

To Study And Analysis Of Critical Success Factors For Finalization Of Construction Project By As SPSS

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Abstract: The construction industry is a key sector in the fulfillment of a country's development agenda. However, the industry is usually referred to as a "backward industry" in the performance context when compared with the other industries. The problem of failure in the construction industry either due to delays or overruns and loss is a global phenomenon. The goal of all parties involved in construction projects is to successfully complete the project on schedule, within planned budget, with the highest quality and in the safest manner. Construction projects are frequently influenced by success factors that help project parties reach their goal as planned for successful project completion. This paper considers the factors with three phases of the construction. With calculation of critical factors with help of data available and Success factors can be calculated with help of SPSS Tool. We are able to define some prominent

financial management that can lead to company success in the construction industry. Aim of this research paper to identify the critical factors leading to construction company success with the help of literature & field survey. The Indian construction is already booming and is poised to see a bigger growth in future. Some of the factors in favor of the Indian construction industry are availability of cheap labor, availability of qualified professionals, excellent opportunities at present and a large no. of construction companies.

Objective of the research.

- 1) The objective of this paper is to identify and define the critical factors important for completion of construction project and highlights its effect on construction sector.
- 2) Questionnaire is prepared to mark the critical factors. And after analysis of the report main factors are considered.
- 3) A revised model is to be prepared for removal of critical factors and helping to reduce delays and increase.

1.2 Scope of Study.

The study will investigate the existing critical factors related to delay of the topic related to construction sector. From the point of view a contractor this topic is to be dealt with factors affecting the projects. Managerial factors are considered and Questionnaire is prepared accordingly which help to elevate the chances of taking the topic to the next hierarchy.

1.3 Literature Review.

As per Aaron J. Shenhar, if a project is completed on time, within the agreed budget and set quality, referred to as the 'golden triangle', then the project is deemed successful. Evidence suggests that this is far from the truth. Hence, the construction industry needs to pay special attention to critical success factors, besides the 'golden triangle', if it is to survive the challenges posed by globalization.

As per G. Arslan, and S. Kivrak, The traditional approach to success in the construction industry is to focus on the ability to plan and execute projects. Traditionally, the success parameters for projects in this industry are cost, time and quality. The definitions of failure are the inability of a firm to pay when they are due. In recent years, there has been an increase in the studies of critical success/failure factors especially in project management subject.

As per Anton de Wit, if the project meets the technical performance specification and/or mission to be performed, and

Keywords: Delays, Overrun, Critical Success Factor

1. Introduction

As construction is dynamic due to the growing uncertainty in technology, budget and development processes and therefore a risky business, and there is always a chance of business failure, businesses need to consider parameters that can directly affect their business success. A construction project is completed as a result of a combination of many events and interactions, planned or unplanned, over the life of a facility, with changing participants and processes in a constantly changing environment. Certain factors are more critical to project success than others. These factors are called critical success factors (CSFs). The construction industry is also an area where there is strong competition due to a large number of construction contractors. There have been many factors such as qualified employees, quality workmanship and

if there is a high level of satisfaction concerning the project outcome among key people in the present organization, key people in the project team and key users or clientele of the project effort. The appropriate criteria for success are the project objectives. The degree to which these objectives have been met determines success or failure of the project.

As per Slevin and Pinto, following are some of critical factors for project success,

- Project Objective and Mission
- Support by Top Management
- Project Schedule and Work breakdown Structures
- Communication and interaction with Clients.
- Personnel like Recruitment, selection, and training of the necessary personnel for the project team.
- Technical Tasks Monitoring and Feedback

As per Guru Prakash Prabhakar, there are many ways to improve project performance like learn from the past experiences, projects, Focus on the goal, Follow a standardized process, Bypass an obstacle, Reuse previous work, Record the work being done, Maintaining ongoing communications etc..

As per Amaka Ogwueleka, investigates the critical success factors in fuencing project performance in Nigeria. The result revealed six critical success factors which can influence project performance. These factors were objectives management, management of design, technical factors, top management support and risk management

The Afshin Pakseresht and Dr. Gholamreza Asgari, identified and ranked different critical success factors in construction project. The critical success factor for construction projects are: Technical and economic feasibility of the project for required resources , all previous records for project manager, Project WBS, Experience of the contractor about the project concept, Ability of on-time decision making ,Project control management , Priority of purchasing the needed items considering the project schedule , Mechanism of forming an experienced technical-legal team at the time of contract , Authority in Financial decision and cost control by considering project type and size , financial payment concept in relation to the project stakeholders and Plan.



