



# Evaluation of Critical Success Factors In Construction Projects

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**ABSTRACT**— *The construction industry is dynamic in nature due to the increasing uncertainties in technology, budgets, and development processes. Nowadays, building projects are becoming much more complex and difficult. The project team is facing unprecedented changes. A project is completed as a result of combination of many events and interactions, planned or unplanned, over the lifetime for a facility, with changing participants and processes in a constantly changing environment. The study of project success and the critical success factors (CSFs) are considered to be a means to improve the effectiveness of project. However the concept of project success has remained ambiguously defined in the mind of the construction professionals. Consequently, this research is conducted in order to make an attempt to identify which variables influence the success of project implementation. Based on the results of the survey, we anticipate that patterns will emerge regarding the key performance indicators for measuring project success. These results could then be used in effecting successful projects. This study has chosen seventy seven factors categorized in seven groups that the questionnaire respondents were asked to rank and score. A SPSS software is used to identify the CSFs which, in descending order of importance, were found to be: Decision making effectiveness, Project Manager's experience, Contractor's cash flow, Contractor experience, Timely decision by owner/ owner's representative, Site management, Supervision, Planning effort, Prior project management experience, Client's ability to make decision.*

**Keywords**— construction, Success factors, key performance indicators, SPSS software.

## 1, INTRODUCTION

The development and growth, particularly for developing countries depends on successful implementation of new projects. The construction industry in India is the second largest industry next to agriculture in terms of providing employment. The construction industry is dynamic in nature due to the increasing uncertainties in technology, budgets, and development processes. Nowadays, building projects are becoming much more



complex and difficult. The project team is facing unprecedented changes. The study of project success and the critical success factors (CSFs) are considered to be a means to improve the effectiveness of project. However the concept of project success has remained ambiguously defined in the mind of the construction professionals. Consequently, this research is conducted in order to make an attempt to identify which variables influence the success of project implementation. In construction industry we are in need for accurate and consistent information at every stage due to the diversified nature of works and complex – inter related activities. Proper planning is essential for achievement of any pre-determined objective. Without proper planning, adherence to scheduled time and cost would be a matter of chance. A project is completed as a result of combination of many events and interactions, planned or unplanned, over the lifetime for a facility, with changing participants and processes in a constantly changing environment. The factors which are more critical to project success than others are called Critical Project Success Factors (CSFs).

## 2, OBJECTIVES

The main objectives of this investigation includes

- Identification of critical success factors of construction projects.
- Define the critical factors that lead to project success.
- Investigation of the most important critical success factors for construction projects, based on accumulative knowledge and judgment of experts (owner/owner representative, consultant, and contractor) in the construction industry and Suggesting remedial measures.

## 3, SIGNIFICANCE OF STUDY

- Identifying the CSFs from top successful local experts in the construction industry, one will gain insight and understand better how their business firms remain competitive and excel in the operating environment.
- The findings of the research are likely more relevant and applicable to all companies, though there are other generalizable aspects.
- If project participants can predict probability of success better, they can take steps to:
  - Avoid unsuccessful projects,
  - Identify good projects worth pursuing, and
  - Identify problems on current projects and take corrective tasks.
- The concept of CSF may be applied to the project itself, the consortium that sponsors the project the political, social, and economic environments where the project is located.

## 4, METHODOLOGY

- Collection of Literature Review.
- Carrying out Exploratory Research.
- Identifying the success and failure attributes.



- Conducting Survey.
- Selecting the firms / persons.
- Obtaining Commitment from firms.
- Collection of answers and analysis of data.
- Interpretation of results.
- Conclusion

## **5, FACTORS AFFECTING PROJECT SUCCESS**

A number of variables influencing the success of project implementation were identified following a thorough literature review. A careful study of previous literature suggests that CSFs can be grouped under seven main categories. These include:

- Project Management Factors
- Procurement-related Factors
- Client-related Factors
- Design team-related Factors
- Contractor-related factors
- Project Manager-related Factors and
- Business and Work Environment-related Factors.

## **6, PROJECT MANAGEMENT FACTORS**

Project management action is a key for project success tools, the project managers would be able to plan and execute their construction projects to maximize the project's chances of success.

- Communication system
- Control mechanism
- Feedback capabilities
- Planning effort
- Coordination effectiveness
- Decision making effectiveness
- Project monitoring
- Control of sub-contractors' work
- Prior project management experience
- Constructability program

## **7, PROCUREMENT-RELATED FACTORS**

A number of researchers identified the importance of procurement factors defined the scope of procurement as the framework within which construction is brought about, acquired or obtained. Therefore, two attributes are used to measure this factor; they are procurement method (selection of the organization for the design and construction of the project) and tendering method (procedures adopted for the selection of the project team and in particular the main contractor).

