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Section

A

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Subject

Construction management

Submitted to

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① Q No 1 You have a team of project manager reporting to you. Recently inexperienced has joined your team. Considering his level of experience you 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 increased in scope at work 2 additional stakeholders who need to be communication which join the team. You ask the manager to identify the number of communication channels now?

Given data:

Number of communication channels = 6

Additional stakeholder = 2

Required data:

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

Solution:-

As we know that.

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

(2)

The number of people involved in six communication channels \Rightarrow

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

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

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

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

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

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

$$(n-4) = 0$$

$$\boxed{n = 4}$$

$$n+3 = 0$$

$$\boxed{n = -3}$$

So the number of people involved = 4

As; there are additional stake holders

So total number of people are.

$$n = 4 + 2$$

$$n = 6$$

3

Now, The required communication
channel = $\frac{6(6-1)}{2}$

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

New communication channel = 15 Ans

Q 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 variances, schedule variance, cost performance Index and schedule and performance S. Index? (Comment if the project is ahead/behind schedule or over/under budget.

2)

work package	BCWS	ACWP	% progress	BCWP
	Planned Value	Actual Cost		Earned Value
1	100,000	120,000.00	100%	$= 1000,000 \times \frac{100}{100} = 1000,000$
2	100,000	110,000.00	100%	$= 100,000$
3	100,000	98,000.00	90%	$= 100,000 \times \frac{90}{100} = 90,000$
4	100,000	125,000	80%	80,000
5	100,000	75,000	50%	50,000
6	100,000	0	0	0
7	100,000	0	0	0
8	100,000	0	0	0
9	100,000	0	0	0
10	100,000	0	0	0
BAC	1000,000	510,000		320,000

Cost Variance = EV = AC (Actual cost)

① $100,000 - 120,000 = -20,000$

② $100,000 - 110,000 = -10,000$

③ $90,000 - 80,000 = 10,000$

④ $80,000 - 125,000 = -45,000$

⑤ $50,000 - 75,000 = -25,000$

⑥ $0 - 0 = 0$

⑦ $0 - 0 = 0$

⑧ $0 - 0 = 0$

⑨ $0 - 0 = 0$

⑩ $0 - 0 = 0$

$\Sigma = -90000 \Rightarrow$ over budget

$$CPI = \frac{EV}{AC}$$

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

it has spent 38% more than it should spend till this date.

Schedule variance

$$= EV - PV$$

- 1) $100,000 - 100,000 = 0$
- 2) $100,000 - 100,000 = 0$
- 3) $90,000 - 100,000 = -10,000$
- 4) $80,000 - 100,000 = -20,000$
- 5) $50,000 - 100,000 = -50,000$
- 6) $0 - 100,000 = -100,000$
- 7) $0 - 100,000 = -100,000$
- 8) $0 - 100,000 = -100,000$
- 9) $0 - 100,000 = -100,000$
- 10) $0 - 100,000 = -100,000$

$$\Sigma = -580,000 \Rightarrow$$

Behind schedule

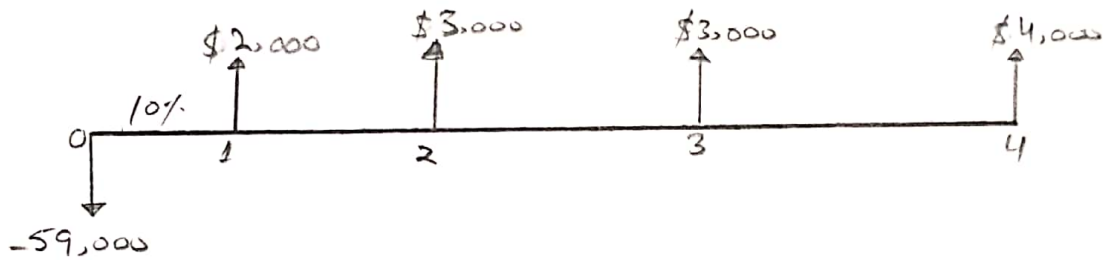
$$SPI = \frac{EV}{PV} = \frac{320,000}{1,000,000} = 0.32$$

This project must have 68% accomplished more than actually has at this point

thus the project is behind schedule and
over budget.

QNo = 3

A company is planning to invest 9000 in a project today. The project is expected to have life of four year. 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

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

$$PV_0 = -C_0$$

$$PV_0 = -9000$$

$$PV_1 = \frac{C_1}{1+r} = \left(\frac{2000}{1 + \frac{10}{100}} \right)$$

$$PV_1 = 1818.18$$

$$PV_2 = \frac{C_2}{(1+r)^2} = \frac{3000}{\left(1 + \frac{10}{100}\right)^2}$$

$$PV_2 = 2479.34$$

$-C_0$ = Initial Investment

C = Cash flow

r = Discount Rate

T = Time

$$C_1 = 2000$$

$$C_2 = 3000$$

$$C_3 = 3000$$

$$C_4 = 4000$$

$$PV_3 = \frac{C_3}{(1+r)^3} = \frac{3000}{\left(1 + \frac{10}{100}\right)^3}$$

$$\boxed{PV_3 = 2253.94}$$

$$PV_4 = \frac{C_4}{(1+r)^4}$$

$$= \frac{4000}{\left(1 + \frac{10}{100}\right)^4}$$

$$\boxed{PV_4 = 2732.05}$$

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

$$= -9000 + 1818.18 + 2479.39 + 2253.94 + 2732.05$$

$$\boxed{NPV = \$283.51}$$

Q No 4 Being a project Manager, how would you identify the stake holders by power/Interest Matrix?

