager may be responsible for the cost of machinery iaintenance and repair due to misuse in the cost center, but not responsible for the costs of epreciation, taxes, and insurance on the machinery if the decision to purchase the machinery vas made at a higher level in the organization. If production in the cost center for a given eriod is lower than planned, this could be due to poor supervision of production workers, vhich is the manager's responsibility. If the decrease in production is caused by less-skilled vorkers being hired by Human Resources, however, that would be beyond the manager's ontrol.

Cost and production reports for a cost center reflect its costs, in dollars, and its production ictivity, in units. In a responsibility accounting system, the specific data for which the manager s responsible would be highlighted for the purpose of performance evaluation. Quite often, oth a cost and production report and a separate performance report will be prepared for a cost enter. The **performance report** will include only those costs and production data that the enter's manager can control. An illustration of a performance report appears in Figure 1-2. Note the "variance columns" that appear in the illustration. A **variance** represents the amount oy which the actual result differs from the budgeted or planned amount. If the actual amount spent is less than the amount budgeted for, the variance is *favorable (F)*; if more than budgeted, it is *unfavorable (U)*. An in-depth discussion of budgeting and variance analysis appears in the preceding chapters.

These reports must be furnished at regular intervals (monthly, weekly, or daily) on a timely basis. To provide the maximum benefit, the reports should be available as soon as possible after the end of the period being reported. Reports not produced in a timely fashion are not effective in controlling future operations.

2. **Periodically Measuring and Comparing Results.** Actual operating results should be reviewed periodically and compared to the objectives established in the planning process. This analysis, which may be made monthly, weekly, daily, or even hourly in the case of production and scrap reports, is a major part of cost control because it compares current performance with the overall plan. The actual dollars, units produced, hours worked, or materials used are compared with the **budget,** which is management's operating plan expressed in quantitative terms (units and dollars). This comparison is a primary feature of cost analysis. The number of dollars spent or the quantity of units produced has little significance until compared with the budgeted amounts. Note that the appropriateness of the k157,600 actual year-to-date expenditure for "Food" in Figure 1-2 (below) can be evaluated only when compared to the budgeted amount of k155,300.

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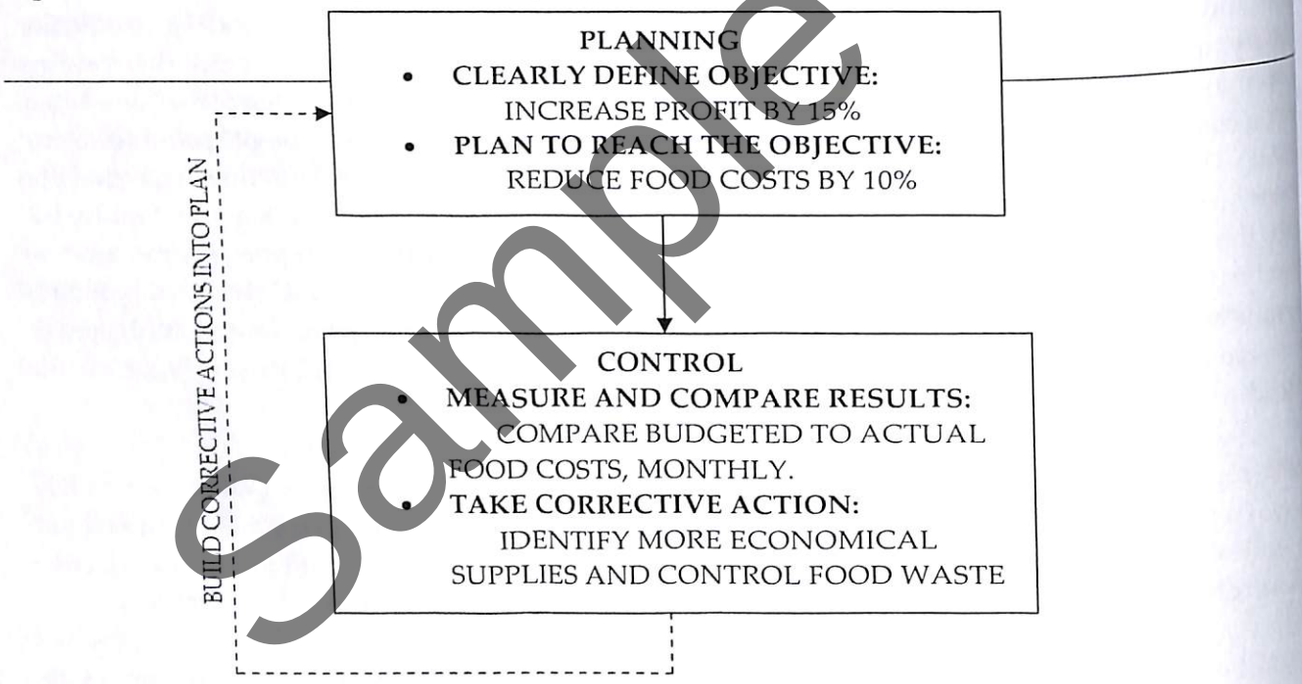
3. **Taking Necessary Corrective Action.** The performance reports may identify problem areas and deviations from the business plan. Appropriate corrective action should be implemented where necessary. A significant variance from the plan is a signal for attention. An investigation may reveal a weakness to be corrected or a strength to be better utilized. Management wants to know not only the results of operations, but also how the results – whether favorable or unfavorable – compare with the plan, why things happened, and who was responsible. For example, management may want to determine the causes of the unfavorable year-to-date variance for k2,300 for "Food" in Figure 1-2. The variance may be due to an uncontrollable rise in food prices or to a controllable waste of food at the restaurant, or a combination of both. Based on the variance analysis, management must be prepared to improve existing conditions by such means as implementing more economical purchasing methods and standard portion sizes. Otherwise, the periodic measurement of activity has little value. The relationship of planning and control is illustrated in Figure 1-4

Figure 1-4 Relationship of Planning and Control for Leonardo's Italian Café.



Source: E.J.Vanderbeck (2008), "The Principles of Cost Accounting" South Western Cenagage Learning, USA , PP. 8

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Professional Ethics, CMA Certification, and Corporate Governance

LO2. Describe the ethical responsibilities and certification requirements for

The Institute of Management Accountants (IMA) is the largest organization of accountants in industry in the world. Comparable to the CPA certification of public accountants, the Certified Management Accountant (CMA) certificate – which is awarded by the IMA after the candidate completes a four-year college degree, two years of relevant professional experience in management accounting and financial management, and a rigorous four-part examination whose topics include business analysis, management accounting and reporting, strategic management, and business applications with a string emphasis on ethics – evidence s a high level of competency in management accounting.

In addition to competency, the need for ethical conduct in managing corporate affairs has never been greater. Individual employees, investors, and the economy as a whole have been negatively impacted by recent accounting scandals where management, including controllers and chief financial officers, has "cooked the books" to make reported financial results seem better than actual. Enron, WorldCom, Health South, Tyco International, Rite Aid, and AOL Time Warner are just a few examples of firms that have had major accounting scandals in recent years. To help curb future abuses, the **Sarbanes-Oxley Act** of 2002 was written to protect shareholders and other stakeholders of publicly-traded companies by improving *corporate governance*. Corporate governance is the means by which a company is directed and controlled. Key elements of the act include:

- Certification by the CEO and CFO that the financial statements fairly represent the results of business operations.
- The establishment of the Public Company Accounting Oversight Board (PCAOB) to provide oversight of the accounting profession.
- Prohibiting a public accounting firm from providing many nonauditing services to a company that it audits.
- The requirement that a company's annual report contain an internal control report that includes management's opinion on the effectiveness of its internal controls.
- The placement of responsibility for hiring, compensating, and terminating the audit firm in the hands of the board of directors' audit committee, not top management.
- Severe criminal penalties for the destruction or alteration of business documents and for retaliation against "whistleblowers"[2]

It is equally important that the internal accounting reports prepared by management accountants be as accurate and unbiased as possible. To that end, the IMA has issued a Statement of Ethical Professional Practice that must be adhered to by its members. These standards address members' responsibility in areas such as maintaining appropriate levels of professional competence, refraining from disclosing confidential information, avoiding conflicts of interest, and communicating information fairly and objectively. The second part of the document provides guidance for resolving ethical conflicts. The complete IMA Statement of

[2] American Institute of Certified Public Accountants, "The Sarbanes-Oxley Act," www.aicpa.org.

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Ethical Professional Practice may be found in the appendix to this chapter and at the IMA Web site, which is linked to the text Web site at hppt://www.cengage.com/accounting/vanderbeck.

LO3. Describe the relationship of cost accounting to financial and management

Relationship of Cost Accounting to Financial and Management Accounting

The objective of accounting is to accumulate financial information for use in making economic decisions. Financial accounting focuses on gathering historical financial information to be used in preparing financial statements that meet the needs of investors, creditors and other external users of financial information. The statements include a balance sheet, income statement, retained earnings statement, and statement of cash flows. Although these financial statements are useful to management as well as to external users, additional reports, schedules, and analyses are required for management's use in planning and controlling operations. Management spends most its time evaluating the problems and opportunities of individual departments and divisions of the company rather than looking at the entire company at once. As a result, the external financial statements for the whole company are of little help to management in making day-to-day operating decisions.

