Job-Order Costing

Chapter 3

Job-Order Costing: An Overview

Job-order costing systems are used when:

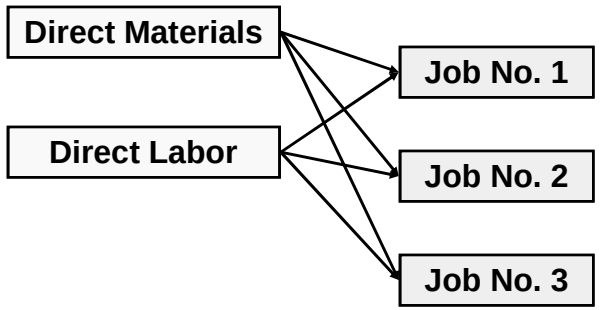
1. **Many different products are produced each period.**
2. **Products are manufactured to order.**
3. **The unique nature of each order requires tracing or allocating costs to each job, and maintaining cost records for each job.**

Job-Order Costing: An Overview

Examples of companies that would use job-order costing include:

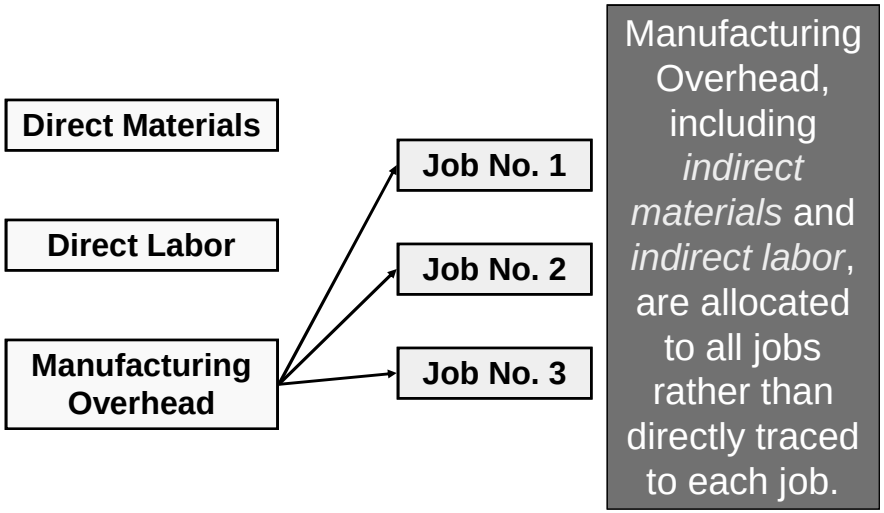
1. Boeing (aircraft manufacturing)
2. Bechtel International (large scale construction)
3. Walt Disney Studios (movie production)

Job-Order Costing – An Example



Charge direct material and direct labor costs to each job as work is performed.

Job-Order Costing – An Example



The Job Cost Sheet

PearCo Job Cost Sheet

Job Number A - 143 — Date Initiated 3-4-11
Date Completed
Department B3 — Units Completed
Item Wooden cargo crate

Direct Materials		Direct Labor			Manufacturing Overhead		
Req. No.	Amount	Ticket	Hours	Amount	Hours	Rate	Amount

Cost Summary	Units Shipped		
	Date	Number	Balance
Direct Materials			
Direct Labor			
Manufacturing Overhead			
Total Cost			
Unit Product Cost			

Measuring Direct Materials Cost

PearCo Materials Requisition Form

Requisition No. X7 - 6890 — Date 3-4-11
Job No. A - 143
Department B3

Description	Quantity	Unit Cost	Total Cost
2 x 4, 12 feet	12	$ 3.00	$ 36.00
1 x 6, 12 feet	20	4.00	80.00
			$ 116.00

Authorized Signature *Will E. Delite*

Measuring Direct Materials Cost

PearCo Job Cost Sheet

Job Number A - 143 — Date Initiated 3-4-11
Date Completed
Department B3 — Units Completed
Item Wooden cargo crate

Direct Materials		Direct Labor			Manufacturing Overhead		
Req. No.	Amount	Ticket	Hours	Amount	Hours	Rate	Amount
X7-6890	$ 116						

Cost Summary		Units Shipped		
		Date	Number	Balance
Direct Materials	$ 116			
Direct Labor				
Manufacturing Overhead				
Total Cost				
Unit Product Cost				

