

Name :: M. Ikhlas Khan

ID # 7768

Section # B

Subject # construction
management

Teacher Name # Dr- Engr Zeeshan
Ahad.

Q No 1

Given data

Number of communication channel = 6

Additional stake holder = 2

Required data

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

Solution,

As we know that

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

The number of people involved in six communication channels $\Rightarrow 6 = \frac{n(n-1)}{2}$

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

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

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

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

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

$$n-4 = 0$$

$$n+3 = 0$$

$$n = 4$$

$$n = -3$$

So the number of people involved = 4

As there are additional stake holders so the total number of

people are

$$n = 4 + 2$$

$$n = 6$$

Now, the required communication

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

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

New communication channel = 15 Ans

Q No 02

Solution

Term

Formula

1 Earned Value

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

2 Cost Variance

$$CV = EV - AC$$

3 Schedule Variance

$$SV = EV - \text{Planned value (PV)}$$

4 Cost Performance Index

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

5 Schedule Performance Index

$$SPI = \frac{EV}{PV}$$

Work Package	BCWS		ACWP	Progress	BCWP		CV		CPI	SPI	SV
	Planned value (PV)				Actual cost (AC)	%	Earned value (EV)	EV-AC			
1	\$ 100,000,000		\$ 120,000	100 %	\$ 100,000	\$ (90,000)	0.833	1.00	\$ -		
2	\$ 100,000		\$ 110,000	100 %	\$ 100,000	\$ (10,000)	0.91	1.00	\$ -		
3	\$ 100,000		\$ 80,000	90 %	\$ 90,000	\$ 10,000	1.13	0.90	\$ (10,000)		
4	\$ 100,000		\$ 125,000	80 %	\$ 80,000	\$ (45,000)	0.64	0.80	\$ (20,000)		
5	\$ 100,000		\$ 75,000	50 %	\$ 50,000	\$ (95,000)	0.67	0.50	\$ (50,000)		
6	\$ 100,000		\$ -	0 %	\$ -	\$ -	0.00	0.00	\$ (100,000)		
7	\$ 100,000		\$ -	0 %	\$ -	\$ -	0.00	0.00	\$ (100,000)		
8	\$ 100,000		\$ -	0 %	\$ -	\$ -	0.00	0.00	\$ (100,000)		
9	\$ 100,000		\$ -	0 %	\$ -	\$ -	0.00	0.00	\$ (100,000)		
10	\$ 100,000		\$ -	0 %	\$ -	\$ -	0.00	0.00	\$ (100,000)		

Comment..

The Project is behind
Schedule and over budget.

Q No 03

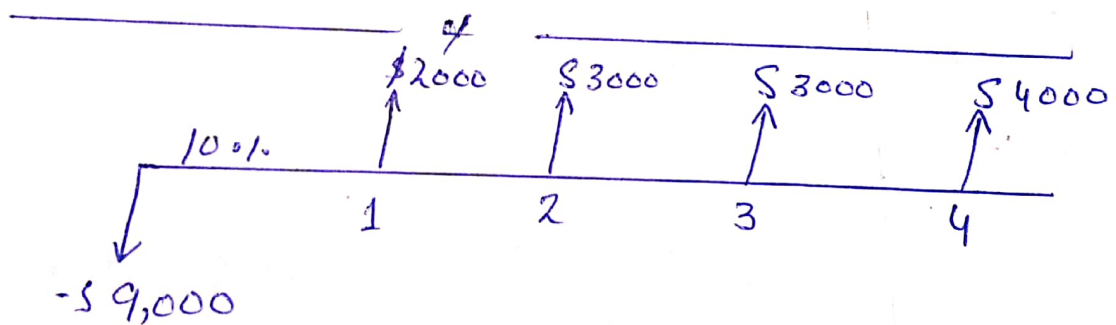
Given data

Cost planned to invest = 9000 \$

Expected life of Project = 4 years

Discount rate = 10%

Expected cash flow for next four year is,



Required Data

Calculate Net Present Value (NPV)

Solution

As we know that

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

As ;

$-C_0$ = Initial Investment

C = Cash flow

r = Discount Rate

T = Time

Here the values are

$$C_1 = 2000$$

$$C_2 = 3000$$

$$C_3 = 3000$$

$$C_4 = 4000$$

Also ,

$$PV_0 = -C_0$$

$$\Rightarrow PV_0 = -9000$$

Now by formula

$$PV_1 = \frac{C_1}{1+r}$$

$$= \left[\frac{2000}{1 + \frac{10}{100}} \right]$$

$$PV_1 = 1818.18$$

Also,

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

$$PV_2 = 2479.34$$

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

$$PV_3 = 2253.94$$

$$PV_4 = \frac{C_4}{(1+r)^4}$$
$$= \frac{4000}{\left(1 + \frac{10}{100}\right)^4}$$

$$PV_4 = 2732.05$$

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

$$= -9000 + 1818.18 + 9479.34 + 9953.94$$

$$= 2732.05$$

$$NPV = \$283.51$$

Comment for Result

So the Net Present value (NPV) of \$283.51 suggests that the combined PV of all cash inflows exceed the PV of cash outflows by \$283.51

Q No. 4

Answer

Power / Interest matrix

* The Power / Interest matrix is a simple tool that helps to categorize project stakeholders with increasing power and interest in project.

