

# **GAP ANALYSIS IN PROJECT MANAGEMENT**

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## **ABSTRACT**

In today's modern world, everyone is competing to achieve their target, but there is a gap between their target & achievement. In my 6 years of carrier in EPC & eBOP project, I have never seen any project which completed in scheduled time, cost & without re-engineering, all these things were done within the execution phase. All these things are reflecting there is gap in project management. In this paper, we will discuss about what is gap, what are the major gaps in project management, why it is created, what are the impact of these gaps and how to overcome from it.

**Keywords:** *Gap Analysis, Project Management, Planning, Risk And Service Quality.*

## **I INTRODUCTION**

The gap model of service quality was first developed by trio of [1] Parasuraman, Zeithaml and Berry at North Carolina university Texas in the year 1985, from their research they have identified ten requirements useful for customers' evaluation of the quality of services: reliability, responsiveness, tangibles, communication, credibility, security, competence, courtesy, understanding the customers and service accessibility, and based on their finding they have classified five dimensions of service quality and they are tangibility, reliability, responsiveness, assurance, and empathy. In the year 1990 proposed a [2] service quality scale called "SERVQUAL". [3] Gronoos and Johnson have defined service quality in terms of customer satisfaction that is degree of fit between customers' expectation and perception of service. [4] Lewis & Booms (1983) have defined service quality within the scope of service industry as meeting customers' needs and wants and the extent the service meets the customers' expectations. [5] Chan and Kumaraswamy (1997) conducted a survey to find delay causes in Hong Kong construction projects and he found five major factors: delay – (a) poor risk of management and supervision (b) Unfocused site condition. (c) Slow decision making. (d) Client-initiated variation. (e) Work variance.

**What is gap?** Gap is a difference between customers' expectations and perceptions, while in term of project management gap means delivering best service quality based on customer's expectation and their need. Gap Analysis is the process through which we compare actual performance to its expected performance to determine whether it is

meeting expectations and using its resources effectively. Gap analysis help to project manager & stakeholders to re-examine its goals to determine whether it is on the right path to be able to accomplish them at scheduled time with same satisfactory level which was desired. Gap analysis provides a foundation for measuring fault / break point / rate of efficiency / level of satisfaction / quality of service etc, based on customer's need by comparing time, money and need to achieve a desired outcome.

**Major gaps in Project:** A survey has been carried out in each department of a EPC project team, such as PMO engineering, erection testing commissioning, procurement, sourcing, engineering, team of stakeholders etc. Based on survey & questionnaires, we have found total 36 gaps and based on [6] PMBOK we have further divided these thirty-six points into 10 knowledge areas and ranked term using matrix method. As exhibited in table 1.

**Data calculation method:** Based on the impact of this project to the end uses, we have given no. 0 for lowest impact & 9 for major impact and criticality was measured from 1 to 5. By multiplying all the data using Matrix, we get grand total and which is easier to rank. Total matrix score and ranking given in table 1.

**Formula:** Using simple matrix calculation method, where A is referring impact & B is referring criticality. ON multiplication of A x B We will get total matrix score. Formula exhibited in below ( formula -1).

$$A = \begin{bmatrix} a & b & c \\ d & e & f \\ g & h & i \end{bmatrix} \quad \& \quad B = \begin{bmatrix} x \\ y \\ z \end{bmatrix}$$

$$A \times B = \begin{bmatrix} ax + by + cz \\ dx + ey + fz \\ gx + hy + iz \end{bmatrix}$$

**Formula 1- Multiplication of Matrix AxB**

## **II CLASSIFICATION OF GAPS**

Based on above outcome from our data analysis, we have classified these gaps into two parts, internal gap and external gaps. Fig 1.

**1) Internal gap–** The gap created by within the team or a company or an organization. for example, gap created due to internal disputes from person to person, department to department, lack of synchronization between team & manpower, lack of communication etc.

2) **External gap**– The gap created by dependents such as Third parties' agencies, Outsourcing agencies, Suppliers (vendors), Government body etc. for example, while creating power plant we depend upon land acquisition from local villagers, material not ready at supplier's end, getting various certificate from local authorities

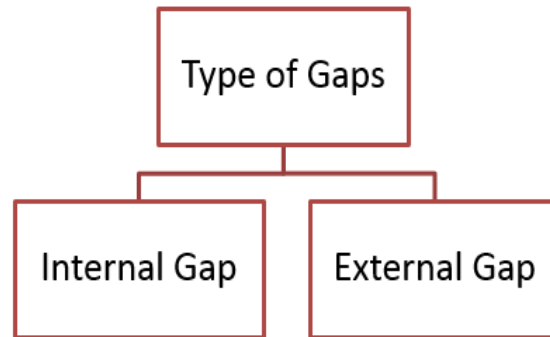


Fig 1- Type of Gaps

#### Data analysis:

Results of our analysis are very shocking, It is beyond our expectation. We identify that majority (47%) of the gap was occurred in three knowledge area and they are Project Integration Management (12%), Project Scope Management (24%) and Project Risk Management (11%). Graph exhibited in Fig-2.

