Chapter 2

Cost Terms, Concepts, and Classifications
LEARNING OBJECTIVES

After studying this chapter, you should be able to:

1. **Identify** and give examples of each of the three basic cost elements involved in the manufacture of a product.

2. **Distinguish** between product costs and period costs and give examples of each.

3. **Prepare** a schedule of cost of goods manufactured in good form.

4. **Explain** the flow of direct materials cost, direct labour cost, and manufacturing overhead cost from the point of origin to sale of the completed product.
LEARNING OBJECTIVES

After studying this chapter, you should be able to:

5. **Identify** and give examples of variable costs and fixed costs and explain the difference in their behaviour.

6. **Define** and give examples of direct and indirect costs.

7. **Define** and give examples of cost classification used in making decisions: differential costs, opportunity costs and sunk costs.

8. (Appendix 2A) **Properly** classify labour costs associated with idle time, overtime, and fringe benefits.
Comparing Merchandising and Manufacturing Activities

Merchandisers . . .
- Buy finished goods.
- Sell finished goods.

Manufacturers . . .
- Buy raw materials.
- Produce and sell finished goods.
Manufacturing Cost Concepts

Our focus changes from financial statement costs to product costs

Financial Accounting
Cost is a measure of resources used or given up to achieve a stated purpose.

Managerial Accounting
Product costs are the costs a company assigns to units produced.
Manufacturing Costs

The Product

- Direct Materials
- Direct Labour
- Manufacturing Overhead
Direct Materials

Those materials that become an integral part of the product and that can be conveniently traced directly to it.

Example: A radio installed in an automobile
Direct labour

Those labour costs that can be easily traced to individual units of product.

Example: Wages paid to automobile assembly workers
Manufacturing Overhead

Manufacturing costs that *cannot* be traced directly to specific units produced.

Examples: **Indirect labour and indirect materials**

- **Wages paid to employees who are not directly involved in production work.**
  *Examples: maintenance workers, janitors and security guards.*

- **Materials used to support the production process.**
  *Examples: lubricants and cleaning supplies used in the automobile assembly plant.*
Classifications of Costs

Manufacturing costs are often combined as follows:

- Direct Materials
- Direct labour
- Manufacturing Overhead

Prime Cost

Conversion Cost
Nonmanufacturing Costs

Marketing and selling costs . . .
- Costs necessary to get the order and deliver the product.

Administrative costs . . .
- All executive, organizational, and clerical costs.
Product Costs Versus Period Costs

Product costs include direct materials, direct labour, and manufacturing overhead.

Period costs are not included in product costs. They are expensed on the income statement.
Balance Sheet

Merchandiser
Current Assets
- Cash
- Receivables
- Prepaid Expenses
- Merchandise Inventory

Manufacturer
Current Assets
- Cash
- Receivables
- Prepaid Expenses
- Inventories
  - Raw Materials
  - Work in Process
  - Finished Goods
Balance Sheet

Merchandiser

Current Assets
- Cash
- Receivables
- Prepaid Expenses
- Partially complete products – some material, labour, or overhead has been added.

Manufacturer

Current Assets
- Cash
- Inventories
  - Materials waiting to be processed.
  - Raw Materials
  - Work in Process
  - Finished Goods
- Completed products awaiting sale.

Materials waiting to be processed.
Partially complete products – some material, labour, or overhead has been added.
Completed products awaiting sale.
The Income Statement

Cost of goods sold for manufacturers differs only slightly from cost of goods sold for merchandisers.

Merchandising Company

Cost of goods sold:
- Beg. merchandise inventory $14,200
- Purchases 234,150
 Goods available for sale $248,350
- Ending merchandise inventory (12,100)
 = Cost of goods sold $236,250

Manufacturing Company

Cost of goods sold:
- Beg. finished goods inv. $14,200
 + Cost of goods manufactured 234,150
 Goods available for sale $248,350
- Ending finished goods inventory (12,100)
 = Cost of goods sold $236,250
Manufacturing Cost Flows

Costs

Material Purchases

Balance Sheet

Inventories

Raw Materials

Expenses

Income Statement

Manufacturing Cost Flows

Costs

Material Purchases → Raw Materials

Direct labour → Work in Process

Manufacturing Overhead → Finished Goods

Balance Sheet

Inventories

Cost of Goods Sold

Income Statement

Expenses
Manufacturing Cost Flows

Costs
- Material Purchases
- Direct labour
- Manufacturing Overhead
- Selling and Administrative

Balance Sheet Inventories
- Raw Materials
- Work in Process
- Finished Goods

Period Costs
- Selling and Administrative

Income Statement Expenses
- Cost of Goods Sold
Inventory Flows

Beginning balance $\$\$

Additions $$$

Available $$$$$$

Withdrawals $$$

Ending balance $$

= + = \_ \_
# Product Costs - A Closer Look

<table>
<thead>
<tr>
<th>Raw Materials</th>
<th>Manufacturing Costs</th>
<th>Work In Process</th>
</tr>
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<tbody>
<tr>
<td>Beginning raw materials inventory</td>
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### Product Costs - A Closer Look

