

# A STUDY ON PROJECT MANAGEMENT TECHNIQUES TO AVOID PROJECT FAILURE

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**Abstract** - Project management is a process of initiating, planning, executing, controlling and closing the project or a work in order to meet target of the project. Project Management is the application of certain tools and techniques for utilizing resources for achieving a unique, complex, one-time task with respect to time, cost and quality constraints. A project is considered as a failure, if a project fails to meet the expectation of stakeholders and the failure incident of project is associated with cost, quality and time. In this research, the research is focused on finding out reasons behind the failure of projects and the techniques that can be implemented to avoid project failure.

**Key Words:** Project Management, Project Failure, Project management Techniques, Project Management Office, Project Management Information System, CPM, PERT

## 1. INTRODUCTION

The Project Management Institute's (PMI) guide to the project management body of knowledge (PMBOK 1996, p.4) defines a project as "a temporary endeavor undertaken to create a unique product or service. Temporary means that every project has a definite end. Unique means that the product or service is different in some distinguishing way from all similar products or services". Project management is defined as: "the application of knowledge, skills, tools and techniques to project activities in order to meet stakeholder's needs and expectations from a project". This definition clearly identifies that the purpose of the project is to meet the stakeholder's needs and expectations. It is therefore a fundamental requirement for the project manager to establish who are the stakeholders (besides the client) and analyze their needs and expectations to define, at the outset, the project's scope of work and objectives.

In the present scenario, there are many cases of project failure in the construction industry. A project is said to be a failure if it does not meet the desired goal by the stakeholders. In any construction project, a number of scarce resources are at stake. If a project executed well- under stipulated time and cost, and with desired quality the project

can be called as a successful project. The attributes or factors that make a project either a success or a failure have been identified by the researchers. The objective of the project management is to ensure success of project by managing the schedule, cost and quality, generally known as the 'iron triangle'. Apart from the iron triangle, a number of project performance parameters such as satisfaction of stakeholders, technical standards of project, and least number of disputes on the completion of the project are also analyzed to measure the success of a project. In this research, the various reasons behind the failure of a project and the techniques or methods to avoid project failure has been identified by analyzing the responses from different project management officers. The responses are analyzed using SPSS software

## 2. RESEARCH METHODOLOGY

The research methodology focuses on the researcher's blueprint of selection of the different research methods that will be successfully used for the completion of the research project. It will show the process, philosophy, method and also the sampling techniques that are adopted by the researcher and used for completion of the project. This specific chapter is focused on the research techniques and possible implementation of the distinguished research tools.

In these research chief issues is the success of Project Management while striving to avoid possible failure cases in context of Project Management. As opined by Levin, Hayes and Vilardaga, (2012) Project Management can be described as the collection of the possible approaches, which helps project manager to remain focused towards the aim of the project and maintaining parameter for the success of project. Thus, in this research the in depth analysis is made on the causes of project failure and possible approaches for a successful project completion have been found out. In this research, appropriate tools are selected as per the requirement of the project and results are found out based on analyzing the responses received from various project managers.

### 3. DATA ANALYSIS AND FINDINGS

This chapter deals with the detailed discussions with experts from various firms and analysis of the data obtained. The responds from different experts and based on the data available from different journals on project management, evaluation has been done to make detailed explanations and conclude the project.

The discussion presented below will show the relevance of the responses of the managers with the past analysis done in different journals and articles.

The following factors considered while selecting the respondent;

1. Respondent's Gender
2. Respondent's age group
3. Respondent's experience
4. Respondent's educational qualification
5. Respondent's Role in project

Data collected from 88 respondents of different construction firms are analyzed and the reasons behind the failure of a project, the techniques that can be used to avoid project failure are identified. According to Chen, Xu and Whinston (2010) construction industry is popular for chronic problems like low productivity, inferior working conditions, unrealistic projects, high costs, poor safety and late project delivery. Thus these become a reason for choice of project managers

#### 3.1 Analysis of Project management

According to Chen, Xu and Whinston (2010) management deficiencies are the major points that are highlighted in case of project failure. It is understood that, for any project, the prime responsible for a project failure in a construction industry is project manager. The second reason is the deficiencies of the management.

