

Chapter 2

Cost Concepts and the Cost Accounting Information System

Cost accounting is usually considered only as it applies to manufacturing operations. In today's economy, however, every type and size of organization should benefit from the use of cost accounting concepts and techniques. For example, cost accounting principles may be applied by financial institutions, transportation companies (airlines, railroads, bus companies), churches, schools, colleges, universities, and governmental units, as well as the non-manufacturing activities of manufacturing firms. Although these numerous applications of cost accounting are not discussed in depth in this text, they are mentioned in appropriate places.

The Cost Concept

Cost concepts and terms have developed according to the needs of accountants, economists, and engineers. Accountants have defined cost as "an exchange price, a forgoing, a sacrifice made to secure benefit. In financial

accounting, the forgoing or sacrifice at date of acquisition is represented by a current or future diminution in cash or other assets.¹

Frequently the term "cost" is used synonymously with the term "expense." However, an expense may be defined as a measured outflow of goods or services, which is matched with revenue to determine income, or:

...the decrease in net assets as a result of the use of economic services in the creation of revenues or of the imposition of taxes by governmental units. Expense is measured by the amount of the decrease in assets or the increase in liabilities related to the production and delivery of goods and the rendering of services... expense in its broadest sense includes all expired costs which are deductible from revenues.²

When the term "cost" is used specifically, it should be modified by such descriptions as direct, prime, conversion, indirect, fixed, variable, controllable, product, period, joint, estimated, standard, sunk, or out-of-pocket. Each modification implies a certain attribute which is important in measuring cost, and which may be recorded and accumulated for assigning costs to inventories, preparing financial statements, and planning and controlling costs. The accountant who is involved in planning, analyzing, and decision-making must also work with future, replacement, imputed, differential, or opportunity costs, none of which is recorded.

The Cost Accounting Information System

To manage an enterprise, systematic and comparative cost information as well as analytical cost and profit data are needed. This information helps management set the company's profit goals, establish departmental targets which direct middle and operating management toward the achievement of the final goal; evaluate the effectiveness of plans, pinpoint successes or failures in terms of specific responsibilities, and analyze and decide on adjustments and improvements to keep the entire organization moving forward, in balance, toward established objectives. An integrated and coordinated information system should provide only that information which is needed by each responsible manager. To accomplish these objectives, the system must be designed to provide information promptly. Furthermore, the information must be communicated effectively. Cost control needs and profit opportunities may be delayed or missed because of poor communication.

The accumulation of accounting data requires many forms, methods, and systems due to the varying types and sizes of businesses. A successful information system should be tailored to give the blend of sophistication and simplicity that is most efficient and economical for a specific organization. Designing a cost accounting information system requires a thorough under-

¹Robert T. Sprouse and Maurice Moonitz, *Accounting Research Study No. 3, "A Tentative Set of Broad Accounting Principles for Business Enterprises,"* (New York: American Institute of Certified Public Accountants, 1962), p. 25.

²*Ibid.*, p. 49.

standing of the organizational structure of the company and the type of cost information required by all levels of management. This interface between the system, management, and employees has significant behavioral implications. The system may enhance or thwart the achievement of desired results, depending on the extent to which sound behavioral judgment is applied in developing, administering, and improving the system and in educating employees to observe cost control procedures.

The cost accounting information system must be closely associated with the division of authority, so that individual managers can be held accountable for the costs incurred in their departments. The system should be designed to promote the concept of management by exception; i.e., it should provide information that enables management to take prompt remedial action. The system should also reflect the manufacturing and administrative procedures of the particular company for which it is designed. The accountant who designs the system must know how employees are paid, how inventories are controlled, how equipment is costed, and other operating information.

Accounting records do not provide all the necessary information for effective management. Other quantifiable and nonquantifiable information, such as machine capacities, may be vital to the decision-making process. Requirements for record keeping and reporting may also be imposed on an organization by external forces, such as the Internal Revenue Code, the Federal Insurance Contributions Act, the Securities and Exchange Commission, Cost Accounting Standards, other governmental regulatory agencies and taxing authorities, as well as creditors and labor unions. These legal and contractual requirements must be met by a system that is designed in a cost-conscious manner. Any sophistication in a system, beyond the basic requirements, must be justified solely on the basis of its value to management.

The Chart of Accounts

Every profit and nonprofit organization, irrespective of its size and complexity, must maintain some type of general ledger accounting system. For such a system to function effectively, data must be collected, identified, and coded for recording in journals and posting to ledger accounts. The prerequisite for efficiently accomplishing these tasks is a well-designed *chart of accounts* for classifying costs and expenses.

In constructing a chart of accounts, the following basic considerations should be observed:

1. Accounts should be arranged and designated to give maximum information with a minimum of supplementary analysis.
2. Account titles should reflect the purpose rather than the nature of expenditures.
3. Manufacturing, marketing, and administrative cost accounts should receive particular attention because these accounts are used to highlight variations in operating efficiency. They should be identifiable with the manager responsible for the costs involved.

