IIT ROORKEE

NPTEL ONLINE CERTIFICATION COURSE

Project Management for Managers

Lec – 25

Simulation Analysis

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Simulation Analysis

Sensitivity analysis indicates the sensitivity of the criterion of merit (NPV, IRR or any other) to variations in basic factors.

Though useful, such information may not be adequate for decision making.

The decision maker would also like to know *the likelihood of such occurrences.*

This information can be generated by simulation analysis which may be used for developing the probability profile of a criterion of merit by *randomly combining values of variables that have a bearing on the chosen criterion*.

Procedure:

1. Model the project-How NPV is related to parameters (variables held constant by decision makers) and exogenous variables (stochastic in nature and not controllable).
2. Specify the value of parameter and probability exogenous variables.
3. Select a value, at random, from Probability Distribution of exogenous variable.
4. Determine the value of NPV for set parameter and exogenous variable generated randomly.
5. Repeat steps 4and 5 a number of times.
6. Plot frequency distribution of NPV.

$$NPV = \text{Sum } t = 1 \text{ to } n \left\{ \frac{\text{Annual cash flow}}{(1 + \text{risk free return})^t} - \text{In.Invs} \right\}$$

Risk free return = 10% initial investment = 13000.

The exogenous variable having following probability distribution