

**CMA JANUARY-2022 EXAMINATION
ADVANCED LEVEL-I
CM341. STRATEGIC COST AND MANAGEMENT ACCOUNTING**

Model Solution

Solution of the Q. No. 1

- (a) Strategic cost management results from a blending of three underlying themes of strategic management. These three key themes are:
1. Value chain analysis,
 2. Strategic positioning (competitive advantage) analysis, and
 3. Cost driver analysis

Value chain analysis:

Value chain consists of major business functions that add value to a company's product or services. A value chain perspective on SCM requires that firms recognize their place in the total value-creating chain of activities, and that they endeavor to develop accounting information which will allow them to improve their internal cost management performance. In the SCM framework, managing costs effectively requires a broad focus, essentially external to a firm, whereas conventional management accounting adopts a focus which is largely internal to the firm.

Strategic positioning:

In SCM, an important role of cost management is to assist firm to find ways to compete in the markets. More specifically, a business can compete either by having lower costs (cost leadership) or by offering superior products (product differentiation) each of which involves different managerial mindsets, and thereby different cost analysis perspectives.

Cost driver:

In SCM, cost is caused or driven by many factors that are interrelated in complex ways. In contrast, conventional management accounting perceives cost as a function, and that output volume is the only and ultimate cost driver. Consequently, the usage of several cost drivers such as business activities that cause the incurrence of costs receives considerable attention in the SCM framework.

(b) (i) Customer Profitability Analysis

	Wholesale Customers			
	A	B	C	D
Sales revenue net of trade discount	160,000	220,000	100,000	170,000
Less: Cost of sales	<u>76,800</u>	<u>143,000</u>	<u>40,000</u>	<u>93,500</u>
Gross profit	83,200	77,000	60,000	76,500
Less: Other expenses:				
Sales visits	440	880	1,320	1,100
Order placing	3,000	1,200	2,400	1,500
Product handling	40,000	60,000	26,000	44,000
Delivery costs	1,560	2,400	2,000	3,960
Rush delivery	300	600	-	900
Total cost	45,300	65,080	31,720	51,460
Profit	37,900	11,920	28,280	25,040
Margin on sales %	23.69%	5.42%	28.28%	14.73%

- (ii) Based on the margin on sales displayed in the above computation, Customer 'C' should be given priority in allowing discounts as the company is earning the highest rate of margin from this customer, and then customer 'A', 'D' and B respectively.

(c) (i)

Step 1: Identification of direct competitors:

As the first step, the company should identify its principal/direct competitors based on strategy pursued and/or proportion fixed and variable costs.

Step 2: Decide on appropriate cost base:

Based on the nature of data collected, direct vs. indirect and fixed vs. variable cost costs can be contrasted for each cost item.

Step 3: Compare the cost structures:

A detailed cost comparison should be made from different perspectives for each cost items to identify strength and weakness of cost management.

Step 4: Rank competitors based on each cost item:

Several rankings are possible from the above analysis.

Step 5: Identify areas of competitive advantage:

Several cost reduction opportunities can be identified based on the foregoing analysis:

For example, the company can search for alternative sources of material without sacrificing the quality if materials or components costs are higher than that of its competitors. The rate of wastage in the use of material can also be investigated if any.

(ii) Competitor's information can be obtained from the following sources:

- Physical observations
- Mutual suppliers
- Mutual customers
- Ex-employees of competitors
- Published documents such as published financial statements
- Competitive intelligence
- Mutual consultants

Solution of the Q. No. 2

(a) Manufacturing companies are to make huge investment in plant and machinery. Accordingly, cash flows associated with investment projects should be aligned to the strategy pursued by the company. For example, if a company pursues product differentiation strategy, it must choose high performing machineries to produce products with distinctive features, high quality materials, pay more for the work forces and locate in a place having no or fewer utilities failures. In contrast, if the company would like to create competitive advantage following cost leadership it has to find every possible way to reduce costs of investment in machineries, components and work forces. Therefore, the strategic positioning has considerable impact on the cash flow streams of a company's long-term investment project.