Ans

1 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 an interest in its successful or unsuccessful conclusion.

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

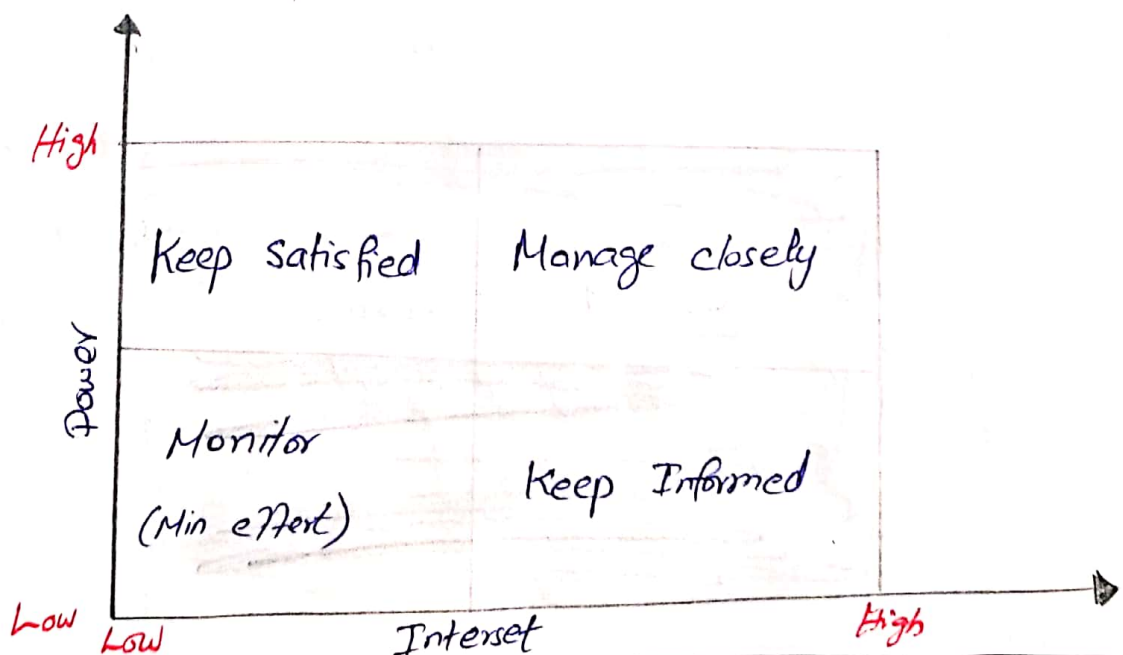
Your boss	Shareholders	Government
Senior executives	Alliance partners	Trade association
Your co-workers	Suppliers	The press
Your team	Lenders	Interest groups
Customers	Analysts	The public
Prospective customer	Future recruits	The community
Your family	Key contributors	Key advisors

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 need to be prioritized.

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 (see figure 1)

Figure 1: power/Interest Grid for Stakeholder prioritization.



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

- **High power, highly interested people (Manage Closely)**

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

- **High power, less interested people (Keep Satisfied)**

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

- **Low power, highly interested people (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 detail of your project.

- **Low power, less interested (Monitor)**

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

Your boss, for example likely has high power and influence over your projects and high interest in them. Your family however may have high interest in them but won't have power over them.

③ Understand Your Key Stakeholders.

You now need to discover how your key stakeholders feel about your project.

You also need to work out how best to engage them, and how to communicate with them.

Questions that can help you understand your stakeholders

Include:-

- What financial or emotional interest do they have the outcome of your work? Is it positive or negative?
- What motivates those most of all?
- What information do they want from you, and what is the best way of communicating with them?
- If they aren't likely to be positive, what will win them around to support your project?

• If you don't think that you will be able to win them around, how will you manage their opposition?

• Who else might be influenced by their opinions?

Do these people become stakeholders in their own right?

You can ask your stakeholders these questions directly. People are often quite open about their views. Asking for their opinions is often the first step in building a successful relationship with them.

A simple way to summarize the level of backing you have from your stakeholders is color-code.

For example, show advocates and supporters in green, blockers and critics in red, and those who are neutral in orange.

QNo = 5

For a project of residential What are the different stages to be considered in the risk management checklist?

Ans

The different stages to be considered in the risk management checklist for residential project are following.

Stage 1 = Initiation

Stage 2 = proposal familiarization

Stage 3 = Risk Analysis

Stage 4 = Risk Response Planning

Stage 5 = Reporting

Stage 6 = Risk management Implementation

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 element (target 20-50 elements, items or activities) to structure risk analysis.

Stage 3 Risk Analysis

- Identify risks
 - prepare a comprehensive ~~sted~~ schedule of risk ^{each} ~~each~~ element
 - Describe each risk and list the main assumption.
- Assess risk likelihoods and consequences
 - Assemble data on risk and their consequence
 - Assess risk likelihoods
 - Assess risk impacts
- Identify significant risks
 - Rank risks to reflect impacts and likelihoods
 - where applicable estimate risk factors
 - Discard / accept minor risks
 - 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 response.
- Responses may include:
 - ① risk prevention
 - ② Impact mitigation
 - ③ risk transfer and insurance

d) risk acceptance.

- Describe each feasible response and list main assumption
- Select the best response
 - Evaluate the benefits and cost for each response
 - Select the preferred response.
- Develop risk action schedules for major risks

a) Actions required (what is to be done?)

b) Resources (what and who?)

c) Responsibilities (who?)

d) Timing (when?)

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 measure and action strategies
- Monitor the implementation
 - a) Assign responsibilities
 - b) timing.
 - Undertake periodic review performance evaluation.