A typical chart of accounts is divided into (1) balance sheet accounts for assets, liabilities, and capital, and (2) income statement accounts for sales, cost of goods sold, factory overhead, marketing expenses, administrative expenses, and other expenses and income. The use of numbers to represent these accounts is the simplest form of symbolizing, which is essential to the processing of information, especially when electronic data processing equipment is being used. A condensed chart of accounts is illustrated as follows:

BALANCE SHEET ACCOUNTS (100-299)

| | |
|--|---------------------------------|
| Current Assets (100-129) | Current Liabilities (200-219) |
| Property, Plant, and Equipment (130-159) | Long-Term Liabilities (220-229) |
| Intangible Assets (170-179) | Capital (250-299) |

INCOME STATEMENT ACCOUNTS (300-899)

| | |
|------------------------------|-----------------------------------|
| Sales (300-349) | Administrative Expenses (600-699) |
| Cost of Goods Sold (350-399) | Other Expenses (700-749) |
| Factory Overhead (400-499) | Other Income (800-849) |
| Marketing Expenses (500-599) | Income Taxes (890-899) |

Electronic Data Processing

Successful management of a business is essentially a continuous process of decision making. The decision making becomes even more complex when multiple plants are located throughout the nation and in foreign countries; when product lines carry an array of sizes, colors, and options; when various reports are necessary for taxing authorities, regulatory agencies, employees, and stockholders; and when policies and objectives must be communicated from executive management to several operating levels. The information system aids the decision-making process by collecting, classifying, analyzing, and reporting business data. These activities are called *data processing*, and the procedures, forms, and equipment used in the process are called the *data processing system*. Any accounting system, even a cash register in a supermarket, is a data processing system and should be designed to provide pertinent and timely information to management.

The speed and flexibility of computers have led many businesses to convert the processing of data to electronic systems, which replace ledgers with punched cards, reels of magnetic tape, or magnetic disks as media for the recording and storing of account data. These systems can handle routine information easily, verify its accuracy, automatically write checks and remittance statements, classify and post data files, prepare general and subsidiary records and analytical reports, and compute ratios and other statistics for analytical purposes.

An electronic data processing system may be used to recognize and report any circumstances which deviate from a norm or standard. The concept of management by exception is thereby applied efficiently. The system also greatly expands the ability of management to use mathematical models or simulations to plan operations. For example, with a computer, it is possible to simulate a complete operating budget and manipulate product mix, price, cost

factors, and the marketing program. By studying alternative combinations of the variables, the uncertainty in making decisions is reduced.

When an electronic data processing system is used, accounting procedures must be carefully programmed for the system. The programming process includes analyzing the procedure, preparing extensive flow charts which reduce the procedure to a logical design for the system, and writing the detailed code of instructions for the system to follow. As a result of the extensive analysis required in programming, an inherent advantage of an electronic data processing system is that possibly vague accounting procedures become more concise and efficient.

In recent years, the use of electronic data processing systems has enabled controllers and their staffs to become the nerve centers of large corporations. With such systems, controllers can assemble data concerning human resources, money, materials, and machines, which may form the basis for proposing alternatives in planning crucial operations. The data are based on (1) the company's historical costs and revenues, (2) management's evaluation of the present and future, and (3) economic forecasts originating outside the company.

Classifications of Costs

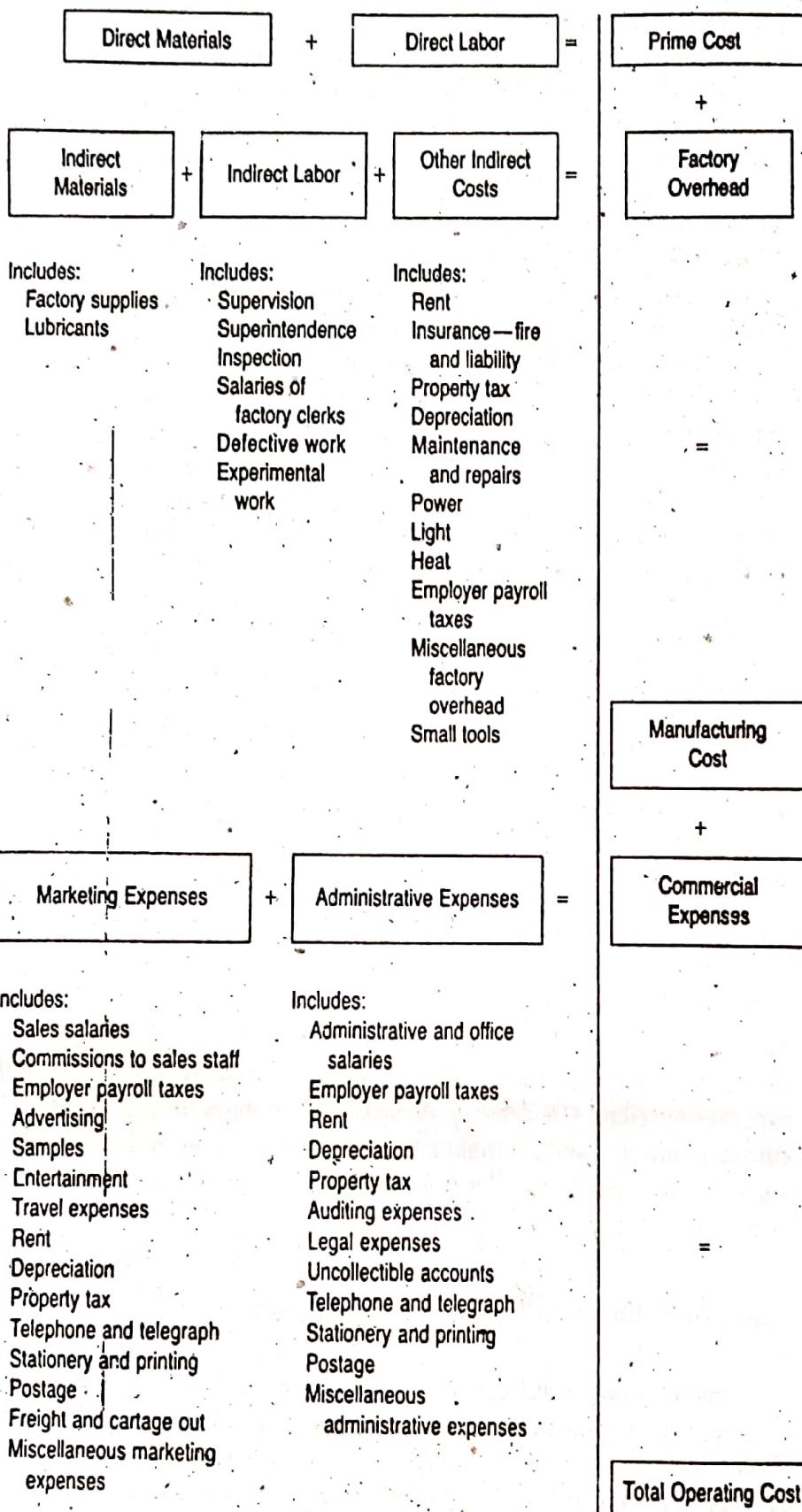
Cost classifications are needed for the development of cost data that will aid management in achieving its objectives. These classifications are based on the relationship of costs to:

1. The product
2. Volume of production
3. Manufacturing departments
4. An accounting period

Costs in Relation to a Product

The process of classifying costs and expenses may begin by relating costs to the operations of a business. In a manufacturing concern, total operating cost consists of (1) manufacturing cost and (2) commercial expenses. The chart on the next page illustrates this division of total operating cost and identifies some of the elements included in each division.

Manufacturing Costs. Manufacturing cost, often called production cost or factory cost, is the sum of the three cost elements: direct materials, direct labor, and factory overhead. Direct materials and direct labor may be combined into another classification called *prime cost*. Direct labor and factory overhead may be combined into a classification called *conversion cost*, which represents the cost of converting direct materials into finished products.



Direct materials are all materials that form an integral part of the finished product and that can be included directly in calculating the cost of the product. Examples of direct materials are the lumber to make furniture and the crude oil to make gasoline. The ease with which the materials items may be traced to the final product is a major consideration in classifying items as direct materials. For example, tacks to build furniture undoubtedly form part of the finished product, but to cost the furniture expeditiously, such items may be classified as indirect materials.

Direct labor is labor expended to convert direct materials into the finished product. It consists of employees' wages which can feasibly be assigned to a specific product.

Factory overhead —also called manufacturing overhead, manufacturing expenses, or factory burden—may be defined as the cost of indirect materials, indirect labor, and all other manufacturing costs that cannot be charged directly to specific products. Simply stated, factory overhead includes all manufacturing costs except direct materials and direct labor.

Indirect materials are those materials needed for the completion of a product, but the consumption of which is so minimal or so complex that treating them as direct materials is futile. Factory supplies, a form of indirect materials, consist of such items as lubricating oils, grease, cleaning rags, and brushes needed to maintain the working area and machinery in a usable and safe condition.

Indirect labor may be defined as expended labor which does not directly affect the construction or the composition of the finished product. Indirect labor includes the wages of supervisors, shop clerks, general helpers, and employees engaged in maintenance work that is not directly related to production.

Commercial Expenses. Commercial expenses fall into two large classifications: (1) marketing (distribution or selling) expenses and (2) administrative (general and administrative) expenses. *Marketing expenses* begin at the point where the factory costs end, i.e., when manufacturing has been completed and the product is in salable condition. These expenses include the expenses of selling and delivery. *Administrative expenses* include expenses incurred in directing and controlling the organization. Some of these expenses, such as a vice-president's salary, are often allocated to and included in manufacturing costs and marketing expenses.

Costs in Relation to Volume of Production

Some costs vary directly in relation to changes in the volume of production or output, while others remain relatively fixed in amount. The tendency of costs to vary with output must be considered by management if it desires to plan a company's strategy intelligently and control costs successfully.

Variable Costs. In general, *variable costs* have the following characteristics: (1) variability of total amount in direct proportion to volume, (2) relatively

constant cost per unit as volume changes within a relevant range, (3) assignable, with reasonable ease and accuracy, to operating departments, and (4) controllable by a specific department head. The costs which have these characteristics generally include direct materials and direct labor. Some factory overhead and nonmanufacturing costs are also variable. The following list identifies overhead costs which are usually classified as variable:

VARIABLE FACTORY OVERHEAD

| | |
|--|----------------------|
| Supplies | Receiving costs |
| Fuel | Hauling within plant |
| Power | Royalties |
| Small tools | Communication costs |
| Spoilage, salvage, and reclamation expenses | Overtime premium |

Fixed Costs. The characteristics of *fixed costs* are: (1) fixed total amount within a relevant output range, (2) decrease in per unit cost as volume increases within a relevant range, (3) assignable to departments on the basis of arbitrary managerial decisions or cost allocation methods, and (4) control responsibility resting with executive management rather than operating supervisors. The following overhead costs are usually classified as fixed:

FIXED FACTORY OVERHEAD

| | |
|-----------------------------------|---|
| Salaries of production executives | Wages of security guards |
| Depreciation | and janitors |
| Property tax | Maintenance and repairs of buildings and grounds |
| Patent amortization | Rent |
| Insurance—property and liability | |

In some cases, management actions may determine whether a cost is classified as fixed or variable. For example, if a truck is rented at a rate per mile, the cost is variable. If the truck is purchased and subsequently depreciated by the straight-line method, the cost is fixed.