Management accounting focuses on both historical and estimated data that management needs to conduct ongoing operations and do long-range planning. Cost accounting includes those parts of both financial and management accounting that collect and analyze cost information. It provides the product cost data required for special reports to management (management accounting) and for inventory costing in the financial statements (financial accounting). For example, cost accounting information is needed to determine: whether to make or buy a product component; whether to accept a special order at a discounted price; the amount at which cost of goods sold should be reported on the income statement; and the valuation of inventories on the balance sheet. The various users and uses of cost accounting data are illustrated in Figure 1-4, and Figure 1-5 shows how cost accounting intersects both financial and management accounting. "What is Management Accounting?" a description prepared by the Institute of Management Accountants as to the role performed by management accountants, is shown below.

Sample

WHAT IS MANAGEMENT ACCOUNTING?[1]

Management accounting is the internal business building role of accounting and finance professionals who work inside organizations. These professionals are involved in designing and evaluating business processes, budgeting and forecasting, implementing and monitoring internal controls, and analyzing, synthesizing, and aggregating information – to help drive economic value.

The role of management accounting differs from that of public accounting, since management accountants' work at the "beginning" of the value chain, supporting decision making, planning, and control, while audit and tax functions involve checking the work after the fact. Management accountants are valued business partners, directly supporting an organization's strategic goals. With a renewed emphasis on good internal controls and sound financial reporting, the role of the management accountant is more important than ever.

It obviously more people to "do "the work than does to "check" the work. In fact, of the five million finance function professionals in the U.S., more than 90% work inside organizations as management accountants and finance professionals. Some common job titles for management accountants in organizations of all sizes and structure include

- Staff Accountant
- Cost Accountant
- Senior Accountant
- Corporate or Division Planner
- Financial Analyst
- Budget Analyst
- Internal Auditor
- Finance Manager
- Controller
- Vice President, Finance
- Treasurer
- Chief Financial Officer (CFO)
- Chief Executive Officer (CEO)

To learn more about IMA and the management accounting profession, please visit Frequently Asked Questions.

[1] Reprinted with permission from IMA, Montvale, N.J., "About Management Accounting" from www.imanet.org.

Source: E.J.Vanderbeck (2008), "The Principles of Cost Accounting" South Western Cenagage Learning, USA , PP. 8

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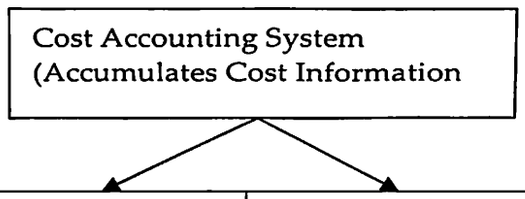
Figure 1-4 Users and Uses of Cost Accounting Information



Characteristics	Financial Accounting	Managerial Accounting
Users:	• External Parties Shareholders, Creditors, Governments) • Managers	• Internal Parties (Managers)
Focus:	Entire Business	Segments of the Business
Uses of cost Information:	Product Costs for Calculating Cost of Goods Sold (Income Statement) and Finished Goods, Work in Process, and Raw Materials Inventories (Balance Sheet) Using Historical Costs and Generally Accepted Accounting Principles	• Budgeting • Special Decisions Such as Make or Buy a Component, Keep or Replace a Facility, and Sell a Product at a Special Price • Nonfinancial Information Such as Defect rates, Percentage of Products Returned, and Percentage of On-Time Deliveries (All of the Above Using a Combination of Historical Data. Estimates, and Future Projections)

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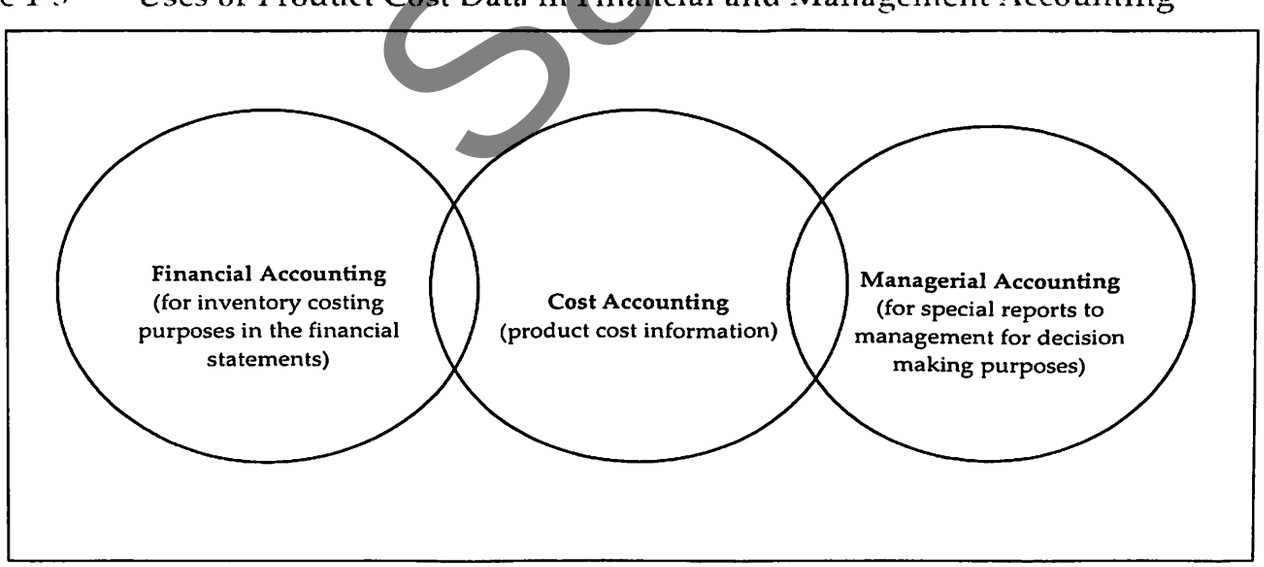
Figure 1-5 Uses of Product Cost Data in Financial and Management Accounting



Source: E.J.Vanderbeck (2008), "The Principles of Cost Accounting" South Western Cenagage Learning, USA , PP. 12

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Cost of Goods Sold

Merchandising concerns compute cost of goods sold as follows (the amount of purchase represents the cost of goods acquired for resale during the period):

Beginning merchandise inventory
Plus purchases (merchandise)
Merchandise available for sale
Less ending merchandise inventory
Cost of goods sold

Because a manufacturer makes, rather than buys, the products it has available for sale, the term *finished goods inventory* replaces *merchandise inventory*, and the term *cost of goods manufactured* replaces *purchases* in determining the cost of goods sold, as shown below (the cost of goods manufactured amount is supported by a schedule detailing the costs of material and labor and the expenses of maintaining and operating a factory).:

Beginning finished goods inventory
Plus **cost of goods manufactured**
Finished goods available for sale
Less ending finished goods inventory
Cost of goods sold

The format of the income statement for a manufacturer is not significantly different from that of a merchandiser. However, the cost accounting procedures needed to determine the cost of goods manufactured are considerably more complex than the procedures needed to determine the cost of merchandise purchased in its finished form. Note that the income statements for service businesses do not have a cost of goods sold section, because they provide a service rather than a product.

Inventories

If a merchandiser has unsold items on hand at the end of accounting period, the cost of the merchandise id reflected in the current assets section of the balance sheet in the following manner:

Current assets:
Cash
Accounts receivable
Merchandise inventory

On the balance sheet of a manufacturing concern, the current assets section is expanded as follows:

Current assets:
Cash
Accounts receivable
Inventories:
Finished goods
Work in process
Materials

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The balance of the finished goods account represents the total cost incurred in manufacturing goods completed but still on hand at the end of the period. The balance of the work in process account includes all manufacturing costs incurred to date for goods in various stages of production but not yet completed. The balance of the materials account represents the cost of all materials purchased and on hand to be used in the manufacturing process, including raw materials, prefabricated parts, and other factory materials and supplies. Raw materials of one company are often the finished product of another company. For example, rolled steel to be used in the production of **Honda** Accord automobiles in its Marysville, Ohio plant would be the final product of **A.K. Steel,** the steel mill in Middletown, Ohio, but raw materials to Honda. Prefabricated parts would include units, such as electric motors, produced by another manufacturer to be used in the assembly of a product such as copying machines. Other materials and supplies might include screws, nails, rivets, lubricants, and solvents.

Service entities do not have inventories on their balance sheets because they provide a service rather than a product. A summary comparison of manufacturing, merchandising, and service businesses appears in Figure 1-6.

Figure 1-6 Comparison of Service, Merchandising, and Manufacturing Businesses

Business Sector	Examples	Product or Service	Inventory Account(s)
Service	Hotels, accountants, hair Stylists, sports franchises	Intangible benefits such as lodging, tax preparation, Grooming, entertainment	None
Merchandising	Bookstores, electronics stores, Sports memorabilia shops, Beverage wholesalers	Tangible products purchased from suppliers in finished form	Merchandise inventory
Manufacturing	Segway producers, Manufacturers of electronic Games, home builders	Physical products created by the Application of labor & technology to raw materials	Finished Goods, Work in Process, Materials

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Source: E.J.Vanderbeck (2008), "The Principles of Cost Accounting" South Western Cenagage Learning, USA , PP. 13

Valuation of Inventories. Many procedures used to gather costs are unique to manufacturers. Manufacturers' inventories are valued for external financial reporting purposes by using inventory costing methods – such as first-in, first-out (FIFO); last-in, first-out (LIFO); and moving average – that are also used by merchandisers. Most manufacturers maintain a perpetual inventory system that provides a continuous record of purchases, issues, and balances of all goods in stock. Generally, these data are verified by periodic counts of selected items throughout the year. Under a perpetual system, inventory valuation data for financial statement purposes are available at any time, as distinguished from a periodic inventory system that requires estimating inventory during the year for interim financial statements and shutting down operations to count all inventory items at the end of the year.

