

Basics of costing

– *A financial statement perspective*

By Dr. David Derichs



Agenda for this session

- I. Job Costing
- II. Process Costing

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- I. **Job Costing**
- II. **Process Costing**

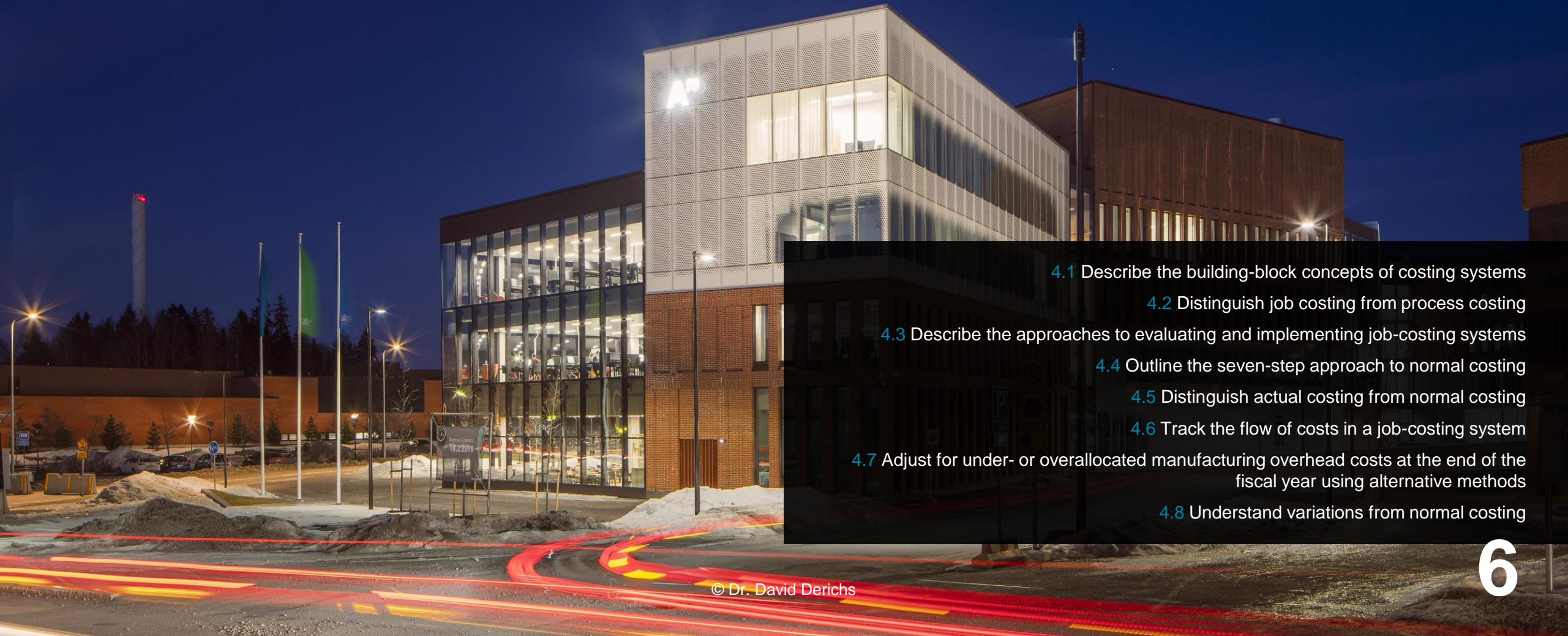
I. Job Costing



Agenda: Learning Objectives for this session

- 4.1 Describe the building-block concepts of costing systems
- 4.2 Distinguish job costing from process costing
- 4.3 Describe the approaches to evaluating and implementing job-costing systems
- 4.4 Outline the seven-step approach to normal costing
- 4.5 Distinguish actual costing from normal costing
- 4.6 Track the flow of costs in a job-costing system
- 4.7 Adjust for under- or overallocated manufacturing overhead costs at the end of the fiscal year using alternative methods
- 4.8 Understand variations from normal costing

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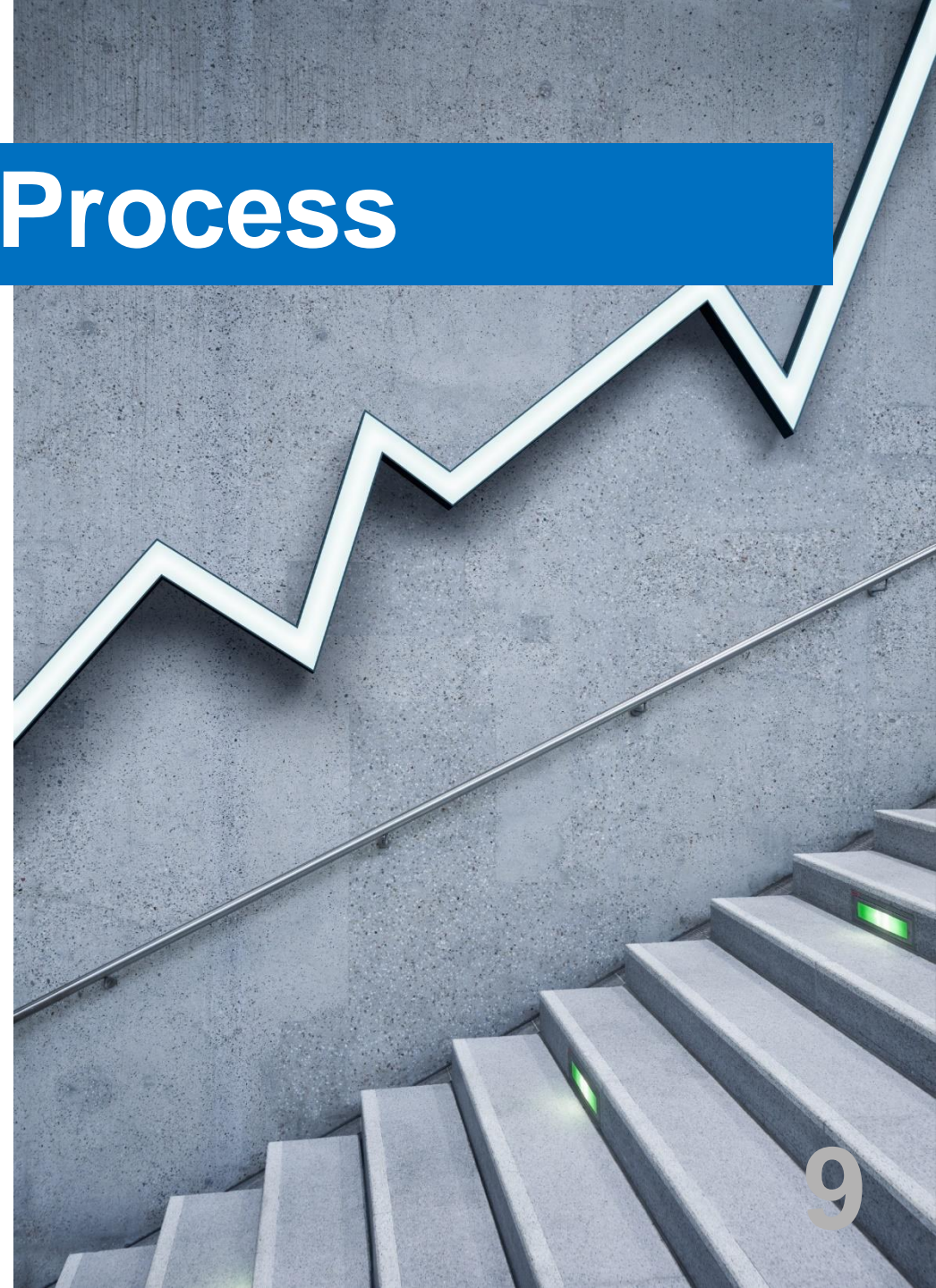
Basic Costing Terminology—Review

Let's review several key terms from prior chapters:

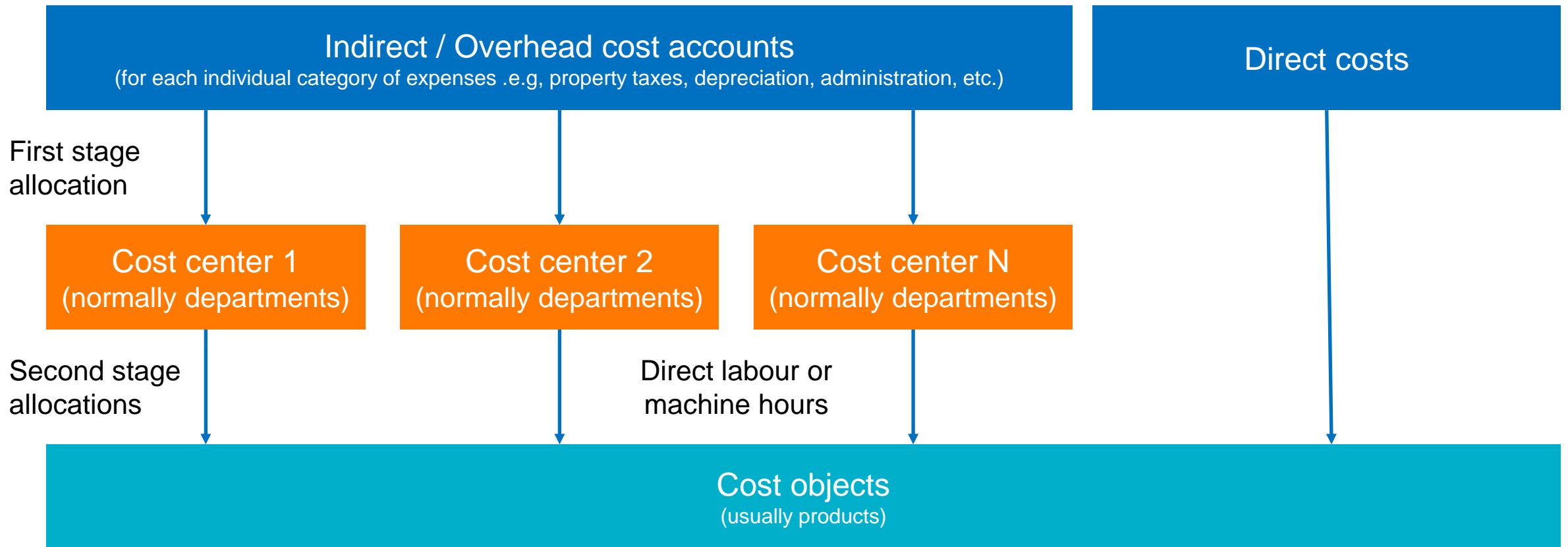
- **Cost objects** are anything for which a cost measurement is desired.
- **Direct costs** of a cost object are costs that can be traced to that cost object in an economically feasible way.
- **Indirect costs** of a cost object are costs that cannot be traced in an economically feasible way.
- **Cost Pool**—a grouping of individual indirect cost items. Cost pools simplify the allocation of indirect costs because the costing system does not have to allocate each cost individually.
- **Cost-allocation base**—a systematic way to link an indirect cost or group of indirect costs to cost objects – also know as **surrogates**
- The concepts represented by these five terms constitute the building blocks we will use to design the costing systems described in this chapter.

