



Understanding and Solving the CML Part III Case Study

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Scope of the CML Body of Knowledge

Part I Systems Management

Systems and logistics systems definitions, program management, tools and techniques ...

Part II Distribution and Customer Support

Customer support during operations and warranty, logistics chain operations during sustainment ...

Part III Integrated Case Studies

Provides for a comprehensive analysis of one or two industry cases studies to demonstrate that the candidate has an ability to integrate the fundamental knowledge expressed in Parts I and II ...

*Covers the complete range of logistics for Logistics Chain Management
Includes the full spectrum of integrated responsibilities including program management, and delivery through follow-on sustainment in a wide range of operational conditions.*



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Part III Integrated Case Studies

- Focuses the information contained in the first two parts of the examination into a case study that:
 - reviews a real life business situation, and
 - asks the student to provide an analysis and solution based on
 - the information provided and
 - their knowledge of logistics and business.



What Is This Case Study All About?

- Parts I and II contain only multiple choice questions (100 questions each part) based on your understanding of the Body of Knowledge.
- Part III is a case study requiring that you
 - read the case,
 - understand what is being asked of you in the questions,
 - extract the basic information and data,
 - compute the required solution,
 - and then select the correct answer.
- Part III may only have 7 questions per case study with two case studies, for a total of 14 questions on this part.



A Case Study Example ...

- See the following case study used in this session.
- “Performance Control at the Happy Chip Company”



Wendell Worthmann, Manager of Logistics Cost Analysis for Happy Chips, Inc., was faced with a difficult task. Harold L. Carter, the new Director of Logistics, had circulated a letter from Happy Chips' only mass merchandise customer, Buy 4 Less, complaining of poor operating performance. Among the problems cited by Buy 4 Less were: (1) frequent stockouts, (2) poor customer service responsiveness, and (3) high prices for Happy Chips' products. The letter suggested that if Happy Chips were to remain a supplier to Buy 4 Less, it would need to eliminate stockouts by: (1) providing direct store delivery four times per week (instead of three), (2) installing an automated order inquiry system to increase customer service responsiveness (\$10,000.00), and (3) decreasing product prices by 5 percent. While the previous director of logistics would most certainly have begun implementing the suggested changes, Harold Carter was different. He requested that Wendell prepare a detailed analysis of Happy Chips' profitability by segment. He also asked that it be prepared on a spreadsheet to permit some basic analysis. This was something that Wendell had never previously attempted, and it was needed first thing in the morning.

Company Background

Happy Chips, Inc., is the fifth largest potato chip manufacturer in the metropolitan Detroit market. The company was founded in 1922 and following an unsuccessful attempt at national expansion has remained primarily a local operation. The company currently manufactures and distributes one variety of potato chips to three different types of retail accounts: grocery, drug, and mass merchandise. The largest percentage of business is concentrated in the grocery segment, with 36 retail customer locations accounting for 40,000 annual unit sales and more than 50 percent of annual revenue. The drug segment comprised 39 customer locations which account for 18,000 annual unit sales and more than 27 percent of annual revenue. All distribution is store-direct, with delivery drivers handling returns of outdated material and all shelf placement and merchandising. Recently, Happy Chips has actively sought growth in the mass merchandise segment because of the perceived profit potential. However, while the company is acutely aware of overall business profitability, there has never been an analysis on a customer segment basis.

Performance Statistics

Wendell recently attended a seminar at a major Midwestern university concerning activity-based costing. He was anxious to apply the techniques he had learned at the seminar to the current situation, but was unsure exactly how to proceed. He did not understand the relationship between activity-based costing and segment profitability analysis, but he knew the first step in either is to identify the relevant costs. Wendell obtained a copy of Happy Chips' most recent income statement (Table 1).

He also knew specific information concerning logistics costs by segment (Table 2).