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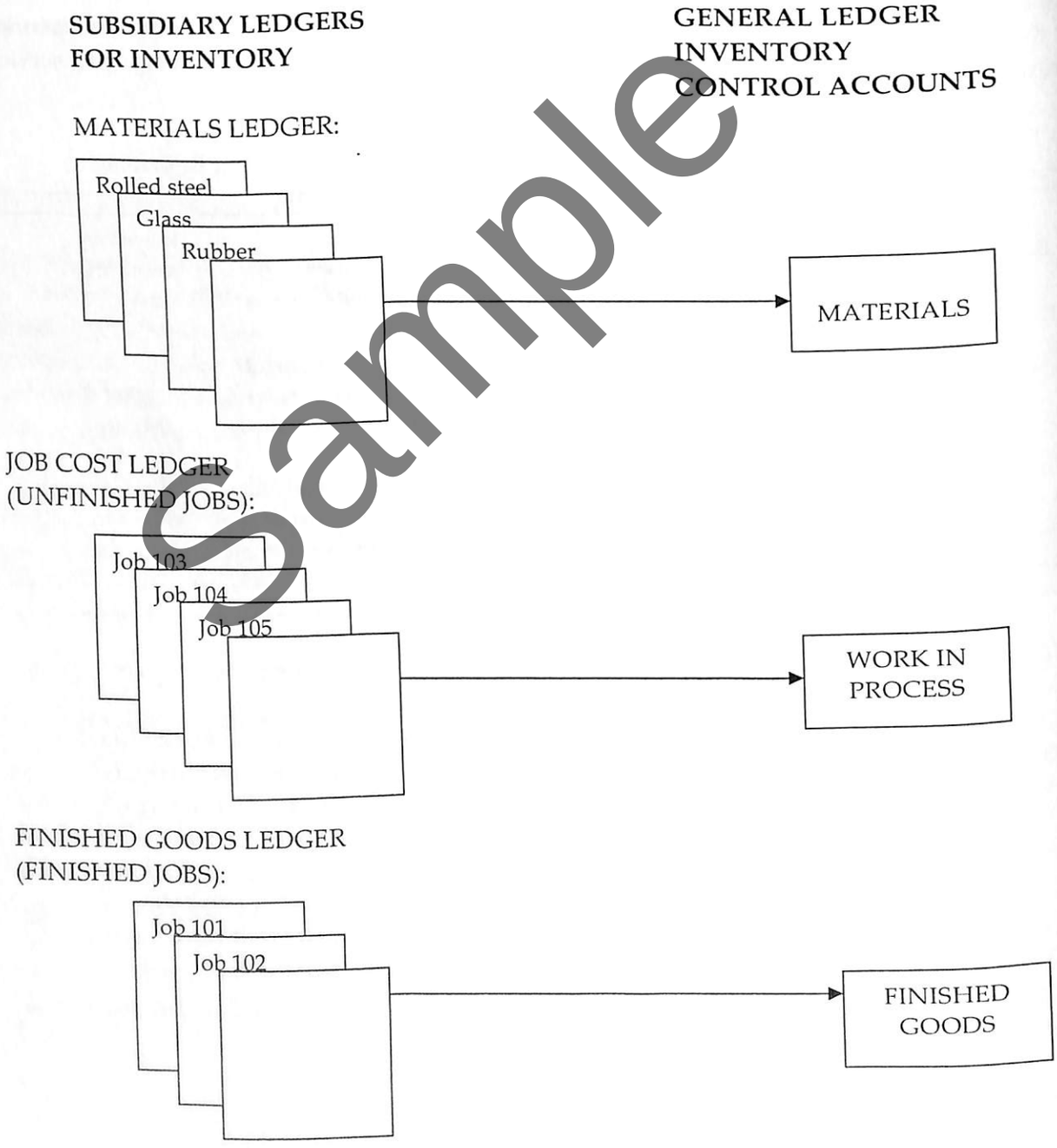
In addition to providing inventory valuation data for the financial statements, the detailed co data and perpetual inventory records provide the information necessary to control inventor levels, to ensure the timely availability of materials for production, and to detect pilferag waste, and spoilage.

Inventory Ledgers. Generally, both merchandisers and manufacturers maintain variou subsidiary ledgers for the general ledger inventory control accounts: Finished Goods; Work i Process; and Materials. These subsidiary ledgers are necessary to track the individual ra materials, jobs in process, and finished jobs on hand. They support the balances in the contr accounts, as illustrated in Figure 1-7, and aid in managing the business on a daily basis.

Figure 1-7 Relationship between General and Subsidiary Ledgers



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Recall and Review 1

The recall and review exercises are aimed at testing your understanding of a key concept in the reading before you proceed to the end-of-chapter materials. Work the exercises independently.

Samson Manufacturing had finished goods inventory of k45,000 on March 1, March cost of goods manufactured of k228,000, and March 31 finished goods of k53,000. Compute the cost of goods sold for the month of March. k _____.

ource: E.J.Vanderbeck (2008), "The Principles of Cost Accounting" South Western Cenagage -earning, USA , PP. 16

LO4. Identify the three basic elements of manufacturing costs

Elements of Manufacturing Costs

Manufacturing or production costs are classified into three basic elements: (1) direct materials, (2) direct labor, and (3) factory overhead.

Direct Materials

The materials that become part of a certain manufactured product and can be readily identified with that product are classified as direct materials. Examples include lumber used in making furniture, fabric used in the production of clothing, iron ore used in the manufacture of steel products, and rubber used in the production of athletic shoes.

Many types of materials and supplies necessary for the manufacturing process either cannot be readily identified with any particular manufactured item or have a relatively insignificant cost. Items such as sandpaper used in sanding furniture, lubricants used on machinery, and other items for general factory use are classified as indirect materials. Similarly classified are materials that actually become part of the finished product, such as thread, screws, rivets, nails, and glue, but whose cost are relatively insignificant, making it not cost effective to trace them to specific products.

Direct Labor

The labor of employees who work directly on the product manufactured, such as machine operators or assembly-line workers, is classified as direct labor. The employees who are required for the manufacturing process but who do not work directly on units being manufactured are considered indirect labor. This classification includes department heads, inspectors, materials handlers, and maintenance personnel. Payroll-related costs, such as retirement program contributions, and other fringe benefits are usually treated as indirect costs. Some companies, however, more appropriately, treat the fringe benefits paid for direct laborers as additional direct labor cost for the purpose of more precisely determining how much each hour of direct labor really costs.

As manufacturing processes have become increasingly automated, direct labor cost as a percentage of total product cost has decreased for many companies. Harley-Davidson, the

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motorcycle manufacturer, stopped tracking direct labor as a separate cost category because it was only 10% of total product cost but required an inordinate amount of time to trace directly to the individual products manufactured.[3]

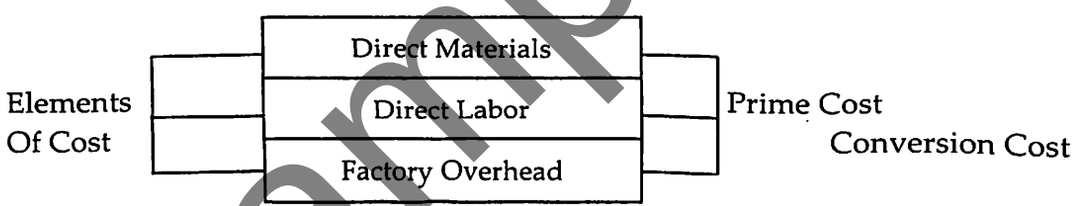
Factory Overhead

Factory overhead, also known as manufacturing overhead and factory burden, includes all costs related to the manufacturer of a product except direct materials and direct labor. Thus, factory overhead includes the previously mentioned indirect materials and indirect labor, plus other manufacturing expenses, such as depreciation on the factory building and the machinery and equipment,, heat, light, power, maintenance, insurance, and taxes. As factories have become more automated, factory overhead as a percentage of total manufacturing cost has increased dramatically.

Summary of Manufacturing Costs

The costs of direct materials and direct labor are sometimes combined and described as the prime cost of manufacturing a product. Prime cost plus factory overhead equals the total manufacturing cost. Direct labor cost and factory overhead, which are necessary to convert the direct materials into finished goods, can be combined and described as conversion cost. These relationships are illustrated in Figure 1-8.

Figure 1-8 Prime Cost and Conversion Cost



Marketing expenses, general administrative costs, and other nonfactory expenditures are not included in the costs of manufacturing. Some costs incurred by a manufacturer, however, may benefit both factory and nonfactory operations. Examples include depreciation, insurance, and property taxes on a building that houses both the factory and the administrative offices. In this situation, an allocation of cost must be made to each business function.

Flow of Costs

All three elements of manufacturing cost flow through the work in process inventory account. The costs of direct materials and direct labor used in production are charged (debited) directly to Work in Process. All other factory costs – indirect labor, indirect materials, and other factory expenses – are charged to the factory overhead account and later transferred to Work in Process. When goods are completed, the total costs incurred in producing the goods are transferred from Work in Process to Finished Goods. When goods are sold, the costs incurred to manufacture the goods are transferred from Finished Goods to Cost of Goods Sold. Figure 1-9 illustrates the flow of manufacturing costs.

