

Methodology for Evaluation of Factors Affecting Role of project Manager for Success of Construction Project for Gujarat

Mayank Patel¹, Dr. Rajiv Bhatt², Prof. Jaydev.J.Bhavsar³

¹Final year ME student Construction Engineering and Management, B.V.M. Engineering College, Vallabh Vidyanagar, Gujarat, India

²HOD Civil Engineering Department, ADIT College, New-Vallabh Vidyanagar, Gujarat, India

³Associate Prof., B.V.M. Engineering College, Vallabh Vidyanagar, Gujarat, India

Abstract — “Project manager is a person formally appointed to manage a project with specific responsibility for achieving defined project objectives with allocated resources”, Role of project manager is critical to the success of project and identify this a number of studies have been conducted to find the required traits of a project manager. Project managers has the role to create knowledge, distribute knowledge and identify hindrances to knowledge acquisition. Project manager in construction are responsible for the overall success of delivering the owner’s physical development within the constraints of cost, time, quality, environmental and safety requirements. In this paper Methodology for Evaluation of Factors Affecting Role of project Manager for Success of Construction Project.

Keywords- Construction; Factors; Project Manager (PM); Qualities of PM; Success

I. INTRODUCTION

Construction is a widely diverse industry brimming with innovation and change. Construction industry 40% to 50% of India's capital expenditure on projects in various sectors such as highways, roads, railways, energy, airports, irrigation, etc. and is the second largest industry in India after agriculture. It accounts for about 11% of India's GDP. [33] In the developing Country like India there are various construction companies involved. In such company project management team plays a very important role in success of the project from Pre formulation to the completion stage of the project. Such project management team mainly consists of project manager and project engineer or supervisor. As the project manager is the leader of this team, it is required by him to acquire all the skills required for the better performance of his role. [27]

Construction project managers play an important role in construction project development, with responsibilities in initiating, planning, executing, controlling, and closing the project. For good project outcomes, PM need to achieve performance excellence. The criteria for performance excellence of PM include being achievement oriented, having initiative, seeking information, focusing on client’s needs, working as a team, displaying leadership, and having analytical and conceptual thinking.

The major responsibilities of project managers are generally accepted to be controlling financial and physical resources in order to bring a project to a successful conclusion in terms of cost, time, and stakeholder satisfaction. Importance of project manager is given by the organizational structure of ideal mega project as shown in Figure 1.

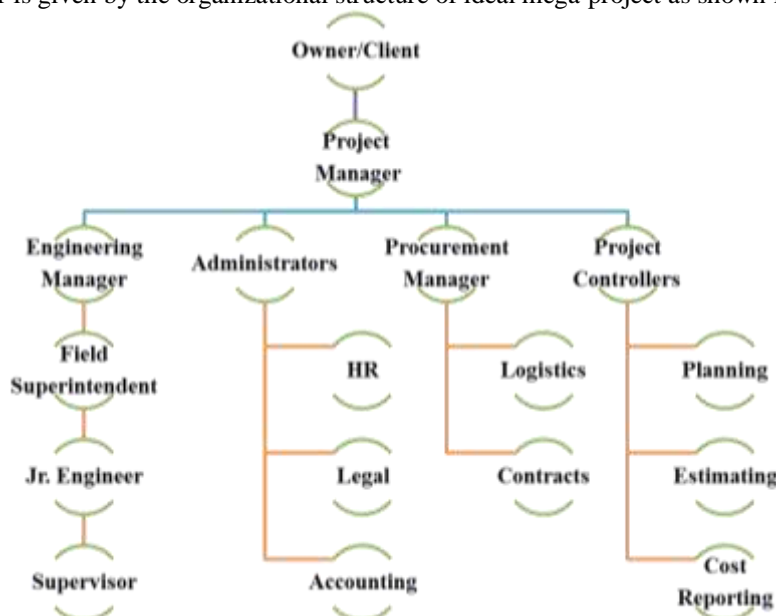


Figure 1. Organizational Structure of Ideal Mega Project

II. OBJECTIVES OF THE STUDY

The aim of this research is to analyze the factors affecting the role of project manager with reference to success of major construction firms in Gujarat region. The aim of this research can be broken down into the following objectives:

