

# Determining Factors Affecting Critical Success of Construction Project: Review

Anatol Berhanu Gobana<sup>1</sup>, Habtamu Miju Teshome<sup>2</sup>, Lemi Tasisa Negewo<sup>3</sup>

*Department of construction project management, Parul University  
Parul University, Vadodara, Gujarat, India*

**Abstract**— Construction project involve many participants such as designers, consultants, contractors, construction managers and specialists from different disciplines. Many researchers have tried to regulate factors for successful project for the long time. Lists of variables have been abounded in the literature; however no general agreement can be made. The aim of this paper is to determine critical factors for construction projects. Eleven main research papers in construction project field were selected to review prior works on project accomplishment. Five main collections of independent variables namely, project related factors, project management action, project procedures, human related factors and external environment are identified as vital to project achievement. This study is an exertion to describe success of the project, failure of the projects and many research papers were discussed.

**Keywords**— success of projects, failure of project, construction project, success factors.

## 1. INTRODUCTION

Project success has escaped the construction project with the idea where keeping current owner has become a battle, let alone fascinating new owners. A supposition is prepared that, if a project is accomplished on time, within the pre-stated budget and set quality, referred to as the 'golden triangle', then the project is believed to be completed successfully. Confirmation advises that this is far from the fact. Hence, the construction project wants to give special care to critical success factors, in addition, the 'golden triangle', if it is to survive the tests posed by globalization [2]. Success has continuously been the final goal of every activity and a construction project is no exemption. Big and multifaceted construction projects are charming tougher to finish effectively [3]. The objective of this study is to measure the insights of contractors and project managers regarding critical success factors which lead to project achievement in the construction projects [4]. There is no diligence -accepted or standardized description of

undertaking ion succeeder because the fact is that individual undertaking squads peck of labor succeeder because the fact is that individual labor squads bargain themselves in a single place, suggesting that their definition of a winner will differ from that of another project team. Labor achievement is a flying field of cogitation that is often deliberated and yet infrequently approved upon. The idea of project success has endured vaguely defined in the mental synthesis industry. Project success is almost the final end of every project. Mental synthesis project expansion includes many stakeholders, various affair, different phase and steps of the workplace and a countless deal of effort from both the public and buck private sector, with the main finish being to bring the project to a successful closing [6].

## 1.2 SUCCESS OF CONSTRUCTION PROJECT

A construction project task failure mainly defined as dissatisfaction in either one or the combination of cost, clip, and direction. This review has an exertion to classify the critical success factors and the connection among numerous feature of a task success. Task success can be attained via the good performance of task ion managers in the undertaking [9]. The researcher title that human factors play a significant role in defining the winner of a project. Furthermore, the meaning of player's management in the acquirement of the undertaking was classified project achiever into two mathematical group: the macro and micro stand. They recommended that two principles are adequate to regulate the macro viewpoint of project success: windup and satisfaction. Whereas the accomplishment principle alone is sufficient to

control the micro look out of project success, a successful effort would consequence in improved worth so there is a necessity to discover the influences affecting project success. These factors are called critical success factors [5]. A twist project is accomplished as a consequence of a mixture of numerous actions and interactions, planned or unplanned, over the life of a facility, with varying participant and process in a regularly altering environment. Construction organizers govern the arrangement of the activity to finish a project. They treat an action as a whole and classify the critical events that require being completed without any flexibility in the fourth dimension. Undertaking success is defined as organizational impact and on time and on/under budget project pass completion. The awareness of mental synthesis project success is reliant on project member, size, and trouble of a project; sophistry of the owner related to the design and construction of a facility, technological implications, and a diversity of other factors [5].

### 1.3 FAILURE OF CONSTRUCTION PROJECT

A project undertaking is considered a failure when it has not conveyed what was vital, in line with expectation. Consequently, in edict to be successful, a labor must deliver to cost, to quality, and on time; and it must bring the benefit offered in the business lawsuit. These are numerous sources that present construction project catastrophes [6].

#### a. Underestimating the Project

Any of the most mutual and toll causes a construction project fail is owed to mistake estimates, defect, precondition errors, omission, left out permission and fixing nutrient market experimental condition can all tip to costly overrun, departure the contractile organ stressed and the client unhappy. Deal good undertaking handler double and triple-check mark their numbers pool to prevent fault and cost overproduction within projects. Have a complete checklist and project plan to make sure you avoid omissions and prevent erroneous belief in a stipulation. Prior placing any

order, recheck your idea to be sure no charges have altered and that you didn't supervise anything. By doing this, it gives you sufficient prison term to taking into hands salary increment in cost and either notify the commercial enterprise owners or modifies the ranking to stop inside the financial plan.

