

## Lesson 5:

### Elements of Costs: Overhead Cost

#### 5.1 Introduction

Overheads are known as indirect cost. In most organisations the costing system is set up to measure the costs of individual managers' areas of responsibilities, such as departments, work centres or activity centres. An indirect cost is one which cannot trace into a particular department, work centres or activity centres.

#### 5.2 Learning Outcomes

By the end of this lesson, you should be able to:

- define and explain overhead cost and classification of overhead cost;
- define allocation, apportionment and absorption and compute overhead cost; and
- identify and compute under/over overhead cost

#### 5.3 Required Readings

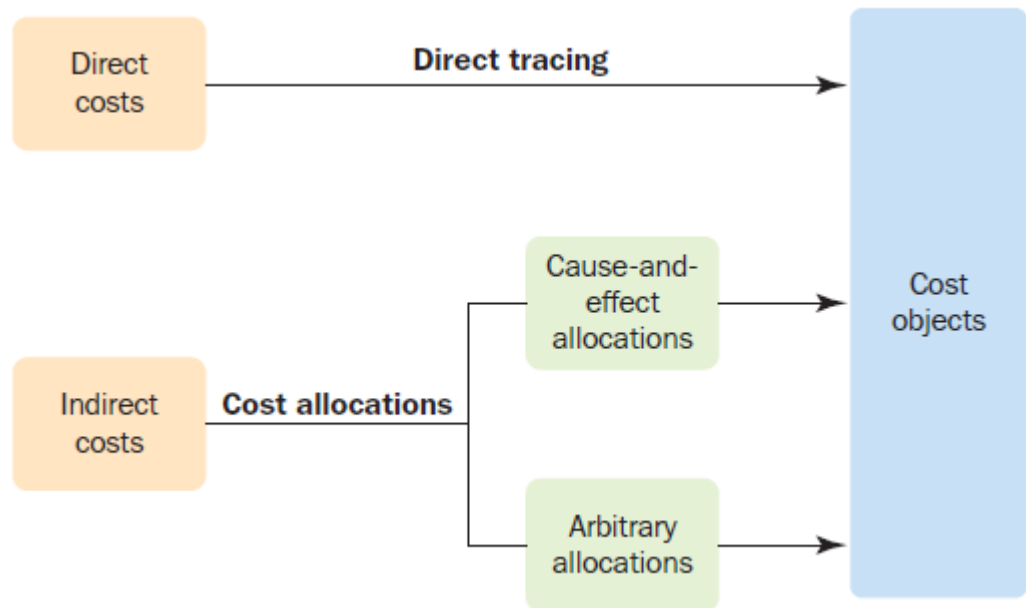
Drury, Chapter 3

#### 5.4 Points to Ponder/Takeaways

#### 5.5 Learning Material

##### 1. Overhead cost/ Indirect costs

Indirect costs cannot be directly traced to a cost object – therefore assigned to cost objects using cost allocations.



## 2. Cost centre overhead rates

- Where a department contains a number of different centres (each with significant overhead costs) and products consume overhead costs for each centre in different proportions, separate overhead rates should also be established for each centre within a department.
- The terms cost centres or cost pools are used to describe allocation to which overhead costs are initially assigned.
- Frequently cost centres/cost pools will consist of departments but they can also consist of smaller segments within departments.