Semivariable Costs. Some costs contain fixed and variable elements. These *semivariable costs* include an amount that is fixed within a relevant range of output and an amount that varies proportionately with output changes. For example, electricity cost may be semivariable. Electricity used for lighting tends to be a fixed cost, since lights will be needed when the plant is operating, regardless of the level of output. Conversely, electricity used as power to operate equipment will vary, depending upon the usage of the equipment. Other examples of semivariable overhead costs are as follows:

SEMVARIABLE FACTORY OVERHEAD

| | |
|----------------------------------|---|
| Supervision | Maintenance and repairs of machinery and plant equipment |
| Inspection | |
| Payroll department services | Compensation insurance |
| Personnel department services | Health and accident insurance |
| Factory office services | Payroll taxes |
| Materials and inventory services | Industrial relations expenses |
| Cost department services | Heat, light, and power |

For analytical purposes, all manufacturing and nonmanufacturing costs should be classified as either fixed or variable. Therefore, semivariable costs must be divided into their fixed and variable components. Methods of accomplishing this division are discussed in Chapter 16.

Costs in Relation to Manufacturing Departments

For administrative purposes, a business may be divided into departments, segments, or functions. The division of a factory into departments, cost centers, or cost pools also serves as the basis for classifying and accumulating product costs and assigning responsibility for cost control. As a product passes through a department or cost center, it is charged with direct materials, direct labor, and a share of factory overhead.

To achieve the greatest degree of control, department managers should participate in the development of budgets for their respective departments or cost centers. Such budgets should clearly identify those costs about which the manager can make decisions and for which the manager accepts responsibility. At the end of a reporting period, the efficiency of a department and the manager's success in controlling costs may be measured by comparing actual costs with the budget.

Producing and Service Departments. The departments of a factory generally fall into two categories: (1) producing departments and (2) service departments. In a *producing department*, manual and machine operations, such as forming and assembling, are performed directly upon the product or its parts. The costs incurred by such departments are charged to the product. If two or more different types of machines perform operations on a product within the same department, the accuracy of product costs may be increased by dividing the department into cost centers.

In a *service department*, service is rendered for the benefit of other departments. In some instances, these services benefit other service departments as well as the producing departments. Although a service department does not directly engage in production, its costs are part of the total factory overhead and must be included in the cost of the product. Service departments which are common to many industrial concerns include maintenance, payroll, cost accounting, data processing, and food services.

Direct and Indirect Departmental Charges. In connection with materials and labor, the term "direct" refers to costs which are chargeable directly to the product. Factory overhead is considered "indirect" with regard to the product. The terms "direct" and "indirect" may be used, however, in connection with charging overhead costs to manufacturing departments and in charging expenses to the departments of nonmanufacturing organizations. If an expense is readily identifiable with the department in which it originates, it is referred to as a *direct departmental expense*. The salary of the departmental supervisor is an example of a direct expense. If an expense is shared by several departments that benefit from its incurrence, it is referred to as an *indirect expense*.

common cost. Building rent and building depreciation are examples of indirect expenses which are allocated to departments.

Service department expenses are also indirect expenses for other departments. When all service department expenses have been allocated, each producing department's overhead will consist of its own direct and indirect departmental expense and the apportioned charges from service departments.

Common Costs and Joint Costs. Common costs are costs of facilities or services employed by two or more operations. Common costs are particularly prevalent in organizations with many departments or segments. The degree of segmentation increases the tendency of costs to be common costs. For example, the salary of the marketing vice-president is not a common cost if the segment is the entire marketing function. If the segment encompasses only the southwestern marketing region, however, the vice-president's salary is a common cost to that region.

Joint costs occur when the production of one product may be possible only if one or more other products are manufactured at the same time. The meat-packing, oil and gas, and liquor industries are excellent examples of production that involves joint costs. In such industries, joint costs can be allocated to joint products only by arbitrary procedures. Therefore, data resulting from joint cost allocation must be analyzed carefully.

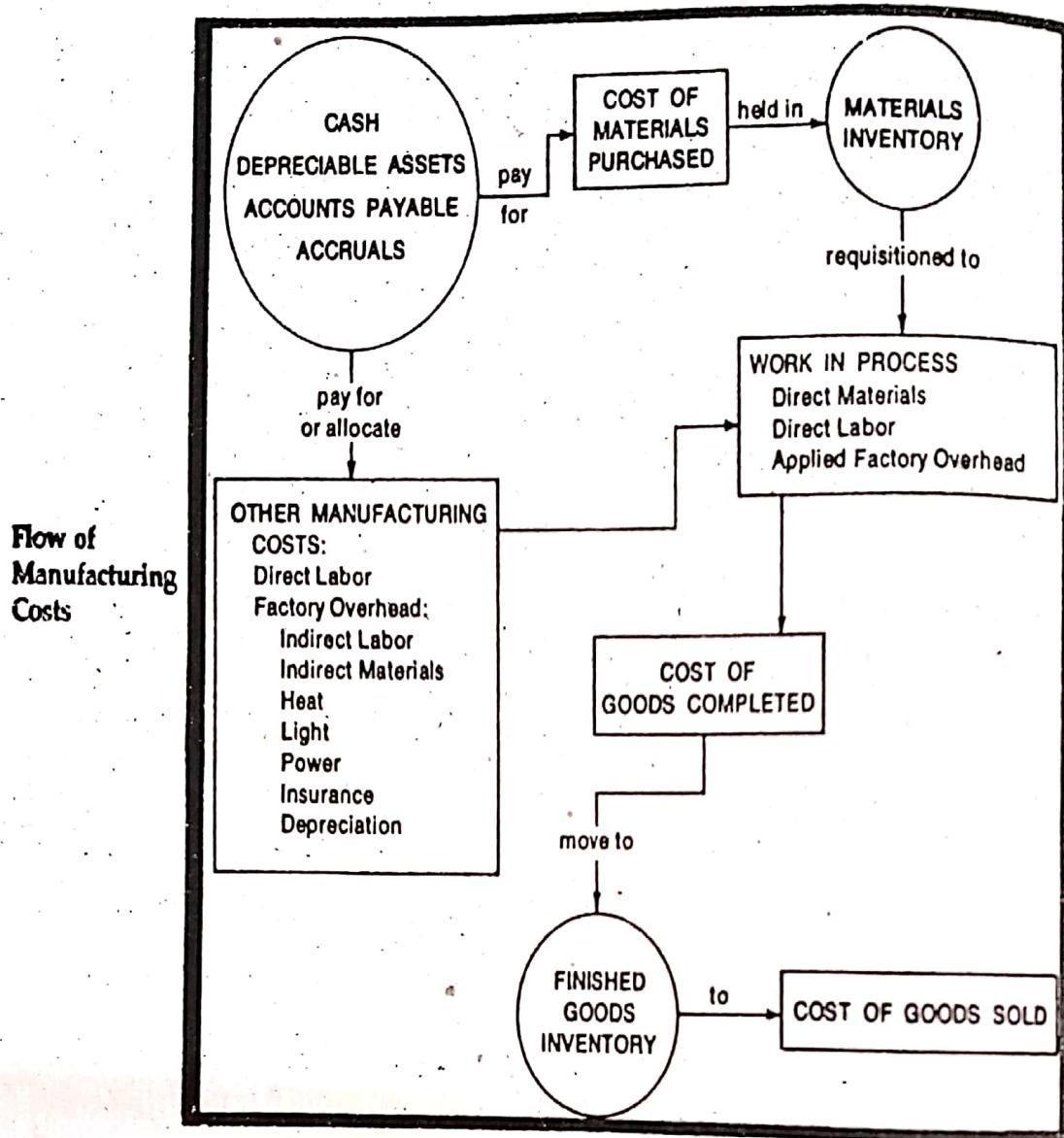
Costs in Relation to an Accounting Period

