

COST ACCOUNTING

I. Definition Of Cost Accounting

The board definition of cost accounting is an internal reporting system designed to identify, summarize, and interpret information needed for:

- (1) Planning and Control.
- (2) Management Decisions,
- (3) Product Costing.

II. Objectives Of Cost Accounting

- Product Costing
- Inventory Valuation
- Income Determination
- Assessing Departmental Efficiency
- Planning, Evaluating, and Controlling Operations

III. Cost Classifications

Classification of costs is necessary in order to determine the most suitable method of accumulating and allocating costs. The principle methods of accumulating costs are described below.

- a) Classification by Nature
- b) Classification by Variability
- c) Classification by Department
- d) Classification by Inventoriable
- e) Classification by Period Covered
- f) Classification by Controllability

A) Classification by Nature

1. Manufacturing Costs

Cost associated with the manufacturing activities which include:

- a. **Direct Materials**
The costs of raw materials that can feasibly be traced to a particular product or job.
Examples include wood used in making furniture and iron used in making steel.
- b. **Direct Labor**
The costs of wages paid to labor that can feasibly be traced to a particular product or jobs.
Examples include wages to workers who assemble furniture or operate melting machine.
- c. **Factory (Manufacturing) Overhead**
All manufacturing costs other than direct materials and direct labor. It includes both fixed and variable costs.
Examples include indirect materials (supplies), indirect labor, repairs and maintenance on machinery, taxes, factory utilities, rent of factory building, insurance, and depreciation on factory equipment and plant.

Other Costs Concepts

- * **Direct Costs:** Costs that can be identified with or traced to a specific cost object (product, service, or activity). Examples include direct materials and direct labor.
- * **Indirect Costs:** Costs that can not be identified with or traced to a specific cost object (product, service, or activity). Examples include factory overhead.

2. Nonmanufacturing Costs

All Costs that are not related to the manufacturing activities such as:

- * Administrative and office (management) salaries.
- * Sales personnel salaries and commissions.
- * Advertising
- * Freight - out Expense
- * Depreciation on management building
- * Legal Expenses
- * Other selling and administrative Expenses

B) Classification by Variability**1. Variable Costs**

- * Costs that change in total, directly in proportion to changes in the level of activities (volume).
- * The unit cost remains the same over a wide range of volume (referred to as the relevant range).
- * Relevant Range is the range of activity (production volume) within which variable unit costs are constant and fixed costs are constant and fixed costs are constant in total. In this range, the incremental cost of one additional unit of production is the same.
- * Examples include direct materials, direct labor, and part of manufacturing overhead.

2. Fixed Costs

- * Costs that do not change in total regardless of changes in activity.
- * The unit cost decreases as volume increases.
- * Examples include rent, taxes, and insurance on manufacturing plant.

3. Semivariable (Mixed) Costs

- * Costs that contain both variable and fixed costs.
- * Examples include: light, heat, and power.

C) Classification by Department**1. Production**

- * A unit in which operations are performed on a product.
- * Example: manufacturing department.

2. Service

- * A unit not directly engaged in production and whose costs are ultimately allocated to a production unit.
- * Examples include: maintenance and personnel department.

D) Classification by Inventoriability**1. Inventoriable (product) costs**

- * Inventoriable (product) costs are included in inventory when the product is produced and in cost of sales when the product is sold.
- * It includes: direct materials, direct labor, and manufacturing overhead.

2. Noninventoriable (Period) Costs

- * Costs associated with the passage of time rather than with the product.
- * These costs are not inventoried and are charged to income as incurred since no future benefits are expected.
- * Examples include: selling, general, and administrative expenses.

E) Classification by Period Covered**1. Capital Costs**

Costs that are expected to benefit future periods and are classified as assets.

2. Revenue Costs

Costs that benefit only the current period and are thus expensed as incurred.

F) Classification by Controllability**1. Controllable Costs**

- * Costs that directly regulated by management at a given level of production within a given time span.
- * All variable costs such as direct materials, direct labor, and variable overhead, are usually controllable.
- * Fixed costs are not usually controllable.

