iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 10 **Issue:** VII **Month of publication:** July 2022

DOI: https://doi.org/10.22214/ijraset.2022.46029

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue VII July 2022- Available at www.ijraset.com

Critical analysis On Cost Management of Commercial Buildings by Using Primavera Software

Samrudhi Kashid[1], Prof. Sandeep. S. Chavan[2]
[1]PG Student [2]Project Guide, Department of Civil Engineering, TKIET, Warananagar, Shivaji University, India

Abstract: ***Project monitoring and control is that the tactic of collecting, recording, and reporting information concerning project performance. Project controlling uses the info from monitor activity to bring actual performance to planned performance. this study deals with the project monitoring process of "Standard Design Factory", a four storied (G+9) factory building whose construction is current at Dubai. A comparison between the planned progress of construction work and actual progress is performed during this study using project management software Primavera P6. Despite well-established principles and policies of project monitoring the strategy itself won't be efficiently accomplished in an exceedingly project, due to those practical problems existing or arising within the project Such an effort in realizing the sensible problems in implementation of project monitoring and control will contribute to proper recognition of the matter areas and fitting place the control process to rectify the deviations.***

Keywords: Cost management, primavera, G+9,commercial, time period.

I. INTRODUCTION

Construction projects are considered to be the foremost important pillars of any society therefore it is necessary to concentrate to them and examine their constantly changing circumstances, the event projects sector is one all told the foremost vulnerable to changing circumstances because it's directly related to changing social , Economic and cultural conditions ,and thus the development projects are supported three pillars : cost, quality and time, therefore the success of any project is based on these pillars. The project is taken under consideration successful if it constructed with the simplest quality, all-time low time and thus very cheap cost, hence, the success of the project is closely related to the worth estimate of the project. projects and construction projects particularly could even be subject to financial loss or economic failure because of inaccuracy within the calculation and estimation of the costs expected, when the implementation of the project could even be the 000 costs greater than the expected costs and then the loss of the project, must be understood and study the worth estimate which is an important part of project cost management, by studying and understanding the principles and proper steps of the concept of cost estimation management, which contains cost estimation, budget determination & control.

II. REVIEW OF LITERATURE

1) *Mahmoud Fadhel Idan:* The estimate costs of management in construction projects were studied during this paper, which gave achieved understand well by applying a principal cost estimate management. the importance of this study comes from considered the development projects are one in every of the foremost exposed projects to extend realistic costs over expected cost, due to the numerous unexpected changes that occur, which is one among the areas of data of project management.
2) *Manlian Ronald:* Project Cost Management may be a professional capability and expertise in planning and controlling costs for a construction Project additionally as analyzing the potential of risks that potentially cause swelling of construction costs. a/c to Cost management may be a process of controlling expenses on construction projects in every stage from feasibility to handover and ensuring that the price plan remains in situ.
3) *Sandip Pawar:* Project planning is an element of project management, which relates to the utilization of schedule like Gantt charts to plan and subsequently report progress within the project environment.
4) *T. Subramani:* because of an increasingly competitive environment, construction companies are forced to be more efficient and achieve competitive operational advantage. Companies are always searching for improvements in equipment features,

©IJRASET: All Rights are Reserved

communication tools, efficient management techniques, and training human resources. Construction companies also are narrowing their focus, becoming specialists in certain kinds of construction projects. This specialization requires more focused project planning and controlling techniques that persuade be better surely sort of projects while providing specialized construction services. the advantages of effective planning, scheduling and control of construction projects are: reduced construction time, reduced cost overruns and therefore the minimization of disputes.

5) *Vinayak:* Primavera P6 is amazing software, which is employed not just by planners, but also managers, engineers, schedulers, and anyone else involved in planning, management, reporting of a project. Primavera P6 has benefited every industry from aerospace to manufacturing, electronics to that, Telecom to Civil, any more. Primavera is a tremendous project management software tool which isn't just utilized by project managers. Designed to create managing large or complex projects a chunk of cake, Primavera is that the ideal tool for anyone who is involved in planning, monitoring and reporting on the progress of any big task, development or venture.

