Allocation of Support-Department Costs, Common Costs, and Revenues

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Lecture 8 – week 8
28 March 2020

Allocate Multiple Support department costs to operating departments by using:

- **Direct Method,**

- **Step-down Method**

- **Reciprocal Method**

A **disadvantage** of the direct method which represented in its **ignorance** of **reciprocal** services provided among support departments.

Step-down Method *recovering* this disadvantage by **partially recognizing** the **reciprocal** services provided among support departments.
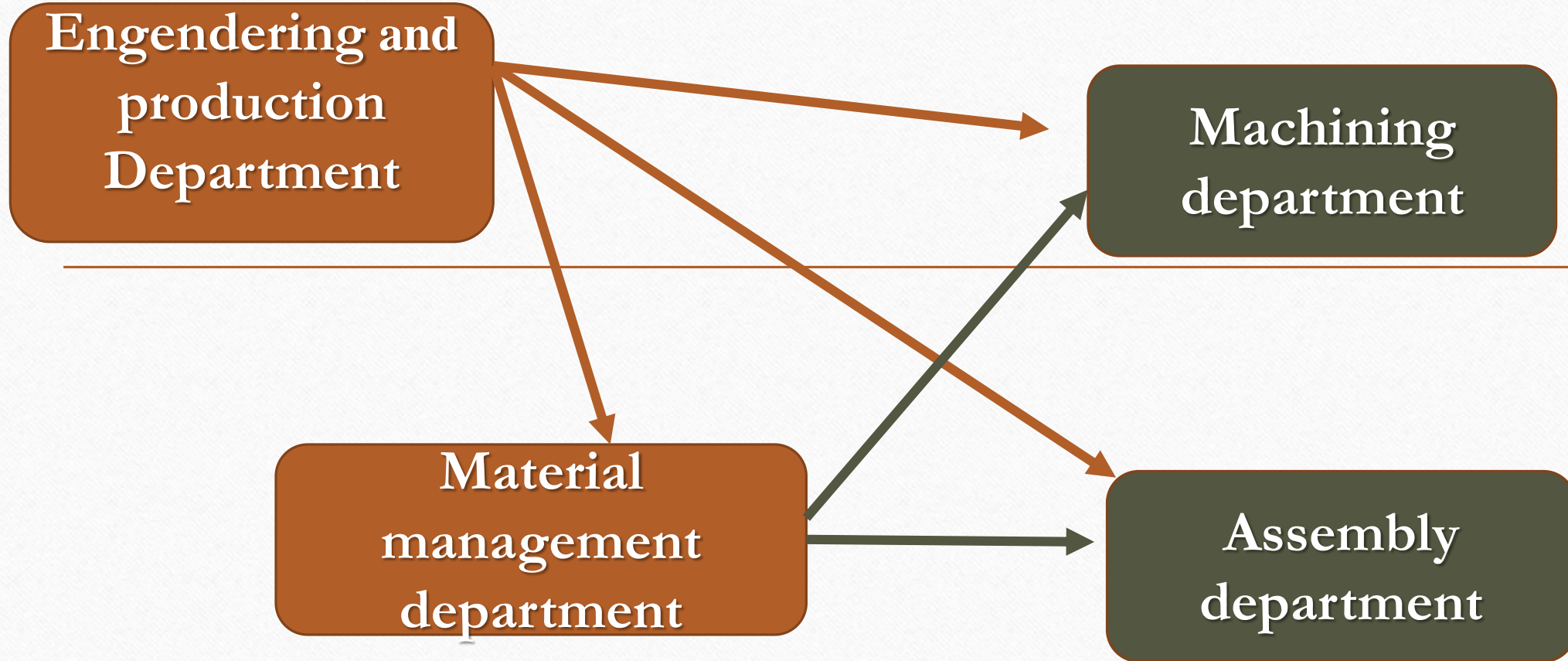
Step-down Method

Some organizations use the **step-down method**—also called the **sequential allocation method**—which allocates **support-department** costs to

- **Other support** departments and

- **Operating** departments

 in a **sequential** manner that *partially recognizes* the *mutual* services provided *among* all *support departments*.

Engendering and production Department

Machining department

Material management department

Assembly department

Under the step-down method, once a support department's costs have been allocated, no subsequent support-department costs are allocated back to it.

