

Project Cost Management

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PMG 213

Lecture 8



Project Cost Management Cost Classifications

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Lecture 8



Managerial accounting is concerned with providing information to managers within an organization so that they can formulate plans, control operations, and make decisions.

Purposes of cost classification

Assigning costs to cost objects

Accounting for costs in manufacturing companies

Preparing financial statements

Predicting cost behavior in response to changes in activity

Making decisions

Classifications of Manufacturing Costs

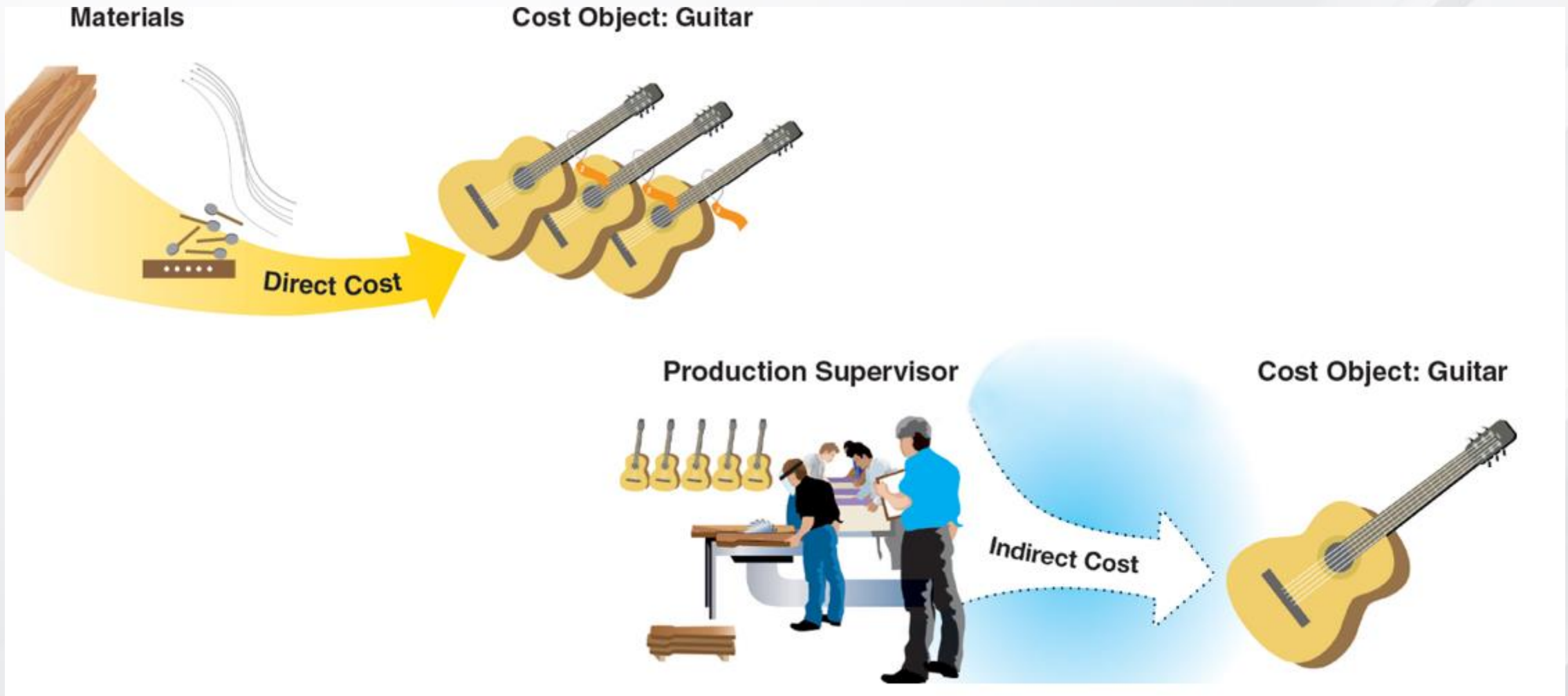
Direct
Materials

Direct
Labor

Manufacturing
Overhead

- A **cost** is a sacrifice made to obtain some benefit.
 1. In managerial accounting, costs are often classified according to the decision-making needs of management.
 - For example, costs are often classified by their relationship to a segment of operations, called a **cost object**.
 - A cost object may be a product, a sales territory, a department, or an activity, such as research and development.

