Decision Analysis: Exercise 4

1) Frank’s Famous Fish Finger company is contemplating a change from the current batter to even better batter for their fish fingers. The loss, if customers do not prefer the new batter, is judged to be $250,000. The profit, if customers do prefer the new batter is judged to be $400,000. This profit/loss takes into account the investment in changing over to the new batter. Frank currently assigns a probability of 0.5 that the new batter will be judged better.

Frank has three choices. He can do nothing, he can switch to the new batter, or he can use market research to help him make his decision. The market research firm offers the following deal. For $35,000 they will carry out a survey which they believe to be 70% reliable. When they have reported back they will, if required, carry out a further independent survey at a cost of $40,000 which they believe to be 80% reliable.

Assuming that Frank wants to maximise expected money return, find his best decision, and the associated EMV.

N.B. Interpret the statements about survey reliability as follows:

- The first survey will suggest either BB1 (batter better) or BW1 (batter worse).
- The probability that the report suggests BB1 if customers do prefer new batter is 0.7.
- The probability of BW1 if customers do not prefer new batter is 0.7.
- The second survey will suggest either BB2 (batter better) or BW2 (batter worst).
- The probabilities of the various suggestions are as for the first survey but with 0.7 replaced by 0.8.
- The two surveys are carried out on entirely separate groups of individuals and the suggestions are arrived at independently.
- Remember that Frank can study the suggestion from the first survey before deciding whether to commission a second survey.