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## Chapter 1

# Introduction

The *Terminology* published by the Institute of Cost and Management Accountants gives the following definitions:

*Management Accounting*—The provision of information required by management for such purposes as:

1. formulation of policies,
2. planning and controlling the activities of the enterprise,
3. decision taking on alternative courses of action,
4. disclosure to those external to the entity (shareholders and others),
5. disclosure to employees,
6. safeguarding assets.

The above involves participating in management to ensure that there is effective:

- (a) formulation of plans to meet objectives (long-term planning),
- (b) formulation of short-term operation plans (budgeting/profit planning),
- (c) recording of actual transactions (financial accounting and cost accounting),
- (d) corrective action to bring future actual transactions into line (financial control),
- (e) obtaining and controlling finance (treasurership),
- (f) reviewing and reporting on systems and operations (internal audit, management audit).

*Cost Accounting*—That part of management accounting which establishes budgets and standard costs and actual costs of operations, processes, departments or products and the analysis of variances, profitability or social use of funds. The use of the term *costing* is not recommended.

As one might expect there are close links between these functions. Cost accounting and cost accounting methods supply the basis of factual information on which the management accountant can build up his presentation of planning and control.

## 1. INTRODUCTION

In this book we shall be concerned primarily with assisting students to acquire a thorough understanding of the techniques of Cost Accountancy, and it is our aim to show the methods by which:

- (a) expenditure on materials, wages and overhead is recorded, classified and allocated, so that the cost of products and services may be accurately ascertained;
- (b) these costs may be related to sales values;
- (c) profitability may be determined.

These costs may be ascertained:

- (a) historically, i.e. after they have been incurred, or
- (b) by predetermined standards, combined with subsequent analysis of variances between those standards, and the actual cost incurred; and
- (c) by the use of marginal methods of presentation for either (a) or (b), involving the differentiation between "fixed" and "variable" costs.

### **Cost Accounting as an Aid to Management**

Although manufacturers are now willing to accept as a principle that cost accounting is of value, there is still a considerable lack of appreciation by many of them as to where its value lies.

Cost accounting enables a business not only to find out what various jobs or processes have cost but also what they should have cost; it indicates where losses and waste are occurring before the work is finished, and therefore immediate action may be taken, if possible, to avoid such loss or waste.

Business policy may require the consideration of alternative methods and procedures, and this is facilitated by cost information correctly presented. For example, by the aid of cost reports management can decide whether the manufacture of certain products increases overhead expenditure disproportionately; whether to treat by-products, even if at a loss, to make possible a more important trade in another product; whether the plant and machinery could be used more advantageously by concentrating on particular products to the exclusion of less profitable ones; or whether prices could or should be adjusted.

It was stated in *Target* that:

Probably the greatest scope for increasing efficiency and cutting costs is at the design stage. The cost accountant and the design staff should work in close collaboration, not only on new products but on old lines as well, seeking ways and means of reducing the material costs by simplification of design, the elimination of unnecessary parts or features, and by the use, where possible, of cheaper but equally suitable materials. It is the designers who are concerned with the technical points—the cost accountant supplies the figures which measure the value of each idea and the estimates of costs of new products. One of the Productivity Teams which visited the USA

## 1. INTRODUCTION

found a system called "Value Analysis" in use, which reviews the design of component and assembly items by asking a series of questions, for example of any component:

- (a) does its use contribute value?
- (b) is its cost proportionate to its usefulness?
- (c) does it need all of its features?
- (d) is there anything better?
- (e) can it be made by a better method?
- (f) can a standard part replace it?
- (g) will another supplier provide it for less?
- (h) is anyone buying it for less?

### **Cost Accounting Essential to Industrial Control**

An efficient system of cost accounting is an essential factor for industrial control under modern conditions of business, and as such may be regarded as an important part in the efforts of any management to secure business stability. The organisation of an undertaking has to be so controlled that the desired volume of production is secured at the least possible cost in relation to the scheduled quantity of the product. Cost accounting provides the measurement of the degree to which this objective is attained, and thus has a definite place in the organisation of the business. All expense is localised, and thereby controlled, in the light of information provided by the cost records.

