Job-Order Costing

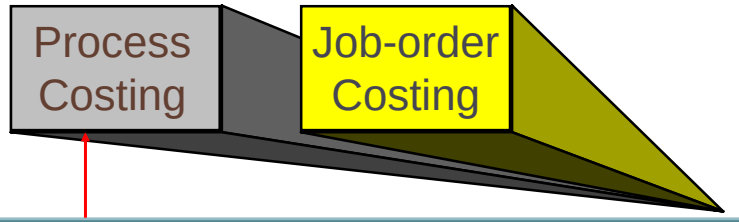
Chapter 8

AC202 Managerial Accounting

Assistant Professor Dr. Nontawan Yomchinda

Objective 1: Distinguish between process costing and job-order costing, and identify companies that would use each costing method.

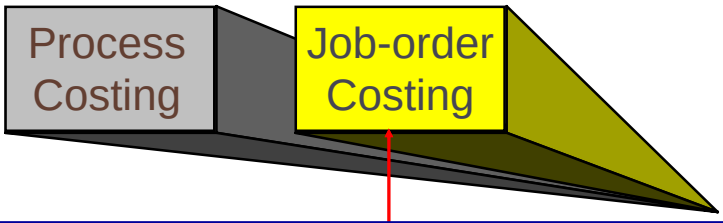
Types of Product Costing Systems



- A company produces many units of a single product.
- One unit of product is indistinguishable from other units of product.
- The identical nature of each unit of product enables assigning the same average cost per unit.

Objective 1: Distinguish between process costing and job-order costing, and identify companies that would use each costing method.

Types of Product Costing Systems



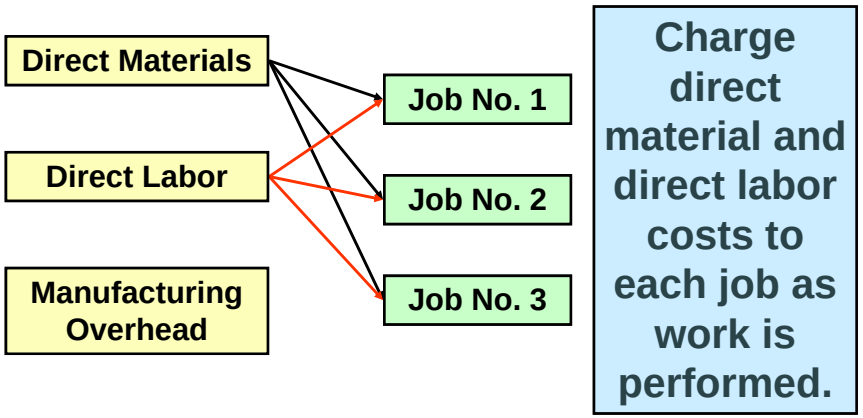
- Many different products are produced each period.
- Products are manufactured to order.
- The unique nature of each order requires tracing or allocating costs to each job, and maintaining cost records for each job.

Objective 1: Distinguish between process costing and job-order costing, and identify companies that would use each costing method.

