

# Absorption Costing & Activity Based Costing

## Cost & Management Accounting

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# Absorption Costing

## Cost & Management Accounting

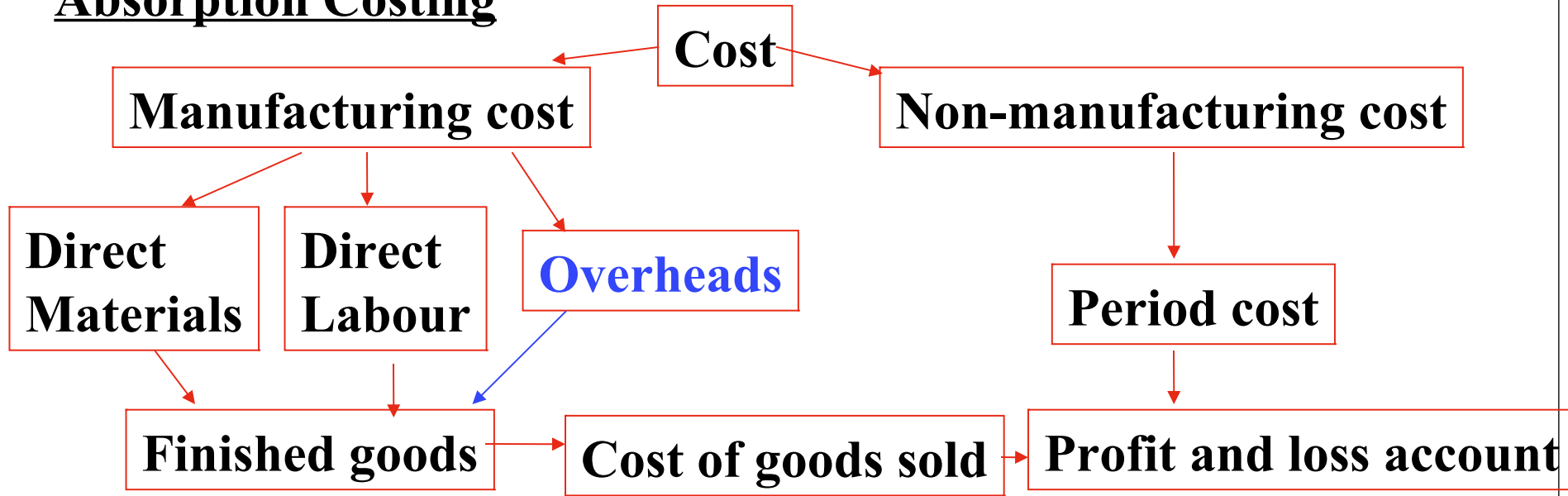
# Introduction

- Before we allocate all manufacturing costs to products regardless of whether they are fixed or variable. This approach is known as **absorption costing/full costing**.

# Definition

- Absorption costing:
- It is costing system which treats all manufacturing costs including **both the fixed and variable costs** as product costs

# Absorption Costing



# Components of Absorption Costing

- ***Direct materials***:: Those materials that are included in a finished product.
- ***Direct labour***:: The factory labour costs required to construct a product.
- ***Variable manufacturing overhead***:: The costs to operate a manufacturing facility, which vary with production volume. Examples are supplies and electricity for production equipment.
- ***Fixed manufacturing overhead***:: The costs to operate a manufacturing facility, which do not vary with production volume. Examples are rent and insurance.


# Presentation of costs on income statement



# Trading and profit & loss account

## *Absorption costing*

|                          |          |
|--------------------------|----------|
|                          | RS       |
| Sales                    | X        |
| Less: Cost of goods sold | X        |
|                          | <hr/>    |
| Gross profit             | X        |
| Less: Expenses           |          |
| Selling expenses X       |          |
| Admin. expenses X        |          |
| Other expenses X         | <hr/>    |
|                          | X        |
|                          | <hr/>    |
| Net Profit               | <u>X</u> |