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<td>+ Raw materials purchased</td>
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</tr>
<tr>
<td>= Raw materials available for use in production</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Ending raw materials inventory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= Raw materials used in production</td>
<td></td>
<td>Direct materials</td>
</tr>
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</table>

As items are removed from raw materials inventory and placed into the production process, they are called direct materials.
Product Costs - A Closer Look

Raw Materials

- Beginning raw materials inventory
- Raw materials purchased

= Raw materials available for use in production

- Ending raw materials inventory

= Raw materials used in production

Manufacturing Costs

- Direct materials
- Direct labour
- Mfg. overhead

= Total manufacturing costs

Conversion costs are costs incurred to convert the direct material into a finished product.

Work In Process
### Product Costs - A Closer Look

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<td>Beginning raw materials inventory</td>
<td>Direct materials + Direct labour + Mfg. overhead = Total manufacturing costs</td>
<td>Beginning work in process inventory + Total manufacturing costs = Total work in process for the period</td>
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<td>+ Raw materials purchased</td>
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<td></td>
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All manufacturing costs incurred during the period are added to the beginning balance of work in process.
## Product Costs - A Closer Look

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<td>+ Raw materials purchased</td>
<td></td>
<td>+ Ending work in process inventory</td>
</tr>
<tr>
<td>= Raw materials available for use in production</td>
<td>= Raw materials used = Cost of goods manufactured.</td>
<td>– Ending raw materials</td>
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Costs associated with the goods that are completed during the period are transferred to finished goods inventory.
### Product Costs - A Closer Look

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<th>Finished Goods</th>
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<tr>
<td>Beginning work in process inventory</td>
<td>Beginning finished goods inventory</td>
</tr>
<tr>
<td>+ Manufacturing costs for the period</td>
<td>+ Cost of goods manufactured</td>
</tr>
<tr>
<td>= Total work in process for the period</td>
<td>= Cost of goods available for sale</td>
</tr>
<tr>
<td>– Ending work in process inventory</td>
<td>- Ending finished goods inventory</td>
</tr>
<tr>
<td>= Cost of goods manufactured</td>
<td>Cost of goods sold</td>
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Beginning raw materials inventory was $32,000. During the month, $276,000 of raw material was purchased. A count at the end of the month revealed that $28,000 of raw material was still present. What is the cost of direct material used?

a. $276,000  
b. $272,000  
c. $280,000  
d. $2,000
Beginning raw materials inventory was $32,000. During the month, $276,000 of raw material was purchased. A count at the end of the month revealed that $28,000 of raw material was still present. What is the cost of direct material used?

- a. $276,000
- b. $272,000
- c. $280,000
- d. $2,000

**Resource Flows**

\[
\begin{align*}
\text{Beg. raw materials} & \quad \$ 32,000 \\
+ \text{Raw materials purchased} & \quad 276,000 \\
\hline
\text{Raw materials available for use in production} & \quad 308,000 \\
- \text{Ending raw materials inventory} & \quad 28,000 \\
\hline
\text{Raw materials used in production} & \quad 280,000
\end{align*}
\]
Direct materials used in production totaled $280,000. Direct labour was $375,000 and factory overhead was $180,000. What were total manufacturing costs incurred for the month?

a. $555,000  
b. $835,000  
c. $655,000  
d. Cannot be determined.
Direct materials used in production totaled $280,000. Direct labour was $375,000 and factory overhead was $180,000. What were total manufacturing costs incurred for the month?

\[
\begin{align*}
\text{Direct Materials} & \quad $280,000 \\
+ \text{Direct Labour} & \quad 375,000 \\
+ \text{Mfg. Overhead} & \quad 180,000 \\
\hline \\
\text{Mfg. Costs Incurred for the Month} & \quad $835,000 \\
\end{align*}
\]

- a. $555,000
- b. $835,000
- c. $655,000
- d. Cannot be determined.
Resource Flows

Beginning work in process was $125,000. Manufacturing costs incurred for the month were $835,000. There were $200,000 of partially finished goods remaining in work in process inventory at the end of the month. What was the cost of goods manufactured during the month?

a. $1,160,000  
b. $910,000  
c. $760,000  
d. Cannot be determined.
Beginning work in process was $125,000. Manufacturing costs incurred for the month were $835,000. There were $200,000 of partially finished goods remaining in work in process inventory at the end of the month. What was the cost of goods manufactured during the month?

- a. $1,160,000
- b. $910,000
- c. $760,000
- d. Cannot be determined.