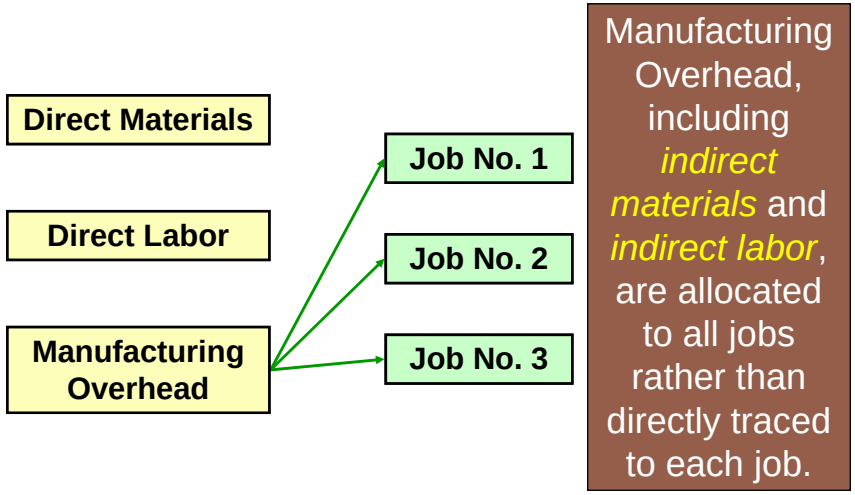
Comparing Process and Job-Order Costing

	Job-Order	Process
Number of jobs worked	Many	Single Product
Cost accumulated by	Individual Job	Department or Process
Average cost computed by	Job	Department or Process

Job-Order Costing – An Overview



Indirect Manufacturing Costs



The Job Cost Sheet

PearCo Job Cost Sheet

Job Number A - 143
Department B3
Item Wooden cargo crate

Date Initiated 3-4-09
Date Completed
Units Completed

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
Job No. A - 143
Department B3

Date 3-4-09

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 3-4-09
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		
Direct Materials	$ 116	Date	Number	Balance
Direct Labor				
Manufacturing Overhead				
Total Cost				
Unit Product Cost				

Measuring Direct Labor Costs

PearCo Employee Time Ticket

Time Ticket No. 36 Date 3/5/2009
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 3-4-09
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		
Direct Materials	$ 116	Date	Number	Balance
Direct Labor	$ 88			
Manufacturing Overhead				
Total Cost				
Unit Product Cost				

Why Use an Allocation Base?

Manufacturing overhead is applied to jobs that are in process. 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:

1. It is impossible or difficult to trace overhead costs to particular jobs.
2. Manufacturing overhead consists of many different items ranging from the grease used in machines to production manager's salary.
3. Many types of manufacturing overhead costs are fixed even though output fluctuates during the period.

Manufacturing Overhead Application

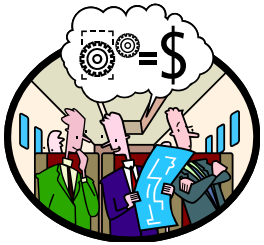
The predetermined overhead rate (*POHR*) used to apply overhead to jobs is determined before the period begins.

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

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.

Determining Predetermined Overhead Rates

Predetermined overhead rates are calculated using a three-step process.

❶	❷	❸
Estimate the level of production for the period.	Estimate total amount of the allocation base for the period.	Estimate total manufacturing overhead costs.

POHR = ❸ ÷ ❷

Application of Manufacturing Overhead

Based on *estimates*, and determined before the period begins.

Overhead applied = POHR × Actual activity

Actual amount of allocation is based upon the actual level of activity (normal costing system).

Objective 3: Compute POHR and explain why estimated OH cost are used in the costing process.

Overhead Application Rate

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

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

POHR = $4.00 per DLH

For each direct labor hour worked on a particular job, $4.00 of factory overhead will be applied to that job.

Objective 4: Compute the total cost and average cost and average cost per unit of a job.

Job-Order Cost Accounting

PearCo Job Cost Sheet

Job Number A - 143 | Date Initiated 3-4-09
Date Completed 3-5-09
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				
Unit Product Cost				

Objective 4: Compute the total cost and average cost and average cost per unit of a job.

Interpreting the Average Unit Cost

The average unit cost should not be interpreted as the costs that would actually be incurred if an additional unit was produced.

Fixed overhead would not change if another unit was produced, so the incremental cost of another unit is something less than $118.

Objective 5: Understand the flow of costs in a Job-Order system & record the journal entry.

Job-Order Costing: Document Flow Summary

A sales order is the basis of issuing a production order.

A production order initiates work on a job.

Job-Order Costing: Document Flow Summary

Materials used may be either direct or indirect.