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[3] W. Turk, "Management Accounting Revitalized: The Harley-Davidson Experience," *Journal of Cost Management*, Vol. 3, No. 4, 1990, 28 – 39.

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05. Illustrate sic cost counting ocedures.

Figure 1-9 Flow of Manufacturing Costs

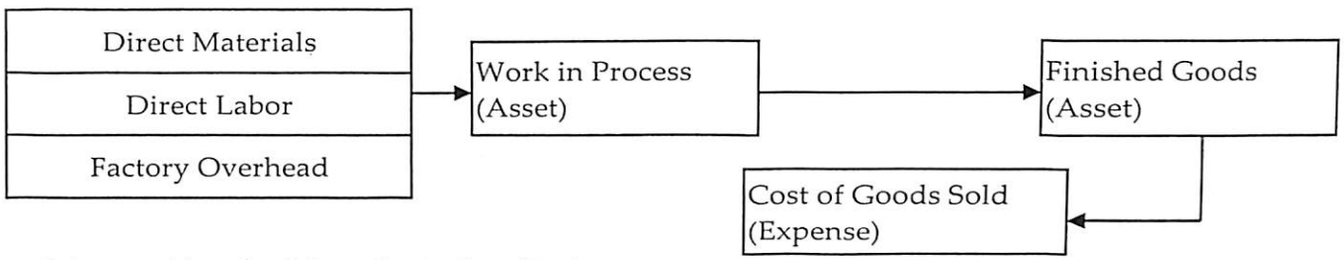


Illustration of Accounting for Manufacturing Costs

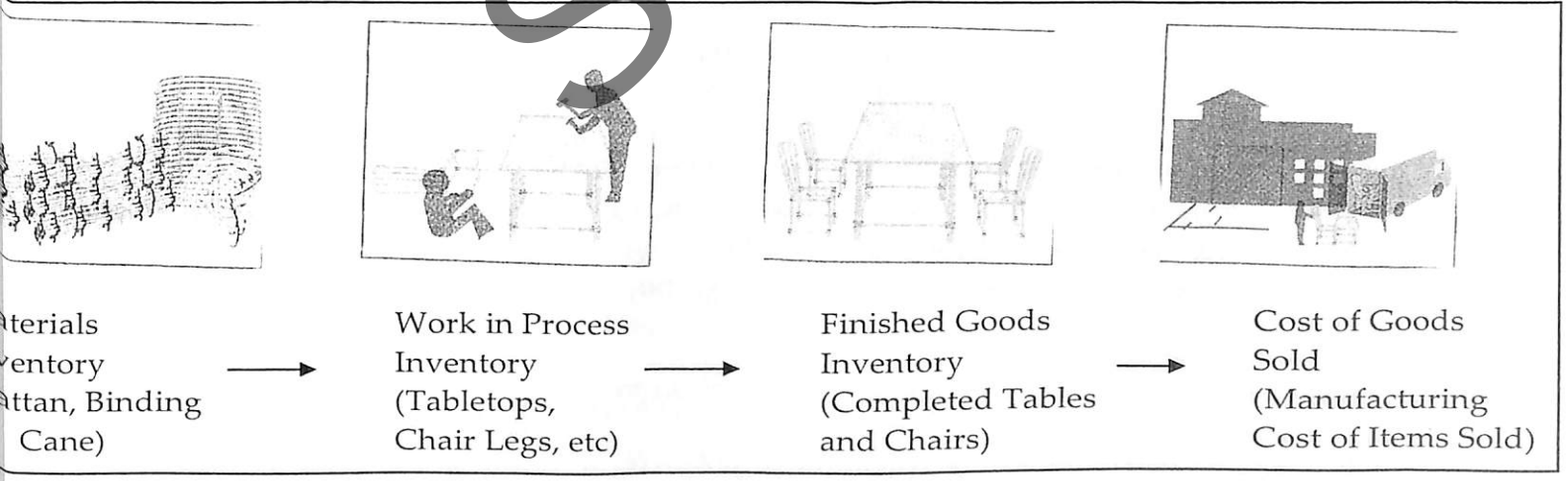
Cost accounting procedures are used to accumulate and allocate all elements of manufacturing cost in a manner that will produce meaningful data for the internal use of management and for the preparation of external financial statements. The following example illustrates basic cost accounting procedures, utilizing the terminology and principles that were discussed previously.

Wicker Works, Inc., a small, newly organized corporation, manufacturer's wicker furniture – both tables and chairs. The firm sells product directly to retailers. The basic steps in the company's production process are as follows:

1. Pieces of rattan, a natural fiber grown in Asia, are purchased in precut specifications. The pieces are assembled to form the frame of the table or chair.
2. The legs and back uprights of the chair and the legs and the outline of the tabletop are then wrapped in binding cane.
3. The seat and the back of the chair and the tabletop are now ready to be woven into place, and the chair or table is finished.

All of the previous steps are performed in a single department. The flow of manufacturing costs for Wicker Works is illustrated in Figure 1-10.

Figure 1-10 Flow of Costs Related to the Production Process



Source: E.J.Vanderbeck (2008), "The Principles of Cost Accounting" South Western Cenagage Learning, USA , PP. 18

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The beginning balance sheet for the company on January 1 of the current year is presented a follows:

Wicker Works, Inc.
Balance Sheet January 1, 2011

Assets		Liabilities and Stockholders' Equity	
Cash	K 40,000	Liabilities	K -0-
Building	250,000	Capital stock	365,000
Machinery and equipment	75,000	Total liabilities and	
Total assets	K365,000	stockholders' equity	K365,000

Assume, for the purpose of simplification, in the following example, that the company i currently making only one style of table and no chairs. During January the followin transactions are completed and recorded, in summary form:

1. Materials (rattan, binding cane, nails, tacks, staples, glue, and solvents) are purchased o account at a cost of K25,000.

Materials	25,000	
Accounts Payable		25,000

The cost of materials purchased on credit increases the asset account, Materials and th liability account, Accounts Payable. Note that only a single materials control account tha contains both the cost of direct and indirect materials appears in the general ledger.

2. During the month, direct materials (rattan and binding cane) costing k20,000 and indire materials (nails, tacks, staples, glue, and solvents for cleaning) costing k995 are issued int production.

Work in Process (Direct Materials)	20,000	
Factory Overhead (Indirect Materials)	995	
Materials		20,995

Direct materials issued are charged directly to the work in process control account becaus they can be readily traced to the individual jobs, but the indirect materials are charged t the factory overhead account because they cannot be easily identified with specific job The factory overhead account will be used to accumulate various factory expenses that wi later be allocated to individual jobs using some equitable formula.

3. Total gross wages and salaries for the month were: factory employees working on the product, k10,000; factory supervision, maintenance, and custodial employees, k3,500; and sales and administrative employees, k6,500. The entries to record the payroll and the payments to employees (ignoring payroll deductions) would be as follows:

Payroll	20,000	
Wages payable		20,000
Wages payable	20,000	
Cash		20,000

4. The entry to distribute the payroll to the appropriate accounts would be as follows:

Work in Process (Direct Labor)	10,000	
Factory Overhead (Indirect Labor)	3,500	
Selling and Administrative Expenses (Salaries)	6,500	
Payroll		20,000

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The wages earned by employees working directly on the product are charged to Work in Process, while the salaries and wages of the factory supervisor and the maintenance and custodial personnel, who do not work directly on the product, are charged to Factory Overhead as indirect labor. The salaries of nonfactory employees are debited to the selling and administrative expenses account.

In order to focus on specific cost accounting procedures, the general ledger account Selling and Administrative Expenses will be used to accumulate all nonmanufacturing expenses. Usually, separate general ledger control accounts would be established for individual selling and administrative expenses.

5. Depreciation expense for the k250,000 building is 6% of the building cost per year. The sales and administrative offices occupy one-tenth of the total building, and the factory operation is contained in the other nine-tenths. The expense for one month is recorded as follows:

Factory Overhead (Depreciation of Building)	1,125**	
Selling and Administrative Expenses (Depreciation of Building)	125**	
Accumulated Depreciation – Building		1,250*

* (K250,000 X 0.06 X 1/12 = K1,250;
** K1,250 X 0.90 = K1,125; K1,250 X 0.10 = K125)

The cost accounting principle

6. Depreciation expense for the K75,000 of factory machinery and equipment is 20% of original cost per year.

Factory Overhead (Depreciation of Machinery and Equipment)	1,125**	
Accumulated Depreciation – Machinery and Equipment		1,250
(K75,000 X 0.20 X 1/12 = K1,250)		

7. The cost of heat, light, and power for the month was k1,500.

Factory Overhead (Utilities)	1,350	
Selling Administrative Expenses (Depreciation of Building)	150	
Accounts Payable		1,500

Because one-tenth of the building is used for office purposes, it was decided that 10% of the total utilities cost should be allocated to Selling and Administrative Expenses. If there were separate meters for each part of the building, the usage could be determined directly rather than by allocation.

8. Miscellaneous selling and administrative expenses for telephone and fax, copying charges, office supplies, travel, and rental of office furniture and equipment totaled K3,750, on account.