III. PROJECT DETAILS



Project: 3B+G+9 Storey, 3 Star Hotel Building
On Plot No. 3260889 Dubai, UAE

Client: Pavilion Hotel Management Ltd.
Consultant: LACASA Architectural & Engineering Consultants
Contractor: GBH International Contract: 570 Days (including Mobilization)
Amount:35,142,500.00 AED
Indian rupees: 758728318.42Rs
Start Date: 02 June 2018 (Intended)
Finish Date: 23 December 2019

IV. SCOPE OF WORK

The Construction of 3B+G+9 Storey 3 Star Hotel Building, including all the Civil, Architectural, MEP works, Finishes and Contractor designed works such as Post Tension Slab construction etc.; as detailed in the Tender drawings and Tender specification of awarded scope & BOQ Items
The total built-up area is around 68,824 Sq. ft. including basement floors.
The scope of work for this Contract covers as per the specification of awarded scope, preparation of shop drawings, procurement, Construction completion and Commissioning of the building

Prime Cost items will be selected by the Client and supplied to Contractor for the installation in line with Contractor's Construction Schedule.
Provisional Sums item will be nominated by the Client and directed to Contractor in line with Contractor's Construction Schedule.

A. Challenges in Construction Industry

1) Cost Overrun: Cost it is the phenomenon within which the client has to spend more money for the completion of project than the originally estimated i.e., the project goes over the budget.

2) Time Overrun: Schedule Overrun it is the phenomenon during which the project gets delayed beyond its expected completion time due to certain difficulties i.e., longer is required to finish the project than initially planned. Before you begin to format your paper, first write and save the content as a separate document. Keep your text and graphic files separate until after the text has been formatted and styled. don't use hard tabs, and limit use of hard returns to merely one return at the highest of a paragraph. don't add any quite pagination anywhere within the paper. don't number text heads-the template will try this for you. sufficient time, cost of design phase, fraudulent prevention, bulk material purchase and by applying short term goals were marked as vital factors to be considered.

3) Causes of Cost Overrun: Availability of raw materials, allocation of to beat cost contractor or designer originated category.¬. cost variation in owner originated project than the key factors are design changes, incorrect evaluation of projects time and price, risk and uncertainty related with projects, nonperformance of subcontractors, conflict between project parties, fluctuation of rates, low skilled manpower, financing and payment. unstable charge per unit proper training¬, complexity of works, lack of and knowledge of project manager, disagreement in contract documentation, lack of appropriate software, inflation of costs, contract and specification interpretation disagreement, dependency on imported materials, unpredictable climatic condition, projects fraud and corruption, weak regulation and control and unstable.

4) Causes of your time Overrun: Majority of infrastructure projects in India are littered with time overruns. These overruns vary from few months to as high as five or more years placing

a) The project viability in danger.\ Delays in land acquisition and site handover is that the primary reason for time overruns in pre-execution phase Delays in land acquisition are driven by several factors.

b) Regulatory approvals from several agencies leading in delay in Construction.

c) Poor program management resulting in to ineffective co-ordination with other projects and schedule delay Insufficient management of Project design/scope change is widely prevalent within the infrastructure sector availability of resources for infrastructure sector is restricted plans, specifications, etc. don't seem to be received by the contractor in time.

The main components of the building and the related build- up areasare summarized below:

Sl. No	Main Components	Built up Area (Sqft)
01	Basement Level 3	8,229.08
02	Basement Level 2	7,281.85
03	Basement Level 1	7,451.70
04	Ground Floor	5,378.66
05	1st Floor	4,234.23
06	2nd Floor	4,209.80
07	3rd Floor	4,356.08
08	4th Floor	4,356.08
09	5th Floor	4,356.08
10	6th Floor	4,356.08
11	7th Floor	4,356.08
12	8th Floor	4,356.08
13	9th Floor	4,356.08
14	Roof Floor	1,546.57

TOTAL AREA - 68,824 Sq. ft.