- Costs identified with cost objects are either direct costs or indirect costs.
 1. **Direct costs** are identified with and can be traced to a cost object.
 - For example, the cost of wood used to make guitars is a direct cost.
 2. **Indirect costs** cannot be identified with or traced to a cost object.
 - For example, the salaries of production supervisors are indirect costs of producing a guitar because their salaries cannot be identified with or traced to any individual guitar.





Direct Materials



Direct Labor



Factory Overhead

Manufacturing Costs

- The cost of a manufactured product includes the cost of materials used in making the product.
- In addition, the cost of a manufactured product includes the cost of converting the materials into a finished product.
- Thus, the cost of a finished product includes:
 1. Direct materials cost
 2. Direct labor cost
 3. Factory overhead cost

Assigning Costs to Cost Objects

Direct costs

- Costs that can be easily and conveniently traced to a unit of product or other cost object.
- Examples: direct material and direct labor

Indirect costs

- Costs that cannot be easily and conveniently traced to a unit of product or other cost object.
- Example: manufacturing overhead

Common costs

- Indirect costs incurred to support a number of cost objects. These costs cannot be traced to any individual cost object.

Direct Materials Cost

- Manufactured products begin with raw materials that are converted into finished products.
- To be classified as a **direct materials cost**, the cost must be both of the following:
 1. An integral part of the finished product
 2. A significant portion of the total cost of the product
- Examples of direct materials costs include the following:
 1. The cost of the wood used in producing a guitar
 2. The cost of electronic components for a television
 3. Silicon wafers for microcomputer chips
 4. Tires for an automobile

Direct Labor Cost

- Most manufacturing processes use employees to convert materials into finished products.
- The cost of employee wages that is an integral part of the finished product is classified as **direct labor cost**.
- A direct labor cost must meet both of the following criteria:
 1. An integral part of the finished product
 2. A significant portion of the total cost of the product
- Examples of direct labor costs include the following:
 1. The wages of employees who cut guitars out of raw lumber and assemble them
 2. Mechanics' wages for repairing an automobile
 3. Machine operators' wages for manufacturing tools
 4. Assemblers' wages for assembling a laptop computer

Factory Overhead Cost

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- Costs other than direct materials cost and direct labor that are incurred in the manufacturing process are combined and classified as **factory overhead cost** (sometimes called **manufacturing overhead** or **factory burden**).
- All factory overhead costs are indirect costs of the product.
- Some factory overhead costs include the following:
 1. Heating and lighting the factory
 2. Repairing and maintaining factory equipment
 3. Property taxes on factory buildings and land
 4. Insurance on factory buildings
 5. Depreciation of factory plant and equipment