2. Noncontrollable Costs

- * Costs that are not regulated by management at a given level of production within a given time span.
- * All fixed costs are usually not controllable.

Summary Of Cost Classifications

	Product Cost	Period Cost
Direct Materials (DM)	Yes	No
Direct Labor (DL)	Yes	No
Factory (Manufacturing) Overhead (MOH)	Yes	No
Selling, General, & Administrative Expenses (S,G,&A)	No	Yes

	Prime Cost	Conversion Cost
Direct Materials (DM)	Yes	No
Direct Labor (DL)	Yes	Yes
Factory (Manufacturing) Overhead (MOH)	No	Yes
Selling, General, & Administrative Expenses (S,G,&A)	No	No
Prime Cost = DM + DL		
Conversion Cost = DL + MOH		
	Variable Cost	Fixed Cost
Direct Material (DM)	Yes	No
Direct Labor (DL)	Yes	No
Factory (Manufacturing) Overhead (MOH)	Yes	Yes
Selling, General, & Administrative Expenses (S,G,&A)	Yes	Yes

Other Costing Concepts

A. Practical Capacity

- * The maximum level at which output is produced efficiently.
- * Allows for unavoidable delays in production for maintenance, holidays, etc.

B. Theoretical (Ideal) Capacity

- * The maximum capacity assuming continuous operations with no holiday, downtime, etc

C. Sunk Cost

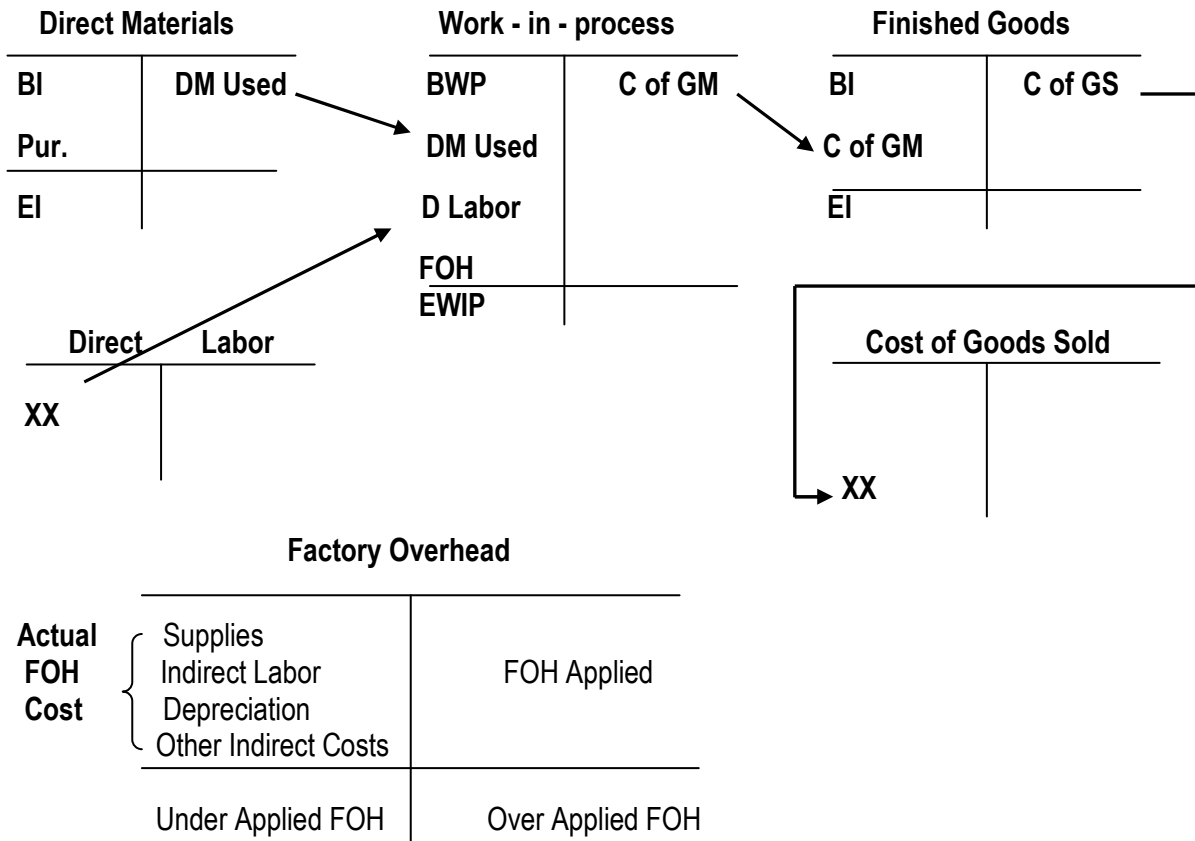
- * Is a past or historical cost that the entity has irrevocably committed to incur.
- * Because it is unavoidable and will therefore not vary with the option chosen, it is not relevant to future decisions.
- * Examples include: research and development costs and fixed assets costs.

