

# Application of Primavera P6 Software in Construction Project Management and Step by Step Procedure of Project Planning in Primavera P6 (Software)

**Mansi Bhalerao<sup>1</sup> and Prof Nivas Patil<sup>2</sup>**

ME Student, Department of Civil Engineering<sup>1</sup>

Assistant Professor, Department of Civil Engineering<sup>2</sup>

TSSMs Bhivarabai Sawant College of Engineering and Research, Narhe, Pune, India

**Abstract:** *Planning of any type of construction project is the most critical task before execution of construction project. Software like primavera p6 assist project managers for effective project planning and scheduling. Project planning involves the identification, grouping, and sequencing of activities while scheduling and allocating proper time frame for each activity and ensuring the timely availability of the required resources for completing the particular activity within the given timeframe without making delays. With the help of primavera project schedule, we get an idea of delaying schedule from the available duration of time for a particular activity since from starting of work. So primavera p6 offers clear field of vision of what is taking in the particular project.*

**Keywords:** Applications of primavera p6, Project planning, scheduling, Methodology

## I. INTRODUCTION

Project management itself the words indicate that do the planning in such way that we can successfully complete a project after occurrence of complicated situations. If we have planned and actual work progress report with us, we get help to deal with the situations which is hampered on costing and duration the of project, with the help of p6 we get entire project progress report to avoid issues arising during execution of project.

**Applications of Primavera:** Following are the applications of primavera p6 in construction project management,

1. Primavera p6 is professional and amazing software program, which is not employed not by simply planners, but also project professionals, engineers, schedulers, and other people involved with planning, management, project reporting.
2. It helps easily prepare and control project things to do.
3. It allows quick and easy forecasting connected with WBS'S things to do or assignments
4. You can monitor progress along with view past period efficiency for credit reporting purposes.
5. Usage of primavera p6 by allow simply companies further more for generating, management, and knowledge of schedule, costs information will become simpler.
6. Assists you easily breakdown projects along with activities structure.
7. Improved integration among p6 EPPM as well as Unifier cost controls that can help organization align schedule, budgets, and expenses.

## II. LITERATURE REVIEW

**Gaurav s. Narlawar, N.B. Chaphalkar, Sayali Sandbhor. (2019)** stated that project delays can avoid through primavera p6 software, with help of p6 project management becomes more efficient. For construction project monitoring and control primavera p6 turns out to be effective tool because the time to upgrade is significantly reduced.

[1]

**Sushant Pradhan, Rajendra. s, Vijay. K. (2016)** stated that planning and scheduling helps in future reference and execution of the project and well-planned project suffers less amount of loss of time cost. [2]

**Suvarna Desai, Dr. A. W. Dhawale. (2019)** stated that critical, path scheduling is done by using primavera p6 and it helps to identify the critical activity and suggesting suitable major using primavera. [3]

**Bob Schatz. (2005)** stated that primavera systems provide enterprise project portfolio management solutions that help customers manage their projects, programs, and resources. [4]

**S. M.B. Jaswanath, P. Sundra Kumar. (2018)** stated that primavera p6 can be used to schedule the project and reduces project duration in the construction project. [5]

**Mohammed, Rajendra. S, Vijay. K. (2016)** stated that planning and scheduling by primavera p6 provides the detail information about: cost control, time management, working hours management, update and monitoring, delays of activities with reasons, paper less project management at site, operating multiple projects simultaneously. [6]

### III. METHODOLOGY

Steps involves in Scheduling and Resources allocation to the site work.

#### Create an ideal schedule

To create an ideal schedule for any project, first step is to collect data available for the project Following step by step to procedure to create effective project planning in primavera p6,

#### 1. Create an Enterprise Project Structure (EPS)

Create the structure of a company and add different department as per our organization branching which executing the entire project.

