

Resource Scheduling And Cost Analysis In Industrial Building

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Abstract— Construction Companies faces challenges with regard to problems associated with productivity and the problems are usually associated with performance of resources. In the construction project, time and cost are the most important factors to be considered in the planning of every project. The aim of project is to finish the projects on time, within budget and to achieve other project objectives. It is a difficult task undertaken by project managers in practice, which include constantly measuring progress, evaluation of plans, and corrective actions should be taken whenever required. Optimization is a systematic effort made to improve profit margins and obtain the best results under given circumstances. There is a Systematic planning and programming with effective management is necessary for timely completion of the project. there is availability of various tools and techniques for optimization. Optimizing performance of the different techniques adopted at one stage of the construction process may not be beneficial if the methods used are not to up the efficient level. In this approach we have studied various factors which affect the cost of projects.

Keyword: resource analysis, cost optimization, resource scheduling.

I. INTRODUCTION

India is the developing country and in the economy of country construction projects and industries play an vital role. Time and cost are two main concerns in a construction and they are used for planning a project. This has increased the importance of time and Cost optimization in construction projects. is necessary to estimate the cost and time of each activity through which the whole duration and total cost of the project are determined to complete the planning task. Optimization is a systematic effort made to improve profit margins and obtain the best results under given circumstances or situations. “Cost Optimization can be defined as the achievement of real and permanent reduction in the unit cost of services provided without damaging their suitability for the in planned use”. There is availability of various techniques for optimization and project control software, still many construction projects do not achieve their cost and time objectives. Optimizing performance of the different technique follow and implement the techniques in every stage of the construction process with the analyses of the information

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available.

The methodology and the type of the used in a construction is also plays very important role for the successful completion of a project.

A. Need of Optimization

The optimization of time and cost is necessary as it could minimize both the time and total cost of project. This optimization in time and cost helps to achieve the greatest benefit.

II. LITERATURE REVIEW

Shanmugapriya S., Dr. Subramanian K. (October 2013) [1] Time overruns and Cost overruns has been a major issue in many Indian construction projects. The objective of this paper to study significant factors causing Time overruns and Cost overruns in Indian construction projects. The result accomplished from the survey revealed that the major cause for time overruns are contract modification, material market rate, and high level of quality requirement and the major cause for cost overruns are , change in material specification, high transportation cost, and escalation of materials price.

Salunkhe. A, Patil R (January2014) [2] Construction delay is considered to be one of the recurring problems in the construction industry and it has an adverse effect on project success in terms of time, cost and quality. The time and cost for performance of a project are usually important to the employer and contractor. The authors highlights the types of construction delays due to which project suffer time and cost overrun. also give external and internal factors that influence the construction process and outlines the effect of delay in large construction projects.

T.Subramani , P S Sruthi, M.Kavitha (June. 2014) [3] The main objectives of this paper are to identify and analyze the causes of cost overrun in construction. The results carried out from survey showed that, poor contract management, slow decision making, poor schedule management, increase in material/machine prices poor design/ delay in providing design, rework due to wrong work, long period between design and time of bidding/tendering and wrong estimation/ estimation method are the major causes of cost overrun.

Memon A.H, Rahman I.A, MohdRazaki Abdullah3, Ade Asmi Abdu Azis, (December 2010) [4] Project cost is one of the most important criteria of success of project. the authors are focusing on identification of significant causes affecting construction cost in MARA large projects. From the study author found that contractor's poor site management and

supervision, cash flow and financial difficulties faced by contractors, shortage of site workers, inadequate contractor experience, incorrect planning and scheduling by contractors are most severe factors which affect cost of project. while changes in scope of project and frequent design changes are least affecting factors on construction cost.

BenviolentChigara, TirivaviMoyo, FungaiMudzengerere (2013) [5] they made the research for the cost management strategies employed by contractor on building projects. Also made investigation that contractor has to manage project cost. For data collection they made the survey and interviews in Zimbabwe. From study they found that contractor efforts to manage the project cost by concentrating on the management on the project resources. Also the cost management process in Zimbabwe compare to other developing countries is still dominated by prematurely developed automated system or traditional paper based systems of managing project cost information. The author provide a base line information on strategies used for managing project cost.