1. To identify the factors affecting the role of project manager with reference to success of major construction firms.
2. To determine Client, Project Managers, Architect and Contractors perceptions towards the relative important qualities of Project Manager in Gujarat construction projects in order to evaluate success of construction projects in the Gujarat state.
3. To identify the most significant qualities of Project Manager of construction projects in the Gujarat.
4. To evaluate the relative importance of qualities of project manager between client, project managers, architect and contractors regarding the ranking of qualities

III. NEED OF STUDY

Project Manager is key person in project. If PM is having not all-rounder skills then project may fail, so selection of proper PM is quit essential and important for success of project.

Current approach of selection of PM by company is not addressing all skills and roles. Generally company select PM having technical skill, experience of same project and good control over labour and technical staff. But it is also essential to success of project other skills like planning, organizational, interpersonal skill. So it is essential to analyze the importance of PM skills for success of project.

IV. SCOPE OF STUDY

The scope of this research work is analyzed the qualities of project manager affecting the success of construction projects in the Gujarat major cities.

- a. Ahmedabad
- b. Vadodara
- c. Surat

V. CRITICAL LITERATURE REVIEW

Graham (1996) studied that the value of political skill in the field of project management. Their aim is to look for a relationship between the political skill of the project manager and the outcome in the shape of personal rewards for him. [13]

Chan et al. (2004) developed that a conceptual framework on critical success factors (CSFs) seven major journals in the construction field are chosen to review the previous works on project success. Five major groups of independent variables, namely project-related factors, project procedures, project management actions, human related factors, and external environment are identified as crucial to project success. [5]

Dainty et al. (2005) identified that a set of robust criteria for measuring the performance of construction project managers. They practicability of predicting job performance based on managers' behaviours. Specifically, the findings support the hypothesis that superior-performing managers will evidence higher levels of specific key behaviours that underpin effective management performance than average-performing managers. [6]

Divine et al. (2005) identified that performance measures based either on performance outcomes or behaviours. In this instance, PMs' performance measures based on performance outcomes emerged dominant. Further conclusions drawn suggests that current PMs' performance measures are not sufficiently holistic as they are not multi-dimensional in their approach and also do not reflect the various project phases. [9]

Turner et al. (2005) studied that project success factors has largely ignored the impact of the project manager, and his or her leadership style and competence, on project success. It is conceivable that the leadership style and competence of the project manager have no impact on project success, and the unique, novel, and transient nature of projects (as well as the risk involved) means the leader has less of an impact on performance. But that question can only be answered if it is directly measured. [26]

Maimun et al. (2006) studied the literature reviews in an attempt to list the variables to project success and a preliminary study was then carried out to identify the critical factors for project success, it is interesting to note that the criticality is ranked as human, organization, process, and contractual. [20]

Tomas et al. (2006) investigated that program and portfolio management practices in organizations, and associated roles and responsibilities of middle managers. Also their results show a contingency between the organization environment and its governance style. Managers' flexibility in adapting their roles to their situation is a key factor in organizational success. [4]

Muller et al. (2007) identified that the project manager's leadership style with project type and their combined impact on project success. Also they show the different leadership styles are more likely to lead to a successful outcome on different types of project. [19]

Muller et al. (2007) looked that the differences in the importance of success criteria and reported project success by project type, industry and project manager traits. Also identified project complexity as a major factor for determining

success criteria. Project managers (and other stakeholders) should be aware of the implications listed above, especially in international projects. [18]

Hills et al. (2008) shows that project managers are in the unique position of being able to significantly influence and effectively promote construction industry development through their management skills and values at various levels, including those at the grass-roots. Also Project managers have a key role in supporting such a vision, and will be an important part of the construction industry community to bring about its realization. [16]