Selling and Administrative Expenses	3,750	
Accounts Payable		3,750

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A manufacturer may incur many other expenses, but for simplicity it is assumed that Wicker Works incurred no other expenses. After posting the journal entries to the appropriate ledger accounts, Factory Overhead will reflect the following debits:

Transaction	Description	Amount
2.	Indirect materials	K995
4.	Indirect labor	3,500
5.	Depreciation of building	1,125
6.	Depreciation of machinery and equipment	k1,250
7.	Utilities	1,350
	Total	8,220

9. The balance in Factory Overhead is transferred to Work in Process by the following entry:

Work in Process	8,220	
Factory Overhead		8,220

The three elements of manufacturing cost – direct materials, direct labor, and factory overhead – are now accumulated in Work in Process. The debits in the account are as follows:

Transaction	Description	Amount
2.	Direct materials	20,000
4.	Direct labor	10,000
9.	Factory overhead	8,220
	Total	K38,220

10. If we assume that all goods started in process have been finished by the end of the month, then the following entries transfers the cost of these goods from Work in Process to Finished Goods:

Finished Goods	38,220	
Work in Process		38,220

Assuming that 500 tables were produced during the month, we find that the unit cost is K76.44 (K38,220/500). The unit cost for each element of manufacturing cost is calculated as follows:

	Total	Units Produced	Unit Cost
Direct materials	K20,000	K500	K40.00
Direct labor	10,000	500	20
Factory overhead	8,220	500	16.44
	K38,220		K76

Sample

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If the same type of table is produced in furniture periods, the units cost of those periods can be compared with the unit costs for this month. Any significant differences can be analyzed so that management might take appropriate action.

The unit cost also serves as a basis for establishing the selling price of the tables. After also considering the selling and administrative expenses, management establishes a selling price that should provide a reasonable profit. The selling price may be determined by adding a mark-on percentage, which is a percentage of a manufacturing cost per unit. For example, if management decides that a 50% mark-on percentage is necessary to cover the product's share of selling and administrative expenses and to earn a satisfactory profit, the selling price per unit, rounded to the nearest cent, would be calculated as follows:

Manufacturing cost	K 76.44
Mark-on percentage (50%)	38.22
Selling price	K114.66

In later periods, owing to intense competition, it might be found that this particular item cannot be sold at a price that will be high enough to cover all of its costs and provide a normal profit margin. Through analysis of the unit costs, management might effect cost-cutting measures or perhaps even discontinue production of the item.

From this example, it is apparent that, at any given time, the cost of each item in inventory is available it should be reemphasized that on e function of cost accounting is the accurate determination of the cost of manufacturing a unit of product. This knowledge of unit cost helps management to plan and control operations and to make marketing decisions.
To continue with the example, assume that the following g additional transactions take place in January:

11. Invoices of k25,000, representing cost of materials, utilities, and selling and administrative expenses, are paid.

Accounts Payable	25,000	
Cash		25,000

12. A total of 400 tables are sold to retailers at a net price of k114.66 each

Accounts Receivable (400 X K114.66)	45,864	
Sales		45,864
Cost of Goods Sold (400 X K76.44)	30,576	
Finished Goods		30,576

13. Cost totaling k33,000 is collected on accounts receivable.

Cash	33,000	
Accounts Receivable		33,000

The accounts in the general ledger will reflect the entries as follows:

Sample

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Cash

1/1 Bal.	40,000	3	20,000
	k33,000	11	k25,000.00
	73,000		*45,000*

Accounts Receivable

12	45,864	13	33,000
12,864			

Finished Goods

10.	38,220	12	30,576
7,644			

Work in Process

2. Direct materials	20,000	10.	38,220
4.Direct labor			
9.Factory overhead	10,000		
	8,220		
	38,220		

Materials

1.	25,000	2.	20,995
4,005			

Building

1/1 Bal.	250,000		

Annual Depreciation - Building

		5.	1,250

Machinery and Equipment

1/1 Bal.	75,000		

Accumulated Depreciation – Machinery and Equipment

		6.	1,250

Accounts Payable

11.	25,000	1.	25,000
		7.	1,500
		8.	3,750
			30,250
		5,250	

Wages Payable

3.	20,000	3.	20,000

Capital Stock

		1/1 Bal.	365,000

Sales

		12	45,864

Sample

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Cost of Goods Sold			
12.	30,576		

Payroll			
3.	20,000	4.	20,000

Factory Overhead			
2. Indirect materials	995	9	8,220
4. Indirect labor	3,500		
5. Depreciation of building	1,125		
6. Depreciation of machinery & equipment	1,250		
7. Utilities	1,350		
	8,220		

Selling and Administrative Expenses	
4. Salaries	6,500
5. Depreciation of building	125
7. Utilities	150
8. Other	3,750
	10,525

After calculating the balance of each general ledger account, the equality of the debits and credits is proven by preparing a trial balance, as follows.

	A	B	C	D	E	F
1			**Wicker Works, Inc.**			
2			**Trial Balance**			
3			**January 31, 2011**			
4						
5	Cash				k28,000	
6	Accounts Receivable				12,864	
7	Finished Goods				7,644*	
8	Work in Process				-0-	
9	Materials				4,005	
10	Building				250,000	
11	Accumulated Depreciation - Building					k1,250
12	Machinery and Equipment				75,000	
13	Accumulated Depreciation - Machinery and Equipment					1,250
14	Accounts Payable					5,250
15	Wages Payable					-0-
16	Capital Stock					365,000
17	Sales					45,864
18	Cost of Goods Sold				30,576	
19	Payroll				-0-	
20	Factory Overhead				-0-	
21	Selling and Administrative Expenses				10,525	
22	Total				K418,614	K418,614
23						

* The finished goods control account reflects the cost of the 100 units still on hand – 100 X K76.44 = K7,644.

Sample

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From an analysis of the general ledger accounts and the trial balance, a statement of cost of goods manufactured, an income statement, and a balance sheet can be prepared:

	A	B	C	D	E	F	G
1	**Wicker Works, Inc.**						
2	**Statement of Cost of Goods Manufactured**						
3	**For the Month Ended January 31, 2011**						
4							
5	Direct Materials:						
6		Inventory, January 1				k-0-	
7		Purchases				25,000	
8	Total cost of available materials					K25,000	
9		Less inventory, January 31				4,005	
10	Cost of materials used					20,995	
11		Less indirect materials used				995	
12	Cost of direct materials used in production						K20,000
13	Direct labor						10,000
14	Factory overhead:						
15		Indirect materials				k995	
16		Indirect labor				3,500	
17		Depreciation of building				1,125	
18		Depreciation of machinery and equipment				1,250	
19		Utilities				1,350	
20		Total factory overhead					8,220
21	Cost of goods manufactured during month						Kk38,220
22							

The cost of goods manufactured includes the manufacturing costs related to the goods that were finished during the period. The figures in the cost of goods manufactured statement were obtained by analyzing the appropriate general ledger accounts. The materials inventory account had no beginning balance but had an ending balance of k4,005. The amount of purchases during the period was determined by analyzing the debits to the materials account. The cost of direct materials used of k20,000 and the direct labor cost of k10,000 were obtained from the work in process account. All other items in the statement of cost goods manufactured represent factory overhead and are determined from the factory overhead account in the general ledger. If there had been beginning or ending work in process, it would have appeared in the statement of cost of goods manufactured.

	A	B	C	D	E	F
1	**Wicker Works, Inc.**					
2	**Income Statement**					
3	**For the Month Ended January 31, 2011**					
4						
5	Net sales:					
6	Cost of goods sold:					
7		Finished goods inventory, January 1				k-0-
8		Add cost of goods manufactured				38,220
9		Goods available for sale				K38,220
10		Less finished goods inventory, January 31				7,644
11	Gross profit on sales:					
12	Selling and administrative expenses					
13	Net income					

Sample

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	A	B	C	D	E	F	G
1				**Wicker Works, Inc.**			
2				**Balance Sheet**			
3				**January 31, 2011**			
4							
5				**Assets**			
6	Current assets:						
7		Cash					K28,000
8		Accounts receivable					12,864
9	Inventories						
10		Finished goods				K7,644	
11		Work in process				-0-	
12		Materials				4,005	11,649
13		Total current assets					K52,513
14	Plant and equipment						
15		Building				K250,000	
16		Less accumulated depreciation				1,250	K248,750
17		Machinery and equipment				K75,000	
18		Less accumulated depreciation				1,250	73,750
19		Total plant and equipment					K322,500
20	Total assets						K375,013
21							
22				**Liabilities and Stockholders' Equity**			
23	Current liabilities:						
24		Accounts payable					K5,250
25	Stockholders' equity						
26		Capital stock				K365,000	
27		Retained earnings				4,763	
28		Total stockholders' equity					369,763
29	Total liabilities and stockholders' equity						K375,013
30							

Sample

Note that the retained earnings on the balance sheet represent the amount of net income for the period, K4,763, because this was the first month of business operations.This discussion has presented a complete cycle in cost accounting procedures. Before proceeding, carefully review the basic elements of terminology and the flow of costs. A firm grasp of the fundamentals already covered is necessary to comprehend the more complex material in subsequent chapters. Figure 1-11 below presents a graphic illustration of the flow of costs to the ledger accounts. You should study this illustration carefully, following each line to trace the flow of costs.

Recall and Review 1

Classify each of the following items as direct materials (DM), direct labor (DL), factory overhead (FO), or selling and administrative expenses (SA):

Electricity used in heating a factory _____.

