

## Liquid Chemical Company Case

MBA 628: Managerial Accounting

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### THE CHAMPIONS

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**Goal Definition (Q1)**

Management must decide on the most appropriate course of action among the following alternatives:

Alternative 1: Keep the production and maintenance of new containers in-house (status-quo).

Alternative 2: Outsource the production of new containers, but not their maintenance.

Alternative 3: Outsource the maintenance of new containers, but not their production.

Alternative 4: Outsource the production of new containers and their maintenance.

**Quantitative Analysis (Q2)**

- Exhibit 1 shows the cash flow analysis for Alternative 1, the status quo. We removed the proportion of general administrative overhead and machine depreciation from our analysis since these costs remain constant among our alternatives.
- Exhibit 2 shows the cash flow analysis for Alternative 2, outsourcing production. Even though the asset write-offs would involve a one-time inflow of cash, we amortized the salvage value of machinery and GHJ in order to simplify the comparison between alternatives.
- Exhibit 3 shows the cash flow analysis for Alternative 3, outsourcing maintenance. The \$84,000 for labour costs in this alternative is based on our assumption that production and maintenance are the only two cost drivers for labour.
- Exhibit 4 shows the cash flow analysis for Alternative 4, outsourcing production and maintenance. Labour costs (\$8,000) for this alternative reflects the pension paid to senior employees.

**Qualitative Analysis (Q3)**

- Using cash flow analysis as an evaluation criterion for outsourcing overlooks critical factors that are intangible and difficult to quantify, but nonetheless must be taken into consideration in order to make a sound decision. For example, closing down a department and laying off employees when the company is not in financial danger could have negative impacts on staff morale and productivity, and could also potentially give the company bad publicity.
- By subcontracting the production and maintenance of containers to another company, Liquid Chemical may be outsourcing a process that provides the company with a competitive advantage over its rivals.

**Recommendation**

- Given the results of the cash flow analysis of alternatives, Alternative 1, keeping the status quo, is the best decision for the company.
- Over the next 5 years, Liquid Chemical should focus on process optimization and reducing manufacturing inefficiencies. After 5 years, once inventory is used up and machinery is depreciated, the company should reevaluate outsourcing alternatives.

## Exhibits

### Exhibit 1 – Cash Flow Analysis for Alternative 1 (Status quo)

<b>Costs</b>		
Materials		\$178,360
Labour		\$126,000
Department Overhead		
	Manager's Salary	\$20,300
	Rent <sup>1</sup> (including warehouse space)	\$33,320
	Maintenance (Machines)	\$9,170
	Other Expenses	<u>\$40,120</u>
		<u>\$102,910</u>
<b>TOTAL</b>		<b>\$407,270</b>

<sup>1</sup>Rent cost = \$11,480 + \$21,840

### Exhibit 2 – Cash Flow Analysis for Alternative 2 (Outsourcing production)

<b>Costs</b>		
Materials <sup>1</sup>		\$127,360
Labour <sup>2</sup>		\$42,000
Department Overhead		
	Manager's Salary <sup>3</sup>	\$14,800
	Rent (without warehouse space)	\$11,480
	Maintenance (Machines)	\$ -
	Other Expenses	<u>\$16,500</u>
		<u>\$42,780</u>
		\$212,140
Cost of contract		<u>\$300,000</u>
<b>Subtotal</b>		<b>\$512,140</b>
Salvage value (Machinery) over 5 years <sup>4</sup>		\$10,000
Salvage value (GHL) over 5 years <sup>5</sup>		\$31,680
<b>TOTAL</b>		<b>\$470,460</b>

<sup>1</sup>Materials = \$178,360 – \$51,000

<sup>2</sup>Labour = (1/3)\*\$126,000

<sup>3</sup>Manager's salary = \$20,300 – \$5,500

<sup>4</sup>Salvage value (Machinery) = \$50,000/5

<sup>5</sup>Salvage value (GHL) = \$255,000/\$1,275 = 200 tons  
(160\*\$1,100)/5 = \$35,200

4/5\*200 = 160 tons

Minus 10% per year = \$35,200 – \$3,520

**Exhibit 3 – Cash Flow Analysis for Alternative 3 (Outsourcing maintenance)**

<b>Costs</b>		
Materials <sup>1</sup>		\$160,524
Labour <sup>2</sup>		\$84,000
Department Overhead		
Manager's Salary	\$20,300	
Rent <sup>3</sup> (including warehouse space)	\$33,320	
Maintenance (Machines)	\$9,170	
Other Expenses	<u>\$40,120</u>	
		<u>\$102,910</u>
		\$347,434
Cost of contract		<u>\$90,000</u>
<b>TOTAL</b>		<b>\$437,434</b>

<sup>1</sup>Materials = \$178,360 – \$17,836

<sup>2</sup>Labour = \$126,000 – \$42,000

<sup>3</sup>Rent cost = \$11,480 + \$21,840

**Exhibit 4 – Cash Flow Analysis for Alternative 4 (Outsourcing production and maintenance)**

<b>Costs</b>		
Materials <sup>1</sup>		\$109,524
Labour <sup>2</sup>		\$8,000
Department Overhead		
Manager's Salary	\$ -	
Rent (without warehouse space)	\$11,480	
Maintenance (Machines)	\$ -	
Other Expenses	<u>\$16,500</u>	
		<u>\$27,980</u>
		\$145,504
Cost of contracts		<u>\$390,000</u>
<b>Subtotal</b>		<b>\$535,504</b>
Salvage value (Machinery) over 5 years <sup>3</sup>		\$10,000
Salvage value (GHL) over 5 years <sup>4</sup>		\$35,200
<b>TOTAL</b>		<b>\$490,304</b>

<sup>1</sup>Materials = \$178,360 – \$51,000 – \$17,836

<sup>2</sup>Labour = 2\*\$4,000

<sup>3</sup>Salvage value (Machinery) = \$50,000/5

<sup>4</sup>Salvage value (GHL) = \$255,000/\$1,275 = 200 tons      4/5\*200 = 160 tons  
(160\*\$1,100)/5 = \$35,200