Prabhakar (2008) identified from literature review project manager is an important factor leading to project successes. Endeavored to bring out the factors associated with project manager's leadership style having profound impact on project success. [21]

David et al. (2009) found that consensus among parties to a construction project relative to CM duties particularly in the construction phase, they also say some disagreement, most of which appear to be between contractors and designers. Most of disagreements are related to CM duties performed in the bidding and post construction phases of projects. And uniform understanding of CM duties across the industry would be beneficial for all parties concerned. [8]

Muller et al. (2009) examines that the leadership competency profiles of successful project managers in different types of projects. The Leadership Development Questionnaire (LDQ) were used to profile the intellectual, managerial and emotional competences (IQ, MQ and EQ, respectively) of project managers of successful projects. Also they focusing on the leadership profiles of successful managers only, identified differences in the strength and presence of leadership competencies of managers in different types of projects. [17]

Amir et al. (2011) recommended that for selecting project managers, personality test should be done to define their characteristics and behaviours. Although one time test is not enough and personality test should be done during working period till personal characteristics of a manager understood. And in choosing manager for a project, type and context of project should be taken into consideration. In this regard, organization should categorized projects and based this categorization, suitable project manager is chosen. [1]

Toor (2011) found that leaders and managers, at least in the construction industry, apply a mix of both leadership and management to perform their daily jobs and fulfil their organizational responsibilities. They also found echo the many striking overlaps between the roles of leadership and management. [25]

Feger et al. (2012) propose a framework describing the relationship between project manager leadership and three dimensions of project success. They also proposes that leadership will have a positive relationship with project and project management process success. It also proposes that organizational structure may have a moderating impact on the relationship between project manager leadership behavior and project success. [11]

Wadalkar et al. (2012) analyzed that the correlation between delay in the work, project manager and contractor is determined. On the basis of value of the coefficient of correlation, required project manager skills and classification of skills are stated. Also Classification of project manager competencies gives guideline to project manager for upgrading his knowledge and performance. [27]

Daniel (2013) identified that the quality of project management practices as well as the critical success factors for projects in Ghana. Also focused on the key factors and best practices that lead to the success of projects, such as clarity of project mission and goals, top management support and effective communication, and those that militate against project success, such as lack of support and finance, and lack of effective communication in Ghana. They also indicated that attention must be paid to the 4Cs – communication, commitment, competency, and coordination in order to improve project quality. [7]

Amr et al. (2014) proposes that the role of a project manager in benefits management at project level, and introduces a benefits realization management process compatible with the process groups of the Project Management Institute (PMI) body of knowledge which will enable organizations to cascade responsibilities of delivering values to the project manager level. [2]

Esa (2014) introduced the concept of cognitive style in relation to project success approach. Based on extensive literature review, they adds the "soft skill" research stream by proposing Knowing Style, Planning Style and Creating Style and their subsequent effects on project success which not being explored within the project management body of knowledge. [10]

Gadekar et al. (2014) presented the survey carried out among Indian construction companies and critical factors leading to construction company success have been investigated through interviews among top-level managers and owners of the companies. [12]

Ling et al. (2014) investigated job characteristics and jobholders' personal characteristics to ascertain how these affect PMs' job satisfaction and work outcomes PMs have significant job satisfaction, and are also significantly satisfied with the outcomes of the projects that they managed. [15]

Saif et al. (2014) studied that the leadership competency to be the most effective and important factor for the project success. In addition, previous studies focused on technical competencies of project managers such as administrative and technical skills and few studies discussed the project manager role as leader and their competencies for project success. [23]

Samuel et al. (2014) identified that the effective communication, accessibility intelligence and competence among others as the relevant leadership traits. The challenge however is how to blend different traits in delivering a project.