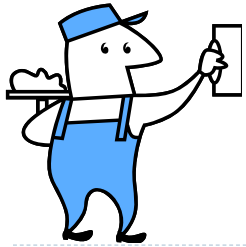
Materials Requisition

Direct materials → Job Cost Sheets

Indirect materials → Manufacturing Overhead Account

Job-Order Costing:Document Flow Summary

An employee's time may be either direct or indirect.



Employee Time Ticket

Direct Labor → Job Cost Sheets

Indirect Labor → Manufacturing Overhead Account

Job-Order Costing:Document Flow Summary

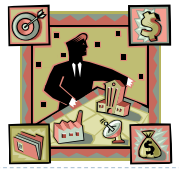
Materials Requisition → Indirect Material → Manufacturing Overhead Account

Other Actual OH Charges → Manufacturing Overhead Account

Employee Time Ticket → Indirect Labor → Manufacturing Overhead Account

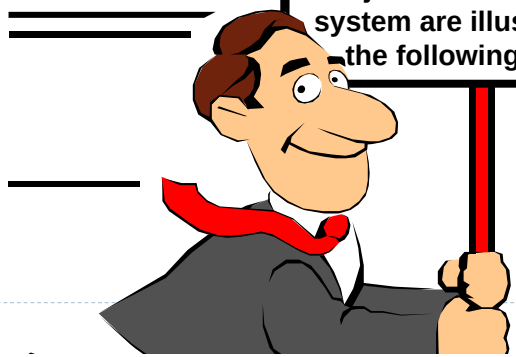
POHR rate used to apply overhead

Manufacturing Overhead Account → Job Cost Sheets

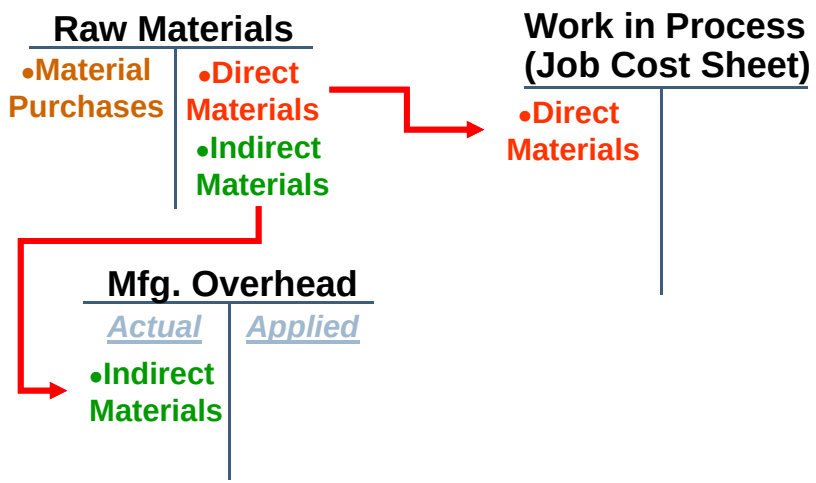


Job-Order Costing: The Flow of Costs

The transactions (in T-account and journal entry form) that capture the flow of costs in a job-order costing system are illustrated on the following slides.



The Purchase and Issue of Raw Materials



Cost Flows – Material Purchases

Raw material purchases are recorded in an inventory account.

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Date		Description	Post. Ref.	Debit	Credit
		Raw Materials		XXXXX	
		Accounts Payable			XXXXX

Cost Flows – Material Usage

Direct materials issued to a job increase Work in Process and decrease Raw Materials. Indirect materials used are charged to Manufacturing Overhead and also decrease Raw Materials.