Automobiles expense for customer service representatives _____.

Wages of a bricklayer employed by a home builder _____.

Car batteries used by an automobile manufacturer _____.

Supplies used to clean the factory floor _____.

Wages of a forklift operator in a plant that makes auto parts _____.

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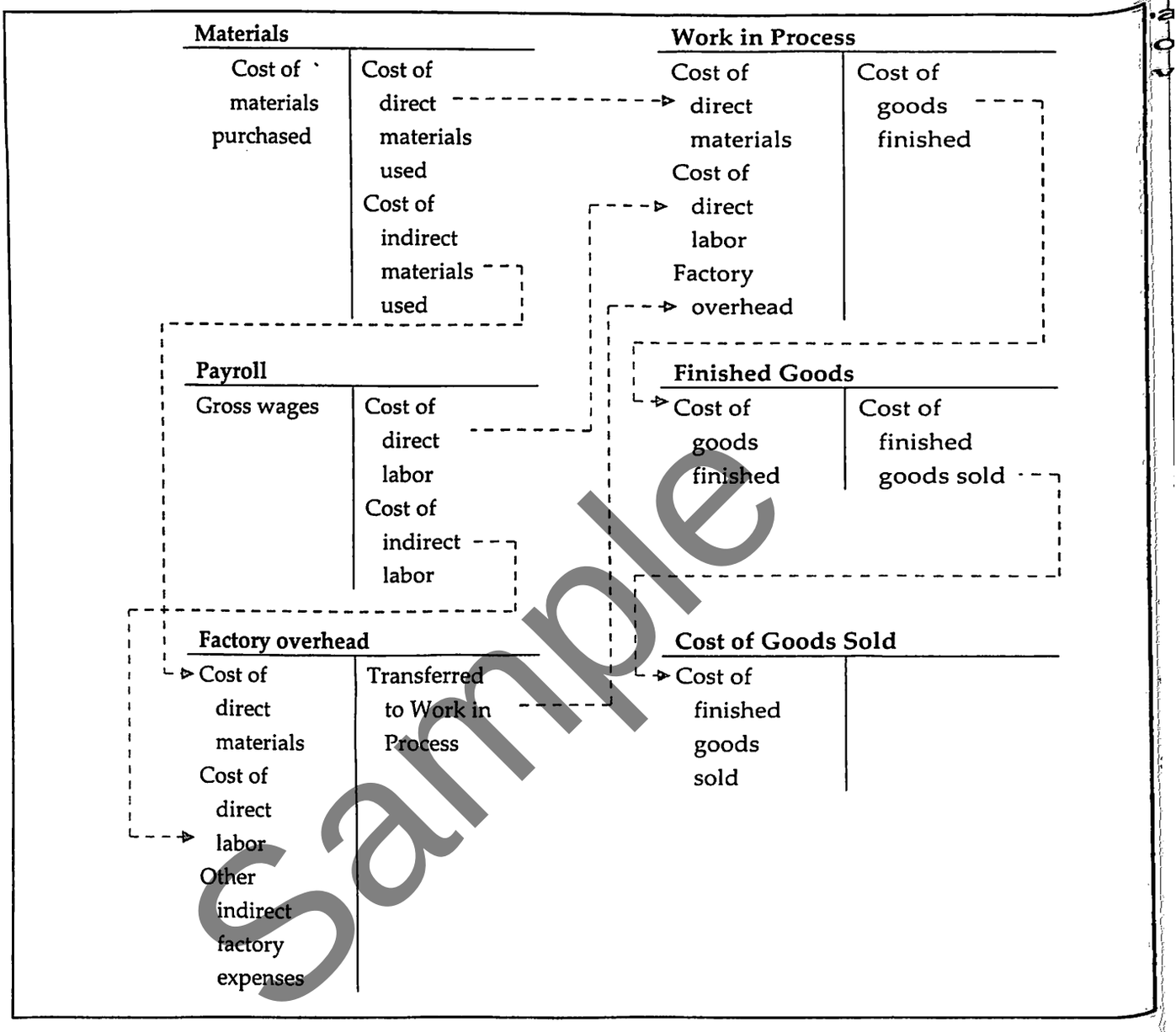
Figure 1-11 Flow of Costs through the Ledger Accounts



Source: E.J.Vanderbeck (2008), "The Principles of Cost Accounting" South Western Cenagage Learning, USA , PP. 27

Sample

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)6. Distinguish tween the two sic types of st accounting stems

Cost Accounting Systems

The previous expel presented the basic foundation of a cost accounting system. In that illustration, costs were accumulated for one month. At the end of the month, the costs were divided by the total units produced to determine the cost per unit. This accomplished one function of cost accounting: the determination of product costs – both total costs for the period and unit cost. However, another important objective of a cost accounting system – cost control – could not be satisfactorily achieved with this information alone. For example, assume that in a subsequent month the cost of direct labor had risen from k20 to k22 per unit. Labor costs went up, but did go up because of the general rise in wages or because of worker inefficiency? Did labor costs increase throughout the manufacturing process or only for a particular department or job? Answers to such questions would not be readily available using the procedures described in the earlier example.

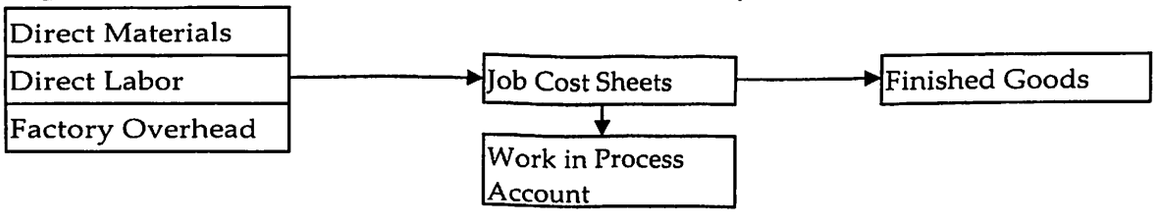
To provide management with the data needed for effective cost control, two basic types of cost accounting systems have been developed: the process cost system and the job order cost system. Both systems are used to gather cost data and to allocate costs to goods manufactured. The selection of one method or the other depends on the type of manufacturing operation used by a given company. To determine the appropriate method, manufacturing operations are classified into two types: special order and continuous or mass production.

Special Order

In a job order cost system the output consists of special or custom-made products; in other words, each product is made to order. Special-order industries include those manufacturing or producing ships, aircraft, custom-built homes, machine tools, engines, structural steel, books and magazines, directories and catalogs, and specialty shops producing custom-made products such as clothing, shoes, and hats.

A job order cost system provides a separate record for the cost of each special-order job, as illustrated by the block for "Job Cost Sheets" in Figure 1-12. Each job would have its cost sheet or computer file. Job order cost accounting techniques are also used by firms, such as account ting, architecture, and law, which provide a service rather than a product. It is important for these firms to be able to track the various costs of serving different clients. For example, a law firm would expend many more cases defending a client in a murder case than it would in defending another client against petty theft charges.

Figure 1-12 Flow of Costs in a Job Order Cost System



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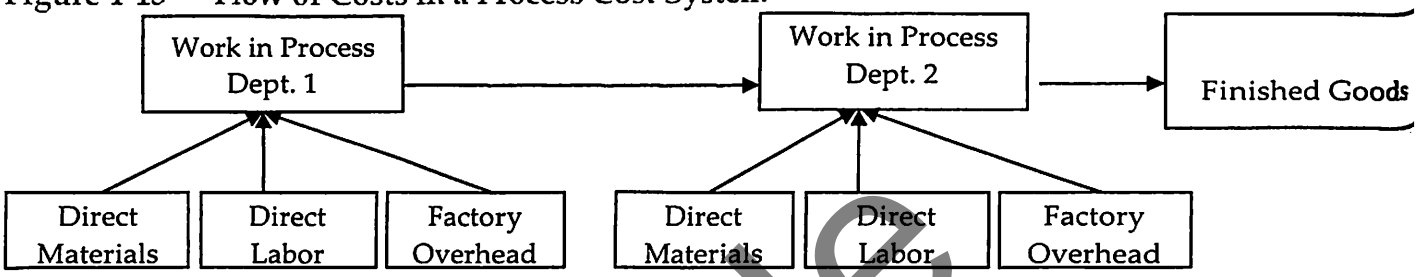
Continuous or Mass Production

This type of operation produces a continuous output of homogeneous products. Such a factory may produce a single product, such as a Toyota Prius automobile, or many different products, such as Pepsi, Diet Pepsi, and Pepsi One soft drinks. The factory generally is departmentally organized. Continuous or mass production industries include those manufacturing automobiles, tires, cement, chemicals, canned goods, lumber, paper, candy, foodstuffs, flour, glass, soap, toothpaste, chewing gum, petroleum products, textiles, plastics, paints, and firms engaged in such processes as rubber compounding and vulcanizing. A process cost system accumulates costs for each department or process in the factory as illustrated in Figure 1-13.