Construction project managers are enjoin to always attempt to change intuitively between the various leadership traits, as the work and people changes. [24]

Johan et al. (2015) suggest that the project manager's leadership style is a significant project success factor. Further, the results show that certain styles are appropriate in different situations, highlighting the importance of a contingency perspective. [14]

5.1 MAJOR FINDINGS OF THIS LITERATURE REVIEW

We have identified about 45 factors for role of PM in success of project and classified them in 6 different groups as follows:

1. For administrative skill, nine factors were identified from the previous work as: Flexible management style, Forecasting skill, Negotiating Ability, Entrepreneurial skill, Good in record keeping, Skilled in problem solving, Strong in dealing with vendors, Good at resources utilization, Generalist rather than specialist.
2. For leadership skill, thirteen factors were identified from the previous work as: Steering Mechanism, Coordinations skill, Facilitating skill, Monitoring skill, Liaison skill, Motivating skill, Honesty and integrity, Self-confidence, Willing to take direction, Result oriented mindset, Benefit realization, Conflict resolving skill, Safety, health and welfare of labour.
3. For technical skill, six factors were identified from the previous work as: Technical knowledge, Basic knowledge of computer, Basic knowledge of construction equipment's, Advances knowledge of project management tools like CPM, PERT etc., Basic knowledge of project management software like MS project, Primavera, Basic knowledge of project finance.
4. For planning skill, seven factors were identified from the previous work as: Setting out clear goals and objectives, Client understanding, End user understanding, Good knowledge about time estimation, Good knowledge about cost estimation, Good knowledge about developing budget, Good knowledge about EIA
5. For organizational skill, three factors were identified from the previous work as: Team building, Skilled to maintaining relations, Management support building skill.
6. For interpersonal skill, seven factors were identified from the previous work as: Identifying and managing risk, Quality control skill, Willing to learn, Communication skill, Controlling costs, Interrogative mind, Perceptiveness.

After identifying these factors, an integrated framework for assessing the factors affecting Role of project manager with reference to success of project was developed, which contained main 6 groups containing different 45 factors.

VI. METHODOLOGY FOR RANKING OF FACTORS AFFECTING ROLE OF PROJECT MANAGER

There is need to carry out ranking of 30 factors. There are many techniques to carry out raking. Such techniques are as below:

1. Relative Importance Index (RII) Method
2. Important Index (IMP.I.) Method
3. Relative Importance Ratio (RIR) Method

From above methods most appropriate method for ranking factors is Relative Importance Ratio (RIR) Method.

Relative Importance Ratio (RIR) Method formula is used to find out the relative importance of different causes of delays and effects in construction projects.

$$\text{Relative Importance Ratio (RIR)} = \frac{\sum [PR / (I \times TR)]}{\sum [PR / (I \times TR)]}$$

Where,

RIR = relative importance ratio (ranging from 0 to 1)

PR = percentage of respondents

I = importance

TR = total respondents

In the RIR value, zero is not inclusive. Lower the RIR value, higher the effective or important the variable.

SAMPLE SIZE CALCULATION:

To obtain statistically representative sample size of the population, following equation used:

$$n = \frac{m}{1 + \left[\frac{m-1}{N} \right]}$$

Where, n, m and N represents the sample size of limited, unlimited and available population respectively. Here, m is calculated by following equation.

$$m = \frac{z^2 * p * (1 - p)}{e^2}$$

Where,

z = the statistic value for the confidence level used, i.e. 1.96 and 1.645 for 95% and 90% confidence level respectively;

p = the value of the population that estimated and

e = the sampling error to estimated. Because the value of p is unknown. Sinich et al. (2002) suggest the value 0.5 to be used in sample size.

According to the targeted City and Stakeholders, the total no. of available population comprises of construction firms which belongs to Gujarat Contractors Association & lists of registered construction firms of various government departments in construction for targeted cities.