### **Cost Accounting in Periods of Trade Competition**

When business is not difficult to secure, many manufacturers are able to show a profit notwithstanding the leakages which pass unchecked, but in periods of trade competition concealed inefficiencies have to be tracked down, and rigorous control must be exercised to ensure even modest margins of profit.

Failure to maintain normal output results in overhead expenses not being recovered in full. The value of a cost accounting system is thus seen, since by indicating where economies may be sought, waste eliminated, and efficiency increased, some of the loss occasioned by reduced turnover and falling prices may be avoided. Further, knowing the real cost of production, a manufacturer, when tendering, can fix the lowest possible price on the reduced output so that he may continue to enjoy a share of the market; and the importance of making use of idle capacity is pressed upon him. The probable effects of reducing prices with the object of increasing turnover can also be presented to him; and in many other ways the cost accounts provide essential data for management decisions.

### **Estimates**

Estimates, it should be observed, are not costs, from which they differ in

several ways. Usually, estimates are based on present or prospective market prices of materials and labour and, while previously ascertained costs may be used as a guide in fixing prices, it is sometimes necessary to prepare estimates on a competitive basis, making quotations even below cost to avoid greater loss where there is a costly plant and fixed overhead expense is heavy.

Cost accounts, however, record the actual or maybe standard costs of materials, wages and overhead. It has been said, very aptly, that "an estimate is an opinion, price is a policy, and cost is a fact".

The ascertained costs, whether actual or standard, provide a measure for estimates, a guide to policy, and a control over current production.

### **Desirable Conditions for a Cost Accounting System**

The following general conditions should be observed as far as possible when installing a cost accounting system:

(a) The arrangement of the system should be adapted to suit the general organisation of the particular business, subject to such alterations as may be unavoidable. Usually, any scheme to alter the plan of the business to adapt it to a cost accounting system will be unsatisfactory, and, owing to resentment of officials, there is the probability that the fullest co-operation will not be forthcoming.

(b) The technical aspects of the business should be carefully studied and an effort made to secure the sympathetic assistance and support of the principal members of the works staff and of the workers generally.

(c) The minimum amount of detail in which records are to be compiled should be arranged. Complete analyses are desirable, but over-elaboration must be avoided. The compilation of schedules and analyses with unnecessary details involving undue clerical work will make the system costly, and disproportionate to the benefits received. Nevertheless, the cost accounting system should, without exception, cover the whole work of production and services.

(d) The records to be made by foremen and workers should involve as little clerical work as possible. Printed forms should be provided, and all instructions written or printed. It is advantageous to provide written or printed instructions as to the origin, use and disposition of each form.

(e) To ensure reliable statistics, every original entry on factory forms should be supported by an examiner's signature, or by counter-checks.

(f) Promptitude, frequency and regularity in the presentation of costs and statistics must be arranged for.

(g) The cost accounts and the financial accounts should either be interlocked in one integral accounting scheme or be so arranged that the results of the two sets of accounts are reconciled by means of control accounts.



### **Summary of Purposes of Cost Accounts**

The following summary may be useful to the student:

(a) To analyse and classify with reference to the cost of products and operations the same expenditure which, in the Financial Accounts, has been recorded and summarised under Nominal Account headings.

(b) To arrive at the cost of production of every unit, job, operation, process, department or service, and to develop cost standards.

(c) To indicate to the management any inefficiencies, and the extent of various forms of waste, whether of materials, time, expense, or in the use of machinery, equipment and tools. Analysis of the causes of unsatisfactory results may indicate remedial action.

(d) To provide for periodical Profit and Loss Accounts and Balance Sheets at such intervals, e.g. weekly, monthly or quarterly, as may be desired during the financial year, not only for the whole business but also by departments or individual products.

(e) To reveal sources of economies in production, having regard to methods, types of equipment, design, output and layout. Daily, weekly, monthly or quarterly information may be necessary to ensure prompt constructive action.