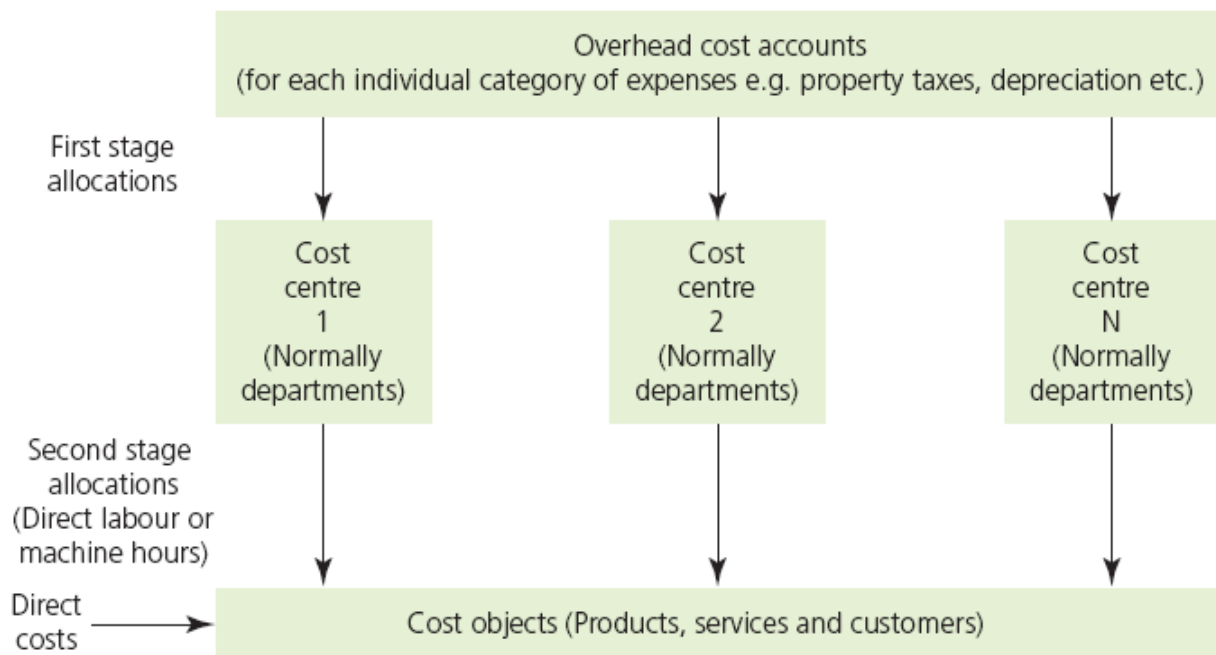
## 3.The two-stage allocation process

- To establish departmental or cost centre overhead rates a two-stage allocation procedure is required:

Stage 1 – Assign overheads initially to cost centres.

Stage 2 – Allocate cost centre overheads to cost objects (e.g.products)using second stage allocation bases/cost drivers.

## (a) Traditional costing systems



### 4. An illustration of the two-stage process for a traditional costing system

- Applying the two-stage allocation process requires the following 4 steps:

Assigning all manufacturing overheads to production and service cost centres.

Reallocating the costs assigned to service cost centres to production cost centres.

Computing separate overhead rates for each production cost centre.

Assigning cost centre overheads to products or other chosen cost objects.

5. Steps 1 and 2 comprise stage one and steps 3 and 4 relate to the second stage of the two-stage allocation process.

- Note that in the third stage above traditional costing systems mostly use either direct labour hours or machine hours as the allocation bases.

The annual overhead costs for a company which has three production centres and two service centres (Materials procurement and General factory support) are as follows:

		(£)	(£)
Indirect wages and supervision			
Machine centres:	X	1 000 000	
	Y	1 000 000	
Assembly		1 500 000	
Materials procurement		1 100 000	
General factory support		<u>1 480 000</u>	6 080 000
Indirect materials			
Machine centres:	X	500 000	
	Y	805 000	
Assembly		105 000	
Materials procurement		0	
General factory support		<u>10 000</u>	1 420 000
Lighting and heating		500 000	
Property taxes		1 000 000	
Insurance of machinery		150 000	
Depreciation of machinery		1 500 000	
Insurance of buildings		250 000	
Salaries of works management		<u>800 000</u>	<u>4 200 000</u>
			<u>11 700 000</u>

