Job Costing System
Book: Chapter 5

CONTENTS

Learning Objectives

- *Describe the building-block concepts of costing systems*
- *Distinguish between job costing and process costing*
- *Outline the seven-step approach to job costing*
- *Distinguish between actual costing and normal costing*
- *Identify the end-of-period adjustment*

COST ACCUMULATION SYSTEM

Job-costing system	***Each job is unique. (Manufactured by small batch, product tailored to customer's specific needs).***
Process-costing system	***Mass production of standardized products or services***
Joint product and by-products	***The production of one product makes the production of other products inevitable.***
Full / absorption costing	***With this system, all the variable manufacturing costs plus fixed manufacturing overheads are allocated to products.***
Variable costing	***With this system, only variable manufacturing costs are assigned to products.***
Activity-Based Costing (ABC)	***With this system, activities are used to assign costs to other cost objects such as products or services.***
Standard Costs	***This system uses expected or budgeted costs rather than actual costs. The variances (the difference between the standard costs and the actual costs) are then recorded periodically.***

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Job-Costing and Process-Costing Systems

~~EMPLOYMENT~~

Job-costing system

Process-costing system

Hybrid-costing system

Each job is unique. (Manufactured by small batch, product tailored to customer's specific needs).

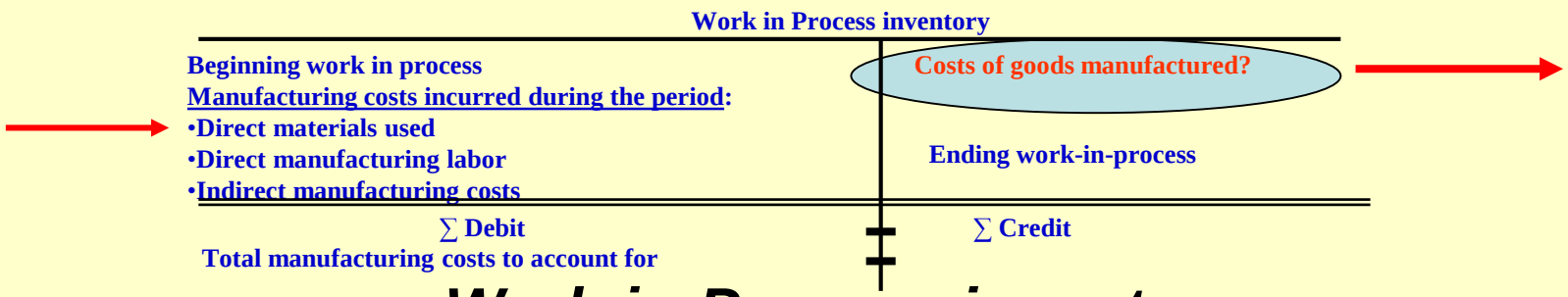
Mass production of standardized products or services.

Job-Costing Systems

- ***Each job is unique.***
- ***The cost of each job must be calculated separately.***
- ***Direct and indirect costs are used.***
- ***The absorption (full) costing system is usually used.***
- ***Actual-costing and normal-costing methods are used.***

Examples of job costing in the manufacturing sector

- Aircraft assembly
- House construction
- Textbook publishing
- Vehicle maintenance
- Shipbuilding
- Tailoring, etc.



