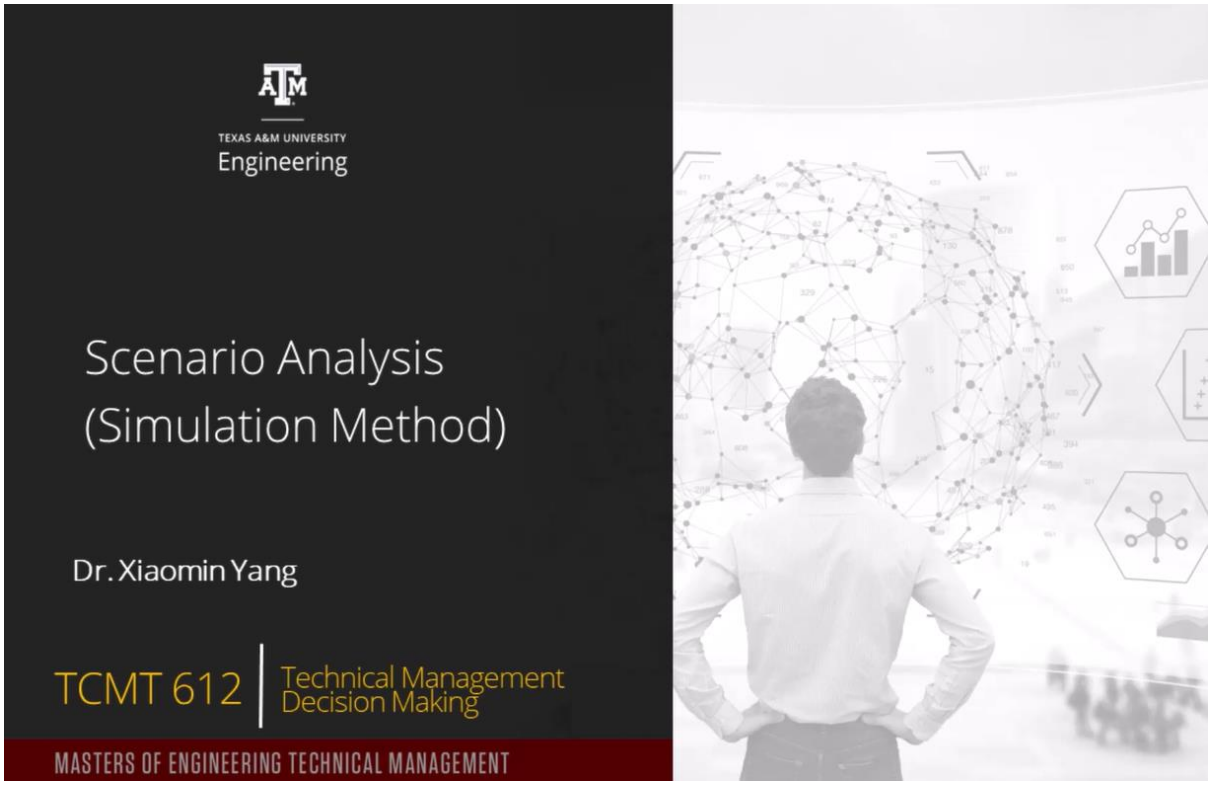
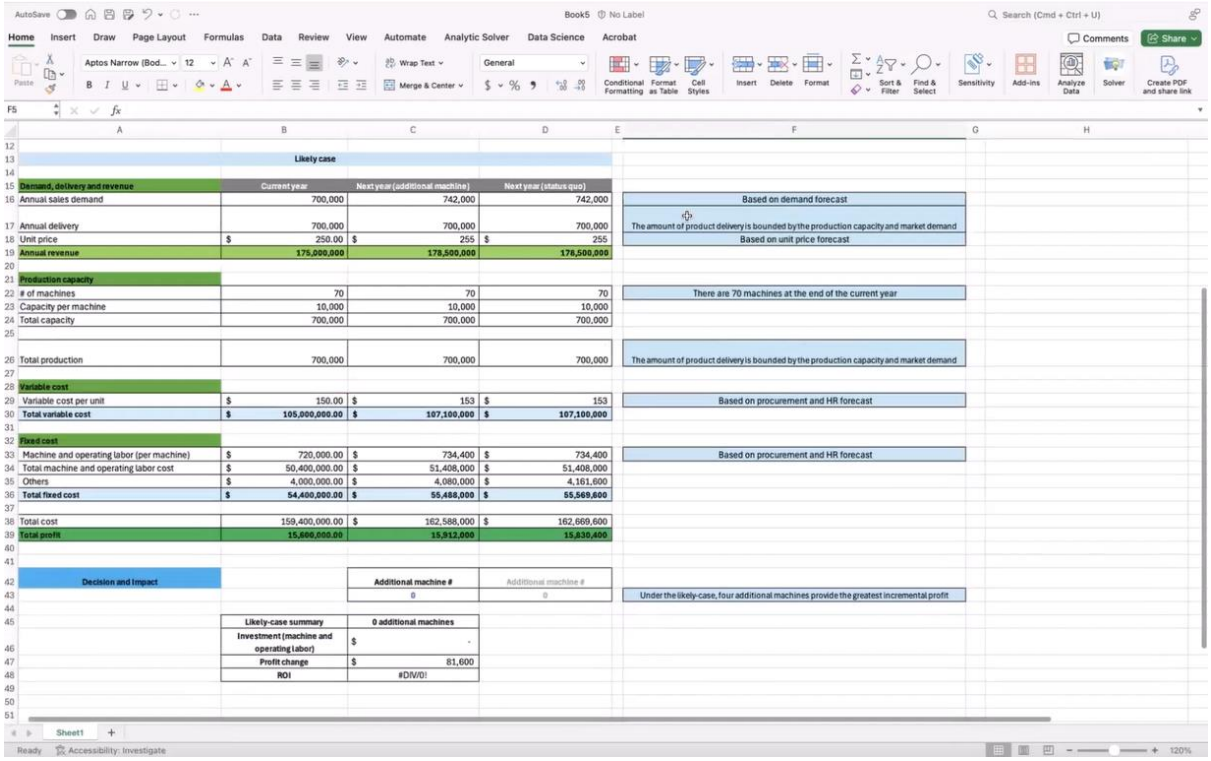
M8L1b. Scenario Analysis (Simulation Method)