The Two-Stage Allocation Process

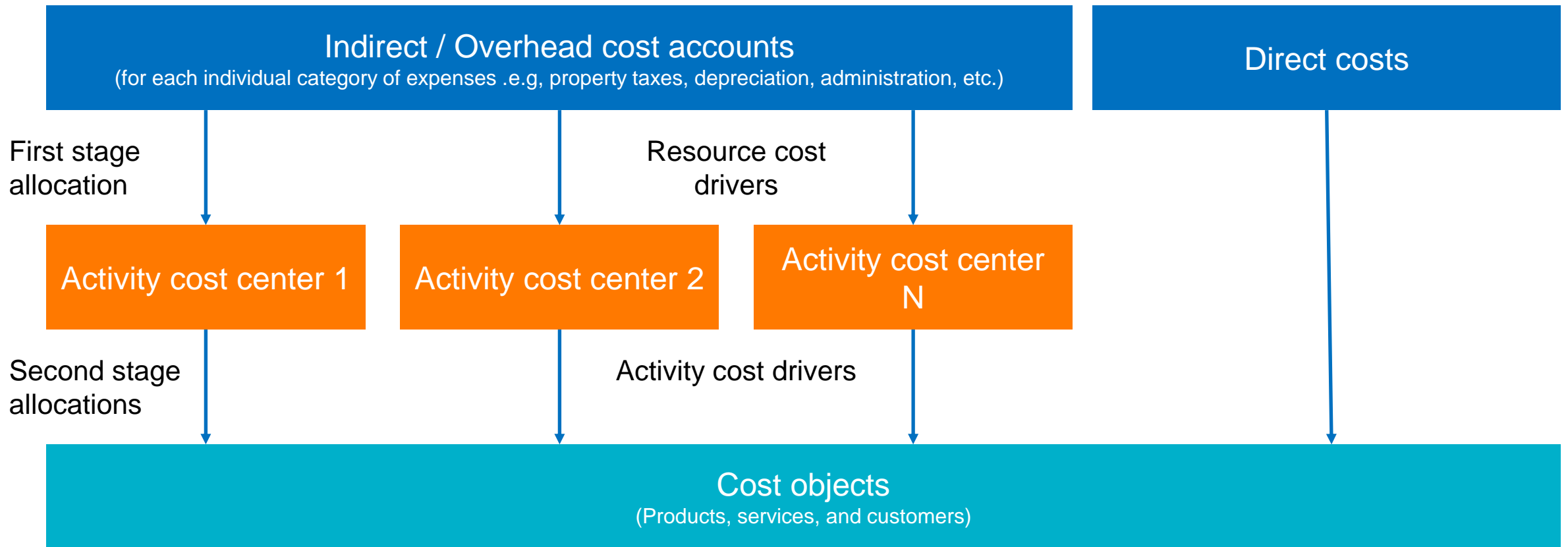
- Separate departmental overhead rates should be established for each department.
- The terms **cost centres** or **cost pools** are used to describe allocation to which **overhead costs are initially assigned**.
- Normally, cost centres/cost pools will consist of departments, but they can also consist of smaller segments within departments.



Two stage allocation: a traditional system



Two stage allocation: a ABC system



I. Job Costing

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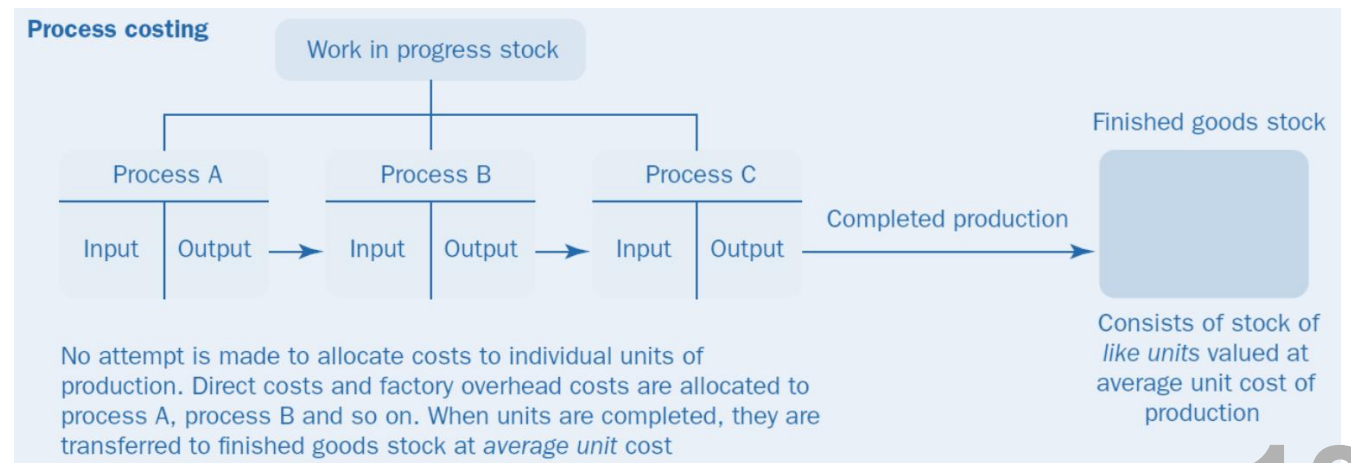
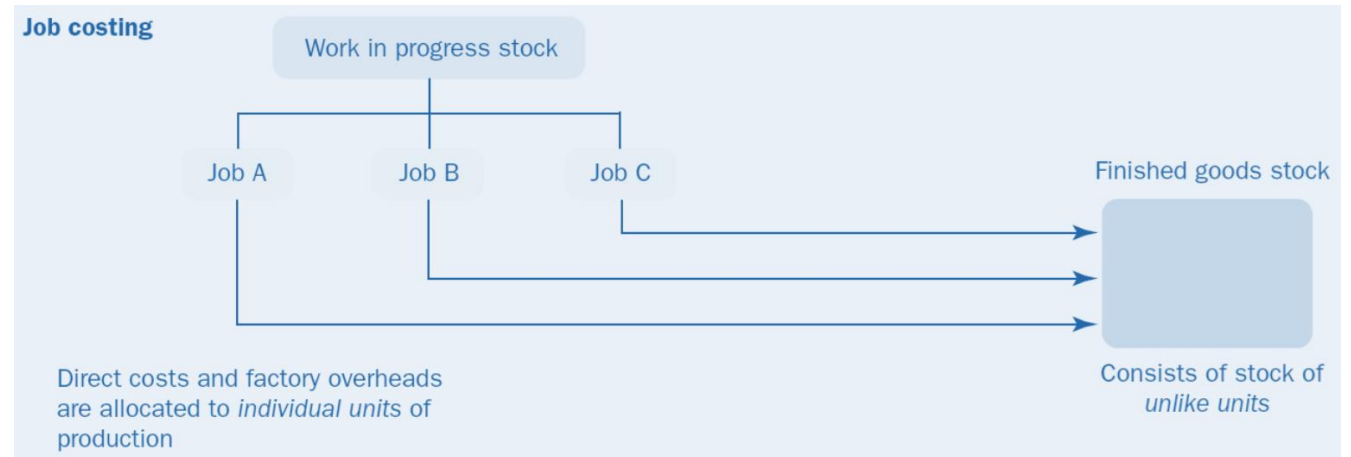
4.8 Understand variations from normal costing

Job vs. Process costing system

In a **Job Costing System**, the cost object is a unit or multiple units of a distinct product or service which we call a job. Each job generally uses different amounts of resources.

In a **Process Costing System**, the cost object includes masses of identical or similar units of a product or service. In this type of system, we divide the total cost of producing an identical or similar product or service by the total number of units produced to obtain a per-unit cost.

Source: Datar/Rajan (2021)
Managerial Accounting II



Where would you find job vs. process costing environments?

A?

Job vs. process costing examples

	Service Sector	Merchandising Sector	Manufacturing Sector
Job Costing Used	<ul style="list-style-type: none"> • Audit engagements done by PricewaterhouseCoopers • Consulting engagements done by McKinsey & Co. • Advertising-agency campaigns run by Ogilvy & Mather • Legal cases argued by Hale & Dorr • Computer-repair jobs done by CompUSA • Movies produced by Universal Studios 	<ul style="list-style-type: none"> • L. L. Bean sending individual items by mail order • Special promotion of new products by Walmart 	<ul style="list-style-type: none"> • Assembly of individual aircrafts at Boeing • Construction of ships at Litton Industries
Process Costing Used	<ul style="list-style-type: none"> • Bank-check clearing at Bank of America • Postal delivery (standard items) by U.S. Postal Service 	<ul style="list-style-type: none"> • Grain dealing by Arthur Daniel Midlands • Lumber dealing by Weyerhaeuser 	<ul style="list-style-type: none"> • Oil refining by Shell Oil • Beverage production by PepsiCo

