

## INTRODUCTION

We are all familiar with the general use of the words 'costs' and 'costing'. When an article or service is bought the 'cost' is the price paid. The 'costing' of that article will be made up of such items as raw materials costs, labour costs, and processing costs, and finally profit.

Putting this into a training context, we see that external courses have a price, which is a cost to an organisation sending trainees. Training taking place inside the organisation also incurs costs in time, materials etc. These costs are more difficult to establish than the straightforward invoice for an external course. Even more difficult to quantify are the costs of work not done because of the training activity, e.g. loss of sales whilst sales staff are being trained.

## REAL COSTS AND OPPORTUNITY COSTS

Costs may be divided into two groups - **real costs** and **opportunity costs**. Real costs are those that involve spending resources because of a particular action or decision. Included in real costs are such items as trainees' pay, staff salaries, cost of materials used, and equipment purchased.

The second type of costs, and much more difficult to quantify, are opportunity costs. These are the notional costs incurred by undertaking one activity rather than another. Thus, training incurs an opportunity cost because the trainees, trainers and plant, materials and equipment could all be used in other ways to benefit the organisation. Opportunity costs of training arise from use of capital and manpower resources in the training activity. Capital is employed through the plant, machinery and buildings used for training and the purchase and storage of material. Manpower resources are trainees, trainers, and the supporting administration, all of who could be employed in other activities. The opportunity cost of capital is the return that could have been achieved by using these resources for productive output. Similarly, the opportunity cost of manpower is the output that could have been gained if everyone concerned in training was employed instead in some directly productive activity.

In staff development programmes the opportunity cost of training may be the cost of replacing the trainee in the job during training.

Opportunity costs are generally omitted from costing exercises because they are difficult to quantify. They should be considered if the **total costs** of an activity are being reviewed or a cost/benefit study is undertaken.

## THE COST CENTRE AND THE COST UNIT

A cost centre is a place or activity that incurs costs. So a cost centre may be a factory, an area of the factory such as the training centre, an organisational division such as a production department or training department or an activity such as distribution, purchasing or training. Cost centres are arbitrarily defined to meet the needs of the accountants or other persons undertaking the costing.

A cost unit is the unit of output being costed and may be, for example, a bolt, a car, a computer from a factory or a graduate from a university, or a trained person from a training centre. All the costs of producing the output are gathered and a cost per unit produced can be calculated. For mass-produced items, the costs are averaged out over the total output for a fixed period. Specially produced items (e.g. a tailor-made suit) may be costed individually.

The **cost centre** and **cost unit** are useful concepts, which enable costs to be analysed and provide useful information for management. If it suits your purpose, a training programme can be treated as a cost centre and those undergoing training in it as the cost units. Alternatively, the training department can be the cost centre and training programmes treated as the output, i.e. as cost units.

## **TYPES OF COST**

There are many terms used in costing used loosely in every day conversation. Here we will define them more rigorously to enable you to use them. Beware, however, of other people using these terms and not meaning the same thing.

It is part of the costing process to identify different types of cost which helps both in placing costs against cost centres and in analysing the costing when completed.

### **Direct and indirect costs**

Direct costs are those directly attributable to the activity being costed. In a training programme the pay of trainers and trainees during training are a **direct cost**. Other direct costs incurred by a training programme which will be allocated to it as a cost centre, are materials used during training and expenses incurred. Expenses may be travel, accommodation, protective clothing etc. For all direct costs, the expenditure can be traced directly to the cost centre.

Indirect costs are those that are necessary expenditures for the cost centre to operate but are not directly attributable to its activities. Such expenditures as rates, rent, insurance, heating, lighting, administration, have to be paid but are difficult to attribute to specific cost centres.

If these expenditures were not made, the normal activities of the other cost centres could not take place, therefore some portion of these indirect costs must be included in the costing for each cost centre. These indirect costs are also commonly called '**overheads**'. Training activity will incur overheads from the common resources it uses from the organisation. Training may, in turn, be charged as an overhead to other cost centres.

### **Fixed and variable costs**

Fixed costs are those that are independent of the level of activity in the cost centre. Rent, rates, and salaries, are fixed costs for the training department however much or little training is undertaken. Notice, however, that this is true only in the short-term as premises can be expanded or contracted, staff recruited or made redundant, etc.

Variable costs are those that change with the activity in a cost centre. The major variable costs are labour, materials and direct expenses. This follows because the more output produced by a cost centre the larger the input of labour and material required.