To apply this RIR method for survey Questionnaires is given below: **APPENDIX A**

VII. CONCLUSION

Project manager play a vital role in the construction industry for success of any project. This paper study is very important to identify criteria which affect the role of project manager for success of construction project. Total 45 contributing factors are identified. Relative Important Ratio (RIR) is suggested to carryout ranking of these factors.

REFERENCES

- [1] Amir Hossein F. B., Safoora Rashidi Nejad, "Impact of Project Managers' Personalities on Project Success in Four Types of Project", International Conference on Construction and Project Management, Volume-15, ISSN: 2010-0248, September 2011, 181-186.
- [2] Amr Mossalam, Mohamad Arafa, "The role of project manager in benefits realization management as a project constraint/driver", Housing and Building National Research Center Journal (HBRC), ISSN: 1687-4048, January 2015, 1-11.
- [3] Belout A., "Effects of Human Resource Management on Project Effectiveness and Success: Toward a New Conceptual Framework", International Journal of Project Management, Volume-16, Issue-1, 1998, 21-26.
- [4] Blomquist Tomas, Muller Ralf, "Practices, Roles and Responsibilities of Middle Managers in Program and Portfolio Management", Project Management Journal, Volume-37, Issue-1, ISSN: 8756-9728, March 2006, 52-66.
- [5] Chan P. C., David Scott, Chan P. L., "Factors Affecting the Success of a Construction Project", Journal of Construction Engineering and Management, Volume- 130, No. 1, ISSN: 0733-9364, February 2004, ©ASCE, 153-155.
- [6] Dainty Andrew R. J., Cheng Mei-I, David R. Moore, "Competency-Based Model for Predicting Construction Project Managers' Performance", Journal of Management in Engineering, Vol. 21, No. 1, ISSN:0742-597X, January 2005, 2-9.
- [7] Daniel F. Ofori, "Project Management Practices and Critical Success Factors—A
- [8] Developing Country Perspective", International Journal of Business and Management, Volume- 8, No. 21, ISSN 1833-3850, October 2013, 14-31.
- [9] David Arditi, Dumrong Ongkasuwan, MPIC, and ASCE, "Duties and Responsibilities of Construction Managers: Perceptions of Parties Involved in Construction", Journal of Construction Engineering and Management, ISSN:1943-7862, December 2009, 1370-1374.
- [10] Divine K. Ahadzie, David Gavin Proverbs, Paul Olomolaiye, "Project Managers' Performance Measures: A Fresh Perspective", Association of Researchers in Construction Management (ARCOM), Volume-1, September 2005, 3-12.
- [11] Esa Muneera, Dr. Samad Z. A., Dr. Alias A. B., "Preparing Project Managers to Achieve Project Success Human Related Factor", International Journal of Research in Management & Technology (IJRMT), Volume- 4, No.2, ISSN: 2249-9563, April 2014, 104-110.
- [12] Feger Ana L. Rosado, Thomas Gregg A., "A Framework for Exploring the Relationship Between Project Manager Leadership Style and Project Success", The International Journal of Management (IJM), Volume-1, Issue-1, ISSN: 2277-5846, January 2012, 1-19.
- [13] Gadekar Abhijeet, Pimplikar S.S., "Success and Failure Factors of Indian Construction Companies", The International Journal of Engineering and Science (IJES), Volume- 3, Issue- 6, ISSN: 2319 – 1813, June 2014, 52-58.
- [14] Graham J. H., "Machiavellian Project Managers: Do They Perform Better?", International Journal of Project Management, Volume- 14, Issue- 2, ISSN: 0263-7863, 1996, 67-74.
- [15] Johan Larsson, Per Erik Eriksson, Thomas Olofsson, Peter Simonsson, "Leadership in Civil Engineering: Effects of Project Managers' Leadership Styles on Project Performance", Journal of Management in Engineering, © ASCE, ISSN:0742-597X, August 2015, 1-11.