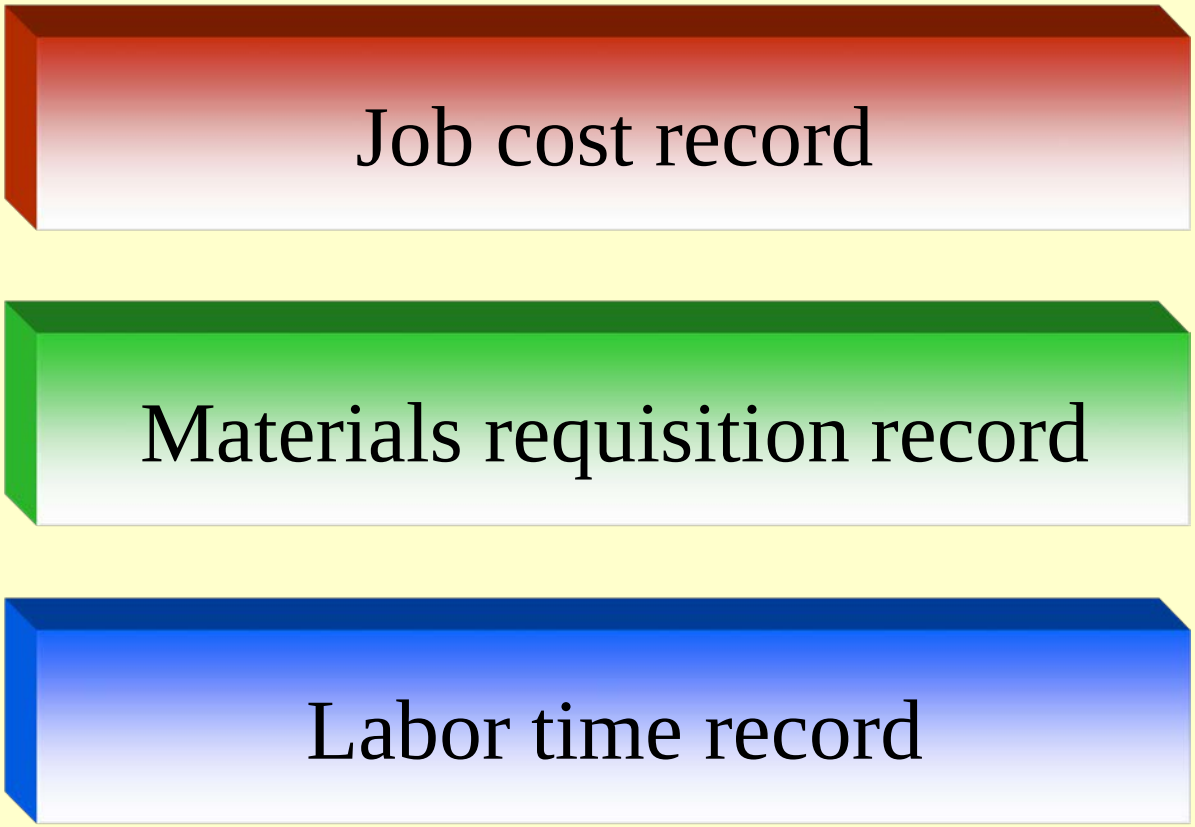
Work-in-Process inventory
Schedule of cost of goods manufactured

	CONCEPTS	*UNITS*	*U.C*	*T.A.*
+	Direct material used			
+	Direct manufacturing labor costs			
+	Manufacturing overheads costs			
=	Mfg. costs incurred during the period			
+	Beginning work in process			
=	Total mfg. costs to account for			
−	Ending work in process			
=	Costs of goods manufactured			

Job cost record

		Job nº		
	Concept	***Units***	***Unit cost***	***Total costs***
	TOTAL DIRECT COSTS:			
+	MATERIALS USED			
+	MANUFACTURING LABOR			
	TOTAL INDIRECT COSTS:			
+	MANUFACTURING COSTS			
=	**MANUFACTURING COSTS INCURRED DURING THE PERIOD**			
+	BEGINNING WORK IN PROCESS			
-	ENDING WORK IN PROCESS			
=	**COSTS OF GOODS MANUFACTURED**			

Source Documents



Seven-Step Approach to Job Costing

Step 1 Identify the chosen cost object	Job number: WPP298
Step 2 Identify the direct costs of the job	Direct materials & direct manufacturing labor
Step 3 Select the cost-allocation bases	e.g.:Direct manufacturing labor hours
Step 4 Identify the indirect costs (cost pool)	Manufactured overhead costs

Seven-Step Approach to Job Costing

Step 5
Compute the rate per unit or allocation rate.