The distinction between **fixed** and **variable** costs helps in the analysis of costing data. The costed figure for a training programme consists of fixed and variable costs. Consider a residential course taking place in a hotel. Fixed costs will be tutors, the hire of lecture rooms, and provision of equipment. Variable costs, depending upon the number of trainees, and provision of equipment. Variable costs, depending upon the number of trainees, will be meals, accommodation, handouts etc. Variable costs will increase with the rise in number of trainees.

### Marginal costs

Marginal or incremental costs are those additional costs incurred by producing one more unit of output above the current level of production. In manufacturing, the marginal cost is the extra labour, materials, and direct expenses, used in producing one more unit. All overheads are ignored, as these will be incurred anyway. The marginal costs of one additional trainee would be the costs attributable to that trainee only - the pay, the materials used, and any direct expenses incurred (e.g. travel). The marginal cost can be a useful guide to the real cost of sending one more trainee on a course, as the overheads (e.g. trainer's salary) will remain constant. Remember, however, that increasing the number of trainees beyond a certain point may reduce the effectiveness of the course.

### PROCESS OF COSTING

The process of costing can be summarised into four stages:

Stage 1 Accumulate costs

Stage 2 Classify costs

Stage 3 Allocate direct costs

Stage 4 Apportion indirect costs

Accumulation of costs involves receiving invoices from outside organisations, maintaining records of transfer prices within the organisation and recording such items as wages of employees.

Costs are classified, according to the purpose of the costing exercise into categories giving the type of expenditure and the cost centre incurring it.

Allocation of costs occurs when those direct costs incurred by a cost centre are attributed to it. An example of a direct cost, which would be allocated to the training centre, is the pay of instructors.

Apportioning costs is the distribution of overheads and is much more difficult. Training incurs overheads or indirect costs, which have to be apportioned from such things as rent, rates, fuel bills, administration etc. It is impossible to calculate exactly what proportion of these costs should be apportioned so some formula is adopted by the accountants, which they consider fair. However, because such decisions tend to be arbitrary, it is possible for one form of training to appear rather than be, much cheaper than another. For example, external courses may appear much cheaper than internal training. However, if the direct costs of internal training are significantly less than the cost of external courses, it may be worth asking 'What would happen to the overheads if no internal training takes place?' If the answer is that they would still be incurred they should be apportioned to the total cost of external training.

### COSTING A PRODUCT

Let us now consider the costing of a product. For simplicity we shall consider a 'jobbing shop' where every item produced is for a specific customer's requirements and labour and material costs are 'booked' against the job. All the documents have been accumulated and classified in the costs office and are available. It is now a matter of allocating and apportioning these costs to arrive at a total cost.

First, the direct costs are collected, which are labour, materials, and direct expenses:

Total cost = Direct costs + Indirect costs

or **Prime cost + Overheads**

Direct costs:	Labour	]	Prime cost
	Materials	]	
	Direct expenses	]	

Indirect costs:	General	]	
	Administration	]	Overheads
	Sales	]	
	Distribution	]	

The total of direct costs is called the **prime cost**. This is the cost to the organisation before overheads are considered. Labour costs would be the wages for all hours booked to the job. Designer's and draughtsmen's time will also be included if appropriate. Materials is the cost of materials used in producing the product. Direct expenses will be those costs incurred purely to do this job. If the job were to be installed by the manufacturer on site then travelling and residential costs of fitters would be charged as direct expenses.

Indirect costs or **overheads** are made up of several elements, the first being general overhead. General overhead will be an apportioning of such costs as building and machine maintenance, cleaning, heating, fuel calculated on some formula such as length of time a job was in the shop, area it occupied, etc. Administration costs will be some proportion of administration, personnel, training and management's costs - again apportioned on some equitable basis. Sales and marketing costs are incurred in interesting the customer in the placing of an order so a proportion is charged to the product. Distribution costs may be incurred not only in sending the finished goods to the customer but also in packaging and storing. Collection, storage, and handling of raw materials are also costs that may be charged under distribution.

There are many ways of allocating and apportioning costs. No two accountants, given a free hand, are likely to come out with the same answer. This does not matter really, so long as all costs are included and that **within** the organisation **consistency** is maintained.

Overheads are sometimes thought of as an unfair burden on the individual cost centre. However, remember, without those overheads heating would not work, no one would ever clean the place, wages would not be **paid**! Also, remember that whilst administration may be an overhead charged to training, training in turn becomes an overhead charged to departments for which training is undertaken (or perhaps to every department whether training is undertaken on their behalf or not!).