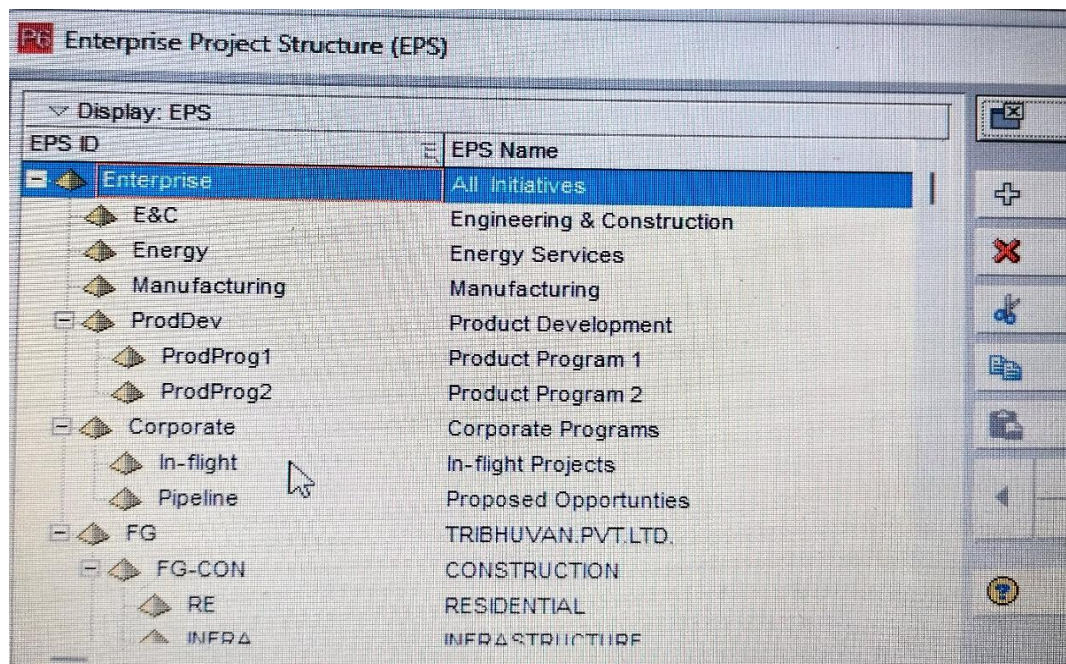
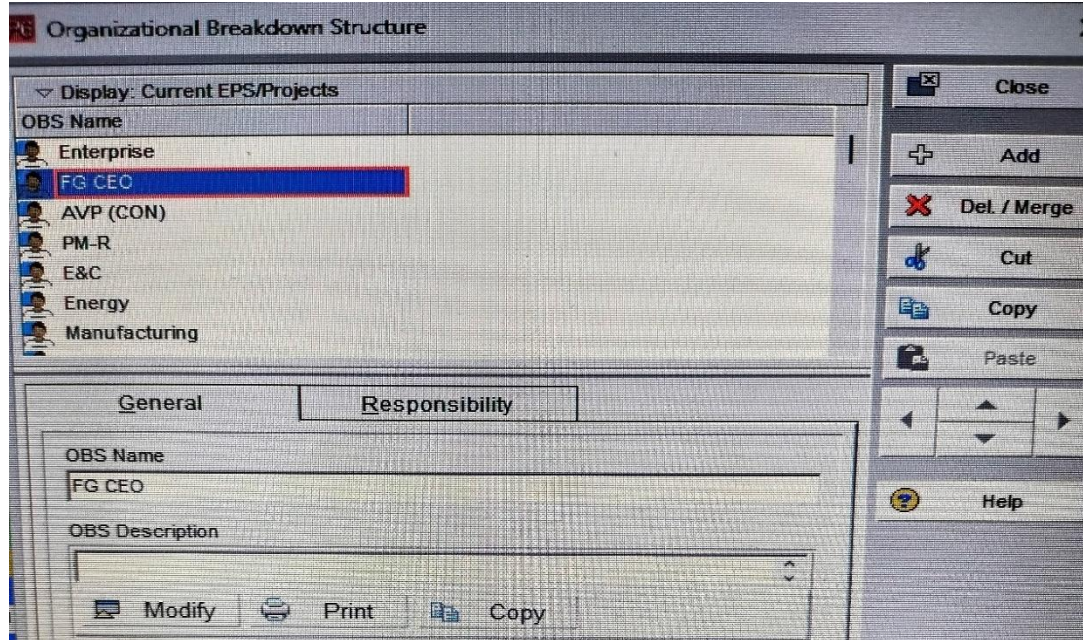


