

Name : Salman Abdullah Khan

ID: 7772

Semester 8th

Section "C"

Date : 22/ Jun / 2020

Teacher Name : Dr Engr Zeeshan Akad

$x \rightarrow y \rightarrow z \rightarrow w \rightarrow v \rightarrow u$

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 a small project.

Considering low complexity and few stakeholders involved. You envision the project 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 will join the team. You ask manager to identify the number of communication channels now?

Given Data

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

⇒ The no of people involved in six communication channels.

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

By cross multiplication

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

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

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

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

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

$$(n-4) = 0$$

$$\boxed{n = 4}$$

$$n+3 = 0$$

$$\boxed{n = -3}$$

\Rightarrow Now, So the no of people involved = 4

As, There are additional stake holders

So, total no of people are

$$n = 4 + 2$$

$$\boxed{n = 6}$$

Now, the required Communication channel

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

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

$$= 3(5)$$

Now Communication channels = $\boxed{15 \text{ Ans}}$

Q2: 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).

Given Data

- ⇒ Total no of package = 10
- ⇒ For each package planned value Actual Cost & % 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 = SPI = ?
 - ⑤ Schedule performance index = SPI = ?
 - ⑥ Comment on each package:

=> Solution :

Work Package 1

①

Earned value: (EV)

By formula

EV = Planned value \times Rate of Performance

~~EV = Planned~~

$$EV = PV \times RP$$

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

$$EV = \$100,000 \times 1$$

$$EV = \$100,000$$

=> Cost variance CV :

$$CV = EV - AC$$

$$= \$100,000 - 120,000$$

$$CV = -20,000$$

=> Schedule variance: (SV)

$$SV = EV - PV$$

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

$$SV = 0$$

=> Cost Performance index:

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

=> Comments on work package:

⇒ 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) & Cost performance index is less than 1 which means that the project are over budgeted

Work package 2 :

① Earned value : EV :

$$EV = PV \times RP$$

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

$$EV = 100000 \times 1$$

$$EV = 100,000 \$$$

② Cost variance 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

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

$$CPI = 0.90$$

Schedule performance index

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

$$SPI = 1$$

Comments:

Project is Exactly on the base line As $SV=0$
but in term of Cost the project is over budgeted $SPI=1$
as CV is (-ve) is less than 1.

Work Package 3:-

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

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

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

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

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

Comments

As we see that in term of Cost the project is under budgeted bc the cr of CPI is +ve & above than 1 but in term of Schedule the project is Potentially behind the base line $SV = -ve$ & is less than 1,

work Package ④

① Earned value : EV):

$$EV = PV \times RP$$

$$EV = 10,000 \times 80\%$$

$$EV = 80,000$$

② Cost variance (CV):

$$CV = EV - AC$$

$$80,000 - 125,000$$

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

③ Schedule variance SV

$$SV = EV - PV$$

$$SV = 80,000 - 100,000$$

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

④ Cost performance index

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

$$SPI = 0.8$$

Comments

The Project is over budget as $CV < 0$ and
 $CPI < 1$ as well as the project is behind the
 Schedule i.e. from base line as $SV < 0$ and
 SPI is less than 1

Work Package 5

① Earned value EV:

$$EV = PV \times RP$$

$$EV = 100,000 \times 30\%$$

$$EV = 30,000 \$$$

② Cost variance CV:

$$CV = EV - AC$$

$$= 30,000 - 55,000$$

$$CV = -25,000 \$$$

③ Schedule variance index

$$SV = EV - PV$$

$$SV = 30,000 - 100,000$$

$$SV = -70,000 \$$$

④ Schedule performance index SPI

$$SPI = EV/PV = 30,000/100,000 = 0.3$$

Comments:

The project is over budgeted in terms of cost as CV is (ve) & CPI is less than 1 half day from its base line as

$SV = 5000$ & $SPI = 0.5$

work Package 6

① Earned value: (EV):

$EV = PV \times RP$
 $EV = 100,000 \times 0.1$
 $EV = 0$

② Cost variance (CV):