Measuring Direct Labor Costs

PearCo Employee Time Ticket

Time Ticket No. 36 Date 3-5-11

Employee I. M. Skilled Station 42

Starting Time	Ending Time	Hours Completed	Hourly Rate	Amount	Job No.
0800	1600	8.00	$ 11.00	$ 88.00	A-143
Totals		8.00	$ 11.00	$ 88.00	A-143

Supervisor *C. M. Workman*

Job-Order Cost Accounting

PearCo Job Cost Sheet

Job Number A - 143 Date Initiated 3-4-11

Date Completed

Department B3 Units Completed

Item Wooden cargo crate

Direct Materials		Direct Labor			Manufacturing Overhead		
Req. No.	Amount	Ticket	Hours	Amount	Hours	Rate	Amount
X7-6890	$ 116	36	8	$ 88			

Cost Summary		Units Shipped		
		Date	Number	Balance
Direct Materials	$ 116			
Direct Labor	$ 88			
Manufacturing Overhead				
Total Cost				
Unit Product Cost				

Why Use an Allocation Base?

An allocation base, such as direct labor hours, direct labor dollars, or machine hours, is used to assign manufacturing overhead to individual jobs.

We use an allocation base because:

a. It is impossible or difficult to trace overhead costs to particular jobs.

b. Manufacturing overhead consists of many different items ranging from the grease used in machines to the production manager's salary.

c. Many types of manufacturing overhead costs are fixed even though output fluctuates during the period.

Manufacturing Overhead Application

The predetermined overhead rate (*POHR*) used to apply overhead to jobs is determined before the period begins.

$$\text{POHR} = \frac{\text{Estimated total manufacturing overhead cost for the coming period}}{\text{Estimated total units in the allocation base for the coming period}}$$

Ideally, the allocation base is a cost driver that causes overhead.

The Need for a POHR

Using a predetermined rate makes it possible to estimate total job costs sooner.

Actual overhead for the period is not known until the end of the period.

Computing Predetermined Overhead Rates

The predetermined overhead rate is computed before the period begins using a four-step process.

1. Estimate the total amount of the allocation base (the denominator) that will be required for next period's estimated level of production.
2. Estimate the total fixed manufacturing overhead cost for the coming period and the variable manufacturing overhead cost per unit of the allocation base.
3. Use the following equation to estimate the total amount of manufacturing overhead:

$$Y = a + bX$$

Where,

Y = The estimated total manufacturing overhead cost
a = The estimated total fixed manufacturing overhead cost
b = The estimated variable manufacturing overhead cost per unit of the allocation base
X = The estimated total amount of the allocation base.

4. Compute the predetermined overhead rate.

Overhead Application Rate

PearCo estimates that it will require 160,000 direct labor-hours to meet the coming period's estimated production level. In addition, the company estimates total fixed manufacturing overhead at $200,000, and variable manufacturing overhead costs of $2.75 per direct labor hour.

Y = a + bX
Y = $200,000 + ($2.75 per direct labor-hour × 160,000 direct labor-hours)
Y = $200,000 + $440,000
Y = $640,000

$$\text{POHR} = \frac{\$640{,}000 \text{ estimated total manufacturing overhead}}{160{,}000 \text{ estimated direct labor hours (DLH)}}$$

POHR = $4.00 per direct labor-hour

Job-Order Cost Accounting

PearCo Job Cost Sheet

Job Number A - 143 **Date Initiated** 3-4-11
Date Completed 3-5-11
Department B3 **Units Completed** 2
Item Wooden cargo crate