Step 6
Compute the indirect costs.

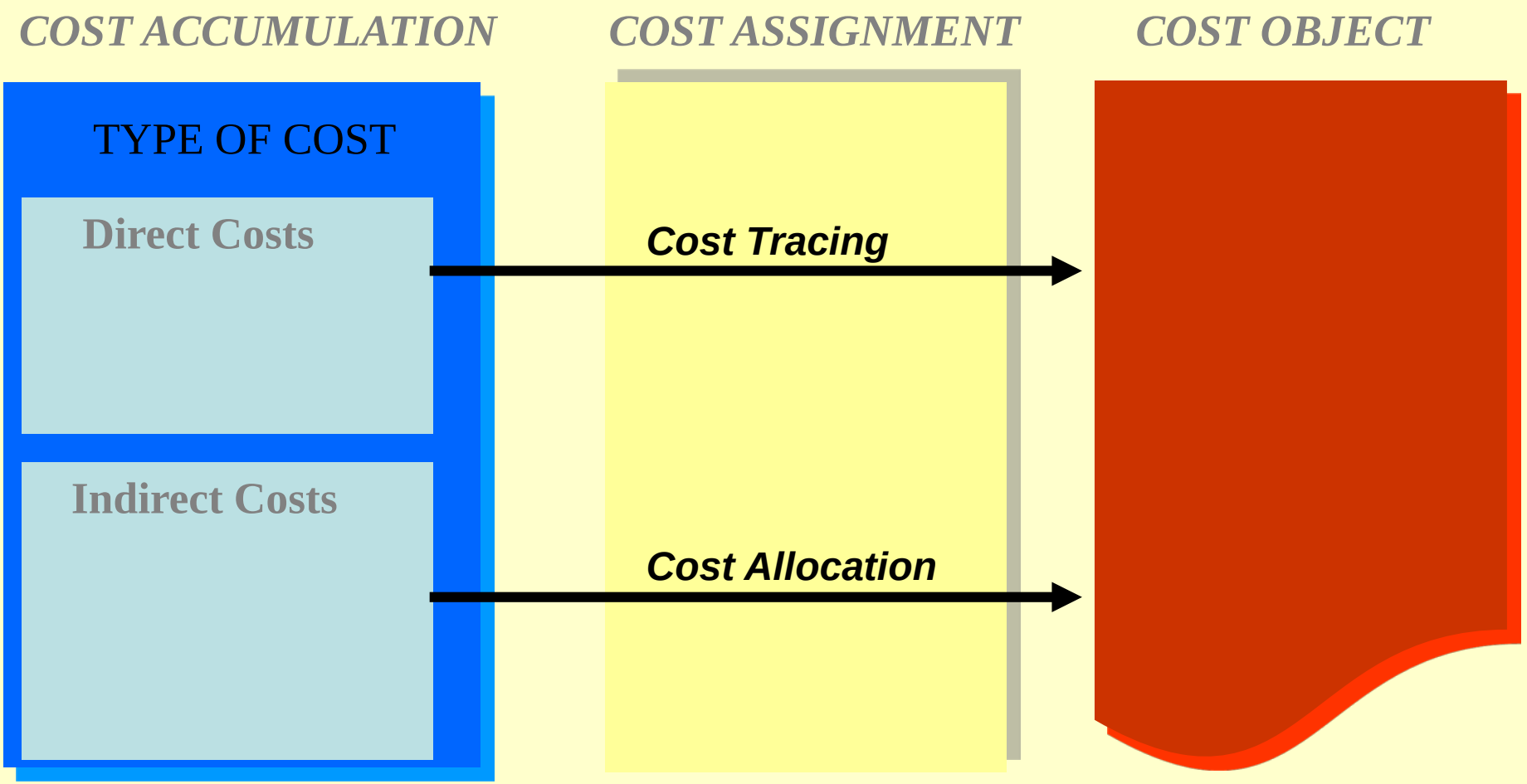
Step 7
Compute the total cost of the job.