**Variable and fixed manufacturing**

# Example

**A company started its business in 2014. The following information was available for January to March 2014 for the company that produces a single product:**

|  |              |           |
|--|--------------|-----------|
|  | <b>RS</b>    |           |
| <b>Selling price per unit</b>              | <b>100</b>   |           |
| <b>Direct materials per unit</b>           | <b>20</b>    |           |
| <b>Direct Labor per unit</b>               |              | <b>10</b> |
| <b>Fixed factory overhead per month</b>    | <b>30000</b> |           |
| <b>Variable factory overhead per unit</b>  | <b>5</b>     |           |
| <b>Fixed selling overheads</b>             | <b>1000</b>  |           |
| <b>Variable selling overheads per unit</b> | <b>4</b>     |           |

**Budgeted activity was expected to be 1000 units each month**

**Production and sales for each month were as follows:**

|                      |             |             |              |
|----------------------|-------------|-------------|--------------|
|                      | <b>Jan</b>  | <b>Feb</b>  | <b>March</b> |
| <b>Unit sold</b>     | <b>1000</b> | <b>800</b>  | <b>1100</b>  |
| <b>Unit produced</b> | <b>1000</b> | <b>1300</b> | <b>900</b>   |

- **Required:**
  - **Prepare absorption costing statements for the three months**

|                                       | January<br>RS.  | February<br>RS. | March<br>RS.    |
|---------------------------------------|-----------------|-----------------|-----------------|
| <b>Sales</b>                          | <b>1,00,000</b> | <b>80,000</b>   | <b>1,10,000</b> |
| <b>Less: cost of good sold (rs65)</b> | <b>65,000</b>   | <b>52,000</b>   |                 |
| <b>71,500</b>                         |                 | <b>28000</b>    | <b>38500</b>    |
| <b>Adjustment for Over-/(under)</b>   |                 |                 |                 |
| <b>Absorption of factory overhead</b> |                 | <b>9000</b>     | <b>(3000)</b>   |
| <b>Gross profit</b>                   | <b>35000</b>    | <b>37000</b>    | <b>35500</b>    |
| <b>Less: Expenses</b>                 |                 |                 |                 |
| <b>Fixed selling overheads</b>        | <b>1000</b>     | <b>1000</b>     | <b>1000</b>     |
| <b>Variable selling overheads</b>     | <b>4000</b>     | <b>3200</b>     |                 |
| <b>4400</b>                           |                 |                 |                 |
| <b>Net profit</b>                     | <b>30000</b>    | <b>32800</b>    | <b>30100</b>    |

**Wk1:**

**Standard fixed overhead rate**

$$= \frac{\text{Budgeted total fixed factory overheads}}{\text{Budgeted number of units produced}}$$

$$= \frac{\text{RS.30000}}{1000 \text{ units}}$$
$$= \text{RS.30 units}$$

**Wk 2:**

**Production cost per unit under absorption costing:**

|  |                 |
|--|-----------------|
|  | <b>RS</b>       |
| <b>Direct materials</b>                | <b>20</b>       |
| <b>Direct labour</b>                   | <b>10</b>       |
| <b>Fixed factory overhead absorbed</b> | <b>30</b>       |
| <b>Variable factory overheads</b>      | <b>5</b>        |
|  | <hr/> <b>65</b> |

### Wk 3:

### (Under-)/Over-absorption of fixed factory overheads:

|                          | January          | February         | March           |
|--------------------------|------------------|------------------|-----------------|
|                          | RS               | RS               | RS              |
| Fixed overhead           | 30000            | 39000            | 27000           |
| Fixed overheads incurred | 30000            | 30000            | 30000           |
|                          | <hr/>            | <hr/>            | <hr/>           |
|                          | 0                | 9000             | (3000)          |
|                          | <b>1000*\$30</b> | <b>1300*\$30</b> | <b>900*\$30</b> |

# Steps in Absorption Costing

- *Assign costs to cost pools:* This is comprised of a standard set of accounts that are always included in cost pools, and which should rarely be changed.
- *Calculate usage:* Determine the amount of usage of whatever activity measure is used to assign overhead costs, such as machine hours or direct labour hours used.
- *Assign costs:* Divide the usage measure into the total costs in the cost pools to arrive at the allocation rate per unit of activity, and assign overhead costs to produced goods based on this usage rate.



# CONTD....

- Treatment for fixed manufacturing overheads::

Fixed manufacturing overheads are treated as **product costing**. It is believed that products cannot be produced without the resources provided by fixed manufacturing overheads.

Value of closing stock::

**High value** of closing stock will be obtained as some **factory overheads are included as product costs** and carried forward as **closing stock**.