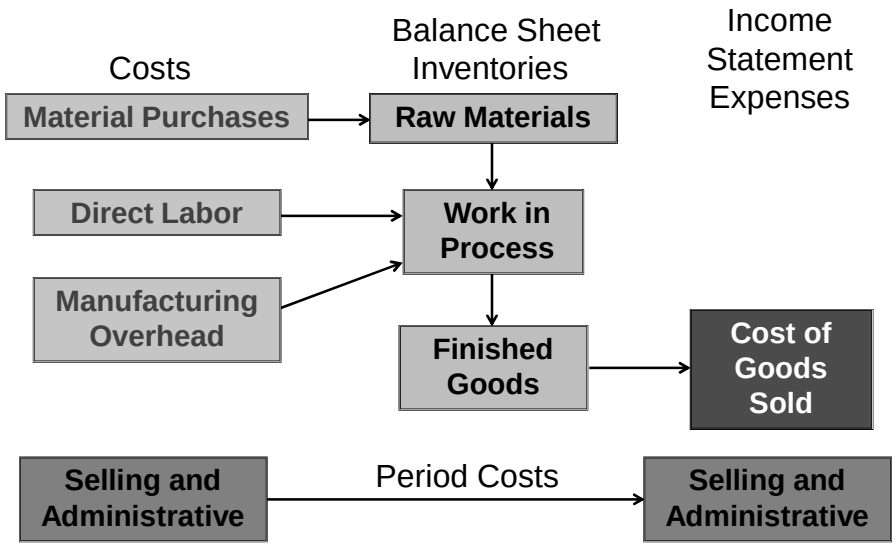
Direct Materials		Direct Labor			Manufacturing Overhead		
Req. No.	Amount	Ticket	Hours	Amount	Hours	Rate	Amount
X7-6890	$ 116	36	8	$ 88	8	$ 4	$ 32

Cost Summary		Units Shipped		
		Date	Number	Balance
Direct Materials	$ 116			
Direct Labor	$ 88			
Manufacturing Overhead	$ 32			
Total Cost	$ 236			
Unit Product Cost	$ 118			

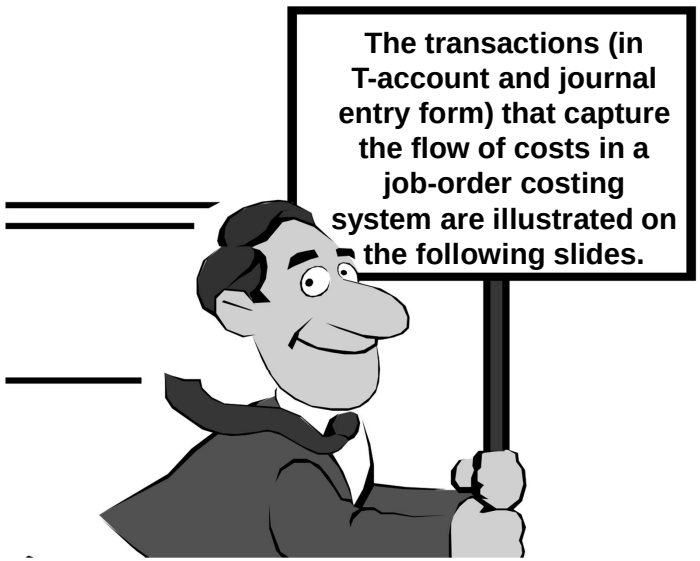
Key Definitions

1. **Raw materials** include any materials that go into the final product.
2. **Work in process** consists of units of production that are only partially complete and will require further work before they are ready for sale to customers.
3. **Finished goods** consist of completed units of product that have not been sold to customers.
4. **Cost of goods manufactured** include the manufacturing costs associated with the goods that were finished during the period,

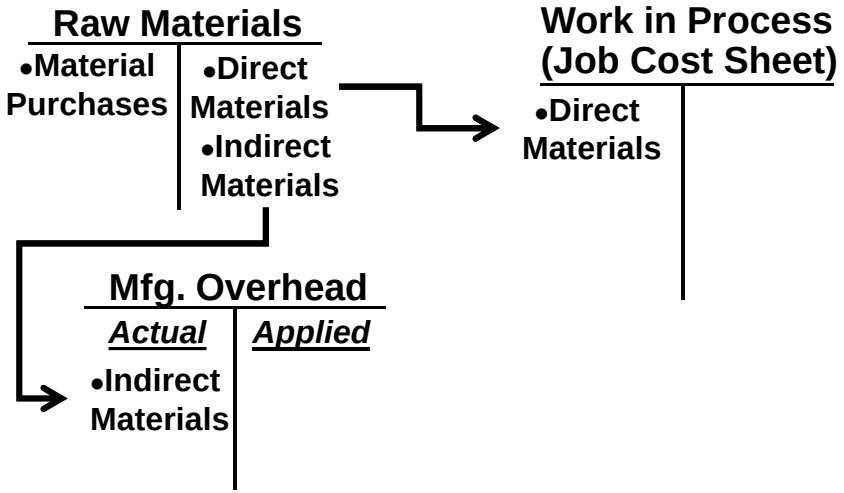
Flow of Costs: A Conceptual Overview



Job-Order Costing: The Flow of Costs



The Purchase and Issue of Raw Materials: T-Account Form



Cost Flows – Material Purchases

On October 1, Smith Corporation had $5,000 in raw materials on hand. During the month, the company purchased $45,000 in raw materials.