The following information is also available

	Book value of machinery (£)	Area occupied (sq. mtrs)	Number of employees	Direct labour hours	Machine hours
Machine shop: X	8 000 000	10 000	300	1 000 000	2 000 000
Y	5 000 000	5 000	200	1 000 000	1 000 000
Assembly	1 000 000	15 000	300	2 000 000	
Stores	500 000	15 000	100		
Maintenance	<u>500 000</u>	<u>5 000</u>	<u>100</u>		
	<u>15 000 000</u>	<u>50 000</u>	<u>1000</u>		

Details of total materials issues (i.e. direct and indirect materials) to the production centres are as follows:

	£
Machine shop X	4 000 000
Machine shop Y	3 000 000
Assembly	<u>1 000 000</u>
	8 000 000

To allocate the overheads listed above to the production and service centres we must prepare an overhead analysis sheet.

Item of expenditure	Basis of allocation	Total	Production centres		Assembly	Service centres	
			Machine centre X	Machine centre Y		Materials Procurement	General factory support
		(£)	(£)	(£)	(£)	(£)	(£)
Indirect wage and supervision	Direct	6 080 000	1 000 000	1 000 000	1 500 000	1 100 000	1 480 000
Indirect materials	Direct	1 420 000	500 000	805 000	105 000		10 000
Lighting and heating	Area	500 000	100 000	50 000	150 000	150 000	50 000
Property taxes	Area	1 000 000	200 000	100 000	300 000	300 000	100 000
Insurance of machinery	Book value of machinery	150 000	80 000	50 000	10 000	5 000	5 000
Depreciation of machinery	Book value of machinery	1 500 000	800 000	500 000	100 000	50 000	50 000
Insurance of buildings	Area	250 000	50 000	25 000	75 000	75 000	25 000
Salaries of works management	Number of employees (1)	<u>800 000</u>	<u>240 000</u>	<u>160 000</u>	<u>240 000</u>	<u>80 000</u>	<u>80 000</u>
		11 700 000	2 970 000	2 690 000	2 480 000	1 760 000	1 800 000
Reallocation of Service centre costs							
Materials procurement	Value of materials issued	-	880 000	660 000	220 000	(1 760 000)	
General factory support	Direct labour hours(2)	-----	<u>450 000</u>	<u>450 000</u>	<u>900 000</u>		<u>(1 800 000)</u>
		11 700 000	4 300 000	3 800 000	3 600 000	-	-
Machine hours and direct labour hours			2 000 000	1 000 000	2 000 000		
Machine hour overhead rate			£2.15	£3.80			
Direct labour hour overhead rate					£1.80		

## 6. Budgeted overhead rates

• Actual overhead rates are not used because of:

1. Delay in product costs if actual annual rates are used.
2. Fluctuating overhead rates that will occur if actual monthly rates are used.

### 6.1 Budgeted overhead rates

• An estimated normal product cost based on average long-run activity is required rather than an actual product cost (which is affected by month-to-month fluctuations in activity).

• - therefore use estimates of overhead costs and activity over a long-run period (typically one year) to compute overhead rates (i.e. £10 per hour in the above example).

Assume actual activity is 900 000 DLH 's and actual overheads are £2 million:

Overhead allocated to products = £1.8 million  
(900 000 × £2)

Under-recovery = £200 000

• Assume actual overheads are £1 950 000 and actual activity is 1 million DLH 's:

Overhead allocated to products = £2 million  
(1 million × £2)

Over-recovery = £200 000

- External financial accounting principles (GAAP) require that under/over recoveries are treated as period costs.

## 7. Non-manufacturing overheads

- Financial accounting regulations specify that only manufacturing overheads should be allocated to products.
- Non-manufacturing costs should be assigned to products for decision-making (Particularly cost-plus pricing).
- Simplistic methods, such as using direct labour hours, or a percentage of total manufacturing cost, are frequently used as allocation bases with traditional systems.

### Example

Manufacturing cost	= £1 million
Non-manufacturing overheads	= £500 000
Overhead rate	= 50% of manufacturing cost

- Simplistic methods do not provide a reliable measure of the non-manufacturing overheads consumed by products.
- ABC is advocated for providing a more accurate measure of resources consumed by products.