Fig 1: - Showing an EPS of project structure

**2. Create an Organizational breakdown structure (OBS)**

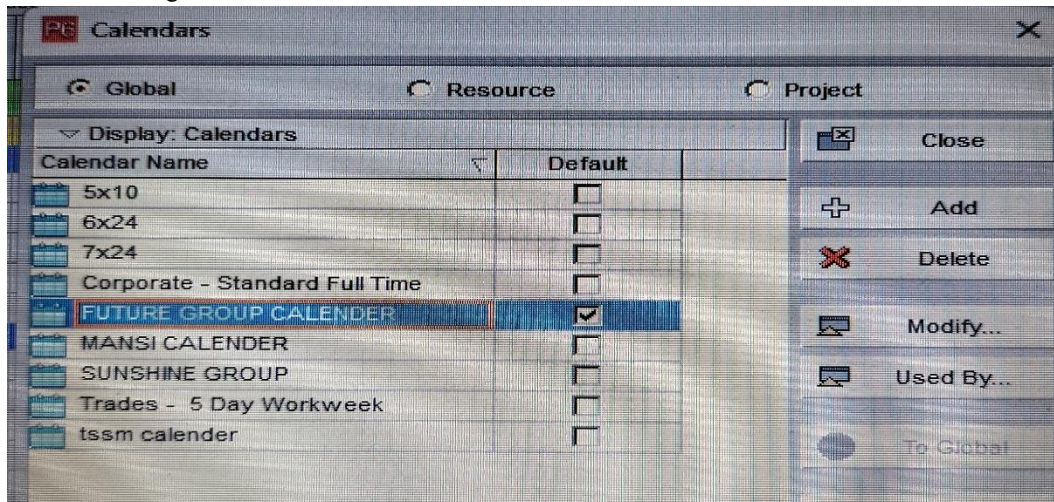
After the EPS, OBS is created which reflects hierarchical order of persons responsible for the execution of project in the enterprise.



**Fig 2: - OBS Structure**

**3. Assigning of Calendar**

The work is carried out in 6 days per week. So, the standard 6- day workweek calendar is made with necessary holidays in it. A break of one hour is given in the afternoon for lunch.



**Fig 3: - Calendar**

**4. Create a new project**

The project is created under the respective division in the EPS and assigned in the person charged form OBS to it. The project can be given planned start and must finish dates. The project is assigned a calendar which can be global, resource or project calendar as per requirement.

**5. Work breakdown structure (WBS)**

WBS is a hierarchy of work that breaking down the project into different summary tasks and that summary tasks into sub- task.

		21-May-23	18:20
WBS Code	WBS Name	Total Activities	
RESIDENTIAL	GUNJAL BUNGLOW SCHEDULE	47	
RESIDENTIAL.1	PLANNING	4	
RESIDENTIAL.2	DESIGNING	3	
RESIDENTIAL.3	PERMISSION	4	
RESIDENTIAL.4	EXECUTION	36	
RESIDENTIAL.4.1	SUBSTRUCTURE	10	
RESIDENTIAL.4.1.1	EARTHWORK	5	
RESIDENTIAL.4.1.2	FOOTING/FOUNDATION	5	
RESIDENTIAL.4.3	PLINTHWORK	5	
RESIDENTIAL.4.3.1	PCC PLINTH	3	
RESIDENTIAL.4.3.2	RUBBLE FILLING	2	
RESIDENTIAL.4.5	SUPERSTRUCTURE	21	
RESIDENTIAL.4.5.1	RCC	10	
RESIDENTIAL.4.5.2	MASONARY	2	

**6. Add all the activities**

Activities are the fundamental work elements of a project which is the lowest level of a WBS and are the smallest subdivision of a project. An activity has the following characteristics like Activity ID, name, start and finish dates, activity calendar, activity type, activity codes, constrains, expense, successor and predecessor relationships, resources, roles etc.

**7. Add predecessor to each activity and check Relationship between activities**

To form a network the activities should be connected to eachother, which is done by assigning preceding and succeeding activities with significant relation to the activities.

- Finish to start (FS) relationship.
- Finish to finish (FF) relationship.
- Start to start (SS) relationship.
- Start to finish (SF) relationship.

**8. Assign milestones**

Milestones in project management are used as signal posts for a project's start or end date, external reviews or input, budget checks, submission of a major deliverable, etc. A milestone is a reference point that marks a significant event or a branching decision point within a project. In a schedule it is denoted by diamond symbol.

**9. Assign Constraints**

Assign limited constraints to activities like flexible, semi-flexible, inflexible.