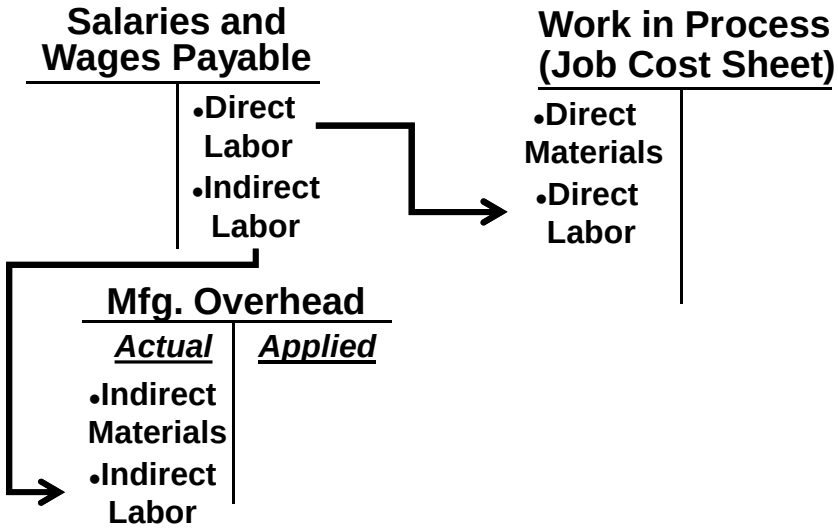
General Journal					Page 1
Date		Account Titles and Explanation	PR	Debit	Credit

Issue of Direct and Indirect Materials

On October 3, Smith had $43,000 in raw materials requisitioned from the storeroom for use in production. These raw materials included $40,000 of direct and $3,000 of indirect materials.

General Journal					Page 2
Date		Account Titles and Explanation	PR	Debit	Credit

Labor Costs



Labor Costs

During the month the employee time tickets included $35,000 of direct labor and $12,000 for indirect labor.

General Journal					Page 3
Date		Account Titles and Explanation	PR	Debit	Credit

Recording Actual Manufacturing Overhead

Salaries and Wages Payable

- Direct Labor
- Indirect Labor

Work in Process (Job Cost Sheet)

- Direct Materials
- Direct Labor

Mfg. Overhead

Actual	*Applied*
• Indirect Materials • Indirect Labor • Other Overhead	

Recording Actual Manufacturing Overhead

During the month the company incurred the following actual overhead costs:

1. Utilities (heat, water, and power) $1,700
2. Depreciation of factory equipment $2,900
3. Property taxes payable on factory $1,000

General Journal					Page 4
Date		Account Titles and Explanation	PR	Debit	Credit

Applying Manufacturing Overhead

Salaries and Wages Payable

- Direct Labor
- Indirect Labor

Work in Process (Job Cost Sheet)

- Direct Materials
- Direct Labor
- Overhead Applied

Mfg. Overhead

Actual	*Applied*
• Indirect Materials • Indirect Labor • Other Overhead	• Overhead Applied to Work in Process

If actual and applied manufacturing overhead are not equal, a year-end adjustment is required.

Applying Manufacturing Overhead

Smith uses a predetermined overhead rate of $3.50 per machine-hour. During the month, 5,000 machine-hours were worked on jobs.

General Journal					Page 5
Date		Account Titles and Explanation	PR	Debit	Credit

Accounting for Nonmanufacturing Cost

Nonmanufacturing costs are not assigned to individual jobs, rather they are expensed in the period incurred.

Examples:
1. Salary expense of employees who work in a marketing, selling, or administrative capacity.
2. Advertising expenses are expensed in the period incurred.

Accounting for Nonmanufacturing Cost

During the month, Smith incurred but has not paid sales salaries of $2,000, and advertising expense of $750.