- [16] Ling Florence Yean Yng, Loo Candice M. C., "Characteristics of Jobs and Jobholders that Affect Job Satisfaction and Work Performance of Project Managers", *Journal of Management in Engineering* © ASCE, ISSN:0742-597X, August 2013, 1-10.
- [17] Martyn J., Paul W., Martin, Hon, Carol K. H., Patrick Sik-Wah, "The Role of Project Managers in Construction Industry Development", *Project Management and Quantity Surveying*, 2008, 14.1- 14.9.
- [18] Muller Ralf, Turner Rodney, "Leadership Competency Profiles of Successful Project Managers", *International Journal of Project Management*, Volume-28, ISSN: 0263-7863, 2010, 437-448.
- [19] Muller Ralf, Turner J. Rodney, "Matching the Project Manager's Leadership Style to Project Type", *International Journal of Project Management*, ISSN: 0263-7863, April 2006, 21-32.
- [20] Muller Ralf, Turner J. Rodney, "The Influence of Project Managers on Project Success Criteria and Project Success by Type of Project", *European Management Journal*, Volume- 25, No. 4, ISSN: 0263-2373, August 2007, 298-309.
- [21] Munns A. K, Bjeirmi B. F, "The Role of Project Management in Achieving Project Success", *International Journal of Project Management*, Volume- 14, No. 2, ISSN: 0263-7863, April 1996, 81-87
- [22] Prabhakar Guru P., "What is Project Success: A Literature Review", *International Journal of Business and Management*, Volume- 3, No. 9, ISSN: 2321-8916, September 2008, 1-10.
- [23] Proverbs D.G, Ahadzie D.K., Olomolaiye P., "Development of Research Instrument for Project Managers' Performance Measures in Mass House Building Projects", 22nd Annual ARCOM Conference, September 2006, 167-175
- [24] Saif R.Khan, Choi S. Long, Syed M. Javed, "Leadership Competency: A Tool for Project Success", *Middle-East Journal of Scientific Research*, Volume-19, No-10, ISSN 1990-9233, 2014, 1280-1283.
- [25] Salunkhe A. A., Patil R. S., "Statistical Methods for Construction Delay Analysis", *IOSR Journal of Mechanical and Civil Engineering (IOSR-JMCE)*, Volume 9, Issue 2, e-ISSN: 2278-1684, October 2013, 58-62.
- [26] Samuel Ekung, Anthony Ujene, "Leadership Traits of Construction Project Managers' and their Impact on Project Outcome", Volume- 2, Issue-6, ISSN: 2348-4098, September 2014, 1354-1363.
- [27] Toor Rehman, "Differentiating Leadership from Management: An Empirical Investigation of Leaders and Managers", *Leadership and Management in Engineering*, Volume-11, October 2011, 310-320.
- [28] Turner J. Rodne, Muller Ralf, "The Project Manager's Leadership Style as a Success Factor on Projects: a Literature Review", *Project Management Journal*, Volume- 36, No- 1, ISSN 8756-9728/03, June 2005, 49-61.
- [29] Wadalkar Shruti, Pimplikar S.S, "Role of Project Manager from the Client's Side on the Performance of a Construction Project", *International Journal of Engineering and Advanced Technology (IJEAT)*, Volume-1, Issue-5, ISSN: 2249 – 8958, June 2012, 340-344.
- [30] Westerveld, E., "The Project Excellence Model: linking success criteria and critical success factors", *International Journal of Project Management*, Volume- 21, Issue-6, 2003, 411–418.
- [31] "Project Manager", 2008, https://en.wikipedia.org/wiki/Project_manager
- [32] Alan wren, "The Project Management A to Z ", Edition, ISBN: 0-566- 08556-9, Gower Publishing Limited, 2003
- [33] K. K. Chitkara, "Construction Project Management", Third Edition, ISBN: 978-93-392-0545-4, McGraw Hill Education (India) Pvt. Ltd., 2014
- [34] Kothari C. R., "Research Methodology – Methods & Techniques", Second Edition, ISBN(13): 978-81-224-2488-1, New Age International (P) Limited, Publishers, 2004
- [35] Kumar Neeraj Jha, "Construction Project Management", ISBN: 978-81-317-3249-6, Pearson Education in South Asia, 2011
- [36] Trevor L Young, "The Handbook of Project Management- A Practical Guide to Effective Policies, Techniques and Processes", Revised 2nd edition, ISBN: 0- 7494- 4984- 5, Kogan Page Limited, 2007
- [37]
- [38] Delnavaz M., M.Sc. Thesis, "Project Managers' Role in Sustainable Building Process", Chalmers University of Technology, 2012
- [39] Desai M. J., M.E., "Ranking of the Causes of Delay in Residential Construction Projects in Indian Context", Gujarat Technological University, May 2013
- [40] Gajera V. R., Mistry R. B., Mini Project, "Evaluation of Factor Affecting Supply Chain In Construction Industry", Gujarat Technological University, November 2014
- [41] Hagberg N. C., M.Sc. Thesis, "Key Attributes for Successful Leadership in Construction: Project Managers and Superintendents", Iowa State University, 2006
- [42] Patel H. A., M.E., "Study of Factors Affecting Material Management for Construction Firms", Gujarat Technological University, May 2015
- [43] Prajapati N., M.E., "Factors Affecting Human Resource Management of Major Construction Firms", Gujarat Technological University, May 2015