Costs may be classified as capital expenditures or as revenue expenditures. A *capital expenditure* is intended to benefit future periods and is recorded as an asset. A *revenue expenditure* benefits the current period and is recorded as an expense. Ultimately, an asset will flow into the expense stream as it is consumed or when it loses its usefulness.

The distinction between capital and revenue expenditures is essential to the proper matching of costs and revenue and to the accurate measurement of periodic income. However, a precise distinction between the two classifications is not always feasible. In many cases, the initial classification depends upon management's attitude toward such expenditures and the nature of the company's operations. The amount of the expenditure and the number of detailed records required are also factors that influence the distinction between these two classifications.

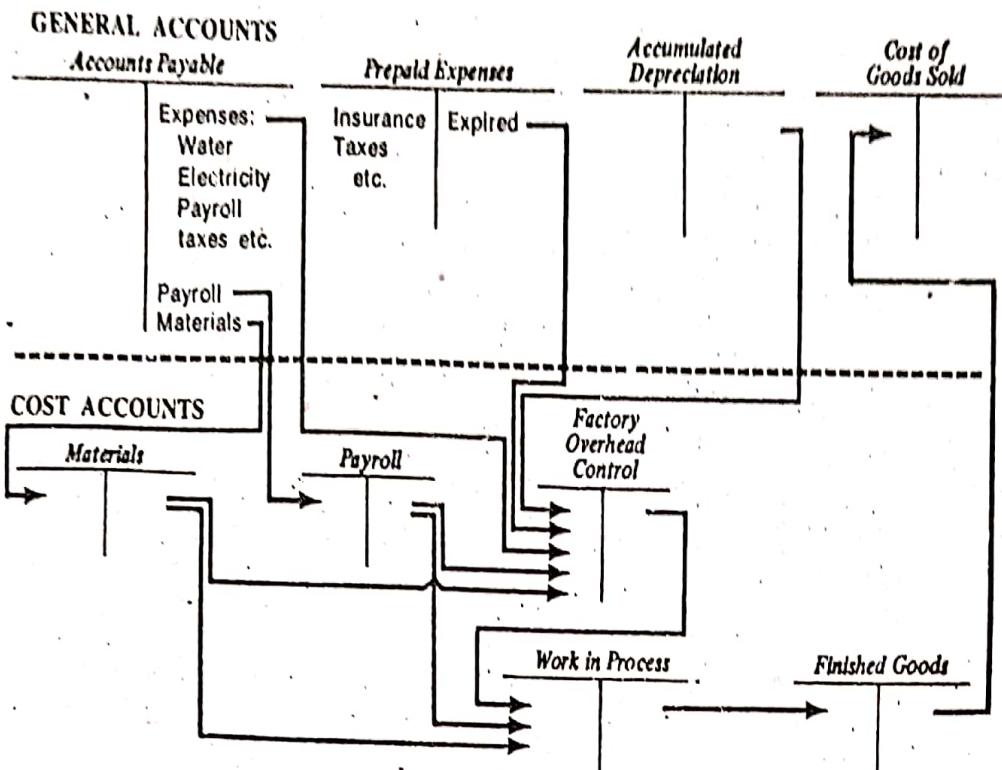
The Flow of Costs in a Manufacturing Enterprise

Cost accounting neither adds new steps to the familiar accounting cycle nor discards the principles and procedures studied in financial accounting. Cost accounting consists of a system which is concerned with precise recording and measurement of cost elements as they originate and flow through the productive processes. This flow is illustrated in the following diagram:



The manufacturing process and the physical arrangement of the factory are the basis for determining cost accumulation procedures. Generally, the accounts which describe manufacturing operations are: Materials, Payroll, Factory Overhead Control, Work in Process, Finished Goods, and Cost of Goods Sold. These accounts are used to recognize and measure the flow of costs in each fiscal period—from the acquisition of materials, through factory operations, to the cost of products sold. Cost accounts are expansions of general accounts and are related to general accounts, as shown in the diagram on the next page. Federal government contractors who are covered by the CASSs are required to disclose the extent of this relationship and the type of cost accounting system which is being used.