Source: Datar/Rajan (2021)
Managerial Accounting II

Actual vs. Normal Approaches

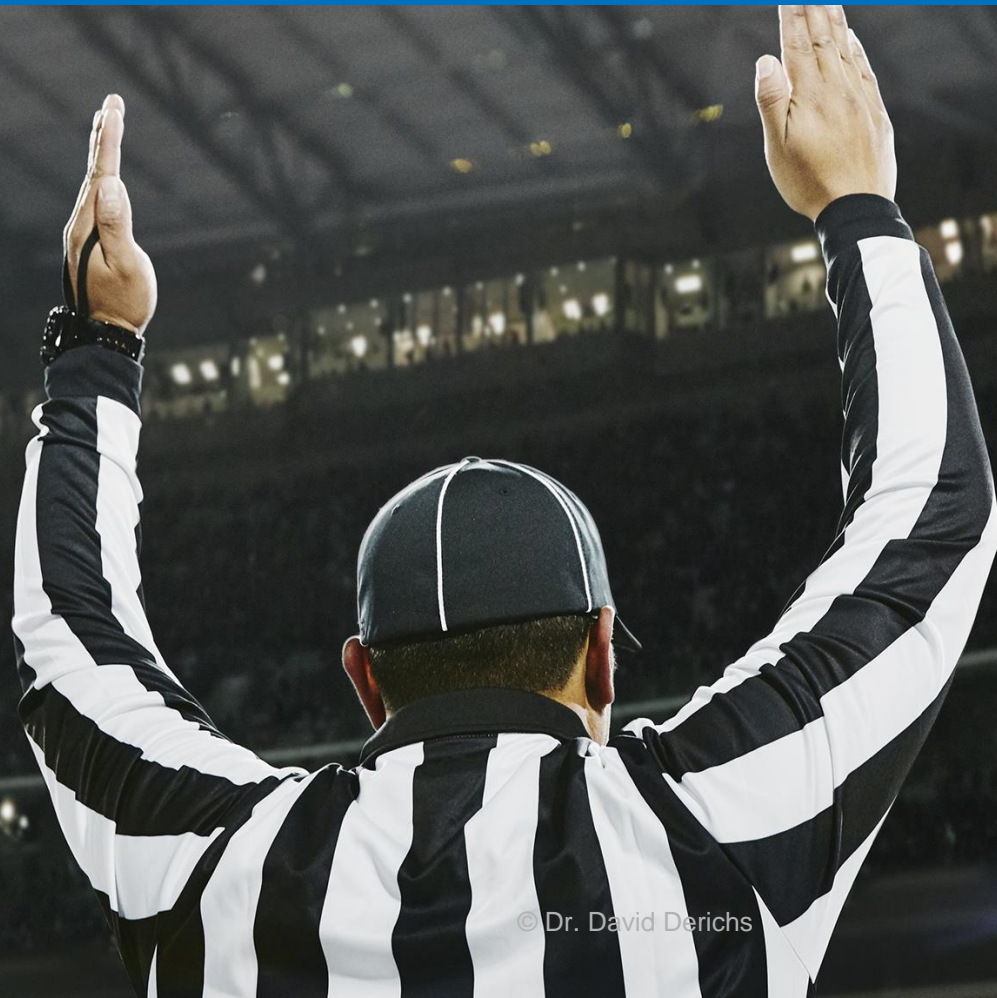
Actual Costing—allocates indirect costs based on the actual indirect cost rates times the actual quantities of the cost allocation base.

Normal Costing—allocates indirect costs based on the budgeted indirect cost rates times the actual quantities of the cost allocation base.

Both methods allocate direct costs to a cost object the same way—by using actual direct cost rates times actual consumption.

	Actual Costing	Normal Costing
Direct Costs	Actual direct-cost rates x actual quantities of direct-cost inputs	Actual direct-cost rates x actual quantities of direct-cost inputs
Indirect Costs	Actual indirect-cost rates x actual quantities of cost-allocation bases	Budgeted indirect-cost rates x actual quantities of cost-allocation bases

**Information needs to be timely for
decision relevancy...**



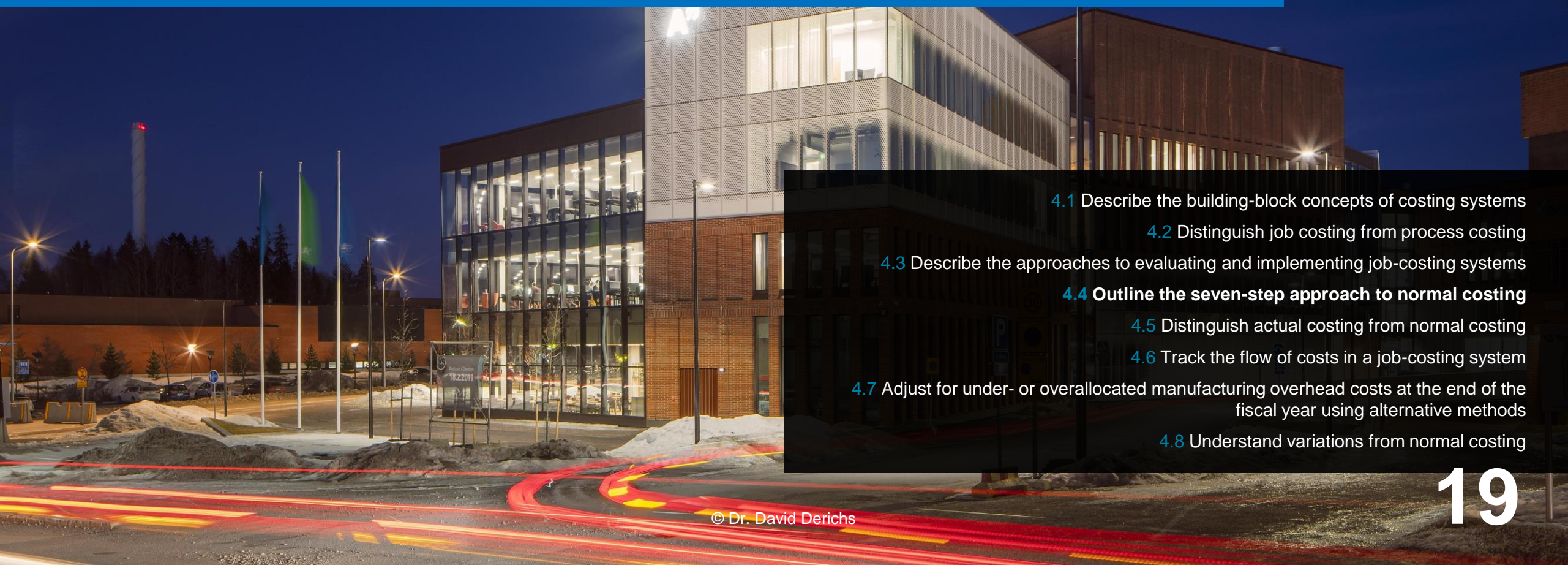
The period length for calculating normal rates matters for two reasons

1. Numerator reason (indirect cost pool) – Shorter periods lead to higher fluctuations in rates due to e.g.:
 - ... seasonal patterns (e.g., heating)
 - ... erratic costs equipment repairs, vacation
2. Denominator reason (quantity of allocation base – Shorter periods lead to high fluctuations in rates due to e.g.,
 - ... seasonality fluctuations
 - ... number of weekday work days has an impact – February has fewest days

$$\text{Budgeted Manufacturing Overhead Rate (Rate per Unit)} = \frac{\text{Budgeted Manufacturing Overhead Costs}}{\text{Budgeted Total Quantity of Cost-Allocation Base}}$$

I. Job Costing

4.4 Outline the seven-step approach to normal costing



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Seven-Step Approach to Job Costing Using Normal Costing (1 of 2)

1. Identify the job that is the chosen cost object.
2. Identify the direct costs of the job.
3. Select the cost-allocation base(s) to use for allocating indirect costs to the job.
4. Identify the indirect costs associated with each cost-allocation base. (Determine the appropriate cost pools that are necessary.)
5. Compute the Rate per Unit of each cost-allocation base used to allocate indirect costs to the job (normal costing uses budgeted values)

Budgeted Manufacturing Overhead Rate (Rate per Unit) =

$$\frac{\text{Budgeted Manufacturing Overhead Costs}}{\text{Budgeted Total Quantity of Cost – Allocation Base}}$$

Seven-Step Approach to Job Costing

Using Normal Costing (2 of 2)

6. Compute total job costs by adding all direct and indirect costs together.
Budgeted Manufacturing Overhead Rate × Actual Base Activity For the Job
7. Compute total job costs by adding all direct and indirect costs together.

Direct Manufacturing Costs

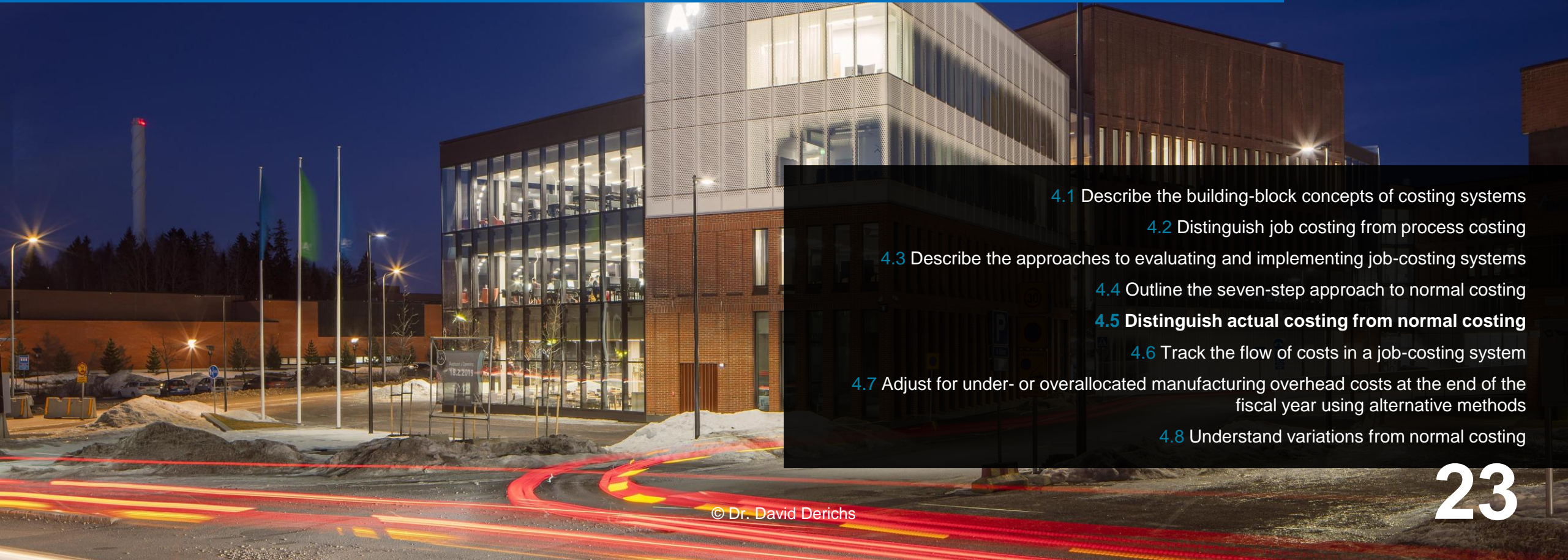
Direct Materials	xxxx	
Direct Labor	xxxx	<u>xxxx</u>
Manufacturing Overhead		
Indirect Costs		<u>xxxx</u>
Total MFG Costs of Job XYZ		<u>xxxx</u>