(f) To provide actual figures of cost for comparison with estimates, and to serve as a guide for future estimates, or quotations, and to assist the management in their price-fixing policy.

(g) To show, where standard costs are prepared, what the cost of production is to be, and with which the actual costs that are eventually recorded may be compared.

(h) To present comparative cost data for different periods and various volumes of production output, and to provide guidance in the development of the business. This is valuable in connection with budgetary control.

(i) To indicate whether the cost of certain articles or components made in the factory is such that it would be more economical to buy from outside sources.

(j) To record the relative production results of each unit of plant and machinery in use as a basis for examining its efficiency. A comparison with the performance of other types of machines may suggest the necessity for replacement.

(k) To provide a perpetual inventory of stores and other materials, so that:

(i) interim Profit and Loss Accounts and Balance Sheets can be prepared without stock-taking and

(ii) checks on stores and adjustments made at frequent intervals.

(l) To explain in detail the sources of profit or loss revealed in total in the Profit and Loss Account.

## 1. INTRODUCTION

### Practical Example of the Value of Cost Accounts

In order to show clearly how valuable the presentation of cost accounting information may be, the following illustration is given, showing final accounts drawn up both on financial accounting lines and also by cost accounting methods.

The financial accountant has prepared a simple account for the year as follows:

	£		£
Materials consumed	15,000	Sales	30,000
Wages	7,000		
Production expenses	2,000		
Gross profit (20%)	6,000		
	<u>£30,000</u>		<u>£30,000</u>
Administration expenses	2,000	Gross profit	6,000
Selling and distribution expenses	1,000		
Net profit (10%)	3,000		
	<u>£6,000</u>		<u>£6,000</u>

This reveals an apparently satisfactory net profit of £3,000, which represents 10 per cent of turnover. However, the information is too general to be of great use to management, who need to know the profit or loss on each product, so that policy decisions can be made.

The allocation of costs to each product is one of the main functions of a cost accounting system, so that reasonably reliable production costs can be ascertained. The cost accountant may produce a simple cost statement, which may look like this:

	A	B	C	Total
	£	£	£	£
Materials consumed	4,800	3,700	6,500	15,000
Wages	1,500	2,500	3,000	7,000
Production overhead	500	600	900	2,000

Table continued

# 1. INTRODUCTION

	<i>A</i>	<i>B</i>	<i>C</i>	<i>Total</i>
	6,800	6,800	10,400	24,000
Administration overhead	700	800	500	2,000
Selling and distribution overhead	300	400	300	1,000
Total cost	7,800	8,000	11,200	27,000
Sales	10,240	10,800	8,960	30,000
Profit	2,440	2,800	—	3,000
Loss	—	—	2,240	—
Profit (%)	24	26	—	10

This statement clearly reveals to management that Products A and B are obtaining approximately 25 per cent profit, but that Product C is pulling down the total profit to 10 per cent. Ignoring such items as plant capacity, plant utilisation, volume of sales, etc., there are four possible courses which management may follow:

- Investigate thoroughly Product C to find possible economies.
- Stop production of C.
- Increase selling price of C.
- Produce C as a "loss-leader", i.e. produce and sell C in the hope of encouraging consumers also to buy A or B.

The cost accountant points out the facts and, where possible, suggests remedies; management must make the final decision on policy. For example, if course (b) was followed, the overhead which had been absorbed by Product C may have to be absorbed by Product A and B, or if course (c) was followed, market research may have to be employed to determine consumer reactions.

*Examination questions on Chapters 1-4 are given at the end of Chapter 4.*

## Chapter 2

# The Elements of Cost

### The Analysis and Classification of Cost

If management is to be provided with the data required for cost control it is necessary to analyse and classify costs.

A classification has to be made to arrive at the detailed costs of departments, processes, production orders, jobs or other cost units. The total cost of production can be found without such analysis, and in most instances an average unit cost could be obtained, but none of the advantages of an analysed cost would be available.

