

## Using The Spreadsheet Tools

(Taken from [http://msl1.mit.edu/rdn/tree\\_98.shtml](http://msl1.mit.edu/rdn/tree_98.shtml))

- Three Files Needed
  - DANAL5.XLM - macros for spreadsheet manipulation
  - TREE\_98.XLS - prebuilt tree with decision scenario manager
  - COSTSKEL.XLS/cost model
- Each Sheet Has Specific Functions and Yields Specific Results
- Linkages Among These Sheets Managed Through Macros

## Name The Sheets In Your System

	K	L	M	N
1	Spreadsheet Linking			
2		Type	Name	
3		Decision Tree	TREE_98.XLS	
4		Cost Model	COSTSKEL.XLS	
5		Macro Sheet	DANAL5.XLM	
6				
7	LINK CELLS			

- Note that you are likely to change the Cost Model entry, although all three can be changed
- Pathnames are not needed - the name must match the names that appear in the heading of the Excel window containing the spreadsheet

## Setting Demand Scenario Probabilities

TREE_98.XLS						
F	G	H	I	J	K	L
82	<b>Probabilities</b>					
83	Enter the probabilities for low, medium and high growth in the first period					
84	for price 1 and price 2					
85				Expected Demand at prices		
86		Prob P1	Prob P2	P1	7965900	
87	low	20.00%	50.00%	P2	7089990	
88	medium	30.00%	30.00%			
89	high	50.00%	20.00%	elasticity of demand ~ -1.358959604		
90						
91	At the end of the first period, you will know the growth rate in the first period.					
92	Given that, specify the probabilities for low, med, and high growth in the second period					
93	for each of the possible first period growth rates.					
94						
95						
96	Growth in	low	low	medium	medium	high
97	period 1	low	low	medium	medium	high
98	low	Prob P1	Prob P2	Prob P1	Prob P2	Prob P1
99	medium	10.00%	70.00%	10.00%	60.00%	50.00%
100	high	20.00%	20.00%	30.00%	30.00%	30.00%
101	low	70.00%	10.00%	60.00%	10.00%	20.00%
102	Expected Demand at Prices			Approximate elasticities of demand		
103	P1	P2				
104	Per1-low	18353145	11605351	-6.40		
105	Per1-med	17552710	11829548	-5.19		
106	Per1-high	13054181	16428078	2.26		

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## Demand Scenarios - Growth Oriented

TREE_98.XLS				
H	I	J	K	L
1	PHASE I: 1998-2002			
2				
3				
4	PERIOD ONE -- PART DEMAND			
5				
6				
7	TOTAL MARKET FOR PART(YR)=	100,000,000		
8				
9				
10	Year	Market Share	Market	Total Units
11	Scenario	Growth Rate	Share	Projected/yr
12				
13	<b>LOW</b>	1998	N/A	1,000,000
14		1999	10%	1,100,000
15		2000	10%	1,210,000
16		2001	10%	1,331,000
17		2002	10%	1,464,100
18		TOTAL		6,105,100
19	<b>MEDIUM</b>	1998	N/A	1,000,000
20		1999	20%	1,200,000
21		2000	20%	1,440,000
22		2001	20%	1,728,000
23		2002	20%	2,073,600
24		TOTAL		7,441,600
25	<b>HIGH</b>	1998	N/A	1,000,000
26		1999	40%	1,400,000
27		2000	30%	1,820,000
28		2001	20%	2,184,000
29		2002	20%	2,620,800
30		TOTAL		9,024,800

  

TREE_98.XLS				
H	I	J	K	L
33	PHASE II: 2003-2007			
34				
35	PERIOD TWO -- PART DEMAND			
36				
37	ENTER GROWTH RATE FOR PERIOD 1	0		
38	(LOW-0, MED-1, HIGH-2)	1,464,100		
39	TOTAL MARKET FOR PART(YR)=	100,000,000		
40				
41				
42	Year	Market Share	Market	Total Units
43	Scenario	Growth Rate	Share	Projected/yr
44				
45	<b>LOW</b>	2003	10%	1,610,510
46		2004	10%	1,771,561
47		2005	10%	1,946,717
48		2006	10%	2,143,589
49		2007	10%	2,357,948
50		TOTAL		9,832,325
51	<b>MEDIUM</b>	2003	20%	1,756,920
52		2004	20%	2,108,304
53		2005	20%	2,529,965
54		2006	20%	3,035,958
55		2007	20%	3,643,149
56		TOTAL		13,074,296
57	<b>HIGH</b>	2003	50%	2,196,150
58		2004	50%	3,294,225
59		2005	30%	4,282,493
60		2006	20%	5,138,991
61		2007	20%	6,166,789
62		TOTAL		21,078,648

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## Points of Linkage: Size of Facility, Production Volume, and Unit Costs

TREE_98.XLS						
	A	B	C	D	E	
21	+++++	+++++	+++++	+++++	+++++	
22	Linked Cells From					
23	Spreadsheets Note that all input and output linking is done through the macro spreadsheet, DANAL5.XLM. Please update the cells & sheet names there!!!!!!					
24						
25	Inputs TO the Cost Spreadsheet					
26		Total Plant Capacity	9,000,000		WARNING: Move these cells and you *MUST* edit the DANAL5.XLM macro sheet. Otherwise, the LINK_UPDATE macro will yield unpredictable (and useless) results!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!	
27		Annual Production	3,000,000			
28						
29						
30	Outputs FROM the Cost Spreadsheet					
31		Piece Cost	\$10.0752			
32						
33						
34	+++++	+++++	+++++	+++++	+++++	
35	Row starts with	R	<<< These should match the values in the			
36	Column starts with	C	<<< DANAL5.XLM file.			
37	+++++	+++++	+++++	+++++	+++++	
38						
39	Discount Rate	10.00% per year				

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## Linkage Definitions - DANAL5.XLM

DANAL5.XLM					
	O	P	Q	R	S
1	Internationalization				
2					
3	"Row" starts with:	R			
4	"Col" starts with:	C			
5					
6					
7					
8	LINK Cells Locations	From Decision Tree		To Cost Model	
9		Row	Col	Row	Col
10	1-Plant Capacity	26	3	5	2
11	2-Annual Production	27	3	6	2
12	3				
13					
14		From Cost Model		To Decision Tree	
15	1-Piece Cost	38	2	31	3
16	2				
17	3				
18					

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## Production and Pricing Options

TREE_98.XLS							
	F	G	H	I	J	K	L
63	=====						
64	Manufacturing & Pricing Scenario Inputs						
65	Enter colored values only						
66							
67			Price 1	Price 2			Capacity
68	-----						
69	Table 2.1		\$10.00	\$11.00			3,000,000
70	Table 3.1		\$10.00	\$11.00			6,000,000
71	Table 4.1		\$10.00	\$11.00			9,000,000
72	-----						
73							
74	-----						
75	Table 2.2		\$10.00	\$11.00			3,000,000
76	Table 3.2		\$10.00	\$11.00			6,000,000
77	Table 4.2		\$10.00	\$11.00			9,000,000
78	Table 5.2		\$10.00	\$11.00			15,000,000

Scenarios & Links / Period One