FINAL TERM PAPER

NAME: MUHAMMAD HAMZA

CLASS : BE(C)

SECTION : A

ID # 7692

SUBJECT : CONSTRUCTION MANAGEMENT

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INSTRUCTOR: Dr. Muhammad Zeeshan Ahad.

Name: Muhammad Hamza
ID # 7692

Question # 01

You have a team of project managers reporting to you. Recently a new manager relatively inexperienced has joined your team. 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 with join the team. You ask the manager to identify the number of communication channels now?

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;

Name : Muhammad Hamza

ID # 7692

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 stake holders so that number of people are;

$n = 4 + 2$

$n = 6$

Now, the required communication channel = $\frac{6(6-1)}{2}$

$= \frac{3\cancel{6}(6-1)}{\cancel{2}_1} \Rightarrow 3(5)$

Name : Muhammad Hamza
ID # 7692

New communication channel = 15

Ans:-

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ID # 7692.

Question # 02.

If you have a project of 10 packages por each package planned value, Actual cost and percentage of completion is given. Calculate the earned value; cost varriance, schedule variance, cost performance index and schedule performance index? (comment if the project is ahead / behind schedule or over / under budget).

BCWS	ACWP	% progress	BCWP = EV
100,000	120,000.00	100 %	$=100{,}000 \times \frac{100}{100} \Rightarrow 100{,}000$
100,000	110,000,00	100 %	=100,000
100,000	80,000:00	90 %	$100{,}000 \times \frac{90}{100} = 90000$
100,000	125,000	80 %	80,000
100,000	75,000	50 %	50,000
100,000	0	0	0
100,000	0	0	0
100,000	0	0	0
100,000	0	0	0
100,000	0	0	0
1000000	510,000		320000

Name: Muhammad Hamza
ID # 7692

Cost variance = EV - AC (Actual cost)

1). 100,000 - 120,000 = -20,000

2). 100,000 - 110,000 = -10,000

3) 90,000 - 80,000 = 10,000

4). 80,000 - 125,000 = -45,000

5). 50,000 - 75,000 = -25,000

6) 0 - 0 = 0

7) 0 - 0 = 0

8) 0 - 0 = 0

9) 0 - 0 = 0

10) 0 - 0 = 0

Σ = -90000 => over budget

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

$$\frac{320,000}{510,000} = 0.62$$

it has spent 38 % more than it should spent till this date.

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Schedule variance
= EV - PV

1) 100,000 - 100,00 = 0

2) 100,000 - 100,000 = 0

3) 90,000 - 100,000 = 0 - 10,000

4) 80,000 - 100,000 = -20,000

5) 50,000 - 100,000 = -50,000

6) 0 - 100,000 = -100,000

7) 0 - 100,000 = -100,000

8) 0 - 100,000 = -100,000

9) 0 - 100,000 = -100,000

10) 0 - 100,000 = -100,000

Σ = -580,000 ⇒ Behind schedule

$SPI = \frac{EV}{PV} = \frac{320,000}{10,00000} = 0.32$

This project must have 68% accomplished more than actually has at this point.

Name : Mahammad Hamza
ID # 7692.

Thus, The project is behind shedule and over budget.

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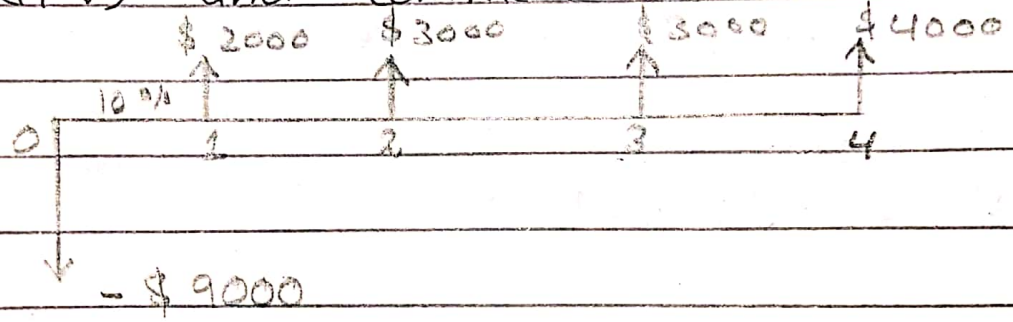
ID# 7692

Question # 03.

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?



SOLUTION:-

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

$-C_0$ = Initial investment

C = Cash flow

r = discount rate

T = time

C_1 = 2000

C_2 = 3000

C_3 = 3000

C_4 = 4000

Name: Muhammad Hamza

ID# 7692

$$PV_0 = -C_0$$

$$\boxed{PV_0 = -9000}$$

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

$$\boxed{PV_1 = 1818.18}$$

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

$$\boxed{PV_2 = 2479.34}$$

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

$$\boxed{PV_3 = 2253.94}$$

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

$$\boxed{PV_4 = 2732.05}$$

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

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

Name: Muhammad Hamza

ID# 7692

NPV = $ 283.51 .

Ans =

Name: Muhammad Hamza
ID # 7692

Question # 04.

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

ANSWER:-

1- Identify your stakeholders:-

Start by brainstorming who your stakeholders are. As part of this, think of all the people who are affected by your work, who have influence or power over it, or have an intrest in its successful or unsuccessful conclusion.

The table below identifies some of the people who might be stakeholders in your job or in your projects.

