Module 3
Project Evaluation

Project Evaluation: Project portfolio management- Evaluation of individual projects- Cost benefit evaluation techniques- Risk evaluation- Programme Management- Creating a Programme- Aids to Programme Management- Benefits Management.
Project Planning: Step wise Project Planning
Software Estimation: Basis for software estimation- Software Effort estimation techniques- Bottom-up and Top-down estimation- Function Point Analysis- COCOMO II. Cost Estimation- Staffing Pattern- Schedule compression.

Project portfolio management

Project Portfolio management provides an overview of all the projects that an organi

It prioritizes the allocation of resources to projects and decides which projects shoul

The concerns of Project Portfolio management include:

- Identifying which project proposals are worth implementation;
- Assessing the amount of risk of failure that a potential project has;
- Deciding how to share limited resources, including staff time and finance, between
- Being aware of the dependencies between projects;
- Ensuring that projects do not duplicate work;
- Ensuring that necessary developments have been inadvertently been missed.

Project portfolio management

The three key aspects of Project Portfolio management are:

1. Portfolio definition
An organization should record in a single repository details of all current projects
A decision will be needed about whether projects of all types are to be included

2. Portfolio management

Once the portfolio has been established, more detailed costings of projects can be recor
Actual performance of projects on these performance indicators can then be tracked. Th
screening of new projects.

Project portfolio management

3. Portfolio optimization

The performance of the portfolio can be tracked by high-level managers on a regu

Some projects could potentially be very profitable but could also be risky. In the case of a
Other projects could have modest benefi ts, such as those cutting costs by automating pro

The portfolio ought to have a carefully thought-out balance between the two types of pro

Project portfolio management

Some problems with project portfolio management

One of the biggest challenges in portfolio management arises when there are multiple p
1.Lack of Data Visibility

Poor visibility into business- and project-related data is one of the most common probl
Which projects are in the pipeline?
Which specific issues might they be facing?
How do these projects contribute to the realization of the firm’s objectives?
Who is working on what and when?
Those are just a few of the questions vexing your PMs or PfMs without the right manag

2.Low productivity

Such data visibility issues directly translate into lower-than-average productivity of work. Why?

Besides, firms that manage projects and project portfolios without the support of dedicated softv

3.Poor Collaboration Across Project Teams

When teams do not speak the same language and do not use the same tools, metrics, a

4.The official project portfolio may not accurately reflect organizational activity if some

Evaluation of individual project

Feasibility of individual project can be evaluated

Technical Assessment

Technical assessment of a proposed system evaluates functionality against available
- Hardware
- Software

Economic Assessment:

- Consider whether the project is the best among other options

- The economic assessment can be done by the following ways:
- Cost-benefit analysis
- Cash flow forecasting
- Various cost-benefit evaluation techniques

Cost benefit analysis:

• It is one of the important and common way of carrying “economic assessment” of a p

This is done by comparing the expected costs of development and operation of the sys

Cost benefit analysis comprises of two steps:

Step-1: identifying and estimating all of the costs and benefits of carrying out the p

Step-2: expressing these costs and benefits in common units.

Step-1:
It includes

- Development cost of system.
- Operating cost of system.
- Benefits obtained by system.

Step-2:
– Calculates net benefit.
– Net benefit = total benefit -total cost.

Three types of cost
1. Development costs: includes salary and other employment cost of staff involved.
2. Setup costs: includes the cost of implementation of system such as hardware, and also file conversion, recruitment and staff training.
3. Operational cost: cost require to operate system, after it is installed.

Three categories of benefits:
1. Direct benefits: directly obtained benefit by making use of/operating the system.

2. Assessable indirect benefits: these benefits are obtained due to updation / upgradin
Example: “use of user – friendly screen”, which promotes reduction in errors, thus

increases the benefit

3. Intangible benefits: these benefits are longer term, difficult to quantify. It is also
Example: enhanced job interest leads reduction of staff turnover, inturn leads lower

Cash Flow Forecasting

As important as estimating the overall costs and benefits of a project is producing a

It estimate overall cost and benefits of a product with respect to time.