Exercise Time – E1



I. Job Costing

4.5 Distinguish actual costing from normal costing



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Contrasting Actual and Normal Costing

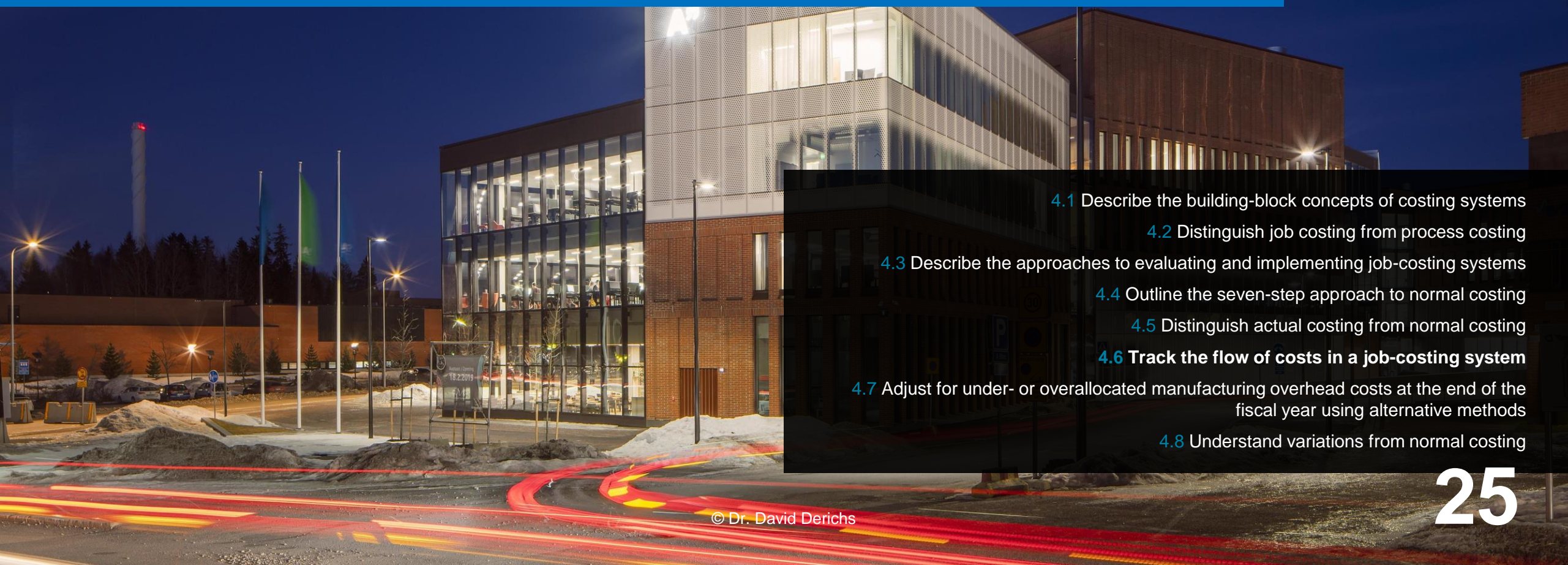
Both **actual costing** and **normal costing** trace **direct costs to jobs** in the same way because source documents identify the actual quantities and actual rates of direct materials and direct manufacturing labor for a job as the work is being done.

The only difference between costing a job with normal costing and actual costing is **that normal costing uses BUDGETED indirect-cost rates** where **actual costing uses ACTUAL indirect-cost rates** calculated annually at the end of the year.



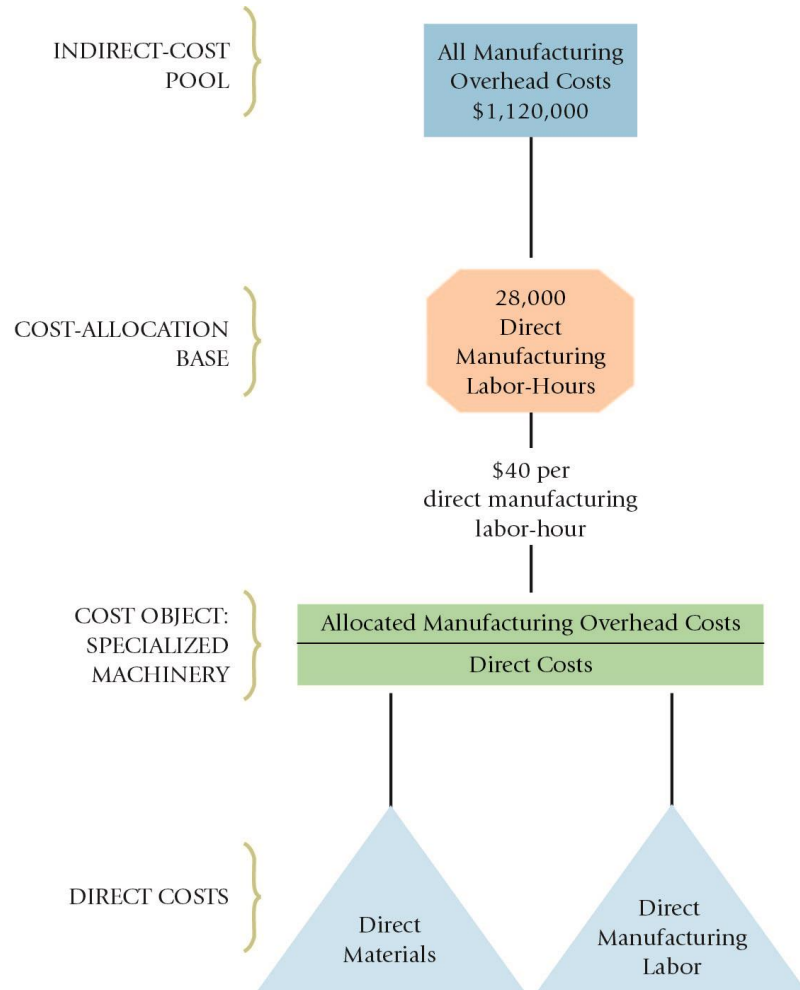
I. Job Costing

4.6 Track the flow of costs in a job-costing system



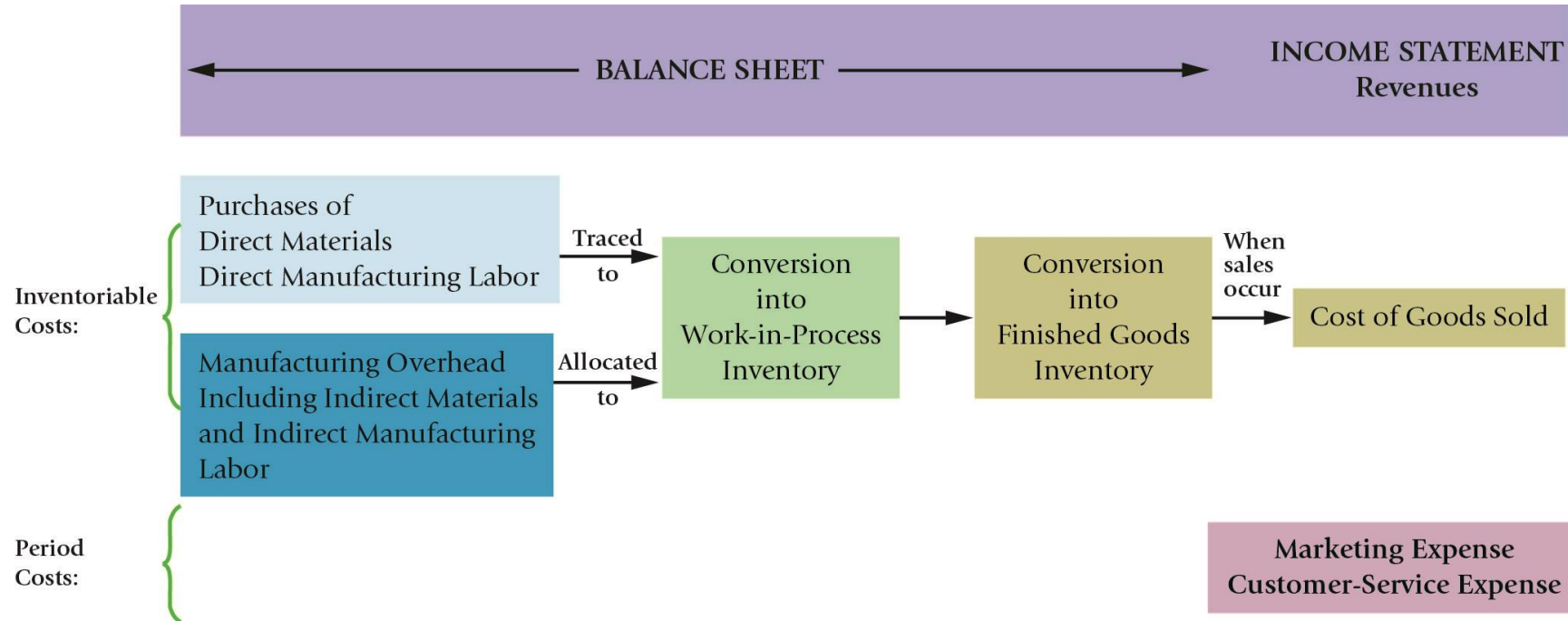
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Job Costing Overview



Job-Costing Overview for Determining Manufacturing Costs of Jobs at Robinson Company

Flow of Costs in Job Costing



Note 16 Inventories

Let's look at some statements!



Accounting principles

Inventories are reported at lower of cost and net realisable value with the cost determined by the first-in first-out (FIFO) method or, alternatively, by the weighted average cost where it approximates FIFO. The cost of finished goods and work in progress comprises raw material, direct labour, depreciation, other direct costs and related production overheads, but excludes interest expenses. Net realisable value is the estimated selling price in the ordinary course of business, less the costs of completion and sale.