2 MATERIAL AND METHODS: (Data from Construction Site)

Methodology adopted for the above objectives are given below:-

Topic Finalization guidance by the internal expert panel
Problem Identification in accordance with the existing system of Critical Factors approach
Literature Review and Study and categorization of critical factors
Interviewing expert in Field and preparation of Questionnaire
Data Collection and model preparation from 10 Major Sites in Navi Mumbai and Nashik
Analysis with help of Social Index Package to refine data
Modification in this existing Model
Reference and Conclusion

3 Data Collection

This data collection is conducted in two parts

- a. Factors to be defined from Literature Review Conducted and categorised on basis of expert opinion
 - b. Questionnaire is to be framed based on above critical factor linked to the LIKERT Scale.
- a) CSFs have been used significantly to present or identify a few key factors that organizations should focus on to be

successful. In actuality, its identification is a very iterative process. According to LIMBACH Holdings, Pennsylvania the following can be considered as summary in our dissertation choosing the critical factors.



We have tried to relate it with the Construction Industry for Indian scenario and especially for metropolitan's cities of Maharashtra.

The Project is divided into three Phases and so are the Critical Success Factors

PRE CONSTRUCTION PHASE

- Feasibility of the goals (Time, Location)
- Project Strategy(BOT, BOS etc)
- Design and Planning(Structural Design , MIX Design , Work Breakdown Structure)
- Funding (Central, State, Private).
- Human Resource (Skilled, Unskilled Labor)
- Legal Issues (Environmental Clearance, Safety Certification)

EXECUTION PHASE

- Cumulative Strategy (Men, Material, Money).
- Schedule, Logistics, Funds.
- Correction of Delays (Contract, Political Unrest)
- Estimation and Price Valuation (Considering the Inflation)
- Accidents (Safety Program, Compensation)
- Project Appraisal (Incentives and Promotions).



POST CONSTRUCTION PHASE

- Commissioning (Hand Over)
- Detailed Estimation for Valuation

- Maintenance and Final Supervision
- Compensation or Penalty (In terms of late delivery)
- Future Scope.(Blueprint for Future Project)

The above mentioned can be considered as the broad category of the critical success factor in a construction sector

b) Preparing a Questionnaire based on the three categories of the factors and using the LIKET Scale method

A psychometric response scale primarily used in questionnaires to obtain participant's preferences or degree of agreement with a statement or set of statements. Likert scales are a non-comparative scaling technique and are unidimensional (only measure a single trait) in nature. Respondents are asked to indicate their level of agreement with a given statement by way of an ordinal scale. Each specific question (or "item") can have its response analyzed separately, or have it summed with other related items to create a score for a group of statements. This is also why Likert scales are sometimes called summative scales. For our example we will evaluate the results as a whole using descriptive statistics, and also the specific results for all the question keeping them with the related question to construction sector. From 1 as completely disagree to most likely agreed. as 5.

a) PRE CONSTRUCTION PHASE

Participant:						
Company/Firm:						
Address of Project :						
Designation and Contact Number :						
1 st Phase	Related Question	1	2	3	4	5
Feasibility	How much you rely on feasibility as CSF's?				4	
	How much to consider a non-feasible project?		2			
Project Strategy	Up to What level u agree on considering strategy at early stage of the project					5
	How much you co relate project strategy with project schedule				4	
Design and Planning	How much you think uniqueness of design matters as CSF's			3		
	Up to which level WBS Structure should be accurate				4	
	Should non availability of funds at the start of the be considered as Success factor.			3		

Funding	How Much difference dos to have finding from private agencies and government agencies.				4	
	Up to what level project rely on government fund than privately available fund			3		
Human Resource	Deployment Skilled labor over unskilled labor.					5
	Use of Skilled operator for Highly operated equipment				4	
Legal Issues	How severe can a stay on clearance certificate can affect the project					4
	How does being clear about every legal aspect helps he project			3		
	Total :	0	1	4	6	2
Remark						

The next format is same but its related to the topic of critical factors determined during the execution phase of the construction. The wordings and form of question chosen are strictly this pattern related.

