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Q1: You have a team of Project managers reporting to you. Recently a new manager relatively inexperienced has joined your team. Considering his level of experience you assign to a small project. Considering his level of experience involved. You envision the project to have no surprises or hiccups. You have identified the number of communication channel to be only 6. However with increase in scope of work 2 additional stakeholder who need to be communicated with joins team. You ask the manager to identify the number of communication channel now.

ans:

given Data:

communication channel = 6

Additional stakeholder = 2

required:

number of communication
channel now = ?

Solution:

As we know that from
given below formula
of channel

Number of channel =

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

The number of people involved
in 6 communication channel

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

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

$$n^2 - n = 12$$

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

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

~~n²~~

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

Take n common from first pair and 3 from 2nd pair

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

Now take $n-4$ common as whole

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

$$n-4 = 0 \quad \text{or} \quad n+3 = 0$$

$$n = 4 \quad \text{or} \quad n = -3$$

number of people can not be negative

So number of people involved = 4

As there are 2 additional stakeholders

So total number of people

$$n = 4 + 2$$

$$n = 6$$

Now the required communication of channel are given below

*

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

Now communication channel = 15

$$= 15 \text{ Ans}$$

Q2

if you have a Project 10 packages for each package Planned value, Actual cost and Percentage of completion is given. Calculate the earned value, cost variance, schedule variance, cost performance index and schedule performance index. Comment if the project is ahead/behind schedule or over/under budget.

Work Package	BCWS Planned Value	ACWP Actual Value	% Progress	BCWP Earned Value
1	\$ 105,000.00	\$ 120,000.00	100%	
2	\$ 100,000.00	\$ 110,000.00	100%	
3	\$ 100,000.00	\$ 80,000.00	90%	
4	\$ 100,000.00	\$ 125,000.00	80%	
5	\$ 100,000.00	\$ 75,000.00	0%	
6	\$ 100,000.00	\$ 0.00	0%	
7	\$ 100,000.00	\$ 0.00	0%	
8	\$ 100,000.00	\$ 0.00	0%	
9	\$ 100,000.00	\$ 0.00	0%	
10	\$ 100,000.00	\$ 0.00	0%	

Given Data:

in above Table the
value are given

required:

- ① Planned value = ?
- ② Actual cost variance = ?
- ③ Schedule variance = ?
- ④ Cost Performance index = ?
- ⑤ Schedule Performance index = ?

Solution:

as know that
from Planned value formula

$$\text{① Planned value} = P_i \times O_d \times R_p$$

$$= 100000 \times \frac{100}{100} = 100000 \$$$

$$\text{② PV} = 100000 \times \frac{100}{1000} = 100000 \$$$

$$\text{③ PV} = 100000 \times \frac{900}{100} = 900000 \$$$

$$\text{④ PV} = 100000 \times \frac{80}{100} = 800000$$

$$(E) P_i = \frac{100000 \times 75}{1000} = 75000$$

(F)