Where market conditions result in the manufacturing costs of a product exceeding its net realisable value, a valuation allowance is made. Valuation allowances are also made for old, slow moving and obsolete finished goods and spare parts. Such valuation allowances are deducted from the carrying value of the inventories in the consolidated statement of financial position.

From the Stora Enso annual report

EUR million	As at 31 December	
	2020	2019
Materials and supplies	331	372
Work in progress	65	84
Finished goods	597	672
Spare parts and consumables	329	317
Other inventories	13	17
Advance payments and cutting rights	64	53
Obsolescence allowance - spare parts and consumables	-109	-101
Obsolescence allowance - finished goods	-12	-16
Net realisable value allowance	-8	-6
Total	1 270	1 391

EUR 3 844 (EUR 4 693) million of inventories have been expensed during the year, which are included in the materials and supplies line and relate to materials. EUR 22 (EUR 14) million of inventory write-downs have been recognised as an expense. EUR 16 (EUR 8) million have been recognised as a reversal of previous write-downs.

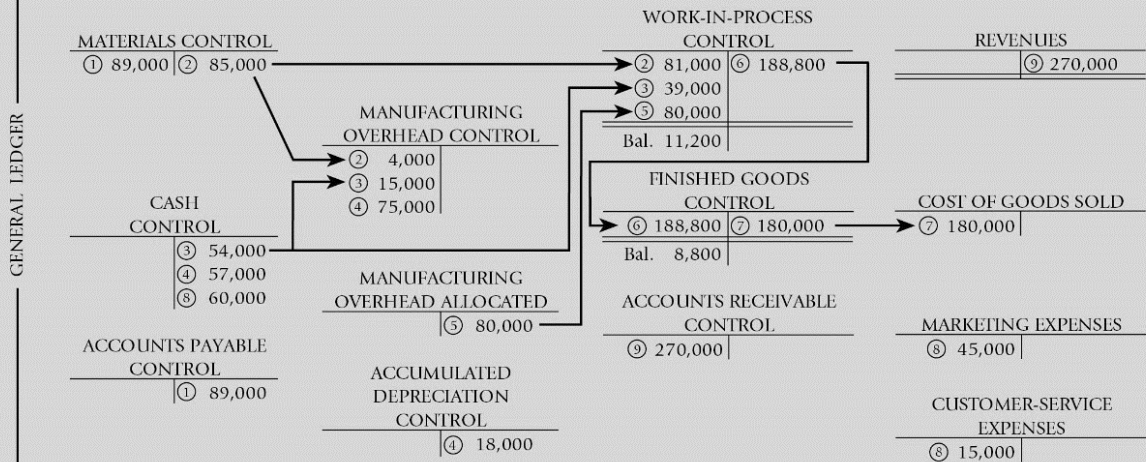
Recording costs using journal entries

- Journal entries are made at each step of the production process.
- **The purpose** is to have the **accounting system closely reflect the actual state of the business**, its inventories, and its production process.
- All **product costs are accumulated in the work-in-process control** account.
 - Direct materials used
 - Direct labor incurred
 - Factory overhead allocated (or applied)
- **Actual indirect costs (overhead)** are **accumulated** in the **manufacturing overhead control account**.

Illustrated General Ledger in a Job Cost Environment

GENERAL LEDGER

- ① Credit purchase of direct and indirect materials, \$89,000
- ② Usage of direct materials, \$81,000, and indirect materials, \$4,000
- ③ Cash paid for direct manufacturing labor, \$39,000, and indirect manufacturing labor, \$15,000
- ④ Incurrence of other manufacturing dept. overhead, \$75,000
- ⑤ Allocation of manufacturing overhead, \$80,000
- ⑥ Completion and transfer to finished goods, \$188,800
- ⑦ Cost of goods sold, \$180,000
- ⑧ Incurrence of marketing and customer-service costs, \$60,000
- ⑨ Sales, \$270,000 on credit



The debit balance of \$11,200 in the Work-in-Process Control account represents the total cost of all jobs that have not been completed as of the end of February 2017. There were no incomplete jobs as of the beginning of February 2017.

The debit balance of \$8,800 in the Finished Goods Control account represents the cost of all jobs that have been completed but not sold as of the end of February 2017. There were no jobs completed but not sold as of the beginning of February 2017.

Illustrated Subsidiary Ledger in a Job Cost Environment

PANEL A: Materials Records by Type of Materials

Metal Brackets Part No. MB 468-A

Received	Issued				Balance
	Date	Req. No.	Qty.	Rate	Amt.
①	2-6 2017	8		\$14	\$112
		198			
			②		

Copies of invoices or receiving reports → ①

Copies of materials-requisition records → ②

Total cost of all types of materials received in February, \$89,000

Total cost of all types of materials issued in February, \$85,000

PANEL B: Labor Records by Employee

G. L. Cook Empl. No. 551-87-3076

Week Endg.	Job No.	Hours Worked	Rate	Amt.
2-12	WPP			
	298	25	\$18	\$450
	JL 256	12	18	216
	Mntnce.	3	18	54
				<u>\$720</u>
2-19				
		③		

Copies of labor-time sheets → ③

Total cost of all direct and indirect manufacturing labor incurred in February, \$54,000 (\$39,000 + \$15,000)

PANEL C: Manufacturing Department Overhead Records by Month

February 2017

Indir. Matr. Issued	Indir. Manuf. Labor	Supervn. & Eng.	Plant Ins. & Utilities	Plant Deprn.
②	③	④	④	④
	Manuf. labor-time record or payroll analysis			
			Payroll analysis, invoices, special authorizations	
<u>\$4,000</u>	<u>\$15,000</u>	<u>\$44,000</u>	<u>\$13,000</u>	<u>\$18,000</u>

Copies of materials requisitions → ②

Manuf. labor-time record or payroll analysis → ③

Payroll analysis, invoices, special authorizations → ④

Other manufacturing overhead costs incurred in February, \$75,000

① The arrows show how the supporting documentation (for example, copies of materials requisition records) results in the journal entry number shown in circles (for example, journal entry number 2) that corresponds to the entries in Exhibit 4-7.

**Please check the book for more detail on
the journal entries**

A?

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Overhead will be over- or under-allocated if budgeted are used

Recall that two different overhead accounts were used in the preceding journal entries:

- **Manufacturing overhead control** was debited for the **actual overhead costs** incurred.
- **Manufacturing overhead allocated** was credited for **estimated (budgeted) overhead applied** to production through the work-in-process account.

Actual costs will almost never equal budgeted costs. Accordingly, an imbalance situation exists between the two overhead accounts.

- If Overhead Control > Overhead Allocated, this is called **UNDERALLOCATED** overhead.
- If Overhead Control < Overhead Allocated, this is called **OVERALLOCATED** overhead.

Differences between overhead accounts will be adjusted at the end-of-period

The difference between the overhead accounts will be adjusted in the end-of-period adjusting entry process, using one of three following methods:

1. **Adjusted allocation rate approach**
2. **Proration approach**
3. **Write-off approach**



Three Methods for Adjusting Over/Underapplied Overhead

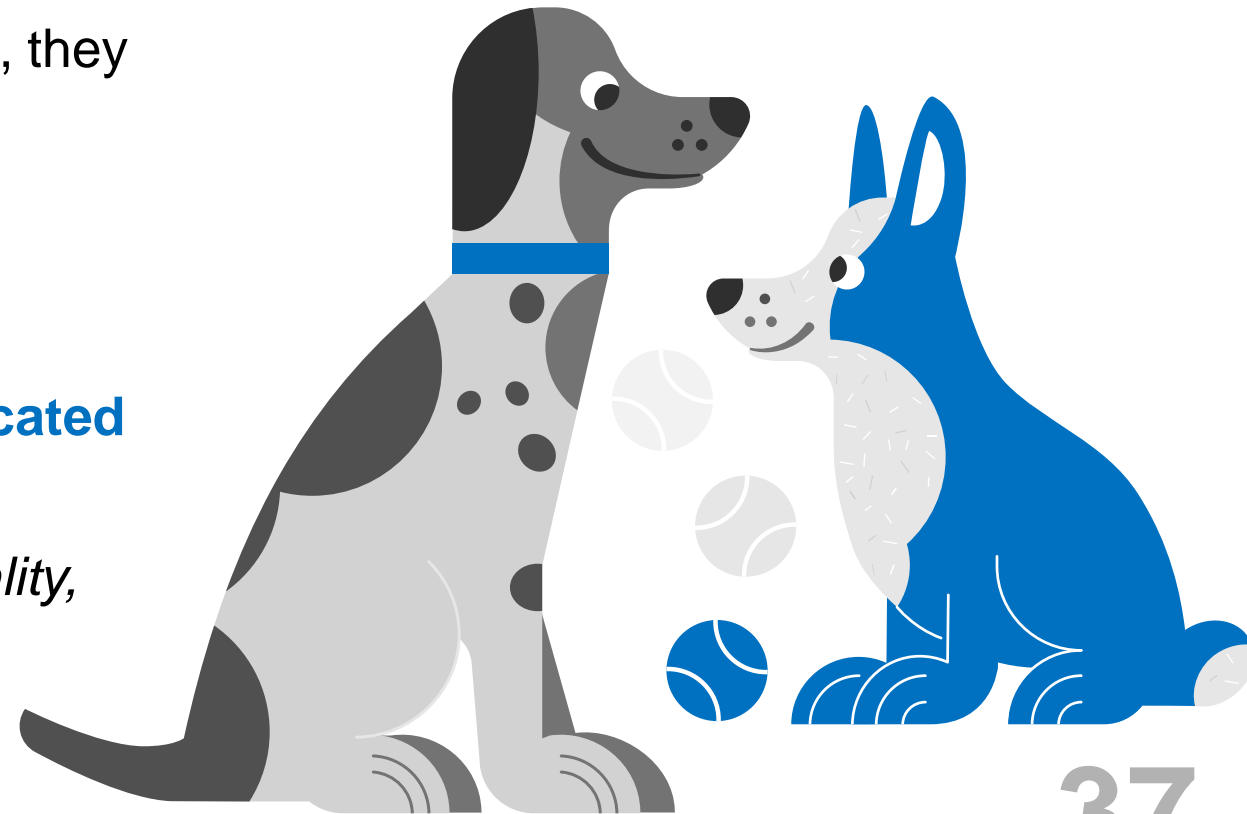
1. **Adjusted allocation rate approach**—all allocations are recalculated with the actual, exact allocation rate.
2. **Proration approach**—the difference is allocated between cost of goods sold, work-in-process, and finished goods based on their relative amounts.
3. **Write-off approach**—the difference is simply written off to cost of goods sold.