**10. Determining activity duration**

When planning the work, the duration is entered in the original duration field. The actual duration can only be entered for the activities, which are completed.

**11. Activity dates.**

The following are the types of activity dates available in the primavera; actual start, actual finish, planned start, planned finish.

**12. Schedule it and check loops formed and avoid mistakes in schedule.**

**13. Do basic settings as well as check currency details.**

**14. prepare resources sheet with units, cost/item.**

**15. Assign resources to each activity.**

**16. Check over allocation of resources and levelled it manually.**

**17. Activity cost.**

The activity cost is the sum of all the cost incurred to complete the activity.

**18. Creating and applying baselines**

A simple baseline plan is a complete copy of the original schedule which provides a target against which a project's performance is tracked.

**19. Updating schedule, reschedule it and recalculate cost.**

If the project is progressing exactly as planned, then only needed to estimate progress.

If the project is not progressing as planned many activities are starting out-of-sequence, actual resource use is exceeding planned use, and then update should be done for activities and resources individually.

**20. Comparing (assign and maintain baseline).**

**21. Tracking**

Taking window is used for monitoring a project's progress using different types of layouts such as labor costs, project cost, resource forecasting, resource allocation unit wise and cost wise.

**22. Formulation of reports.**

Ex: - Cash flow report etc.

**23. Earned value**

Earned value is a technique for measuring project performance according to both project cost and schedule. The technique compares the budgeted cost of the work to the actual cost.

**24. Generation of 'S' Curve.**

It is a management tool that depicts a mathematical graph of relevant cumulative data over time. The shape of the curve indicates that the project on right track.

### 25. Risk analysis.

Primavera p6 includes an integrated risk management feature that enables you to identify, categorize and prioritize risks, assign a responsible person for managing the risk, assigns risks to one or more activities that may impacted by the risk, and conduct qualitative analysis on each risk.

### IV. CONCLUSION

- The main objective of this study is to understand the methodology of project planning in primavera p6.
- After studying the primavera p6 software, we find its importance and its implementation need in construction project management.
- Oracle primavera p6 is most advanced software in construction industry for planning, scheduling, monitoring, tracking of the construction project.
- We can plan multiple projects at a one time in primavera p6, so we can called it is a multiproject planning software

### ACKNOWLEDGEMENT

The author thankfully acknowledges to Prof. Nivas Patil, Head and Professor of Civil Engineering Department, TSSMs Bhivarabai Sawant College Of Engineering And Research, Narhe, Pune, India for their motivations and infrastructural support to carry out this research.

### REFERENCES

- [1] Gaurav s. Narlawar, N.B. Chaphalkar, Sayali Sandbhor (2019), "Application Of Primavera Software In Management Of Construction Project: A Review", International Journal Of Scientific & Technology Research (IJSTR), ISSN: 2277-8616, Volume 6, Issue 8 [1]
- [2] S. M.B. Jaswanath, P. Sundra Kumar (2018), "Optimization Of Planning, scheduling, And control Of High-Rise construction Projects", International Journal Of civil Engineering And Technology (IJCIET), ISSN- 0976-6308, volume 9, Issue 4 [5]
- [3] Mohammed, Rajendra. S, Vijay. K. (2016), "Planning, scheduling, Tracking And Application Administration Using Primavera Web Logic P6", International Journal Of Research In Engineering And Technology (IJRET), e-ISSN: 2329-1163, p-ISSN: 2321-7308, Volume 5, Issue 7 [6]
- [4] Suvarna Desai, Dr. A. W. Dhawale. (2019), "Study The Application Of Primavera In Planning And Scheduling Of Prefabrication Technology Used In Construction", Journal Of Emerging Technologies And Innovative Research (JETIR), ISSN- 2349-5162, Volume 6, Issue 2 [3]
- [5] Bob Schatz (2005), "Primavera Gets Agile: a successful Transition to Agile Development", Research Gate, Volume 22, Issue 3 [4]
- [6] Sushant Pradhan, Rajendra. s, Vijay. K. (2016), "Planning, Scheduling And Resource Optimisation Of Multiple Projects Using Oracle Primavera P6", International Journal Of Research In Engineering And Technology (IJRET), e-ISSN- 2319-1163, p-ISSN- 2321-7308, Volume 5, Issue 6 [2]