Generally speaking, all expenditure may be divided into groups corresponding to the activities of a manufacturing concern, as follows:

- |                                     |   |                                     |
|-------------------------------------|---|-------------------------------------|
| (a) Producing departments or shops. | } | Expenditure of<br>manufacturing. .. |
| (b) Service departments.            |   |                                     |
| (c) Works expenses.                 |   |                                     |
| (d) Administration expenses.        |   |                                     |
| (e) Selling expenses.               |   |                                     |
| (f) Distribution expenses.          |   |                                     |

Again, total cost can be separated under three broad headings, namely, Materials, Labour and Overhead, and these three groups of expenditure are known as the elements of cost.

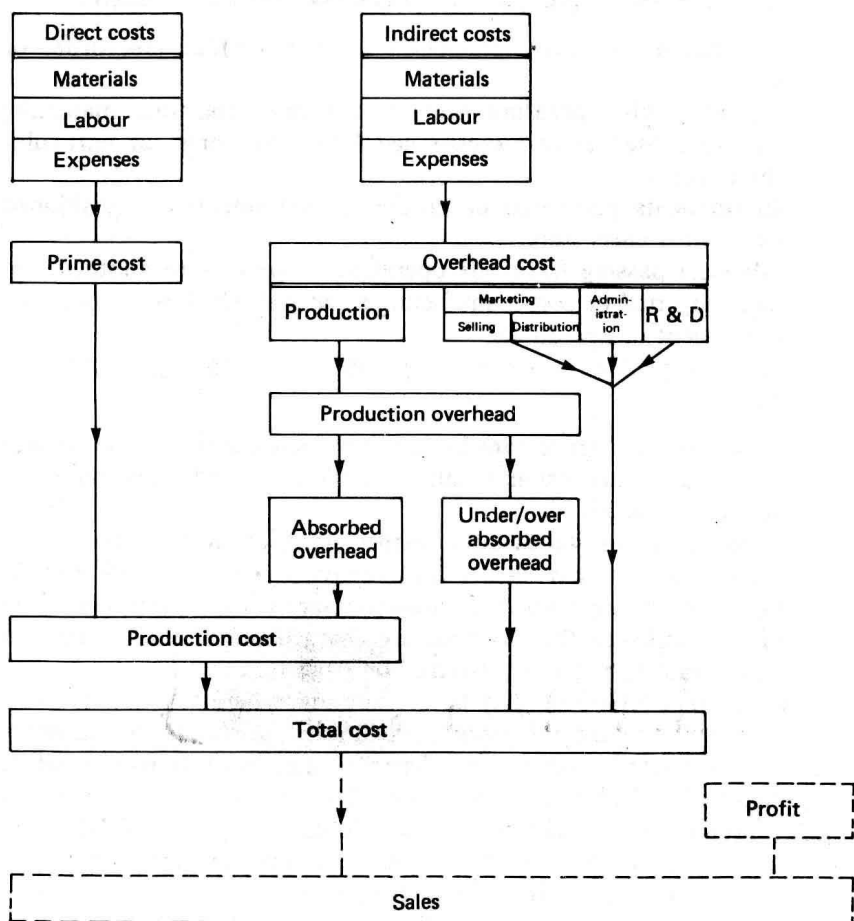
### THE ANALYSIS OF TOTAL COST

The total expenditure incidental to production, administration, selling and distribution may be analysed by the cost accountant as follows:

- |                                 |   |                  |   |                         |  |  |  |  |
|---------------------------------|---|------------------|---|-------------------------|--|--|--|--|
| (a) Direct material.            | } | Production cost. | } | Total cost of<br>sales. |  |  |  |  |
| (b) Direct wages.               |   |                  |   |                         |  |  |  |  |
| (c) Direct expenses (if any).   |   |                  |   |                         |  |  |  |  |
| (d) Overhead                    |   |                  |   |                         |  |  |  |  |
| (i) Production                  | } |                  |   |                         |  |  |  |  |
| 1. Departmental.                |   |                  |   |                         |  |  |  |  |
| 2. General.                     |   |                  |   |                         |  |  |  |  |
| 3. Services.                    |   |                  |   |                         |  |  |  |  |
| (ii) Administration.            |   |                  |   |                         |  |  |  |  |
| (iii) Selling and distribution. |   |                  |   |                         |  |  |  |  |

## 2. THE ELEMENTS OF COST

Diagrammatically this can be shown in Fig. 1.