D. Opportunity Cost

- Is the maximum benefit foregone by rejecting an alternative.

E. Relevant Costs

- * Are those expected future costs that vary between alternatives.
- * Examples include: direct materials, direct labor, variable manufacturing overhead, and variable selling and administrative costs.
- Fixed costs and sunk cost are considered irrelevant to decision making.

Cost Flow**VI. Factory (Manufacturing) Overhead**

A. Factory overhead consists of all indirect manufacturing costs (all costs other than direct materials and direct labor).

It includes both fixed and variable costs.

It includes indirect materials and indirect labor.

B. Factory overhead is usually allocated to products based upon an activity base.

An activity base should have a high correlation (cause - and - effect relationship) with the incurrence of overhead.

Examples of activity base include machine hours, direct labor costs, and units produced.

VII. Journal Entries (Job-Order and Process Costing)

Direct materials, labor, and overhead are debited to the work-in-process (WIP) account.

When Raw Materials are purchased

Raw Materials Inventory	xxx
Accounts Payable or Cash	xxx

When Raw Materials are transferred to work-in-process (WIP)

Work-in-process (WIP)	xxx
Raw Materials Inventory	xxx

Direct Labor is usually debited to WIP when the payroll is recovered. Any wages not attributed directly to production, e.g., those for janitorial services, are considered indirect labor and debited to overhead.

Work-in-process (WIP)	xxx
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Factory overhead	xxx
Wages Payable	xxx
Payroll Taxes Payable	xxx

When Factory Overhead is Applied

Work-in-process (WIP)	xxx
Factory overhead	xxx

When Charging Factory Overhead with All Indirect Costs

Factory overhead	xxx
Insurance Expense	xxx
Supplies Expense	xxx
Depreciation Expense	xxx

When Goods are Completed

Finished Goods Inventory	xxx
WIP	xxx

When Finished Goods are Sold

Cost of Goods Sold	xxx
Finished Goods Inventory	xxx

These Two
Entries will
Result in
Over - or Under
Applied
Manufacturing
Overhead

Statement of Cost of Goods Manufactured**Direct Materials**

Beginning Inventory Material	xx
Purchases	xx
Total	xxx
Less: Ending Inventory Material	(xx)
Cost of Direct Materials Used	xxx

Cost of Goods Manufactured

Beginning Work-in-process Inventory	xx
Direct Material Used	xx
Direct Labor	xx
Manufacturing Overhead	xx
Total	xxx

Less: Ending Work-in-process Inventory (xx)

Cost of Goods Manufactured xxx

Cost of Goods Sold

Beginning Finished Goods Inventory	xx
Cost of Goods Manufactured	xx

Goods Available for Sale xxx

Less: Ending Finished Goods Inventory (xx)