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue VII July 2022- Available at www.ijraset.com

V. COST MANAGEMENT BY PRIMAVERA

Oracle Primavera P6 could also be a project, portfolio management that's used for planning, managing and executing your project work. it's designed to handle large and small projects in an exceedingly number of diverse industries, like construction, manufacturing, energy, and IT. It's been doing so for quite 30 years in projects across the globe. Primavera P6 can trace its origins to 1983 when it had been first established under the name Primavera Systems. within the following 15 years, it'd rapidly gain in popularity. By the late 90's, advancements in server technology drove the company to separate Primavera systems into two versions of the software: a desktop application (which is preferred by contractors, suppliers and manufacturing companies) and a web-based enterprise option.In 2008, Primavera Systems was bought out by Oracle, who then developed the tool into the version that's used today Cash flow management and fund management in primavera Cash flow management Executives and project controls professionals—including those in costs and contracts—must be ready to reliably forecast final costs by taking under consideration actuals so far, changes, trends, and risks over time. Further complicating this is often the necessity to know the specified capital for the approaching months and years. to try and do so requires accurate, comprehensive reporting and analysis. The income management feature of Primavera Cost Controls is fully integrated with the business processes, cost sheets, schedules, and portfolio manager within Primavera Unifier. The income management feature automatically pulls project information and transaction data directly from sources like enterprise resource planning systems or supply chain management applications including Primavera P6. Getting data directly eliminates the errors and delays that arise from manual data entry. The intuitive interface of Primavera Cost Controls is flexible enough to handle virtually any custom or manual income curve, and also the full-color graphical display facilitates analysis by allowing easy comparison. Users can even employ a mix of both manual and automatic processes to realize easy use and full control over how project funds are spent. The funds management feature also provides visibility into the balance, disposition, and standing of every funding source—from high-level views of all sources to their use for every project and transaction—along with a close audit trail and full reportability. The funds management capability is fully integrated with the price sheet, ensuring visibility of funding against project budgets, actual spend, and forecasted spend. With Primavera Cost Controls, you gain greater financial control, operational discipline, and reduced risk through a robust, easy-to-use solution for managing costs, cash flow, and funds. Primavera Cost Controls provides superior cost visibility and control of all cost aspects of your capital program. Track and manage budgets, commitments, spends, and forecasts. Automate all cost business transactions at the extent of detail appropriate for any project size, with roll-up across the enterprise. Included are complementary modules for document management, phase gate control scheduling, reporting and more. Primavera Cost Controls is a component of the integrated Primavera Unifier offering.

A. Schedule Statistics

Schedule Statistics		
Sr. No.	Description	
1	Data Date	07-May-18
2	Earliest Early Start Date	07-May-18
3	Latest Early Finish Date	08-Feb-20
4	Total Activities	3301
5	Critical Activities	500
6	Relationships	7653
7	Activities without Predecessors	1
8	Activities without Successors	1
9	Activities with Constraint	0
10	Activities with Unsatisfied Constraints	0
11	Activities with Unsatisfied Relationships	0
12	Activities with External Dates	0
13	Out-of-sequence Activities	0
14	Milestone Activities with Invalid Relationships	0

©IJRASET: All Rights are Reserved

B. Construction Intermediate Key Dates

Activity ID	Activity Name	BL Original Duration	Baseline Start	Baseline Finish
Construction Intermediate Key Dates				
TSH-KD-010	Commencement of Enabling Work		22-Jul-18	
TSH-KD-020	Completion of Substructure			16-May-19
TSH-KD-030	Demobilization of Dewatering System			02-Jul-19
TSH-KD-040	Completion of Super Structure			09-Oct-19
TSH-KD-050	Substation Energization			25-Dec-19
TSH-KD-060	Completion of Finishing Work Upto Typical Floor			28-Dec-19
TSH-KD-070	Completion of Swimming Pool Plant Room, Roof and Upper Roof Floor Finishing Work			04-Jan-20
TSH-KD-080	Civil Defense NOC			02-Feb-20
TSH-KD-090	Building Completion Certificate			06-Feb-20

C. Permits and NOCs

Activity ID	Activity Name	BL Original Duration	Baseline Start	Baseline Finish
Permits		160	09-May-18	16-Oct-18
By Consultant/Client		11	09-May-18	29-May-18
TSH-PER-010	Site Possession Letter by Client/Consultant	0		09-May-18
TSH-PER-020	Receipt of Building Permit from Client/Consultant	0		29-May-18
By Contractor		126	12-Jun-18	16-Oct-18
TSH-PER-030	DPG Fencing Permit	0		12-Jun-18
TSH-PER-040	De-watering Permit	18	23-Sep-18	16-Oct-18
NOC		78	15-May-18	01-Aug-18
By Consultant/Client		38	15-May-18	18-Jul-18
TSH-NOC-010	Receipt of RTA Design NOC from Client/Consultant	0		15-May-18
TSH-NOC-020	NOC - Design and Build for Shoring Work	29	05-Jun-18	18-Jul-18
By Contractor		23	07-Jul-18	01-Aug-18
TSH-NOC-030	NOC for Neighboring Plot (Entry/Exit)	12	07-Jul-18	19-Jul-18
TSH-NOC-040	Demarcation Certificate	5	19-Jul-18	24-Jul-18
TSH-NOC-050	NOC for Excavation within Costal Zone by DM	0		01-Aug-18