(b) (i)

Year	0	1	2	3	4	5
	BDT					
Revenue		5,600,000	5,936,000	6,292,160	6,669,690	
Direct material		280,000	313,600	351,232	393,380	
Direct labor		336,000	362,880	391,910	423,263	
Variable overhead		420,000	436,800	454,272	472,443	
Fixed overhead		250,000	265,000	280,900	297,754	
Profit before tax		4,314,000	4,557,720	4,813,846	5,082,850	
Income tax		647,100	647,100+68 3,658	683,658+722 ,077	722,077+762 ,428	762,427

Tax depreciation		215,625	377,344	283,008	462,656	341,367
Capital/investment	5,750,000				150,000	
Working capital	180,000				180,000	
Total net flows	(5,930,000)	3,882,525	3,604,306	3,691,119	4,391,001	(421,060)
Discount factor	1.000	0.862	0.743	0.641	0.552	0.476
Present value	(5,930,000)	3,346,737	2,677,999	2,366,007	2,423,832	(200,425)

Net present value = 4,684,150

Hence, Comfort Ltd should invest in new machinery to produce lighter bags as the NPV is significantly positive.

Working Notes:

(i) Working capital is injected in year 0 and then released in Year 4.

(ii) Tax depreciation:

Total tax depreciation = Capital cost – scrap value

$$5,600,000 = 5,750,000 - 150,000$$

Year	Reducing balance	Tax depreciation	Tax saved (30%)	Benefit received	Total cash benefit
1	4,312,500	1,437,500	431,250	215,625	215,625
2	3,234,375	1,078,125	323,438	161,719+215,625	377,344
3	2,425,781	808,594	242,578	121,289+161,719	283,008
4	150,000	2,275,781	682,734	341,367+121,289	462,656
5				341,367	341,367

(ii) If the capital outlay or initial investment were to rise by more than BDT 4,684,150, the project would cease to be viable. As a percentage increase this is:

$$\begin{aligned} \text{Sensitivity margin} &= (4,684,150 \div 5,750,000) \times 100 \\ &= 81.46\% \end{aligned}$$

Solution of the Q. No. 3

(i)

	Current material (BDT per unit)	Cheaper material (BDT per unit)
Direct material	28	22
Direct labor	11	13
Variable overhead	12.60	12.60
Total variable cost	51.60	47.60
Adjusted for 5% rejection = 47.60 ÷ 0.95		50.11
Fixed costs = (160,000×8) × 115%	1,472,000	1472,000+250,000

Saving in variable cost if cheaper material is used = 51.60-50.11= BDT 1.49 per unit

Total saving in variable cost for the current level of activity = 160,000 × 1.49 = BDT 238,400

However, fixed costs would increase by BDT 250,000 if cheaper material is used. Hence, the use of cheaper material is not viable unless production exceeds (250,000 ÷ 1.49) = 167,786 units.

(ii)

Price	Demand	Variable cost per unit	Contribution per unit	Total contribution	Fixed costs	Profit
64	190,000	50.11	13.89	2,639,100	1,722,000	917,100
68	170,000	50.11	17.89	3,041,300	1,722,000	1,319,300
72	150,000	51.60	20.40	3,060,000	1,472,000	1,588,000
76	140,000	51.60	24.40	3,416,000	1,472,000	1,944,000
80	125,000	51.60	28.40	3,550,000	1,472,000	2,078,000
84	110,000	51.60	32.40	3,564,000	1,472,000	2,092,000
88	95,000	51.60	36.40	3,458,000	1,472,000	1,986,000

Thus, profit is maximized when 110,000 units are sold for BDT 84 each. Therefore, the regular supplier should be used.

(iii)

At 110,000 units the saving in variable costs if the company switches to the cheaper supplier is:
 $110,000 \times 1.49 = \text{BDT } 163,900$

Hence, the company would be indifferent between the two suppliers if fixed costs increased by BDT 163,900. New fixed costs level = $1,472,000 + 163,900 = \text{BDT } 1,635,900$.

