Project Evolution & Estimation : Cost benefit analysis ,cash flow forecasting, cost benefit evolution techniques

Cost-benefit analysis

- The standard way of evaluating the economic benefits of any project.

- Consist of two steps:-

a) Identifying and estimating all of the costs and benefits of carrying out the project and operating the delivered application.

b) Expressing these costs and benefits in common units.

Cost-benefit analysis(cont'd)

- Categorizing cost:-
a) Development costs:- salaries and other employment costs of the staff involved in the development project and all associated costs.
b) Setup costs:- costs of putting system into place, cost of new hardware, equipment, file conversion, recruitment and staff training.
c) Operational costs:- costs of operating the system once it has been installed.

Cash Flow Forecasting

- Indicate when expenditure and income will take place.

- Need to revise the forecast from time to time
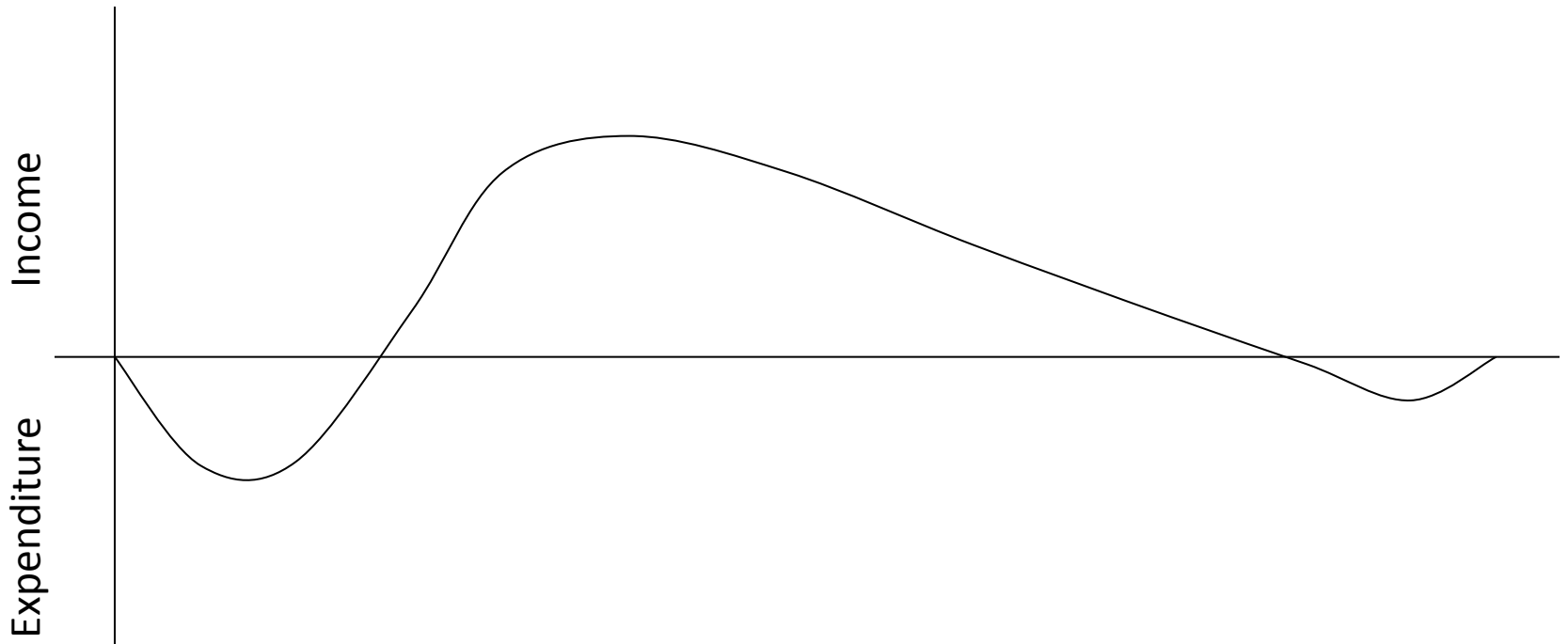
Cash Flow Forecasting Example

Year	Project 1	Project 2	Project 3	Project 4
0	-100,000	-1,000,000	-100,000	-120,000
1	10,000	200,000	30,000	30,000
2	10,000	200,000	30,000	30,000
3	20,000	200,000	30,000	30,000
4	20,000	200,000	20,000	25,000
5	100,000	350,000	20,000	50,000
Net Profit	60,000	150,000	30,000	45,000
Payback	5	5	4	4
ROI	12%	4%	10%	11%

Cost-benefit evaluation techniques

- Net Profit

  difference between the total costs and the total income over the life of the project.

- Payback period

  the time taken to break even or pay back the initial investment.

- Return on investment

  also known as the accounting rate of return(ARR).

  $$= \frac{\text{average annual profit}}{\text{total investment}} \times 100\%$$

Cost-benefit evaluation techniques

- It takes into account the profitability of a project and the timing of the cash flows.

$$\text{Present Value} = \frac{\text{value in year } n}{(1+r)^n}$$

- where n is the number of years into the future that the cash flow occurs.
- r is the discount rate
- *Discount rate* is the annual rate by which we discount future earning
  - e.g. If discount rate is 10% and the return of an investment in a year is $110, the present value of the investment is $100.

Issues in NPV

- Choosing an appropriate discount rate is difficult
- Ensuring that the rankings of projects are not sensitive to small changes in discount rate

Cost-benefit evaluation techniques

- Internal rate of return

a)   Provide a profitability measure as a percentage return that is directly comparable with interest rate.

a) Calculated as the percentage discount rate that would produce a NPV of zero.

b) Calculated using a spreadsheet or other computer program that provides functions for calculating the IRR, for e.g., Microsoft Excel.

Cost-benefit Evaluation Techniques – IRR (cont'd)

Net Present Value($)

Discount rate (%)