A Critical Literature Review on Implementation of Primavera Software on Construction Project

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Abstract : Proper planning and scheduling is very important part of construction projects for reducing and controlling delays of the project. Substantial amounts of time, money and resources are wasted each year in a construction industry due to improper management of construction activities. With globalization the construction projects have become vast and very complex. Planning of such projects requires huge amount of paperwork and time, which can be reduced with the help of project planning software. Providing good planning, proper organization, sufficient flow of resources to a project cannot automatically achieve the desired result. A warning mechanism must be present, which can alert the organization about its possible success and failures throughout the project. The main objectives of this study are to plan, schedule, and track an industrial project with the help of primavera P6 software and study the results generated. Also to recommend measures to the organization for enhancing their project planning skills for similar projects in future.

Keywords - **Planning, Scheduling, Tracking, Project Planning Software, Primavera P6.**
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I. INTRODUCTION

The construction industry is an integral component of a nation's infrastructure and industrial growth. Many problems and issues are being faced by the construction industry, the majority of them are cost overruns and time overruns due to inadequate project formulation, poor planning for implementation and improper management during execution. Observations show that proper skillful management is essential for a project to complete within time, estimated budget and with allocated resources. Providing good planning, proper organization, sufficient flow of resources to the project can automatically achieve the desired result. A warning mechanism must be present, which can alert the organization about its possible success and failures throughout the project.

Project Monitoring acts like a warning mechanism; it is the process of recording, collecting and reporting information regarding project performance that the project manager and others wish to know. Monitoring includes watching the progress of the project against time, performance schedule and resources during actual execution of the project and it identified the lagging areas which require timely attention and actions. Large projects become more complex and the ability to exchange information on paper within the organization on a timely basis gets difficult.

The traditional project management system cannot meet the demands of today's projects, as a tremendous amount of information and data on a project is always changing. The main objectives of this study are to plan, schedule, and track an industrial project with the help of primavera software, also to recommend measures to the organization for enhancing their project planning for similar projects in future.

II. CRITICAL LITERATURE REVIEW

The following are the previous research review based on planning, scheduling and tracking of construction project using primavera P6 software.

Bhosekar and Subramani et al. (2012) stated that Earn Value Analysis (EVA) has unique features that benefit clients, consultants and contractors involved in the project. From the comparison of result of Microsoft Project and Primavera P6 they found that the final result gives almost 99.5% accuracy. [5] [27]

Fernans, Maheshwar, Sahu, Sangeetha and Verma et al. (2013) found that the present project management system is not efficient and studied the project management software Primavera P6 and found that such softwares are very efficient in planning, monitoring and controlling. [11] [14] [20] [21] [29]

Badgujar, Rao, Sandhya and Shaik et al. (2014) studied Earned Value Analysis (EVA) and stated that EVA is a very useful tool in project management. It enables to find out potential problem early and do something to correct the problem. [3] [19] [23] [25]

Subramani et al. (2014) made a comparison between the conventional method of construction for the high rise residential project and Industrial Building System (IBS) using scheduling simulation modeling. This uses Primavera P6 software. They found that time and cost saving can be achieved using IBS. [26]

Polekar et al. (2015) identified defects in the planning, scheduling procedure. They also found that the contractors and subcontractors play vital role in the completion of the project on schedule, because major reasons of delay were related to contractor's performance. [16]

Dubey et al. (2015) stated that the optimal solution in terms of cost and time can be achieved with the use of earn value analysis. [9]

Esakki et al. (2016) stated that time management system performs a key role in the organization and it is responsible to complete the project within specific time and cost. The Primavera P6 software helps in completing the project within time and cost. [10]

Shaikh et al. (2016) found that Primavera P6 is a very effective tool for tracking project progress and cost associated with progress. They also identified that primavera eliminates lots of paper work unlike in the conventional method of planning and scheduling. [24]

Ahmed et al. (2016) found that with the help of Primavera Software profit outcome of the project can be increased. They also identified that 5% reduction in the cost of labor can be achieved with the use of Primavera software. [2]

Deepika et al. (2016) stated that Primavera is a very useful in finding out critical activities so that special concern can be given to those activities and delay in the project can be avoided. [7]

Malpani et al. (2016) carried out a study on Primavera P6 Release 8.2 and found that resource leveling can be done efficiently which optimizes resources. [13]

Mohammed et al. (2016) carried out a study of scheduling and planning using the oracle Primavera P6 web logic and stated that the oracle Primavera P6 web logic is highly advanced compared to Primavera standard Oracle Primavera alone P6 in terms of planning, scheduling and tracking of any project. [15]

Pradhan et al. (2016) carried out a study on Primavera P6 and stated that Primavera is very helpful for proper procurement of resources and in multiple projects. Resource leveling can be done efficiently. [17]

Chiranjeevi et al. (2017) stated that the earn value management is a program evaluation approach that track the project in a better manner. Better project performance evaluation can be done using earned value performance indices such as Schedule Performance Index (SPI) and Cost Performance Index (CPI). [6]

Dhinesh et al. (2017) made a comparison between manual scheduling and Primavera scheduling and found that Primavera is efficient for scheduling the project and it also optimize the days of the project. [8]

Belsur et al. (2017) carried out an EVA study on Standard Design Factory using Primavera P6 and identified that Primavera P6 is very efficient in planning, monitoring and controlling of Standard Design Factory project. [4]

Anne et al. (2017) carried out management on a multi project using Primavera and found that Primavera helps in scheduling and tracking of multi project without much difficulty. [1]

Ranjithkumar et al. (2017) stated that planning and scheduling with Primavera software provide detailed information about cost control, time management, working hour management, update and monitoring and delay of activities which enhance effectiveness in delivering services. [18]

Saini et al. (2017) stated that the Primavera software shows the progress of the project step by step and it can show the clear image of the project progress which helps in minimizing the impact of delays in the project. [22]

III. CONCLUSIONS

From the above literature review, we can conclude the following things:
1. Planning, scheduling and tracking of any construction project can be done efficiently using Primavera P6 software.
2. Management of multiple projects can be carried out efficiently using Primavera P6 software.
3. The Primavera P6 software is very useful in resource smoothing and resource levelling operations.
4. Project management using Primavera P6 software is more efficient, less time consuming and it requires less paperwork than conventional method.
5. The Primavera software provides detail information about cost control, time management, working hour management, update and monitoring and delay of activities which enhance effectiveness in delivering services.
6. The Primavera software tracks the project in a better manner. With the use of earned value performance indices such as Schedule Performance Index (SPI) and Cost Performance Index (CPI) project progress can be tracked in a better manner.
7. The Primavera software helps in finding out critical activities of the project so that special concern can be given to those activities and delay in the project can be avoided.
8. About 5% reduction in the cost of labor can be achieved using Primavera software.

IV. ACKNOWLEDGMENT

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