Cost of Goods Sold xxx

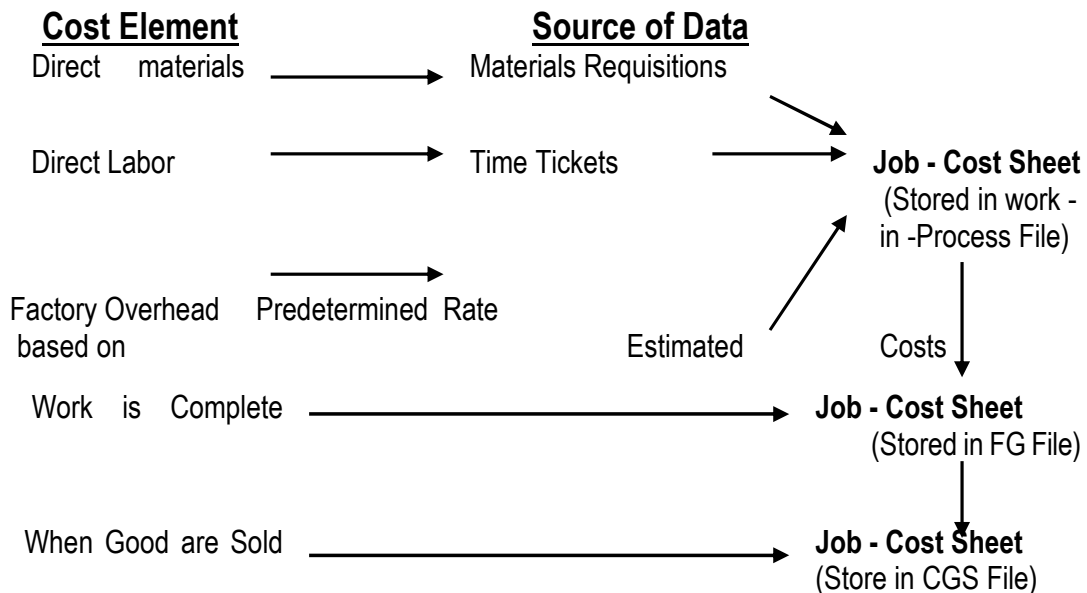
VIII. Costing System

- A) Job-Order Costing
 B) Process Costing
 C) Activity - Based Costing
 D) Just-in-Time

A) job-Order Costing

1. Concerned with accumulating costs by specific job.
2. Used when units are relatively expensive and costs cannot be identified to units or batches
3. Direct material, direct labor, and manufacturing overhead applied are charged to work-in-process (WIP) account of a specific job using job-cost sheet. Job-cost sheets serve as a subsidiary ledger.
4. Costs of completed units removed from WIP and charged to Finished Goods.
5. Costs of units sold removed from Finished Goods and charged to Cost of Goods Sold.
6. Source documents for costs incurred include:
 - * Stores' requisitions for Direct Materials.
 - * Work (or time) Tickets for Direct Labor.
 - * Overhead is usually assigned to each Job through a predetermined Overhead Rate.

Summary of Accounting Cycle of Job - Order System



B) Process Costing

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1. Process cost accounting is used to assign costs to inventoriable goods or services. It is applicable to relatively homogeneous products that are mass - produced on a continuous basis (e.g., refined oil).
2. The objective is to determine the portion of manufacturing cost that is to be expensed because the goods or services were sold and the portion to be deferred because the goods are still on hand or the services have not been rendered.
3. Process costing is an averaging process that calculates the average cost of all units. Thus, the costs are accumulated by departments or cost centers rather than by jobs.
4. Work in process (WIP) is started in terms of Equivalent Finished Units (EFU), and unit costs are established on a departmental basis.
5. Process Costing Procedures:
 - a. Accounting for all units (Physical Flow of Quantities).
 - b. Compute the Equivalent Finished units (EFU).
 - c. Compute Unit Cost per (EFU).
 - d. Prepare Cost of Production Report .

Step (1): Accounting for All Units (Quantities)

Beginning WIP	X X
Started units	<u>X X</u>
Total Units to Account for	<u>X X X</u>

↓	↓	↓
Finished Goods or Transferred Out	Ending WIP	Spoilage (Lost)

Notes:

- This step is very important to determine any missing information (normally spoilage units).
- This step is the same in the FIFO and Weighted Average.
- This step ignores the percentage of completion for beginning and ending WIP.

