

Study on Success Factors in Construction Projects

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ABSTRACT- *Broadly discussed in the literature the concept of project success still remains ambiguously defined. The well known success criteria like time cost and quality does not provide any practical information of achieving of project objectives in an efficient way. Identification of main drivers of project success gain particular importance for companies in the light of highly competitive environment.*

Housing construction projects represent one of the largest sector in construction industry and India housing construction industry is considered to have one of the highest rate of return. However the amount of research related to Indian market is limited to few general economy overviews published by such organizations like World Bank and big consulting firms.

The main aim of this research is identification of the most influential success factors from the 26 factors identified in existing project management literature. The analysis was performed in a highly profitable housing construction industry with a focus on Indian market peculiarities.

A questionnaire survey was sent to 110 experienced housing construction project managers and 26 responses there received. Based on the findings of the questionnaire success factors were ranked according to their impact on project success. In addition success factors interrelationship was studied in order to study the importance of each factor in depth.

The findings of the research contributed both to project management field of study and India construction market research. A primary and support areas of success factors were identified which might serve as a practical guide for managing housing construction projects in India. The most important success factors were defined: economic environment, project manager's experience and qualification of project team. Project managers in housing construction industry in India would probably consider being more aware of the dominance of environment and human recourses related success factors. Additionally, success factors interrelation matrix might be used as a success diffusion map.

Further research might be also essential in this area like studying different types of project and expanding the focus of current study or analysing the importance of success factors on different stages of the project life cycle.

I. INTRODUCTION

The construction industry is one of the most used examples of project based industries. It might be characterized as complex, cost and time consuming and risky. However, construction projects are also dynamic and challenging which attracts capital, new technologies and brilliant brains. Housing building projects particularly represent one of the largest sectors of the construction industry in the most developing economies of the world.

Indian economy is recognized as a highly attractive one in terms of general business perspective (The World Bank, 2008) and particularly for investments in construction projects (CEEC, 2008; USCS, 2008). During the 2007 the amount of construction firms increased on 15% comparing to year 2006 and on 70% during last five years. Capital investments growth reached 50% during 2007 year and 480% comparing to 2002 (USCS, 2008).

However, other sources indicate a high risk for a business in this sector. According to Indian Statistics there are more than 30% of enterprises in construction industry recognized as a detrimental during 2007. Moreover, IBRD, Doing Business Report (2008) indicates plenty of parameters supporting complicity of success on this market. It seems axiomatic that every project tends to succeed.

However, current dual situation in Indian construction industry stresses a challenge of deliver a success outcome of projects and arise a question on which factors stipulate project success in this market.

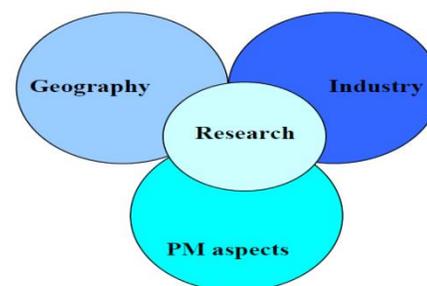
Aim of the study

The main aims of this study are:

1. To identify a list of success factors significant in housing construction projects in India.
2. To investigate possible interrelations between success factors in housing construction projects in India.

Scope of the research

As already indicated in the section above, this research mainly deals with success factors analysis in the project management knowledge area. However, since this area is quite broad this sections aims to provide clarification on the extent of the current research. The scope of the study is bounded by three main characteristics as schematically shown in Figure



Scope of the study

In terms of geographical coverage this study is dedicated to one single country – India. Only managers who work in this country participated in the survey. None of the interviews or questionnaires was conducted in other locations.

Housing construction industry the choice of which will be grounded in the following section is the second boundary of research scope. This specific section excludes other types of construction projects like civil engineering or industrial construction as well as all other types of projects.

In addition, project success factors were chosen from different project management aspects as the main focus of the study. Regarding this area the scope of the research is limited to identification of the most important factors for project success as well as finding relationship among different success factors.

II. LITERATURE REVIEW

Prathamesh. P. Satankar, Asst. Prof. S. S. Jain, et al.,(2015)

This paper aims to identify and study the constraints and the contribution factors which lead to the success of a project. The projects usually suffer and fail due to diligence, poor project planning, poor financial management or operations oversight. Mistakes made in the initial phases of the property development process are compounded and are usually impossible to overcome. For these obvious reasons the initial feasibility, assessment and planning stages are the most critical for the overall project success.