Cost accounting makes extensive use of a control account-subsidiary record format when detailed information about general ledger accounts is needed. Hundreds of different materials items, for example, may be included in one materials account, and the factory overhead account may include indirect labor, supplies, rent, insurance, taxes, repairs and other factory expenses. The various subsidiary accounts are described and illustrated in later chapters.



Relationship Between General Accounts and Cost Accounts

The flow of costs to ledger accounts is based on source or transaction documents, which must be checked, verified, and vouchered before they are journalized and posted. These documents are the fundamental evidence of an accounting event. Some of the typical source documents which support transactions involving the elements of manufacturing cost are identified in the following table:

| Cost | Source Document |
|------------------|---|
| Materials | Purchase invoices, materials requisitions, materials returned slips, etc. |
| Labor | Time tickets or time sheets, clock cards, job tickets, etc. |
| Factory overhead | Vouchers prepared to set up depreciation or prepaid expenses, vendors' invoices, utility bills, time sheets, etc. |

The flow of accounting information from source document to ledger accounts may be facilitated by using the journal voucher control system.³ Whether manual, mechanical, or computerized, this system involves the use of journal vouchers on which information from the source documents is summarized and identified according to the chart of accounts. The journal voucher is the basis for the preparation of journal entries which record the transactions

³The journal voucher control system should not be confused with the voucher register, a basic journal for classifying and summarizing expenditures. The voucher register, also called an accounts payable register, could be part of the system, particularly under a manual system.

for a given period and the posting of these transactions to the ledger accounts. The journal voucher should indicate the voucher number, the date, the accounts with their numbers or codes, the amounts to be debited or credited, and approval. Columns may be added to accommodate the subsidiary ledger details, or these details may be posted directly from the source documents.

To illustrate the flow of costs in a manufacturing enterprise, assume that New Hope Manufacturing Company begins a new fiscal year with the financial position as shown in the following balance sheet:

| New Hope Manufacturing Company | |
|--|----------------------------|
| Balance Sheet | |
| January 1, 19-- | |
| <u>Assets</u> | |
| Current assets: | |
| Cash..... | \$ 183,000 |
| Marketable securities | 76,000 |
| Accounts receivable (net) | 313,100 |
| Inventories: | |
| Finished goods | \$ 68,700 |
| Work in process | 234,300 |
| Materials | 135,300 |
| Prepaid expenses | 438,300 |
| Total current assets | 15,800 |
| \$ 1,026,200 | |
| Property, plant, and equipment: | |
| Land | \$ 41,500 |
| Buildings | 580,600 |
| Machinery and equipment | 1,643,000 |
| \$ 2,223,600 | |
| Less accumulated depreciation | 1,010,700 |
| Total property, plant, and equipment | 1,212,900 |
| \$ 1,254,400 | |
| Total assets | <u><u>\$ 2,280,600</u></u> |
| <u>Liabilities</u> | |
| Current liabilities: | |
| Accounts payable | \$ 553,000 |
| Estimated income tax payable | 35,700 |
| Due on long-term debt | 20,000 |
| Total current liabilities | \$ 608,700 |
| Long-term debt | 204,400 |
| Total liabilities | <u><u>\$ 813,100</u></u> |
| <u>Stockholders' Equity</u> | |
| Common stock | \$ 528,000 |
| Retained earnings | <u>939,500</u> |
| Total stockholders' equity | 1,467,500 |
| Total liabilities and stockholders' equity | <u><u>\$ 2,280,600</u></u> |

During the month of January, New Hope completed the transactions which are summarized, recorded, and posted to the ledger accounts as follows. The revenue and expense accounts are not closed at the end of January, because such formal closing, in practice, is usually done only at year end.

| | <u>Transactions</u> | <u>Journal Entries</u> |
|-----|---|---|
| (a) | Materials purchased and received on account | Materials 100,000 Accounts Payable 100,000 |
| (b) | Materials requisitioned during the month: For production \$ 80,000 For indirect factory use 12,000 | Work in Process 80,000 Factory Overhead Control 12,000 Materials 92,000 |
| (c) | Total gross payroll \$160,000 Payroll was paid to employees for the month, after deducting 7% FICA tax and 12% federal income tax withheld* 129,600 | Payroll 160,000 Employees' Income Tax Payable 19,200 FICA Tax Payable 11,200 Accrued Payroll 129,600 |
| | *Here and in later chapters, the various tax rates are used for illustration only. Current rates may be found in published government regulations. | Accrued Payroll 129,600 Cash 129,600 |
| (d) | The distribution of the payroll was: Direct labor 60% Indirect factory labor 15 Marketing salaries 18 Administrative salaries 7 | Work in Process 96,000 Factory Overhead Control 24,000 Marketing Expenses Control 28,800 Administrative Expenses Control 11,200 Payroll 160,000 |
| (e) | An additional 10% is recorded for the employer's payroll taxes: FICA tax 7.0% Federal unemployment insurance tax8 State unemployment insurance tax 2.2 | Factory Overhead Control 12,000 Marketing Expenses Control 2,880 Administrative Expenses Control 1,120 FICA Tax Payable 11,200 Federal Unemployment Tax Payable 1,280 State Unemployment Tax Payable 3,520 |
| | Payroll taxes are distributed in the same proportion as the distribution of payroll. Payroll taxes related to factory activities (direct and indirect labor) are charged to the factory overhead control account. | The company is required to pay the same amount of FICA tax as the employees. In addition, the company must pay federal and state unemployment taxes, from which the employee is exempt. |
| (f) | Factory overhead consisting of: Depreciation \$8,500 Prepaid insurance 1,200 | Factory Overhead Control 9,700 Accumulated Depreciation 8,500 Prepaid Expenses 1,200 |
| (g) | General factory overhead costs (not itemized) \$26,340 70% of these expenses were paid in cash; the balance was credited to Accounts Payable. | Factory Overhead Control 26,340 Cash 18,438 Accounts Payable 7,902 |
| (h) | Amount received from customers in payment of their accounts \$205,000 | Cash 205,000 Accounts Receivable 205,000 |
| (i) | The following liabilities were paid: Accounts payable \$207,000 Estimated income tax 35,700 Due on long-term debt 20,000 | Accounts Payable 207,000 Estimated Income Tax Payable 35,700 Due on Long-Term Debt 20,000 Cash 262,700 |