TABLE 1 **Income Statement**

Income	
Net Sales	\$150,000.00
Interest and Other Income	<u>3,215.00</u>
	153,615.00
Cost and Expenses	
Cost of Goods Sold	84,000.00
Other Manufacturing Expense	5,660.00
Marketing, Sales and Other Expenses	52,151.20
Interest Expense	<u>2,473.00</u>
	144,284.20
Earnings before Income Taxes	9,330.80
Income Taxes	<u>4,198.86</u>
Net Earnings	<u>5,131.94</u>

TABLE 2 **Annual Logistics Costs by Segment**

Cost Category/Segment	Grocery	Drug	Mass Merchandise
Stocking Cost (\$/Delivery)	\$1.80	\$1.20	\$2.80
Information Cost (Annual)	1,000.00	8,000.00	1,000.00
Delivery Cost (\$/Delivery)	5.00	5.00	6.00

All deliveries were store-direct with two deliveries per week to grocery stores, one delivery per week to drug stores and three deliveries per week to mass merchandisers. To obtain feedback concerning store sales, Happy Chips purchased scanner data from grocery and mass merchandise stores at an aggregate annual cost of \$1,000.00 per segment. The drug store segment required use of handheld scanners by delivery personnel to track sales. The cost of delivery to each store was dependent on the type of vehicle used. Standard route trucks were used for drug stores and grocery stores, while extended vehicles were used to accommodate the volume at mass merchandisers.

Trade prices for each unit were different for grocery (\$1.90), drug (\$2.30), and mass merchandising (\$1.50) customers. Wendell was also aware that Buy 4 Less required Happy Chips to cover the suggested retail price with a sticker bearing its reduced price. The machinery required to apply these labels had an annual rental cost of \$5,000.00. Labor and materials cost an additional \$.03 per unit.



Conclusion

As Wendell sat in his office compiling information to complete the segment profitability analysis, he received several unsolicited offers for assistance. Bill Smith, manager marketing, urged him not to bother with the analysis:

Buy 4 Less is clearly our most important customer. We should immediately implement the suggested changes.

Steve Brown, director of manufacturing disagreed. He felt the additional manufacturing cost required to meet Buy 4 Less' requirements was too high:

We should let Buy 4 Less know what we really think about their special requirements. Stickers, of all things! What business do they think we are in?

The sales force had a different opinion. Jake Williams felt the grocery segment was most important:

Just look at that volume! How could they be anything but our best customers?

The broad interest being generated by this assignment worried Wendell. Would he have to justify his recommendations to everyone in the company? Wendell quietly closed his office door.

Based on the available information and his own knowledge of ABC systems, Wendell Worthmann needed to complete a segment profitability analysis and associated spreadsheet before his meeting with Harold in the morning. With all these interruptions, it was going to be a long night.



Highlights of the Case Study

- The case study is about knowing where your profits come from. Products and customers that are unprofitable will not overcome the problem through greater volume.
- The “most demanding customer” is not always the best solution.



What the Questions Ask For ...

1. Activity Based Costing and Segment Profitability Analysis are complementary tools used in operations planning
2. The Grocery Segment has a profit level of (\$)
3. When listed from highest to lowest the segments provide profitability in the following order
4. Changing the labels on the Buy 4 Less deliveries will increase profits in the segment
5. Changing to the new labels will change the per unit costs for the Mass Merchandising market by
6. Changing the new labels will require changing the price by
7. Other potential considerations when making a change in pricing include



Approach

- Divide questions into two areas
- General Knowledge
 - Do not require analysis - answer these first
- Analysis
 - Define the computations and information (data) that you will need to answer these



General Knowledge Questions Not Requiring Analysis

1. Activity Based Costing and Segment Profitability Analysis are complementary tools used in operations planning.
2. The Grocery Segment has a profit level of
3. When listed from highest to lowest the segments provide profitability in the following order
4. Changing the labels on the Buy 4 Less deliveries will increase profits in the segment
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Question 1

1. Activity Based Costing and Segment Profitability Analysis are complementary tools used in operations planning.
 - a. **True**
 - b. False
- Activity Based Costing allocates costs to the processes that create them
- Segment Profitability Analysis breaks down costs and profits to the customers that create them



Question 7

7. Other potential considerations when making a change in pricing include
 - a. Unprofitable sales promotes sales in other segments
 - b. Refusing to service a customer may have negative impacts on other customers
 - c. There are other solutions to providing logistics services
 - d. All of the above.