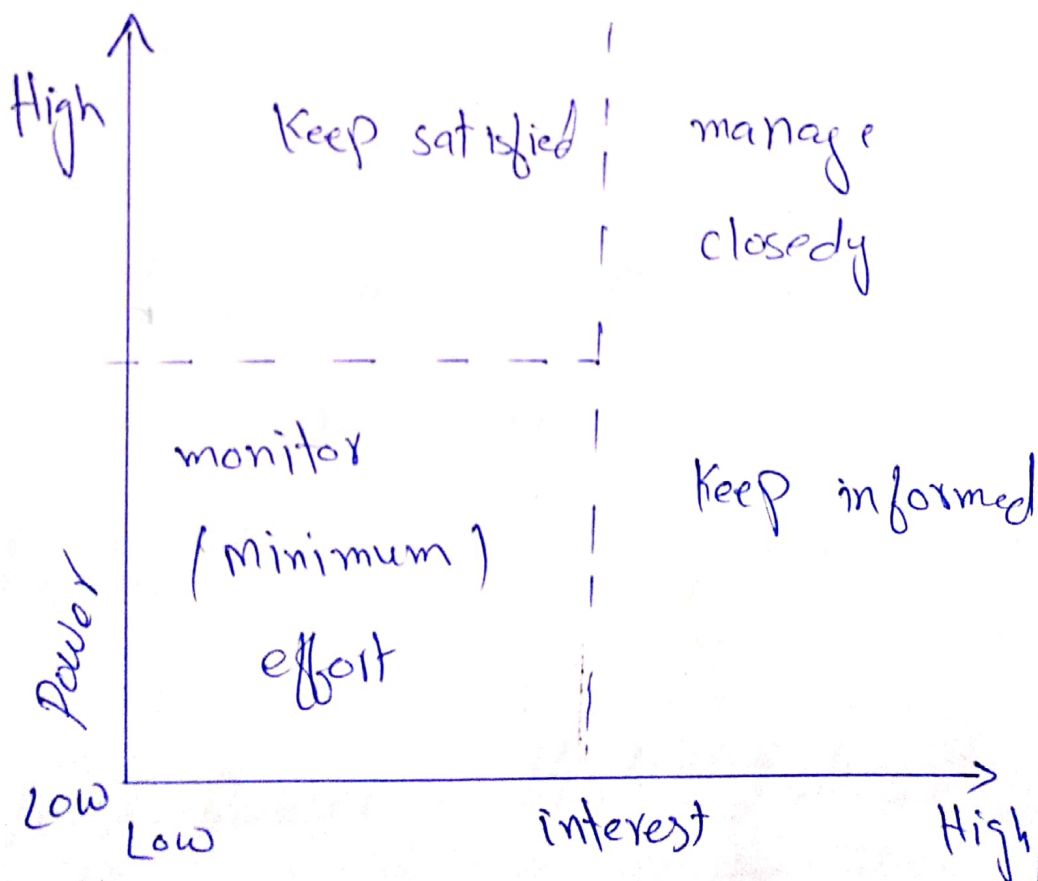
→ This matrix helps to focus on the key stakeholders who can make or break, the project. In turn, this power / interest matrix helps us in stakeholders prioritization.

Layout of the matrix.

The power interest matrix contain four quadrants.

Each quadrant gives an indication of the level of stakeholder management that we will have to employ and may also influence the type of communication style.

The four quadrants of power/interest matrix are shown below.



High Power - High interest

These stakeholders are decision makers and have biggest impact on Project success and hence we must closely manage their expectations.

* High Power - low interest.

These stakeholders needed to be kept in loop, these stakeholders needs to be kept satisfied even though they are not interested because stakeholders should be dealt cautiously. because they may use their power in a not desired way in the project they become unsatisfied.

* low power - High Interest.

These people should be kept adequately informed and

must talk to them to ensure that no major issues are arising. These people can after be very helpful with detail of project.

~~★~~ Low power - Low interest.

Monitor these stakeholder but we should not bore them with excessive communication.

Q No 5

Answer ::

Risk management checklist
for a project of Residential
house.

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 to task.

Stage # 2 Proposal Familiarization

- * Specify objectives and criteria.

* Familiarise the term with the proposal assemble documentation and define the key objectives.

* Assess the proposal in relation to the Agency objectives and strategies

* Define key elements (target 20-50 element 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 assumption.

* Assess risk likelihoods and consequences.

- ⇒ Assess risk likelihoods
- ⇒ Assess risk impact

⇒ Identify significant risks.

⇒ Rank risks reflect impact and likelihoods.

⇒ Discard / accept minor risk

⇒ 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.

- a) risk prevention
- b) impact mitigation
- c) risk transfer and insurance

* 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) Resource

c) Responsibilities (What and 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 measure.

Stage # 6

Risk management
Implementation.

★ Implement measure and action strategies.

★ Monitor the implementation

a) Assign responsibilities

b) Timing