(iv)

- The use of cheaper source of material would increase rejection rate which will eventually cause decline in the company's reputation. Long term sales may fall due to such reputation loss.
- Cheaper supplier can be supported by increasing price of materials slightly if he/she agrees to supply defect free materials by completing inspection at his/her site.
- The accuracy of price/demand data should be considered. In reality, prices cannot be increased as per company's intention/plan due to the presence of price regulating authority.
- The current sales level is 160,000 units. The recommendation for next year is to reduce this to 110,000 units. To what extent this is desirable needs to be investigated.

Solution of the Q. No. 4

(a) Balanced Scorecards provide the framework by which an organization executes its strategy. The groundwork for building your balanced scorecard is to set the organization around a clear and concise strategy. Strategy is about change and getting an organization to change is one of the most difficult things to do. When one can successfully get the organization to change, then one has to remove one of the biggest obstacles to execution of strategic plan. This is why balanced scorecards are so important to management. The Balanced Scorecard is the definitive management tools for making this happen.

From this strategy, one can translate strategic objectives into a set of grids, connected over four perspectives:

- **Financial** – Delivering expected financial results for investors.
- **Customer** – Delivering value and benefits for customers.
- **Internal Processes** – The set of processes that must be in place in order to meet the requirements of customers.
- **Learning & Growth** – The set of values and principles related to intangibles (employees, systems, and organization), supporting and providing the required internal processes

(b)

(a) Valley Company			
	Computer Services	Management Advisory Services	Company
Revenue			
External	200,000	350,000	550,000
Internal	45,000	15,000	-
Total	245,000	365,000	550,000
Cost incurred	(110,000)	(240,000)	(350,000)
Transferred in	(15,000)	(45,000)	-
Operating Income	120,000	80,000	200,000

* Computer Services = 3,000 hours x Tk. 15 = Tk. 45,000

Management Advisory Services = 1,200 hours x Tk. 12.50 = Tk. 15,000

Revenue for one is an expense of the other.

b. Valley Company

b. Valley Company			
	Computer Services	Management Advisory Services	Company
Revenue			
External	200,000	350,000	550,000
Internal	45,000	18,000	-
Total	245,000	368,000	550,000
Cost incurred	(110,000)	(240,000)	(350,000)
Transferred in	(18,000)	(45,000)	-
Operating Income	117,000	83,000	200,000 *

Computer Services = 3,000 hours x Tk. 15 = Tk. 45,000

Management Advisory Services = 1,200 hours x Tk. 15 = Tk. 18,000

Revenue for one is an expense of the other.

c. Valley Company

c. Valley Company			
	Computer Services	Management Advisory Services	Company
Revenue			
External	200,000	350,000	550,000
Internal	22,500	-	-
Total	222,500	350,000	550,000
Cost incurred	(110,000)	(240,000)	(350,000)
Transferred in	-	(22,500)	-
Operating Income	112,500	87,500	200,000

* Computer Services net = (3,000 - 1,200) x Tk. 12.50 = Tk. 22,500 Revenue for one is an expense of the other. The manager of Computer Services favors this procedure for the current year. If the hours are always in favor of Computer Services, the manager of Computer Services will favor this procedure.

Solution of the Q. No. 5

1. Activity rates:

Packaging materials: Tk. 3,375,000/3,375,000 = Tk. 1.00 per pound

Energy usage: Tk. 900,000/1,125,000 = Tk. 0.80 per kilowatt-hour

Toxin releases: Tk. 450,000/2,250,000 = Tk. 0.20 per pound

Pollution control: Tk. 1,050,000/375,000 = Tk. 2.80 per machine hour

Unit cost:

	Org AB	Org XY
Packaging materials:		
Tk. $1.00 \times 2,250,000$	Tk. 2,250,000	
Tk. $1.00 \times 1,125,000$		Tk. 1,125,000
Energy usage:		
Tk. $0.80 \times 750,000$	600,000	
Tk. $0.80 \times 375,000$		300,000
Toxin releases:		
Tk. $0.20 \times 1,875,000$	375,000	
Tk. $0.20 \times 375,000$		75,000
Pollution control:		
Tk. $2.80 \times 300,000$	840,000	
Tk. $2.80 \times 75,000$		210,000
Total assigned.....	Tk. 4,065,000	Tk. 1,710,000
Divided by units	$\div 7,500,000$	$\div 18,750,000$
Unit cost per pound.....	Tk. 0.542	Tk. 0.0912

Org AB has the highest environmental cost per unit. So, to the extent that the per-unit environmental cost measures environmental damage, we can say that this product causes more problems.