■ The answer is d - All of the above



Did You Know Those Answers?

■ In effect, these were questions that are based on basic knowledge not computational questions.



So Far ...

- You have 2 questions out of 7 right
 - This is a score of 29%
- You need another 3 correct out of the remaining 5 to get a passing score of 60%
 - *(Actually you will have a 71%)*



Analysis Questions

1. Activity Based Costing and Segment Profitability Analysis are complementary tools used in operations planning.
2. The Grocery Segment has a profit level of
3. When listed from highest to lowest the segments provide profitability in the following order
4. Changing the labels on the Buy 4 Less deliveries will increase profits in the segment
5. Changing to the new labels will change the per unit costs for the Mass Merchandising market by
6. Changing the new labels will require changing the price by
7. Other potential considerations when making a change in pricing include.



What the Questions Are Asking You To Do...

- Questions 2 and 3. Address profit today by segment
- Question 4 requires we compute the profit with additional costs for one segment
- Question 5 is a reflection of the computations in Question 4 on Per Unit Cost of changing the labels
- Question 6 asks that we compute the changes in price required



Solution Planning

2. The Grocery Segment has a profit level of
Requires computing actual profit level of segment
3. When listed from highest to lowest the segments provide profitability in the following order
Compute actual profit levels and rank order
4. Changing the labels on the Buy 4 Less deliveries will increase profits in the segment
What is change in profit up or down?
5. Changing to the new labels will change the per unit costs for the Mass Merchandise market by
Compute old and new unit costs
6. Changing the new labels will require changing the price by
Assumes that you want to have a reasonable profit level - compute the new price required.



Happy Chip Profitability Report

Account:	Grocery	Drug	Mass Merchandising
Unit Sales	40,000	18,000	22,000
Trade Price	\$1.90	\$2.30	\$1.50
Revenue	\$76,000.00	\$41,400.00	\$33,000.00
COGS per unit	\$1.05	\$1.05	\$1.05
Unit Sales	40,000	18,000	22,000
Labeling Costs	0	0	\$5,660.00
COGS	\$42,000	\$18,900.00	\$28,760.00
Net Margin	\$34,000.00	\$22,500.00	\$4,240.00
<i>Controllable Fixed Costs:</i>			
Stocking Cost	\$6,739.20	\$2,433.60	\$1,310.40
Information Costs	\$1,000.00	\$8,000.00	\$1,000.00
Delivery Costs	\$18,720.00	\$10,140.00	\$2,808.00
Total	\$26,459.20	\$20,573.60	\$5,118.40
Profit/Segment	\$7,540.60	\$1,926.40	(\$876.40)



Computing the Stocking and Delivery Costs

Stocking Costs:

	Cost/Delivery	Deliveries/ week	Weeks/year	Number of Locations	Total Cost
Grocery	\$1.80	2	52	36	\$6,739.20
Drugs	\$1.20	1	52	39	\$2,433.60
Mass Merchandising	\$2.80	3	52	3	\$1,310.40

Delivery Costs:

	Cost/Delivery	Deliveries/ week	Weeks/year	Number of Locations	Total Cost
Grocery	\$5.00	2	52	36	\$18,720.00
Drugs	\$5.00	1	52	39	\$10,140.00
Mass Merchandising	\$6.00	3	52	3	\$2,808.00



Question 2 Answer

Account:	Grocery	Drug	Mass Merchandising
Unit Sales	40,000	18,000	22,000
			\$1.50
			\$33,000.00
			\$1.05
			22,000
			\$5,660.00
			\$28,760.00
			\$4,240.00
<i>Controllable Fixed Costs:</i>			
Stocking Cost	\$6,739.20	\$2,433.60	\$1,310.40
Information Costs	\$1,000.00	\$8,000.00	\$1,000.00
Delivery Costs	\$18,720.00	\$10,140.00	\$2,808.00
Total	\$26,459.20	\$20,573.60	\$5,118.40
Profit/Segment	\$7,540.60	\$1,926.40	(\$876.40)