This paper analyzed most critical success factors by analytical network process method. If any construction companies try to implement these success factors then performance of project may increase. The graphical presentation of the factors.

Mr.A.G.Rajasekaran, Dr. P.Valli et al.(2014)

This paper aims at investigating factors influencing success in construction project. The objectives are identify success factors existing in projects and also to examine the important index of these success factors in construction project. This study was conducted detailed manner through questionnaire and collecting the response from construction experts. There are seventeen factors identified as project success factors and based on this questionnaires are framed for survey. Detailed questionnaires are floated to Engineers, Site Engineers, Contractors and the responses are collected. It gives a background of the successful factors. Problems and constraints of the construction projects are also analyzed.

Department must ensure that estimates are prepared sufficient early and accurately. Department must ensure to incorporate all necessary suggestions/requirements of the users during planning stage itself by proper liaison and also conduct proper soil investigation before tender action. Department must create a system for transferring experience or knowledge between projects. A new strategy must be introduced for the selection of contractors other than the present system of lowest tendered at least for important projects.

III. RESEARCH METHODOLOGY

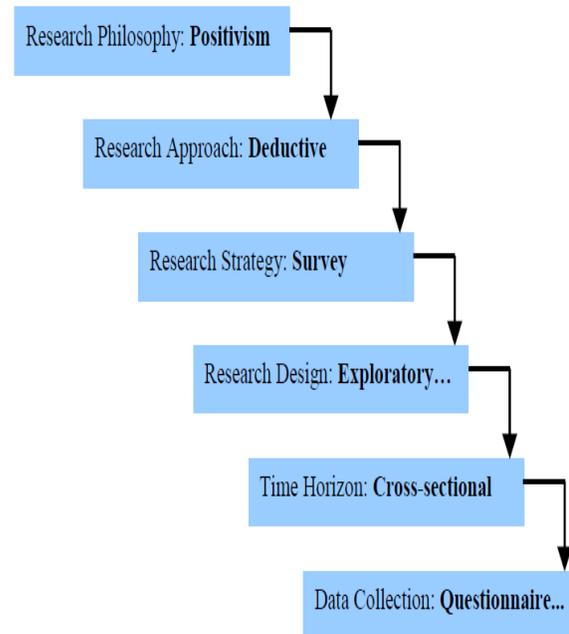
According to Cooper and Schindler (2003) the next step in the research process after studying the literature, finding 'management dilemma' and identifying the research questions is deciding on the most suitable methodology approach. It might be considered that the research approach limit itself to the data collection methodology chosen, i.e.

interview or questionnaire. However Saunders *et. al.* (2007) argues that it is just the core of the ‘research onion’ and in order to get to this level all the other layers ‘should be peeled away’.

Therefore the main contribution of this chapter is describing researchers’ general study approach followed by discussion and motivation of data collection method itself. In addition the grounding of data collection tool chosen is presented as well as description of design of the instruments used in the research.

This section might be divided for convenience in two main parts. The first part deals with identification of the underlying philosophy of the study. It is based on the models and frameworks adopted from Saunders *et. al.* (2007), Hair *et. al.* (2003) and Bryman and Bell (2003) and touches upon such questions like research philosophy, research approach, research strategy, design, time horizons and the data collection methods suitable for this study. Picture 3.1 provides a graphic summary of the first part.

The second part elaborates on the discussion of the data collection techniques chosen for the research. A detailed description of methods design and flow of research process, limitation of the methodology and ethical considerations are summarized in this part as well.



Methodology approach of the study

IV FINDINGS AND DISCUSSIONS

Research flow and sample description

Years of business experience	Percent	Cumulative percent
Less than 2	8	8
2 to 4	31	39
5 to 7	38	77
More than 8	23	100

Project managers’ business experience

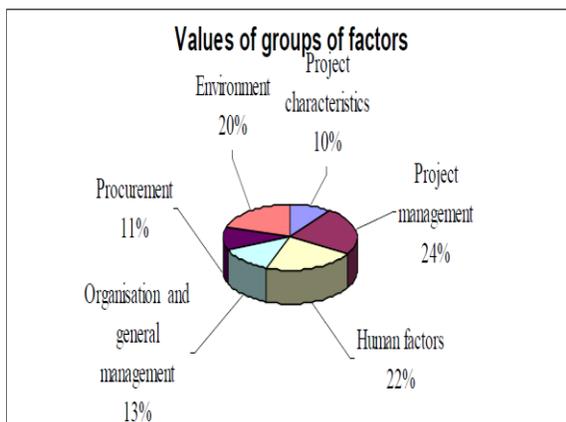
Category	No of responses	Percent	Cumulative percent
Asia	10	38.5	38.5
India	15	57.7	96.2
Worldwide	1	3.8	100
Total	26	100	