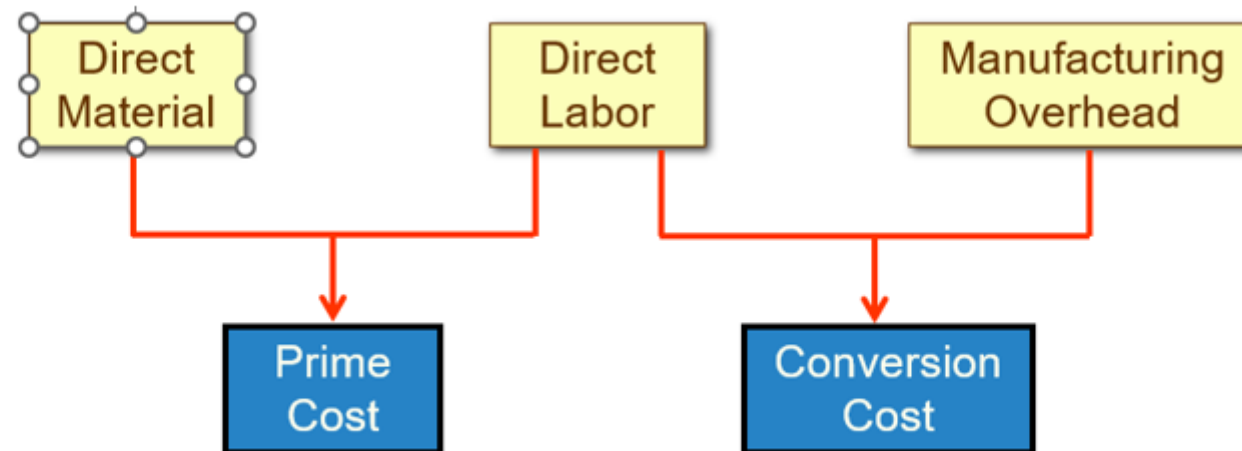
Prime Costs and Conversion Costs

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- Direct materials, direct labor, and factory overhead costs may be grouped together for analysis and reporting.
 1. Two such common groupings are as follows:
 - **Prime costs**, which consist of direct materials and direct labor costs
 - **Conversion costs**, which consist of direct labor and factory overhead costs
 - Conversion costs are the costs of converting the materials into a finished product.
- Direct labor is both a prime cost and a conversion cost.

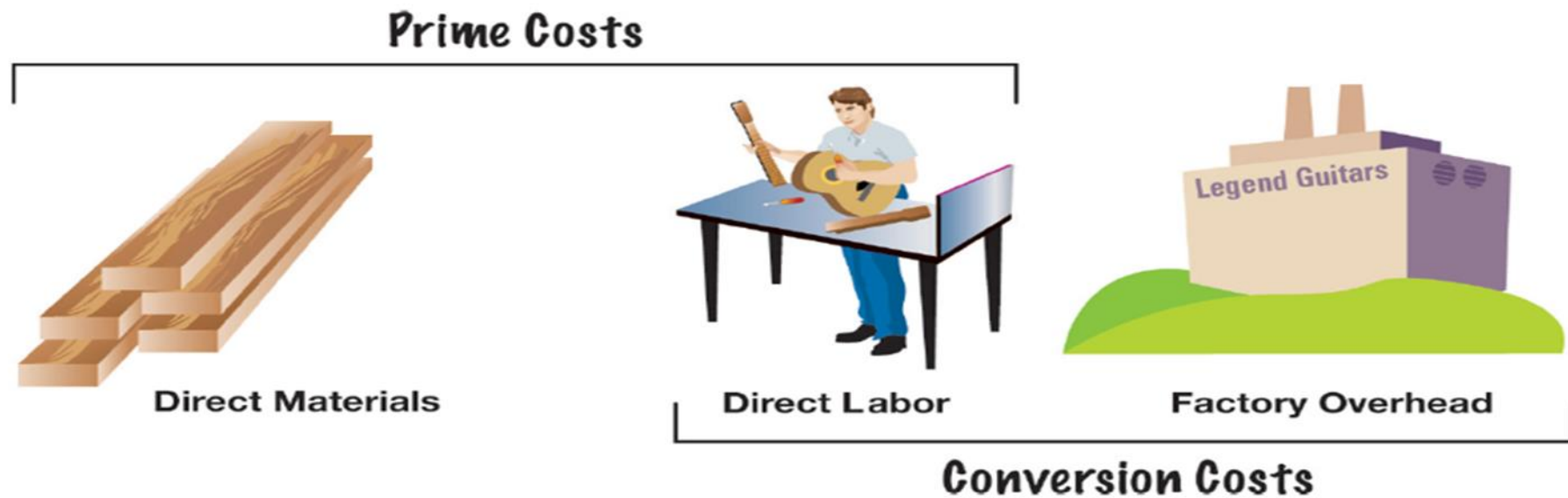
Prime Costs and Conversion Costs

Manufacturing costs are often classified as follows:



Prime Costs and Conversion Costs

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Cost classifications used to prepare financial statements:
product costs and period costs.