[ICMA terminology]

Fig. 1.—Elements of cost.

NOTE: 1. The above chart is based on the absorption costing principle.

2. In the case of marginal costing the amount of production overhead absorbed would relate to the variable element only.

The first three items constitute prime cost, so that the elements of cost may be said to comprise prime cost and overhead. Each item is defined and explained below.

### DIRECT MATERIAL

Direct material is all material that becomes a part of the product, the costs of which are directly charged as part of the prime cost. In other words, it is

## 2. THE ELEMENTS OF COST

the material which can be measured and charged directly to the cost of the product. The following groups of materials fall within the definition:

(a) All material specially purchased for a particular job, order or process.

(b) All materials (including primary materials and raw materials) acquired and subsequently requisitioned from the stores for particular production orders.

(c) Components purchased or produced, and similarly requisitioned from the finished parts store.

(d) Material passing from one operation or process to another, e.g. produced, converted or part-manufactured material which is intended for further treatment or operations.

(e) Primary packing materials (e.g. cartons, wrappings, cardboard boxes, etc.).

The following descriptions are used in the same sense as direct materials: process material; prime cost material; production material; stores material; constructional material.

Items such as import duties, dock charges, transport of materials, storing of materials, cost of purchasing and receiving materials and cost of rectifying materials are proper additions to their invoiced price, and when this course is followed the materials are charged out at this augmented initial cost. Indirect material is covered on page 164.

*Raw material.* Reference may be usefully made here to the term "raw material". In the majority of instances the finished product of one industry is the raw material of another. Thus sheet steel may be the finished product of the steel rolling mill, but the raw material of a metal-cutting works. The finished product of a wool-spinning mill becomes the raw material of the weaving mill. Pulp board is the finished product of mills which pulp timber, but this is part of the raw material of the paper mill.

Circumstances arise when some direct materials are used in comparatively small quantities, and it would be a futile elaboration to make an analysis of them for the purpose of a direct charge. In the manufacture of hats or sewn boots it would be absurd to measure the value of the thread; or, in making cardboard boxes, to determine the glue cost for fixing strips of linen used for binding the corners. Such direct material as this should be treated as a production expense item.

### DIRECT WAGES

Direct wages are incurred in altering the construction, composition, conformation or condition of the product. The wages paid to skilled and unskilled workers for this purpose can be allocated specifically to the particular cost accounts concerned.

Other descriptions sometimes used are: process labour; productive labour; operating labour. Indirect wages are dealt with on page 165.

## 2. THE ELEMENTS OF COST

In practice there are often circumstances which permit of wages of certain classes of labour which are more commonly regarded as indirect wages being included under the heading of direct wages. This could be the case when labour, while not directly expended in altering the material or condition of the product, is specifically connected with such activity and can be accurately so identified for costing purposes. In such circumstances the wages of those directly involved in handling a particular product to the finished store or despatch may be regarded as direct. The particular circumstances within certain industries make this practicable.

In a few exceptional circumstances wages in respect of the following may be treated as direct wages: general labour, foremen, charge hands, inspection, shop clerks, internal transport, and trainees; they are, however, normally indirect wages.

### DIRECT EXPENSES

Direct expense includes any expenditure other than direct material or direct labour directly incurred on a specific cost unit. Such special necessary expense is charged directly to the particular cost account concerned, as part of the prime cost. Examples of direct expenses (sometimes also known as "chargeable expenses") are as follows:

- (a) Hire of special- or single-purpose tools or equipment for a particular production order or product.
- (b) Costs of special layout, designs or drawings.
- (c) Maintenance costs of such equipment.

### OVERHEAD

The three elements of cost just described constitute prime cost, and all expense over and above prime cost is overhead. Prime cost plus production overhead represents production, or factory, cost.

"Overhead" may be defined as the cost of indirect material, indirect labour and such other expenses, including services, as cannot conveniently be charged direct to specific cost units. Alternatively, overheads are all expenses other than direct expenses.