Participant:						
Company/Firm:						
Address of Project :						
Designation and Contact Number :						
2 nd Phase	Related Question	RESPONSE				
		1	2	3	4	5
Cumulative Strategy	How much you rely on Strategy as CSF's fro material			3		
	How much to consider a non-Strategic approach				4	
Schedule Logistics Funds	Up to What level u agree on considering Schedule at early stage of the project.				4	
	How much you co relate Logistics			3		
Correction of Delays	How much you think Software for Taking out the risk of delays.					5
	How much Human Error you Consider fro delay				4	
Estimation & Price Evaluation	Estimation be done at regular Interval.			3		
	Based on Estimation Should the price get					5

	fluctuated					
Accidents	Machine error over human error for more number of accidents.			3		
	Proper Compensation is a effective tool or just a social responsibility.				4	
Project Appraisal	How can u rely upon on oral form of appraisal			3		
	Regular Interval should be there for appraisal?					5
	Total :	0	0	5	4	2
Remark						

and such the third phase can also be included in this to determine the critical factor .

Participant:						
Company/Firm:						
Address of Project :						
Designation and Contact Number :						
3 rd Phase	Related Question	RESPONSE				
		1	2	3	4	5
Commissioning	How much you think commissioning should be perfect				4	
	How much you agree the commissioning should be preplanned during the 1 st Phase itself			3		
Detailed estimation for valuation	Should the valuation be carried as closely as possible to the Earlier estimation?					5
	Estimation should be calculated considering the upgradations at the last moment				4	
Maintenance & Final Supervision	Checklist should be provided for the last supervision check before handing over the structure				4	
	Maintenance cost to be incurred after the completion of the project			3		
Compensation or penalty	Should it be a pre-defined value				4	
	How much you are for the issue of penalty from a unbiased point of view.					5
	How much you agree on the point that current			3		

Future Scope	project becomes blue print for the future project.					
	Total :					
Remark		0	0	3	4	2

Now the after circulation of the data within the company the result is now put into SPSS Toll and will be applied this can apply as to be the future scope of the project.
In the following format the data can be collected.

Phase	Complimentary	Small		Medium		Large	
	Company Name	A	B	C	D	E	F
PRE	Feasibility	3	4	3	4	5	5
	Project Strategy	3	3	3	3	4	4
	Design and Planning	4	4	4	4	4	5
	Funding	4	3	4	3	4	3
	Human Resource	4	5	3	4	4	5
During	Legal Issues	3	4	5	4	4	5
	Cumulative Strategy	4	5	4	5	3	4
	Schedule Logistics	3	4	4	3	4	5
	Funds						
	Correction of Delays	4	4	4	3	4	4
	Estimation	4	3	4	3	3	4
POST	Accidents	4	3	4	4	3	4
	Project Appraisal	4	4	3	4	4	5
	Commissioning	4	4	5	3	4	4
	Detailed estimation	3	4	4	4	4	4
	Maintenance	4	3	4	4	3	5
	Compensation	4	3	4	5	4	4
Future Scope		4	4	4	5	4	4
Total							

	early stage of the project	
Human Resource	How Much difference dos to have funding from private agencies and government agencies.	
PHASE 2 (DURING PHASE)		
Cumulative Strategy	How much to consider a non-Strategic approach	
Correction of Delays	How much you think Software for Taking out the risk of delays.	
Estimation & Price Evaluation	Based on Estimation Should the price get fluctuated	
Project Appraisal	Regular Interval should be there for appraisal?	
PHASE 3 (POST PHASE)		
Detailed estimation	Should the valuation be carried as closely as possible to the Earlier estimation?	
Maintenance & Final Supervision	Checklist should be provided for the last supervision check before handing over the structure	
Compensation or penalty	How much you are for the issue of penalty from a unbiased point of view.	

After data collection it will be easy for us to understand what the different reason behind these Critical Success factors is so that they can cause penalties and ultimate loss at site for further works.

4. RESULTS AND ANALYSIS.

Results can be studied from the tolls like SPSS , MiniTab etc .We get that the question like the Legal Issues and strategy is to be developed with

Factors	Question	Remark
PHASE 1 (PRE- PHASE)		
Feasibility	How much you rely on feasibility as CSF's?	
Project Strategy	Up to What level u agree on considering strategy at	

5. CONCLUSION

As it is a paper and the research is ongoing till date but we can promise to have a better and suitable CSF 's for companies in Navi Mumbai region for Builders who cannot afford to have costly Construction management Software.

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