It is necessary to define the project management before finding the factors responsible for project failure. As per the definitions presented by Project Management Body of Knowledge (PMBOK) 2013, Project Management is the process where the application of skills is done for using the proper techniques and manages the project effectively. Thus success of a project depends on project managers proper planning and proper techniques are also required for successful completion of the project.

While analyzing the responds from different Project Managers, it is observed that initial planning is the most important that is necessary to make a project successful. However Aghaee, Kononenko and Lutsenko (2016) suggests that for managing a project apart from planning it is highly necessary to set correct and short term objectives for a

project before initiating the project. Thus it is also analyzed that project managers technical knowledge and decision making is also critical for success of the project.

#### 3.2 Major areas of Project Management.

Based on the discussion it has been identified that Project planning is the most important factor in a construction project. The project planning includes these basic things which every Project Manager will focus; timely completion, completing project within estimated cost, quality and high customer satisfaction.

Aghaee, Kononenko and Lutsenko (2016) these factors that are responsible for the project success are interrelated. Thus if one factor is not successful the other factors will also fail.

Some of the respondents opined that quality, risk and resource management are the three important factors. In this regard it can be stated that if the quality of the project is not good and the manager will not be able to manage the risk and if the resource availability if not sufficient then the quality will be effected thus there is an interrelation between all the factors that are being selected by any project manager.

Customer satisfaction is a major factor. Even if the project is completed within estimated time and cost and it fails to satisfy customer, the project is considered as under challenged project. However Chen Xu and Whinston (2010) commented that even if the project does not meet the complete requirement specifications of the customer still the on-time delivery of the project serves the completion aim of the project.

Barclay and Barclay (2015) stated that progressive planning is desirable in case of Project Management. Progressive planning allows the project manager to effectively start with the focus on the major factors and continuously moving the focus to other factors in due course of time

#### 3.3 Project Classification

A project can be divided into three subheads; successful projects challenged projects and impaired projects. The 1994 Standish CHAOS reports, confirms the classification of the projects under the above- mentioned classifications.

According to Caniels and Bakens (2012) a project is categorized under successful project when the project has three major factors namely timely completion, cost effective and high customer satisfaction. On the contrary if even after the completion of the project the project is not cost effective and does not serve the purpose of the customer, then the project will be categorized under challenged project.

However Chen Xu and Whinston (2010) commented that even if the project does not meet the complete requirement specifications of the customer still the on-time delivery of the project serves the completion aim of the project. In case if a project is cancelled before the completion date then the project is categorized under impaired project. From the discussion with the managers it was relevant that majority of the construction projects were categories under Challenged projects.

From the discussion and analysis of data collected, it can be concluded that in case of impaired projects, it is not advisable to blame any project personnel and nor is it advisable to mark the project as a failed project. Few respondents opined although they have prior experience to project management still they are not aware of the classifications of project status. Thus in majority of the case the project managers may mistakenly nominate an impaired project as a failed project. Thus it can be concluded that this lack of knowledge is increasing the rate of failed projects (De Bakker, Boonstra and Wortmann 2010).

### 3.4 Factors Responsible for Project Success.

According to Chen, Xu and Whinston (2010) a project can be successful only when the project owner is satisfied with the project quality and when the project successfully fulfills the purpose of the project owner. Based on the responses, it is seen that the relation between owner and project manager, decision making capacity of Project manager, cost performance, schedule of project made well in advance, quality maintenance, effective monitoring, client satisfaction, timely completion, use of CPM, PERT etc are the major factors responsible for project success.

According to Christofi (2015) project focus is a vital factor that contributes to the success of the project. The project focus should be on three major components that are; time, budget and quality.

Daniel Andrew and Naomi (2013) stated that the sense of urgency is an important factor that will help in making the project successful. If the sense of urgency is present in the project team and the project managers then the project will be delivered within or before the given timeline. On case of construction project like building of roads, bridges and railway tracks, the urgency helps the organization to finalize the project quickly, which helps the users to get access to the sites easily.

Further it is highly necessary for the organizations to hire the correct managers and engineers for the completion of the projects. However the success rate of the projects is determined by the degree of project failure. Cresswell, (2013) stated that projects can be categorized into five major heads namely abandoned projects, budget challenged projects, and schedule challenged projects, good

performers and star performers. Thus, if a project misses the deadline then it may be categorized into schedule challenged project and not a failed project.