$CV = EV - AC$
 $CV = 0 - 0$
 $CV = 0 - 0$
 $CV = 0$

③ ~~Cost~~ Schedule variance

$SV =$
 $SV = EV - PV$
 $SV = 0 - 100000$
 $SV = 100000\$$

④ Cost performance

$CPI = \frac{EV}{AC} = \frac{0}{0} = 0$

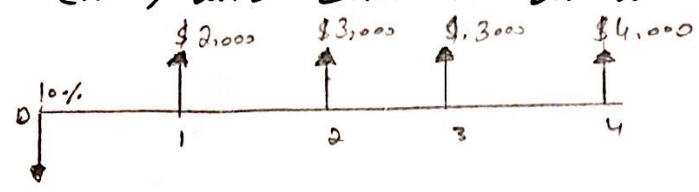
⑤ Schedule performance

$SPI = \frac{EV}{PV} = \frac{0}{100000}$

Comment: The work page 6 not yet start it is 100% behind scheduled

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



Given Data

- Investment = 9000 \$
- Discount rate = 10%
- n = years = 4 years

Solution

As we know that

Net present value (NPV) =

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

Now, $PV_0 = -C_0$

C_0 = Initial investment

$$C_0 = -9000$$

So, $PV_0 = -9000$

Now, to find $PV_1 = ?$

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

$\therefore C_1 = 2000 \$$, So putting the value

$$PV_1 = \left(\frac{2000}{1+10\%} \right)$$

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

$$PV_1 = 1818.18$$

Now to find

$$PV_2 = ?$$

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

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

$$PV_2 = 2479.34$$

Now to find $PV_3 = ?$

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

$C_3 = 3000 \$$, Putting the value

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

$$PV_3 = 2253.94$$

Now to find $PV_4 = ?$

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

= $C_4 = 4000$, So putting the value

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

$$PV_4 = 2732.05$$

Now putting all the values in equation - (★)

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

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

$$NPV = \$ 283.51$$

⇒ Comments on Result

⇒ A Positive Net present value (NPV) mean the Combined Pv of all the cash flow increased the Pv of cash outflow.

⇒ Result Show the NPV of \$ 283.01 show Combined Pv of all cash flow increased from the Pv of Cash out flow by 283.51