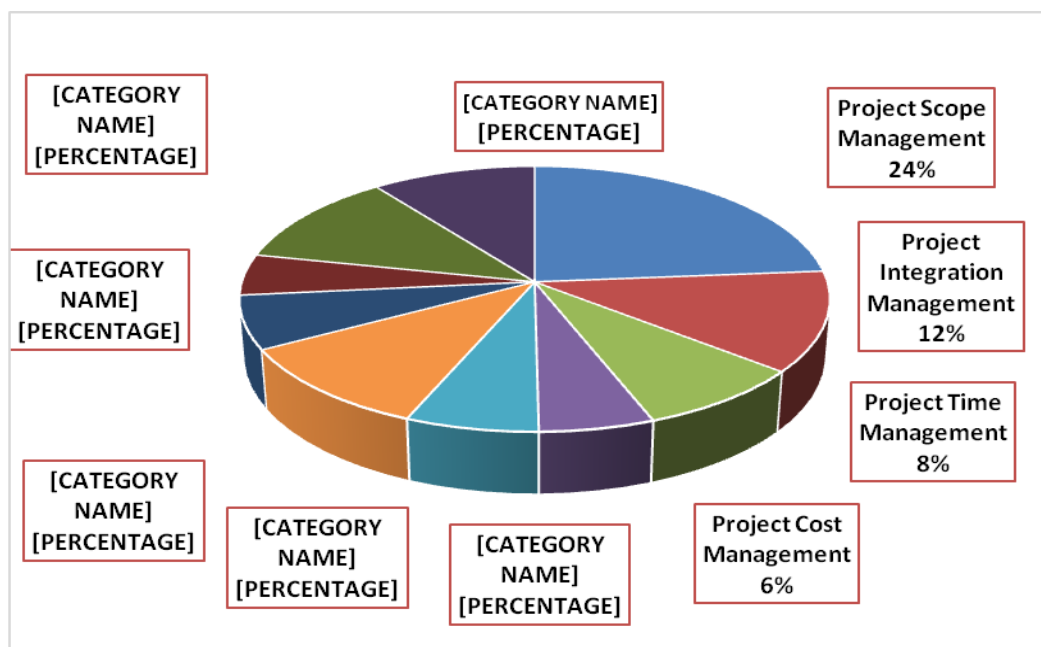
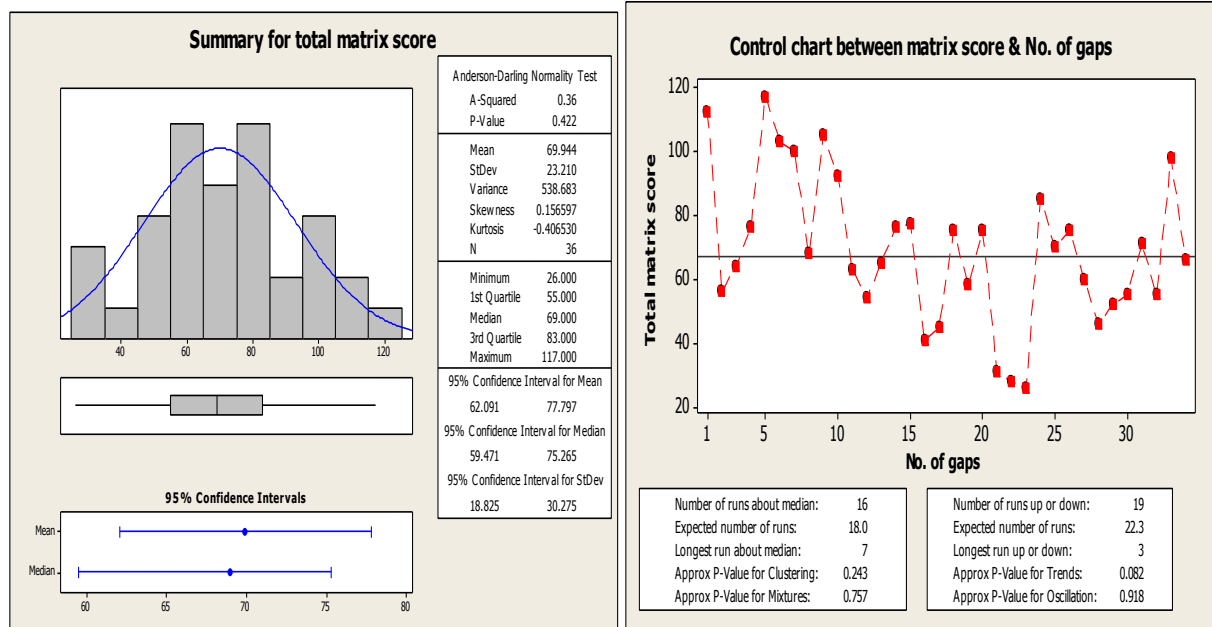