- Negative cash flow during development stage.
- Positive cash flow during operating life.

Cash Flow Forecasting

	Jan	Feb	Mar	Apr	May	Jun	Total
CASH INFLOWS							
Investment	10,000						10,000
Credit sales	2,500	10,000	10,000	10,000	10,000	10,000	52,500
Total inflows	**12,500**	**10,000**	**10,000**	**10,000**	**10,000**	**10,000**	62,500
CASH OUTFLOWS							
Project materials		3,000	3,000	3,000	3,000	3,000	15,000
Sub-contract labour	4,000	4,000	4,000	4,000	4,000	4,000	24,000
Marketing	500	500	500	500	500	500	3,000
Legal and accounting	1,250	0	0	0	0	0	1,250
Equipment	2,500	0	0	2,500	0	0	5,000
Sophie & Jack salaries	1,000	1,000	1,000	1,000	1,000	1,000	6,000
Other costs	500	500	500	500	500	500	3,000
Total outflows	**9,750**	**9,000**	**9,000**	**11,500**	**9,000**	**9,000**	57,250
NET CASH FLOW	**2,750**	**1,000**	**1,000**	**-1,500**	**1,000**	**1,000**	5,250
Opening balance	0	2,750	3,750	4,750	3,250	4,250	
Closing balance	2,750	3,750	4,750	3,250	4,250	5,250	

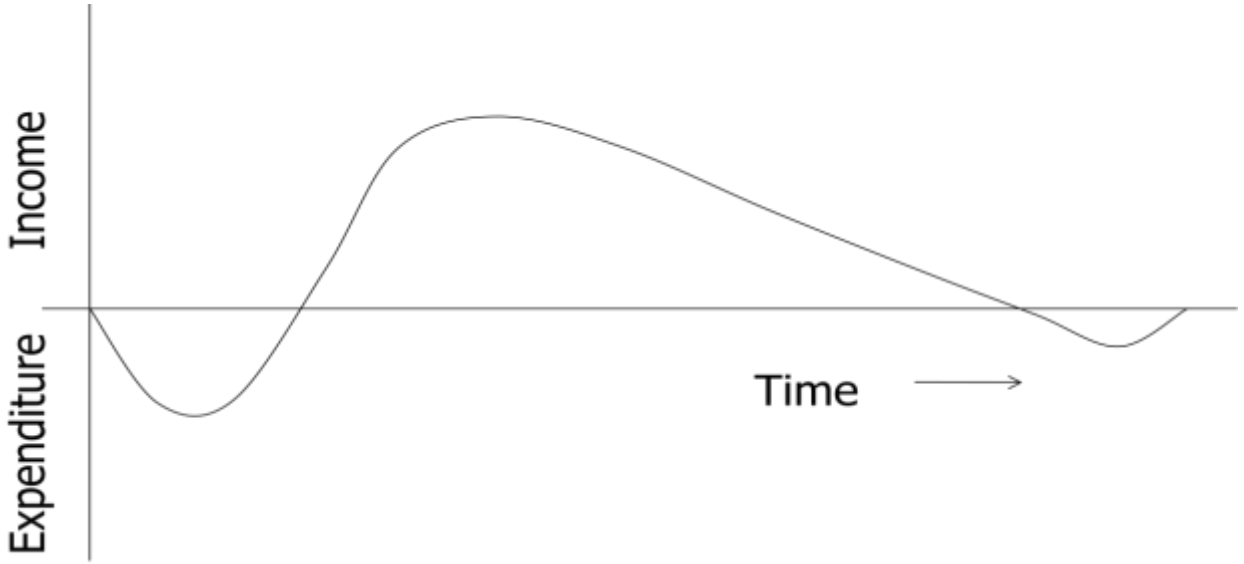
Cash Flow Forecasting

During development stage

- Staff wages
- Borrowing money from bank
- Paying interest to bank
- Payment of salaries
- Amount spent for installation, buying hardware and software

Income is expected by 2 ways.