Figure 1-13 Flow of Costs in a Process Cost System



Source: E.J.Vanderbeck (2008), "The Principles of Cost Accounting" South Western Cenagage Learning, USA , PP. 29

Process cost accounting is appropriate for manufacturing situations in which all units of the final product are substantially identical. Wicker Works utilized a process cost system in the preceding example to account for its only product, a single style of table. Finished units are placed in stock and removed as needed to fill customer orders. There are no separate jobs presenting substantially different characteristics. Rather, the company (or a department within a company) produces large numbers of virtually identical items that are sold (or transferred to other departments) as orders are received. Process cost accounting techniques also may be used to organizations that provide service such as for determining the cost of a particular type of MRI in a hospital's radiology department or the cost per passenger-mile for an airline. Figure 1-14 shows examples of the use of the job order cost and process cost systems in the service, merchandising, and manufacturing businesses.

Sample

Combination of Systems

Some companies use both a job order cost and a process cost system. For example, a company that manufacturers equipment on specific order but also produces, on a continuous basis, a number of small motors that are component parts of many of the equipment orders, may benefit from combining the systems. The costs of making these motors would be accumulated on a process cost basis, while the cost for each unique piece of equipment would be gathered using job order costing. Similarly, although the cost of making a basic Toyota Prius would be tracked using process costing, the optional equipment added to an individual Prius would be tracked using job order costing.

Standard Costing

The job order and process cost accounting systems are the principle systems used by manufacturing organizations. However, as useful as they are in providing costs data, these

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LO6. Distinguish between the two basic types of cost accounting systems

systems are still limited with regard to cost control. Although they make it possible to determine what a product actually costs, they provide no means to determine what the product should have cost. A standard cost system, which is not a third system but may be used with either a job order or a process cost system, uses predetermined standard costs to furnish a measurement that helps management make decisions regarding the efficiency of operations.

Standard costs are costs that would be incurred under efficient operating conditions and are forecast before the manufacturing process begins. During operations, an organization compares the actual costs incurred with these predetermined standard costs. "Variances," or differences, are then calculated. These variances reveal which performances deviate from the standard, and thus they provide a basis which management can take appropriate action to eliminate inefficient operating conditions.

Figure 1-14 Uses of Cost Systems

Cost System	Service Business	Merchandising Business	Manufacturing Business
Job Order	Accounting firm, management consultant	Lumber company, personal computer retailer	Custom home builder, printer
Process	Hospital X-ray department, Hotel housekeeping	Newspaper publishing, agricultural wholesaler	Soft drink bottler, Paper producer.

Source: E.J.Vanderbeck (2008), "The Principles of Cost Accounting" South Western Cenagage Learning, USA , PP. 30

Sample

Illustration of a Job Order Cost System

With a job order cost system, costs are accumulated by job (or lot). One advantage of a job order cost system is that the accumulation of costs for a particular job helps to determine its selling price. Or, if a job is done under contract with a set price, the profit or loss on the job can be readily determined by comparing the cost with the contract price. At the same time, costs that have been accumulated for a certain type of work will assist management in preparing bids for similar jobs in future.

To illustrate the use of a job order cost accounting system, assume that Wicker Works, Inc. is now manufacturing custom tables and chairs and that it accepts two orders to manufacture certain items during the month of February. These special orders are as follows:

1. From Strictly Wicker: to manufacture 500 chairs to their specifications; contract price, k36,000. Job No. 101 is assigned to this order.
2. From Patio Providers: to manufacture 500 chairs to their specifications; contract price, k59,300. Job No. 102 is assigned to this order.

After accepting these orders and planning the manufacturing requirements as to materials, labor, and overhead, the cost accounting department sets up a job cost sheet for each job. A job cost sheet, is also known as a job cost record in an automated accounting system, records and accumulates all the costs assigned to a specific job. Figure 1-15 illustrates this form for the

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Strictly Wicker Order. All costs applicable to each job will be accumulated on these forms. Note that Wicker Works has changed from process costing to job order costing now that it is making custom products for specific customers.

Transaction and journal entries for the month of February appear as follows. To highlight job order cost accounting procedures, only those entries relating to the manufacturer of goods will be illustrated. Routine entries, such as those for recording the purchase of materials, the incurrence of selling and administrative expenses, or payments to creditors, will be ignored. Those entries are made in the same way as previously illustrated, regardless of the cost system used.

1. Indirect materials with a cost of k5,250 are issued to the factory, and direct materials are issued as follows:

	Job 101	Job 102
Rattan	K8,200	K16,000
Binding Cane	4,000	2,000
	K12,200	K18,000

Figure 1-15 Job Cost Sheet

WICKER WORKS INC.

Job Cost Sheet

Customer Name: Strictly Wicker Job No: 101

Address: 5525 Skyway Dr. Date Started: 2/24/11

Houston, TX 77057

Quantity: 500 Date Completed: 2/28/11

Product: CHAIRS

Description: 39" Wicker

DIRECT MATERIALS			DIRECT LABOR			FACTORY OVERHEAD		
Date	Mat'l Req. No.	Amount	Date	Time Tkt.No.	Amount	Date	Basis Applied	Amount
2/24	5505	8,200	2/25	2101	2,500		40% of	
2/26	6211	4,000	2/27	2826	1,500		total	
			2/28	392	2,000	2/28	Over-head	5,262
Total		12,200			6,000			5,262

SUMMARY				Remarks:
Direct materials	k12,200	Selling price	k36,000	
Direct labor	6,000	Mfg.cost	23,462	
Factory overhead	5,262	Gross profit	k12,538	
Total cost	k23,462			
Unit cost	k46.92			

Sample

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The entry at the end of the month to record the issues of materials appears as:

Work in Process (Jobs 101 and 102)	30,200	
Factory Overhead (Indirect Materials)	5,250	
Materials		35,450

Note that in the previous entry the k30,200 debit to Work in Process comprises k12,200 of direct materials issued to Job 101 and k18,000 of direct material issued to Job 102. There is only one general ledger work in process account, but the individual amounts of direct materials issued to each job would appear on the respective job cost sheets in the subsidiary job cost ledger.

If the indirect materials could be directly traced to a specific job, the cost could be charged to that job. However, it is often difficult and not cost effective to determine which job benefited from the use of various supplies such as glue, nails, and cleaning fluid. Thus, indirect materials costs are usually charged to Factory Overhead and later distributed among the various jobs in some equitable way.

2. Indirect labor costs of k4,360 and direct labor costs are incurred as follows:

	Job 101	**Job 102**
Direct Labor	K6,000	K7,500

The monthly entry to distribute these costs is recorded as follows:

Work in Process (Jobs 101 and 102)	13,500	
Factory Overhead (Indirect Labor)	4,360	
Payroll		17,860

The debit of K13,500 to Work in Process comprises k6,000 of direct labor issued to job 101 and k7,500 of direct labor issued to Job 102. The explanation for why indirect labor costs are charged to Factory Overhead rather than to Work in Process is similar to the previous explanation for indirect materials.

3. Monthly depreciation expense for the building, allocated according to the square footage used by manufacturing (90%) and selling and administrative (10%), is recorded as follows:

Factory Overhead (Depreciation of Building)	1,125	
Selling and Administrative Expenses (Depreciation of Building)	125	
Accumulated Depreciation – Building		1,250

4. The entry to record monthly depreciation for machinery and equipment, all of which is used for manufacturing operations, is recorded as follows:

Factory Overhead (Depreciation of Machinery and Equipment)	1,250	
Accumulated Depreciation – Machinery and Equipment		1,250

5. The cost of utilities for the month of February is k1,300, again allocated by building square footage, recorded as follows:

Factory Overhead (Utilities)	1,170	
Selling and Administrative Expenses (Utilities)	130	

Sample

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Accounts Payable	1,300

6. Total charges to Factory Overhead for the month are shown as follows:

Indirect materials	K 5,250
Indirect labor	4,360
Depreciation of Building	1,125
Depreciation of Machinery and Equipment	1,250
Utilities	1,170
Total	K13,155

Assume that Jobs 101 and 102 are the only jobs worked during the period and that factory overhead is calculated as follows: 60% to job 101, 40% to Job 102.

	40%	60%
Total Factory Overhead	**Job 101**	**Job 102**
K13,155	K5,262	K7,893

The distribution of factory overhead would then be recorded as follows:

Work in Process (Jobs 101 and 102)	13,155	
Factory Overhead		13,155

The debit of K13,155 to Work in Process comprises K5,262 of overhead allocated to job 101 and K7,893 of overhead charged to Job 102. At the end of the month, the work in process and factory overhead accounts would appear as follows:

Work in Process

1. Direct materials	30,200
2. Direct labor	13,500
3. Factory overhead	13,155
	56,855

Factory Overhead

1. Indirect materials	5,250	6. Transfer to Work in Process	13,155
2. Indirect labor	4,360		
3. Depreciation of building	1,125		
4. Depreciation of mach. And equip.	1,250		
5. Utilities	13,155		

The costs shown in the work in process account represent monthly totals (summary entries) for each element of manufacturing cost for both jobs combined. These same costs are shown for each individual job in a job cost ledger. It is a subsidiary ledger that has a record of each job. The details on the job cost sheets in the job cost ledger support the balance of the work in process control account in the general ledger.