### 3.5 Factors responsible for Project Failure

According to Abouzahra (2011) all projects are unique in their own requirements; however the reasons behind their failure are always the same. The analysis of the Harvard project surveys shows that Cost overrun is the major cause behind the failure of different projects.

From few responses, the project planning and project cost estimation are the two most important factors which can determine the success or the failure of any project. According to Creswell (2013) in majority of the cases initial cost structure and schedule planning are not revised when more information becomes available as the project progresses. Further, Caniels and Bakens (2012) added that even with the progress of the project the project team members are not guided in order to successfully execute the project. Thus lack of guidance is also a factor that contributes to the failure of the project.

Based on the data analysis and discussion, few factors responsible for project management are generally as follows; incapable project manager, implementation factor that is changes done in the project scope at later stages, incorrect use of project methodology, financial loss, Poor human resource management, client contractor relation etc. Further poor communications between the project manager and the team members also contributes to the failure of the project. Similarly, lack of executive support, lack of proper technology, long-term objectives and long term goals, lack of quality resources, unrealistic timeline proposed by the project manager and use of new technology that was not used previously in construction of any project are some other reasons.

Kaur and Sengupta (2013) stated that each project failure results in each missed business opportunity. So every failed project makes lot of financial implications, affects reputation of the company, loss of natural resources and it affects the morale of everyone who participated in that project.

The responses obtained from the managers of during the interview shows that they have highlighted that planning is the most important feature that is necessary in order to make a project successful. However Aghaee, Kononenko and Lutsenko (2016) suggests that for managing a project apart from planning it is highly necessary to set correct and short term objectives for a project before initiating the project.

The definitions of the project as per the project managers are not a feasible definition. Thus from this

discussion it can be analyzed that the knowledge of the project managers about the Project Management definitions should be enhanced so that the instances of casual approach taken to manage projects can be avoided

### 3.6 Effects of Project failure on organizational operations

The Harvard report shows that majority of the organizations have faced cost overrun in case of project delivery. Thus, the major negative effect that the projects generally have on the organizations includes the financial loss that the organizations need to incur.

As per the data obtained from the respondents, it is also significant that project failure also adversely affects the client base of any organization. Kaur and Sengupta (2013) stated that each project failure results in each missed business opportunity. Further in case of construction projects since the involvement of external stakeholders like the contractor, customers, media and government is high, thus the failure of the project results in loss of reputation of the company as well as loss of trust of the company. Further Kononenko and Kharazii (2014) enumerated that project failure has direct effect on the project team and the project manage.

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### 3.6 Techniques to avoid Project Failures

The role of methodologies in delivering a successful project is frequently disregarded. According to Lewis, (2015) different types of project management techniques are available. Some of the techniques identified from discussion are CPM, PERT, MS project, Gantt chart, waterfall etc. In this CPM and PERT are the most commonly used project management techniques which can be used for successful management of project.

During management of a project, they allow project managers to monitor achievement of project goals. They help the managers to check the stage where the remedial measures can be taken by the project managers in order to solve the incoming problems within the project.

These techniques also allow the project manager to schedule, plan and execute the project. The delay of the activities, shortage of resources, critical activities can be identified from these techniques. And it will notify achievement of project goals.

The use of CPA will help the managers to identify the project phases that should be completed on time. This process also identified the resources that are required for each phase and the resources that are missed by the project managers for the completion of the project phases. Further Mir and Pinnington (2014) stated that the benefit of the CPA process is to identify the minimum length of time needed to complete a project.

PERT is useful for making the project plans successful. PERT is a variation on Critical Path Analysis that takes a slightly more skeptical view of time estimates made for each project stage. Unlike CPA, PERT estimates the shortest possible time each activity will take, the most likely length of time, and the longest time that might be taken if the activity takes longer than expected. Thus, Pajares and Lopez-Paredes (2011) commented that a successful CPA will determine the difference between success and failure of a complex project and the project managers of vital importance for assessing the problems face it during the implementation of the project. PERT on the other hand is a variant of Critical Path Analysis that adopts more skeptical view of the time needed for completing each project stage.