- Payment on completion
- Stage payment


Income
Expenditure
Time

Cost-benefit evaluation techniques:

Common method for comparing projects on the basic of their cash flow forecasting.

1) Net profit
2) Payback Period
3) Return on investment
4) Net present Value
5) Internal rate of return

Cost-benefit evaluation techniques

The following table illustrates cash flow forecasts for three projects. In each case it

TABLE 2.1 Four project cash flow projections – figures are end of year totals (£)

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	10,000	200,000	30,000	30,000
4	20,000	200,000	30,000	30,000
5	100,000	300,000	30,000	75,000
Net profit	50,000	100,000	50,000	75,000

Net profit

 Net profit is calculated by subtracting a company's total expenses from total income.

 Showing what the company has earned (or lost) in a given period of time (usually one year).

also called net income or net earnings.

Net profit= total incomes - total costs

For project1, total income = 10,000+10,000+10,000+20,000+1,00000=1,50000

Total cost = 1,00000

Net profit = 1,50000-1,00000=Rs.50000

For project2, total income = 2,00000+2,00000+2,00000+2,00000+3,00000=1,100,000

Total cost = 1,000,000

Net profit = 1,100,000-1,000,000=Rs.100000

For project3, total income = 30,000+30,000+30,000+30,000+30,000+75,000=1,95000

Total cost = 1,20000

Net profit = 1,95000-1,20000=Rs.75,000

	Net profit
Project1	50,000
Project2	1,00,000
Project3	75,000

Payback Period

The payback period is the time taken to recover the initial investment

Calculate Payback Period

Project1 =**10,000+10,000+10,000+20,000+1,00,000**=1,50,000
Project 2= **2,00,000+2,00,000+2,00,000+2,00,000+3,00,000**=11,000,00
Project 3= **30,000+30,000+30,000+30,000** + 75,000 =1,95,000
It ignores any benefits that occur after the payback period .

Return on investment

A performance measure used to evaluate the efficiency of an investment or to compare the efficienc

ROI = (average annual profit/total investment) * 100

Average annual profit = net profit/total no. of year

Calculate ROI for project 1.

Total investment =1,00,000
Net profit
= 50,000
Total no. of year = 5
Average annual profit=50,000/5=10,000rs
ROI= (10,000/1,00,000) *100 = 10%

• **Calculate ROI for project 2.**
Total investment =1,000,000
Net profit
= 1,00,000
Total no. of year = 5
Average annual profit=1,00,000/5=20,000rs
ROI= (20,000/1,000,000) *100 = 2%

Calculate ROI for project 3.

Total investment =1,20,000
Net profit
= 75,000
Total no. of year = 5
Average annual profit=75,000/5=15,000rs
ROI= (15,000/1,20,000) *100 = 12.5%

A high ROI means the investment's gains compare favourably to its cost.

Net present Value

Net present value (NPV) refers to the difference between the value of cash now

The calculation of net present value is a project evaluation technique that takes

This is based on the view that receiving £100 today is better than having to wai

If we say that the present value of £100 in a year's time is £91, we mean that £1

The equivalence of £91 now and £100 in a year's time means we are discountin

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

Where r is the discount rate, expressed as a decimal

Internal rate of return

The internal rate of return (IRR) is the annual rate of growth that an i

Formula and Calculation for IRR

The formula and calculation used to determine this figure are as follows:

$$0 = \text{NPV} = \sum_{t=1}^{T} \frac{C_t}{(1+IRR)^t} - C_0$$

where:

C_t = Net cash inflow during the period t

C_0 = Total initial investment costs

IRR = The internal rate of return

t = The number of time periods

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How to Calculate IRR

1. Using the formula, one would set NPV equal to zero and solve for the discount rate, which is the IRR.
2. The initial investment is always negative because it represents an outflow.
3. Each subsequent cash flow could be positive or negative, depending on the estimates of what the project delivers or requires as a capital injection in the future.
4. However, because of the nature of the formula, IRR cannot be easily calculated analytically and instead must be calculated iteratively through trial and error or by using software programmed to calculate IRR (e.g., using Excel).[1]