Fig 2 - Percentage of gaps in knowledge area

On the basis of Anderson-Darling normality test we found that Skewness & Kurtosis of the response is varying widely from 0.156 to -0.406 which defined the system is unsymmetrical and confidence interval of standard deviation is varying from 18.82 to 30.27, Same was reflecting in fig 3 & from control chart it is clear that total score of the matrix is varying between 117 & 26 although its mean is 69 (control line), which is exhibited in Fig 4.



**Fig 3 - Total Matrix score (using Minitab) Fig4- Control chart total matrix score v/s No. of gaps**

**Why it is created:** There may be variable regions of these gaps, it depends from person to person, but major causes are lack of brainstorming during planning with team members of all concern departments and groups of different levels. Another cause is lack of communication between team members. It is also noticed during the survey that actual goal of the project was not known to team member's. Based on research by [1] trio Parasuraman, Zeithaml and Berry we can say following are also be the causes of gaps in project management are: reliability, responsiveness, tangibles, communication, credibility, security, competence, courtesy, understanding the customers and service accessibility.

**Impact:** Impact of these gaps in project can be divided into three pates, Impact on Stakeholder, Supplier (contractors) and end user. Same was exhibited in table 2.

| SL No. | Impact on Stake holder                        | Impact of Supplier                                                                       | Impact on end user                  |
|--------|-----------------------------------------------|------------------------------------------------------------------------------------------|-------------------------------------|
| 1      | Increase in project costs                     | Increase in project costs                                                                | Delay in local development          |
| 2      | Increases market risk                         | Increasing man-hours at project site<br>(Percentage of safety of individuals decreasing) | Delay in job opportunity for locals |
| 3      | Delay in production                           | Decreasing customer's faith & trust                                                      | Delay in day today trading          |
| 4      | Decreasing customer's faith & trust           | Increases material cost                                                                  |                                     |
| 5      | Delay in Return of investment (ROI)           | Increases stress to overall team                                                         |                                     |
| 6      | Increasing competition with other competitors | Impact on future business                                                                |                                     |

**Table 2 - Impact of Gap's in Project management**

### III CONCLUSION

As i believe project manager must be a techno-commercial, so the team can understand both technical & commercial issues. Projects can be a small or large, simple or complex, but its rate of success or failure was depending upon effective planning.

Key findings from the research are 1) Strategic planning is the back bone of project and we must understand how to minimise criticalities and to deliver best practice world. 2) Always be ready for learning & adapting from surroundings. 3) Develop interpersonal relationship and always motivate your team member, "yes you can do".

I recommend to project stakeholder and managers to focus on planning while executing project by using[7] "Plan Check Do Check Act" (PCDCA)technique, we also recommend identifying critical paths & use parallel operations where you can save time and money as well. Role & responsibility given in below table No. 3



**Fig 5 - PCDCA Cycle (own)**

|       | ROLE                           | RESPONSIBILITY                                                                                                                                                                                                                                  |
|-------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Plan  | Sketch your project            | 1) In this phase, clear picture of project should be viewed to everyone from stakeholder to project execution team, 2) It is also important to know, what, how, when, where, by whom.<br>3) Minimum risk involves.<br>4) Minimum cost involves. |
| Check | Most critical phase in project | 1) Cross-check you're planning to avoid delay/rework/cost saving/man-hour loss/safety/Risk assessment/training etc.<br>2) Maximum risk involves.<br>3) Minimum cost involves.                                                                   |
| Do    | Everything is OK, go ahead     | 1) Execute the work with safety guidelines.<br>2) Use learn, adapt & share knowledge<br>3) Maximum risk & cost involves.                                                                                                                        |
| Check | Critical phase of project      | 1) Cross check your work to avoid future accidents or misshaping.<br>2) Maximum risk & cost involves.                                                                                                                                           |
| Act   | Raise your voice               | 1) If you find anything wrong while executing the work, then please act immediately to avoid similar situation in future.<br>2) It also helps to find RCA & CAPA.<br>3) Minimum risk involves.<br>4) Maximum cost involves.                     |