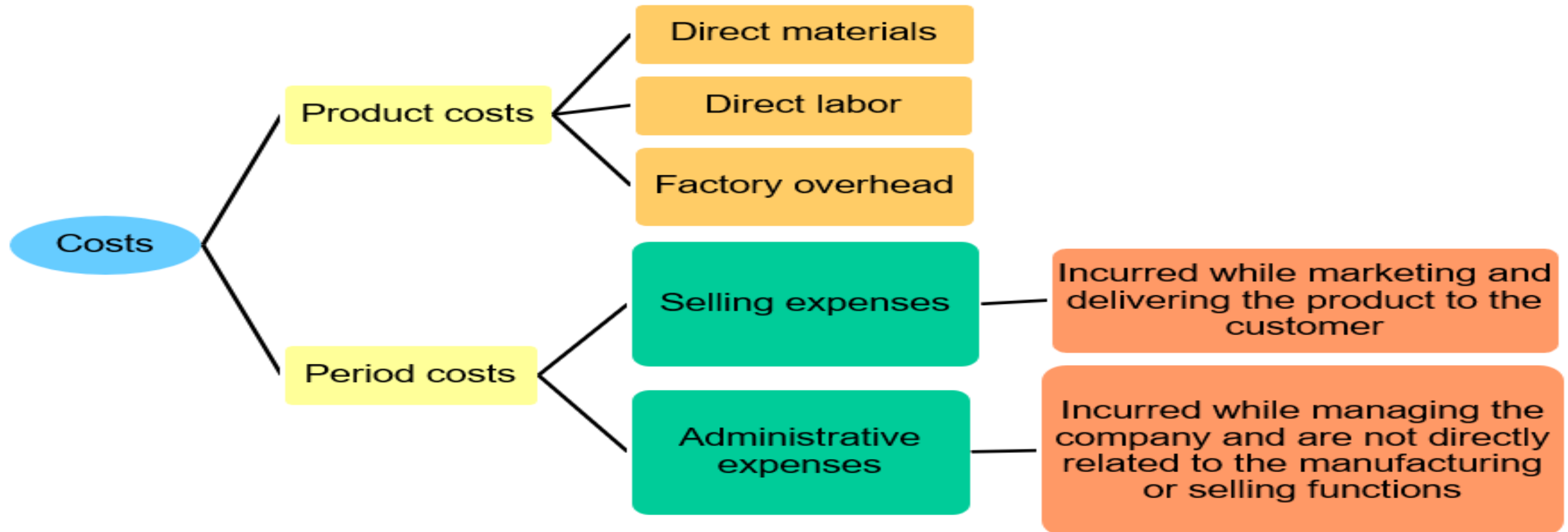
Product Costs

Product costs includes all the costs that are involved in acquiring or making a product.

Product costs “attach” to a unit of product as it is purchased or manufactured and they stay attached to each unit of product as long as it remains in inventory awaiting sale.

Product Costs and Period Costs

(slide 1 of 2)



Examples of Product Costs and Period Costs—Legend Guitars

Product (Manufacturing) Costs



Direct Materials Cost

- Wood used in neck and body



Direct Labor Cost

- Wages of saw operator
- Wages of employees who assemble the guitar



Factory Overhead

- Guitar strings
- Wages of janitor
- Power to run the machines
- Depreciation expense—factory building
- Sandpaper and buffing materials
- Oil used to lubricate machines
- Salary of production supervisors