General Journal					Page 6
Date		Account Titles and Explanation	PR	Debit	Credit

Transferring Completed Units

Work in Process (Job Cost Sheet)

- **Direct Materials**
- **Direct Labor**
- **Overhead Applied**

- **Cost of Goods Mfd.**

Finished Goods

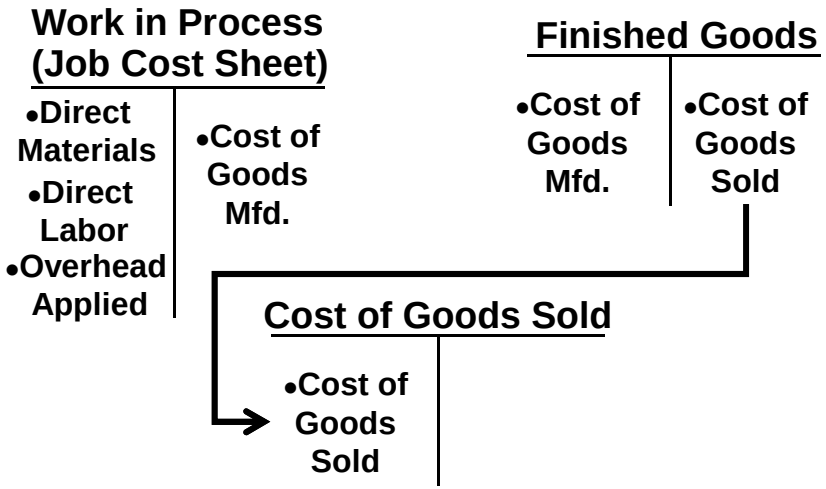
- **Cost of Goods Mfd.**

Transferring Completed Units

During the period, Smith completed jobs with a total cost of $27,000.

General Journal					Page 7
Date		Account Titles and Explanation	PR	Debit	Credit

Transferring Units Sold



Transferring Units Sold

Smith sold the $27,000 in Finished Goods Inventory to customers for $43,500 on account.

General Journal					Page 8
Date		Account Titles and Explanation	PR	Debit	Credit

Schedule of Cost of Goods Manufactured: Key Concepts

This schedule contains three types of costs, namely direct materials, direct labor, and manufacturing overhead.

It calculates the cost of raw material and direct labor used in production and the amount of manufacturing overhead **applied** to production.

It calculates the manufacturing costs associated with goods that were finished during the period.

Product Cost Flows

Raw Materials	Manufacturing Costs	Work In Process
Beginning raw materials inventory	Direct materials	Beginning work in process inventory
+ Raw materials purchased	+ Direct labor	+ Total manufacturing costs
= Raw materials available for use in production	+ Mfg. overhead applied	= Total work in process for the period
– Ending raw materials inventory	= Total manufacturing costs	– Ending work in process inventory
= Raw materials used in production		= Cost of goods manufactured

Product Cost Flows

Work In Process		Finished Goods
Beginning work in process inventory		Beginning finished goods inventory
+ Manufacturing costs for the period		+ Cost of goods manufactured
= Total work in process for the period		= Cost of goods available for sale
– Ending work in process inventory		- Ending finished goods inventory
= Cost of goods manufactured		Cost of goods sold

Underapplied and Overapplied Overhead—A Closer Look

The difference between the overhead cost applied to Work in Process and the actual overhead costs of a period is referred to as either underapplied or overapplied overhead.

Underapplied overhead exists when the amount of overhead applied to jobs during the period using the predetermined overhead rate is *less than* the total amount of overhead actually incurred during the period.

Overapplied overhead exists when the amount of overhead applied to jobs during the period using the predetermined overhead rate is *greater than* the total amount of overhead actually incurred during the period.

Overhead Application Example

PearCo's *actual overhead* for the year was *$650,000* with a total of *170,000* direct labor hours worked on jobs.

