

A Roadmap for Success: BIOMIN

Decision Analysis Applied to Pharmaceuticals

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December 9th, 1999

MISSION STATEMENT

- To offer *outstanding services and dynamic solutions*
- To build *value-adding strategies* by using state of the art decision analysis tools

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THE BUSINESS

BACKGROUND

- A small pharmaceutical firm that specializes in:
 - Pediatric medications
 - Vitamins

THE CHALLENGE

- The firm has developed a new vitamin with a 5-year patent
- The vitamin:
 - Helps children learn faster
 - Improves children's class attention
- BIOMIN has to decide how to expand its manufacturing operations to produce the new product

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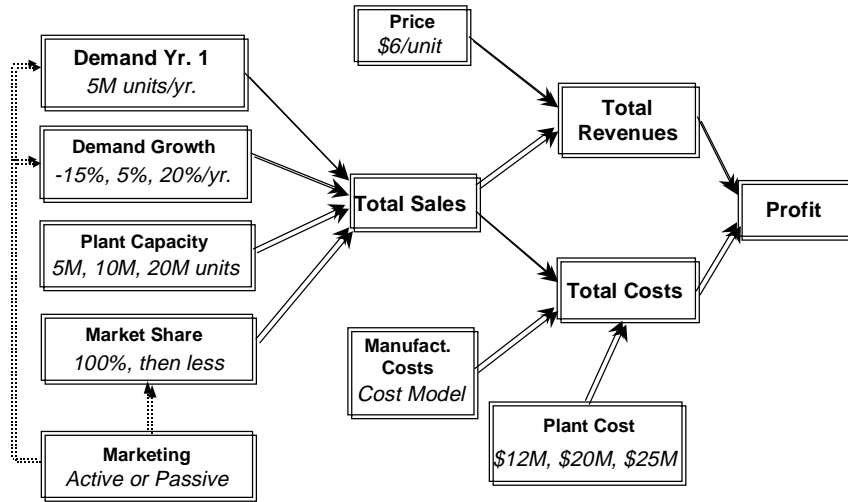
STRATEGIC DECISIONS

- In Year 0, BIOMIN has to choose the size of its plant. The 3 options are:
 - Build a small addition to the factory \$12M => 5M units/yr.
 - Buy the old facility of a bankrupt biotech company \$20M => 10M units/yr.
 - Build a brand new facility on a cheap plot of land currently available for sale \$25M => 20M units/yr.
- In Year 5, BIOMIN will have the following 3 options:
 - Launch an aggressive marketing campaign
The cost of the campaign depends on market success
 - "Business as usual"
 - Exit the market

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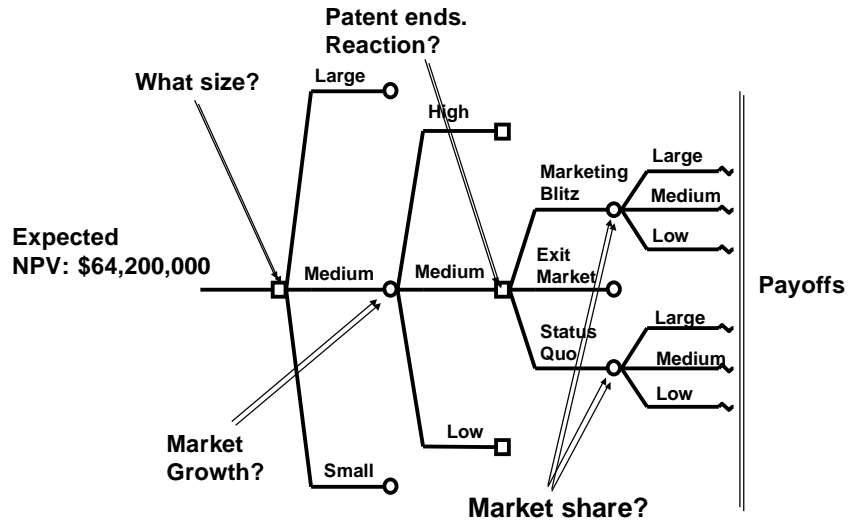
INFLUENCE DIAGRAM