Respondents' area of operations

Company size	Number of responses	Percent	Cumulative percent
Small (up to 500 employees)	10	38.5	38.5
Medium (from 500 to 4000 employees)	14	54.0	92.5
Large (more than 4000 employees)	2	7.5	100
Total	26	100	

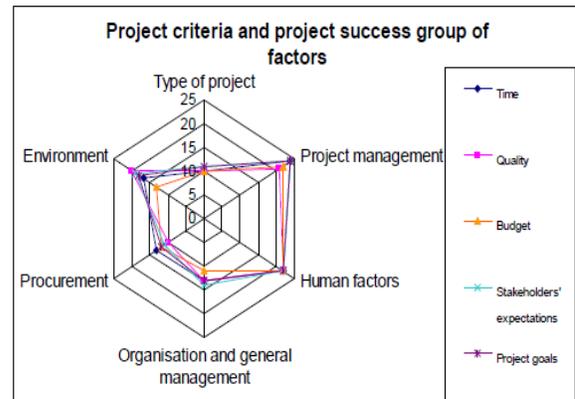
Respondents' company size in terms of employees

Groups of success factors overview

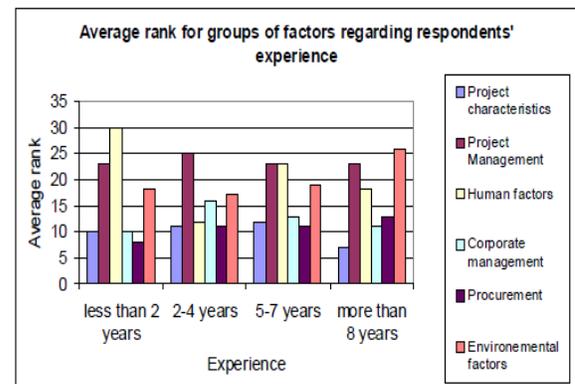


Values of groups of factors for construction projects in India

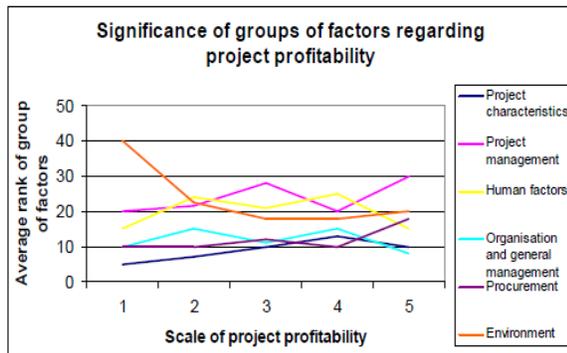
Groups of success factors analysis



Project success criteria and project success groups of factors

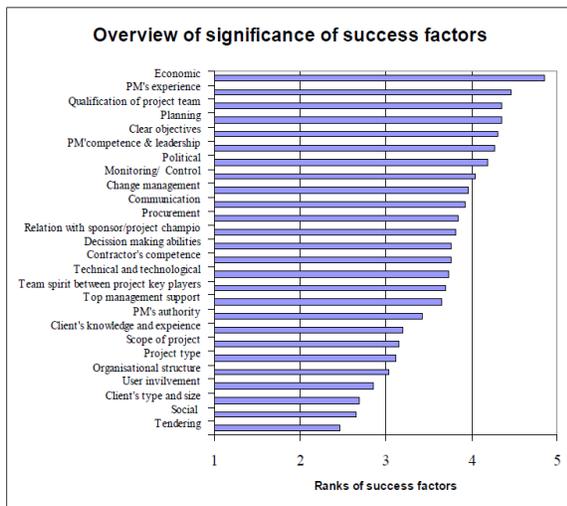


Average ranks for groups of factors regarding respondent' experience



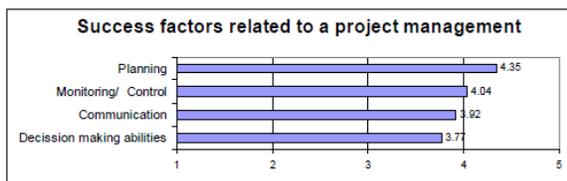
Changing significance of groups according to a project profitability growth