- (j) Factory overhead accumulated in the factory overhead control account was transferred to the work in process account.
- (k) Work completed and transferred to finished goods \$320,000
- (l) Sales \$384,000
40% was paid in cash; the balance was charged to Accounts Receivable. The cost of goods sold was 75% of sales.
- (m) Provision for income tax \$26,000

| | |
|------------------------------|---------|
| Work in Process | 84,040 |
| Factory Overhead Control | 84,040 |
| Finished Goods | 320,000 |
| Work in Process | 320,000 |
| Cash | 153,600 |
| Accounts Receivable | 230,400 |
| Sales | 384,000 |
| Cost of Goods Sold | 288,000 |
| Finished Goods | 288,000 |
| Provision for Income Tax | 26,000 |
| Estimated Income Tax Payable | 26,000 |

| Cash | | | |
|------|---------|-----|---------|
| 1/1 | 183,000 | (c) | 129,600 |
| (h) | 205,000 | (g) | 18,438 |
| (l) | 153,600 | (i) | 262,700 |
| | 541,600 | | 410,738 |
| | 130,862 | | |

| Marketable Securities | | | |
|-----------------------|--------|--|--|
| 1/1 | 76,000 | | |

| Accounts Receivable | | | |
|---------------------|---------|-----|---------|
| 1/1 | 313,100 | (h) | 205,000 |
| (l) | 230,400 | | |
| | 543,500 | | |
| | 338,500 | | |

| Finished Goods | | | |
|----------------|---------|-----|---------|
| 1/1 | 68,700 | (l) | 288,000 |
| (k) | 320,000 | | |
| | 388,700 | | |
| | 100,700 | | |

| Work in Process | | | |
|-----------------|---------|-----|---------|
| 1/1 | 234,300 | (k) | 320,000 |
| (b) | 80,000 | | |
| (d) | 96,000 | | |
| (l) | 84,040 | | |
| | 494,340 | | |
| | 174,340 | | |

| Materials | | | |
|-----------|---------|-----|--------|
| 1/1 | 135,300 | (b) | 92,000 |
| (a) | 100,000 | | |
| | 235,300 | | |
| | 143,300 | | |

| Prepaid Expenses | | | |
|------------------|--------|-----|-------|
| 1/1 | 15,800 | (f) | 1,200 |
| | 14,600 | | |

| Land | | | |
|------|--------|--|--|
| 1/1 | 41,500 | | |

| Buildings | | | |
|-----------|---------|--|--|
| 1/1 | 580,600 | | |

| Machinery and Equipment | | | |
|-------------------------|-----------|--|--|
| 1/1 | 1,643,000 | | |

| Accumulated Depreciation | | | |
|--------------------------|-----|-----------|--|
| | 1/1 | 1,010,700 | |
| | (f) | 8,500 | |
| | | 1,019,200 | |

| Accounts Payable | | | |
|------------------|---------|-----|---------|
| (l) | 207,000 | 1/1 | 553,000 |
| | | (a) | 100,000 |
| | | (g) | 7,902 |
| | | | 660,902 |
| | | | 453,902 |

| Accrued Payroll | | | |
|-----------------|---------|-----|---------|
| (c) | 129,600 | (c) | 129,600 |

| Estimated Income Tax Payable | | | |
|------------------------------|--------|-----|--------|
| (l) | 35,700 | 1/1 | 35,700 |
| | | (m) | 26,000 |
| | | | 61,700 |
| | | | 26,000 |

| Employees Income Tax Payable | | | |
|------------------------------|-----|--------|--|
| | (c) | 19,200 | |

| FICA Tax Payable | | | |
|------------------|-----|--------|--|
| | (c) | 11,200 | |
| | (e) | 11,200 | |
| | | 22,400 | |

| Federal Unemployment Tax Payable | | | Factory Overhead Control | |
|----------------------------------|---------|---------|---------------------------------|---------|
| | (e) | 1,280 | (b) | 12,000 |
| State Unemployment Tax Payable | | | (d) | 24,000 |
| | (e) | 3,520 | (e) | 12,000 |
| Due on Long-Term Debt | | | (f) | 9,700 |
| (i) | 20,000 | 1/1 | (g) | 26,340 |
| Long-Term Debt | | | | 84,040 |
| | | 1/1 | | 84,040 |
| Common Stock | | | Payroll | |
| | 1/1 | 528,000 | (c) | 160,000 |
| Retained Earnings | | | (d) | 160,000 |
| | 1/1 | 939,500 | (e) | 28,800 |
| Sales | | | (f) | 2,880 |
| | (l) | 384,000 | | 31,680 |
| Cost of Goods Sold | | | Marketing Expenses Control | |
| (l) | 288,000 | | (d) | 28,800 |
| | | | (e) | 2,880 |
| | | | | 31,680 |
| | | | Administrative Expenses Control | |
| | | | (d) | 11,200 |
| | | | (e) | 1,120 |
| | | | | 12,320 |
| | | | Provision for Income Tax | |
| | | | (m) | 26,000 |
| | | | | 26,000 |

Reporting the Results of Operations

The results of operations of a manufacturing enterprise are reported in the conventional financial statements. These statements summarize the flow of costs and revenues, and show the financial position at the end of a period of operations.