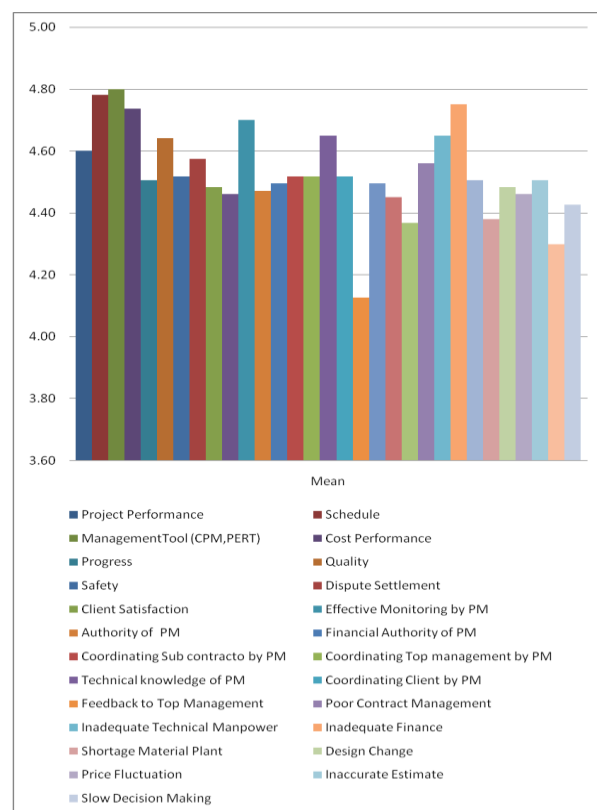


Fig. 3.1 Parameters for Project Success



#### 4. CONCLUSIONS

Construction industry is second largest contributor of GDP of the country. Thus, construction industry is the center of other business operations. Every other business operations would need shelter in order to run their business, thus projects within the construction industry are of the utmost importance. However in the present situation it can be seen that the industry is facing different constraints in terms of project delivery and quality project management.

The factors highly responsible for failure of a project were identified based on discussions with respondents and data analysis. With the help of the responses obtained from the respondents, it was highlighted that ineffective planning, high cost and untimely delivery are the major factors for the failure of the project.

Thus as per the response from the respondents, they feel that if these three factors can be altered and controlled then the rate of project failure could be reduced. However from the secondary sources it is able to ascertain that apart from controlling these factors it is highly essential for the project managers to learn from the past mistakes so that the same mistakes should not be repeated in future projects.

In this case it can also be concluded that in construction industry the nature of majority of the projects are similar thus it is advisable for the project managers to learn from the past failures and avoid the project techniques and the planning process which have been used in the past projects

The definitions of project management and project failure were also discussed in detail. Based on various responds, it has been identified that ineffective planning, high cost and untimely delivery are also factors for the failure of the project. Hence these factors have to be improved for the successful completion of project.

There are different types of project management techniques for reducing the risk of project failure are identified based on data analysis and responds. Some of the techniques identified from discussion are CPM, PERT, MS project, Gantt chart, waterfall etc. In this CPM and PERT are the most commonly used project management techniques which can be used for successful management of project.

These techniques allow the project manager to schedule, plan and execute the project. The delay of the activities, shortage of resources, critical activities can be identified from these techniques. And it will notify achievement of project goals.

From the overall research, it can be concluded that determining these factors or identifying the project management techniques have not decreased the rate of project failure. Rather it is advisable to update the relation

between the employees and the stakeholders so that parity within the project quality can be maintained. Thus the study shows that in future behavior –based project management is required rather than identifying different project management techniques.

Studies and discussions were done on project management techniques to avoid project failure on various fields of construction industries across the globe based on the various journals collected. The definitions of project management and project failure were also discussed in detail.

The different criteria for project performance measurement including the iron triangle in these industries were discussed. The different project performance attributes ie, success attributes and failure attributes were also identified and discussed. The research methodology focuses on the researcher's blueprint of selection of the different research methods that will be successfully used for the completion of the research project. Project management techniques to avoid project failure vary from project to project, region to region. So, further research is required to enhance the knowledge about project management and project failure.