7. Assuming that both jobs were completed by the end of the month the costs of the competed jobs would be transferred to the finished goods inventory control account:

Finished Goods	56,855	
Work in Process		56,855

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8. When the goods are shipped and billed to the customers, the following entries are made to record the sale and the cost of the jobs:

Accounts Receivable	95,300	
Sales		95,300
Cost of Goods Sold	56,855	
Finished Goods		56,855

The cost of producing the two jobs can be summarized as follows:

	Job 101 (500 Chairs)		Job 102 (500 Tables)	
	Total Cost	**Unit Cost**	**Total Cost**	**Unit Cost**
Direct materials	K12,200	K24.40	K18,000	K36.00
Direct labor				K15.50
Factory overhead				15.79
Total	K23,462	K46.92	K33 .393	K67.29

The gross profit realized on each job is determined as follows:

	Job 101 (500 Chairs)		Job 102 (500 Tables)	
	Total Cost	**Unit Cost**	**Total Cost**	**Unit Cost**
Selling price	K36,000	K72.00	K59,300	K118.60
Cost	23,462	46.92	33,393	67.29
Gross profit.....	K12,538	K25.08	K25,907	K51.31

The job cost sheets would reflect the previous information in more detail, so that a short time after each job was completed, the gross profit could be determined. In addition, if management bids on similar jobs in the future, an accurate record of all costs would be available to assist management in determining contract prices.

Work in Process in the Manufacturing Statement

If there is work in process in the beginning and at the end of the month, it will be shown in the statement of goods manufactured. To illustrate, assume that Wicker Works, Inc.'s statement for June is as follows:

	A	B	C	D	E	F	G
1	**Wicker Works, Inc**						
2	**Statement of cost of Goods Manufactured**						
3	**For the Month Ended June 30, 2011**						
4							
5	Direct materials						
6		Inventory, June 1				K15,000	
7		Purchases				310,000	
8	Total cost of available materials					K325,000	
9		Less inventory, June 30				25,000	
10	Cost of materials used					K300,000	
11		Less direct materials used				10,000	
12	Cost of direct materials used in production						K290,000
13	Direct labor						240,000
14	Factory overhead:						
15		Indirect materials				K10,000	
16		Indirect labor				47,000	
17		Depreciation of building				35,000	
18		Depreciation of machinery and equipment				15,000	

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19	Utilities	23,000	
20	Total factory overhead		130,000
21	Total manufacturing cost during the month		K660,000
22	**Add work in process inventory, June 1**		85,000
23			K745,000
24	**Less work in process inventory, June 30**		125,000
25	Cost of goods manufactured during the month		K620,000
26			
27			

In the above statement of cost of goods manufactured, the total manufacturing cost of K660,000 represents the cost of direct materials, direct labor, and factory overhead used during the month of June. Wicker Works, Inc., incurred costs of k85,000 during the previous month for goods that were not completed at the end of the month. The cost of these goods constitutes June's beginning work in process. The total of k745,000 represents manufacturing cost that the company must account for. Work in process at the end of June is k125,000, which represents the cost incurred to date for items that were not finished at the end of June. Therefore, the cost of goods manufactured (completed) in June, some of which were started in production the previous month, is k620,000. The work in process ledger account, in T-account form, would appear as follows at the end of the month:

Recall and Review 3

The following information was taken from the books of Sunrise Manufacturing after all postings had been completed at the end of July, its first month of operations: direct materials cost, K7,200; direct labor cost, K8,000; factory overhead, consisted of indirect materials of k1,800 and indirect labor of K1,400. All jobs worked on during the month were completed and sold by the end of the month. Prepare the journal entries to: (1) charge the July cost of materials to work in process and factory overhead; (2) charge the July cost of labor to work in process and factory overhead; (3) record the completion of all jobs.

Sample

Factory Overhead

6/1 Balance	85,000	To Finished Goods	620,000
Direct materials	290,000		
Direct labor	240,000		
Factory overhead	130,000		
	745,000		
125,000			

Appendix

IMA Statement of Ethical Professional Practice

Members of IMA shall behave ethically. A commitment to ethical professional practice includes: overarching principles that express our values, and standards that guide our conduct.

PRINCIPLES

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IMA's overarching ethical principles include: Honesty, Fairness, Objectivity, and Responsibility. Members shall act in accordance with these principles and shall encourage others within their organizations to adhere to them.

STANDARDS

A member's failure to comply with the following standards may result in disciplinary action.

Competence

Each member has a responsibility to:

1. Maintain an appropriate level of professional expertise by continually developing knowledge and skills.
2. Perform professional duties in accordance with relevant laws, regulations, and technical standards.
3. Provide decision support information and recommendations that are accurate, clear, concise, and timely.
4. Recognize and communicate professional limitations or other constraints that would preclude responsible judgment or successful performance of an activity.

I. Confidentiality

Each member has a responsibility to:

1. Keep information confidential except when disclosure is authorized or legally required.
2. Inform all relevant parties regarding appropriate use confidential information. Monitor subordinates' activities to ensure compliance.
3. Refrain from using confidential information for unethical or illegal advantage.

II. Integrity

Each member has a responsibility to:

1. Mitigate actual conflicts of interest. Regularly communicate with business associates to avoid apparent conflicts of interests. Advice all parties of any potential conflicts.
2. Refrain from engaging in any conduct that would prejudice carrying out duties ethically.
3. Abstain from engaging in or supporting any activity that might discredit the profession.

III. Credibility

Each member has a responsibility to:

1. Communicate information fairy and objectively.
2. Disclose all relevant information that could reasonably be expected to influence an intended user's understanding of the reports, analyses, or recommendations.
3. Disclose delays or deficiencies in information, timeliness, processing, or internal controls in conformance with organization policy and/applicable law.

RESOLUTION OF ETHICAL CONFLICT

In applying the Standards of Ethical Professional Practice, you may encounter problems identifying unethical behavior or resolving an ethical conflict. When faced with ethical issues, you should follow your organization's established policies on the resolution of such conflict. If

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these policies do not resolve the ethical conflict, you should consider the following courses of action:

1. Discuss the issue with your immediate supervisor except when it appears that the supervisor is involved. In that case, present the issue to the next level. If you cannot achieve a satisfactory resolution, submit the issue to the next management level. If your immediate supervisor is the chief executive officer or equivalent, the acceptable reviewing authority may be a group such as the audit committee, executive committee, board of directors, board of trustees, or owners. Contact with levels above the immediate superior should be initiated only with your superior's knowledge, assuming he or she is not involved. Communication of such problems to authorities or individuals not employed or engaged by the organization is considered appropriate, unless you believe there is a clear violation of the law.

KEY TERMS

action.

3. Consult you own attorney as to legal obligations and rights concerning the ethical conflict.

Source: Institute of Management Accountants, "IMA's Statement of Ethical Professional Practice," www.imanet.org

Sample

Accounting information systems
Budget
Control
Conversion cost
Corporate governance
Cost accounting systems
Cost accounting
Cost and production reports
Cost center
Direct labor
Direct materials
Management accounting
Manufacturers
Manufacturing or production costs
Manufacturing process
Mark-on percentage
Factory overhead
Financial accounting
Finished goods
For-profit service businesses
Indirect labor
Indirect materials
ISO 9000 family
Job cost ledger
Job cost sheet
Job order cost system
Loss leader
Prime cost
Process cost system
Purchases
Responsibility accounting
Retailers

SELF-STUDY PROBLEM

Not-for-profit service agencies
Performance report
Periodic inventory system
Perpetual inventory system
Planning
Unit costs
variance
Wholesalers
Work in process

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Basic Cost System; Journal Entries; Financial Statements

Lone Star Manufacturing Co

The post-closing trial balance of Lone Star Manufacturing CO. at September 30 is reproduced as follows:

Lone Star Manufacturing Co
Post-Closing Trial Balance
September 30,2011

Cash	15,000	
Accounts Receivable	18,000	
Finished Goods	25,000	
Work in Process	4,000	
Materials	8,000	
Building	156,000	
Accumulated Depreciation - Building		23,400
Factory Equipment	108,000	
Accumulated Depreciation - Factory Equipment		54,000
Office Equipment	12,000	
Accumulated Depreciation - Office Equipment		2,000
Accounts Payable		30,000
Capital Stock		175,000
Retained Earnings		61,600
	346,000	346,000

During the month of October, the following transactions took place:

a. Raw materials at a cost of k50,000 and general factory supplies costing k8,000 were purchased on account. (Materials and supplies are recorded in the materials account).
b. Raw materials to be used in production costing k41,000 and miscellaneous factory supplies costing k5,500 were issued.
c. Wages and salaries incurred and paid for the month were as follows: factory wages (including k2,500 indirect labor), k34,000, and selling and administrative salaries, k5,000. (Ignore payroll withholdings and seductions).
d. Distributed the payroll in (c).
e. Depreciation was recorded for the month at an annual rate of 5% on the building and 20% on the factory equipment and office equipment. The sales and administrative staff uses approximately one-fifth of the building for its offices.
f. During the month, various other expenses totaling k5,200 were incurred on account. The company has determined that one-fourth of this amount is allocable to the office function.
g. Total factory overhead costs were transferred to the finished goods storeroom.
h. During the month, goods with a total cost of k79,000 were completed and transferred to the finished goods storeroom.
i. Accounts receivable in the amount of k105,000 were collected.
j. Accounts payable totaling k55,000 were paid.

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Required

1. Prepare journal entries to record the transactions.
2. Set up T-accounts for all accounts listed in the September 30, 2011, Post-Closing Trial Balance and for Cost of Goods Sold, Factory Overhead, Selling and Administrative expenses, Sales, and Wages Payable. Post the beginning trial balance and journal entries prepared in part 1 to the accounts and calculate the balances ion the accounts on October 31.
3. Prepare a statement of cost of goods manufactured, an income statement, and a balance sheet.

Sample

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Sample

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