D. Input Data

Activity ID	Activity Name	BL Original Duration	Baseline Start	Baseline Finish
Issue of Input Details, Drawings and Documents by Client/Consultant				
TSH-DOC-010	Receipt of Stamped IFC Drawings incl. Native Files from Consultant - Architectural	0		15-May-18
TSH-DOC-020	Receipt of Stamped IFC Drawings incl. Native Files from Consultant - Structural	0		15-May-18
TSH-DOC-030	Receipt of Stamped IFC Drawings incl. Native Files from Consultant - MEP	0		15-May-18

E. Interface

Activity ID	Activity Name	BL Original Duration	Baseline Start	Baseline Finish
Substructure & Super Structure Works				
	Nomination of Lift for Finalization of Lift Pit Depth and Reinforcement Details of Raft/Pile Cap			
Interior Finishes				
	In order to reduce interface coordination risk among other trades, PS and PC Nomination concluded with in stipulated time frame from the Project commencement date			

F. Project Calendars

1) Five days project calendar defined and assigned for authorities & consultant review / approval.
2) Six Days Project Calendar Defined and assigned for Execution Activities.
3) Seven days project calendar defined and assigned for Procurement (Manufacturing andDispatch of Material)

G. Critical Activities

Critical Path for the project is passing through Substructure to Super Structure work to Finishing to Testing and Commissioning to Local Authority Inspection & Approval.

VI. METHODOLOGY

The following methodology will be adopted:

1) Studying primavera software in detail.
2) Selecting case study of commercial construction projects.
3) Analysing project data by primavera and finding facts.
4) Comparing process with conventional one to find out results in terms of cost and time

