Risk Evaluation

Every project involves risk. Risk is "an uncertain event or condition that, if it occurs has a positive or negative effect on a project objectives", include transferring the risk to another party, avoiding the risk, reducing the negative effect of the risk, and accepting some or all of the consequences of a particular risk.There are two types of risks.

1. Project risk – which prevent the project from being completed successfully.
2. Business risk – delivered products are not profitable.

- Risk evaluation is meant to decide whether to proceed with the project or not, and whether the project is meeting its objectives.

Risk Occurs:

- When the project exceeds its original specification
- Deviations from achieving it objectives and so on.

Risk evaluation describe the following

1. Risk Identification and ranking
2. Risk and Net Present Value
3. Cost benefit Analysis
4. Risk profile analysis
5. Decision trees

Risk Identification and ranking

- Identify the risk and give priority.
- Could draw up draw a project **risk matrix** for each project to assess risks
- Project risk matrix used to identify and rank the risk of the project

Example of a project risk matrix

Risk	*Importance*	*Likelihood*
Software never completed or delivered	H	—
Project cancelled after design stage	H	—
Software delivered late	M	M
Development budget exceeded ≤ 20%	L	M
Development budget exceeded > 20%	M	L
Maintenance costs higher than estimated	L	L
Response time targets not met	L	H

In the table 'Importance' relates to the cost of the damage if the risk were to materialize and 'likelihood' to the probability that the risk will actual occur. 'H'

indicates ‘High’, ‘M’ indicates ‘medium’ and ‘L’ indicates ‘low’.

Risk and Net Present Value

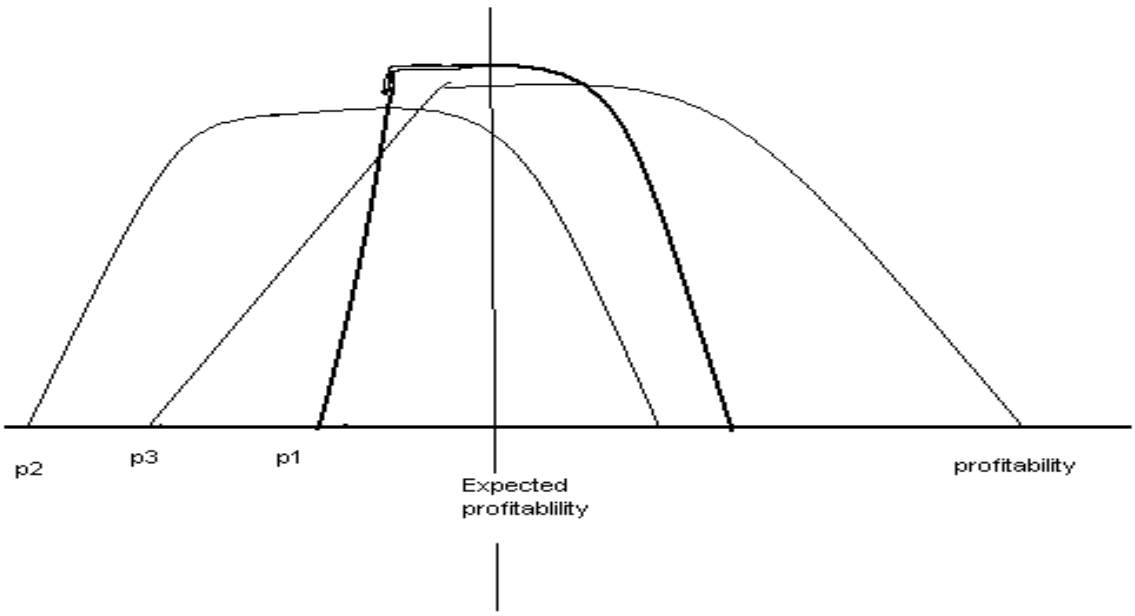
- For riskier projects could use higher discount rates
- **Ex:** Can add 2% for a Safe project or 5 % for a fairly risky one.

Cost benefit Analysis

It is one of the important and common way of carrying “economic assessment” of a proposed information system. This is done by comparing the expected costs of development and operation of the system with its benefits.