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DECISION TREE



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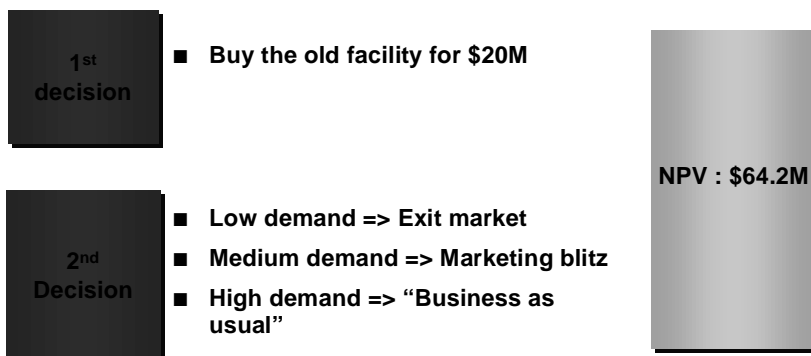
ANALYSIS CONDITIONS

- Time frame: 10 years
- Risk-adjusted discount rate: 12%
- Market evolution uncertainties
 - Estimated probabilities*
 - 20% growth/yr. 0.4
 - 5%/yr. 0.4
 - -15%/yr 0.2
- Patent ends => Market share uncertainties
 - 25% 50% 75%
 - probabilities affected by marketing efforts*

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EXPECTED RESULTS

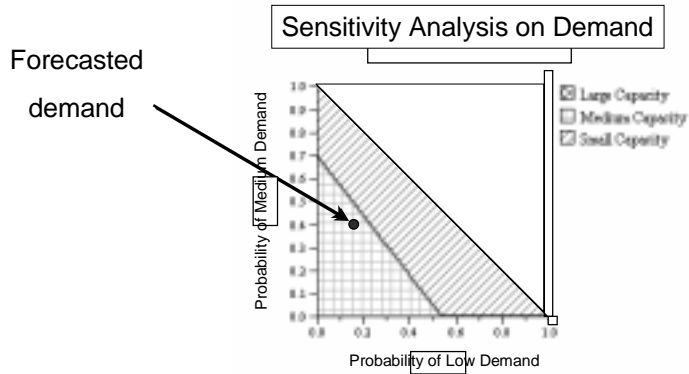


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SENSITIVITY ANALYSIS (I)

Choose small or medium capacity; we recommend medium.

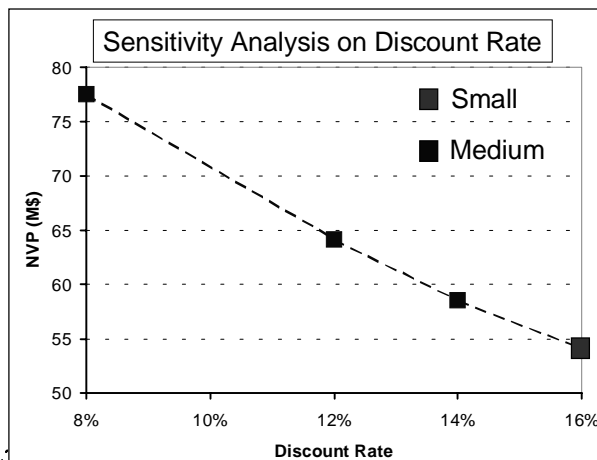


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SENSITIVITY ANALYSIS (II)

For discount rates smaller than 14%: choose medium capacity.



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OPTION ANALYSIS

Option

- Wait for one year: monitor market by introducing the vitamin at a few test locations (cost: \$2M)

Strategy After Market Survey

- Low and medium demand
 - *Small capacity, "business as usual"*
- High demand
 - *Medium capacity, "business as usual"*

NPV : \$82.9M
> \$64.2M

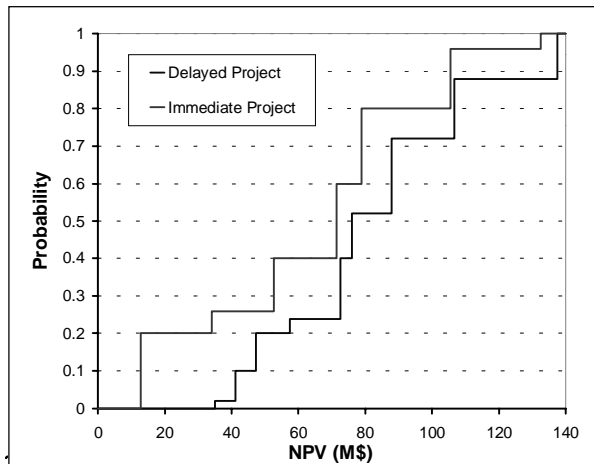
Value of Option:
\$18.7M

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RISK PROFILES

Delayed project: higher minimum NPVs, higher profitability



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BIOMIN: ROADMAP FOR SUCCESS

- Invest now and buy the old facility
- Valuable option: conduct market survey for one year, then choose investment
- Following our recommendations, no losses can occur

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