#### b. Scope Creep

Scope creep defines the routine in which the loudness of workplace heaves beyond the professional copy contract bridge transcription. The three main reasons for setting creep include:

- The owner asks that are out of the scope of work originally agreed upon.
- The unanticipated precondition that is unidentified to the contractor at the clock time the accord is done.
- Owner doesn't perform thorough initial effort (e.g., land site studies, proper planning, etc.)

#### c. Delays

Government authorizations, site principles, and license holdup slow down the timeline for your labor and can cause costly overproduction if not accounted for correctly. Based on your place, you may want to deliberate uniting requirements and area -particular rule such as building codes. To shuffling sure that you have the right licenses prior start an undertaking is also vital to catch delays. During the programming process, it is significant to comprehend the site area and any principles, rules, or requirements that necessity to be measured before starting date of the building procedure. Thorough site surveys and in-depth surveys can make you and allow for proper planning so that any delays North Korean won't cause the project to run overtime and cost you more budgets.

#### d. Surprise Conditions

Circumstances unidentified to the task manager can rapidly become a trouble and raises monetary value for a project. Natural calamity, asbestos, mold, and design or structural thing are the headstone offenders and can be difficult to program for during the summons procedure. However, supervising these possible matters can result in greater prices and risks related to the project.

#### e. Unclear Specifications

Owners preceptor always recognize everything that wants to be fleshed out in order to make sure essential objective is clearly identified and the construction task discharge smoothly. The unclear spec can become very costly, particularly when the clients and contractor understands very meaningfully.

#### f. Financing Issues

You've agreed to the scope of work and a timeline for the projection. Things are going efficiently until unpredictably, the client ravel out of money to fund the project. Construction is delayed and stoppage the project. You fall out on a important amount of time and money as a general contractor because that business might not come rear if they don't deliver the budget.

## 2. CRITICAL LITERATURE REVIEW

S. Z. S. Tabish<sup>1</sup>, K. N. Jha, studied important Factors for Achiever of World Construction Projection. Based on the answers to a questionnaire investigation accompanied among Indian construction professionals engaged in populace undertaking s, a bent of most significant winner gene was identified for different project performance criteria. Depending on the condition of the task, for example, public or private projects, the performance criteria vary. The survey has revealed that some causes such as owners need thoroughly understood and defined, a high school grade of trustfulness shared by project participant, timely and valuable decision from upper side management, availability of imagination as planned during the project, management's support, and fixture watching and answer by top management, are of generic wine nature and would be required to be present to ensure success against two-three performance criteria while there are some particular factors such as detailed intellect of telescope on the portion of project manager and contractor, complete pretender site study, regular monitoring and response by client, no administrative interfering, no

public and political intervention, clearly expressed scope of work, timber control and calibre assurance natural action , and sufficient communication between all project participants, which are required to be present to ensure achievement against a certain principles. A project manager does not intend to achieve all the performance criteria at any level of time and based on the setting the relative importance of performance criteria may vary. Under such situation, the pre-eminence of generic and specific factors would play a role and with this cognition, the project manager would be in a position to differentiate the factors which need higher attention and thus can ensure a higher gain [1].

Henry M. Robert Osie and Albert P.C Chan, publish a paper on a recap of studies critical success gene of the construction project, the research revealed that various success component was identified through face studies, literature review, and interviews with Project partnership professionals and practitioners. These achievement issues are additional scrutinized, removed, implied, and lastly branded into five key critical success issue view [2]:

- Economic viability,
- Appropriate risk distribution through dependable contractual preparations,
- Comprehensive monetary packet,
- Dependable concessionaire group with strong practical force, and
- Constructive investment surroundings.

Faisal Shabbir, Jawad Hussain, Naeem Ejaz, Muhammad bailiwick on valuation of most critical success factors for mega construction project In this research 26 success factors were considered and rated against their importance from different contractors, advisor and clients according to their opinion. After analyzing survey data, a list of five factors named as critical success factors was obtained. These top five critical success factors are [4]:

- ✓ Planning effort and scheduling
- ✓ Influence of Project managers decision
- ✓ sufficient finance during the project

- ✓ Adequacy of planning and specification of design team
- ✓ Timely decisions by Owner. Other success factors include,
- ✓ Design team experience,
- ✓ Weather conditions,
- ✓ Political Influence,
- ✓ Co-ordination ability of PM,
- ✓ Shortage of skilled labor etc. but has relatively a lesser influence on project success.

