

#01

#01

Q No #
01

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 him to a small project. Considering low complexity and few stakeholders involved - you expect the projects to have no surprises or hiccups. You have identified the number of communication channels to be only 6. However with increase in scope of work 2 additional stakeholders who need to be communicated with join the team. You ask the manager to identify the number of communication channels now?

Solution → Given data:

Number of Communication channels = 6

Additional stakeholders = 2

→ Required data:

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

#02

Solution →

As we know that;

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

The number of people involved in Six Communication channels ⇒

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

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

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

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

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

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

$$(n-4) = 0$$

$$n = 4$$

$$n+3 = 0$$

$$n = -3$$

So The number of people involved = 4

As; there are additional stake holder's

so total number of people are;

$$n = 4 + 2$$

$$n = 6$$

Now, The required Communication

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

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

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New Communication channel = 15
An

End #01

#04

Q No #
02

If you have a project of 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	ACWP	% progress	BCWP
	planned value	Actual Cost		Earned value
1	\$100,000.00	\$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	50%	
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%	
BAC		\$0.00	0%	

SOLUTION

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GIVEN DATA:

- total no of package = 10
- For each package planned value
Actual cost and % of
Completion is known

To Find:

for Each package

- 1) Earned value = (EV) = ?
- 2) Cost variance = (CV) = ?
- 3) Schedule variance = (SV) = ?
- 4) Cost performance index = (CPI) = ?
- 5) Schedule performance index = (SPI) = ?
- 6) Comment on each package?

Solution :-

work package 1:

- 1) Earned value : (EV)

By formula

$EV = \text{planned value} \times \text{Rate of}$

$$EV = PV \times RP$$

$$EV = \$100000 \times 100\%$$

$$EV = \$100000 \times 1$$

$$EV = \$100000$$

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2) Cost Variance: CV:

$$\begin{aligned} CV &= EV - AC \\ &= \$100,000 - 120,000 \\ CV &= -20,000 \end{aligned}$$

3) Schedule Variance: (SV)

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

4) Cost performance index = (CPI):

$$CPI = \frac{EV}{AC} = \frac{100,000}{120,000} = 0.83$$

5) Schedule performance index:

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

Comments on Work package 1:-

- As we see the $SV=0$ and $SPI=1$ that means that project is exactly on the plan path 100%.
- As we see that CV is (-ve) and cost performance index is less than 1, which means that the project is over budgeted.

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work page 2:

1) Earned values

EV:

$$EV = PV \times RP$$

$$EV = 100000 \times 100\%$$

$$EV = 100000 \times 1$$

$$EV = 100,000 \$$$

2) Cost values: CV:

$$CV = EV - AC$$

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

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

3) Schedule variance: SV:

$$SV = EV - PV$$

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

$$SV = 0 \$$$

4) Cost performance index: CPI

$$CPI = \frac{EV}{AC} = \frac{100000}{110000}$$

$$CPI = 0.90$$

5) Schedule performance index: SPI

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

$$SPI = 1$$

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→ Comments

Project is exactly on the base line
as $SV = 0$ & $SP1 = 1$ but in terms of cost
the project is over budgeted as EV is (-ve)
and CPI is less than 1.

→ ① Earned value: $EV = PV \times RP$
 $= EV = 100,000 \times 90\%$
 $= \boxed{EV = 90,000 \$}$

→ ② Cost Variance:
 $CV = EV - AC$
 $= 90,000 - 80,000$
 $= \boxed{CV = 10,000 \$}$

→ ③ Schedule Variance SV:
 $SV = EV - PV$
 $= 90,000 - 100,000$
 $= \boxed{SV = -10,000 \$}$

→ ④ Cost performance index: CPI
 $CPI = \frac{EV}{AC} = \frac{90,000}{80,000} = 1.125$

→ ⑤ Schedule performance index:
 $SP1 = \frac{EV}{PV} = \frac{90,000}{100,000}$
 $SP1 = 0.9$

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Comments:-

As we see that in terms of cost the project is under-budgeted because the CV & CPI is the and above then 1 but in terms of scheduling the project is potentially behind the base line as SV = -ve and SPI is less than 1

① Earned value EV:-

$$\begin{aligned}EV &= PV \times RP \\EV &= 10,000 \times 80\% \\EV &= 80,000\end{aligned}$$

② Cost variance CV:-

$$\begin{aligned}CV &= EV - AC \\&= 80,000 - 125,000\end{aligned}$$

$$CV = -45,000 \$$$

③ Schedule variance SV:-

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

$$SV = -20,000 \$$$

④ Cost performance index CPI:-

$$CPI = \frac{EV}{AV} = \frac{80,000}{125,000}$$

$$CPI = 0.64$$

⑤ Schedule performance index SPI

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

$$SPI = 0.8$$

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Comments:-

The project is over budgeted as $CV = -ve$ and $CPI < 1$ as used as the project is behind the schedule i.e. from base line as $SV = -ve$ and SPI is less than 1

① Earned values

$$EV = PV \times RP$$

$$EV = 100,000 \times 50\%$$

$$EV = 50,000 \text{ \$}$$

② Cost Variance: CV

$$CV = EV - AB$$

$$= 50,000 - 75,000$$

$$CV = -25,000 \text{ \$}$$

③ Schedule Variance SV:-

$$SV = EV - PV$$

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

$$SV = -50,000 \text{ \$}$$

④ Cost performance index

$$CPI = EV/AC = \frac{50,000}{75,000} = 0.67$$

$$CPI = 0.67$$

⑤ Schedule performance index

$$SPI = EV/PV = \frac{50,000}{100,000} = 0.5$$

$$SPI = 0.5$$

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Comments :-

The project is overbudget in terms of cost as CV is (-ve) and CPI is less than 1 and in terms of scheduling the project is behind half way from its base line as $SV = -50000$ and $SPi = 0.5$

