

Mitigation of Risks Arrised Due To Cost Overrun And Time Delay

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Abstract- *The Construction industry has a great influence on the economy of all countries. It is one of the most important part that provides vital factors for the development of any economy. The aim of this research is to find out the factors causing time and cost overrun in construction projects and to study the time and cost factors with the impact of risk on the construction sites. The objectives will be achieved through a valid questionnaire which will be distributed to Owner, Consultant and Contractors and project management companies. Delays in addition to disruption are sources of risks. To list out the reasons of delays and conflicts. On the other hand time overrun, cost overrun, are the principle outcomes of Delays and Disruptions.*

The data were analysed using Microsoft excel and ranked according to mean score for contractor, consultant and client. The general response from both parties were analysed, high scored factors were discussed. Effective project planning and scheduling; design change should be controlled; effective coordination and communication between parties; client, promptly paying the parties progressively; having accurate cost estimates; appoint competent site and project manager; comprehensive contract administration; ensuring prompt resolution in design change queries, issues and authorization report; efficient and effective planning time schedule for material procurement delivery process; developing effective strategic planning for solving identified risks; and ensuring on the timely availability of finance; were identified as the most effective mitigation measures in dealing with delay and cost overrun in public building project, due to having a mean score above 4.00.

Keywords- Construction, Cost, Delay, Disruption, Risks, overrun, Construction Management

I. INTRODUCTION

The Construction industry of India is an important indicator of the development as it creates investment opportunities across various related sectors. The construction industry has contributed an estimated 308 billion to the national GDP in 2011-12. The industry is fragmented, with a handful of major companies involved in the construction

activities across all segments; medium sized companies specializing in niche activities; and small and medium contractors who work on the subcontractor basis and carry out the work in the field. In 2011, there were slightly over 500 construction equipment manufacturing companies in all of India. The sector is labor -intensive and, including indirect jobs, provides employment to more than 35 million people.

The construction industry is an important part of the economy and has a considerable impact on the efficiency and output of other industries. It is not possible having extensive investment in manufacturing, agriculture, or service sectors without construction of infrastructure facilities in place. It is understandable that the construction industry has special features that do not usually happen in other industries. For instance, when conditions in the construction field changes to be more complex than what was anticipated in the planning and design phase, additional costs and time are needed. Creating large facilities takes a long time and usually absorbs a large amount of investment.

A. Aim

The main aim is to show the common causes of delay and cost overrun in construction projects in developing countries and identify these factors.

B. Objective

1. To study the existence of cost and time overrun factors in large construction projects
2. To undertake a questionnaire to investigate the existence and the reasons of time and cost overrun in Pune:
3. To minimize the Risk factors affecting cost overrun and time delay

C. Time Delay

1. Plans, specifications are not received by the contractor in time.
2. Adequate resources are not available on the site.
3. Inadequate technical and financial management.
4. Extra work has to be carried out.

5. Unforeseen problems like adverse weather, natural calamities.
6. Wrong or faulty initial planning.
7. Accident on site

II. LITERATURE REVIEW

Examining the role of value management in controlling cost overrun” Ain Shams Engineering Journal Volume 10, Issue 3, September 2019 Laila M. Khodeir ,Alaa El Ghandour[1] This paper is mainly concerned with the actual cost of construction project which differs from plant cost. The paper proves Value Management as an effective approach. Analysis of case studies was performed. The main objective is to examine the role of Value Management in controlling cost overrun with special reference to residential projects in Europe.

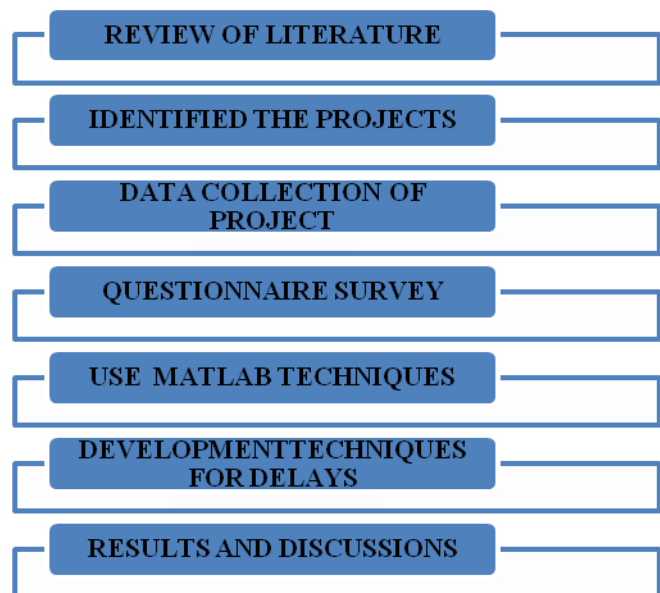
Time Delay and Cost Overrun in Qatari Public Construction Projects” International Journal of Engineering & Technology. Ahmed Senouci, Alaa Ismail, Neil Eldin[2] The trend is more severe in developing countries where time and cost overruns sometimes exceed 100% of the anticipated cost of the project. The projects that had faced time and cost overruns problem were reported in numerous countries. This paper shows the study on cost overrun and delay in Qatari Public construction projects. ANOVA method was used to analyze the data. The have taken two linear regression model for finding cost overrun for building and drainage, public projects. Through this paper efforts were made in collecting data on cost overrun and delays in public construction projects.

Web-based Risk Assessment Technique for Time and Cost Overrun (WRATTCO) – A Framework” ICIMTR 2013. Aftab Hameed Memona, Ismail Abdul Rahmanb,[3] The program will also be able to suggest the corrective actions in order to control the identified risk factors. Finally, various reports can be generated in presenting the associated problems of the factors and their relative impact of project performance this paper focuses on Risk assessment. WRATTCO -Web-based Risk Assessment Technique for Time and Cost Overrun. In this paper factors are listed out for risk assessment based on time and cost overrun of projects. WRATTCO approach will help in assessing risk of various factors which affects project time and control.