Step (2): Compute Equivalent Finished Units (EFU)

- a. EFU is the amount of direct materials or conversion costs produce (DL & MOH) required to produce one unit of finished goods .
- b. The objective is to allocate direct materials and conversion (DL & MOH) cost of goods, ending WIP and Spoilage.
- c. EFU is separately computed for direct materials and conversion (DL & MOH) costs.

Step (3): Compute Unit Cost

Comparison between job order costing and process costing

	Job Order costing	Process Costing
Cost unit	Job order, or contract	Physical Unit
Costs are accumulated	By jobs	By departments
Subsidiary record	Job cost sheet	Cost - of - production report
Used by	Custom manufacturing	Processing industries

c. Activity - Based Costing (ABC)

1. A method of analyzing and reducing manufacturing overhead (MOH) costs through using multiple predetermined overhead rates .
2. Assumes that all costs are caused by the activities (Cost drivers).
3. Cost driver is an activity that cause costs to increase as the activities increase . Examples include direct labor hours, machine hours, beds occupied, or miles driven .
4. Establishes cost pools related to individual drivers .
5. Applies cost to product on the basis of resources consumed (Cost drivers)
6. **Advantages** of ABC include promoting improved quality and continuous improvement .
7. ABC may be used with job - order or process costing methods .
8. ABC can be used in all types of business organization (Manufacturing and service)

d. Just -in -Time (JIT)

1. Costs reduce through :
 - Elimination of nonvalue added activities (movement, storage, set up, inspection, defective rework).
 - Corrections made as defects occurs
 - Reduction in inventory quantities (Fewer vendors)
2. Problems of JIT system:
 - * Difficult to find suppliers able to accommodate .
 - * Potential problems due to delays in delivers .
 - * High shipping costs due to smaller orders .

XI. Allocation of Service Department Costs

A. Service department provides services to other departments . Its costs should be allocated to departments benefited.

1. Direct Method

The direct method simply allocates the costs of each service department to each of the producing departments based on relative level of the apportionment base.

2. Step Method

1. Begin allocation of service department serving most other departments or that incurred the greatest dollar amount .
2. Allocation based on that department's cost driver.
3. Costs allocated to all remaining service departments and production departments.
4. Costs never charged back to service departments already allocated.

Example:

Departments K, L, and M provide services to each other and to producing departments Y and Z . For the sake of simplicity, a single-rate allocation is assumed.

Department	Total cost	Percentage of services				
		K	L	M	Y	Z
K	\$ 100,000	0	15%	5%	55%	25%
L	70,000	10%	0	9%	18%	63%
M	<u>50,000</u>	0	0	0	20%	80%
	<u>\$ 220,000</u>					

Solution:

Department K's costs are allocated first because it provides service to two service departments, provides a greater percentage of its service to other service departments, and has the highest costs. L's costs are then allocated, followed by M's.

	K	L	M	Y	Z
Costs prior to allocation	\$100,000	\$70,000	\$50,000	0	0
Allocation of K	(100,000)	15,000	5,000	\$55,000	\$ 25,000
Allocation of L		(85,000)	8,500	17,000	59,500
Allocation of M			(63,500)	<u>12,700</u>	<u>50,800</u>
				<u>\$ 84,700</u>	<u>\$135,300</u>

Notes

- All \$220,000 is allocated to producing department Y and Z.
- When L's costs are allocated, no costs are assigned to K. L's total cost of \$85,000 is allocated in the proportions 9/90, 18/90, and 63/90.

XI. Just-In-Time (JIT) Inventory System

- Raw materials are obtained "just-in-time" and placed directly in production.
- Finished goods are produced "just in time" for delivery to customers.
- JIT minimizes or eliminates inventory (nonvalue added activity) and its related costs.
- Problems of JIT System.
 - Difficult to finds suppliers able accommodates.
 - Potential problems due to delays in deliveries.
 - High shipping costs due to smaller orders.