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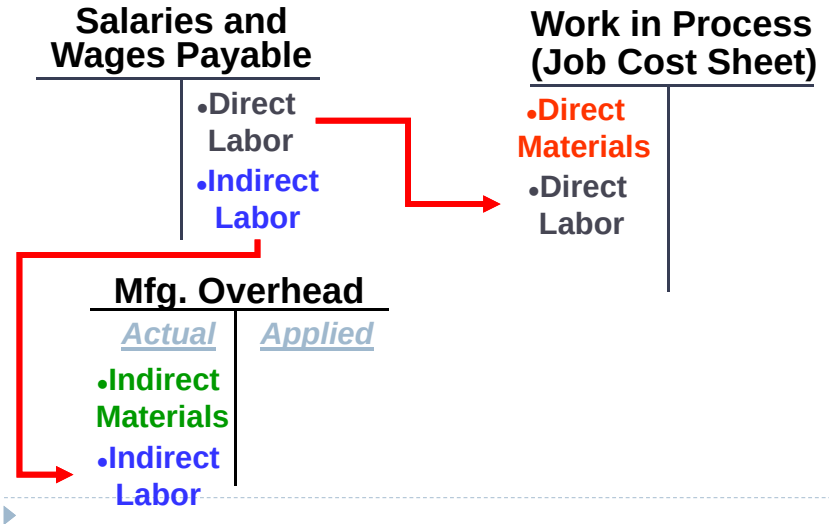
Date		Description	Post. Ref.	Debit	Credit
		Work in Process		XXXXX	
		Manufacturing Overhead		XXXXX	
		Raw Materials			XXXXX

The Recording of Labor Costs



The Recording of Labor Costs

The cost of direct labor incurred increases Work in Process and the cost of indirect labor increases Manufacturing Overhead.

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Date		Description	Post. Ref.	Debit	Credit
		Work in Process		XXXXX	
		Manufacturing Overhead		XXXXX	
		Salaries and Wages Payable			XXXXX

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

In addition to indirect materials and indirect labor, other manufacturing overhead costs are charged to the Manufacturing Overhead account as they are incurred.

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Date		Description	Post. Ref.	Debit	Credit
		Manufacturing Overhead		XXXXX	
		Accounts Payable			XXXXX
		Property Taxes Payable			XXXXX
		Prepaid Insurance			XXXXX
		Accumulated Depreciation			XXXXX

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

Work in Process is increased when Manufacturing Overhead is applied to jobs.

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Date	Description	Post. Ref.	Debit	Credit
	Work in Process		XXXXX	
	Manufacturing Overhead			XXXXX

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

Nonmanufacturing costs (period expenses) are charged to expense as they are incurred.

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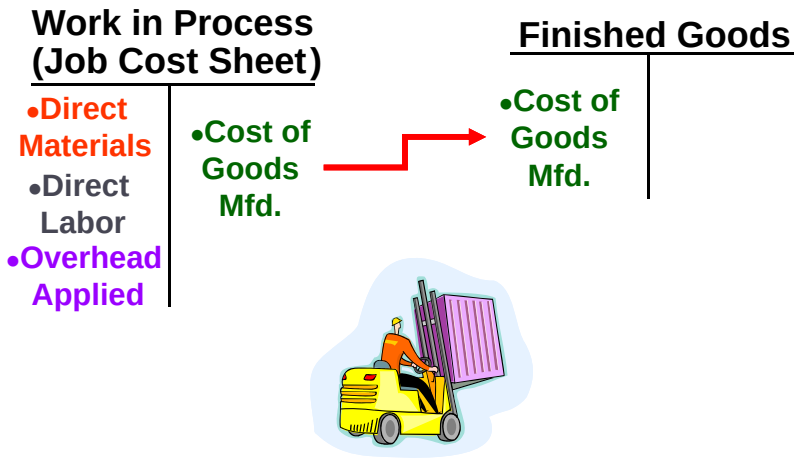
Date	Description	Post. Ref.	Debit	Credit
	Salaries Expense		XXXXX	
	Salaries Payable			XXXXX
	Advertising Expense		XXXXX	
	Accounts Payable			XXXXX

Transferring Completed Units



Transferring Completed Units

As jobs are completed, the Cost of Goods Manufactured is transferred to Finished Goods from Work in Process.