Income Statement

The following statement shows the revenues and expenses of New Hope Manufacturing Company for the month of January:

| New Hope Manufacturing Company | | |
|---|---------------|----------------|
| Income Statement | | |
| For January, 19- | | |
| Sales..... | | \$384,000 |
| Less cost of goods sold (Schedule 1)..... | | <u>288,000</u> |
| Gross profit..... | | \$ 96,000 |
| Less commercial expenses: | | |
| Marketing expense..... | \$31,680 | |
| Administrative expense..... | <u>12,320</u> | 44,000 |
| Income from operations..... | | \$ 52,000 |
| Less provision for income tax..... | | <u>26,000</u> |
| Net income..... | | \$ 26,000 |

In the income statement, the cost of goods sold is shown in one figure. Although this procedure is followed in published reports, additional information is necessary for internal uses. Therefore, a supporting schedule of the cost of goods sold is usually produced, illustrated as follows for New Hope:

New Hope Manufacturing Company
Schedule 1
Cost of Goods Sold Statement
For January, 19-

| | | | |
|---|--|----------------|------------------|
| 1 | Direct materials: | | |
| | Materials inventory, January 1, 19- | \$135,300 | |
| | Purchases..... | <u>100,000</u> | |
| | Materials available for use..... | \$235,300 | |
| | Less: Indirect materials used..... | \$ 12,000 | |
| | Materials inventory, January 31..... | <u>143,300</u> | |
| | Direct materials consumed | | \$ 80,000 |
| | | | <u>96,000</u> |
| 2 | Direct labor | | |
| 3 | Factory overhead: | | |
| | Indirect materials..... | \$ 12,000 | |
| | Indirect labor..... | 24,000 | |
| | roll taxes..... | 12,000 | |
| | Depreciation | 8,500 | |
| | Insurance | 1,200 | |
| | General factory overhead | <u>26,340</u> | |
| | Total manufacturing cost | | \$260,040 |
| 4 | Add work in process inventory, January 1 | | <u>234,300</u> |
| | | | |
| | Less work in process inventory, January 31 | | <u>174,340</u> |
| | Cost of goods manufactured..... | | \$320,000 |
| 5 | Add finished goods inventory, January 1 | | <u>68,700</u> |
| | Cost of goods available for sale..... | | \$388,700 |
| | Less finished goods inventory, January 31 | | <u>100,700</u> |
| | Cost of goods sold | | <u>\$288,000</u> |

- 1 The direct materials section is comprised of the beginning materials inventory, purchases, and the ending inventory of materials, with an adjustment for the indirect materials that were added to factory overhead. This section identifies the cost of materials that became part of the finished product.
- 2 The direct labor section indicates the cost of labor which can be identified directly with the products manufactured.
- 3 Factory overhead includes all costs that are indirectly involved in the manufacturing of the product. (Note: The next chapter and the factory overhead chapters will introduce and demonstrate the use of a predetermined factory overhead rate.)
- 4 The total manufacturing costs incurred during the period are adjusted for the work in process inventories at the beginning and end of the period.

- 5 The cost of goods manufactured during the period is adjusted for the finished goods inventory at the beginning and end of the period.

Balance Sheet

The balance sheet complements the income statement. Neither statement alone offers a sufficiently clear picture of the status and progress of a company. The following balance sheet shows the financial position of New Hope Manufacturing Company at the end of January:

| New Hope Manufacturing Company | | |
|--|--------------------|-----------|
| Balance Sheet | | |
| January 31, 19-- | | |
| <u>Assets</u> | | |
| Current assets: | | |
| Cash | \$ 130,862 | |
| Marketable securities | 76,000 | |
| Accounts receivable (net) | 338,500 | |
| Inventories: | | |
| Finished goods | \$ 100,700 | |
| Work in process | 174,340 | |
| Materials | <u>143,300</u> | 418,340 |
| Prepaid expenses | <u>14,600</u> | |
| Total current assets | <u>\$ 978,302</u> | |
| Property, plant, and equipment: | | |
| Land | \$ 41,500 | |
| Buildings | \$ 580,600 | |
| Machinery and equipment | <u>1,643,000</u> | |
| | \$2,223,600 | |
| Less accumulated depreciation | <u>1,019,200</u> | 1,204,400 |
| Total property, plant, and equipment | <u>1,245,900</u> | |
| Total assets | <u>\$2,224,202</u> | |
| <u>Liabilities</u> | | |
| Current liabilities | | |
| Accounts payable | \$453,902 | |
| Estimated income tax payable | 26,000 | |
| Other current liabilities | <u>46,400</u> | |
| Total current liabilities | <u>\$ 526,302</u> | |
| Long-term debt | <u>204,400</u> | |
| Total liabilities | <u>\$ 730,702</u> | |
| <u>Stockholders' Equity</u> | | |
| Common stock | \$528,000 | |
| Retained earnings: | | |
| Balance, January 1 | \$939,500 | |
| January net income | <u>26,000</u> | 965,500 |
| Total stockholders' equity | <u>1,493,500</u> | |
| Total liabilities and stockholders' equity | <u>\$2,224,202</u> | |