Barbole A.N., Yuvraj D. Nalwade, Santosh D. Parakh(June. 2013) [6] The survival today for any company is how to manage its service Cost, quality, and performance. Now a days the customers are continuously demanding high quality and better performance of services and at the same time they want the prices to fall. For this author focus on impact of cost control and cost reduction techniques in present scenario. An objective of this paper is to understand the basic concept of Cost, Cost Control, and Cost Reduction and to study various Tool and Techniques available for Cost Control and Cost Reduction. The Cost Control and Cost Reduction techniques used in manufacturing sector like Value Engineering, Quality Control, and Budgetary Control are specified by the author also cost, cost reduction, cost control etc. Various terms are specified by the author.

C.I. Anyanwu (December 2013) [7] author discuss about the various parameters regarding the cost such as budgeting, cost monitoring and control systems. he discuss about the cost control and the cost control parameter in material, labor, equipments etc .As per the author concept of budget can be define as the translation of an organizational plan into concrete form by way of resource allocation in form of cash. He discuss about the various tools used by the management and cost supervisors for planning, controlling, and monitoring of project such as Gantt chart, network analysis, CPM, PERT. Main focus of author is to study the manufacturing philosophy and inputs which contributes in evaluating and maintaining construction cost in order to reduce the project abandonment which is caused due to cost overrun.

AkintolaOmigbodun (June 2001) [8] as per the author value engineering can be defined as the “Engineering is the conceptualization, design, construction, and administration of projects and products whatever the field or application, the engineer solves problems with imagination, creativity and synthesis of various sources of knowledge.” To obtain the optimal solution for any engineering design 4 methods has

discussed are as follows design for manufacturing and assembly, concurrent engineering, total quality management, and value engineering. A summary of other methods of optimal design methods are compared with value engineering. Cost minimization in building construction is discussed with examples on building projects in West Africa and the Middle East. From study author concluded that, due to application of value engineering to building projects management team obtains a solution which emphasis the functions of project which helps to team to make final choice and which results in cost effective design for project. Value engineering is effective because its procedures give opportunities for raising design issues associated with the latter group of factors as well as design.

Georgekutty C.K, Dr. George Mathew (August - 2012) [9]the innovation of new technology in the construction field is not being adopted in project implementation. this results the growth of construction industry is slow. The real problem is construction will not complete within the budgeted cost and time and finally leads to project failure as end result. Material has a dominating role in construction. If the material has controlled properly then the total project cost would be reduced. To achieve this objective, a research methodology has developed by author to control the material procurement and carrying cost. The methodology adopted which adopted has been validated by a computer program and same is found correct and useful for analysis and controlling any type of projects.

J Zhou, Ped Love, X Wang, Kl TeoAnd Z (Irani 2013) [10] main objective of the paper is to Optimize construction scheduling. for this author adopted various methods like Mathematical Method, Heuristic Method, Metaheuristic Method. As per the author the Methods and algorithms applied for optimizing construction scheduling efficient and effective.

Khyomesh V. Patel, Prof. Chetna M. Vyas (May 2011) [11] as per the author to manage the productivity and the cost efficiency material management is more essential. The main objective of the material management are buying or purchasing, storing and inventory control, quality assurance. to achieve these objectives there is need of material management. Author carried out as survey in Ahmadabad to check material management. they investigate that material and equipment contribute 70% that of total cost. hence for the improvement of product and cost efficiency material management is important. Also proper tracking, controlling is required, if there is poor management may lead to delay of project.

III. METHODOLOGY

Data collection: Datas of completed project regarding resource has to be collected. Based on the resources utilized cost data sheet has to be prepared.

Resource analysis: resources like men, material are analysed based on cost utilized in the project.

The cost optimization is checked in the completed projects.

Resource allocation: resource allocated for all specific works in the industrial building is analysed.

Cost optimization: cost optimization is done for all specific works using mathematical and computer based models.

Analyzing with ongoing project: The issues in completed projects is rectified in on going projects. The cost analyzing is done for on going projects.

IV. CONCLUSION

To minimize the construction cost and duration at each phase is important. It is a need to meet the present day requirements and to complete the project within the estimated time, cost, and available resources. Mainly affecting the factor on cost of project is delay in project and material. Several methods have been developed and applied to analyze the time-cost problems, but they can optimize only one parameter. Various low cost material also suggested for optimizing the cost of project along with maintaining the quality and strength of the project. Also various mathematical method and software based models studied for optimization. Cost analysis is conducted for on going and future projects.

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