

CONSTRUCTION MANAGEMENT



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Section : A

Submitted to:

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QNO: 1:

Given data:

Number of communication channels = 6

Additional stake holders = 2

Required data:

Identify the number of communication channels after increasing the scope of work = ?

Solution:

As we know that;

$$\text{Number of communication channel} = \frac{n(n-1)}{2}$$

The number of people involved in six (6) communication channels \Rightarrow

$$6 = \frac{n(n-1)}{2}$$

$$12 = n(n-1) = n^2 - n$$

$$n^2 - n - 12 = 0$$

$$n^2 - 4n + 3n - 12 = 0$$

$$n(n-4) + 3(n-4) = 0$$

$$(n-4)(n+3) = 0$$

$$(n-4) = 0$$

$$n = 4$$

$$n+3 = 0$$

$$n = -3$$

So the number of people involved = 4:

As; There are additional stake holders
so total number of people are;

$$n = 4 + 2$$

$$n = 6$$

Now, the required communication

$$\text{channel} = \frac{6(6-1)}{2}$$

$$= \frac{3 \times 6(6-1)}{2} = 3(5)$$

New communication channel = 15

Ans:

Question No: 2:

Given data:

For a project of 10 package; for each planned value, Actual cost and percentage of completion is given;

Required data:

Calculate;

- Earned Value
- Cost Variance
- Schedule Variance
- Cost Performance Index
- Schedule Performance Index

Solution :

Work Package	BCWS	ACWP	% Progress	BCWP	Cost Variance	Schedule Variance	Cost Performance Index	Schedule Performance Index
	P.V (\$)	A.C (\$)		E.V (\$)				
1	100,000	120,000	100	100,000	-20,000	0	0.83	1
2	100,000	110,000	100	100,000	-10,000	0	0.91	1
3	100,000	80,000	90	90,000	10,000	-10,000	1.13	0.9
4	100,000	125,000	80	80,000	-45,000	-20,000	0.64	0.8
5	100,000	75,000	50	50,000	-25,000	-50,000	0.67	0.5
6	100,000	0	0	0	0	-100,000	0	0
7	100,000	0	0	0	0	-100,000	0	0
8	100,000	0	0	0	0	-100,000	0	0
9	100,000	0	0	0	0	-100,000	0	0
10	100,000	0	0	0	0	-100,000	0	0

Comment:

(continued)

On the basis of CPI ::

According to Thumb Rules;

- Workpackage 1, 2, 4 and 5 are over budget because CPI value is less than 100%.
- Work package 3 is under budget because CPI value is greater than 100%.

On the basis of SPI :

According to Thumb Rules;

- Work package 1 and 2 are on the schedule
- Work package 3, 4 and 5 are behind schedule.

Question NO : 3

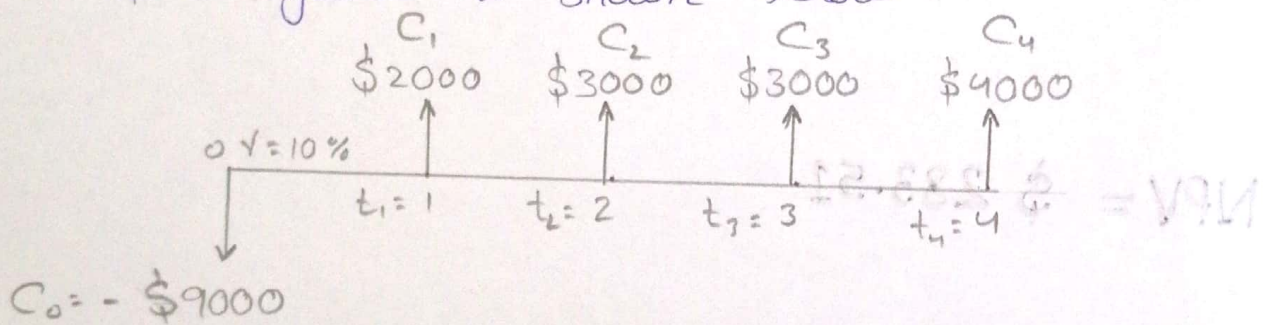
Given data:

Today investment in a project = 9000 \$

The expected life of project = 4 years

r = Discount rate = 10%

The expected cash flow for next four years is shown below



Required data:

Net Present Value = ?

