

Absorption (Total) Costing

DEFINITION

In this method of costing, all overheads (indirect costs) must be absorbed (recovered) by the products produced. This method of costing on the full production cost (direct plus indirect costs) of manufactured products.

NEW TERMS

1. **Direct Costs** – are those costs directly linked to a product being manufactured. Eg labour and materials needed to make the product.
2. **Indirect Costs** – those costs not directly linked to a product being manufactured (*also known as overheads*). Eg administrative and selling expenses.
3. **Fixed Costs** – those costs that do not change as the amount of products manufactured changes (in the short term). Fixed costs per product decrease as the level of production increases (and vice versa). Eg Rent expense.
4. **Variable Costs** – are those costs which change as the amount of products being manufactured changes. Variable costs per product do not change as the level of production changes. Eg Raw Materials.
5. **Total Costs** = Fixed Costs + Variable Costs
6. **Cost Centre** – any department or process in a business to which costs may be attributed

APPORTIONING COSTS TO PRODUCTION COST CENTRES

Direct costs and some indirect costs (overheads) can be identified and **allocated** to specific cost centres.

Other indirect costs (overheads) incurred are **apportioned** between cost centres on one of the following bases:

- a) Floor area
- b) Cost or Book Value of the assets in each centre
- c) Number or value of requisitions (orders)
- d) Number of personnel

In this way the Total Cost per cost centre can be calculated.

APPORTIONING SERVICE COST CENTRE OVERHEADS TO PRODUCTION COST CENTRES

Service cost centres provide services to the production centres. Eg Stores, Canteens Maintenance etc.

The overheads of service departments must be shared / apportioned between the Production Cost Centres in order to calculate the Total Cost of goods produced..

Methods of apportioning:

a) The Elimination Method

The costs of the service departments are apportioned between the Production centres and other service centres. Once the costs of one service centre have been apportioned it is eliminated from the next apportionment.

The basis of apportionment of the service centres could be:

- a) Floor area
- b) Cost or Book Value of the assets in each centre
- c) Number or value of requisitions (orders)
- d) Number of personnel

Example:

Stores must be apportioned on the basis of personnel

Canteen must be apportioned on the basis of number of requisitions

	Cutting	Sanding	Assembly	Stores	Canteen
No of personnel	20	10	30	5	5
No of Requisitions	15	5	10	2	7

Apportionment:

	Cutting	Sanding	Assembly	Stores	Canteen
Overheads	10 000	12 000	24 000	3000	6000
First Apportionment (<i>based on 65 staff</i>)	923	462	1385	(3000)	230
Second App (<i>based on 30 requisitions</i>)	3000	1000	2000		(6000)
TOTAL COSTS	<u>13923</u>	<u>13462</u>	<u>23385</u>	-	-

CALCULATING OVERHEAD ABSORPTION RATES (OAR)

Once overheads have been apportioned to production cost centres, the next step is to calculate the Overhead Absorption Rates.

NOTE: Overhead Absorption Rates are calculated on future planned volumes of production and overhead expenditure because the cost of production must be known in advance in order to set the selling prices for the products.

Methods of calculating Overhead Absorption Rates:

- a) On the basis of Direct Labour Hours (if production is labour intensive)

$$\frac{\text{Total budgeted expenditure}}{\text{Total budgeted labour hours}} \times \text{No of labour hours taken to produce one product}$$

Example:

A company plans to produce 10 000 units of P and 8 000 units of Q
Each unit of P requires 1 ½ hours to make and each unit of Q Takes ¾ of an hour
The total budgeted overheads for the company are \$131 250

Answer

$$\begin{aligned} \text{Total labour hours} &= (10\,000 \times 1\frac{1}{2}) + (8\,000 \times \frac{3}{4}) \\ &= 21\,000 \text{ hours} \end{aligned}$$

$$\text{OAR for P} = \frac{131\,220}{21\,000}$$

$$= \$6.25 \text{ per direct labour hour}$$

The overhead absorbed by one unit of P = \$6.25 x 1 ½ = \$9.37

The overhead absorbed by one unit of Q = \$6.25 x ¾ = \$4.69

Total overhead will be absorbed as follows:

$$P = 10\,000 \times \$9.37 = 93\,700$$

$$Q = 8\,000 \times \$4.69 = \frac{37\,520}{131\,220}$$

b) On the basis of Machine Hours (if production is capital intensive)

$\frac{\text{Total budgeted expenditure}}{\text{Total budgeted machine hours}} \times \text{No of machine hours taken to produce one product}$

c) On any other basis that management decide upon

Eg direct material costs; prime cost; direct wages

OVER – ABSORPTION AND UNDER- ABSORPTION OF OVERHEADS

Remember that Overhead Absorption Rates are calculated on future planned volumes of production and budgeted expenditure. It is most likely that the actual volume of goods produced and expenditure will be different from these forecasts.

This will result in overhead expenditure being either under or over absorbed.

Under-absorption – occurs actual expenditure is more than the budgeted figure and/or actual production is less than the planned level.

Over-absorption – occurs when actual expenditure is less than the budgeted figure and/or actual production is more than the planned level.

Example:

	2005	2006
Budgeted expenditure	\$200 000	\$240 000
Planned volume of production(units)	80 000	100 000
OAR =	$\frac{200\ 000}{80\ 000} = \\2.50	$\frac{240\ 000}{100\ 000} = \\2.40
Actual expenditure	\$215 000	\$230 000
Actual volume of production (units)	76 000	106 000
Overhead Recovered	76 000 x \$2.50 = \$190 000	106 000 x \$2.40 = \$254 400

Therefore in 2005, there was an under-absorption of:

$$\begin{aligned} & \$215\ 000 - \$190\ 000 \\ & = \$25\ 000 \end{aligned}$$

And in 2006 there was an over-absorption of :

$$\begin{aligned} & \$230\ 000 - 254\ 400 \\ & = \$24\ 400 \end{aligned}$$