Period (Nonmanufacturing) Costs

Selling Expenses

- Advertising expenses
- Sales salaries expenses
- Commissions expenses

Administrative Expenses

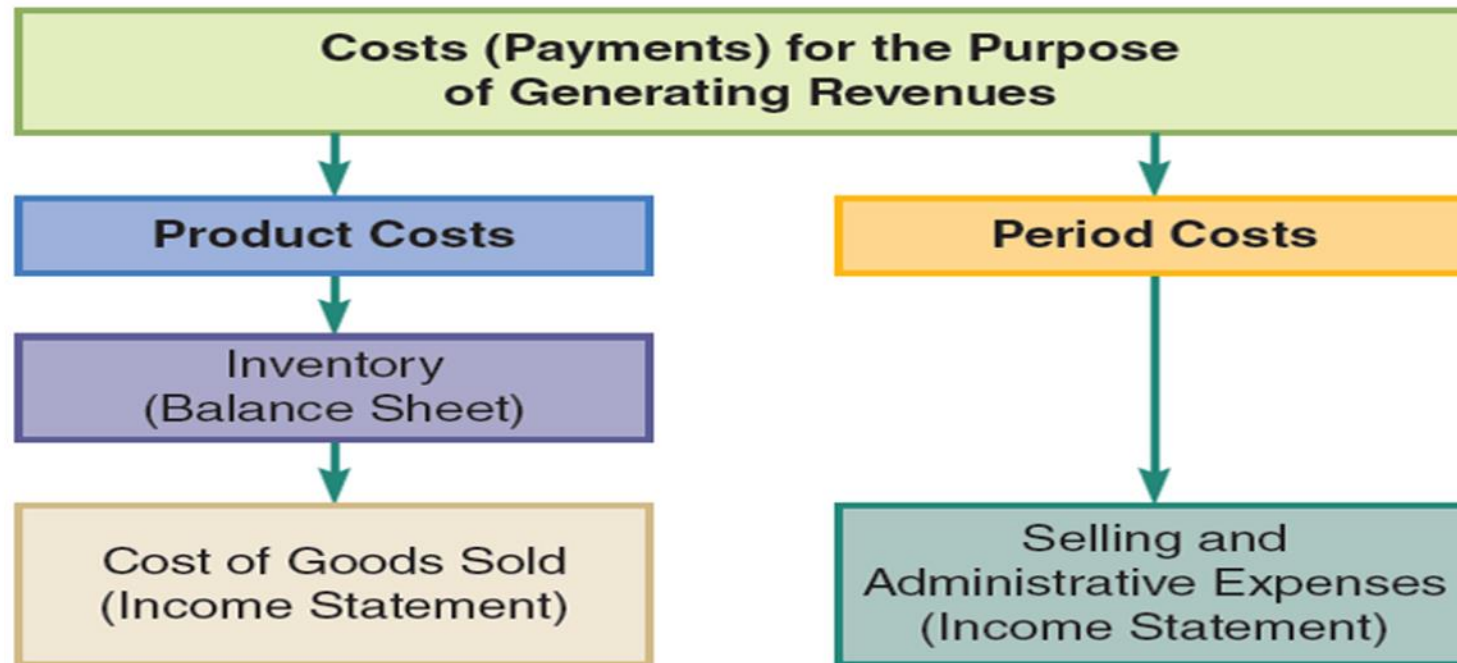
- Office salaries expense
- Office supplies expense
- Depreciation expense—office building and equipment

Product Costs and Period Costs

(slide 2 of 2)

- As product costs are incurred, they are recorded and reported on the balance sheet as inventory. When the inventory is sold, the cost of the manufactured product sold is reported as cost of goods sold on the income statement.
- Period costs are reported as expenses on the income statement in the period in which they are incurred, and, thus, they never appear on the balance sheet.

Product Costs, Period Costs, and the Financial Statements



Manufacturing Product Costs

For manufacturing companies, product costs include:

- **Raw materials:** includes any materials that go into the final product.
- **Work in process:** consists of units of product that are only partially complete and will require further work before they are ready for sale to the customer.
- **Finished goods costs:** consists of completed units of product that have not yet been sold to customers.

Transfer of Product Costs

- When direct materials are used in production, their costs are transferred from Raw Materials to Work in Process.
- Direct labor and manufacturing overhead costs are added to Work in Process to convert direct materials into finished goods.
- Once units of product are completed, their costs are transferred from Work in Process to Finished Goods.
- When a manufacturer sells its finished goods to customers, the costs are transferred from Finished Goods to Cost of Goods Sold.

Cost Classifications for Preparing Financial Statements

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



Period costs include all selling costs and administrative costs.