Slide #1



Now, we are going to use Scenario Manager to analyze different investment scenarios for the manufacturing company.

Slide #2



		Likely case			
Demand, delivery and revenue		Current year	Next year (additional machine)	Next year (status quo)	
Annual sales demand		700,000	742,000	742,000	Based on demand forecast
Annual delivery		700,000	700,000	700,000	The amount of product delivery is bounded by the production capacity and market demand
Unit price		$ 250.00	$ 255	$ 255	Based on unit price forecast
Annual revenue		175,000,000	178,500,000	178,500,000	
Production capacity					
# of machines		70	70	70	There are 70 machines at the end of the current year
Capacity per machine		10,000	10,000	10,000	
Total capacity		700,000	700,000	700,000	
Total production		700,000	700,000	700,000	The amount of product delivery is bounded by the production capacity and market demand
Variable cost					
Variable cost per unit		$ 150.00	$ 153	$ 153	Based on procurement and HR forecast
Total variable cost		$ 105,000,000.00	$ 107,100,000	$ 107,100,000	
Fixed cost					
Machine and operating labor (per machine)		$ 720,000.00	$ 734,400	$ 734,400	Based on procurement and HR forecast
Total machine and operating labor cost		$ 50,400,000.00	$ 51,408,000	$ 51,408,000	
Others		$ 4,000,000.00	$ 4,080,000	$ 4,161,600	
Total fixed cost		$ 54,400,000.00	$ 55,488,000	$ 55,569,600	
Total cost		159,400,000.00	$ 162,588,000	$ 162,669,600	
Total profit		15,600,000.00	15,912,000	15,830,400	
Decision and Impact			Additional machine #	Additional machine #	
			0	0	Under the likely-case, four additional machines provide the greatest incremental profit
	Likely-case summary		0 additional machines		
	Investment (machine and operating labor)		$ -		
	Profit change		$ 81,600		
	ROI		#DIV/0!		

Adjust the number of additional machines to four.

Click the Data tab in the ribbon.

Click What-if Analysis and select Scenario Manager.

When the Scenario Manager dialog box appears, click the Add button.

For the scenario name, enter Likely Case.

Enter the fixed range of cells, from B8 to B11, in the Changing Cells box.

These cells should correspond to the Sales Demand Growth, Unit Price Growth, Material Price Growth, and Fixed Cost Price Growth.

Click OK.

Repeat the process to add scenarios for the worst case and best case.

Click add scenario.

Enter worst case in the scenario name box.

Enter the fixed range of cells from B8 to B11 in the changing cells box.

Click OK.

Repeat steps A to D for best case.

When all scenarios have been entered and the Scenario Manager dialog box appears, click Summary.

In the Scenario Summary dialog box, select Scenario Summary.

Enter C48 in the result cells box.

This cell should contain the overall profit or performance metric you want to analyze across scenarios.

Click OK.

Rename the sheet as Summary 4 Machines.

To get the summary 2 machines, adjust the number of additional machines to 2, then repeat steps 2 to 9.

By following these steps, we can effectively use Scenario Manager to evaluate the investment decisions and prepare for the uncertainties in the upcoming year.