# Argument for absorption costing

- Compliance with the generally accepted accounting principles
- Importance of fixed overheads for production
- Avoidance of fictitious profit or loss
  - Absorption costing is better in avoiding the fluctuation of profit being reported in marginal costing

# Absorption VS Activity Based

- It is possible to use activity-based costing (ABC) to allocate overhead costs for inventory valuation purposes under the absorption costing methodology. However, ABC is a time-consuming and expensive system to implement and maintain, and so is not very cost-effective when all you want to do is allocate inventory to be in accordance with GAAP or IFRS.
- You should charge sales and administrative costs to expense in the period incurred; do *not* assign them to inventory, since these items are not related to goods produced, but rather to the period in which they were incurred.

# Advantages of Absorption costing

- **Recognizing fix cost**
- **Show correct calculation**
- **Financial reporting standard requires absorption costing**
- **Encourage manager for consumption**
- **Purpose of preparing external reports**

# Disadvantage of absorption costing

- Absorption costing not useful for decision making.
- Absorption cost is not helpful in control of cost.
- Impact on financial performance

# ACTIVITY BASED COSTING

# Activity Based Costing System (ABC)

ABC systems follow a two-stage procedure to assign overhead costs to products.

## Stage One

Identify significant activities and assign overhead costs to each activity in proportion to resources used.

1-8

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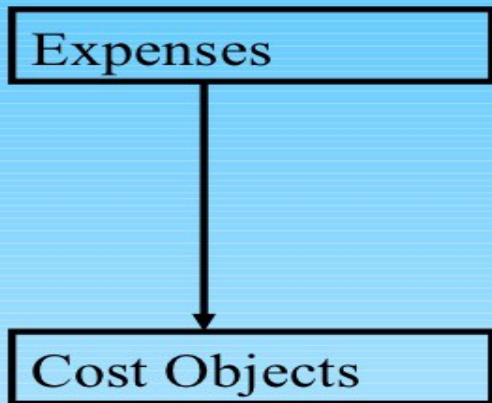
## Stage Two

Identify cost drivers appropriate to each activity and allocate overhead to the products.

