



A STUDY ON FACTORS AFFECTING THE PERFORMANCE OF CONSTRUCTION PROJECT

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Abstract: Construction project's success depends on how well it performs. There are many factors affecting construction performance resulting in construction delay or construction failure. The purpose of the study is to determine the factors influencing construction project efficiency, and to generate perceptions of their relative importance. The questionnaires have been distributed to main project participants. A systematic analysis of the literature has been implemented to produce a collection of variables that are thought to influence project performance. The findings of the survey show that the most significant factors influencing the success of a project are: escalation in material cost, quality and shortage of materials, safety training, technical capability of site engineer, positive attitude of project participants, climatic conditions and suggestions are made for addressing all of those factors.

IndexTerms-Analysis,survey,performance

1. INTRODUCTION

Construction industry plays a key role in the growth and achievement of the goal of the community. Construction industry is one of the main, contributing to about 10 percent of developed countries Gross National Product (GNP). Construction industry is competitive in the nature, with the largest number of parties involved such as customers, contractors, owners, consultants, stakeholders, shareholders. Quality is consistent with factors such as time, expense, price, satisfaction of customers, efficiency and health. There are some other real causes such as suspensions, diagram modifications and style changes. Certain factors influencing the success of construction projects include inadequate management team, direction, inexperienced participants, poor teamwork, lack of enthusiasm, insufficient facilities for infrastructure, political problems, cultural issues and poor economic conditions. Factors such as inefficient leadership, weak site management, unskilled labours, and equipment failure play a very significant role in construction delays. Therefore the study of cost performance factors is important to for the efficient successful completion of construction project.

2. RESEARCH METHODOLOGY

GENERAL

The Construction industry is an important and challenging industry in the world. In the construction sector, performance factors, there are numerous factors that influence the performance of the construction project. Performance factor checking is the progress of any construction project.

The key concern for any profit-oriented organization is to improve the success factors. The performance factors can be described as the input-output ratio.

Most parts of the construction industry have faced chronic problems such as poor health, unsafe working conditions and insufficient efficiency. Such issues were listed as factors influencing the performance of the project.

OPINION SURVEY

Survey is a technique for collecting a majority of people's results. Surveys offer a range of reasons, and can be performed in several ways. Surveys can be guided via a printed questionnaire to collect information. By phone, by e-mail, in person or on the internet. This majority of the data can be collected by using methods to approach each member the same applies to inquiries. The members being interviewed may represent themselves, their employer or an organization in which they belong.

This section addresses analysis methodology. The present state of the infrastructure projects has been examined in this research work. The main aim of this thesis is to develop some tool and technique which can be used with optimum cost and desirable quality to complete the projects on time.

There are two phases to this project. The first step involves the preliminary information required for this analysis being gathered through examination of the literature. Analysis of the literature was done through various references. Based on the literature review, numerous factors influencing the project performance in the construction industry are listed.

The categories are listed as follows:

- Cost factors
- Time factors
- Quality factors
- Productivity of labours
- Client's satisfaction
- Environment factors
- Health and safety factors

The second step encompasses the preparation of a questionnaire based on the above criteria. Those questionnaires were circulated to engineers, owners, architects, contractors and reputed organizations by mail, and useful input was obtained.

The methodology used in this analysis is the implementation of the Relative Importance Index (R.I.I.). This is a method used to rate the different factors that influence the success of the project. The various factors listed on the scale of 1 to 4 depending on their impact on the project in this method. The higher the RII value, the more important is the performance factor.

The RII is obtained by applying the following equation:

$$\frac{4(n_4) + 3(n_3) + 2(n_2) + (n_1)}{4(n_4+n_3+ n_2+n_1)}$$

Where 1 to 4 are the ratings based on the impact of the survey to be collected which read as follows:

1=NIL, 2= LOW, 3=MODERATE, 4=HIGH

nx= number of respondents

3.RESULTS AND DISCUSSION

In this work, assessment of project performance is calculated as these factors are very important factors, which determine success of any project. Hence these factors have to be given a high degree of importance.

A questionnaire survey is performed in this research to identify the dominant factors in various groups, which have the greatest effect on the construction project's overall results. Relative importance index (R.I.I.) value criteria are used to analyse the result of the survey.