Allocation rate = total indirect cost / cost allocation base

Indirect cost = quantity of allocation base x allocation rate

By adding all direct and indirect costs assigned to the job

Building-Block Concepts of Costing Systems



Building-Block Concepts of Costing Systems

It is a grouping of individual cost items (usually indirect costs)

$$\text{Cost allocation rate} = \frac{\text{Cost pool}}{\text{Cost allocation base}}$$

This is a factor or criterion that systematically links an indirect cost to a cost object.

Examples of cost allocation base

UNITS

- Direct labor (hours)
- Machine (hours)
- Units of production
- Kg. liter, m^2 or m^3
- Number of employees

$

- Direct labor (dollars)
- Direct materials (dollars)
- Revenues, etc.

Actual Costing Systems

This system uses actual costs to determine the cost of individual jobs.

Indirect costs are allocated based on the actual indirect-cost rate(s) times the actual quantity of the cost-allocation base(s).

Cost concepts	**Actual Costing**
Direct-cost rates	Actual rates
Indirect-cost rates	Actual rates

EXERCISE:

Destin Products uses a job-costing system with two direct-cost categories (direct materials and direct manufacturing labor) and one manufacturing overhead cost pool. ***Destin*** allocates manufacturing overhead costs using direct manufacturing labor costs. ***Destin*** provides the following information:

Concept	*Actual Results For 2011*
Direct materials costs	$ 1,900,000
Direct manufacturing labor costs	$ 1,450,000
Indirect manufacturing overhead costs	$ 2,755,000

Required:

1. Compute the **actual** manufacturing overhead rates for 2017

$$\text{Cost allocation rate} = \text{Cost overhead rate} = \frac{\text{Cost pool}}{\text{Cost allocation base}} = \frac{\text{I. mfg. overhead}}{\text{D. mfg. labor costs}} =$$

$$= \frac{2{,}755{,}000}{1{,}450{,}000} = \$\ 1.9 \text{ per } \$ \text{ mfg. labor costs}$$

Required:

2. In March, the job-cost record for job 626 contained the following information:

D. materials used	$40,000
D. mfg. labor costs	$30,000

Compute the cost of job 626 using **actual** costing.

	Job nº 626		
Concept	***Units***	***Unit cost***	***Total costs***
TOTAL DIRECT COSTS:			
MATERIALS			40,000
MFG. LABOR			30,000
TOTAL INDIRECT COSTS:			
MFG. COSTS	30,000	1.9	57,000
TOTAL MFG. COSTS			***127,000***

QUANTITY: always actual

If actual rates: actual costing

Why do companies wait till the end of the year to calculate indirect-cost rates?

Why can't companies calculate indirect-cost rates each week? Or each month?

	1	2	3	4
INDIRECT COSTS ($)	**12,000**	**10,800**	**10,500**	**11,700**
ACTIVITY (Hours)	**800**	**900**	**500**	**650**
RATE ($ / hours)	**15**	**12**	**21**	**18**

There two reasons for using an annual budget period are:

$$\text{Cost allocation rate} = \frac{\text{Cost pool}}{\text{Cost allocation base}} = \text{Cost overhead rate}$$

The numerator reason

The longer the time period, the less the influence of seasonal patterns.

The denominator reason

The longer the time period, the less effect variations in output levels have on the allocation of fixed costs.

The numerator reason

The longer the time period, the less the influence of seasonal patterns.

Examples of seasonal costs

Cost of heating

Examples of non-seasonal costs

Cost of repairs, maintenance of equipment

If monthly indirect-cost rates are calculated, the jobs done in a month with high seasonal or non-seasonal erratic costs will be loaded with these costs.

If a single annual indirect-cost rate is calculated, the effect of the whole year will be incorporated into a single rate.

The denominator reason

The longer the time period, the less effect variations in output levels have on the allocation of fixed costs.

