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Section :- A.

Subject:- Construction Management.

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Question No 1

You have a team of Project managers reporting to you. Recently a new manager, relatively inexperienced, has joined your team. Considering his level of experience, you to assign him to a small project. Considering low complexity and few stakeholders involved - you envision the project to have no surprise or hiccups. You have identified the number of communication channels to be only 6. However, with increase in scope of work, 2 additional stakeholders who need to be communicated with join the team. You ask the manager to identify the number of communication channels now?

Given data :-

Number of communication channels = 6

Additional stakeholders = 2

Required data :-

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

Solution :

As we that know

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

The number of People Involved in 8px
communication channels \Rightarrow

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

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

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

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

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

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

$$(n-4) = 0$$

$$n = 4$$

$$n+3 = 0$$

$$n = -3$$

So the number of People Involved = 4

As; These are additional stake holder's

So total number of People are :

$$n = 4 + 2$$

$$n = 6$$

Now communication channel = 15 Ans

Question No (2)

If you have a Project of 10 Packages for each Package Planned value. Actual cost and Percentage of completion is given. Calculate the earned value, cost variance, schedule variance, performance index and schedule variance performance index? (Comment if the Project is ahead (behind) schedule or over (under) budget)

BCWS	ACWP	% Progress	BCWP = EV
100,000	120,000.00	100%	$100,000 \times \frac{100}{100} = 100,000$
100,000	110,000.00	100%	= 100,000
100,000	80,000.00	90%	$100,000 \times \frac{90}{100} = 90,000$
100,000	125,000	80%	80,000
100,000	75,000	50%	50,000
100,000	0	0	0
100,000	0	0	0
100,000	0	0	0
100,000	0	0	0
100,000	0	0	0
100,000	510,000		320,000

Cost variance = EV - AC (Actual cost)

• $100,000 - 120,000 = -20,000$

• $100,000 - 110,000 = -10,000$

$$\bullet 90,000 - 80,000 = 10,000$$

$$\bullet 80,000 - 125,000 = -45,000$$

$$\bullet 50,000 - 75,000 = -25,000$$

$$\bullet 0 - 0 = 0$$

$$\bullet 0 - 0 = 0$$

$$\bullet 0 - 0 = 0$$

$$\bullet 0 - 0 = 0$$

$$\bullet 0 - 0 = 0$$

+ ————— x

$\Sigma = -90,000 \Rightarrow$ over budget

$$CPI = EV/AC$$

$$\frac{320,000}{510,000} = 0.62$$

It has spent 32% more than it should spent till this date.

Schedule Variance.

$$= EV - PV$$

$$1) 100,000 - 100,000 = 0$$

$$\bullet 100,000 - 100,000 = 0$$

$$\bullet 90,000 - 100,000 = -10,000$$

$$\bullet 80,000 - 100,000 = -20,000$$

$$\bullet 50,000 - 100,000 = -50,000$$

$$\bullet 0 - 100,000 = -100,000$$

$$\bullet 0 - 100,000 = -100,000$$

$$\bullet 0 - 100,000 = -100,000$$

$$\bullet 0 - 100,000 = -100,000$$

$$\bullet 0 - 100,000 = -100,000$$

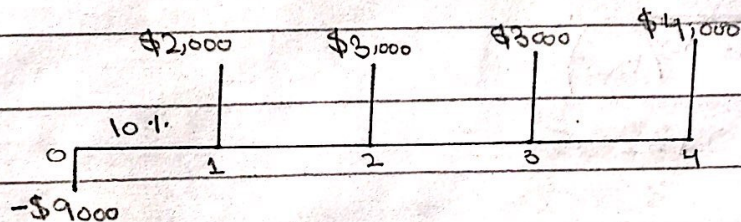
$$+ \frac{\dots}{\dots} +$$
$$\Sigma = -580,000 \rightarrow \text{Behind schedule.}$$

$$SPI = \frac{EV}{PV} = \frac{320,000}{10,000,000} = 0.32$$

This Project must have 68% accomplished more than actually has at this point. Thus, the Project is behind schedule

Question No 3

A Company is planning to invest 9000\$ in a Project today. The Project is expected to have life of four years. The expected cash flow for next four years is shown and the discount rate is 10%. Calculate Net Present value (NPV) and comment on the result?