DOMINATING FACTORS FROM ALL THE CATEGORIES

The following are the dominant factors of the survey conducted from every group having the highest Relative Importance Index value.

Table 1. Dominant Factors.

SN.	Category	Dominating factor	R.I.I.
1	COST FACTORS	Escalation in material cost	0.85
2	TIME FACTORS	Delay due to material	0.80
3	QUALITY FACTORS	Quality equipments materials	0.83
4	PRODUCTIVITY OF LABOURS	Technical capability of site engineer	0.85
5	CLIENT'S SATISFACTION	Positive attitude of project manager and project participants	0.82
6	ENVIRONMENTAL FACTORS	Favourable climatic conditions at site	0.76
7	HEALTH AND SAFETY FACTORS	Safety training	0.77

4.CONCLUSION

Factors of project performance play a crucial role in making the project a success. The study deals mainly with the factors that influence the performance of the project, which is an important part of the construction project. The findings and mitigation steps resulting from this analysis are as follows:

The performance factors of the project analyzed here are an important part of any construction project, as it influences the timely completion of the project and also hikes the project costs.

- In cost factors, Escalation in material cost is identified to be the crucial factor having R.I.I. value 0.85. Thus these factors have to be controlled by well planned, storage and timely procurement of materials, optimize usage of the materials with minimum wastages.
- The most effecting factor in time factors is delay due to material shortage with R.I.I. 0.80, Thus procurement of materials should be well planned with adequate storage in order to prevent the delays
- In quality factors, quality material and equipments is identified as the factor with highest R.I.I. of 0.83. Use of quality materials and equipments is a important factor in a construction project to obtain the desired quality standards.
- Technical capability of site engineer is a leading factor in the category labour productivity with R.I.I. 0.85. Technical knowledge of site engineer tends labours work more efficiently to produce enhanced productivity.
- In clients satisfaction the most critical criteria affecting the project performance is positive attitude of project manager and project participants with R.I.I. value 0.82, this tends workers to work with effective optimistic mind set and execute the project smoothly to achieve desired quality and client's satisfaction.
- Favourable climate at site with R.I.I. 0.76 under environmental factors group. Unfavourable climatic conditions impact the progress of the project, and job preparation should be planned in such a way that the project is conducted smoothly. For example during the rainy season, indoor work may be planned and outdoor work may be planned during the summer.
- Safety training under category health and safety factors with R.I.I. 0.77 is the most critical factor. Accidents on sites are the major issue in construction industry. Safety training to the labours is very important to have the basic knowledge regarding the first aid, safety precautionary measures and safety procedures.
- Along with the above discussed conclusions it is very important to adopt the innovative concepts as well as the new techniques, to have a desired standards, quality and success.

4. REFERENCES

1. Raid Abdali, Yerevan Ali on “Factors Affecting on the Performance of Contractors in Construction Project: Bagdad, Iraq”, Journal of University of Babylon for Engineering Sciences, Vol. (26), No. (6): (2018).
2. Prachi R. Ghate, Ashok B. More, Pravin R. Minde, “ Importance of Measurement Labour Productivity and Its Improvement”, International Research Journal of Engineering and Technology (IRJET) Volume 05, Issue:07(2016)
3. Helen Ifedolapo Babalola, Oyewale Julius Ojo on “An Investigation into Factors Affecting the Performance of Public Construction Projects in Ondo State, Southwestern, Nigeria”, Civil and Environmental Research. ISSN 2224-5790 Vol. 9, 2016
4. Melba Alias, Dhanya R, Ganapathy Ramasamy on “Factors affecting cost performance: evidence from Indian construction projects”, International Journal of Science, Engineering and Technology Research (IJSETR) Volume 4, Issue 4, April(2015)
5. Saraf D. D. “Study of Factors Affecting Performance of Construction Project”, International Journal of Science and Research (IJSR) Volume 4 Issue 5, May (2015)
6. Melba alias, Dhanya R and Ganapathy Ramasamy on ‘Study on Factors Affecting the Performance of Construction Projects and Developing a Cost Prediction Model Using ANN’, International Journal of Earth Sciences and Engineering. ISSN 0974-5904, Volume 08, No. 05 October 2015.
7. K.C. Iyer , K.N. Jha on “Factors affecting cost performance: evidence from Indian construction projects”, International Journal of Project Management 23 (2005) 283–295