Cost Classifications for Predicting Cost Behavior

Cost behavior refers to how a cost will react to changes in the level of activity.

The most common classifications are:

- **Variable costs.**
- **Fixed costs.**
- **Mixed costs.**

Variable Cost

A cost that varies, in total, in direct proportion to changes in the level of activity.

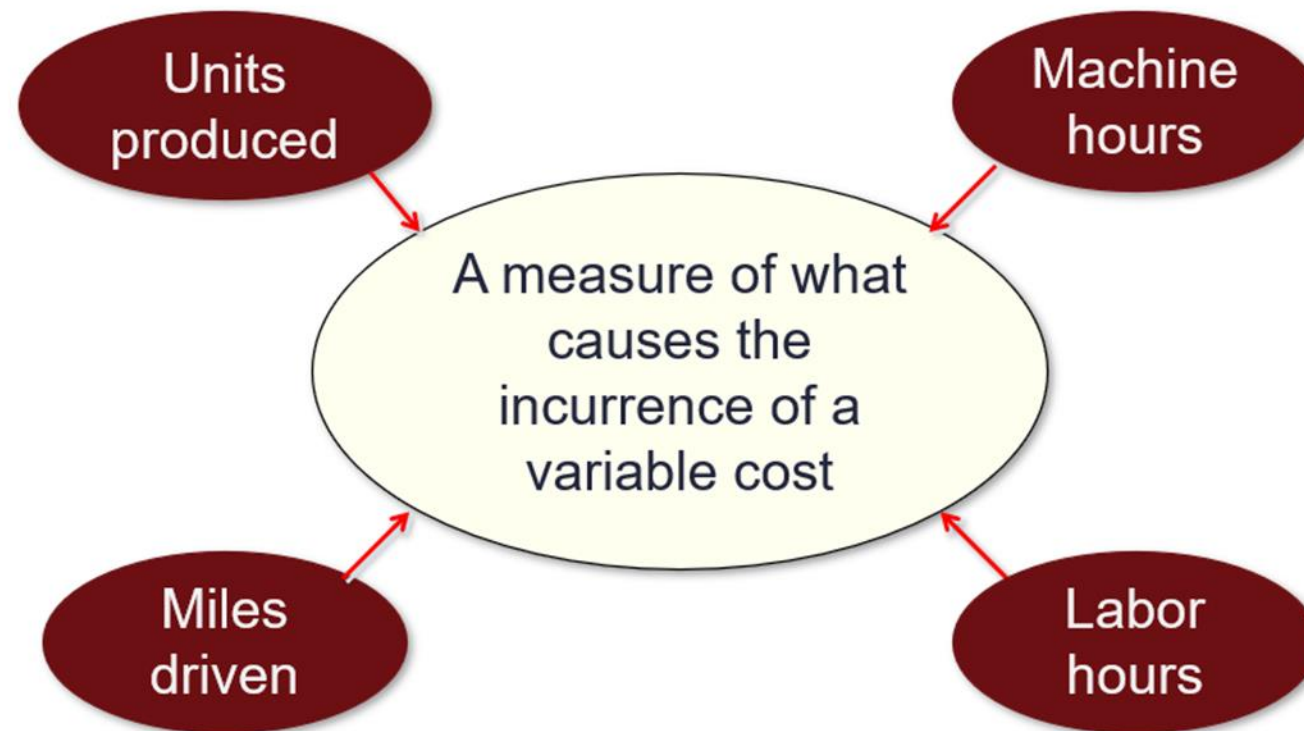
A variable cost per unit is constant.

Fixed Cost

A cost that remains constant, in total, regardless of changes in the level of the activity.

If expressed on a per unit basis, the average fixed cost per unit varies inversely with changes in activity.