Choosing Among Approaches

When management is deciding among approaches, they should consider the following:

1. The **purpose of the adjustment**
2. The **total amount of underallocation or overallocation**
3. Whether the variance was **over- or underallocated**

The choice of method should also consider materiality, consistency, and industry practice.

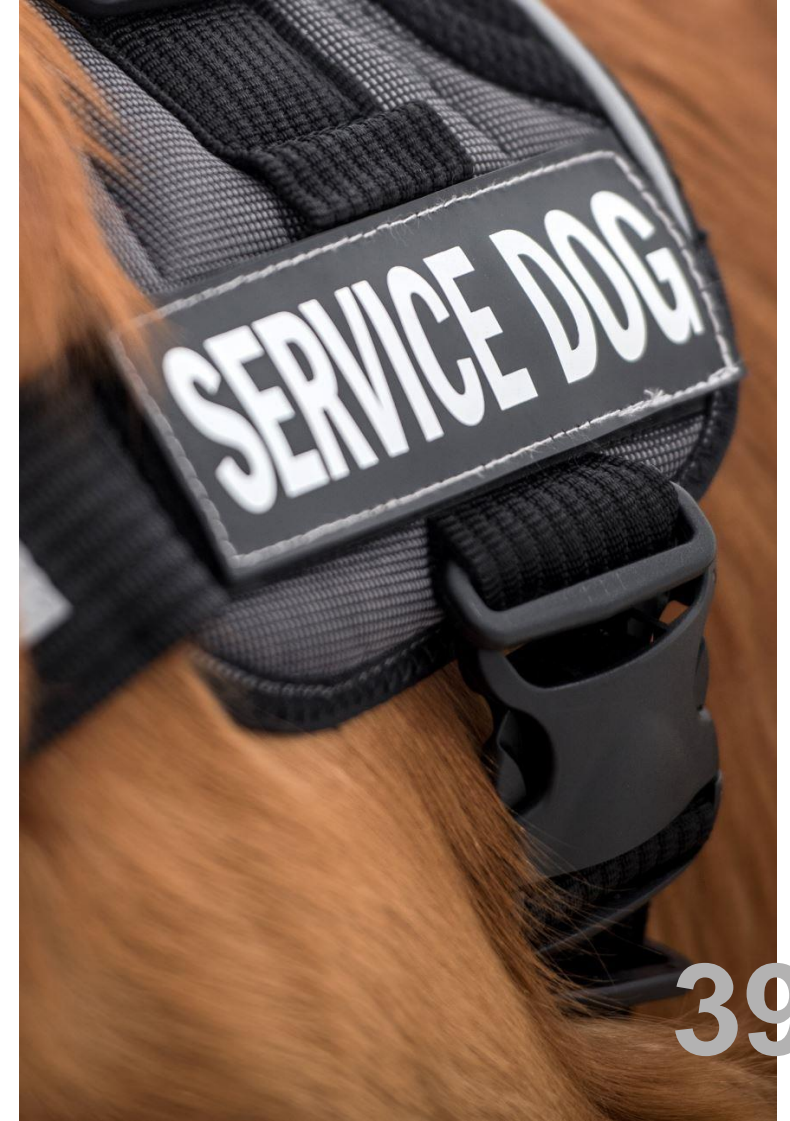


Exercise Time – E2



Job Costing in the Service Sector

- Job costing is often associated with the manufacturing sector, but it is **also very useful in service organizations**, such as auto repair shops, advertising agencies, hospitals, and accounting firms.
- In an accounting firm, for example, management may wish to determine the cost for each audit. In that case, each audit would be a job, and costs would be traced or properly allocated to it.



Non-manufacturing Overheads

- Financial accounting regulations specify that **only manufacturing overheads should be allocated to products.**
- **Non-manufacturing costs** should be assigned to products for **decision-making** (particularly cost-plus pricing).
- Some non-manufacturing costs may be a direct cost, but not all.
 - For those, it may be hard to determine an appropriate basis for allocation.
 - Widely used approach is to allocate based on the basis of the product's production costs.

Terms to Learn

Actual costing	Manufacturing overhead applied
Actual indirect-cost rate	Materials-requisition record
Adjusted allocation-rate approach	Normal costing
Budgeted indirect-cost rate	Overabsorbed indirect costs
Cost-allocation base	Overallocated indirect costs
Cost pool	Overapplied indirect costs
Job	Process-costing system
Job-cost record	Proration
Job-cost sheet	Source document
Job-costing system	Underabsorbed indirect costs
Labor-time sheet	Underallocated indirect costs
Manufacturing overhead allocated	Underapplied indirect costs

Agenda for this session

- I. Job Costing
- II. Process Costing**
- III. Inventory Costing and Capacity Analysis

II. Process Costing

Agenda: Learning Objectives for this session

- 18.1** Identify the situations in which process-costing systems are appropriate
- 18.2** Understand the basic concepts of process-costing and compute average unit costs
- 18.3** Describe the five steps in process-costing and calculate equivalent units
- 18.4** Use the weighted-average method and first-in, first-out (FIFO) method of process costing
- 18.5** Apply process-costing methods to situations with transferred-in costs
- 18.6** Understand the need for hybrid-costing systems such as operation costing

Glossary

WIP Work in Progress

II. Process Costing

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II. Process Costing

18.1 Identify the situations in which process-costing systems are appropriate

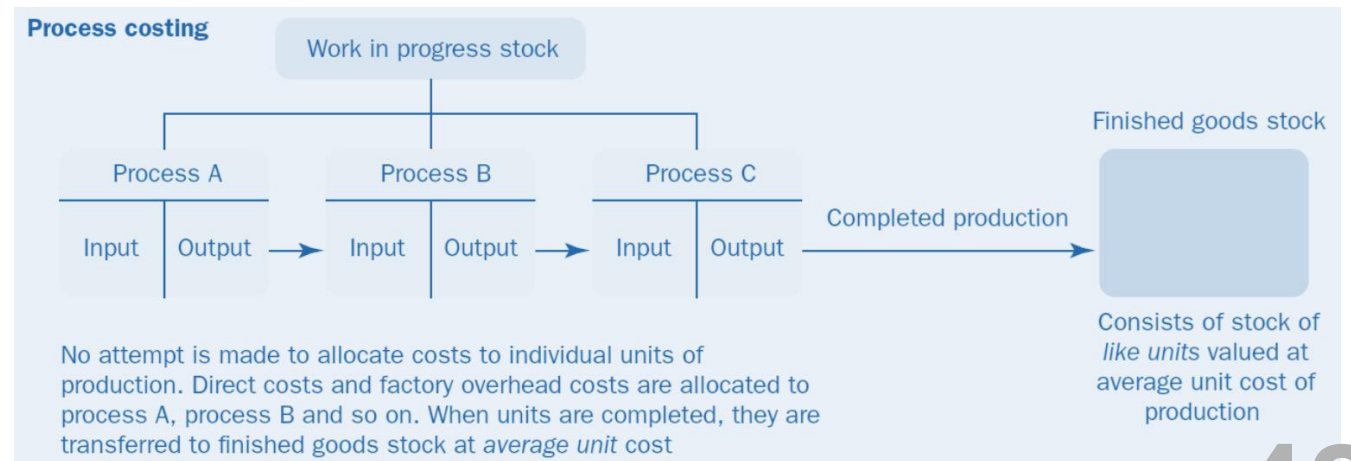
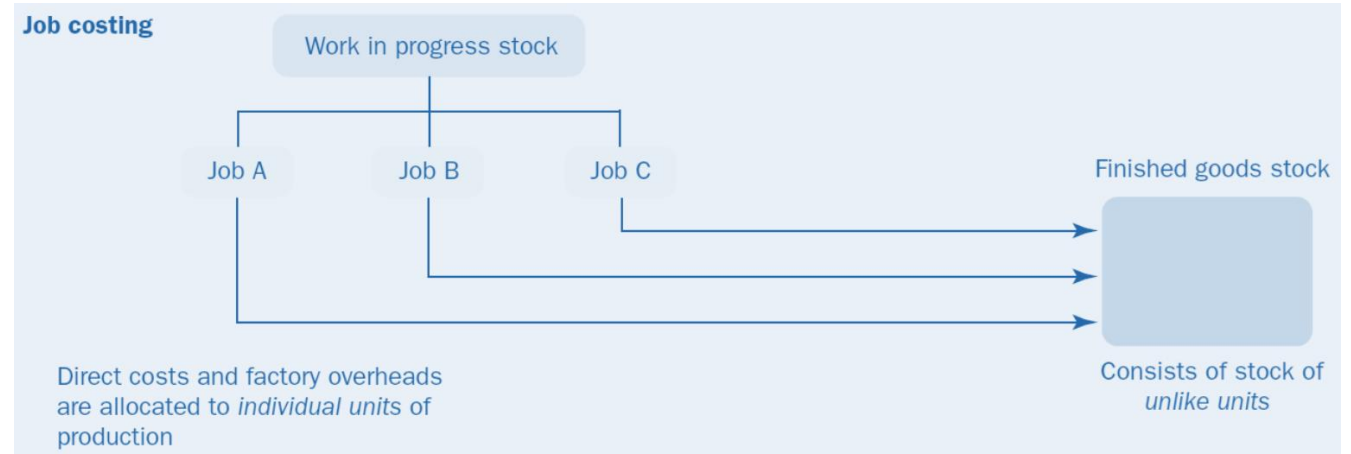
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Let's remember

In a **Job Costing System**, the cost object is a unit or multiple units of a distinct product or service which we call a job. Each job generally uses different amounts of resources.

In a **Process Costing System**, the cost object includes masses of identical or similar units of a product or service. In this type of system, we divide the total cost of producing an identical or similar product or service by the total number of units produced to obtain a per-unit cost.

Source: Datar/Rajan (2021)
 Managerial Accounting II



More on job costing vs. process costing

Job Costing

- **Distinct, identifiable units** of a product or service
- Examples:
 - Custom-made machines, houses
- **Individual jobs use different quantities of resources**, so it would be incorrect to cost each job at the same average production cost.
 - In contrast, when identical or similar units of products or services are mass-produced, process costing is used to calculate an average production cost for all units produced.
 - The main difference between process costing and job costing is the extent of averaging used to compute the unit costs of products or services.