2. Excessive use of materials and energy is classified as an external failure cost. (Once too much is used, then the customers and society bear the cost—the effect has been “released” into the environment.)

3. These costs would increase the toxin release rate by Tk. 0.90 per pound (Tk. $2,025,000/2,250,000$). This increase, in turn, would increase the amount assigned to each product: Tk. 1,687,500 to the Org AB product and Tk. 337,500 to the Org XY product. Unit costs, then, would increase by Tk. 0.225 for the Org AB product (Tk. $1,687,500/7,500,000$) and Tk. 0.018 for the Org XY product (Tk. $337,500/18,750,000$). This is a full costing approach, which many feel ought to be the way environmental costs are assigned. However, it is often difficult to estimate the societal costs, and many firms restrict their cost assignments to private costs.

4. New activity rates:

Packaging materials:	$Tk. 1,518,750/3,037,500 = Tk. 0.50$ per pound
Energy usage:	$Tk. 600,000/750,000 = Tk. 0.80$ per kilowatt-hour
Toxin releases:	$Tk. 112,500/1,125,000 = Tk. 0.10$ per pound
Pollution control:	$Tk. 1,050,000/375,000 = Tk. 2.80$ per machine hour
Engineering:	$Tk. 450,000/15,000 = Tk. 30$ per engineering hour
Treatment:	$Tk. 303,750/3,037,500 = Tk. 0.10$ per pound

Note: Since pounds of packaging is the driver for both packaging and packaging treatment, the rates could be combined, yielding a packaging and treatment rate of Tk. 0.60 per pound. The 3,037,500 pounds used for the rate is 3,375,000 less 10% of the original 3,375,000 pounds.

Unit cost:

	Org AB	Org XY
Packaging materials and treatment:		
Tk. $0.60 \times 2,025,000$	Tk. 1,215,000	
Tk. $0.60 \times 1,012,500$		Tk. 607,500
Energy usage:		
Tk. $0.80 \times 500,000$	400,000	
Tk. $0.80 \times 250,000$		200,000

Toxic releases:		
Tk. 0.10 × 937,500	93,750	
Tk. 0.10 × 187,500		18,750
Pollution control:		
Tk. 2.80 × 300,000	840,000	
Tk. 2.80 × 75,000		210,000
Engineering:		
Tk. 30 × 11,250.....	337,500	
Tk. 30 × 3,750.....		112,500
Total assigned.....	<u>Tk. 2,886,250</u>	<u>Tk. 1,148,750</u>
Divided by units	÷ 7,500,000	÷ 18,750,000
Unit cost per pound.....	Tk. 0.3848*	Tk. 0.0613

5. Savings:

	Org AB	Org XY	Total
Before	Tk. 4,065,000	Tk. 1,710,000	Tk. 5,775,000
After.....	2,886,250	1,148,750	4,035,000
Total savings.....	Tk. 1,178,750	Tk. 561,250	Tk. 1,740,000
Pounds.....	÷ 7,500,000	÷ 18,750,000	
Unit savings	Tk. 0.1572	Tk. 0.0299	

This illustrates that improving environmental performance can improve economic efficiency, which is consistent with the claims of ecoefficiency.

6. Excessive energy and materials usage and releasing toxins are external failure activities; operating pollution control equipment is an internal failure activity. Engineering is a prevention activity (added during the improvement process).

7. The environmental improvements have reduced total and per-unit operating costs for each product. This now makes price reductions possible, reducing customer sacrifice, and potentially creating a competitive advantage. The reduced environmental damage may also enhance product and company images, with the potential of attracting more customers. Other possible benefits that may contribute to a competitive advantage include a lower cost of capital and lower insurance costs.

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