Afshin Pakseresht, Dr. Gholamreza Asgari, publish a paper on determining the Critical Success gene in twist Projects: AHP Approach. This inquiry revealed that the critical achiever factor of construction projects was as listed below [3]:

- Experience and executive director track record of the project coach
- Task strategic planning
- Practical and financial rating of the project essential imagination
- he executive experience of the contractor police squad about the project subject Ability of on-time close making (employer's agent in project)
- Project control management
- Prioritization of buying the needed items considering the project agenda
- Chemical mechanism of forming an experienced technical -legal team at the time of contract
- Authorization in Financial decisiveness devising and price control considering project eccentric and size
- Mechanics of financial payment in sex act to the project dedication and Plan.

Terry Willians studied on identifying achiever factor on grammatical flimflam suction undertaking. The survey revealed that, though, significant characteristics occasioned in project routine success for this particular company and why these root causes are important. The performance was reasonable on the "ironware" of systems, process, structure, and so forth, but was particularly strong on the "software" or leadership aspects of philosophy, communication, and shareholder choice.

It may be difficult to replicate this by initiative or policy; this may be easier in a family type of company or where a longer-full term view may prevail over the requirement outcome. The Sewell company is big and good enough to pre-qualify and be selected to these house servant computer programme , but minor and local enough to care about the community helped that it would call its own; this produces an acute sense of trade name reputation and hence a motive to keep promises and leave a legacy beyond the buildings. The sense of "shoes" and consequent ownership appear to be important and give a more holistic, long-term attack. The investigation also conveyed out the key features of Latham in having the lunacy of a grapevine program of projects to encourage "learning teams" to pursue demonstrable repeated enhancement and be kept together and appointed for the following project. The consequence of this survey gave the following determination. Financial competency of the owners is the main effect critical to the success of a structured project. All three sets of members in the manufacture opined that apart from monetary power, "project participants' divisor" such as capability, coercion in answering difficulties, and communication are significant ingredient ensuring the success of a construction project. External influences such as obtainability of assets and weather conditions also played a crucial persona in contributing to the success of a construction project. Based on the findings and discussions of the subject field, it is recommended that more accent should be given on improving the human-related factors such as competence, commitment, and communication due to ensure the fruitful executing of a construction project in the future. It is obvious that the industry himself accepted the presence of argumentative connection and opportunistic conduct in the industry's dry run, and they are now requiring an adjustment from the present condition [5].

Amaka Ogwueleka, studied on critical success factors influencing projection performance, the study investigation established the functioning environment has a moral force role in defining the critical success matter influencing project routine of



a project. The resultant revealed some critical success factors which can influence project routine. Top direction support, Objective direction, Nature and market conditions, Stakeholder management, Project organization, Stable framework condition, Technical Factors, Interface towards surrounding projects, Project planning and ascendance, Financial supports, communication channels, Precise project budget estimate, Commitment of player, Talent attainment and accessibility of men, Innovative concept, Risk management, Contract strategy [7].

Audrius Banaitis & Nerija Banaitienė studied on the evaluation of critical success factor for edifice projects, this probe exposed that the serious success factor of twist projects was as listed below [8]:

- company device characteristic,
- technical and professional potentiality
- Experience
- Financial and monetary situation
- Owner 's management ability
- Upper management sustenance
- Timbre issues
- Work precondition
- Advanced technologies.

Prince Albert P.C Chan, David Scott, ADA P.L Chan, Factors affecting achiever of structure task, Project direction action is a key for projection winner. As suggested by this researcher using the management utensils, the project director should be talented to architectural plan and implement their construction undertaking to exploit the project's probe power of success. Then, the factors in project management contain sufficient subject matter, ascendance twist, response abilities, troubleshooting, system efficiency, decision making efficiency, checking, project organization structure, plan and timetable monitored, and related previous management drill. The sum of money of qualities will disturb this influence, including the communication scheme, control mechanism, feedback capabilities, planning effort, organization assembly, safety and quality assurance program,

control of subcontractors' works, and lastly the total managerial activity.