SEE BOOK, PAGES 162-163

REMEMBER

$$TIC = IFC + ivc \cdot X$$

- TIC: Total Indirect Cost
- IFC: **Indirect Fixed Cost**
- ivc: Indirect Variable Cost per unit
- X: Units produced

Examples of indirect and variable costs	Cost of supplies, indirect manufacturing labor, repairs
Examples of indirect and fixed costs	Cost of property, taxes, rent,

If monthly indirect-cost rates are calculated, the jobs done in different months will be allocated significantly different indirect costs.

If a single annual indirect-cost rate is calculated, the effect of the whole year will be incorporated into a single rate.

Normal Costing Systems

This method allocates indirect costs based on the budgeted indirect-cost rate(s) times the actual quantity of the cost allocation base(s).

Cost concepts	**Normal costing**
Direct-cost rates	Actual rates
Indirect-cost rates	Budgeted rates

Actual vs. Normal Costing Systems

Cost concepts	Actual Costing	Normal Costing
Direct-cost rates	Actual rates	Actual rates
Indirect-cost rates	Actual rates	Budgeted rates

Each costing method uses the actual quantity of the direct-cost input and the actual quantity of the cost-allocation base.

CONCEPTS	*Units*	*Unit cost*	*Total costs*
INDIRECT COSTS			

QUANTITY: always actual

If budgeted rates: normal costing

If actual rates: actual costing

End-Of-Period Adjustments

Ind. cost allocated (budgeted) **COMPARED** ***Ind. costs incurred (actual)***

C. Allocated < C. Incurred

Under-allocated indirect costs

Or under-applied or under-absorbed

C. Allocated > C. Incurred

Over-allocated indirect costs

Or over-applied or over-absorbed

In other words:

VARIANCE = C. ALLOCATED – C. INCURRED

+ Over-allocated

- Under-allocated

EXERCISE:

Destin Products uses a job-costing system with two direct-cost categories (direct materials and direct manufacturing labor) and one manufacturing overhead cost pool. ***Destin*** allocates manufacturing overhead costs using direct manufacturing labor costs. ***Destin*** provides the following information:

Concept	***Budget For 2011***
D. materials costs	$ 2,000,000
D. mfg. labor costs	$ 1,500,000
I. mfg. overhead costs	$ 2,700,000

Required:

1. Compute the **budgeted** manufacturing overhead rates for 2017

$$\text{Cost allocation rate} = \text{Cost overhead rate} = \frac{\text{Cost pool}}{\text{Cost allocation base}} = \frac{\text{I. mfg. overhead}}{\text{D. mfg. labor costs}} =$$

$$= \frac{2{,}700{,}000}{1{,}500{,}000} = \$\ 1.80 \text{ per } \$ \text{ mfg. labor costs}$$

Required:

2. In March, the job-cost record for job 626 contained the following information:

D. materials used	$40,000
D. mfg. labor costs	$30,000

Compute the cost of job 626 using **normal** costing.

	Job nº 626		
Concept	***Units***	***Unit cost***	***Total costs***
TOTAL DIRECT COSTS:			
MATERIALS			40,000
MFG. LABOR			30,000
TOTAL INDIRECT COSTS:			
MFG. COSTS	30,000	1.80	54,000
TOTAL MFG. COSTS			***124,000***

QUANTITY: always actual

If budgeted rates: normal costing

Compute the cost of job 626 using **actual** costing

	Job nº 626		
Concept	***Units***	***Unit cost***	***Total costs***
TOTAL DIRECT COSTS:			
MATERIALS			40,000
MFG. LABOR			30,000
TOTAL INDIRECT COSTS:			
MFG. COSTS	30,000	1.9	57,000
TOTAL MFG. COSTS			***127,000***

QUANTITY: always actual

If actual rates: actual costing

Compute the cost of job 626 using **normal** costing

	Job nº 626		
Concept	***Units***	***Unit cost***	***Total costs***
TOTAL DIRECT COSTS:			
MATERIALS			40,000
MFG. LABOR			30,000
TOTAL INDIRECT COSTS:			
MFG. COSTS	30,000	1.80	54,000
TOTAL MFG. COSTS			***124,000***