APPENDIX A



QUESTIONNAIRE PART- I
DETAILS OF RESPONDENT



NAME _____

COMAPANY _____

EMAIL _____

WEB _____

TELEPHONE _____

FAX _____

ADDRESS _____

EXPERIENCE IN RELEVANT FIELD

- a) < 10 YEARS b) 15-20 YEARS
- c) 20-25 YEARS d) > 25 YEARS

AGE

- a) < 30 YEARS b) 40-50 YEARS
- c) 30-40 YEARS d) > 50 YEARS

PROFESSION

- a) PROJECT MANAGER b) CLIENT
- c) ARCHITECT d) CONTRACTER/SUPPLIER

QUESTIONNAIRE PART- II

MAIN QUESTIONNAIRE FOR SURVEY ON EVALUATION OF FACTORS AFFECTING ROLE OF PROJECT MANAGER FOR SUCCESS OF CONSTRUCTION PROJECT FOR GUJARAT

The factors influencing skills of project manager with references to success of construction project are divided into 6 different main skills. Please tick in the appropriate field and show your perceptions about the impact of skills of project manager for success of construction project.

Give your response as the importance of these individual factor on role of project manager with reference to success of construction project as follows:

| SR NO | QUALITIES | IMPORTANCE OF SKILLS OF P.M. FOR SUCCESS OF CONSTRUCTION PROJECT | | | | | |
|-------|--------------------------|--|-------------------|------------------------|-------------------|------------------------|--|
| | | 1. Very Less Important | 2. Less Important | 3. Neutral (Important) | 4. More Important | 5. Extremely Important | |
| 1. | [A] PLANNING SKILL | A ₁ . Setting out clear goals and objectives | | | | | |
| 2. | | A ₂ . Client understanding | | | | | |
| 3. | | A ₃ . End user understanding | | | | | |
| 4. | | A ₄ . Good knowledge about time estimation | | | | | |
| 5. | | A ₅ . Good knowledge about cost estimation | | | | | |
| 6. | | A ₆ . Good knowledge about developing budget | | | | | |
| 7. | | A ₇ . Good knowledge about EIA | | | | | |
| 8. | [B] ORGANIZATIONAL SKILL | B ₁ . Team building | | | | | |
| 9. | | B ₂ . Skilled to maintained relations | | | | | |
| 10. | | B ₃ . Management support building skill | | | | | |