- Project delivery system
- Project Bidding Method
- Public-Private contract mechanism



## **8, CLIENT-RELATED FACTORS**

Literature defined project participants as the key players, including project manager, client, contractor, consultants, subcontractor, supplier, and manufacturers

- Influence of client/ client's representative
- Client's experience
- Client's knowledge of construction project organization
- Client's confidence in construction team
- Owner's clear and precise definition of project scope & objectives
- Timely decision by owner/ owner's representative
- Client's emphasis on low construction cost
- Client's emphasis on high quality of construction

## **9, DESIGN TEAM-RELATED FACTORS**

Designers play a vital role as their work involves from inception to completion on a project.

- Design team experience
- Project design complexity
- Mistakes/ delays in producing design documents
- Design team's contribution to construction

## **10, CONTRACTOR-RELATED FACTORS**

The main contractor and subcontractors start their main duties when the project reaches the construction stage.

- Contractor experience
- Site management
- Supervision
- Extent of Subcontracting
- Contractor's cash flow
- Effectiveness of cost control system

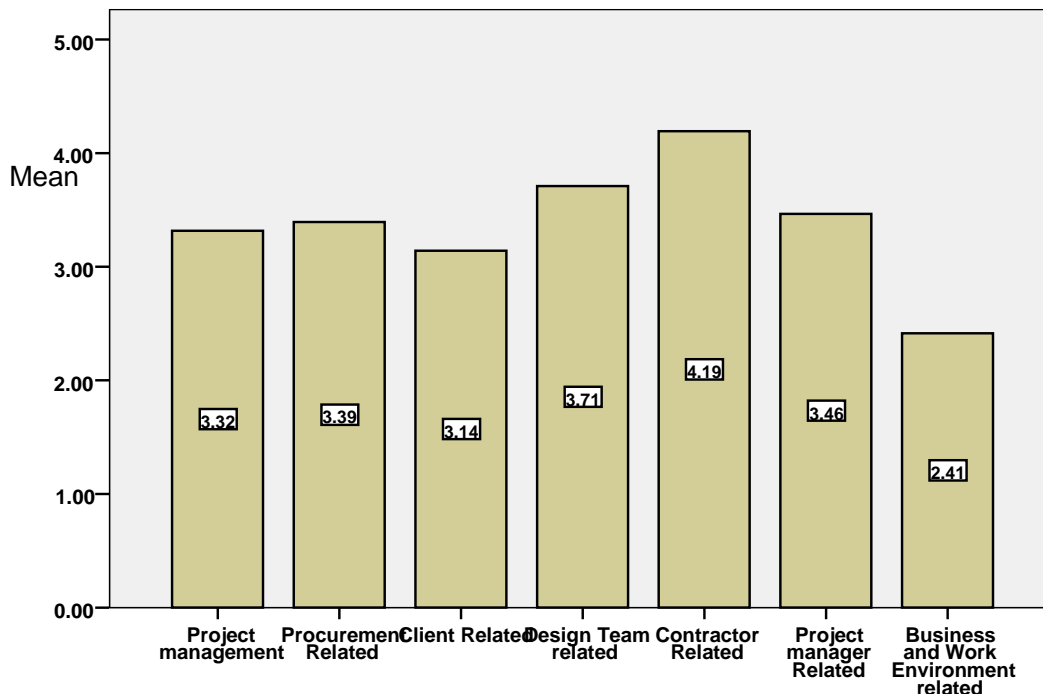


FIG.1 CATAGORIES OF CRITICAL SUCCESS FACTOR

## 11, CONCLUSIONS

The initial objectives of this research were to define the critical factors that lead to project success. These, general objectives were met through the accomplishments of the research. More importantly, a list of specific factors were identified as critical to the success of projects. The top five (5) CSF categories are Project Management Factors, Contractor-Related Factors, Project Manager Related Factors, Procurement Related Factors, Design Team-Related Factors,

This is to say that factors in above categories share a major position of importance, while other categories do not have the impact on project success. The top ten Critical success factors are Decision making effectiveness, Project Manager’s experience, Contractor’s cash flow, Contractor experience, Timely decision by owner/ owner’s representative, Site management, Supervision , Planning effort , Prior project management experience, Client’s ability to make decision

This paper focuses on the Critical success factors and they can take steps to avoid unsuccessful projects, identify good projects worth pursuing and identify problems on current projects and take corrective action.

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