Risk profile analysis

- This make use of “risk profiles” using sensitivity analysis.
- It compares the sensitivity of each factor of project profiles by varying parameters which affect the project cost benefits.
- Vary the original estimates of risk plus or minus 5% and re-calculate the expected cost benefits.



- P1 depart far from p2,have large variation
- P3 have much profitable than expected
- All three projects have the same expected profit
- Compare to p2 , p1 is less risky.

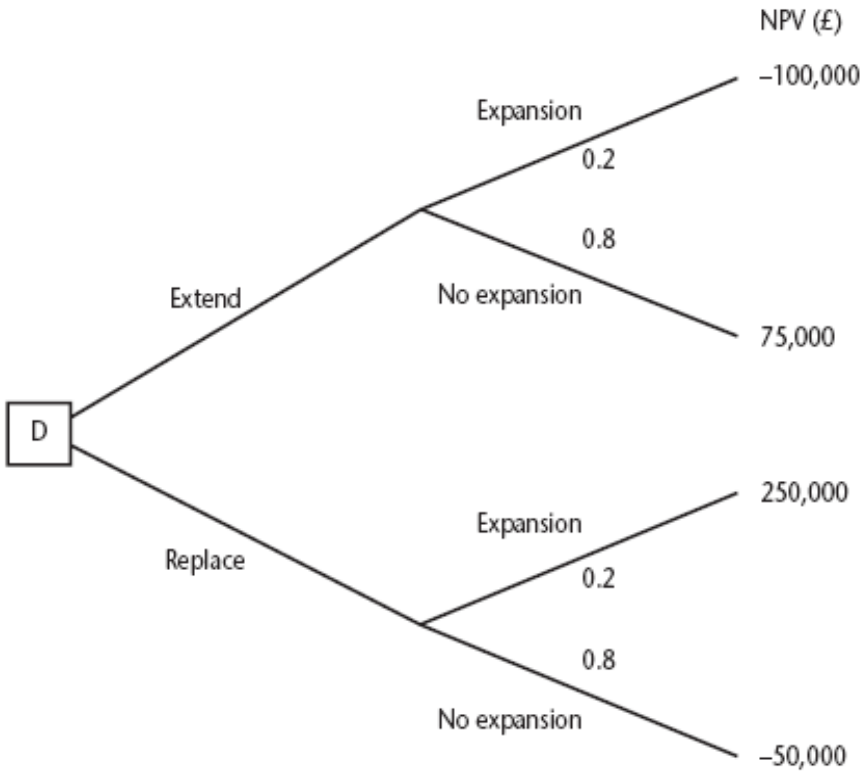
Decision trees

- Identify over risky projects
- Choose best from risk
- Take suitable course of action

Decision tree of analysis risks helps us to

1. Extend the existing system
   - increase sales
   - improve the management information
2. Replace the existing system
   - Not replacing system leads in loss

   Replace it immediately will be expensive



The expected value of Extending system= (0.8*75,000)-(0.2*100,000)=40,000 Rs.
The expected value of Replacing system= (0.2*250,000)-(0.8*50,000)=10,000 Rs.

Therefore, organization should choose the option of **extending the existing system**

This illustrates a scenario relating to the IOE case study. Amanda is responsible for extending the invoicing system. An alternative would be to replace the whole of the system. The decision is influenced by the likelihood of IOE expanding their market. There is a strong rumor that they could benefit from their main competitor going out of business: in this case they could pick up a huge amount of new business, but the invoicing system could not cope. However, replacing the system immediately would mean other important projects would have to be delayed.

The NPV of extending the invoicing system is assessed as £75,000 if there is no sudden expansion. If there were a sudden expansion, then there would be a loss of £100,000. If the whole system were replaced and there was a large expansion there would be a NPV of £250,000 due to the benefits of being able to handle increased

sales. If sales did not increase, then the NPV would be -
£50,000.
The decision tree shows these possible outcomes and also shows the estimated probability of each outcome.

The value of each outcome is the NPV multiplied by the probability of its occurring. The value of a path that springs from a particular decision is the sum of the values of the possible outcomes from that decision. If it is decided to extend the system, the sum of the values of the outcomes is £40,000 (75,000 x 0.8 – 100,000 x 0.2) while for replacement it would be £10,000 (250,000 x 0.2 – 50,000 x 0.80). Extending the system therefore seems to be the best bet.