An Activity Base (Cost Driver)

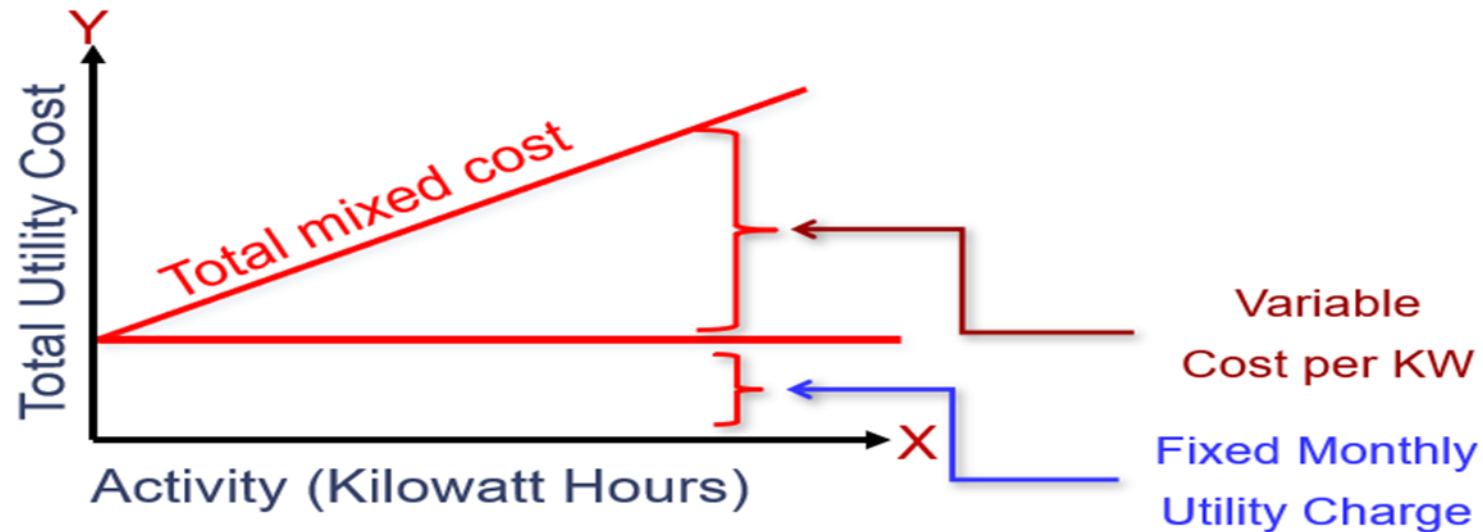


Comparison of Cost Classifications for Predicting Cost Behavior

Behavior of Cost (within the relevant range)		
Cost	In Total	Per Unit
Variable	Total variable cost Increase and decrease in proportion to changes in the activity level.	Variable cost per unit remains constant.
Fixed	Total fixed cost is not affected by changes in the activity level within the relevant range.	Fixed cost per unit decreases as the activity level rises and increases as the activity level falls.

Mixed Costs – Part 1

A mixed cost contains both variable and fixed elements. Consider the example of utility cost.