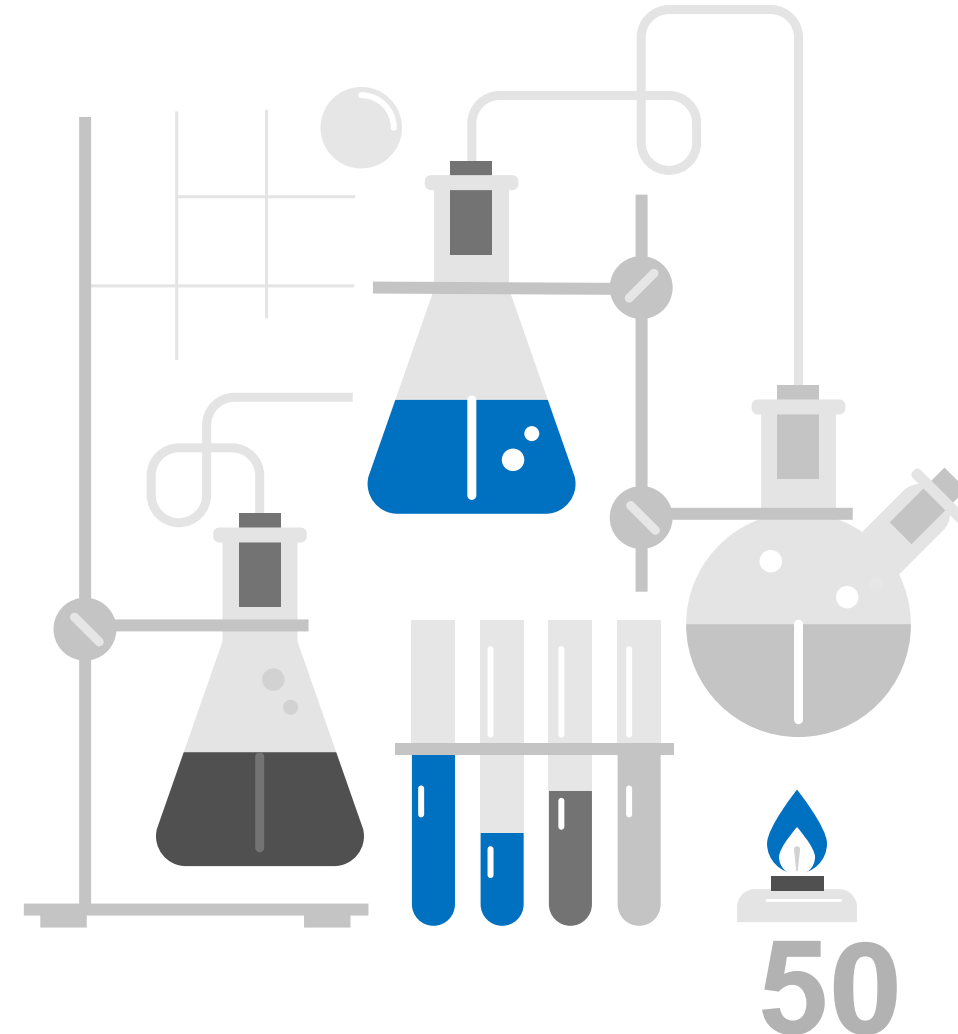
Process Costing

- **Masses of identical or similar units** of a product or service
- Examples:
 - Food, chemical processing
- A system where the unit cost of a product or service is obtained by assigning total costs to many identical or similar units of output.
 - Unit costs are calculated by dividing total costs incurred by the number of units of output from the production process.
 - Each unit receives the same or similar amounts of direct materials costs, direct manufacturing labor costs, and indirect manufacturing costs (manufacturing overhead).

Process-Costing Cost Categories

Process-costing systems separate costs into cost categories according to **when costs are introduced** into the process.

- 1. Direct materials** are usually added at the beginning of the production process, or at the start of work in a subsequent department down the assembly line.
- 2. Conversion costs** are generally added equally along the production process.



Beer and Whiskey – Process or Job? When does the product become a product?



II. Process Costing

18.2 Understand the basic concepts of process-costing and compute average unit costs

18.3 Describe the five steps in process-costing and calculate equivalent units

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18.6 Understand the need for hybrid-costing systems such as operation costing

Process-Costing: Three Cases

Let's look at the process-costing process three ways:

Case 1: No beginning or ending work-in-process inventories

Case 2: No beginning work-in-process inventory and some ending work-in-process inventory

Case 3: Both beginning and ending work-in-process inventories are present

Process costing in 5 steps

Five-Step Process-Costing Allocation

1. **Summarize** the **flow** of physical units of output.
2. **Compute output** in terms of **equivalent units**.
3. **Summarize total costs** to account for.
4. **Compute cost per equivalent unit**.
5. **Assign total costs to units completed** and to units in ending work-in-process.

Case 1: No Beginning or Ending Work-in-Process Inventory – Equivalent units

Equivalent Units

- A derived amount of output units that
 - takes the quantity of each input in units completed and in unfinished units of work in process and
 - **converts the quantity of input into the amount of completed output units** that *could* be produced with that quantity of input.
- They are calculated separately for each input (direct materials and conversion cost).
- When calculating equivalent units in step 2, focus on quantities and disregard dollar amounts until after the equivalent units are computed.

Case 2: No Beginning, Some Ending WIP

Steps 1 and 2 Example

	A	B	C	D
1		(Step 1)	(Step 2)	
2			Equivalent Units	
3	Flow of Production	Physical Units	Direct Materials	Conversion Costs
4	Work in process, beginning	0		
5	Started during current period	<u>400</u>		
6	To account for	<u>400</u>		
7	Completed and transferred out during current period	175	175	175
8	Work in process, ending ^a	225		
9	(225 × 100%; 225 × 60%)	<u> </u>	225	135
10	Accounted for	<u>400</u>	<u> </u>	<u> </u>
11	Equivalent units of work done in current period		<u>400</u>	<u>310</u>
12				
13	^a Degree of completion in this department: direct materials, 100%; conversion costs, 60%.			

Step 1: Summarize the Flow of Physical Units

Step 2: Compute Output in Equivalent Units for the Assembly Department

Case 2: No Beginning, Some Ending WIP Steps 3, 4, and 5 Example

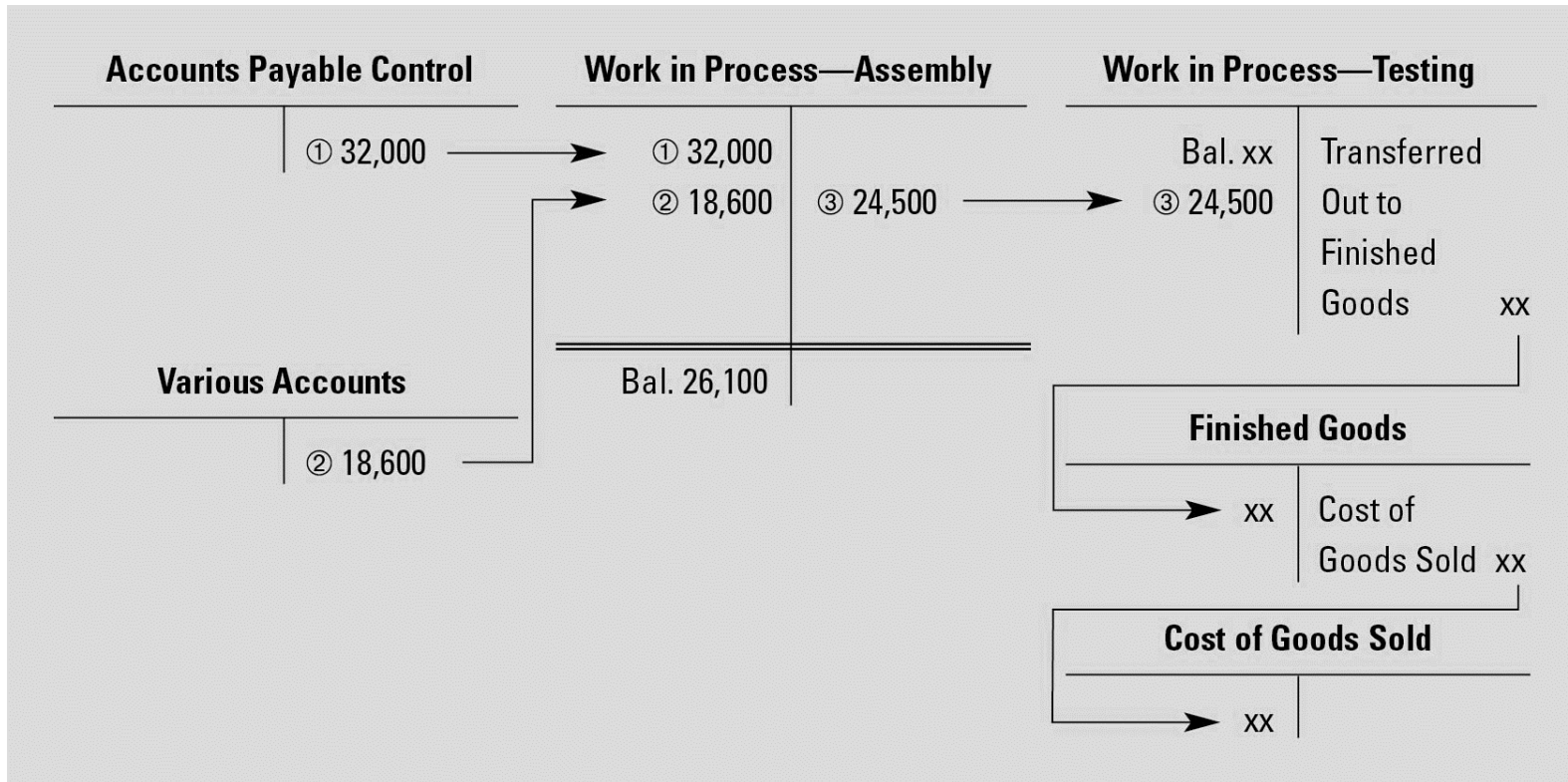
	A	B	C	D	E	F
1			Total Production Costs	Direct Materials		Conversion Costs
2	(Step 3)	Costs added during February	\$50,600	\$32,000	+	\$18,600
3		Total costs to account for	\$50,600	\$32,000	+	\$18,600
4						
5	(Step 4)	Costs added in current period		\$32,000		\$18,600
6		Divide by equivalent units of work done in current period (Exhibit 17-1)		÷ 400		÷ 310
7		Cost per equivalent unit		\$ 80		\$ 60
8						
9	(Step 5)	Assignment of costs:				
10		Completed and transferred out (175 units)	\$24,500	(175 ^a × \$80)	+	(175 ^a × \$60)
11		Work in process, ending (225 units)	26,100	(225 ^b × \$80)	+	(135 ^b × \$60)
12		Total costs accounted for	\$50,600	\$32,000	+	\$18,600
13						
14		^a Equivalent units completed and transferred out from Exhibit 17-1, step 2.				
15		^b Equivalent units in ending work in process from Exhibit 17-1, step 2.				

