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Section :- C.

Q. NO :- 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 :-

No of Communication Channel = $\frac{n(n-1)}{2}$

The number of people involved in six communication channels \Rightarrow

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

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

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

2

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

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

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

$$(n-4) = 0$$

$$n = 4$$

$$n+3 = 0$$

$$n = -3$$

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, the required communication.

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

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

New Communication channel will
be = **15** ans.

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Q. NO :- 2.

Given :-

→ Total no of package = 10.
 → For each package planned value, actual cost & youge completion is known.

Solution :-

work package :- 1

① Earned value :-

By formula

$EV = \text{planned value} \times \text{rate of performance}$

$$EV = PV \times RP$$

$$" = \$100000 \times 100\%$$

$$" = \$100000 \times 1$$

$$EV = \$100000$$

② cost valience :-

$$CV = EV - AC$$

$$" = \$100000 - 120,000$$

$$CV = -20,000$$

③ SV :-

$$SV = EV - PV$$

$$SV = 10,000 - 10,000$$

$$SV = 0$$

④ CPI :-

$$CPI = \frac{EV}{AC} = \frac{100000}{120000} = 0.83$$

⑤ schedule performance index :-

$$CPI = \frac{EV}{PV} = \frac{100000}{100000} = 1$$

→ Comment's on work :-

→ As we see the $SV=0$ & $SPI=1$ that mean that project is exactly on the plan path 100%.

→ As we see that CV is (-ve) performance index is less than 1 when mean's the project is over budgeted.

work Packag 2 :-

① EV :-

$$EV = PV \times Rp$$

$$EV = 10,0000 \times 100\%$$

$$EV = 10,0000 \times 1$$

$$EV = 100,000 \$$$

② CV :-

$$CV = EV - AC$$

$$= 100,000 - 110,000$$

$$CV = -10,000 \$$$

③ SV :-

$$SV = EV - PV$$

$$SV = 10,000 - 100,000$$

$$SV = 0 \$$$

④ CPI :-

$$CPI = \frac{EV}{AC} = \frac{10,000}{110,000}$$

$$CPI = 0.90$$

⑤ SPI :-

$$SPI = \frac{EV}{PV} = \frac{100,000}{100,000} = 1$$

→ Comment's:-

* Project is Exactly on the baseline as $SV=0$ & $SPI=1$ but in term's of cost the project is over budgeted as CV is (-ve) CPI is less than 1.

work Package 3 :-

$$\begin{aligned} \textcircled{1} \quad EV &= PV \times RP \\ &= 100,000 \times 90\% \\ &= 90,000 \$ \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad CV &= EV - AC \\ &= 90,000 - 80,000 \\ &= 10,000 \$ \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad SV &= EV - PV \\ &= 90,000 - 100,000 \\ &= -10,000 \$ \end{aligned}$$

$$\textcircled{4} \quad CPI = \frac{EV}{AC} = \frac{90,000}{80,000} = 1.125$$

$$\begin{aligned} \textcircled{5} \quad SPI &= \frac{EV}{PV} \\ &= \frac{90,000}{100,000} \end{aligned}$$

Comments =

As we see CPI & CVI is +ve above 1 but terms scheduling is potentially SV = -ve

and SPI is less than 1.

4	100,000	125,000	80,000	80%
5	100,000	75,000	50,000	50%
6	100,000	50,000	0,000	0%
7	100,000	0,000	0,000	0%

Complete Package index

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

$$= \frac{700000 - 420000}{70,000 - 51,000}$$

$CPI = 2$

$$ETC = \frac{70,0000 - 420,000}{0.82}$$

$$= \frac{280,000}{0.82} = 341463.41$$

$$ETC = EAC - AC$$

$$= 853658 - 510000$$

$$ETC = 343658$$

Estimate at:-

$$EAC = BAC \div CPI$$

$$= \frac{70,0000}{0.82}$$

$$EAC = 853658$$

$$EAC (DUV) = \frac{700,000}{0.6} = \frac{BAC}{SPI}$$

$$= 1166.666.77$$

$$PV = 700,000$$

$$AC = 510,000$$

$$EV = 420,000$$

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$$CV = 420,000 - 510,000$$

$$CV = -90,000$$

$$SV = 420,000 - 700,000$$

$$= -2,80,000$$

$$CPI = 0.82$$

$$SPI = 0.6$$

So it is over budgeted
schedule.

