

# MANAGEMENT AND COST ACCOUNTING

7TH EDITION

## Inter- service department reallocations

Use with Management and Cost Accounting 7e  
by Colin Drury ISBN 9781844805662  
© 2008 Colin Drury

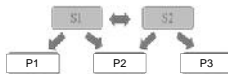
## 1. Repeated distribution method

### EXHIBIT 3A.1 Repeated distribution method

Line	Production departments			Service departments		Total
	X	Y	Z	1	2	
1 Allocation as per overhead analysis	48 000	42 000	30 000	14 040	18 000	152 040
2 Allocation of service department 1	2 808 (20%)	5 616 (40%)	4 212 (30%)	(14 040)	—	—
3 Allocation of service department 2	7 762 (40%)	3 881 (20%)	3 880 (20%)	3 881 (20%)	(19 404)	—
4 Allocation of service department 1	776 (20%)	1 552 (40%)	1 105 (30%)	(3 881)	—	—
5 Allocation of service department 2	154 (40%)	78 (20%)	78 (20%)	78 (20%)	(385)	—
6 Allocation of service department 1	16 (20%)	31 (40%)	23 (30%)	—	(78)	—
7 Allocation of service department 2	4 (20%)	2 (20%)	2 (20%)	—	(69)	—
8 Total overheads	50 520	83 150	39 360	—	—	152 040

Use with Management and Cost Accounting 7e  
by Colin Drury ISBN 9781844805662  
© 2008 Colin Drury

- Service departments provide services for other service departments as well for production departments → the allocation process can become complicated.



- There are four different methods of allocating the service department costs:
  1. repeated distribution method
  2. simultaneous equation method
  3. specified order of closing method
  4. direct allocation method

Use with Management and Cost Accounting 7e  
by Colin Drury ISBN 9781844805662  
© 2008 Colin Drury

## 2. Simultaneous equation method

### 2. Simultaneous equation method

When this method is used simultaneous equations are initially established as follows. Let

$x$  = total overhead of service department 1

$y$  = total overhead of service department 2

The total overhead transferred into service departments 1 and 2 can be expressed as

$$x = 14\,040 + 0.2y$$

$$y = 18\,000 + 0.1x$$

Rearranging the above equations:

$$x - 0.2y = 14\,040 \quad (1)$$

$$-0.1x + y = 18\,000 \quad (2)$$

We can now multiply equation (1) by 5 and equation (2) by 1, giving

$$5x - y = 70\,200$$

$$-0.1x + y = 18\,000$$

Adding the above equations together we have

$$4.9x = 88\,200$$

Therefore

$$x = 18\,000 (= 88\,200/4.9)$$

Use with Management and Cost Accounting 7e  
by Colin Drury ISBN 9781844805662  
© 2008 Colin Drury

## Example (3A.1)

### EXAMPLE 3A.1

A company has three production departments and two service departments. The overhead analysis sheet provides the following totals of the overheads analyzed to production and service departments:

		(£)
Production department	X	48 000
	Y	42 000
	Z	30 000
Service department	1	14 040
	2	18 000
		152 040

The expenses of the service departments are apportioned as follows:

	Production departments			Service departments	
	X	Y	Z	1	2
Service department 1	20%	40%	30%	—	10%
Service department 2	40%	20%	20%	20%	—

Use with Management and Cost Accounting 7e  
by Colin Drury ISBN 9781844805662  
© 2008 Colin Drury

## 2. Simultaneous equation method

Substituting this value for  $x$  in equation (1), we have

$$18\,000 - 0.2y = 14\,040$$

Therefore

$$-0.2y = -3\,960$$

Therefore

$$y = 19\,800$$

We now apportion the values for  $x$  and  $y$  to the production departments in the agreed percentages.

Line	X	Y	Z	Total
1 Allocation as per overhead analysis	48 000	42 000	30 000	120 000
2 Allocation of service department 1	3 960 (20%)	7 920 (40%)	5 940 (30%)	16 200
3 Allocation of service department 2	7 920 (40%)	3 960 (20%)	3 960 (20%)	15 840
4	55 520	53 160	39 360	152 040

Use with Management and Cost Accounting 7e  
by Colin Drury ISBN 9781844805662  
© 2008 Colin Drury

3. Specified order of closing method

EXHIBIT 3A.2 Specified order of closing method

Line	Production departments			Service departments		Total
	X	Y	Z	1	2	
1 Allocation as per overhead analysis	48 000	42 000	30 000	14 040	18 000	152 040
2 Allocate service department 2	7 200 (10%)	6 300 (20%)	3 000 (20%)	3 800 (20%)	(18 000)	
3 Allocate service department 1	3 920 (2/9)	7 840 (4/9)	5 280 (3/9)	(17 640)		
4	59 120	53 440	38 280			152 040

Use with Management and Cost Accounting 7e  
by Colin Drury ISBN 9781844805662  
© 2008 Colin Drury

4. Direct allocation method

EXHIBIT 3A.3 Direct allocation method

Line	Production departments			Service departments		Total
	X	Y	Z	1	2	
1 Allocation as per overhead analysis	48 000	42 000	30 000	14 040	18 000	152 040
2 Allocate service department 1	3 120 (2/9)	6 240 (4/9)	4 680 (3/9)	(14 040)		
3 Allocate service department 2	9 000 (4/8)	4 500 (2/8)	4 500 (2/8)		(18 000)	
4	60 120	52 740	39 180			152 040

Use with Management and Cost Accounting 7e  
by Colin Drury ISBN 9781844805662  
© 2008 Colin Drury

Thanks for your attention!

Use with Management and Cost Accounting 7e  
by Colin Drury ISBN 9781844805662  
© 2008 Colin Drury