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Activity Based Costing/ Customer Profitability Analysis

Exercise 01

Heycarb makes and sells two products, Max and Doublemax. The direct costs of production are Rs.12 for one unit of Max and Rs.24 per unit of Doublemax.

Information relating to annual production and sales is as follows:

	Max	Doublemax
Annual production and sales	24,000 Units	24,000 Units
Direct labour hours per unit	1.00	1.50
Number of orders	10	140
Number of batches	12	240
Number of setups per batch	1	3
Special parts per unit	1	4

Information relating to production overhead costs is as follows:

Activity	Cost driver	Annual cost Rs.
Setup costs	Number of setups	73,200.00
Special parts handling	Number of special parts	60,000.00
Other material handling	Number of batches	60,000.00
Order handling	Number of orders	19,800.00
Other overheads	-	216,000.00
		432,000.00

Other overhead costs do not have an identifiable cost driver, and in an ABC system, these overheads would be recovered on a direct labour hours basis.

You are required to:

(a) Calculate the production cost per unit of Max and of Doublemax if the company uses traditional absorption costing and the overheads are recovered on a direct labour hours basis.

$$\text{Overhead Absorption Rate (OAR)} = \frac{\text{Budgeted Overhead Cost}}{\text{Budgeted Labour Hours}}$$

$$\text{Overhead Absorption Rate (OAR)} = \frac{\text{Rs.432,000}}{(24,000*1 + 24,000*1.5)}$$

$$\text{Overhead Absorption Rate (OAR)} = \frac{\text{Rs.432,000}}{60,000}$$

$$\text{Overhead Absorption Rate (OAR)} = \text{Rs.7.20}$$

	Max	Doublemax
Direct cost	12.00	24.00
Production overhead	7.20	10.80
Production cost	19.20	34.80

(b) Calculate the production cost per unit of Max and of Doublemax if the company uses ABC.

Step 01 - Identification of activities		Step 02 - Identification of cost drivers		
Cost pool / Activity		Cost driver		
Setup costs	73,200.00	Number of setups	732	(12*1 + 240*3)
Special parts handling	60,000.00	Number of special parts	120,000	(24,000*1 + 24,000*4)
Other material handling	63,000.00	Number of batches	252	(12+240)
Order handling	19,800.00	Number of orders	150	(10+140)
Other overheads	216,000.00	Labour hours	60,000	(24,000*1 + 24,000*1.5)
	432,000.00			

Step 3 - Calculate OAR per activity			
Cost pool / Activity	Escalated annual cost	Annual activities	OAR per Activity
Setup costs	73,200.00	732	100.00
Special parts handling	60,000.00	120,000	0.50
Other material handling	63,000.00	252	250.00
Order handling	19,800.00	150	132.00
Other overheads	216,000.00	60,000	3.60
	432,000.00		

Step 4 - Absorb activity cost into the product			
	Max	Double Max	Escalated annual cost
Setup costs	1,200.00	1,200.00	73,200.00
	(100*12)	(100*12)	
Special parts handling	12,000.00	12,000.00	60,000.00
	(.50*24,000)	(.50*24,000)	
Other material handling	3,000.00	3,000.00	63,000.00
	(250*12)	(250*12)	
Order handling	1,320.00	1,320.00	19,800.00
	(132*10)	(132*10)	
Other overheads	86,400.00	86,400.00	216,000.00
	(3.6*24,000)	(3.6*24,000)	
	103,920.00	103,920.00	432,000.00
Estimated production	24,000.00	24,000.00	
OH Cost per Unit	4.33	4.33	73,200.00

	Max	Doublemax
Direct cost	12.00	24.00
Production overhead	4.33	13.67
Production cost	16.33	37.67

(c) Comment on the reasons for the differences in the production cost per unit between the two methods.

	Max	Doublemax
Traditional	19.20	34.80
ABC	16.33	37.67

- The allocation of overheads under absorption costing was unfair. This method assumed that all of the overheads were driven by labour hours and, as a result, the Doublemax received 1.5 times the production overhead of the Max.

- However, this method of absorption is not appropriate. The overheads are in fact driven by a number of different factors. There are five activity costs, each one has its own cost driver. By taking this into account we end up with a much more accurate production overhead cost per unit.

- Using ABC, the cost per unit of a Doublemax is significantly higher. This is because the Doublemax is a much more complex product than the Max. For example, there are 140 orders for the Doublemax but only 10 for the Max and there are 4 special parts for the Doublemax compared to only one for the Max. As a result of this complexity, the Doublemax has received more than three times the overhead of the Max.

- This accurate allocation is important because the production overhead is a large proportion of the overall cost.

(d) What are the implications for management of using an ABC system instead of an absorption costing system?

- Pricing - pricing decisions will be improved because the price will be based on more accurate cost data.

- Decision making - this should also be improved. For example, research, production and sales effort can be directed towards the most profitable products.

- Performance management - should be improved. ABC can be used as the basis of budgeting and forward planning. The more realistic overhead should result in more accurate budgets and should improve the process of performance management. In addition, an improved understanding of what drives the overhead costs should result in steps being taken to reduce the overhead costs and hence an improvement in performance.

- Sales strategy - this should be more soundly based. For example, target customers with products that appeared unprofitable under absorption costing but are actually profitable, and vice versa.

Exercise 02

City Agencies (CA) is the sole agent in Sri Lanka for several multinational pharmaceutical manufacturers. CA imports drugs and sells them to retail customers (pharmacies and supermarkets). CA's customers vary in size and consequently the size and frequency of their orders also vary.

The current management information system of CA, which is predominantly a financial accounting and reporting system, produces only very little management information. It hardly produces any product-wise or customer-wise decision support management information. CA is therefore unaware of the costs of servicing individual customers.

The new Financial Controller, who recently joined CA, has decided to perform Customer Profitability Analysis (CPA). He has initially planned to see the results from a sample of two customers before deciding whether to fully introduce CPA.

The information for these two customers, and for the whole company, for the year 2014/15 is as follows:

	Customer		Company
	AH	LW	
Contribution Rs. 000	1,500	810	9,000
No. of packs sold Rs. 000	50	27	300
No. of sales visit to customer	24	12	200
No. of orders placed by customer	75	20	700
No. of normal deliveries to customer	45	15	240
No. of urgent deliveries to customer	5	-	30

Activity	Total cost for the period Rs. 000
Sales visit to customers	1,000
Processing orders	1,400
Normal deliveries	2,400
Urgent deliveries	1,200

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Step 4 – Absorb activity cost into the product			
	AH	LW	Escalated annual cost
Sales visit to customers	120.00	60.00	180.00
	(5,000*24)	(5,000*12)	
Processing orders	150.00	40.00	190.00
	(2,000*75)	(2,000*20)	
Normal deliveries	450.00	150.00	600.00
	(10,000*45)	(10,000*15)	
Urgent deliveries	200.00	-	200.00
	(40,000*5)	(40,000*0)	

(b) Demonstrate how CA could use this Customer Profitability Analysis to increase its profits. (5 marks)

Persuade customers to increase order quantities (even by offering discounts after a cost benefit analysis) and thereby reduce the number of orders which will reduce the order processing cost.

Curtail sales visits by improving efficiency of delivery scheduling, attempting to merge deliveries to same customers and combining deliveries to different customers, which will reduce costs of sales visits and delivery costs.

Charge additional delivery cost to the customers on urgent deliveries: either cost will be recovered or urgent deliveries will reduce due to the disincentive.