**Table 2 –Role & Responsibility of PCDCA cycle**

**Total matrix score and ranking table:**

| SL No | Knowledge area's                  | Major gaps                              | Total score | Ranking |
|-------|-----------------------------------|-----------------------------------------|-------------|---------|
| 1     | Project Integration Management    | Lack of planning                        | 112         | 02      |
|       |                                   | Review meets                            | 56          | 20      |
|       |                                   | Decision making power                   | 64          | 16      |
|       |                                   | Lack of product knowledge               | 76          | 10      |
| 2     | Project Scope Management          | Goal not defined                        | 117         | 01      |
|       |                                   | Division of work (WBS)                  | 103         | 04      |
|       |                                   | Change in scope of work                 | 103         | 04      |
|       |                                   | Change in design or engineering         | 100         | 05      |
|       |                                   | Synchronization between team members    | 68          | 13      |
|       |                                   | change of need of customer              | 105         | 03      |
| 3     | Project Time Management           | Target achievement date should be fixed | 92          | 07      |
|       |                                   | Material lead time                      | 63          | 17      |
|       |                                   | Delay in Govt authorizations            | 54          | 22      |
| 4     | Project Cost Management           | Payment issue (wages to workers)        | 65          | 15      |
|       |                                   | Rework                                  | 76          | 10      |
| 5     | Project Quality Management        | Quality of material                     | 77          | 09      |
|       |                                   | Short supply                            | 41          | 26      |
|       |                                   | Wrong supply                            | 45          | 25      |
| 6     | Project Human Resource Management | Sticks at work place                    | 75          | 11      |
|       |                                   | Team motivation                         | 58          | 19      |
|       |                                   | Ineffective supervision                 | 75          | 11      |
|       |                                   | Personal issues or leaves               | 31          | 27      |
|       |                                   | Interpersonal relationship              | 28          | 28      |
| 7     | Project Communications Management | Internal dispute                        | 26          | 29      |
|       |                                   | Poor communication system               | 85          | 08      |
|       |                                   | Conflict between ideas                  | 70          | 13      |
|       |                                   | Lack of discussion                      | 75          | 11      |
| 8     | Project Risk Management           | Act of God                              | 75          | 11      |
|       |                                   | Insufficient market research            | 60          | 18      |
|       |                                   | Safety issue                            | 46          | 24      |

|    |                                |                                        |    |    |
|----|--------------------------------|----------------------------------------|----|----|
|    |                                | Environmental issues                   | 52 | 23 |
|    |                                | Accident at site                       | 55 | 21 |
| 9  | Project Procurement Management | Delay in ordering                      | 71 | 12 |
|    |                                | Delay in delivering from supplier ends | 55 | 21 |
| 10 | Project Stakeholder Management | Need of customer changed               | 98 | 06 |
|    |                                | Conflict between owners or partners    | 66 | 14 |

**Table 1 - Total matrix score and ranking table**

## REFERENCE

- [1] Parasuraman, A, Zeithaml V.A. and Berry, L.L.(1985) "A conceptual model of service quality and its implications for future research", Journal of Marketing Vol 49, No 4, pp41-50.
- [2] Zeithaml V.A., Parasuraman A, Berry L.L. "Delivering quality service: Balancing customer perceptions and expectations". 1990. New York: The Free Press.
- [3] Gronroos.C & Johnston.R(1988,) "The Six Criteria of Good Perceived SQ", Review of Business. 9(3), pp. 10-13.
- [4] Lewis, R.C. & Booms, B.H. (1983), "The marketing aspects of service quality" in Berry, L., Shostack, G. and Upah, G. (eds.), Emerging perspectives on services marketing, American Marketing Association Chicago, pp. 99-104.
- [5] Chan DW, Kumaraswamy MM. "A comparative study of causes of time overruns in Hong Kong construction projects". Int J Project Manage 1997;15(1):pp 55–63.
- [6] A Guide to the Project management Body of knowledge, PMBOK®Guide–Fifth Edition, PMI, pp 87-87.
- [7] Vyas.S, "Managing project using 8D technique" in International journal of management, volume 7, issue 6, September–Oct 2016, pp.67–76.