#### REFERENCE:

- [1] Adam Kucera and Tomas Pitner, (2013), 'Intelligent Facility Management for Sustainability and Risk Management' P608-P610.
- [2] Amgad Badewi, (2016), 'The impact of project management (PM) and benefits management (BM) practices on project success: Towards developing a project benefits governance framework', P761-P763.
- [3] Christian Artiguesab, Roel Leusc, Fabrice Talla Nobibon, (2012), 'Robust optimization for resource-constrained project scheduling with uncertain activity durations', P1-P5.
- [4] Dennis Lock, (2007), Project Management, P17-P27
- [5] Jean binder, (2007), 'Global Project Management: Communication, collaboration and management across borders'. P1-P2.
- [6] Jeffrey k. Pinto Samuel J. Mantel, jr. (1990), 'The Causes of Project Failure' P269-P270.
- [7] Jianqing Chen, (2010), 'Managing Project Failure Risk through Contingent Contracts in Procurement Auctions', P23- P25.
- [8] Joseph Heagney, (2011), 'Fundamentals of Project Management', P2-P6.
- [9] Jr. Jack R. Meredith and Samuel J. Mantel, (2009), 'Project Management, a Managerial Approach', P109- P110.
- [10] Kumar Neeraj]ha, (2011) 'Construction Project Management (Theory And Practice)', P655-P661

- [11] Lars Sunding and Anders Ekholm, (2014), 'Problems and Problem Attention in the construction Sector –Understanding the Influence of Human Factors',
- [12] Lavagnon A. Ika and Amadou Diallo and Denis Thuillier, (2009), 'Project management in the international development industry- The project coordinator's perspective' P-P.
- [13] Mehdi Ebrat And Reza Ghodsi, CivEng (2014), 'Construction Project Risk Assessment by Using Adaptive-Network-Based Fuzzy Inference System: An Empirical Study', P 1213 – P 1214. <https://doi.org/10.1007/s12205-014-0139-5>.
- [14] Milind Padalkar, Saji Gopinath, (2010), 'Earned value analysis in project management: Survey and research potential', P1-P2
- [15] Mohamed Maharooof Vaheed, Md. Nor Hayati Tahir and M.A. Burhanuddin (2011), 'ICT Project Failure in Government Sectors: Factors from Vendors Perspective, P2706- P2707.
- [16] PMBOK, (2001), "A Guide To The Project Management Body of Knowledge, Project Management Institute', <http://www.pmi.org>, P5-P6.
- [17] Ralf Muller and J. Rodney Turner, (2007), 'Matching the project manager's leadership style to project type', P21-P22.
- [18] Ralf Muller, Umea° University, Sweden and Rodney Turner, Lille School of Management, France, (2007), 'The Influence of Project Managers on Project Success Criteria and Project Success by Type of Project', P298 –P301.
- [19] Roger Atkinson, (1999), 'Project management: cost, time and quality, two best guesses and a phenomenon, it's time to accept other success criteria', P337-P338.
- [20] Rolf H. Mohring Frederik Stork, (2009), 'Stochastic project scheduling under limited resources: a branch and bound algorithm based on a new class of policies' P1-P4.
- [21] Rory Burke, (2001), Project Management Planning and Control Techniques', P2-P3.
- [22] Terry Lyons and Martin Skitmore, (2004), 'Project Risk Management in the Queensland Engineering Construction Industry, A Survey. P1-P12.
- [23] The Influence of Project Managers on Project Success Criteria and Project Success by Type of Project, 298-299.
- [24] William R Duncan, director of standards, (1996), 'A guide to the project management body of knowledge', P6-P7.
- [25] Willy Herroelen, Roel Leus, (2005), 'Project scheduling under uncertainty: Survey and research potentials', P289-P290.
- [26] Xin Liang, Tao Yu and Li Guo, (2017), 'Understanding Stakeholders Influence on Project Success with a New SNA Method: A Case Study of the Green Retrofit in China', P1-P2.
- [27] YaserHasan Al-Mamary, Alina Shamsuddin and Nor Aziati, (2013), 'The Impact of Management Information Systems Adoption in Managerial Decision Making: A Review, P10-P11