# Evaluation of Critical Success Factor in Construction Projects

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Abstract- The development and growth, particularly for developing countries depends 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. Unfortunately, some projects were completed successfully but some were not completed on time, over budget or being cancelled. 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.

Index terms- Survey Questionnairy, Data analysis, Ranking Method

# INTRODUCTION

**GENERAL**: 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. Unfortunately, some projects were completed successfully but some were not completed on time, over budget or being cancelled. 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.

Objectives: To study of the critical factors that lead to project success in the Gujarat construction industry to

enable parties to rapidly assess the possibility of a successful project from their viewpoint.

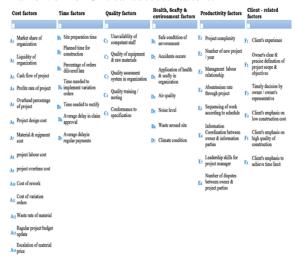
- To improve the key factors affecting on different Residential projects and their behaviour
- Lack of planning
- Lack of construction method
- Lack of experts
- To evaluate the critical factor affecting the delay

# Scope of Study

- Investigation of the most important critical success factors for Gujarat construction industry, based on accumulative knowledge and judgment of experts by RII, FI method (owner/owner representative, consultant, and contractor) in the construction industry and suggesting remedial measures
- Project can complete in given time or before schedule time

Problem summary: - The study of the project success and the CSF is considered to be a mean for improving the effectiveness of project. Thus the project managers need proper understanding of critical success factors and how to mitigate them. The purpose of this study is to systematically investigate the causes for project success. Constructions projects are frequently influenced by success factors. It can help construction companies to reach their intended goals with greater efficiency. Most of the critical success factors such as factors related to project performance, factors related manager's organisation, factors related to project, factors related to external environment are likely to apparent from this study. This study ful to identify factors that influence project success.

### Frame work of Critical success factors:



## Summary of expert review:

Cost Factors		Time factors		QUALITY FACTORS		HEALTH, SEAFTY & ENVIRONMEN T FACTORS		PRODUCTIVIT Y FACTORS		CLIENT- RELATED FACTORS	C	CONTRACTOR RELATED FACTORS	!	RESOURCE RELATED FACTORS
1	ŀ		ŀ		J		'n		b		h		ŀ	
Market share of organization	В	Site preparation time	Cı	Availablity of competent staff	D <sub>1</sub>	Safe condition of envoronment		Project complexity	F <sub>1</sub>	Client's experience	G <sub>1</sub>	-	Н	Land aquisation
Liquidity of A: organization	B <sub>2</sub>	Planned time for construction	C	Quality of equipment & raw materials	D <sub>2</sub>	Accidents occure	E2	Number of new project / year		Owner's clear & precise defination of	G:	Contractor client relationship	H <sub>2</sub>	Availablity of construction material
A <sub>3</sub> Cash flow of project	Bı	Percentage of orders dilivered late	Cı	Quality assesment	D <sub>3</sub>	Application of health & seafty	E3	Managment labour relationship	F <sub>2</sub>	project scope & objectives		Skill & experience of	Н	Availablity of equipment
A Profite rate of project	Bį	Time meeded to implement variation orders	٠,	system in organization Quality training	D	in organization Air quality		Absenteeism rate through	F <sub>3</sub>	Timely decision by owner / owner's		Contractor labour	Ц	Escalation of material
Overhead As percentage of project	Bş	Time needed to rectify	C	/ meting  Conformance to	_	Noise level Waste around	_	project Sequencing of		representative Client's	91	relationship	Н	manpower
As Project design	B	Average delay in claim approval	Ci	specification	D <sub>7</sub>	site Climate condition		work according to schedule Information	F4	emphasis on low construction			Н	Project labour cost
A7 cost	В	Average delayin regular payments					E6	Coordination between owner & information		Client's emphasis on				
As Cost of rework		Palmann						parties	F5	high quality of				
An Cost of Variation orders							<b>E</b> 7	Leadership skills for project manager	F <sub>6</sub>	Client's emphasis to achieve time				
material  Ragular project  Au budget update							E <sub>8</sub>	Number of disputes between owner & project parties		limit				

# SURVEY QUESTIONNAIRE

Relative importance index:

The Factors Affecting Success of Construction Project relative importance index method (RII) was used here in to determine owners, consultants, and contractors perceptions of the relative importance of the identified success factors.

 $RII = \sum w A X N$ 

RII = relative importance index

W = weight given by the respondents (1-5)

A= highest weight (5)

N = total number of respondents

Frequency index:

The Factors Affecting Success of Construction Project of occurrence index method (FI) was used here to determine owners, consultants, and contractors perceptions of the frequency of the identified success factor.

Frequency Index (F.I.) (%) =  $\Sigma$  a (n/N) \* 100

Severity index:

A formula is used to rank causes of delay based on severity as indiacated by the participants

Severity Index (S.I.) (%) =  $\Sigma$  a (n/N) \* 100

Importance index:

The importance index of each cause is calculated as function of both frequency and severity indices, as follows

Importance Index (%) = [F.I. \* S.I.]/100

#### **CONCLUSION**

Based on value of RII & FI we can rank the factor as per their importance and frequency of occurrence for completion of project successfully.

In accordance with the most important factors contractors should recommend the availability of material, equipment's and also quality of materials should be of a greater interest for contractors in order to improve cost, time, and quality performance. This can be done by applying quality training and meetings that are necessary for performing an improvement. Apparently the least important factors can prove to be guidelines for its consideration and effects on project success rate.

Outcome of this study can be useful to construction stakeholders like, contractors, developers& clients. To put emphasis on highly ranked factors out of above list which can help to achieve highly success rate of the project in terms of timely completion along with quality & cost

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