

Name Sahibzada Mutasim Billah

ID 7725

Section C

Paper Construction Management

Instructor Dr Engr Zee Shan Ahad

Q1:-

Given data

Number of Communication Channel = 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 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 Channel

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

$$= \frac{3 \cdot 6(6-1)}{2} = 3(5) = 15$$

New Communication channel = 15 Ans

Q2 :-
x-x-

Sol

$$EV = PV \text{ to date } \times Rp$$

①

$$EV = 100,000 \cdot 0 \cdot \frac{100}{100}$$

$$EV = 100,000 \times 1 = \boxed{8100,000}$$

②

$$EV = 8100,000 \times \frac{100}{100}$$

$$EV = 8100,000 \times 1 = \boxed{8100,000}$$

③

$$EV = 81,00000 \times \frac{90}{100} = 8100,000 \times 0.9$$

$$= \boxed{90000}$$

④

$$EV = 8100,000 \times \frac{80}{100}$$

$$EV = 8100000 \times 0.8 = \boxed{80,000}$$

(5)

$$EV = 8100,000 \times \frac{50}{100}$$

$$EV = 50000$$

$$CV = EV - AC$$

①

$$CV = 100,000 - 120,000 = -20,000$$

②

$$CV = EV - AC$$

$$CV = 100,000 - 110,000 = -10,000$$

③

$$CV = 100,000 - 80,000 = 20,000$$

④

$$CV = 100,000 - 125,000 = -25,000$$

⑤

$$CV = 100,000 - 75,000 = 25,000$$

6 to 10 Same value

$$CV = 100,000$$

Schedule Variance

$$SV = EV - PV$$

①

$$\begin{aligned} SV &= 100,000 - 100,000 \\ &= 0 \end{aligned}$$

②

$$\begin{aligned} SV &= 100,000 - 100,000 \\ &= 0 \end{aligned}$$

③

$$\begin{aligned} SV &= 90,000 - 100,000 \\ &= -10,000 \end{aligned}$$

④

$$\begin{aligned} SV &= 80,000 - 100,000 \\ &= -20,000 \end{aligned}$$

⑤

$$SV = 50,000 - 100,000$$
$$= -50,000$$

⑥ to ⑩ Same value

$$SV = 0 - 100,000$$
$$= -100,000$$

Cost performance index

①

$$CPI = 100,000 / 120,000$$
$$= 0.80$$

②

$$CPI = 100,000 / 110,000$$
$$= 0.90$$

③

$$CPI = 90,000 / 80,000$$
$$= 1.13$$

④

$$CPI = 80,000 / 125,000$$
$$= 0.64$$

$$\text{CPI} = \frac{50,000}{75,000} \\ = 0.67$$

6 To 10 Same Value

$$\text{CPI} = 0/0$$

Schedule performance index

$$\text{SPI} = \text{EV} / \text{PV}$$

①:

$$\text{SPI} = 100,000 / 100,000$$

$$= 1$$

②

$$\text{SPI} = 100,000 / 100,000$$

$$= 1$$

③

$$\text{SPI} = 90,000 / 100,000$$

$$= 0.9$$

$$\text{SPI} = \frac{80,000}{100,000} \\ = 0.8$$

$$\text{SPI} = \frac{50,000}{100,000} \\ = 0.5$$

$$6 \text{ to } 10 \text{ SPI} = \frac{0}{100,000} \\ = 0$$

Estimate at Completion (EAC)

$$\text{EAC} = \text{BAC} / \text{CPI}$$

$$\text{BAC} = 10,000,000$$

$$\text{CPI} = 4.495$$

$$= 10,000,000 / 4.495$$

$$= 222469$$

Original Time Estimate / SPI

222469 / 4.45

= 49993 day

= 909 weeks

Q3:-
~~xxxx~~

Sol

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

$$P_{V0} = -C_0$$

$$P_{V0} = -9000$$

$-C_0 =$ Initial investment

$C =$ Cash flow

$r =$ Discount rate

$$P_{V1} = \frac{C_1}{1+r} = \left(\frac{2000}{1 + \frac{10}{100}} \right)$$

$T =$ Time

$$C_1 = 2000$$

$$C_2 = 3000$$

$$C_3 = 3000$$

$$C_4 = 4000$$

$$P_{V1} = 1818.18$$

$$P_{V2} = \frac{C_2}{(1+r)^2} = \frac{3000}{\left(1 + \frac{10}{100}\right)^2}$$

$$P_{V2} = 2479.34$$

$$P_{V3} = \frac{C_3}{(1+r)^3} = \frac{3000}{\left(1 + \frac{10}{100}\right)^3}$$

$$P_{V3} = 2253.94$$

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

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

$$PV_4 = 2732.05$$

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

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

$$NPV = \$283.51$$

Comments :-

A positive NPV means the combined PV of all cash inflows exceeds the PV of each out flows.

The NPV of \$283.51 suggest that the combined PV of all cash inflows exceeds the PV of cash out flows by 283.51.