Audrius Banaitis, Valentina Podvezko & Nerija Banaitienė, subject area that designation and valuation of the critical succeder broker for social structure proletariat. Based on this moment, the probe emphasized the cay function for fruitful execution of expression undertaking ion s. It might be concluded that pure and accurate labor finish and task design play the keystone role in successful implementation of mental synthesis undertaking. They should be supported by the round top task direction, open and precise goals/aim of the customer, and, finally, by the node 's ability to brand crisply closing. The Blessed Trinity sentience of finding would be valuable for time to come tense of operations of a news report in this sphere. The system of weights of the CSFs calculated by using AHP can be later used to rank different construction labors. various method acting may be used for the purpose. The inquiry would well-being from a larger sample for the questionnaire sensible horizon. This could raise the overall reliability and broader applicability of the outcomes. This bailiwick revealed that the highest ranking CSFs for construction labor in Lithuania are [10]:

- Clear and realistic project goals,
- Project planning,
- Project managing director 's competency,
- Relevant past experience of the project management/team,
- The competency of the project management/team,
- Clear and precise goals/objectives of the client
- the value of the project,
- The complexity and uniqueness of the project,
- The project manager's experience, and
- The client's ability to make timely decisiveness.

Shamas-Ur -Rehman Toor studied that Construction professionals' perception of critical winner factor for large -graduated table

construction labors. The study revealed the following factors [11]:

- Effective task programme and control
- Sufficient resources,
- Open and detailed written contract
- Openly defined goals and priorities of all stakeholder
- Competent project manager.
- Adequate communication among related party
- Competent squad fellow appendage.
- Knowing what node really wants.
- Responsiveness of client.
- High-quality workmanship
- Regular client audience
- Top direction sponsorship.
- Learning from previous experiences.
- Clear prioritization of project goals by the client
- Proprietor doesn't perform thorough initial effort (e.g., site studies, proper planning, etc.).

### 3. CONCLUSION

The different literature review display that the undertaking success includes the perception of respondents and data gathered from either buck private sector or both private and public sector uniformly. Since community sector task varies from private sector ones, the success constituent shall also be different. Thus the goal of the investigation is to determine the important factors for the success of construction projects addressing the edge of the previous studies as pointed out. Winner factor of the construction project was categorized under employer related, consultant related, declaration related and other related based on the type of the task. As tried to review from different literature reviews the briny factors of project success are Effective project planning and control Sufficient imagination , clear and detailed written contract, clearly defined goal and priorities of all stakeholder , competent project coach , adequate communication among related parties, companionship features, practical and specialized capability , familiarity, monetary and economic situation, Owner's

direction capability, Top management support, Quality way out . Therefore yet, no unique method acting is available for minimizing factors affecting the success of the projects effectively. However, their effect can be minimized with an appropriate study on the subject area of the causes.

### AKNOWLEDGEMENT

First of all may thankful honor return to God who sustained me during my revaluation of different kinds of literature. I accomplished all of my studies. I would like to convey my truthful gratitude to my coworkers, Habtamu Miju and Lemi Tasisa for their invaluable counseling and motivating throughout this recapitulation research.

### REFERENCE

- [1] S. Z. S. Tabish1, K. N. Jha, Important Factors for Success of Public Construction Projects, International Conference on Construction and Project Management, Volume 33, issue 6, 2015.
- [2] Robert Osie and Albert P.C Chan, review of studies critical success factor of construction project, International research journal of project management, volume 5, 2015.
- [3] Naeem Ejaz, Jawad Hussain, Faisal Shabbir, Muhammad Ali Shamim, Usman Ali Naeem, Muhammad Fiaz Tahir, Naveed Ahmad, Qazi Umar Farooq, Assessment of most critical success factors for mega construction projects, Life Science Journal volume 10,2013;
- [4] Afshin Pakseresht, Dr. Gholamreza Asgari, Determining the Critical Success Factors in Construction Projects: AHP Approach, interdisciplinary journal of contemporary research in business, Volume 4, No 8, 2012.
- [5] Terry Willians, studied on identifying success factor on construction project, Journal of construction management, Volume 10, 2004.
- [6] Yee Cheong Yong Nur Emma Mustaffa, studied on analysis of factors critical to construction projects success, Engineering construction, Architectural management, Volume 3, No 5, 2015.
- [7] Amaka Ogwueleka, The critical success factors influencing project performance, International Journal of Management Science and Engineering Management, Volume 6, Issue 5, 2011.
- [8] Audrius Banaitis & Nerija Banaitienė, Evaluation of critical success factors for construction projects, International journal of strategic property management, Volume 7, 2013.
- [9] Albert P.C Chan, David Scott, Ada P.L Chan, Factors affecting success of construction project, Journal of construction engineering and management, Volume 7, 2004.
- [10] Audrius Banaitis, Valentinas Podvezko & Nerija Banaitienė, Identification and evaluation of the critical success factors for construction projects in Lithuania: AHP approach, Journal of civil engineering and management, Volume 6, Issue 3, 2014.
- [11] Shamas-ur-Rehman Toor, Construction professionals' perception of critical success factors for large-scale construction projects, journal of construction Innovation, 2009.