# Decision analysis

Business, Marketing

Problem Decision analysis tree; Doug wants to determine the possible action for an asset worth $25000 that he bought long ago, an investor is offering Doug $275000 for the asset. If the real estate market goes through a boom, he will lose $1. 5 million, if the market remains high, he will gain $4 million dollars. There are two options that Doug has to go for either to develop the site or sell the site;

Options develop the sitesell the site

Bad market conditions$1. 5 million0

Good market conditions$4 million$275000

$4 million

$1. 5million

$1. 5 million

$1. 5 million

$0

Therefore the overall decision is to develop the site, since there is a higher return from developing the site than disposing it to the buyer.

Problem 2:

Cutler-Hammer was offered an option (at a cost of $50, 000) giving it the chance to obtain a license to produce and sell a new flight safety system. The company estimated that if it purchased the option, there was a 0. 30 probability that it would not obtain the license and a 0. 70 probability that it would obtain the license. If it obtained the license, it estimated there was a 0. 85 probability that it would not obtain a defense contract, in which case it would lose $700, 000. There was a 0. 15 probability it would obtain the contract, in which case it would gain $5. 25 million.

If Cutler-Hammer wants to maximize its expected return, use a decision tree to show whether or not the company should purchase the option. What is the expected payoff?

Suppose the company after purchasing the option, can sublicense the system. Suppose there was a 95% chance of zero profit and a 5% chance of a $1, 000, 000 profit. Would this new alternative change your decision above?

Cost = $50000, C

Probability not to obtain the license = 0. 3, P(N)

Probability to obtain the license = 0. 7, P(O)

If the license is obtained;

Probability not to obtain a defense contract = 0. 85, P(D)

Lose = $700000

Probability to obtain a defense contract = 0. 15, P(NO)

Gains = $5. 25 million

Decision tree;


expected pay-off = P(O) P(D)

= 0. 7(700000)

=$49000

Expected pay-off = P(O) P(NO)

= 0. 7(5. 25)

=$3. 675 million

No, the decision couldn't have changed my option since there is higher

returns in the first option than the later, hence, I would opt going with the probability that it would be obtained without a defense contract.