The apportioning of overheads such as heat, light and maintenance, may seem arbitrary. It is possible to devise systems to calculate accurately such items as the maintenance cost of individual machines. Electricity meters may be connected to every machine and every room. Each telephone could be metered individually. However, the costs of installing, operating, and maintaining such systems generally outweighs the benefit of breaking costs down into such small units.

**COSTING A TRAINING CENTRE**

In costing a training centre the following specific items might appear:

Charge to training centre

Direct :           Wages  
                  Materials  
                  Fees & Expenses : external courses, guest speakers  
                  Energy (separately recorded)  
                  Maintenance (separately recorded)  
                  Building

Indirect: Insurance

Rent  
Rates  
Depreciation  
Administration  
Miscellaneous

**Wages**

This would be the wage bill for instructors and possibly the wages of trainees. Anyone employed directly and solely in the training centre should be charged as a direct cost.

Wages may include fringe benefits of employees, i.e. the total cost to the employer not the amount of pay received by staff.

**Materials**

The materials used in the training centre for demonstration and practice purposes should be charged to the training centre. If useful items are produced which are used elsewhere in the organisation then some credit should be allowed.

**Energy**

The fuel bills for air conditioning, heating, lighting and power should be allocated if separately recorded through metering systems otherwise it will be apportioned part of total site costs.

**Maintenance**

Plant and machinery needs to be kept in safe and serviceable condition. This means that regular servicing and overhauls must take place. If outside contractors come in then their bill becomes a direct cost; if a maintenance workforce is kept in the training centre then labour and material costs can be determined, if the factory maintenance staff come in as necessary then the cost will be apportioned.

**Building**

The fabric of the building needs regular attention, painting, repairs and modifications, all incur costs for which provision must be made. If the centre costs can be separated out then they are allocated, otherwise they must be apportioned.

**Fees and Expenses**

Fees can be incurred by the training centre through the use of external courses, speakers and visits. Travel, accommodation, laundry, protective clothing, prizes etc. may be included.

**Insurance**

Special insurance costs of the training centre can be allocated; the general organisation's insurance policy costs may be apportioned.

**Rent**

The accommodation costs may be allocated if rented separately from the rest of the organisation. Depending upon the way the accounting system of the organisation is arranged some figure for accommodation costs may be apportioned to all cost centres. This will represent the cost of providing the accommodation rather than real rent paid to an independent landlord.

**Rates**

Either allocated or apportioned depending on circumstances.

**Depreciation**

This is a notional cost charge to represent the proportion of capital employed, which has been used up during the activity being costed. In fact it is not a real cost at all, but is the provision for capital consumed. Thus, a machine with an anticipated useful life of ten years has 10% of its cost charged as depreciation each year.

There are numerous ways of calculating a figure for depreciation and it may be changed depending upon the reason for calculation. The fact that overheads are allowed as an expense for tax purposes normally affects what is done. The quicker the tax rules let the organisation 'write off' its capital investments as depreciation the less tax there is to pay and the more money is available for reinvestment. A machine may, in practice, have a life of twenty years but be written down over ten because that is the standard adopted.

**Administration**

Administration costs will be incurred in arranging for trainees to attend the training centre, administering the needs of the staff, and arranging such things as maintenance etc. Administration costs charged to the training centre may come from the training department and the organisation's central administration.

**Miscellaneous**

Any charges that are incurred in running the training centre which do not appear elsewhere can be included here. Examples might be a contribution towards the cost of stock holding and handling where materials are drawn from central stores.

In a similar way, the training department may be treated as a cost centre. Double counting should be avoided if training department and training centre are treated as separate cost centres e.g. charging both for instructors' salaries.

### COSTING A TRAINING PROGRAMME

Costing of particular training programmes may proceed from costing the training centre and training department, or be carried out independently. Average cost per trainee in each programme can be calculated directly from the costing of a training programme. The process is identical to that of costing any other cost centre. The only difference is that a training programme is an activity rather than a place.

Cost of training programme

Direct :        Labour  
                  Material  
                  Expenses

Indirect :    Administration  
                 Accommodation (rent, rates, maintenance)  
                 Fuel  
                 Depreciation  
                 Other

Total Cost : \_\_\_\_\_

Labour costs would include design of training and preparation time by trainers where the work is done in the organisation's time.

$$\text{Average cost per trainee} = \frac{\text{Total Cost}}{\text{Number trainees}}$$

If you wish to correct for differing wage rates amongst trainees, omit trainee wages from gross cost.

$$\text{Cost per trainee} = \text{Wage costs of trainee} + \frac{\text{Total Cost}}{\text{Number trainees}}$$

### COSTING TYPES OF TRAINING

Training can be classified into three broad types which have some significance in costing. They are:

- On-the-job training
- Off-the-job training
- External training

On-the-job training is very difficult to cost because part of the trainee's time is spent contributing useful output. On the job training for management and supervisory jobs is particularly difficult to cost because there is no standard in time taken or materials used against which to judge the trainee's performance.