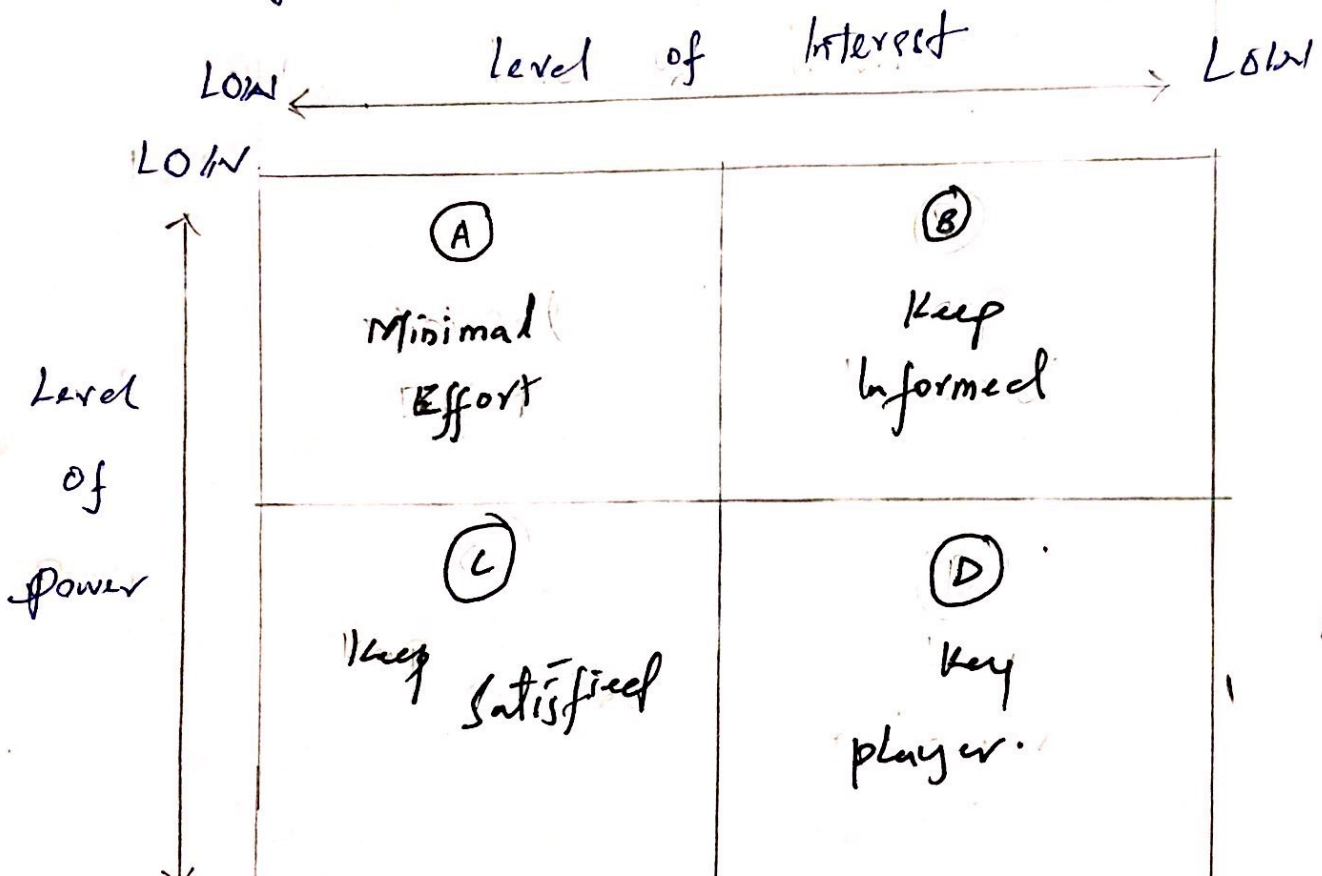
Q4:-

Page (13)

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

Answer,

Being project manager you should describe the mutual relationship should be adopted with each categories.



(A)

Stake holders in (A) :-

- 1 ⇒ No need to engage / participate .
- 2 ⇒ need only minimum effort on monitoring.
- 3 ⇒ Examples are Broadcaster etc .

(B)

Stake holders in (B) :-

- 1 ⇒ stakeholder Engagement .
- 2 ⇒ Should be kept informed to influence more powerful stakeholder .
- 3 ⇒ Examples are supporters, bank, shareholders .

(C) Stakeholder in (C) :-

- (1) ⇒ Stakeholders Engagement .
- (2) ⇒ Powerful stakeholder but level of interest is low .
- (3) ⇒ Expected to passive but may move to key players .
- (4) ⇒ Examples are Transporter, Police etc

② Voluntarism in Design

- 1.3 The design process is iterative
- 2.2 Joyful and interesting
- 3.2 The designer is in charge of the process
- 4.2 Examples are Dieter Rams, Norman Foster and Patricia

Q5:-

Page (16)

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

Ans ⇒ Consider a project of Residential house Construction.

⇒ Before the starting of Construction of the residential,

⇒ So they need different checklist for Risk Management.

Check list for Risk Management

⇒ There are different stages involved in checklist for Risk Management

Stage ① Initiation

① Create risk Management resources of different type.

② Select the team leader and ensure a breadth of skills experience within the team.

⇒ Point out Risk Management responsibilities appropriate to task

Proposal Familiarization

- ① Set and Underline the objective and Criteria.
- ② Understand and teach the team with the proposal, assemble, documentation and define clearly about key objectives.
- ③ Assess the proposal in the relation to the Agency's objectives and strategies.
 - ⇒ Find the assessment criteria for proposal.
 - ⇒ Define about key elements to structure risk analysis.

Stage # 3

Risk Analysis

- ① Identify risks:
 - ① Prepare a Comprehensive Schedule of Risk for each element.
 - ② Define briefly each risk and list the main assumption.
 - ii) Assess risk likelihoods and consequence.

- ① => Assemble data on risk and their consequence
- ② => Assess risk likelihood
- ③ => Assess risk impacts.

(iii) Identify Significant risk :

- ① => Orderwise risk to reflect impacts and likelihood.
- ② => Where applicable, estimate risk factors.
- ③ => Discard and accept minor risks.
- ④ => Identify moderate risks for management measures.

Stage # (4)

Risk Response Planning

=> Identify feasible responses.

- ① For every single moderate and major risk, identify the feasible response.
- ② Responses may also include
 - a) Risk Prevention
 - b) Impact mitigation
 - c) Risk transfer and insurance
 - d) Risk acceptance.

- ③ Describe each and every feasible response and list main assumption.
- ④ Select the best responses
 - ① Evaluate the benefits and cost for each response
 - ② Select the preferred response

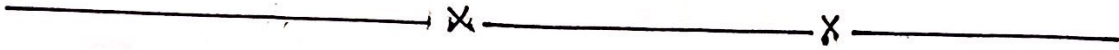
- ⑤ Develop management measure and action schedule
- ⑥ Specify Risk management measure for moderate risk.
 - a) Actions required (what is to be done?)
 - b) Resources (what and who?)
 - c) Responsibilities (who?)
 - d) timing (when?)

⑤ Stage 5 Reporting

- ① => For designated proposals, produce the Risk Management plane.
- ② => For other Project, collate and summarize risk action schedule and measures.

④ Stage ④ Risk Management Implementation Page no - 20

- ① Implement measure and action strategies
- ② Monitor the implementation
 - ① Assign responsibilities
 - ② timing
- ③ Undertake periodic review and performance evaluation.



The end!!!