Name: Sohail Ahmad

ID: 7699

Subject: Construction Management

Section: A

Q: No: 01

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

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

the number of People involved in Six communication channels

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

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

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

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

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

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

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

$n=4$ | $n=3$

So the number of people involved = 4

As, there are additional state holders,

So total number of people are;

$$n = 4+2$$

$$n = 6$$

Now, the required communication

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

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

New communication channel

$= 15$ Ans

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Q. No : 02

Solution :-

Terms	Formulas
* Earned Value	EV = PV to date × RP
* Cost Variance	CV = EV − AC
* Cost Performance index	CPI = EV / AC
* Schedule variance	SV = EV − PV
* Schedule Performance Index	SPI = EV / PV

Work Package	BCWS Planned value (PV)	ACWP Actual cost (AC)	Progress %	BCWP Earned value (EV)	(CV) EV/AC	CPI EV/AC	SPI EV/PV	SV EV - PV
1	$100,000	$120000	100%	$100,000	$20,000	0.83	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	$25,000	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 behined schedule and over budget.

Q. No: 03

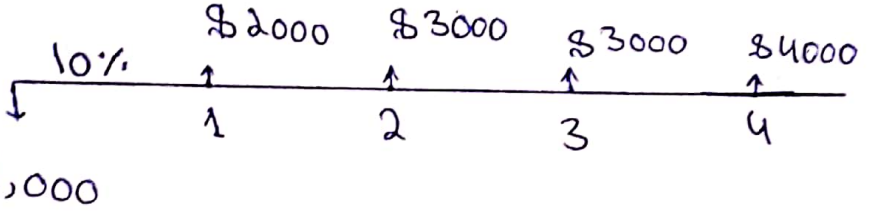
Given data:

Cost Planned to invest = 9000 $

Expected life of project = 4 years

Discount rate = 10 %

Expected cash flow for next four years is,



Required data:

Calculate Net Present valul (NPV)

Solution

As we know that

$$NPV = -C0 + \frac{C_1}{1+r} + \frac{C_2}{(1+r)^2} + \cdots\cdots \frac{C_T}{(1+r)^T}$$

As;

$-C_0$ = Intial investment

C = Cash flow

Y = Discount Rate

T = Time

Here the values are;

$C_1 = 2000$

$C_2 = 3000$

$C_3 = 3000$

$C_4 = 4000$

Also,

$PV_0 = -C_0$

$PV_0 = -9000$

Now by formula

$$PV_1 = \frac{-C_1}{1+Y}$$

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

$$\boxed{PV_1 = 1818.18}$$

Also;

$$PV_2 = \frac{C_2}{(1+r)^2}$$

$$= \frac{3000}{(1+10/100)^2}$$

$$\boxed{PV_2 = 2479.34}$$

$$PV_3 = \frac{C_3}{(1+r)^3}$$

$$= \frac{3000}{(1+10/100)^3}$$

$$\boxed{PV_3 = 2253.94}$$

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

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

$$\boxed{PV_4 = 2732.05}$$

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

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

NPV = $ 283.51

Comment for Result

So the Net Present value (NPV) of $ 283.51 suggest that the combined PV of all cash inflows exceeds the PV of cash outflows by $ 283.51.

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Q. No 04

Being a project manager, how would you identify the stake holders by Power / interest matrix.

Ans

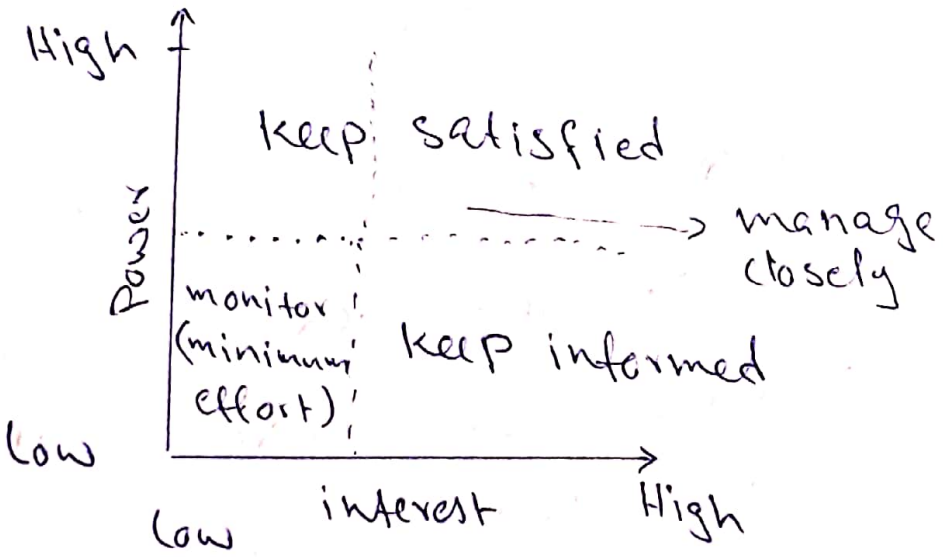
Power / Interest matrix:

* the Power matrix is a simple tool that helps tool that helps to categorize project stakeholder with increasing Power and interest in project.

* this matrix help to focus on the key stakeholders who can ~~Project~~ make or break the Project in turn this Power matrix help us in stakeholder Pricritization.

Layout of the matrix

the Power interest matrix contains four quadrants, each quadrants gives an indication of the level of stackholder mangement that we will have to employ and may also influence the types of communication style. the four quadrants are shown below.



* High Power - High interest

these stakeholders are decision makes 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 them stakeholders need to kept satisfied even though yield Power. these types of stakeholder should be dealt wit their Power in a not desked way in the Project if 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. those people can often be very helpful with detail of Project.

* Low Power - Low interest

monitor these stakeholders but we should not bore them with excessive communication.

Q No : 05

Risk management cheeklist 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 mangement responsibilities appropriate to task.

Stage 2 Proposal Familiarization

* Specify objectives and criteria
* Familiarise the team with the Proposal anemble documentation and define the key objective
* Asses the proposal in relation to the agency objective and stralegies
* Determine assessment criteria for Proposal.

Stage 3 Risk Analysis

① identify risks

* Prepare a comprehensive schedule to risks for each element.
* Describe each risk and list the main assumption.

② Assess risk likelihoods and consequences.

* Assemble data on risk and other their consequences.
* Asses risk likelihoods.
* Asses risk impacts.

③ identify significant risk.

* Rank risks to reflect impacts and likelihoods.
* ~~Order~~ where applicable estimate risk factors.
* ~~Ass~~ Discard / accept minimer risk.

Stage 4 :- Risk Responce Planning

① identify feasible responses
② for each moderate and major risk identify the feasible responses
③ Responses may include.
   (a) risk prevention
   (b) impact mitigation
   (c) risk transfer and insurance.
   (d) risk acceptance.

Stage 5 Reporting

* for designated proposals produce the risk mangement plan.
* for other projects collate and summarize risk action scheduled and measured.

Stages 6:. Risk management implemention

* implement measures and action strategies
* monitor the implemention.
  - (a) Align responsibilites.
  - (b) Timing
* Undertake periodic review and Performance evaluation.

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