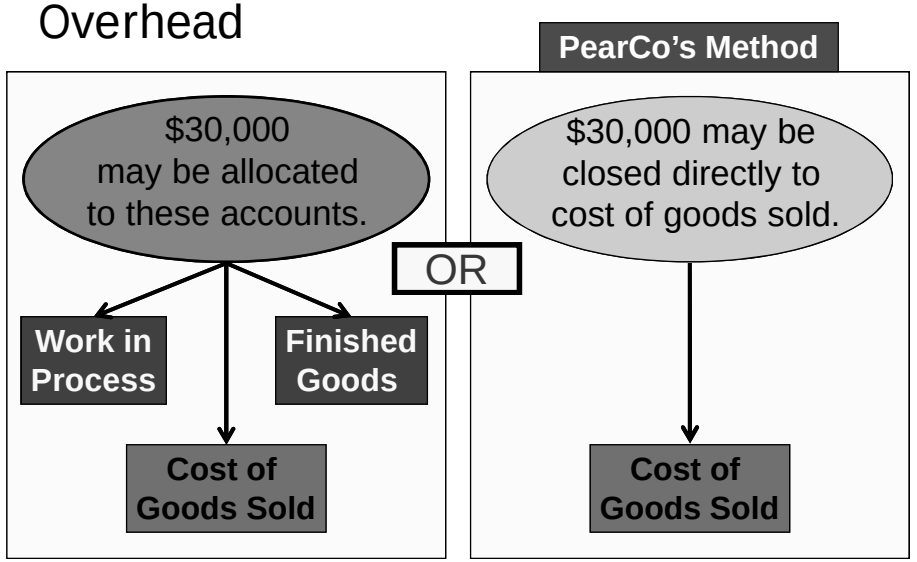
How much total overhead was applied to PearCo's jobs during the year? Use PearCo's predetermined overhead rate of $4.00 per direct labor hour.

Overhead Applied During the Period

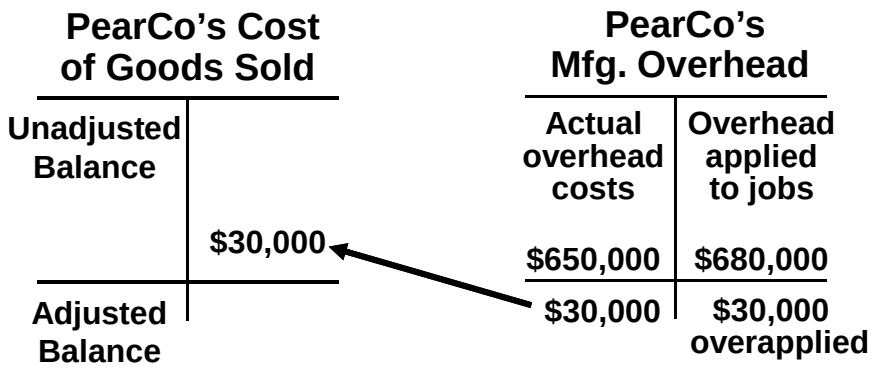
Applied Overhead = POHR × Actual Direct Labor Hours

Applied Overhead = $4.00 per DLH × 170,000 DLH = $680,000

Disposition of Under- or Overapplied Overhead



Disposition of Under- or Overapplied Overhead



Allocating Under- or Overapplied Overhead Between Accounts

Assume the overhead applied in ending Work in Process Inventory, ending Finished Goods Inventory, and Cost of Goods Sold is shown below:

	Amount
Work in process	$ 68,000
Finished Goods	204,000
Cost of Goods Sold	408,000
Total	$ 680,000

Allocating Under- or Overapplied Overhead Between Accounts

	Amount	Percent of Total	Allocation of $30,000
Work in process	$ 68,000	10%	$ 3,000
Finished Goods	204,000	30%	9,000
Cost of Goods Sold	408,000	60%	18,000
Total	$ 680,000	100%	$ 30,000

Manufacturing Overhead	30,000	
Work in Process Invenory		3,000
Finished Goods Inventory		9,000
Cost of Goods Sold		18,000

Overapplied and Underapplied Manufacturing Overhead - Summary

	PearCo's Method	
If Manufacturing Overhead is . . .	Alternative 1 Close to Cost of Goods Sold	Alternative 2 Allocation
UNDERAPPLIED (Applied OH is less than actual OH)	INCREASE Cost of Goods Sold	INCREASE Work in Process Finished Goods Cost of Goods Sold
OVERAPPLIED (Applied OH is greater than actual OH)	DECREASE Cost of Goods Sold	DECREASE Work in Process Finished Goods Cost of Goods Sold

More accurate but more complex to compute.

Multiple Predetermined Overhead Rates

To this point, we have assumed that there is a single predetermined overhead rate called a plantwide overhead rate.

Large companies often use multiple predetermined overhead rates.

→ May be more complex but . . .

↓ May be more accurate because it reflects differences across departments.

Job-Order Costing in Service Companies

Job-order costing is used in many different types of service companies.