This project is acceptable as its odd profit of 283.51 \$ to the company.

Q4 :-

Ans :- 1. Identify your Stakeholder :-

start by brainstorming who your Stakeholder are. As part of this, think of all the people who are affected by your work have influence or power over it or have an interest in it successful or unsuccessful conclusion. The table below identifies some of the people who might be Stakeholder in your job or in your project.

Your boss Senior executive	Share holder Alliance partners	Government trades association
Your co-worker Your team customers	Suppliers Lenders Analysts	The press Interest group The public

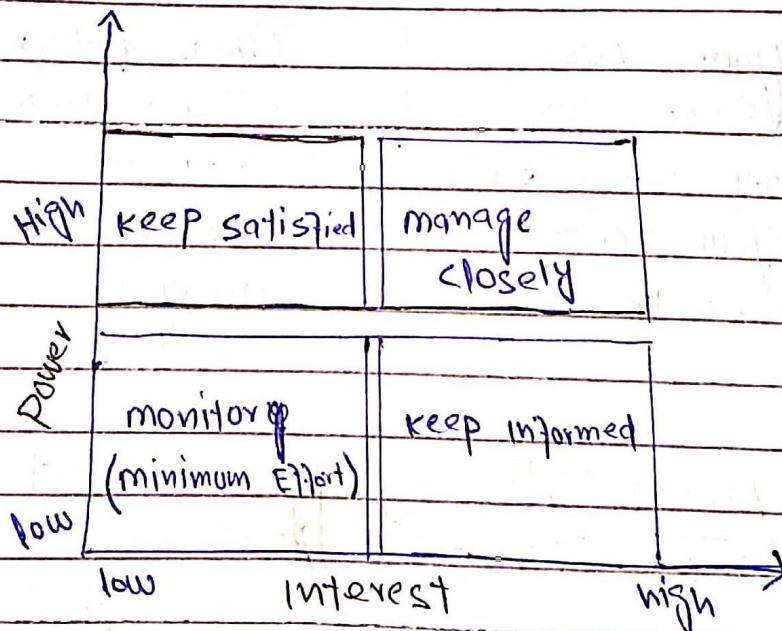
2. prioritize your Stakeholders :-

You may now have a list of people and organization that affected by your work. Some of these may have the power either to block that work or to advance it.

P.T.O

Some may be interested in what you are doing while other may not care, so you need to work out who you need to prioritize.

You can map out your stakeholder and classify them according to their power over your work and their interest in it on a power interest grid. (Our interactive screen app make the step easy to accomplish or you can download a template of the grid by clicking on the download template " button at the end of this article.



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

P. 4. 0

* High power highly interested people
(manage closely):

you must
Fully engage these people and
make greater effort to satisfy
them.

* High power less interested people
(Keep satisfied):

put enough work
in with 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 the category can often be
very helpful with the detail
of your project.

* low power less interest people
(monitor):

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

3 Understand your Key Stakeholders:

* Understand your Key Stakeholders *

to discover how you now need
Stakeholder 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 stakeholder
include.

* What financial or emotional interest
do they have in the outcome
to 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 communication
with them.

* Who else might be influenced
by their opinions? Do these people
become stakeholder in their own right?

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

Q5

Ans Stages of Risk Management

(1) Initiation:-

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

(2) Proposal Familiarization

- Specific objectives and criteria.
- Familiarize the team with the proposal, assemble documentation and define the key objectives.
- Assess the proposal in relation to the Agency's objective and strategies.
- Determine assessment criteria for proposal.
- Define key element (target 20-50 elements/items or activities) to structure risk analysis.

(3) Risk Analysis

- o Identify risks
- o prepare a Comprehensive Schedule of risks for each element.
- o Assess risk likelihood and consequences
- o Assemble data on risk and their consequences.
- o Assess risk likelihoods
- o Assess risk impacts
- o Identify significant risk.
- o Rank risks to reflect impacts and likelihoods.
- o where applicable, estimate risk factors.
- o Discard accept minor risks.
- o Identify moderate risk for management measures.

(4) Risk Response planning

- o Identify feasible responses
- o for each feasible response and list main assumption.
- o For each moderate and major risk identify the feasible responses.
- o Responses may include
 - o Risk prevention
 - o Impact mitigation

Risk Transfer and insurance

Risk acceptance

Evaluate the benefits and cost for each response

Select the preferred response

Develop management measures and action Schedules.

Specify Risk management measures for moderate risks

Develop risk action Schedules for major risks.

Action required (what is to be done)

Resources (what and who)?

Responsibilities (who?)

Timing (when?)

Reporting

For designed proposals, produce the Risk Management plan.

For other project, collate and summarize Risk action Schedules and measures.

(6) Risk management Implementation

- o Implement measure and action strategies

- o Monitor the Implementation

(a) Assign responsibilities

(b) Timing

- o undertake periodic review and performance evaluation.