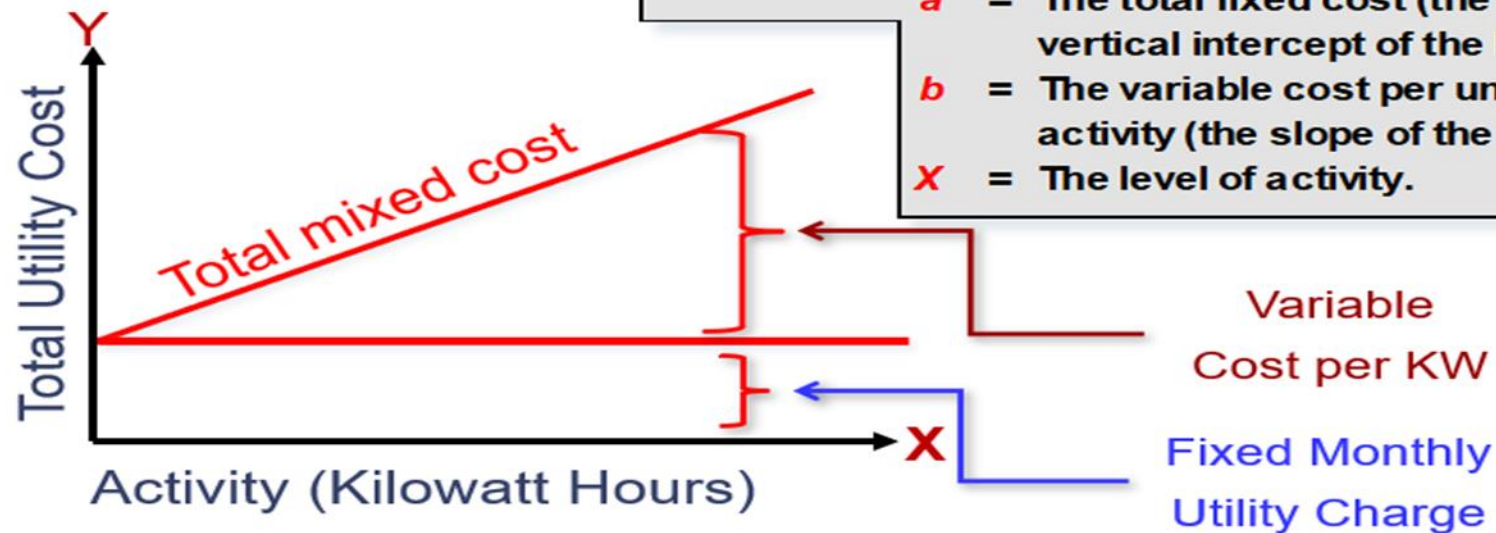


Mixed Costs – Part 2

The total mixed cost line can be expressed as an equation: $Y = a + bX$

Where:

- Y = The total mixed cost.
- a = The total fixed cost (the vertical intercept of the line).
- b = The variable cost per unit of activity (the slope of the line).
- X = The level of activity.



Mixed Costs – An Example

If your fixed monthly utility charge is \$40, your variable cost is \$0.03 per kilowatt hour, and your monthly activity level is 2,000 kilowatt hours, what is the amount of your utility bill?

$$Y = a + bX$$

$$Y = \$40 + (\$0.03 \times 2,000)$$

$$Y = \textbf{\$100}$$

Nonmanufacturing Costs

Selling Costs



Costs necessary to secure the order and deliver the product. Selling costs can be either direct or indirect costs.

Administrative Costs



All executive, organizational, and clerical costs. Administrative costs can be either direct or indirect costs.

Understand cost classifications used in making decisions: differential costs, sunk costs, and opportunity costs.

Cost Classifications for Decision Making

Decisions involve choosing between alternatives. The goal of making decisions is to identify those costs that are either relevant or irrelevant to the decision.

To make decisions, it is essential to have a grasp on three concepts: differential costs, sunk costs, and opportunity costs.

Differential Costs

Differential costs (or incremental costs) are the difference in cost between any two alternatives.

A difference in revenue between two alternatives is called differential revenue.

Both are always relevant to decisions.

Differential costs can be either fixed or variable.

Sunk Costs

Sunk costs have already been incurred and cannot be changed now or in the future.

These costs should be ignored when making decisions.

Opportunity Cost

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

These costs are not usually found in accounting records but must be explicitly considered in every decision.

For students: What is the opportunity cost you incur by attending class?

Prepare income statements for a merchandising company using the traditional and contribution formats.

The Traditional and Contribution Formats

Comparison of the Contribution Income Statement with the Traditional Income Statement

Traditional Format		Contribution Format	
Sales	\$ 100,000	Sales	\$ 100,000
Cost of goods sold	70,000	Variable expenses	60,000
Gross margin	\$ 30,000	Contribution margin	\$ 40,000
Selling & admin. expense:	20,000	Fixed expenses	30,000
Net operating income	\$ 10,000	Net operating income	\$ 10,000

Used primarily for external reporting.

Used primarily by management.

The contribution income statement format is used as an internal planning and decision-making tool. We will use this approach for:

Cost-volume-profit analysis .

Segmented reporting of profit data .

Budgeting .

Special decisions such as pricing and make-or-buy analysis .



Thank You