**Resource Flows**

\[
\begin{align*}
\text{Beginning work in process inventory} & \quad \$125,000 \\
+ \quad \text{Mfg. costs incurred for the period} & \quad 835,000 \\
\hline
= \quad \text{Total work in process during the period} & \quad 960,000 \\
- \quad \text{Ending work in process inventory} & \quad 200,000 \\
\hline
= \quad \text{Cost of goods manufactured} & \quad 760,000
\end{align*}
\]
Cost Classifications for Predicting Cost Behaviour

How a cost will react to changes in the level of business activity.

- Total **variable costs** change when activity changes.
- Total **fixed costs** remain unchanged when activity changes.

Total Variable Cost

Your **total long distance** telephone bill is based on how many minutes you talk.
Variable Cost Per Unit

The **cost per long distance minute** talked is constant. For example, 10 cents per minute.
Total Fixed Cost

Your monthly **basic telephone bill** probably does not change when you make more local calls.
Fixed Cost Per Unit

The average cost per local call decreases as more local calls are made.
Cost Classifications for Predicting Cost Behaviour

<table>
<thead>
<tr>
<th>Cost</th>
<th>In Total</th>
<th>Per Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>Total variable cost changes as activity level changes.</td>
<td>Variable cost per unit remains the same over wide ranges of activity.</td>
</tr>
<tr>
<td>Fixed</td>
<td>Total fixed cost remains the same even when the activity level changes.</td>
<td>Fixed cost per unit goes down as activity level goes up.</td>
</tr>
</tbody>
</table>
Cost Behaviour

Fixed costs are usually characterized by:

a. Unit costs that remain constant.
b. Total costs that increase as activity decreases.
c. Total costs that increase as activity increases.
d. Total costs that remain constant.
Cost Behaviour

Fixed costs are usually characterized by:

a. Unit costs that remain constant.

b. Total costs that increase as activity decreases.

c. Total costs that increase as activity increases.

d. Total costs that remain constant.
Cost Behaviour

Variable costs are usually characterized by:

a. Unit costs that decrease as activity increases.
b. Total costs that increase as activity decreases.
c. Total costs that increase as activity increases.
d. Total costs that remain constant.
Variable costs are usually characterized by:

a. Unit costs that decrease as activity increases.

b. Total costs that increase as activity decreases.

c. Total costs that increase as activity increases.

d. Total costs that remain constant.
## Direct Costs and Indirect Costs

<table>
<thead>
<tr>
<th>Direct costs</th>
<th>Indirect costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs that can be easily and conveniently traced to a unit of product or other cost objective.</td>
<td>Costs cannot be easily and conveniently traced to a unit of product or other cost objective.</td>
</tr>
<tr>
<td>Examples: direct material and direct labour</td>
<td>Example: manufacturing overhead</td>
</tr>
</tbody>
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Differential Costs and Revenues

Costs and revenues that differ among alternatives.

Example: You have a job paying $1,500 per month in your hometown. You have a job offer in a neighbouring city that pays $2,000 per month. The commuting cost to the city is $300 per month.

Differential revenue is:
$2,000 – $1,500 = $500
Differential Costs and Revenues

Costs and revenues that differ among alternatives.

Example: You have a job paying $1,500 per month in your hometown. You have a job offer in a neighbouring city that pays $2,000 per month. The commuting cost to the city is $300 per month.

Differential revenue is:
$2,000 – $1,500 = $500

Differential cost is:
$300
Opportunity Costs

The potential benefit that is given up when one alternative is selected over another.

Example: If you were not attending college, you could be earning $15,000 per year. Your opportunity cost of attending college for one year is $15,000.
Sunk Costs

Sunk costs cannot be changed by any decision. They are not differential costs and should be ignored when making decisions.

Example: You bought an automobile that cost $10,000 two years ago. The $10,000 cost is sunk because whether you drive it, park it, trade it, or sell it, you cannot change the $10,000 cost.
Further Classification of Labour Costs
Idle Time

Cost of direct labour workers who are unable to perform their assignments due to machine breakdowns, materials shortages, power failures and other circumstances beyond their control.

Example: A worker is paid $10 per hour for a 40-hour work-week and is idle for 2 hours per week due to machine breakdowns, labour would be broken down as follows:

- Direct labour (38 hours x $10) $380
- Manufacturing overhead (2 hrs x $10) 20
- Total labour cost for the week $400
Overtime Premium

Overtime premiums paid to all factory workers are usually considered to be part of manufacturing overhead.

Example: A worker is paid $10 per hour for a 40-hour work-week and receives time and one half for overtime hours. This week, the worker worked 44 hours and had no idle time.

Direct labour (44 hours x $10) $440
Manufacturing overhead (4 hrs x $5) 20
Total labour cost for the week $400
Labour Fringe Benefits

Employment-related costs paid by the employer are treated as either manufacturing overhead or sometimes, for the fringe benefits related to direct labour, as part of the cost of direct labour.

Examples of fringe benefits:

Insurance programs, retirement plans, Canada pension plan, employment insurance, workers’ compensation, and hospitalization plans.
End of Chapter 2