Allocating the cost of Engineering and production department

	Support Departments			Operating Departments		
Step A	**Plant Administration Department (1)**	**Engineering and Production Control Department (2)**	**Materials Management Department (3)**	**Machining Department (4)**	**Assembly Department (5)**	**Total (6)**
Plant manager's salary	$ 92,000					$ 92,000
Supervision salaries (traced to each department)		$ 48,000	$ 40,000	$ 52,000	$ 60,000	200,000
Engineering salaries (traced to each department)		110,000	36,000	60,000	24,000	230,000
Depreciation and maintenance (traced to each department)		39,000	55,000	79,000	20,000	193,000
Indirect materials (traced to each department)		20,000	12,000	11,000	7,000	50,000
Indirect labor (traced to each department)		43,000	77,000	37,000	38,000	195,000
Rent, utilities, and insurance (allocated to each department based on square feet area; $8[1] × 1,000; 2,000; 3,000; 8,000; 6,000 sq. ft.)	8,000	16,000	24,000	64,000	48,000	160,000
Total	$ 100,000	$276,000	$244,000	$303,000	$197,000	$1,120,000
Step B						
Allocation of plant administration costs 0.50[2] × $48,000; $40,000; $52,000; $60,000	(100,000)	24,000	20,000	26,000	30,000	
	$ 0	$300,000	$264,000	$329,000	$227,000	

Engineering De is budgeted to provide support to **material** Do of 30%= $**36,000** ÷ $120,000

Engineering De is budgeted to provide support to **Machining** Do of 30%= $**60,000** ÷ $120,000

Engineering De is budgeted to provide support to **Assembly** De of 30%= $**24,000** ÷ $120,000

	SUPPORT DEPARTMENTS		OPERATING DEPARTMENTS		
	Engineering and Production Control	Materials Management	Machining	Assembly	Total
Budgeted overhead costs					
before any interdepartment cost allocations	$300,000	$264,000	$320,000	$227,000	$1,120,000
Support work furnished:					
By Engineering and Production Control					
Budgeted engineering salaries	—	$ 36,000	$ 60,000	$ 24,000	$ 120,000
Percentage	—	30%	50%	20%	100%
By Materials Management					
Budgeted material-handling labor-hours	400	—	800	2,800	4,000
Percentage	10%	—	20%	70%	100%

Engendering and production Department

Machining department %50

Material management department %30

Assembly department %20

Engineering and production Department **$300,000**

Machining department %**50**

50% × $300,000= **$150,000**

Material management department %**30**

= 30% × $300,000= **$90,000**

Assembly department %**20**

20% × $300,000= **$60,000**

Allocating $300,000 budgeted costs of Engineering and Production Control department to :

○ **Production Control Department provides 30% of its services to the Materials Management department . Therefore the cost allocated to Materials Management = 30% × $300,000= $90,000**

○ **Production Control Department provides 50% to the Machining Department, Therefore the cost allocated to Materials Management = 50% × $300,000= $150,000**

○ **Production Control Department provides 20% to the Assembly Department, Therefore the cost allocated to Materials Management = 20% × $300,000= $60,000**

Allocating the cost of Material Management Department

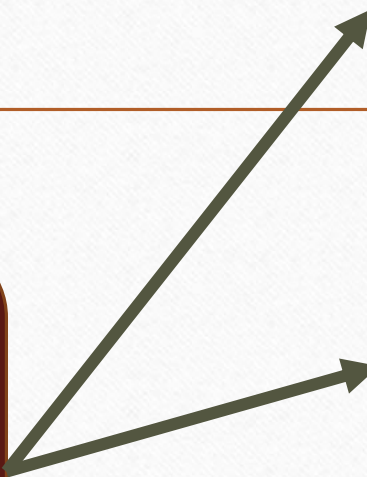|	Support Departments		Operating Departments			
Step A	Plant Administration Department (1)	Engineering and Production Control Department (2)	Materials Management Department (3)	Machining Department (4)	Assembly Department (5)	Total (6)
Plant manager's salary	$ 92,000					$ 92,000
Supervision salaries (traced to each department)		$ 48,000	$ 40,000	$ 52,000	$ 60,000	200,000
Engineering salaries (traced to each department)		110,000	36,000	60,000	24,000	230,000
Depreciation on equipment (traced			55,000	79,000	20,000	193,000
Indirect (traced			12,000	11,000	7,000	50,000
Indirect (traced			77,000	37,000	38,000	195,000
Rent, u (allocat based o $8¹×1 8,000; 6,000 sq. ft.)			24,000	64,000	48,000	160,000
Total	$ 100,000	$276,000	$244,000	$303,000	$197,000	$1,120,000
Step B						
Allocation of plant administration costs 0.50²×$48,000; $40,000; $52,000; $60,000	(100,000)	24,000	20,000	26,000	30,000	
	$ 0	$300,000	$264,000	$329,000	$227,000	

