

Planning and Scheduling of G+12 Building using Primavera P6 A Review

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ABSTRACT

Utilization of Project management in construction industry is now a days considered as a big skill to remote the allocation of resources and scheduling of the entire project. For such management activities various tools like primavera and MSP are in trend. People utilizes these tools to carry out an estimate scheduling for the entire project before starting. This helps out in making project run smooth and without any delay.

In this paper presenting review of literature related to analysis and scheduling of project management.

Keywords : Scheduling, Allocation, Management, Construction, Resources.

I. INTRODUCTION

The project consumes several resources in its life to achieve the desired goal. An increase of cost due to a delay in time is associated with resources. For large construction projects with a large budget; it becomes very difficult for the project team to complete tasks on time. It is therefore very important to have a tool in the hands of the project team that can be used to monitor project activities. Primavera Project Planner P6, the Oracle software, is an incredible asset owned by the Venture Group. The product helps in the efficient organization, planning, and control of activities. Construction workers in India are reluctant to use the organizational and business planning processes used around the world and currently serve as a benchmark for the timely completion of tasks.

The survey includes discussions/presentations on Primavera P6, an accessible business organization, and planning device. The nature of the planning established by the product requires regular details and why the product improves the business is largely overlooked by customers in India.

Without prejudice to the disclosure of information on various tenders, their interrelation, and the conditions under which it is possible to anticipate the overall duration of the company during the preparatory phase. The planning must be comprehensive enough so that the client can understand in detail the rationale for the various planning exercises. Currently, the development industry is one of the most widespread and rapidly growing realities in our country and in the world. It

is now necessary to have specific arrangements and strategies to improve public finances, and their current situation, to cope with the degree of progress in and around metropolitan areas, and the time required to achieve this can be reduced.

Wide number of Project Management Tools are available in global market and number of them are used in the construction industry to track and monitor their project progress in order to identify and manage their resources efficiently. Researchers have worked on different areas to identify the applications of such tools and some of their research papers are summarized below.

II. LITERATURE SURVEY

P. N. Pharne et.al (2022) in the research paper, author investigated a road project of 1 Km length by conventional method of planning and using primavera P6 software planning. Comparative study of both conventional and primary software was given and the primavera gives better results. Planning, monitoring and controlling, as well as the need and effectiveness of project management software like Primavera P6 in a construction project of this study was to understand the role of monitoring and control in the progress and timely completion of a construction project. Delays in construction project is minimized by using primavera software. Effective handling of materials and resources is optimized by using Primavera.

Results showed the drawbacks of the present project management system in running project. An efficient and cost effective new project management plan was brought to conclusion.

Veerabhadragouda P Patil et.al (2022) in the research paper, G+5 college Building Plan was drafted in AutoCAD and estimate the building material quantity and scheduling and controlling the project by

primavera p6. The project site that was taken for project was Bangalore. The quantities of different elements like footing, beam, column etc can be estimated by using estimation methods like center line or long wall

- short wall method and using excel format to tabulate estimated result efficiently.

Conclusion stated that planning, scheduling and monitoring of the start and end dates of activities can be done for the project using primavera. The duration for the completion of the project be from 5-sep-2021 to 1-mar-2023. Project management Technique helps in forecasting the project duration before starting any activity of the construction. Such that it helps to use the time efficiently and overcome any further delays in the project. Hence using modern tools like primavera over conventional method help in planning, scheduling, tracking and monitoring the constructional activities efficiently.

Sudarshan. S and Geena George (2021) objective of the research was to understand about the p6 software and schedules, methodologies to be adapted properly to get the precise project dates. A hotel building with B2 +G+11 storey building was considered for the study. Planning and scheduling was done with MSP and Primavera and detail analysis was conducted.

Results of the analysis says 120 days was extra needed to complete the project in Msp as compared to P6. In Primavera p6 different calendarers are assigned for Pre execution activities and execution activities. Primavera helps in find out critical movements of plan so that different apprehension will be those actions which delay in the project are often avoided. Reduction of 5% to 8% in the labour cost may be attained using Primavera P6 as it gives precise scheduling. The methodology to keep up men and material are well understood through the knowledge of construction process. Primavera & MSP both the

software's has their own unique process in scheduling the activities. The results of earned value analysis show that the project cost is escalated because of unforeseen increase in labour and material cost. The extra cost that has incurred can be recovered within the next activities in the line by adopting the project controlling tools like fast tracking and activity duration crashing. The duration of the remaining activities is reduced by using project management techniques and rescheduling the project.

Atul Yadav and Rishabh Mahure (2020) objective of the research paper was to conduct scheduling using software's (Microsoft Project and Primavera p6) and analyze the existing methods to identify the sequence and time (duration, Start time, finish time) of the construction project. Analyze and identify the dependencies of the tasks to track the project and update it on regular basis and to analyze the delays in the project.