Solution:

As we know that;

$$NPV = C_0 + \frac{C_1}{(1+r)^1} + \frac{C_2}{(1+r)^2} + \frac{C_3}{(1+r)^3} + \frac{C_4}{(1+r)^4}$$

By putting values we get;

$$NPV = -9000 + \frac{2000}{(1+0.1)^1} + \frac{3000}{(1+0.1)^2} + \frac{3000}{(1+0.1)^3} + \frac{4000}{(1+0.1)^4}$$

$$NPV = -9000 + 1818.18 + 2479.34 + 2253.94 + 2732.05$$

$$NPV = \$ 283.51$$

Comment:

The NPV is positive which means that the combined PV of all cash inflow exceeds the PV of cash outflows by \$283.51.

Question No 4:

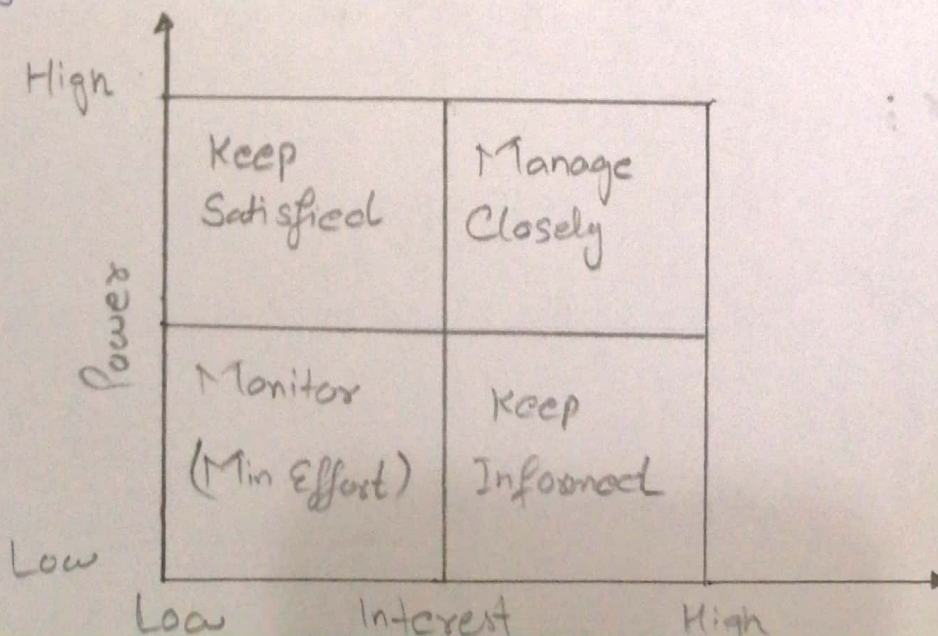
Identification of Stakeholders by power/ Interest Matrix:

The first stage of this is to brainstorm who your stakeholders are.

As part of this, think of all the people who are affected by your work, who have influence or power over it, or have an interest in its successful or unsuccessful conclusion.

Classifies stakeholders in relation to their power and the extent to which they are likely to show interest in the actions of the organisation.

Figure \Rightarrow Power/Interest Matrix:



The position that we allocate to a stakeholder on the grid shows you the actions you need to take with them.

- **Manage Closely;**

We must fully engage these people and make the greatest efforts to satisfy them.

- **Keep Satisfied;**

Put enough work in with these people to keep them satisfied, but not so much that they become bored with your message.

- **Keep Informed;**

Adequately inform these people and talk to them to ensure that no major issues are arising. People in this category can often be very helpful with the details of our project.

- **Monitor;**

Again monitor these people, but don't bore them with excessive communication.

Question No 5:

The different stages to be considered in the Risk Management checklist for a project of residential house are;

Stage 1;

Initiation:

- Assemble Risk Management resources
- Appoint the team leader and ensure a breadth of skills/experience will be in team.
- Assign Risk Management responsibilities to task.

Stage 2;

Proposal Familiarization:

- Specify objectives and criteria.
- Familiarise the team with the proposal, assemble documentation and define the key objectives.
- Determine assessment criteria for proposal.
- Assess the proposal in relation to the Agency's objectives and strategies.
- Define key elements to structure risk analysis.

Stage 3;

Risk Analysis;

- Identify risks
- Assess risk likelihoods and consequences
- Identify significant risks
- Identify major risks for detailed risk
- action planning.

Stage 4;

Risk Response Planning;

- Identify feasible responses
→ for each moderate and major risk, identify the feasible responses.
- Describe each feasible response and list main assumptions
- Select the best response.
- Develop management measures and action schedules.
- Specify Risk management measure for moderate risks.

Stage 5;

Reporting;

- For designated proposals, produce the Risk Management Plan.
- For other projects, collate and summarize risk action schedules and measures.

Stage 6;

Risk management Implementation:

- Implement measures and action strategies
- Monitor the implementation
 - Assign responsibilities
 - Timming
- Undertake periodic review and performance evaluation.