If budgeted rates: normal costing

Required:

3. At the end of 2017, compute the under- or over-allocated manufacturing overhead under normal costing.

Total manufacturing overhead allocated under normal costing = Actual mfg. labor costs × Budgeted overhead rate

= $1,450,000 × 1.8 = $ 2,610,000

Underallocated mfg. overhead = Mfg. overhead allocated − Actual mfg. overhead

= $ 2,610,000 - $ 2,755,000 = - $145,000

From the statement

EXERCISE:

Gammaro Company uses normal costing. It allocates manufacturing overhead costs using a budgeted rate per machine-hours. The following data are available for 2017:

Budgeted mfg. overhead costs	$4,200,000
Budgeted machine hours	175,000
Actual mfg. overhead costs	$4,050,000
Actual machine hours	170,000

Required: 1.- Calculate the **budgeted** manufacturing **overhead rate**.

Budgeted:

$$\text{Cost allocation rate} = \text{Cost overhead rate} = \frac{\text{Cost pool}}{\text{Cost allocation base}} = \frac{\text{I. mfg. overhead}}{\text{Machine hours}} =$$

$$= \frac{4{,}200{,}000}{175{,}000} = \$\ 24 \text{ per machine hour}$$

Required: 2. Compute the manufacturing overhead allocated in 2017.

CONCEPTS	*Units*	*Unit cost*	*Total costs*
INDIRECT COSTS	170,000	24	4,080,000

QUANTITY: always actual

If budgeted rates: normal costing

Required: 3. Calculate the amount of under-allocated or over-allocated mfg. overhead

VARIANCE = C. ALLOCATED – C. INCURRED

+ Over-allocated

- Under-allocated

+	Manufacturing overhead allocated	$4,080,000
-	Actual manufacturing overhead costs	4,050,000
=	Over-allocated manufacturing overhead	$ 30,000

Spanish approaches to make adjustments per each job:

INCOME STATEMENT:	*Job 1*						
Concepts	*Units*	*Unit cost*	*$ Value*	*…*	*TOTAL*		
					Units	*Unit cost*	*$ Value*
Revenues							
Cost of Goods Sold							
Gross **margin before adjust**.							
ADJUSTMENTS							
Gross **Margin after adjust**.							
Marketing Department							
Administration Department							
Operating income							

If over-allocated:

+ in Gross Margin

or

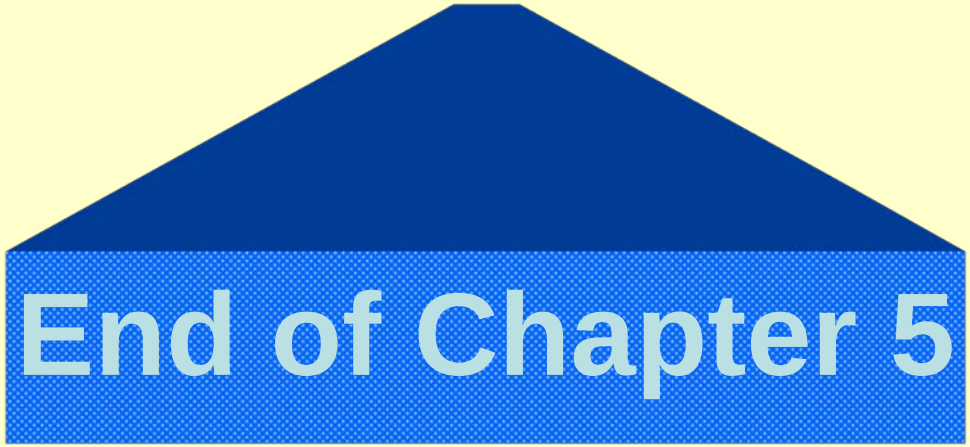
- in Cost of Goods Sold

If under-allocated:

- in Gross Margin

or

+ in Cost of Goods Sold



Any questions?

Thank you for your attention.