Element of Cost and Schedule Overrun in Construction Project “International Journal of Engineering Research and Development Volume 12, Issue 7 (July 2016)

Vaibhav.Y. Katre, Dr. D. M. Ghaitadak et. al.[4] The study also clarified that prices inflation highly contributes to cost overrun. This paper deals with the elements of Cost and Schedule Overrun in Construction Project. India is well known for construction industry and also the factors can affect the growth of industries and construction institutes are destroyed. The aim of stud is to identify the factors influencing schedule overrun in project and cost overrun with the risks involved in it. This also deals with the results which are studied under the form of questionnaire. It also concludes the study which includes low productivity labor, lack of maintenance of equipment, delay of materials leads to cost overrun.

III. METHODOLOGY



A. Problem statement

Cost overrun and Time delay is the common factor in most civil engineering projects. The study shows that the most projects were not finished on time or with the estimated budget. This results proves the existence of problems over time and construction cost in industries. The research will identify and explain the similarities and the difference between the projects’s cost control and cost time overrun in the construction industries.

B. How ANN Works

- The typical architecture of the feed forward Neural Network illustrated in consists of an input layer, hidden layers and output layer.
- The neurons in the input layer are connected to those in the hidden layers by the synaptic weights.

- The common transfer functions used are the summation function and the sigmoid squashing function.

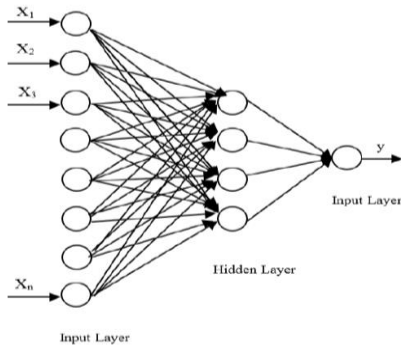


Fig 1 feed forward neural network

IV. CASE STUDY

A. Site Details: Amar Landmark

- Site name :Amar landmark
- Address: Near green park hotel pashan.
- Name of Builder: Amar Builder
- Name Contractor: SJ construction.
- Architecture: MOCO design
- Structural consultant: J+ W
- Total Area:2.8 acres
- Built-up Area:15570sq ft
- Cost of the Project- 72.5cr

V. RESULTS AND DISCUSSION

Main parameters used for investigation in this study was the identification of mitigation measures in dealing with the delays and cost overrun in public building construction projects

The study adopted the use of quantitative analysis method by using syntax mathematical operation in determining the mean score

Table 1.Mean score values (M) comparison table

SN.	Mean Score (M)	Ranking	Color
1	$4.0 \leq M \leq 5.0$	High Mean Score	Yellow
2	$3.0 \leq M \leq 3.9$	Medium/Moderate Mean Score	Blue
3	$1.0 \leq M \leq 2.9$	Low Mean Score	Red

Table 2. The Age of respondents

SN.	Age	Frequency	Percentage (%)	Cumulative Percentage
1	Below 21	0	0.00%	0.00%
2	21 – 35	27	57.50%	57.50%
3	35 – 50	15	31.90%	89.40%
4	Above 50	5	10.60%	100.00%
	Total	47	100.00%	

B.The Gender Distribution

The gender was also an important factor considered, as it constitutes other responsibilities apart from professional, which affect quality and commitments to project implementation, as shown in Table 3.

Table 3. The gender distribution

SN.	Gender	Frequency	Percentage (%)	Cumulative Percentage
1	Male	29	61.70%	61.70%
2	Female	20	38.30%	100.00%
	Total	49	100.00%	

C. Category of Organization

The category of the respondent in the construction was another important factor considered, in order to obtain views from parties undertaking building projects in Pune, as seen in Table 4

Table 4.The categories of respondents

SN	Respondent	Questionnaire Distributed		Questionnaire Returned		Response rate
		No	%	No	%	
1	Client	6	8.00%	4	8.50%	66.70%
2	Consultant	35	40.00%	24	51.10%	80.00%
3	Contractors	40	52.00%	19	40.40%	48.70%
	Total	81	100.00%	47	100.00%	62.70%

D. The Categories of building contractors

Table 5.The Categories of building contractors

SN	Classes of Contractors	Questionnaire Distributed		Questionnaire Returned		Response Rate
		No	%	No	%	
1	I	23	59.00%	5	26.30%	21.70%
2	II	16	41.00%	14	73.70%	87.50%
	Total	39	100.00%	19	100.00%	48.70%

E. The category of consultant

Table 6.The category of consultant

SN	Category of Consultant	Questionnaire Distributed		Questionnaire Returned		Response Rate
		No	%	No	%	
1	Quantity Surveying	24	80.00%	18	75.00%	75.00%
2	Architectural	4	13.30%	5	20.80%	125.00%
3	Engineering	2	6.70%	1	4.20%	50.00%
	Total	30	100.00%	24	100.00%	80.00%

VI. CONCLUSION

- 1) This study identified mitigation measures in dealing with delay and cost overrun in public building project, in which out of 25 mitigation measures, effective project planning and scheduling was ranked first; followed by controlling design changes, and effective coordination and communication between parties.
- 2) Furthermore, the respondents insisted on more attention to be paid on the progressively payment to the parties by the client; having accurate cost estimates; as well as appointment of competent site and project manager.
- 3) It includes, comprehensive contract administration; ensuring prompt resolution in design change queries, issues and authorization report; efficient and effective planning time schedule for material procurement delivery process; developing effective strategic planning for solving identified risks; and ensuring on the timely availability of finance.

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