Sol:-

$$NPV = -C_0 + \frac{C_1}{1+r} + \frac{C_2}{(1+r)^2} + \dots + \frac{C_t}{(1+r)^t}$$

$$P_{V_0} = -C_0$$

$-C_0 =$ initial investment

$$P_{V_0} = -9000$$

$C =$ Cash flow

$r =$ Discount rate

$$P_{V_1} = \frac{C_1}{1+r} = \left(\frac{2000}{1 + \frac{10}{100}} \right)$$

$T =$ Time

$$C_1 = 2000$$

$$C_2 = 3000$$

$$C_3 = 3000$$

$$C_4 = 4000$$

$$P_{V_1} = 1818.18$$

$$P_{V_2} = \frac{C_2}{(1+r)^2} = \frac{3000}{\left(1 + \frac{10}{100}\right)^2}$$

$$P_{V_2} = 2479.34$$

$$P_{V3} = \frac{C_3}{(1+r)^3} = \frac{3000}{(1+10/1000)^3}$$

$$P_{V3} = 2253.94$$

$$P_{V4} = \frac{C_4}{(1+r)^4}$$

$$= \frac{4000}{(1+10/1000)^4}$$

$$P_{V4} = 2732.05$$

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

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

$$NPV = \$ 283.51$$

Question (4)

Being a Project Manager, how would you identify the stakeholders by Power/Interest matrix?

Answer: Identify Your Stakeholders

Start by brainstorming 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 influence or power.

unsuccessful conclusion.

The table below identifies some of the people who might be stakeholders in your projects.

Your boss	Stakeholders	Government
Senior executives	Alliance partners	Trades association
Your co-workers	Suppliers	The Press
Your team	Lenders	Interest groups
Customers	Analysts	The Public
Prospective customers	Future recruits	The community
Your family	Key contributors	Key advisors.

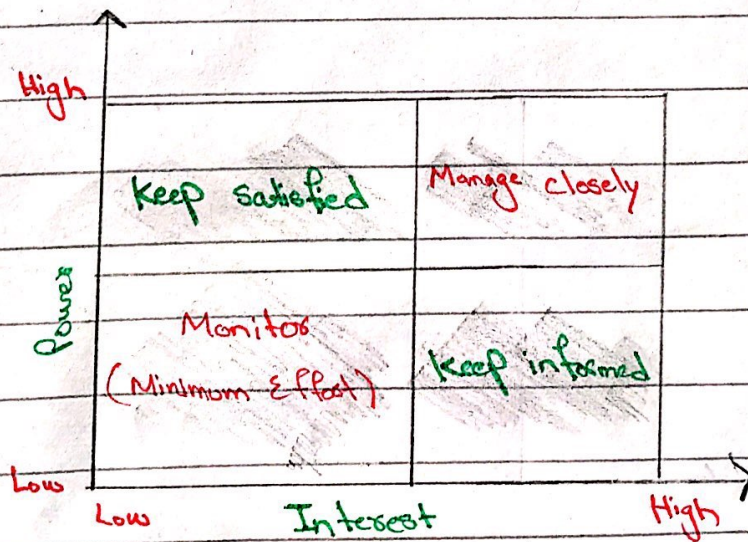
2) Prioritize Your Stakeholders :-

You may now have a list of people and organizations that are affected by your

work. Some of these may have the Power either to block that work or to advance it. Some may be interested in what you are doing while others may not care, so you need to work out who you need to prioritize.

You can map out your stakeholders and classify them according to their Power over your work and their interest in it, on a Power/Interest Grid.

Figure 1 Power/Interest Grid for stakeholder Prioritization



- High Power, highly interested people (Manage closely).
- High Power, less interested people (Keep satisfied).
- Low Power, highly interested people (Keep informed)

3. Understand Your key stakeholding:

You now need to discover how your key stakeholders feel about you also need to work out how best to engage them and how to communicate with them.

Question No (5)

- For a Project of residential house what are the different stage to be considered in the risk management checklist ?

Ans: Checklist For Risk Management

• Stage 1 ⇒ Initiation

- Assemble Risk Management resources
- Appoint the team leader and ensure a breadth of skills / experience within the team.
- Assign risk management responsibilities appropriate to task

• Stage 2 ⇒ Proposal Familiarization

- Specify objective and criteria
- Familiarise the team with the Proposal, assemble documentation and define the key objectives.
- Assess the Proposal in relation to the agency's objectives and strategies.
- Determine assessment criteria for Proposal.
- Define key elements (Target 20-50 elements, items or activities) to structure risk analysis.

• Stage 3

Risk Analysis

- Identify risks
- Prepare a comprehensive schedule of risk for each element
- Describe each risk and list the main assumptions.
- Assess risk likelihoods and consequences:
- Assemble data on risk and consequences.
- Assess risk likelihoods
- Assess risk impacts

• Identify significant risks

- Rank risks to reflect impacts and likelihoods
- where applicable, estimate risk factors.
- Discard / accept minor risk.
- Identify moderate risk for management measure.
- Identify major risk for detailed risk action planning.

• Stage 4 ⇒ Risk Response Planning

- Identify feasible responses
- For each moderate and major risk, identify the feasible

Responses.

- Responses may include
- Risk Prevention
- Impact mitigation.
- Risk transfer and insurance.
- Risk acceptance.

• Describe each feasible response and list main assumptions
Select the best response.

- Evaluate the benefits and costs for each response.
- Select the preferred response.

• 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

- Implementation measures and action strategies.
- Monitor the implementation.
- Assign responsibilities

• Timing

• Undertake Periodic Review and Performance evaluation.