

## Module 10 – Allocating Costs to Jobs and Processes

### 10.1 Introduction

- It is only through the understanding the details of cost gathering and allocation that managers can review alternative systems which may be more in tune with their objectives
- This module concentrates on the tracking and controlling functions of cost systems – only when managers are aware of how these requirements are satisfied will they be in position to assess their informational needs for planning and choosing

### 10.3.1 Where do Materials Costs come from?

- Materials are drawn from inventory and this action triggers the raising of a stores requisition slip
- On this slip is quantity and time the withdrawal took place, but not price – this would be too time consuming to work out for each slip
- Instead of the stores people tracking the purchase price of each item of material, a standard price would be used over say three months that would attempt to take into account price fluctuations
- Any differences between actual purchase price and standard price would be accounted for in P&L at end of the given period

### 10.3.2 Where do Labor Costs come from?

- For each identifiable cost item a time record would be attached on which each individual working directly on the job would enter the time spent
- When different workers receive different hourly rates of pay for working on the same cost item, a standard wage rate is used (similar to standard price for materials, above)

### 10.3.3 Where do Overhead costs come from?

- Both Manufacturing and Non-Manufacturing costs are indirect as they cannot be linked directly to the outputs of production
- Manufacturing Overheads include – supplies of low value high use components such as screws, glue; factory heating and lighting, machine maintenance and depreciation
- Non-Manufacturing Overheads include administration, selling and distribution, bank interest, managerial salaries
- Overhead cost must first be gathered into cost centers – pockets of activity for which individual managers may be held responsible
- A expenditure level would be set for each cost center beyond which an individual manager may not go without approval
- Allocating overhead cost is more difficult than gathering it – accountants use a predetermined overhead rate to spread overheads across the units of production:

$$\text{Predetermined Overhead Rate} = \frac{\text{Budgeted Overhead for Accounting Period}}{\text{Budgeted Production Units}}$$

Example: A business sells one product which contains \$5 direct material and \$10 direct labor. The plan is to manufacture 10,000 units of the product and the estimate of total overheads is \$100,000.

The predetermined overhead rate =  $\$100,000/10,000 = \$10$  per unit. So:

Cost Profile for product (\$)	
Direct Material	5
Direct Labor	10
Share of Overhead	<u>10</u>
Total Cost	25

- Difficulties arise when a company is producing multiple products which each consume different proportions of the factors of production including overhead
- Cost accountants then search for causal factors or activity bases – the one factor which prompts the incidence of most of the headings of cost which make up overhead
- Examples of activity bases include direct labor hours (used where the overhead is people related) or machine hours (used where machines have replaced people)
- The resulting predetermined rate (expressed in terms of the activity base) is applied to individual products using these products' consumption of the causal factor.

Example: Same example as above, let's use direct labor hours as the causal factor. The business plans to spend 25,000 direct labor hours next year and that this product (one of several) takes 2 hours to construct by direct labor staff.

Predetermined overhead rate =  $100,000/25,000 = \$4$  per Direct Labor Hour

*{Note: this overhead rate applies to all products, not just this one}*

Share of overhead = 2 hours x \$4/hour = \$8 per unit

Cost Profile for product (\$)	
Direct Material	5
Direct Labor	10
Share of Overhead	<u>8</u>
Total Cost	\$23

- It is virtually impossible to estimate accurately the total overheads for next year (the \$100,000) and the level of production expressed in terms of the activity base (the 25,000). The difference between actual and planned overhead is accounted for in the P&L

Example: Lets say in the example above the actual overhead figure was \$105,000 and that production was equivalent to 26,000 direct labor hours:

Overhead applied to products =  $26,000 \times \$4 = \$104,000$

Actual Overhead = \$105,000

Underapplication charged to P&L as an increase in cost of goods: \$1000

#### 10.4 Plantwide versus Departmental rates

- It is unrealistic to assume that one activity base can explain more than a handful of overhead costs, far less the majority or them

- For example, direct labor hours may be a good activity base for supervision costs but it is not good for selling and distribution costs
- Departmental overhead rates allocate overheads to particular departments and then identify the activity base for each department

Example:

Three service depts and two production depts are used to manufacture heavy lifting gear. Here are their cost estimates for next year:

	Overhead (\$)	Square Meters Occupied	No. of employees	Service Hours
Forging	252,500	4500	50	450
Welding	113,750	3000	100	75
Personnel	218,000	1800	30	225
Computing	100,750	12,000	20	4500
Site Maintenance	73,500	16,500	10	1500
	758,500	37,800	210	6750

- The aim of overhead cost allocation is to apply costs to the products of the business
- Since cost flow through production depts and not service depts, the first step is to transfer service dept costs to production dept so as to attach them to products
- There are two main methods of doing this – direct and step methods

#### 10.4.1 The Direct Method

- In the direct method of overhead allocation, costs for each of the service depts are emptied out into the production depts and added to the overheads already there to calculate two predetermined overhead rates
- Take each service dept and use a suitable activity base to allocate its overhead costs to the two production depts
  - Personnel: number of employees (Forging: 50, Welding: 100)
  - Computing: service hours (Forging: 450, Welding: 75)
  - Site Maintenance: square meters occupied (Forging: 4500, Welding: 3000)
- Now empty overhead costs from service dept into production