$$P_i = \frac{100000 \times 0}{100} = 0$$

$$(G) P_i = -\frac{100000 \times 0}{100} = 0$$

$$(H) P_i = \frac{100000 \times 0}{100} = 0$$

$$(I) P_i = \frac{100000 \times 0}{100} = 0$$

$$(K) P_i = \frac{100000 \times 0}{100} = 0$$

② - COST VARIANCE

AS WE KNOW THAT

$$CV = EV - AC$$

$$(a) CV = 100000 - 120000 = -20000 \$$$

$$(b) CV = 100000 - 110000 = -10000 \$$$

$$(c) CV = 100000 - 80000 = 20000 \$$$

$$(d) CV = 100000 - 125000 = -25000 \$$$

$$(e) CV = 100000 - 75000 = 25000 \$$$

$$(F) \quad CV = 100000 - 0 = \$100000$$

$$(G) \quad CV = 150000 - 0 = \$150000$$

$$(H) \quad CV = 100000 - 0 = \$100000$$

$$(I) \quad CV = 100000 - 0 = \$100000$$

$$(J) \quad CV = 100000 - 0 = 100000 \$$$

$$(K) \quad CV = 100000 - 0 = 100000 \$$$

(3) Schedule variance

As we know that

$$SV = EV - PV$$

$$(a) = 100000 - 100000 = \cancel{0}$$

$$(b) = 100000 - 150000 = \cancel{0}$$

$$(c) = 90000 - 100000 = -10000 \$$$

$$(d) = 80000 - 100000 = -20000 \$$$

$$(e) = 75000 - 100000 = -25000 \$$$

$$(f) = 0 - 100000 = -100000$$

$$(g) = 0 - 100000 = -100000$$

- (H) $0 - 100000 = -\$100000$
 (I) $0 - 100000 = -\$100000$
 (J) $0 - 100000 = -\$100000$

(5) Cost Performance Index

as we know that

$$CPI = EV / AC$$

(a) $= 100000 / 120000 = 0.83$

(b) $100000 / 120000 = 0.90$

(c) $900000 / 800000 = 1.125$

(d) $80000 / 125000 = 0.64$

(e) $75000 / 75000 = 1$

(f) 0

G 0

H 0

I 0

J 0

⑤ Schedule Performance Index

as we know that

$$SPI = EV/PV$$

$$(A) SPI = \frac{100000}{100000} = 1$$

$$(B) = \frac{100000}{100000} = 1$$

$$(C) = \frac{90000}{100000} = 0.9$$

$$(D) = \frac{80000}{100000} = 0.8$$

$$(E) = \frac{75000}{100000} = 0.75$$

$$(F) = \frac{0}{100000} = 0$$

$$(G) = \frac{0}{100000} = 0$$

$$(H) = \frac{0}{100000} = 0$$

$$(I) = \frac{0}{100000} = 0$$

$$(J) = \frac{0}{100000} = 0$$

(6) Estimate at completion

$$T.E.A.C. = BAC / CPE$$

$$= \frac{1000000}{4.45} = 222469.4$$

Estimated Time to

complete.

ETC = original Time

Estimate / SPT

$$222469.4 / 4.5$$

$$49993.123$$

Comments:

The project behind
sheet schedule and
over budget

Q3

A company is planning to invest 9000 \$ in a project today. The project is expected to have life of four years. The expected cash flow for next four is shown and the discount rate is 10%. Calculate Net Present Value (NPV) and comment on the result.

	\$2000	\$3000	\$3000	\$4000
10%				
	-\$9000			

Given Data:

$$r = 10\%$$

$$\text{Life Time} = 4 \text{ year}$$

$$\text{Cash Flow} = 4000$$

$$\text{Invest} = PV_0 = 9000$$

required

$$\text{NET Present value} = 0$$

Solution

as we know that

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

as we know that

$$\textcircled{1} PV_0 = -C_0$$

$$PV = -9000$$

$$\textcircled{2} PV_1 = \frac{C_1}{1+r} = \frac{2000}{\left(\frac{1+10}{100}\right)} = 1818.18$$

$$\textcircled{3} PV_2 = \frac{C_2}{(1+r)^2} = \frac{3000}{\left(\frac{1+10}{100}\right)^2} = 2479.34$$

$$\textcircled{4} PV_3 = \frac{C_3}{(1+r)^3} = \frac{3000}{\left(\frac{1+10}{100}\right)^3} = 2253.94$$

$$\begin{aligned}
 \textcircled{5} \quad P_{V_4} &= \frac{C_4}{(1+r)^4} \\
 &= \frac{10000}{\left(\frac{1+10}{100}\right)^4} = 2732.05
 \end{aligned}$$

Now put these value in main equation

$$\begin{aligned}
 NPV &= -C_0 + \frac{C_1}{1+r} + \frac{C_2}{(1+r)^2} + \frac{C_3}{(1+r)^3} + C_4 \\
 &= -9000 + 1818.18 + 2479.34 + 2732.05
 \end{aligned}$$

\$283.51

Comments

A positive NPV mean the combined PV of all cash inflow exceeds the PV of cash out flows

So our example the NPV of \$283.51 suggest that the combined PV of all cash inflow exceeds the PV of cash out flows by 283.51\$.

Q4 Being a Project manager how would you identify the stake hold by Power/interest matrix

Ans

Being a Project manager the following - Power / interest matrix the following rules should be considered.

Power/interest

Power/interest matrix
(gender et al (1986))

Table:

		level of interest	
		low	high
Power	Low	A minimal effect	B keep informed
	high	C keep satisfied	D Key players

Power/interest Power

Stakeholders in group A:

①

need only minimum effort
can monitoring

② Stakeholder in group B

should be kept informed as they may be able to influence more powerful stakeholders.

③ Stakeholder in group C:

are powerful but level of interest is low - generally expected to be passive but may move into ~~game~~ group D as issue of particular interest

④ Stakeholder in group D:

are both powerful and interested. Their co-operation is of key importance for new strategies.

Qs

For a project of residential house what are the different stages to be considered as the risk management checklist.

Ans

checklist for Risk management

Stage 1 initiation:

- Assemble Risk management resources
- Appoint the team leader and ensure a breadth of skills/experience with the team
- Assign Risk management responsibilities appropriate to task.

Stage 2 Proposal familiarization

- specify objective and criteria
- familiarize the team with the proposal assemble documentation

- and define the key objectives
- Assess the proposed with ~~the team~~ in relation to the agency objectives and strategies
 - Determine assessment criteria for proposal
 - Define key elements (target 20-50 element items 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 like likelihood and consequence
Assemble data on risk and consequences

- ASSESS RISK - likelihood
- ASSESS RISK impact

Identify significant risk

- ① Rank risk to reflect impacts and likelihood
- ② where applicable estimate risk factor
- ③ Discard / ACCEPT minor risks
- ④ Identify major moderate risks for management measure

Identify major risks
for detailed risk
action planning