Your boss	Shareholders	Government
Senior executives	Alliance partners	Trades associates
Your co-workers	Suppliers	the press
Your team	Lenders	Interest groups
Customers	Analysts	the public
Prospective customers	Future recruits	the community
Your family	Key contributors	key advisor

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2. Prioritize Your stakeholders:-

You may now have a list of people and organizations that are affected by your work. Some of these may have the power either to block that work or to advance it. Some may be interested in what you are doing, while others may not care, so you need to work out who you need to priotize.

You can map out your stakeholders, and classify them according to their power over your work and their interest in it, on a Power/Interest Gird (see figure-1). (Our Interactive screen App makes this step easy to accomplish, or you can download a template of the grid by clicking on the "download template" button at the end of this article.)

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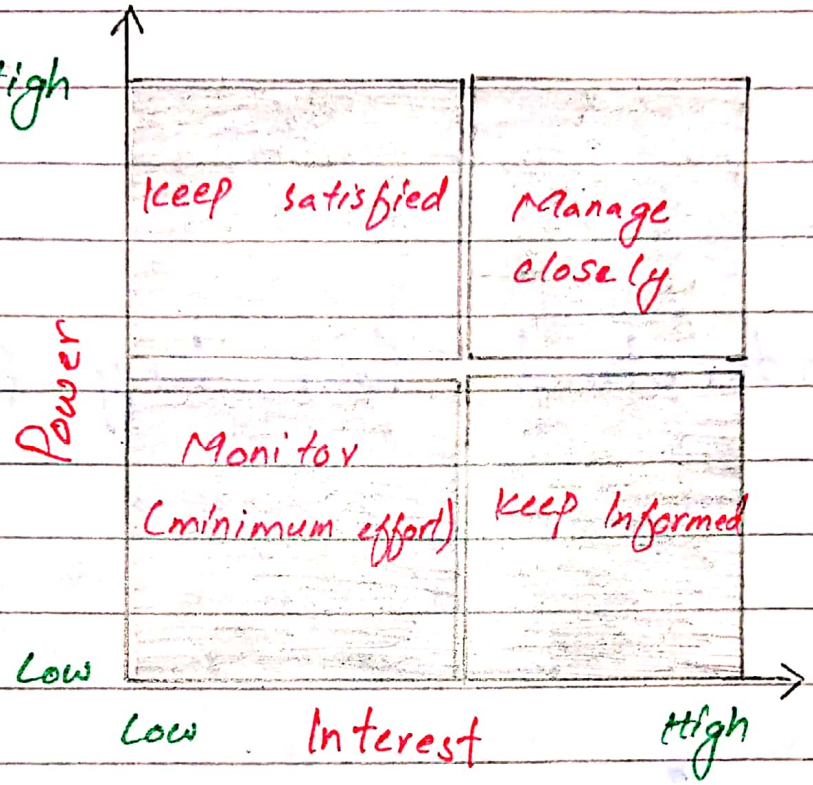
Figure 1: Power / Interest Grid for stakeholder Priorities-



The position that you allocate to a stakeholder on the grid shows you the actions you need to take with them:

- High power, highly interested people (Manage closely).
- High power, less interested people (Keep satisfied).
- Low power, highly interested people (Keep Informed).
- Low power, less interested people (Monitor).

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Your boss, for example, likely has high power and influence over your projects and high interest in them. Your family, however, may have high interest in them, but won't have power over them.

3. Understand Your Key Stakeholders.

You now need to discover how your key stakeholders feel about your project. You also need to work out how best to engage them, and how to communicate with them.

Questions that can help you understand your stakeholders include:

- What financial or emotional interest do they have in the outcome of your work? Is it positive or negative?
- What motivates those most of all?
- What information do they want from you, and what is the

Name: Muhammad Hamza.
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best way of communicating with them?

- What is their current opinion of your work? Is it based on good info?

- If they aren't likely to be positive, what will win them around to support your project?

- Who else might be influenced by their opinions? Do these people become stakeholders in their own right?

You can ask your stakeholders these questions directly. People are often quite open about their views, and asking for their opinions is often the first step in building a sucessful relationship with them.

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ID # 7692

Question # 05

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

ANSWER:-

FOR A PROJECT OF RESIDENTIAL HOUSE THE RISK MANAGEMENT CHECKLIST:-

Following are the stages.

*** Stage - I**

Initial:-

- Assemble Risk Management resources.
- Appoint the team leader and ensure a breadth of skills / experince within the team.
- Assign Risk Management responsibilities appropriate to task.

*** Stage - II**

Proposal Familiarization:-

- Specify objectives and criteria
- Familiarise the team with the proposal, assemble documentation and define the key objectives.

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- Assess the proposal in relation to the Agency's objectives strategies.
- Determine assessment criteria for proposal.
- Define keey elements (target 20-50 elements, items or activities) to structure risk analysis.

* **Stage - III**

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.

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- Discard / accept minor risks.
- Identify moderate risks for management measures.
- Identify major risks for detailed risk action planning.

* Stage - IV
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
  - Develop management measures for moderate risks

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- Schedule for major risks
- Actions required (What is to be done?)
- Resources (what and who?)
- Responsibilities (who?)
- Timing (when?)

* Stage - V
Reporting:-

- For designated proposal, produce the Risk Management plan.
- For other projects, collate and summarize risk action schedules and measures

* Stage - VI
Risk management Implementation:-

- Implement measures and action strategies
- Monitor the implementation
  a) Assign responsibilities
  b) Timing
- Undertake periodic reiview and performance evaluation.