Joint Products**I. Joint Product And By Products****A. Joint Products****1.Definitions**

a. **Joint products** are two or more separate products separate by a common manufacturing

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process from a common input

b. Joint product costs are incurred in the production of two or more products simultaneously

from processing the same raw material by a single process. They are incurred prior to the spilt-off point and are not separately identifiable. They may be allocated to the joint products based upon their, sales value, net realizable value, or physical measure at the point they become separate.

c. Spilt-off point represents the stage of production at which joint products become identifiable

as separate products. These products can be further processed or sold at the spilt-off point.

d. Separable Costs are additional costs incurred for a specific product after the spilt-off point.

e. Net Realizable Value (NRV) equals sales value less estimated cost to complete and sell.

2. Allocation of joint costs

a. Allocation of Joint Costs is essential for valuing inventory and determining cost of cost of

goods sold.

b. Joint Product Cost allocation should not be used in deciding whether to further process or

sell the products at the spilt-off point, i.e, joint costs are irrelevant for the decision.

c. Methods of Allocating Joint Costs

Three methods of allocating joint costs

1) Quantitative (physical- unit) method .

2) Relative sales - value method .

3) Estimated net realizable value (NRV), based on final sales value minus separable costs

after spilt-off point .

1) Quantitative (Physical- unit) Method

This method allocates joint costs based on some physical measure, such as volume

(units) or weight (tons, pounds, or gallons).

2) Relative Sales- Value Method

This method allocates joint costs based on the relative sales values of separate products

at spilt-off point.

$$\frac{\text{Sales Value of Each Joint Product}}{\text{Total Sales value of all joint product}} \times \text{Joint Costs}$$

3) Estimated net realizable value (ENR)

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Frequently, joint products have no sales value at the split-off point. i.e., this method is used when further processing is needed. It allocates joint costs based on net realizable value (final sales value less separable costs after split-off point).

$$\frac{\text{NRV of each Joint product}}{\text{Total NRVs of all Joint Product}} \times \text{Joint Costs}$$

d. Sell or Process Decisions

- 1) The cost of additional processing (Incremental costs) should be weighted against the benefit received (Incremental revenues).
- 2) Joint cost is irrelevant in determining this decision because it is a sunk (already expended cost).

Example

Lambert company produces two products, A and B from same raw material. Joint product costs are \$54,000. The process Yields 15,000 gallons of product A and 22,500 gallons of product B. Sales value at split-off are estimated to be \$1.5 and \$2 per gallon, respectively .

Required: Allocate joint costs on the basis of physical unit and relative sales value at split-off point methods.

Solution:**Physical - Unit Method**

Product	Gallons	% of Total	Allocated Joint Cost
A	15,000	40%	\$21,600
B	22,500	60%	32,400
Totals	37,500		\$54,000

Relative Sales - Value Method

Product	Sales Value at Split-off	% of Total	Allocated Joint Cost
A	\$1.5 x 15,000 = \$22,500	33,34%	\$18,000
B	\$2 x 22,500 = \$45,000	66,66%	36,000

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Totals	67,500		\$54,000
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Example:

Assume the same facts as above, except that products A and B have no sales value at split-off point. Additional processing yields the following results:

Product	Separable costs	Sales Value
A	\$6000	\$36,000
B	8000	78,000

Required: Allocate joint costs on the basis of net realizable value .

Solution:

Product	Sales Value	Separable Cost	Net Realizable		Allocated
			Value	Ratio	
A	\$ 36,000	\$ 6,000	\$ 30,000	30%	\$16,200
B	\$ 78,000	8,000	70,000	70%	37,800
Totals	\$ 114,000		\$100,000		\$54,000

B. By- Products

1. Definition

By- products are one or more products that (1) have minor sales value as compared with the sales value of the main joint products (2) are produced simultaneously from a common manufacturing process, and (3) are not identifiable as separate products until split-off point.

2. Accounting Methods

- The value of by- products is treated as a reduction of the cost of goods sold, of joint costs, or as a revenue .
- The value to be reported for by- products may be sales revenue, sales revenue minus a normal profit, or estimated net realizable value (sales minus costs of disposal)