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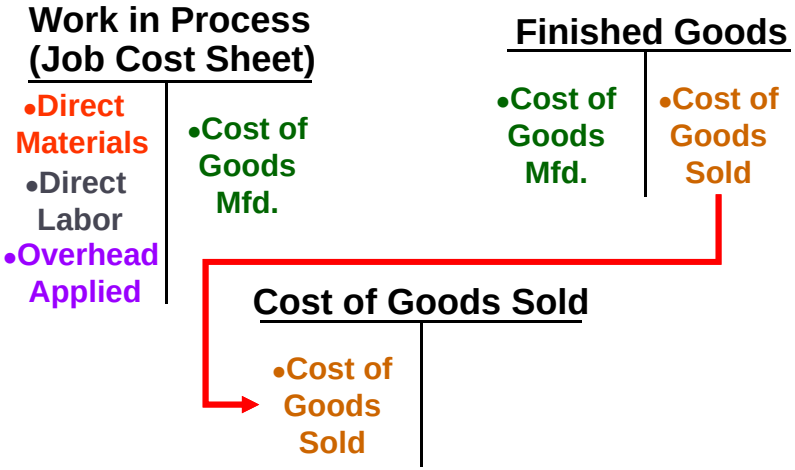
Date		Description	Post. Ref.	Debit	Credit
		Finished Goods		XXXXX	
		Work in Process			XXXXX

Transferring Units Sold



Transferring Units Sold

When finished goods are sold, two entries are required: (1) to record the sale, and (2) to record the Cost of Goods Sold.

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Date		Description	Post. Ref.	Debit	Credit
		Accounts Receivable		XXXXX	
		Sales			XXXXX
		Cost of Goods Sold		XXXXX	
		Finished Goods			XXXXX

Problems of Overhead Application

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.

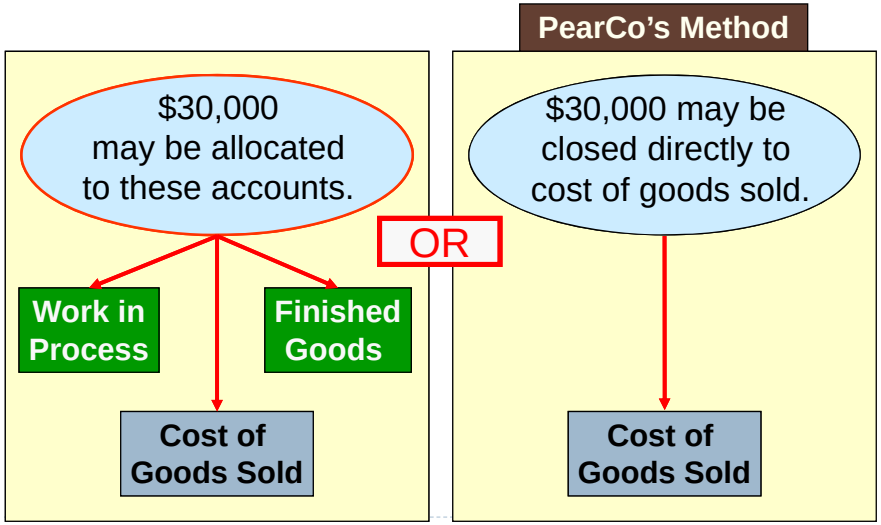
How much total overhead was applied to PearCo's jobs during the year? Use PearCo's predetermined overhead rate of $4.00 per direct labor hour.