(1) Earned values

$$EV = PV \times RP$$

$$EV = 100,000 \times 0.10$$

$$EV = 0$$

(2) Cost Variance :-

$$CV = EV - AC$$

$$CV = 0 - 0$$

$$CV = 0$$

(3) Schedule Variance :-

$$SV = EV - PV$$

$$SV = 0 - 100000$$

$$SV = -100000 \$$$

(4) Cost performance index :-

$$CPI = EV/AC = 0 = 0$$

(5) Schedule performance index :-

$$SPi = EV/PV = \frac{0}{100,000} = 0$$

Comments :-

The work page 6 is not yet started it is 100% behind the scheduled.

work page 7, 8, 9, 10 is same time work page 6 which is not yet started they all are very begining of the project.

End #02
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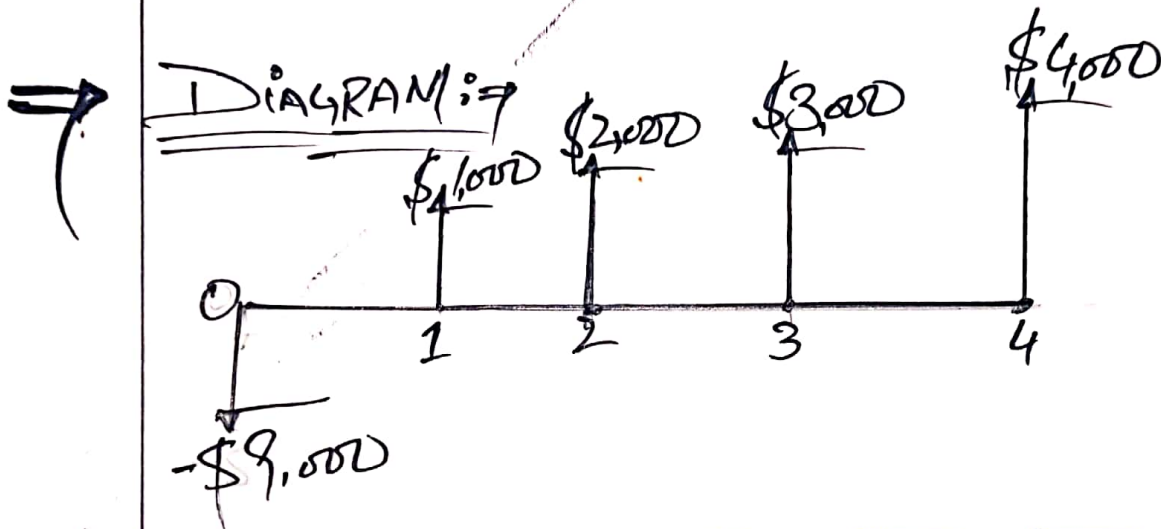
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Q No

03
/ 4

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 years is shown and the discount rate is 10%. Calculate Net present value (NPV) and Comment on the result?



Sol

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

$$PV_0 = -C_0$$

$$PV_0 = -9000$$

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

$$PV_1 = 1818.18$$

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

$$PV_2 = 2479.34$$

$-C_0$ = Initial investment

C = Cash Flow

r = Discount Rate

T = Time

$$C_1 = 2000$$

$$C_2 = 3000$$

$$C_3 = 3000$$

$$C_4 = 4000$$

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

$$PV_3 = 2253.94$$

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

$$PV_4 = 2732.05$$

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

$$= -9000 + 1818.18 + 2479.347 + 2253.94 + 2732.05$$

$$NPV = \$283.51$$

End #03

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##

Q No #
04

Being a project Manager, how would you identify the stake holders by power/interest Matrix?

Solution

The Power/interest Matrix:-

Classifies Stakeholders in relation to their power and the extent to which they are likely to show interest in the actions of the organisation.

Can be used to indicate the nature of the relationship which should be adapted with each group.

Power/interest Matrix (Gardner et al. (1986))

		level of interest	
		low	High
power	low	A Minimal effort	B Keep informed
	High	C Keep satisfied	D Key players

→ Power/Interest Matrix:

→ Stakeholders in group A: need only minimum effort and monitoring

→ Stakeholders in group B: should be kept informed as they may be able to influence more powerful stakeholders.

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stakeholders in group C: Are powerful, but level of interest is low. Generally expected to be passive, but may move into group on an issue of particular interest.

stakeholders in group D: Are both powerful and their co-operation is of key importance for new strategies.

End #04

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Q No 10
05/4

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

CHECKLIST FOR 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 elements, items or activities) to structure risk analysis.

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Stage 3:-

Risk Analysis

↳ Identify risks:

- ↳ prepare a Comprehensive schedule of risks for each element
- ↳ Describe each risk and list the main assumptions.

↳ Assess risk likelihoods and Consequences:

- ↳ Assemble data on risk and their consequences
- ↳ Assess risk likelihoods
- ↳ Assess risk impacts.

↳ Identify Significant risks:

- ↳ Rank risks to reflect impacts and likelihoods.

↳ where applicable, estimate risk factors

↳ Discard / accept minor risks

↳ Identify moderate risks for management measures.

↳ Identify major risks for detailed risk action planning.

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CHECKLIST FOR RISK MANAGEMENT

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
 - (d) risk acceptance
- ↳ Describe each feasible response and list main assumptions
- ↳ select the best response
- ↳ Evaluate the benefits and costs for each response
- ↳ select the preferred response.

END #05 LAST.