Software serves as the effective tools for creating Charts and other detailed reports for the schedule. Both the software have different way of working style as the Primavera P6 provide more systematic way of working and have more features than Microsoft Project. As all the input parameters are same so the result obtained from both the software are same.

Fathima Zerine T and Angela C. Joy (2020) Planning, monitoring and controlling, as well as the need and effectiveness of project management software like Primavera P6 in a construction project of this study was to understand the role of monitoring and control in the progress and timely completion of a construction project. This objective was achieved through revision of literatures and methodologies involved in monitoring and control. The study proved to be a guideline in understanding the progress of construction work and to identify the

specific problems arising during the process. Results stated the drawbacks of the present project management system in running project. An efficient and cost-effective new project management plan is brought to conclusion

Meghana Kadiyala et.al (2020) research paper presented planning and scheduling of a G+5 building using the Primavera software. Planning and scheduling have become a major concept to be considered for a smooth execution of construction works.

Planning and scheduling helps to forecast and understand the progress of a construction project and it also keeps a track on the risks arising during the process. The methodology to implement construction management of a building can be explained with respect to planning, scheduling, resource allocation and levelling. Proper resource optimization is feasible during levelling of resources based on the required conditions and constraints. Primavera serves as an effective tool for generating Gantt chart for planning and scheduling a real time Multi-storey construction project.

K. Suresh Kannan and M. G. Ranjith Kumar (2019) objective of the research paper was to identify construction sequence for a residential building construction and track the project and analyze the reasons for delays, and increase in estimated budget etc. The planning and scheduling of residential building was done using Primavera P6 software.

All activities and their sequence of occurrence, duration, and resources and their planning, scheduling of two story residential building work construction was

completed. It involves choice of technology, the definition of work tasks the estimation of the

required resources and durations for individual tasks, and to find interactions among the different work tasks. The project was completed before the contract duration and reduced time cost and all resources.

Md. Zishan Mallick and Mohd Zeeshan khan (2019) in the research paper, author conducted planning and scheduled a G+2 office building using a very conventional project scheduling software Primavera P6. Several activities and task were performed during the planning phase, duration were allotted, baseline were mentioned, activity detail, activity start and finish. Primavera helps in timely completion of the project and reduction in costs. So it is mostly uses in large construction industry. A detailed sequence of tasks are performed in order to examine the consequences of collected data in terms of scope and duration of the project.

Results stated that the software was less time consuming and require no paper work, it provides detailed knowledge of cost, time, working hours, and update made in the project it helps in better tracking of the project by the method of finding out critical activity which can be given special concern to avoid delay in the project, it helps in reduction of labor cost up to 5%. This study proved to be a guide line in understating the progress of construction. Result of the study shows the basic drawbacks of the present project management system to the newly planned project management system.

Harshali Pawar et.al (2018) author ensured a study on a G+7 residential building, where analysis has been done using primavera software p6. Primavera gives the total duration required for the construction of the different phases involved. It determines the Critical Path of the schedule of the project. It determines the total float generated due to interdependency of activities. It keeps a track of the scheduled and the on-site construction. The use of project management

software in a proper way reduces the cost and time of construction. Use of software gives a proper scheduled path which helps in setting a track for all the activities, to check if there is deviation from planned cost and schedule. It can investigate the defects in the planning, scheduling procedure of the client organization.

Shahnawaz Naseem et.al (2018) author conducted investigation on a residential (G+4) apartment covering up the progression of planning, scheduling, tracking and controlling of activities.

Results stated that habitual monitoring of the work under implementation must be done at least within week in order to take sufficient actions against improbability. Primary baseline and Gantt chart created makes easy to recognize critical path and monitoring task against it improvement extremely easy by observing colors of bars. WBS helped to systematize, assemble and know the work achievement in percentage at every portions/nodes in it. Appropriate co-ordination and ease of statement of running of assignment. Using primavera technique of resource compulsion, compression of various activities is done by increasing working hours. Primavera (P6) proved to be a best tool for scheduling, monitoring and controlling and shows its effectiveness in only if best results with less attempt of user by preventing massive volume paperwork.

Suvarna P et.al (2018) research paper presented planning and scheduling of Sangapura bridge project using management software Primavera P6. Project tracking was done by considering the earned value management technique to check the cost and time overrun if exists. The Construction started in January 2016. Duration of Project as per baseline Schedule is 867 days. Tracking till June 2016 revealed 90% completion of piling work and 100% Girder Reinforcement and over all completion of 16%. The

Schedule Variance, Cost Variance and CPI in addition to SPI were clearly indicated through Earned Value Analysis.

Results stated that the case study considered is ahead of schedule and within the budget. Research proved to be helpful in measuring time and cost performance of a project in EVM and enabled the analysis of the efficiency of various parameters related to the progress of the project.