Overhead Applied During the Period

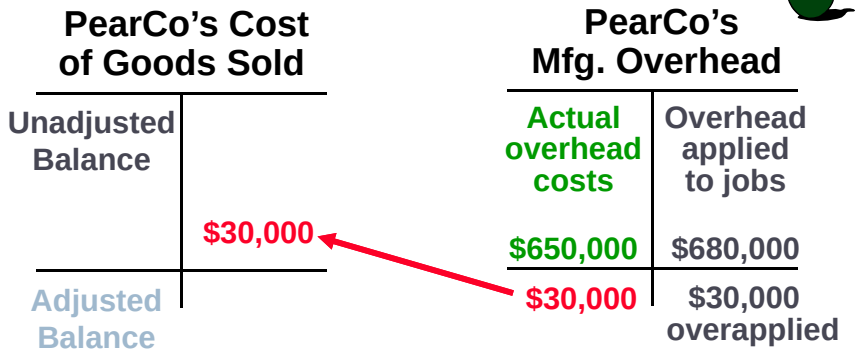
Applied Overhead = POHR × Actual Direct Labor Hours

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

	Amount	Percent of Total	Allocation of $30,000
Work in process	$ 68,000		
Finished Goods	204,000		
Cost of Goods Sold	408,000		
Total	$ 680,000		

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Date	Description	Post. Ref.	Debit	Credit

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.

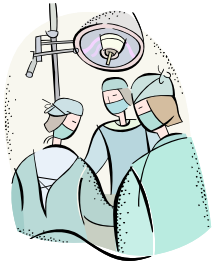
Large companies often use multiple predetermined overhead rates.

May be more complex but . . .

May be more accurate because it reflects differences across departments.

Job-Order Costing in Service Companies

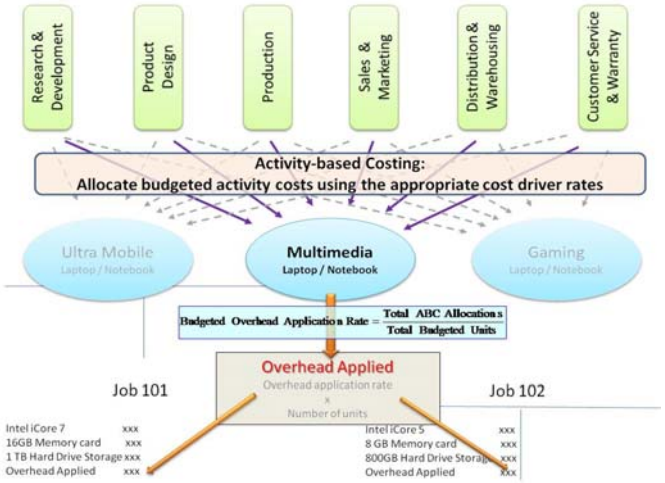
Job-order costing is used in many different types of service companies.



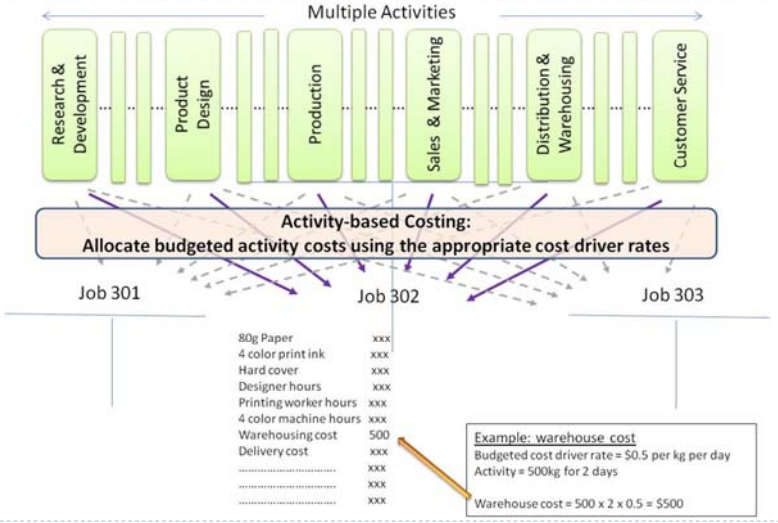
Activity-based Job-order Costing

Appendix 8A

Activity-based Job-order Costing: Example at Dell



Activity-based Job-order Costing: Example at Paperart



End of Chapter 8