2. The Grocery Segment has a profit level of

- a. \$ 76,000.00
- b. \$ 7,540.00
- c. \$ 34,000.00
- d. \$ 3,400.00



Question 3 Answer

Account:	Grocery	Drug	Mass Merchandising
Unit Sales	40,000	18,000	22,000
Trade Price	\$1.90	\$2.30	\$1.50
			60.00
			\$1.05
			22,000
			60.00
			00.00
			40.00
			10.40
Information Costs	\$1,000.00	\$8,000.00	\$1,000.00
Delivery Costs	\$18,720.00	\$10,140.00	\$2,808.00
Total	\$26,459.20	\$20,573.60	\$5,118.40
Profit/Segment	\$7,540.60	\$1,926.40	(\$876.40)

3. When listed from highest to lowest the segments provide profitability in the following order:

- a. Drug, Mass Merchandising, Grocery
- b. Grocery, Drug, Mass Merchandising
- c. Grocery, Mass Merchandising, Drug
- d. Mass Merchandising, Drug, Grocery



Question 4 Answer

Account:	Grocery	Drug	Mass Merchandising
Unit Sales	40,000	18,000	22,000
Trade Price	\$1.90	\$2.30	\$1.50
			000.00
			\$1.05
			22000
			,660.00
			100.00
			0.00
<i>Controllable Fixed Co</i>			
Stocking Cost			10.40
Information Costs			00.00
Delivery Costs			08.00
Total	\$26,459.20	\$20,573.60	\$5,118.40
Profit/Segment	\$7,540.60	\$1,926.40	(\$876.40)

4. Changing the labels on the Buy 4 Less deliveries will increase profits in the segment.

- a. True
- b. False

The segment is already losing money. Increasing costs by changing the label will only increase the loss.



Question 5 Answer

5. Changing to the new labels will change the per unit costs for the Mass Merchandising market by a/an

- a. Decrease of \$0.03
- b. Increase of \$1.80
- c. Decrease of \$1.50
- d. Increase of \$1.20





Question 6 Answer

- 6. Changing the new labels will require changing the price by**
- a. Increase of 0.5%**
 - b. Increase of 10%**
 - c. Increase of 20%**
 - ➡ d. No change will be required, although profits will decrease**



Increases In Price

Account:	Mass Merchandising	0.5%	10%	20%
Unit Sales	22,000	22,000	22,000	22,000
Trade Price	\$1.50	\$1.51	\$1.65	\$1.80
Revenue	\$33,000.00	\$33,165.00	\$36,300.00	\$39,600.00
COGS per unit	\$1.05	\$1.05	\$1.05	\$1.05
Unit Sales	22,000	22,000	22,000	22,000
Labeling Costs	\$5,660.00	\$5,660.00	\$5,660.00	\$5,660.00
COGS	\$28,760.00	\$28,760.00	\$28,760.00	\$28,760.00
Net Margin	\$4,240.00	\$4,405.00	\$7,540.00	\$10,840.00
<i>Controllable Fixed Costs:</i>				
Stocking Cost	\$1,310.40	\$1,310.40	\$1,310.40	\$1,310.40
Information Costs	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00
Delivery Costs	\$2,808.00	\$2,808.00	\$2,808.00	\$2,808.00
Total	\$5,118.40	\$5,118.40	\$5,118.40	\$5,118.40
Profit/Segment	(\$876.40)	(\$713.40)	\$2,421.60	\$5,721.60



Summary

- Solutions for Case Studies require a comprehensive knowledge of the entire logistics chain operation.
- Take the time to read the questions and the case study.
- Determine what information is needed to answer the questions.
- Calculate the answers and double check them.