Rainbow products company analysis

Rainbow Products and the paint-mixing machine

A) The paint-mixing machine cost 35. 000 dollars, which is the initial cash outflow. The machine will generate additional cash inflows of 5. 000 dollars for the next 1 5 years. With cost of capital of 12% the Net Present value can be calculated using the NP formula in Excel: NP= - 945. 68 Data Description Rate $0. 12 935, 000. 00 Investment $5, 000. 00 scofflaws at the end of year $34, 054. 32 NP $-945. 68

Note that because the cash inflow is constantly reoccurring and occurs for a set period of time the Present value could also be calculated as an Annuity and then added to the initial cash outflow. Doing this calculation, one would expect the result to be the same. Internal Rate of Return, AIR, is the return on the investment when NP is zero. AIR can also be calculated using Excel: Because AIR is less than the cost of capital (12%) and the NP is negative, both methods suggest that undertaking the investment would destroy shareholders value, hush the investment should not be undertaken.

The simple Payback period is when the initial investment is recovered, this will occur at the end of year 7, thus the payback period is 8 years.

B) For an additional 500 dollars the machine can get service each year to " as-good-as- new' and the value of the investment can thus be calculated as a perpetuity. A Perpetuity is calculated as: Thus, NP = -35, 000 + 37, 500 = 2500 NP is positive with the service contract, so Rainbow Products should undertake the investment, as it will increase shareholder value.

C) Rainbows engineers have another way of preserving and increasing the capability of the machine, which allows the annual scofflaws to increase by 4%, this requires reinvesting 20% of the annual scofflaws. The Present Value of an end-of-year perpetuity is calculated as: Thus, the NP = -35, 000 + 50, 000 = 15, 000 As the NP of the investment in the machine with engineers added work is 12, 500 dollars more than the NP of the investment in the machine with " as-good-as-new contract.