$264,000 + $90,000 its share from the costs of **Engineering** and production department = **$ 354,000**

Material management department
$ 354,000

Machining department

Assembly department

	SUPPORT DEPARTMENTS	OPERATING DEPARTMENTS		
	Materials Management	Machining	Assembly	Total
Budgeted overhead costs before any interdepartment cost allocations	$264,000	$329,000	$227,000	$1,120,000
Support work furnished:				
By Engineering and Production Control				
Budgeted engineering salaries	$ 36,000	$ 60,000	$ 24,000	$ 120,000
Percentage	30%	50%	20%	100%
By Materials Management				
Budgeted material-handling labor-hours	—	800	2,800	4,000
Percentage	—	20%	70%	100%

Machining department

20%

$$= 20/90 \times \$ 354{,}000 = \$ 78666$$

Material management department
$ 354,000

Assembly department

70%

$$= 70/90 \times \$ 354{,}000 = \$ 275333$$

The $**354,000** is then only allocated between the **two** operating departments (the **Machining** Department and the **Assembly** Department) based on the proportion of the Materials Management Department services provided to them

The Materials Management Department provides: **20%** or 2/7 of its services to the **Machining** Department and

70% or 7/9 to the **Assembly** Department,

So that the costs allocated to **Machining** department = **2/9** × **$ 354,000 = $ 78,666**

So that the costs allocated to **Assembly** department = **7/9** × **$ 354,000 = $ 275,333**

	A	B	C	D	E	F	G
1			SUPPORT DEPARTMENTS		OPERATING DEPARTMENTS		
2			Materials Management		Machining	Assembly	Total
3	Budgeted overhead costs before any						
4	interdepartment cost allocations		$264,000		$329,000	$227,000	$1,120,000
5	Allocation of Engg. and Prod. Control (3/10, 5/10, 2/10)		90,000		150,000	60,000	
6			354,000				
7	Allocation of Materials Management (2/9, 7/9)[b]		(354,000)		78,667	275,333	
8							
9	Total budgeted overhead of operating departments		$ 0		$557,667	$562,333	$1,120,000
10							
11	[a] Base is ($36,000 + $60,000 + $24,000), or $120,000 ; $36,000 ÷ $120,000 = 3/10; $60,000 ÷ $120,000 = 5/10; $24,000 ÷ $120,000 = 2/10.						
12	[b] Base is (800 + 2,800), or 3,600 hours; 800 ÷ 3,600 = 2/9; 2,800 ÷ 3,600 = 7/9.						

Why this Method is Named Down-Step Method

- this method requires managers to rank (**sequence**) the **support** departments in the order that the **step-down** allocation is to proceed.

- Support department ranked based on the percentage of service it provides to other support departments

- A popular step-down sequence **begins** with the support department that **provides** the *highest* percentage of its total services to *other support departments*.

- In our example, we start allocating budgeted costs of the Engineering and Production Department ***first*** because it provides ***30***% of its services to the ***Materials*** Management Department,

- whereas the ***Materials*** Department provides only ***10***% of its services to the ***Engineering*** and Production Control Department.

Disadvantage of Step-down Method

- Under the step-down method, once a support department's costs have been allocated, no subsequent support-department costs are allocated back to it.

- Once the Engineering and Production Control Department costs are allocated, it receives no further allocation from other (lower-ranked) support departments.

- The result is that the step-down method does not recognize the total services that support departments provide to each other.

- The *reciprocal* method *fully* recognizes all such services, as we will see next.

Reciprocal Method is our focus next lecture (lecture 9) En Shaa ALLA