Chiranjeevi D S et.al (2017) The Earn value management is a program evaluation approach which is evaluated and tracks a project in better manner. This project report indicates significance, execution and particular components of earned value management that advantages extend director & eventually brings about project achievement. The project is tracked on 3 durations from 1-June-2015 to 1-Jan-2016, 1- Jan-2016 to 1-Aug-2016 and 1-Aug-2016 to 4-Apr-2017 in all that we obtained Plan

Value (PV), Earn Value (EV) and Actual Cost (AC) from these 3 basic specification the Earned Value Performance measurement indices obtained. The Earned Value Performance index shows the performance of a project.

Cost variance of project is -2,07,83,000 the negative sign shows the project cost is over run. If the cost variance is positive the project is underrun from planned value. And if the cost variance is negative project is overrun from planned value and troublesome condition. 93.09% of planned schedule is completed Cost requires to complete remaining activities is 1,28,96,196. To complete project on scheduled time the project has to perform in 1.02% speed of planned value

Dhinesh.M et.al (2017) objective of the research paper was to identify construction sequence for a G+5

residential building construction and the carpet area of the construction was 57000 Sqft. Proper planning, scheduling and tracking are the major parameter in construction industry. The systematic flow of work is adopted by using Critical Path Method and Programme Evaluation and Review Technique. Without proper controlling and scheduling will cause cost overrun and consequently increases project duration. The schedule that was prepared was tracked and updated from November 1st to March 31th and actual costs are calculated based on the updated schedule. Record actual start date for those activities which started. Record activity % complete for the ongoing or completed activities to determine how much of the work has been completed. In primavera scheduling duration upto 4th floor is 417. The delay of the project is 25 days. The reason for the delay of the project is demonization issue of financial problem, delay in material supply, various issues in respective states, banking restriction.

Conclusion stated that the delay can be rectified by proper scheduling and periodical tracking throughout the project.

S M Abdul Mannan Hussain et.al (2017) objective of the research paper was to analyze the schedule control techniques by constraints and activity types is done using primavera P6 software for an apartment building. The project schedule control decreases the duration due to apply of constraints, level of effort, resource dependent it has an effect on the project duration. Author further compared time performance of the conventional 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 in the construction industry.

Conclusion stated that project management provides a “roadmap” that is easily followed and leads to project completion. Once you know where to avoid the bumps and potholes, it stands to reason that you’re going to be working smarter and not harder and longer. Smart project management provides the tools that enable this client/manager relationship to continue. Enhanced Effectiveness in Delivering Services The same strategies that allowed you to successfully complete one project will serve you many times over and also reduced risk and cost of schedule overrun. It helps easily plan and manage project activities. It optimizes management of all resources, It gives clear visibility of what’s going on in the project, It allows quick and easy forecasting of WBS’s, activities or projects.

Mohammed ZakiHaider et.al (2016) Proper planning, scheduling, tracking and application administration are the major parameter in construction industry. The systematic flow of work is adopted by using techniques called Critical Path Method (CPM) and Programme Evaluation and Review technique (PERT). The state for management of the project .and the goal intended to attain project planning is to bring forth a time table of work with each activities. The main goal intended from the project was to complete with proper plan and schedule within the gross budget allotted for actual project. The complete process of using resources and to achieve quality in construction can be done by proper project management. The Oracle primavera p6 software includes all possible details to scale with multi-project planning control even for a wide range of projects, thus proper resource allocation and project portfolio management can be achieved by sitting on single system. Planning, scheduling, tracking and administration application in primavera is an advance technology in

construction industry which requires the study of material, manpower, improved design and hence improves the construction management technique.

P Raghunath Reddy and B.Harish Naik (2016) Schedule made by using techniques that reduce the constraints helps for the project to complete earlier of four to five months from the actual base schedule of the project and thereby increase the profit outcome from the project. Further, with the management on the labour resource of skilled, unskilled male worker and unskilled female worker in the construction activities, the cost spent on the labour resources reduces by 5% of the actual cost spent on the labor resources helps to manage the work easily and it reduces the information constraints and risks between the management and the site members which greatly contribute to the project success. Activities on the site with respect to execution of the Residential project are thoroughly observed and comparison is made between planned and actual executed schedule. This study gives brief explanation for preplanning project management, Pre planning helps to schedule the working period in a proper manner and also purchase the goods at the right time. Advantages of using this software is Centralized Project Repository. With all projects are in a centralized database, the robust security module protects project data and offers flexibility. CPM Scheduling provides Critical Path Method (CPM) Scheduling, which uses the activity durations, relationships between activities and calendars.

Study concludes that by using the Primavera a time period of 4 months from the actual base schedule of the project was saved and also helps to prevent the cost overrun, thereby ensuring the successful completion of the project. It helps to manage the work easily and also helps to avoid constraints or risks that will delay the project by interconnecting and parallelizing the activities and mobilization of the

resources from time to time for successful completion of the project within the estimated time.

III. CONCLUSION

Here in this paper we studied various authors and concluded that various authors tried to evaluate the variation in utilization of project management tools, also some authors studied these variations in live projects.

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