

CASE #5a:**Techno, Inc.****Commodity Type: Capital Equipment, USA**

Liz Cooper sat at her desk gazing at the mounds of paper that had accumulated around her. She was the Capital Equipment buyer for Techno Inc.'s (TI) semiconductor division. The papers on her desk were all related to the responses she received to an RFP that was sent out to two of Techno's capital equipment suppliers SeeMos, Inc. and Applied Technologies.

A decision had been made to upgrade the Beam Tools that were used in the production of Techno's highly successful Quasar product line. Sales had greatly exceeded initial expectations and were projected to grow rapidly over the next 5 years. The equipment that was currently being used was almost 5 years old and would not be able to sustain the expected market growth. Also, this step of the production process was the one with the longest cycle time. The new machines had much faster throughput rates, which in turn would translate into increased production and sales.

The RFP that was sent out to the suppliers contained a detailed spec. Engineering had already examined the responses for functionality and were satisfied that both suppliers met the stated requirements. It was now up to Liz to work the numbers out and determine the best option for Techno. This is where her problems began. She did not know how to proceed. She began by putting together a summary of the information she had. Her summary is below:

General Information:

- Purchase volume - 10 Machines
- Expected life – 5 years
- Techno's cost of capital – 11%

Present Value Interest Factors @11%:

Year 1 -	0.901
Year 2 -	0.812
Year 3 -	0.731
Year 4 -	0.659
Year 5 -	0.593

Existing Equipment:

No. of machines	10
Machine Throughput	67 units per hour
Uptime	85%
Current Total Annual Production	5,000,000 units
Production time (maximum capacity)	24/7 (8,760 hours a year)
Salvage value	\$10,000 per machine

Product Info (average over 5 years):*

Sales Price	\$23.50
Fixed Costs	\$7.25
Variable Costs	\$11.50
Profit	\$4.75

* To simplify calculations, assume that the above price breakdown will remain constant over the next 5 years and that all units produced will be sold

CASE #5a: Techno, Inc.

New Equipment Product Summary

Details	SeeMos, Inc	Applied Technologies
Model Name	AC1	XRT-7
Base Equipment	\$1,620,000 per machine	\$1,137,500 per machine
<i>Add-ons to meet TI spec:</i>		
1 Chamber	\$275,000 per machine	\$220,000 per machine
Software	\$60,000 per machine	Included
Drying system	\$25,000 per machine	\$10,000 per machine
Freight to TI	Included in equipment price	\$5,000 per machine
Installation	\$25,000 per machine	\$35,000 per machine
Operating Costs	Each machine would require 1.5 FTE (Full time equivalent) which totaled \$100,000 per year per machine	Each machine would require 2 FTE. The total for 2 FTE's is \$140,000 per year per machine
Training	\$7,500 for year 1 and \$5,000 per year thereafter, for the life of the product per machine	\$8,000 for year 1 and \$4,000 per year thereafter, for the life of the product per machine
Service Retainer	\$4,250 per month per machine	\$5,750 per month per machine
Delivery lead time	76 days	42 days
Machine Uptime	93%	90%
Machine Throughput	122 units per hour	122 units per hour
Salvage value after 5 yrs	\$65,000 per machine	\$50,000 per machine

Using the information Liz gathered, complete the following worksheets

CASE #5a: Techno, Inc.

Complete the following worksheets

Worksheet 1: Daily Throughput (Production) Calculation

#	Details	SeeMos	Applied	Existing
1	No. of machines			
2	Throughput per day per machine			
3	Total throughput per day			

Worksheet 2: Delivery Opportunity Cost

#	Details	SeeMos	Applied
1	Opportunity time in days		
2	Production quantity in opportunity time with best lead time machines		
3	Production quantity in opportunity time with existing machines		
4	Delivery opportunity quantity (# of units of lost sales)		
5	\$ value per unit of lost sales (i.e. contribution)		
6	Total value of lost sales		
7	Recurring or one-time cost?		

Worksheet 3: Production Opportunity Cost

#	Details	SeeMos	Applied
1	Total annual production quantity		
2	Production opportunity quantity (# of units less than best-in-class)		
3	\$ value per unit of lost sales (i.e. contribution)		
4	Total value of lost sales		
5	Recurring or one-time cost?		

Worksheet 4: SeeMos, Inc. - Total Cost of Ownership

Cost Element	Year 0 (Days 1-90 of Year 1)	Year 1	Year 2	Year 3	Year 4	Year 5
I. Acquisition Costs:						
Base Equip						
Additional chamber						
Software						
Drying system						
Freight						
II. Usage Costs:						
Installation						
Operating costs						
Training						
Service retainer						
Opportunity costs:*						
<i>1. Delivery</i>						
<i>2. Production</i>						
III. End of Life Costs:						
Salvage value						
TOTAL (I + II + III)						
PVIF's @ 11 %	1	0.901	0.812	0.731	0.659	0.593
Present Value (Total * PVIF)						

* Complete Worksheets 1, 2, and 3

TCO:
(Sum of all Present Values)

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Worksheet 5: Applied Inc. - Total Cost of Ownership

Cost Element	Year 0 (Days 1-90 of Year 1)	Year 1	Year 2	Year 3	Year 4	Year 5
I. Acquisition Costs:						
Base Equip						
Additional chamber						
Software						
Drying system						
Freight						
II. Usage Costs:						
Installation						
Operating costs						
Training						
Service retainer						
Opportunity costs:*						
1. Delivery						
2. Production						
III. End of Life Costs:						
Salvage value (after tax)						
TOTAL (I + II + III)						
PVIF's @ 11 %	1	0.901	0.812	0.731	0.659	0.593
Present Value (Total * PVIF)						

* Complete Worksheets 1, 2, and 3

TCO:
(Sum of all Present Values)

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Questions:

1. Based on your TCO models, which supplier would you suggest Liz select? Explain your reasons.

2. What points would you raise in your negotiations with the selected supplier?