Off-the-job training involves the costing procedure outlined here. It can be difficult, if not impossible, to extract the costing information and the overhead figures are often rather arbitrary. The division of instructor's time between various training programmes and the usage of materials by individual groups may be poorly recorded.

External courses are the easiest to cost because most of the expenses are easily identifiable items. The costs include course fees, accommodation, travel and other expenses, plus wage costs of the participant.

Whilst a trainee is outside the organisation there is an **opportunity cost** incurred. This may be the cost of employing someone else to do the trainee's job, paying overtime to other staff, or loss of output.

### **WHY COST TRAINING?**

The costing of training may be undertaken for several different reasons. Some of these are considered below:

#### **Control**

To control an activity you need to have some measure of how much of your resources are being devoted to it and whether it is consuming more or less relative to other activities. Control may be exercised within departments or sections or overall for a division or even the whole organisation. Accounting offers an attempt at quantifying, in money terms, all the resources that are being expended on a particular activity.

#### **Decision-making**

Costing is useful in reviewing past training and deciding whether it is worth continuing or repeating particular training programmes. With the greater pressure than ever on budgets, costing is vital to establish whether sufficient resources are available to undertake training and, if not, whether to seek out alternative resources or cancel the training. It is very useful to cost out training programmes to see the relative costs of different schemes, so enabling priorities to be established. If spending has to be cut, costing will show where this can be done with least damage to the organisation's training requirements.

#### **Preparing budgets**

The annual training budget may be determined from a report submitted by the training department. This should be based on the plans for meeting identified training needs and the costing of training required to meet those needs. The costing of specific programmes allows priorities to be considered by senior management in allocating the budgets. Budgeting in this way is much better than the 'last year's budget + 10%' approach.



### Justify expenditure

'The training budget was overspent by 25% last year - why?' Costing of training allows you to account for the expenditure on the various activities. It can show what was spent on essential training and what might be considered as inessential spending.

### Funding Agencies

Funding agencies may be interested in the cost of training, which has been undertaken and may require cost breakdowns of training activities as a basis of grant calculations or as a condition of qualifying for a grant. They may just request cost breakdowns of various types of training to help them carry out their own responsibilities.

### Comparison

Figures allow some comparisons to be made between training programmes in terms of cost-effectiveness. More does not always mean better and some measure of relative levels of expenditure between organisations or parts of organisations can be a useful indicator.

### Cost-benefit analysis

This sophisticated technique attempts to measure all costs and benefits of a particular scheme, - to see whether the benefits exceed the costs. It is usually applied to major capital projects like airports or motorways but is equally applicable to training. Benefits are usually more difficult to assess than the costs because they are not easily quantifiable and will accrue overtime, whereas the costs occur during the project.

## REVIEWING COSTS

One of the benefits of costing is that it enables costs to be reviewed thereby giving some measure of control of future expenditure and information upon which to base future decisions.

Five questions to ask of each item when reviewing costs:

Significance

Accuracy

Reliability

Range

Change

### Significance

A great deal of effort can be put into chasing costs. Getting accurate but unimportant information can waste valuable resources. Looking into the reasons why stationery costs rose Rs1000 last year may be a waste of limited time if overall costs went up by Rs300, 000.

### Accuracy

How accurate are the figures presented in the cost breakdown? They may be accurate to the nearest paise or rounded to the nearest Rs100. If overhead, then the accuracy may be spurious, e.g. training school takes 1/64th of general overhead, which is Rs12,746,190.55 paise. The calculation is accurate to one paise but is only an apportionment of a large sum on an arbitrary basis.

### Reliability

This is the reverse face of accuracy because reliability questions whether the figures are likely to come out the same if repeated. A manager or accountant who has given some figure as a rough estimate might quote a different figure, if asked again.

**Range**

Looking at the two extreme figures for say, materials used in last year's training programmes for craft apprentices gives some measure of what is reasonable and unreasonable. If the difference is very great, it may be worth looking into. On the other hand, if they all come out near enough the same you may accept that as reasonable.

**Change**

An analysis of changes that have taken place can be very revealing, answering such questions as:

How do these costs compare with last year's figures?

What changes have taken place and why?

Why have wage costs rise 25% in the last financial year?

Is there anything we can do about it?