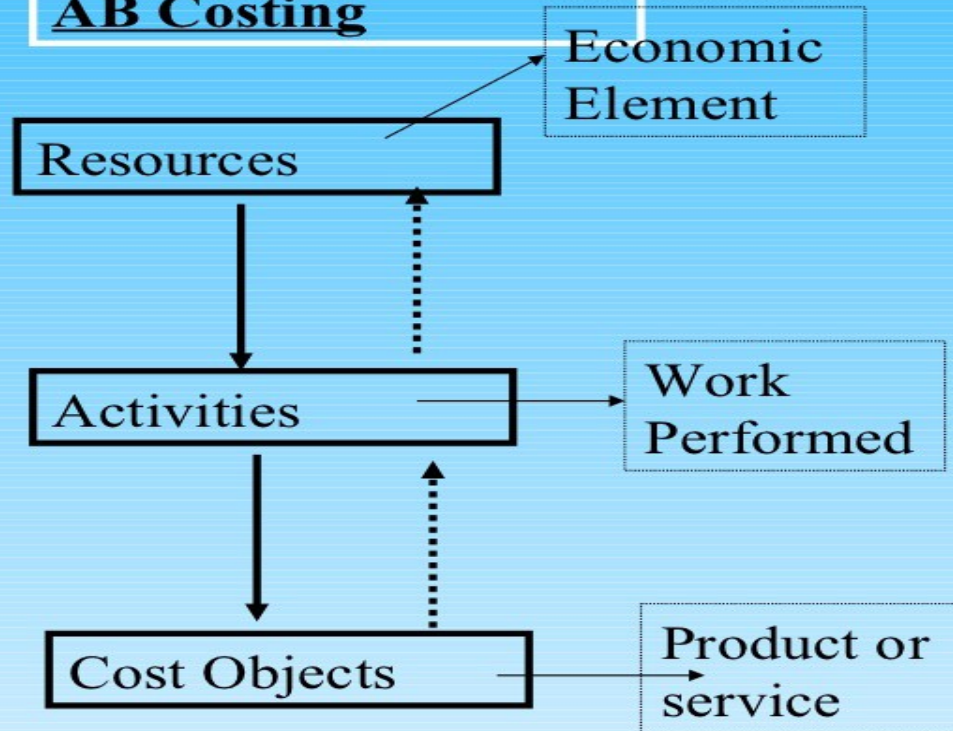
1-9

# LEVELS OF ACTIVITIES

## Conventional Costing

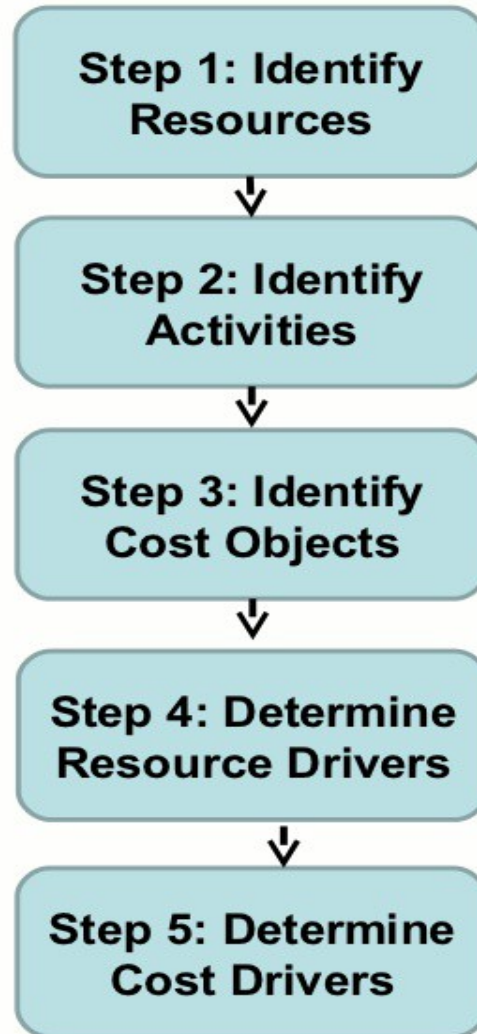


## AB Costing





# STEPS INVOLVED IN ABC



# Cost Pools & Cost Drivers

| Activity Cost Pools  | Activity Cost Drivers   |
|--|---|
| <input type="checkbox"/> <b>Production</b>                 | a) Number of units<br>b) Number of set-ups<br>c) Number electricity units consumed                                  |
| <input type="checkbox"/> <b>Marketing</b>                  | a) Number of sales personnel<br>b) Number of sales orders   |
| <input type="checkbox"/> <b>Research &amp; Development</b> | a) Number of research projects<br>b) Personnel hours spend on projects<br>c) Technical complexities of the projects |
| <input type="checkbox"/> <b>Customer Service</b>           | a) Number of service calls<br>b) Number of products serviced<br>c) Hours spend on servicing products                |
| <input type="checkbox"/> <b>Purchasing</b>                 | a) Number of purchase orders  |
| <input type="checkbox"/> <b>Material Handling</b>          | a) Number of material requisitions  |

Activity-Based Costing System

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# **ACTIVITY BASED COSTING**

**Activity-based costing (ABC) is a costing methodology that identifies activities in an organization and assigns the cost of each activity with resources to all products and services according to the actual consumption by each.**

# **ABC CATEGORIES**

- **Unit-level activities**
- **Batch-level activities**
- **Product-line activities**
- **Facility support activities**

# **ABC PROCESS FLOW**

- **Identify costs**
- **Load secondary cost pools**
- **Load primary cost pools**
- **Measure activity drivers**
- **Allocate costs in secondary to primary pools**
- **Charge costs to cost objects**
- **Formulate reports**
- **Act on the information**

# **STEPS TO IMPLEMENT ACTIVITY BASED COSTING**

- **Identify and assess ABC needs**
- **Training and requirements**
- **Evaluate mission and objectives for the project**
- **Create a cost and operational flow diagram**
- **Build a software model, validate and reconcile**
- **Interpret results and prepare management reports**

# **REASONS FOR IMPLEMENTING ABC STUDY PURPOSES**

- **Better Management**
- **Budgeting, performance measurement**
- **Calculating costs more accurately**
- **Ensuring product /customer profitability**
- **Evaluating and justifying investments in new technologies**
- **Increasing competitiveness or coping with more competition**
- **Responding to increased pressure from regulators**