Step 3: Summarize the Total Costs to Account for

Step 4: Compute the Cost per Equivalent Unit,

Step 5: Assign Costs to the Units Completed and Units in Ending Work-in-Process Inventory for the Assembly Department

General Ledger Cost Flows Illustrated



Flow of Costs in a Process-Costing System for the Assembly Department

Weighted-Average Process-Costing Method (1 of 2)

Process costing can be accomplished using the weighted-average method or the FIFO method. We'll look first at weighted-average.

Weighted-Average Method

- Calculates cost per equivalent unit of all work done to date (regardless of the accounting period in which it was done)
- Assigns this cost to equivalent units completed and transferred out of the process and to equivalent units in ending work-in-process inventory

Weighted-Average Process-Costing Method (2 of 2)

- The weighted-average cost is the total of all costs entering the work-in-process account divided by the total equivalent units of work done to date.
- The beginning balance of the work-in-process account (work done in a prior period) is *blended* in with current period costs.
- Let's look at Case 3 (with both beginning and ending work-in-process inventory using the weighted average method).

Case 3: Beginning and Ending WIP

Steps 1 and 2 Example (1 of 2)

	A	B	C	D
1		(Step 1)	(Step 2)	
2			Equivalent Units	
3	Flow of Production	Physical Units	Direct Materials	Conversion Costs
4	Work in process, beginning (given, p. 684)	225		
5	Started during current period (given, p. 684)	<u>275</u>		
6	To account for	<u>500</u>		
7	Completed and transferred out during current period	400	400	400
8	Work in process, ending ^a (given, p. 684)	100		
9	(100 × 100%; 100 × 50%)		100	50
10	Accounted for	<u>500</u>		
11	Equivalent units of work done to date		<u>500</u>	<u>450</u>
12				
13	^a Degree of completion in this department: direct materials, 100%; conversion costs, 50%.			

Step 1: Summarize the Flow of Physical Units

Step 2: Compute Output in Equivalent Units for the Assembly Department

Case 3: Beginning and Ending WIP

Steps 3, 4, and 5 Example (1 of 2)

	A	B	C	D	E	F
1			Total Production Costs	Direct Materials		Conversion Costs
2	(Step 3)	Work in process, beginning (given, p. 684)	\$26,100	\$18,000	+	\$ 8,100
3		Costs added in current period (given, p. 684)	36,180	19,800	+	16,380
4		Total costs to account for	<u>\$62,280</u>	<u>\$37,800</u>	+	<u>\$24,480</u>
5						
6	(Step 4)	Costs incurred to date		\$37,800		\$24,480
7		Divide by equivalent units of work done to date (Exhibit 17-4)		÷ 500		÷ 450
8		Cost per equivalent unit of work done to date		<u>\$ 75.60</u>		<u>\$ 54.40</u>
9						
10	(Step 5)	Assignment of costs:				
11		Completed and transferred out (400 units)	\$52,000	(400 ^a × \$75.60)	+	(400 ^a × \$54.40)
12		Work in process, ending (100 units)	10,280	(100 ^b × \$75.60)	+	(50 ^b × \$54.40)
13		Total costs accounted for	<u>\$62,280</u>	<u>\$37,800</u>	+	<u>\$24,480</u>
14						
15		^a Equivalent units completed and transferred out from Exhibit 17-4, Step 2.				
16		^b Equivalent units in ending work in process from Exhibit 17-4, Step 2.				

Step 4: Summarize the Total Costs to Account for,

Step 5: Compute the Cost per Equivalent Unit

Step 6: Assign Costs to the Units Completed and Units in Ending Work-in-Process Inventory Using the Weighted-Average Method for the Assembly Department

Exercise Time – E3



Results of the Process

Two critical figures arise out of step 5 of the cost allocation process:

1. The amount of the journal entry transferring the allocated cost of units completed and sent from work-in-process inventory to finished goods inventory
2. The ending balance of the work-in-process inventory account that will appear on the balance sheet

II. Process Costing

18.4 Use the weighted-average method and first-in, first-out (FIFO) method of process costing

- 18.1 Identify the situations in which process-costing systems are appropriate
- 18.2 Understand the basic concepts of process-costing and compute average unit costs
- 18.3 Describe the five steps in process-costing and calculate equivalent units
- 18.4 Use the weighted-average method and first-in, first-out (FIFO) method of process costing**
- 18.5 Apply process-costing methods to situations with transferred-in costs
- 18.6 Understand the need for hybrid-costing systems such as operation costing

First-In, First-Out (FIFO) Process-Costing Method (1 of 2)

- Assigns the cost of the previous accounting period's equivalent units in beginning work-in-process inventory to the first units completed and transferred out of the process
- Assigns the cost of equivalent units worked on during the current period first to complete beginning inventory, next to started and completed new units, and finally to units in ending work-in-process inventory

NOT EXAM RELEVANT

Source: Datar/Rajan (2021)
Managerial Accounting II

First-In, First-Out (FIFO) Process-Costing Method (2 of 2)

- A distinctive feature of FIFO process-costing method is that work done on the beginning inventory before the current period is kept separate from work done in the current period.
- The costs incurred and units produced in the current period are used to calculate the cost per equivalent unit of work done in the current period.
- In contrast, the equivalent-unit and cost per equivalent unit calculations under the weighted-average method MERGE the units and costs in beginning inventory with the units and costs of work done in the current period.

NOT EXAM RELEVANT

Source: Datar/Rajan (2021)
Managerial Accounting II

Comparing Weighted-Average and FIFO Methods (1 of 2)

- **FIFO** assumes that all the units from the previous period (higher cost units in our example) in beginning WIP are the first to be completed and transferred out and that ending WIP consists of only the lower cost current-period units.
- The **weighted-average** method smooths out the cost per equivalent unit by assuming that more lower cost units are transferred out and some higher cost remain in ending WIP.

NOT EXAM RELEVANT

Source: Datar/Rajan (2021)
Managerial Accounting II

Comparing Weighted-Average and FIFO Methods (2 of 2)

- Managers use information from process-costing systems to make pricing and product-mix decisions and understand how well a firm's processes are performing.
- FIFO provides managers with information about changes in the costs per unit from one period to the next.
- In a period of rising prices, the weighted-average method will decrease taxes because cost of goods sold will be higher and operating income lower.

NOT EXAM RELEVANT

Source: Datar/Rajan (2021)
Managerial Accounting II

II. Process Costing

18.5 Apply process-costing methods to situations with transferred-in costs

- 18.1 Identify the situations in which process-costing systems are appropriate
- 18.2 Understand the basic concepts of process-costing and compute average unit costs
- 18.3 Describe the five steps in process-costing and calculate equivalent units
- 18.4 Use the weighted-average method and first-in, first-out (FIFO) method of process costing
- 18.5 Apply process-costing methods to situations with transferred-in costs**
- 18.6 Understand the need for hybrid-costing systems such as operation costing

Transferred-In Costs

- **Transferred-in costs** are costs incurred in previous departments that are carried forward as the product's cost when it moves to a subsequent process in the production cycle.
- They are also called *previous department costs*.
- Journal entries are made to mirror the progress in production from department to department.
- Transferred-in costs are treated as if they are a separate type of direct material added at the beginning of the process.

NOT EXAM RELEVANT

Source: Datar/Rajan (2021)
Managerial Accounting II

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Points to Remember About Transferred-In Costs

1. Be sure to include the transferred-in costs from previous departments in your calculations.
2. When calculating the costs to be transferred using the FIFO method, do not overlook costs assigned in the previous period to units that were in process at the beginning of the current period but are now included in the units transferred.
These unit costs will be transferred to the next department at ONE AVERAGE UNIT cost.
3. Unit costs may fluctuate between periods so transferred units may contain batches accumulated at different costs (using FIFO).
4. Units may be measured in different denominations in different departments (feet in one department and yards in another or kilos versus liters). In this case, measurements must be converted to the correct measure.

NOT EXAM RELEVANT

II. Process Costing

18.6 Understand the need for hybrid-costing systems such as operation costing

- 18.1 Identify the situations in which process-costing systems are appropriate
- 18.2 Understand the basic concepts of process-costing and compute average unit costs
- 18.3 Describe the five steps in process-costing and calculate equivalent units
- 18.4 Use the weighted-average method and first-in, first-out (FIFO) method of process costing
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- 18.6 Understand the need for hybrid-costing systems such as operation costing**

Adidas Futurecraft 4D – Job or process costing?



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Hybrid Costing Systems (1 of 2)

- Product-costing systems do not always fall neatly into either job-costing or process-costing categories.
- A **hybrid-costing system** blends characteristics from both job-costing and process-costing systems.
- Many actual production systems are in fact hybrids.
- Manufacturers who tend to use hybrid-costing systems include producers of televisions, dishwashers, washing machines, and shoes.

Hybrid Costing Systems (2 of 2)

- The hybrid-costing systems use process costing to account for the conversion costs and job costing for the material and customizable components.
- One specific type of hybrid-costing system is known as the **operation costing system**.

Operation Costing System

- An operation is a standardized method or technique often performed repetitively on different material resulting in different finished goods.
- An **operation-costing system** is a **hybrid-costing system applied to batches of similar, but not identical, products**.
- Within each operation, all product units are treated exactly alike, using identical amounts of the operation's resources.
- Managers find operation costing useful in cost management because operation costing focuses on control of physical processes or operations of a given production system.

Terms to Learn

Equivalent units
First-in, first-out (FIFO) process-costing method
Hybrid-costing system
Operation
Operation costing system
Previous department cost
Transferred-in cost
Weighted-average process-costing method

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- Drury, C; Management and Cost Accounting (Eleventh Edition); 2021; Cengage