VII. RESULTS AND DISCUSSION

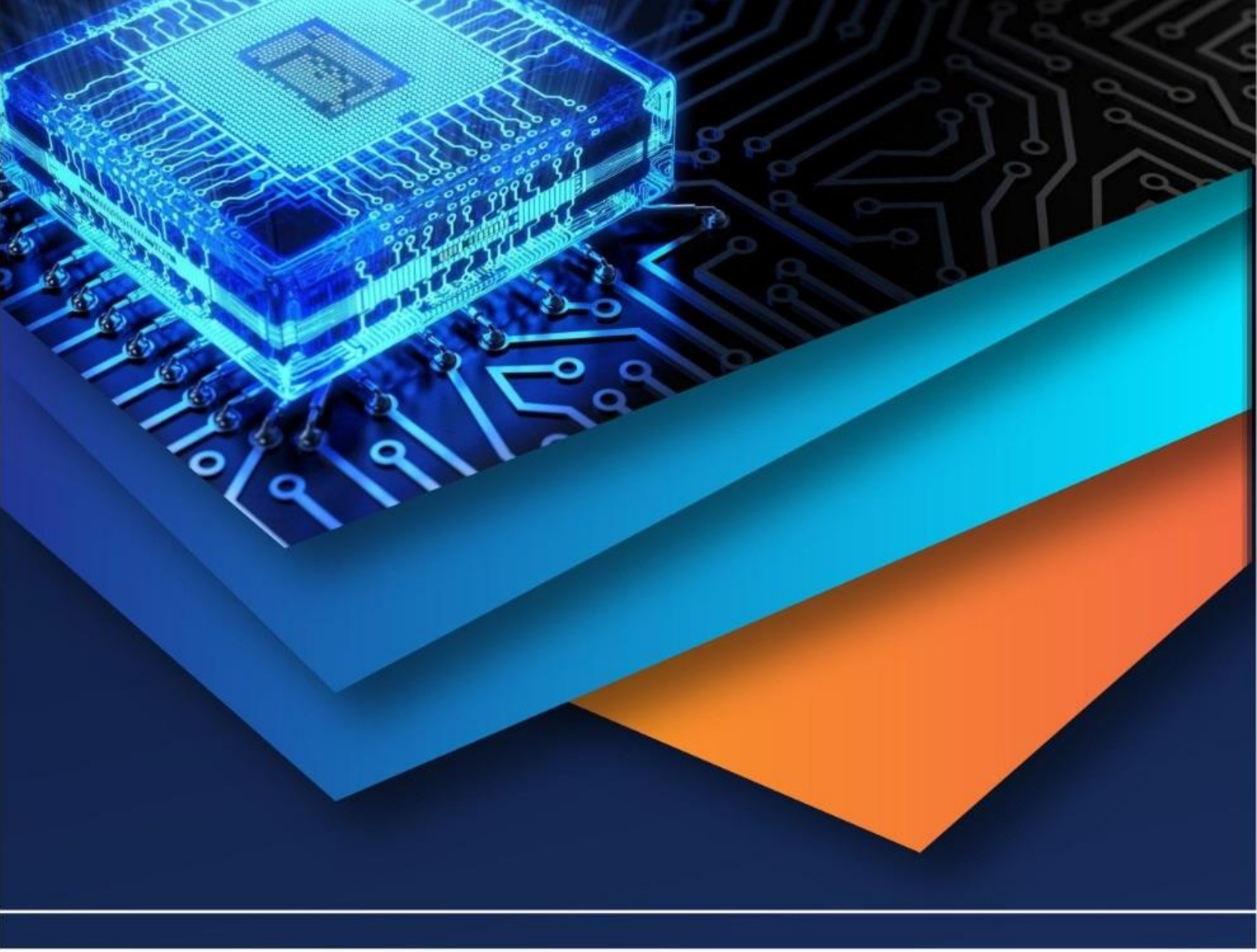
Cost management is crucial to maintaining the financial integrity of any project, contract, or portfolio. Primavera Cost Controls includes best-in-class automation of all cost processes, including estimates, commitments, spends, variances, forecasts, and more. Constantly changing information is managed through Oracle's Primavera Unifier workflow engine, where budget changes, contract changes, and risks are all tracked to create sure decisions are responsibly made with current data. Managing these elements is enabled through the merchandise interface or even directly from automated e-mails, increasing easy use. All costs roll up to a central cost sheet normalized by a strong cost code structure, where project cost information is obtainable for drilldown by work package or for the whole project. All cost structures are easily configurable by an administrator.

VIII. CONCLUSION

This study compared time performance of the quality method of construction for high- rise residential and Industrial Building System (IBS) method by formulate benchmark measures of industry norms for overall construction period using scheduling simulation modeling. The positive changes include creating a healthy working environment among those involved directly within the construction industry. Better Efficiency in Delivering Services: Project management provides a "roadmap" that's easily followed and finally ends up in project completion. Once you recognize where to avoid the bumps and potholes, it stands to reason that you're visiting be working smarter and not harder and longer. Improved Customer Satisfaction Whenever you get a project done on time and under budget, the client walks away happy. And a contented client is one you'll see again. Smart project management provides the tools that enable this client/manager relationship to continue. Enhanced Effectiveness in Delivering Services the identical strategies that allowed you to successfully complete one project will serve you an excellent again and again over and also Reduced risk and price of schedule overrun. It helps easily plan and manage project activities, it optimizes management of all resources, it gives clear visibility of what's occurring within the project, It allows quick and straightforward forecasting of WBS's, activities or projects.

REFERENCES

[1] Mahmoud Fadhel Idan" Estimate cost management in construction project" (2019) International Journal of Applied Engineering Research ISSUE- 2019
[2] Manlian Ronald (July 2018) "Analysis of project cost management and the effects of cost overrunin construction project." International Journal of Innovative Research in Science, Engineering and Technology Issue- July 2018
[3] Sandip Pawar "Time and cost planning in construction project" (2013) International Journal of Innovative Research in Science, Engineering and Technology ISSUE – APRIL 2013
[4] T. Subramani (2014)"Planning and Scheduling of High-Rise Building Using Primavera" International Journal of Science and Research (IJSR) Issue: June 2014
[5] Vinayak (2015) "Construction Management and Scheduling Of Residential Building Using Primavera" International Journal of Science and Research (IJSR)



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)