# Advantages

- 1. ABC system provides accurate costing of products/services.**
- 2. Management has better understanding overheads cost.**
- 3. The system utilizes unit cost rather than total cost unlike absorption costing system.**
- 4. ABC system integrates well with Six Sigma and other continuous improvement programs.**
- 5. The in-depth study of overheads cost under ABC system makes all wastages visible to management and all non-value added activities known to them. Thus, better controls can be exercised on them.**
- 6. It supports performance management and scorecards.**
- 7. The system enables costing of processes, supply chains, and value streams.**
- 8. ABC system helps in benchmarking other products.**



# Disadvantages

- 1. Implementing ABC system requires a big budget initially.**
- 1. After implementation, the maintenance of the system is costly. Data concerning numerous activity measures must be collected , checked, and entered into the system on regular basis.**
- 1. ABC system produces numbers such as product margins that are different from the profits produced by traditional costing system. Management may be double minded as they are used to work with traditional costing system, as a requirement for external reporting.**
- 1. ABC system generated data can be misinterpreted and must be used with care when used in making decisions. Costs assigned to products, customers and other cost objects are only potentially relevant.**
- 1. Reports generated by ABC system do not conform to Generally Accepted Accounting Principles (GAAP). Consequently, an organization involved in ABC should have two cost systems - one for internal use and one for preparing external reports.**

# Appendix A: ABC Softwares

Lead Software

QPRCostControl

ORACLE<sup>®</sup>



pil·bara group inc

AcornSystems   
Enterprise Profit System



# Software Detail

| No. | Software   | Website   |
|-----|--|---|
| 1   | TDABC  | <a href="http://www.acornsys.com">http://www.acornsys.com</a>                     |
| 2   | SAS® Activity-Based Management                   | ww.sas.com  |
| 3   | ABC Focus activity based costing software        | <a href="http://www.cashfocus.com">http://www.cashfocus.com</a>                   |
| 4   | Prismata   | <a href="http://www.prismata.com">http://www.prismata.com</a>                     |
| 5   | Activity Based Costing For EXCEL                 | <a href="http://www.mrdashboard.com">http://www.mrdashboard.com</a>               |
| 6   | Activity Based Costing – Workforce Software      | <a href="http://www.workforcesoftware.com">http://www.workforcesoftware.com</a>   |
| 7   | SYSPRO Activity Based Costing                    | <a href="http://africa.syspro.com">http://africa.syspro.com</a>                   |
| 8   | Activity Based Costing/Management Software       | <a href="http://www.business.com">http://www.business.com</a>                     |
| 9   | ABC/M systems                                    | <a href="http://www.algsoftware.com.au">http://www.algsoftware.com.au</a>         |
| 10  | Acorn Systems                                    | <a href="http://www.acornsys.com">http://www.acornsys.com</a>                     |
| 11  | CostPerform, UK                                  | <a href="http://costperform.co.uk">http://costperform.co.uk</a>                   |
| 12  | ACTIVITY BASED COSTING ANALYSIS SIMULATION MODEL | <a href="http://www.xjtek.com">http://www.xjtek.com</a>                           |
| 13  | Enlighten Software                               | <a href="http://www.enlighten-software.com">http://www.enlighten-software.com</a> |
| 14  | Prodacapo ABM                                    | <a href="http://www.prodacapo.com/abm">http://www.prodacapo.com/abm</a>           |

# **APPLICATION IN ROUTINE BUSINESS**

- **ABC is a modeling process applicable for full scope as well as for partial views.**
- **ABC helps to identify inefficient products, departments and activities.**
- **ABC helps to allocate more resources on profitable products, departments and activities**
- **ABC helps to control the costs at any per-product-level level and on a departmental level.**
- **ABC helps to find unnecessary costs that may be eliminated.**

# **PROBLEMS WITH ACTIVITY BASED COSTING**

- **Cost pool volume**
- **Installation time**
- **Multi-department data sources**
- **Project basis**
- **Reporting of unused time**
- **Separate data set**
- **Targeted usage**

# CONCLUSION

- **Activity based costing is a different way of looking at an organization's costs in order to optimize profit margins.**
- **If ABC is implemented with the correct understanding for the correct purpose, it can return a great long-term value to the organization.**



# THANK YOU