In general terms overhead comprises all expenses incurred for, or in connection with, the general organisation of the whole or part of the undertaking: in other words, the general cost of operating supplies and services used by the undertaking, and including the maintenance of capital assets.

The main groups into which overhead may be subdivided are the following:

1. Production overhead, including services.
2. Administration overhead.

3. Selling overhead.  
4. Distribution overhead. } Sometimes combined.

Overhead may also be classified as fixed overhead and variable overhead and this aspect of expense analysis is discussed on pages 425 and 426.

### Production Overhead

This category covers all indirect expenditure incurred by the undertaking from the receipt of the order until its completion ready for despatch, either to the customer or to the Finished Goods Store. Any expenses not taken to account as a direct expense are known as overhead. Other terms used are factory overhead and works overhead.

Examples of production overhead are as follows:

(a) Rent, rates, and insurance chargeable against the works, excluding any which can be apportioned to the general administration offices, selling departments, warehouse and distribution.

(b) Indirect wages, e.g. supervision, such as salary of works managers, wages of foremen, etc.; shop clerical work; testing, gauging and examining; indirect wages in connection with production shops.

(c) Power (steam, gas, electric, hydraulic, compressed air) and other services in aid of production; process fuel; internal transport; canteens, etc.

(d) Consumable stores, and all forms of indirect material, i.e. material which cannot be traced as part of the finished product, such as cotton waste, grease and oil, small tools, etc.

(e) Depreciation, maintenance and repairs of buildings, plant, machinery, tools, etc.

(f) Sundry expenses re personnel, such as employment office, works police, rewards for suggestions and all forms of welfare, such as canteens, recreation, first aid, works entertainments, works newspapers, radio music and safety first.

*Indirect material.* In its strict sense, indirect material is material that cannot be traced as part of the product. It usually comprises materials required for operating and maintaining the plant and equipment, commonly called "consumable stores" (e.g. lubricants, cotton waste, belt fasteners) and items like hand tools and works stationery. Sometimes minor items of material which enter into production are treated as indirect material because of the futility of attempting minute analysis, as mentioned above in the last paragraph of the section dealing with direct materials (page 9).

*Indirect wages.* This may be defined as wages incurred that do not alter the construction, conformation, composition or condition of the product, but which contribute generally to such work and to the completion of the product and its progressive movement and handling up to the point of despatch. It is sometimes referred to as "non-productive" labour, but this is



an inaccurate description, and one which has fallen into disuse as being contrary to modern ideas. Under this heading are included the following:

Supervisors, foremen and chargehands.

Inspection.

Labourers and general handling of work and materials.

Storekeepers.

Work checkers and recorders.

Maintenance services, oilers, cleaners and repairers.

Instructors.

Transport.

Drawing office.

Tool room.

Works clerical staff.

Idle time of operatives.

Works police, gatemen, etc.

Welfare services.

Any wages which cannot be identified as directly chargeable to prime cost as direct wages.

Whether materials or wages are indirect or otherwise largely depends on circumstances obtaining in particular businesses.

### **Administration Overhead**

This consists of all expense incurred in the direction, control and administration (including secretarial, accounting and financial control) of an undertaking.

Examples are the expenses in running the general offices, e.g. office rent, light, heat, salaries and wages of clerks, secretaries and accountants, credit approval, cash collection and treasurer's department, general managers, directors, executives; legal and accounting machine services; investigations and experiments; and miscellaneous fixed charges.

### **Marketing Cost**

This is defined in the *Terminology* as follows:

"The cost incurred in researching the potential markets and promoting products in suitably attractive forms and at acceptable prices."

It is further analysed thus:

*Selling cost*—Cost incurred in securing orders, usually including salesmen's salaries, commissions and travelling expenses.

It includes salaries and commission of sales manager, travellers and agents; training of salesmen and sales correspondents; the cost of preparing tenders and estimates for special selling projects; sales stock shortages; rent of salerooms and offices; consumer service and service after sales, etc.;