Work package	BCWS	ACWP	Progress	BCWP	(CV)	CPI	SPI	SV
	Planned value (PV)	Actual cost (AC)	%	Earned value (EV)	EV-AC	EV/AC	EV/PV	EV-PV
1	\$ 100,000.00	\$ 120,000.00	100%	\$100,000.00	\$ (20,000.00)	0.83	1.00	\$ -
2	\$ 100,000.00	\$ 110,000.00	100%	\$100,000.00	\$ (10,000.00)	0.91	1.00	\$ -
3	\$ 100,000.00	\$ 80,000.00	90%	\$ 90,000.00	\$ 10,000.00	1.13	0.90	\$ (10,000.00)
4	\$ 100,000.00	\$ 125,000.00	80%	\$ 80,000.00	\$ (45,000.00)	0.64	0.80	\$ (20,000.00)
5	\$ 100,000.00	\$ 75,000.00	50%	\$ 50,000.00	\$ (25,000.00)	0.67	0.50	\$ (50,000.00)
6	\$ 100,000.00	\$ -	0%	\$ -	\$ -	0.00	0.00	\$(100,000.00)
7	\$ 100,000.00	\$ -	0%	\$ -	\$ -	0.00	0.00	\$(100,000.00)
8	\$ 100,000.00	\$ -	0%	\$ -	\$ -	0.00	0.00	\$(100,000.00)
9	\$ 100,000.00	\$ -	0%	\$ -	\$ -	0.00	0.00	\$(100,000.00)
10	\$ 100,000.00	\$ -	0%	\$ -	\$ -	0.00	0.00	\$(100,000.00)
BAC								

Comment: The Project is over schedule and Over budget.

Q. NO:-3

Solution:-

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

$$P_{V0} = -C_0$$

$$P_{V0} = -9000$$

- C_0 = initial investment.

C = cash flow.

r = Discount rate.

T = Time.

$$C_1 = 2000.$$

$$C_2 = 3000$$

$$C_3 = 3000.$$

$$C_4 = 4000.$$

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

$$P_{V1} = 1818.18$$

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

$$P_{V2} = 2479.34$$

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

$$P_{V3} = 2253.94$$

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

$$P_{V4} = 2732.05$$

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

$$= -9000 + 1818 \cdot 19 + 2479 \cdot 34 + 2253 \cdot 94 + 2732 \cdot 05$$

NPV = \$ 283.51 ans.

Q. NO :- 4.

Answer :-

Power / Intrest Matrix (Gardner et (1986)).

		Level of intrest	
		Low	High
Power	Low	Minimal effort A	keep informed B
	High	keep satisfied C	key player's D

→ Power / Intrest Matrix :-

→ Stakeholder's in group A :-
Need only minimum effort an monitoring.

→ Stakeholder's in group B :-
Should be kept

informed as they may be able to influence more powerful Stakeholder's.

→ Stakeholder's group C :-
Are powerful, but Level of interest is Low. Generally expected to be passive, but may move into group D on an issue of particular interest.

→ Stakeholder's group D :-
Are both powerful and interested. Their co-operation is of key importance for new strategies.



Q. NO :- 5.

Answer :-

Checklist for the 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 objectives 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) to structure risk analysis.

→ Stage :- 3 :- Risk Analysis.

① Identify risks:-

→ Prepare a Comprehensive Schedule of risks for each element.

→ Describe each risk and List the main assumptions.

② Assess risk likelihoods :-

- Assess risk likelihoods.
- Assess risk impact
- Assemble data on risk or their consequences.

③ Identify significant risk's:-

- where applicable, estimate risk factor.
- Discard/accept minor risk's.

④ Identify major risks for action planning:-

→ Stage :- 4 :- Risk response planning.

→ Identify feasible responses.

→ Responses:-

- risk prevention.
- impact mitigation.
- risk transfer & insurance.
- risk acceptance.

→ select the best response.

→ select the preferred response.