Success factors overview



General overview of success factors significance

Success factors belonging to the project management group



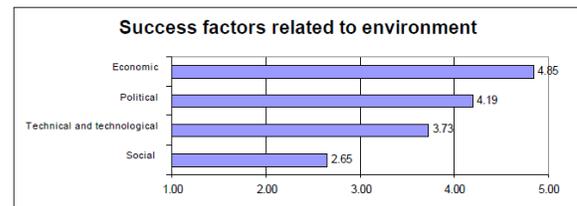
Significance of success factors related to the project management group

Success factors belonging to human group



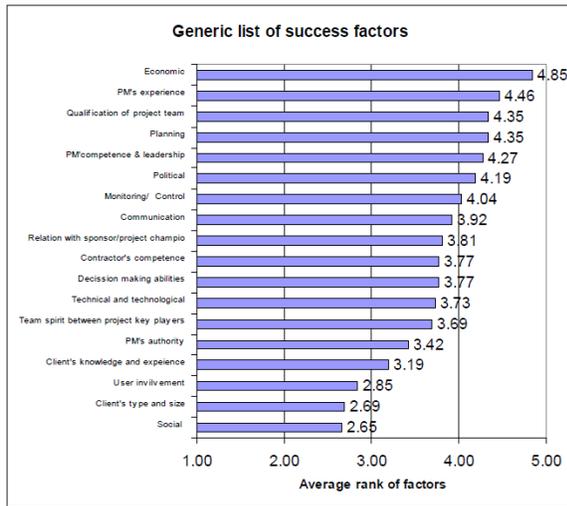
Significance of success factors related to the human group

Success factors belonging to environmental group



Significance of success factors related to the environment group

Summary of success factors analysis



A generic list of significant factors influencing project success in Indian construction industry

Success factors interrelationship

Correlation coefficient range	Strength of association
0.91 – 1.00	Very strong
0.71 – 0.90	Strong
0.41 – 0.70	Moderate
0.21 – 0.40	Small
0.00 – 0.20	Negligible

Rules of thumb Adopted from Hair et al. (2007)

Analysis of highly correlated success factors

	communication	social	political
team spirit between key players	0.77		
contractors' competence		0.68	
economic			0.61

Highly correlated success factors

Analysis of moderately correlated success factors

	Decision making abilities	Client's type and size
Project manager's experience	0.56	0.55

Project manager's experience interrelationship

	Client's type and size
Monitoring and control	0.52

Client's type and size interrelationship

	Qualification of project team	Change management	User involvement	Project scope/size
Client's knowledge and experience	0.49	0.49	0.46	0.40

Client's knowledge and experience interrelationship

	Technical and technological	Communication	User involvement	Top management support
Contractors' competences	0.52	0.49	0.42	0.42

Contractors' competences interrelationship

	User involvement	Procurement	Top management support
Tendering	0.51	0.48	0.48

Tendering interrelationship

IV. CONCLUSIONS

The current section presents the conclusion of the research project followed by limitations of the study and suggestions for further research for an interested reader.

1. A questionnaire based survey investigated the main drivers of housing construction project success in India and found some strongly and moderately interrelated success factors.
2. Theoretical framework developed from existing project management literature in the success factors area served as a basis for data collection. Based on 26 responses obtained both the research questions have been answered.
3. Therefore the general analysis of significance of groups of success factors was broaden with detailed investigation of importance of the same groups but for different interpretation of project success. (For question *Identification of significance of success factors for housing construction industry in India success factors*).
4. Based on the analysis of the significance of each group for overall project success the study shifts its focus to primary project success area and single factors which form these groups and on their impact on project success
5. Separate analysis of groups in the primary area helped to identify the most influential individual success factors. Contribution of these factors to overall project success

seems to drive the importance of the groups these factors belong to.

6. It might be a clear indicator for management that changes in one of the parameter is likely to influence the other one as well. (For question *Identification of possible interrelations between success factors in housing construction projects in India*).
7. Analysis and discussion of these data helped to answer the second research question by clearly indicated the interrelations between different success factors. It might be concluded that success drivers do not influence just the dependent variable of project success.

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