Capital Investment What-if A

Description: As the chief operation officer a manufacturing company, you need to
labor for the next year to meet growing market demand. The sales & marketing d
and price for the next year, your procurement and HR divisions also provided guid
includes three possible scenarios (likely, best case and worst cases) which represe

Forecast	Likely case
Sales demand growth	6%
Unit price growth	2%
Material price growth	2%
Fixed cost price growth	2%

Likely case

Demand, delivery and revenue	**Current year**
Annual sales demand	700,000
Annual delivery	700,000
Unit price	$ 250.00
Annual revenue	**175,000,000**

Production capacity	
# of machines	70
Capacity per machine	10,000
Total capacity	700,000

Total production	700,000

Variable cost		
Variable cost per unit	$	150.00
Total variable cost	**$**	**105,000,000.00**

Fixed cost		
Machine and operating labor (per machine)	$	720,000.00
Total machine and operating labor cost	$	50,400,000.00
Others	$	4,000,000.00
Total fixed cost	**$**	**54,400,000.00**

Total cost	159,400,000.00
Total profit	**15,600,000.00**

Decision and Impact

Likely-case summary
Investment (machine and operating labor)
Profit change
ROI

Analysis Case

decide on the investment on additional machines and associated
ivision of the company provided their forecast of sales demand
ance on materials price and labor cost forecast. Their forecast
nt economic and market uncertainty.

Recession	Strong economy
2%	8%
1%	4%
1%	4%
1%	4%

Next year (additional machine)	Next year (status quo)
742,000	742,000
740,000	700,000
$ 255	$ 255
188,700,000	**178,500,000**

74	70
10,000	10,000
740,000	700,000

740,000	700,000

$ 153	$ 153
$ 113,220,000	**$ 107,100,000**

$ 734,400	$ 734,400
$ 54,345,600	$ 51,408,000
$ 4,080,000	$ 4,161,600
$ 58,425,600	**$ 55,569,600**

$ 171,645,600	$ 162,669,600
17,054,400	**15,830,400**

Additional machine #	Additional machine #
4	0

4 additional machines
$ 2,937,600
$ 1,224,000
42%

Based on demand forecast
The amount of product delivery is bounded by the production capacity and market demand
Based on unit price forecast

There are 70 machines at the end of the current year

The amount of product delivery is bounded by the production capacity and market demand

Based on procurement and HR forecast

Based on procurement and HR forecast

Under the likely-case, four additional machines provide the greatest incremental profit

Scenario Summary (4 additional machines)		
Uncertain variables	Likely case	Worst
Sales demand growth	6%	2%
Unit price growth	2%	1%
Material price growth	2%	1%
Fixed cost price growth	2%	1%
Incremental profit	$ 1,224,000	$ (1,454,400)
Return of Investment	42%	-50%

Best
8%
4%
4%
4%
$ 1,331,200
44%

additional machines

4

Scenario Summary (2 additional machines)		
Uncertain variables	Likely case	Worst
Sales demand growth	6%	2%
Unit price growth	2%	1%
Material price growth	2%	1%
Fixed cost price growth	2%	1%
Incremental profit	$ 652,800	$ -
Return of Investment	44%	0%

Best
8%
4%
4%
4%
$ 748,800
50%

additional machines
2