| SR NO. | QUALITIES | IMPORTANCE OF SKILLS OF P.M. FOR SUCCESS OF | | | | |
|--------|-----------|---|--|--|--|--|
|--------|-----------|---|--|--|--|--|

| | | | CONSTRUCTION PROJECT | | | | |
|--------|---|--|--|-------------------|------------------------|-------------------|------------------------|
| | | | 1. Very Less Important | 2. Less Important | 3. Neutral (Important) | 4. More Important | 5. Extremely Important |
| 11. | [C] LEADERSHIP SKILL | C ₁ . Steering Mechanism | | | | | |
| 12. | | C ₂ . Co-ordinations skill | | | | | |
| 13. | | C ₃ . Facilitating skill | | | | | |
| 14. | | C ₄ . Monitoring skill | | | | | |
| 15. | | C ₅ . Liaison skill | | | | | |
| 16. | | C ₇ . Motivating skill | | | | | |
| 17. | | C ₈ . Honesty and integrity | | | | | |
| 18. | | C ₉ . Self confidence | | | | | |
| 19. | | C ₁₀ . Willing to take direction | | | | | |
| 20. | | C ₁₁ . Result oriented mindset | | | | | |
| 21. | | C ₁₂ . Benefit realisation | | | | | |
| 22. | | C ₁₃ . Conflict resolving skill | | | | | |
| 23. | | C ₁₄ . Safety, health and welfare of labour | | | | | |
| 24. | | [D] ADMINISTRATIVE SKILL | D ₁ . Flexible management style | | | | |
| 25. | D ₂ . Forecasting skill | | | | | | |
| 26. | D ₃ . Negotiating Ability | | | | | | |
| 27. | D ₄ . Entrepreneurial skill | | | | | | |
| 28. | D ₅ . Good in record keeping | | | | | | |
| 29. | D ₆ . Skilled in problem solving | | | | | | |
| 30. | D ₇ . Strong in dealing with vendors | | | | | | |
| SR NO. | | QUALITIES | IMPORTANCE OF SKILLS OF P.M. FOR SUCCESS OF CONSTRUCTION PROJECT | | | | |

| | | | 1. Very Less Important | 2. Less Important | 3. Neutral (Important) | 4. More Important | 5. Extremely Important |
|-----|---------------------------------------|---|---|-------------------|------------------------|-------------------|------------------------|
| 31. | | D ₈ _Good at resources utilization | | | | | |
| 32. | | D ₉ _Generalist rather than specialist | | | | | |
| 33. | [E] TECHNICAL SKILL | E ₁ -Technical knowledge | | | | | |
| 34. | | E ₂ -Basic knowledge of computer | | | | | |
| 35. | | E ₃ -Basic knowledge of construction equipment | | | | | |
| 36. | | E ₄ -Advances knowledge of project management tools like CPM, PERT. | | | | | |
| 37. | | E ₅ -Basic knowledge of project management software like MS project, Primavera | | | | | |
| 38. | | E ₆ -Basic knowledge of project finance | | | | | |
| 39. | | [F] INTERPERSONAL SKILL | F ₁ -Identifying and managing risk | | | | |
| 40. | F ₂ -Quality control skill | | | | | | |
| 41. | F ₃ -Willing to learn | | | | | | |
| 42. | F ₄ -Communication skill | | | | | | |
| 43. | F ₅ -Controlling costs | | | | | | |
| 44. | F ₆ -Interrogative mind | | | | | | |
| 45. | F ₇ -Perceptiveness | | | | | | |

Thank you for sparing your valuable time. Your feedback will be used to analyze the factors affecting the project manager with references to success of construction project by using the above criteria for research from students' point of view. Additional remarks / any criteria which you may feel necessary to be included, but not covered in this study / suggestions: _____

Thanking you for giving valuable feedback and becoming part of our research work.

Signature of the Respondent: _____

FROM:

PATEL MAYANK ARVINDBHAI

M.E.Construction Engineering and Management