

Planning and scheduling of commercial building using primavera p6 -case study

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Abstract - In the current corporate scenario, Project Management is not an option. It is a critical tool for one to stay on target and accomplish the goals. Project management is the process of achieving set goals within the constraints of time, budget and quality. 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). In this study, the project is to be scheduled using Primavera P6, project management software. All activities and their sequence of occurrence, duration, resources required and costs involved are to be studied. 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. The study deals with the project scheduling of a “Commercial building”, a four storied (G+4) building, whose construction is in progress at raja street, Coimbatore.

Keywords: Planning, Scheduling, Organization, Construction management, Activities, Resources, Primavera P6.

I. INTRODUCTION

India is the one of the developing country which still concentrate in the development of new buildings.

The project management knowledge becomes the critical part in the project because it contains the knowledge in controlling the cost, scheduling, and resources.

Time management is on keys of effective project management. With the proper planning and scheduling it will assist the project manager in completing the project within the time and meet the aim and objective of the project.

Time scheduling also is the major factor that lead to the delayed or uncompleted project.

The construction industry is facing a tough challenge in the time planning of the project because without the proper

planning the time factor will cause the loss of the profit to the company. Primavera is an advance computer integrated enterprise project management tool .As we know India is booming in construction industry so we should be familiar with tools like primavera which is highly advance management tool with recorded data base ORACLE this tool is web assessable for modification in an any situation in management activities .this tool work simultaneously for multi project at a time can be monitor and control all the project.so proper management is required with documentation and this can be possible if we know primavera tool completely and properly

II. SCOPE OF THE STUDY

- Project management plays an important role in construction industry.
- The primavera software is being the first source in conducting this study.
- Tracking and application administration with web accesses give an extra feature to this primavera Tool
- In future time and money is going to be very important consideration so those two things can be control in.
- Day/weekly/monthly/yearly wise in primavera.
- This software will be using to develop a planning and scheduling model for the building construction project.
- Although the usage of this software between the constructions company is still lower, therefore with the production of these report finally will give the person some input about the importance of the primavera project planner software in the planning and scheduling for the construction project.

III. LITERATURE REVIEW

Mohammed ZakiHaider, Rajendra.S, Vijay.K (2016):

A case study of duplex apartment has been taken for analysis of resources planning of cost estimation and tracking of the project. They have adopted earn value management technique. That is use for work forecast in progress. To know what will happen in future with respect to cost estimation of the project. The base line is set to control the cost. The main purpose to

adopt earn value analysis is to analysis the whole cost change in resulting in time, cost overrun of the project. So that corrective measure to be taken. Schedule used to predict the advance future performance of the project completion.

Divya R and S.Ramya (2015): The main objective of the author is to identify the major causes of delay, effect of delay and method of minimizing delay in construction project. Data has analysis to establish the relative importance of various factor that provides a particular quality or character to cause the effect in construction delay.

T.Subramani, K.Chinnadurai (2015): The author describe about construction planning and challenging activities in management work during the execution. The scheduling is done for time management of each event or activities in the project. The tracking is done for actual project performing value. But it's a small residential building having very less activities. The importance of the planning, scheduling and tracking of the residential project using primavera is to know the comparison between planned and actual executed schedule.

IV. METHODOLOGY

The following methodology for step involved in Primavera P6 to do planning and scheduling of the project

Accumulate the drawing from company

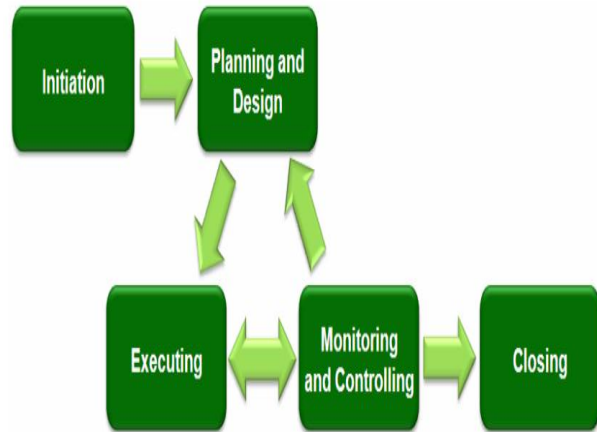
Study of the drawing and collection of relevant data

- Generate OBS of the project
- Generate EPS of the project
- Generate new project
- Generate a calendar of the project
- Create WBS of the project
- Generate and define each activities of the project
- Assign logic links/relationship of the project
- Scheduling of the project
- Role & Resource of the project
- Assign & Resource of the project
- Resource analysis & levelling of the project

PROJECT MANAGEMENT

Planning in the broad sense includes planning of resources, materials, manpower, cost, duration etc. of any project well ahead of the start of the project so as to give a rough idea about the project in terms of cost and duration. Before implementing Primavera to schedule projects, team members and other project participants should understand the processes involved in project management and the associated recommendations that help smooth the Primavera implementation that supports your corporate mission.

Project management life cycle



Principles of project management:

The three key principles of project management will be

- a) Planning
- b) Controlling
- c) Managing

PLANNING

The first step is to define the project which includes the answers for 5 simple questions.

- What is the scope of the project? What activities will make up the project and their dependencies? Identification of the major milestones.
- What is the Project Duration? What are the dates when the project will begin and end?
- What resources are required? Think beyond labour
- Who will perform what tasks? Determining the technical staff and labour components and their available work hours etc.
- How much will the project cost/ estimated budget? Though a very critical resource, major discussion about cost will be done through estimation and costing module.

CONTROLLING

- Baseline / Target schedule: Upon building the project plan and estimating the budgeting needs, the original plan is saved as baseline also termed as target schedule. This is the solid point of reference, as the schedule changes over a period of time.
- Baseline helps us in comparing the original schedule to the current one and identifies significant changes and develops contingency plans. Control is required to keep the project right on track / towards the right direction.
- Effective project control reaps many benefits. Effective control helps to keep a close eye on the possible problems before they become critical.
- Control mechanism helps the project team and management to view the timeframes based on the reality of the schedule.

MANAGING

- The project manager is the owner of the project and is responsible for guiding the project from start to end.
- A good project manager plays many roles, as a motivator, communicator, coordinator and advisor.
- He is the project’s ambassador.

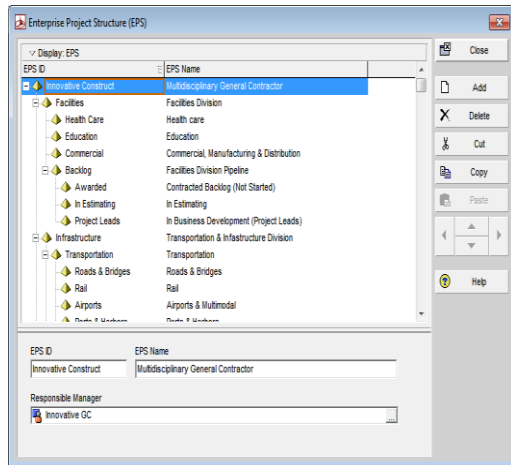
TOOLS OF PRIMAVERA

ORGANIZATIONAL BREAKDOWN STRUCTURE

It is a hierarchical based structure that represents your organization. It represents the management responsible at the project.

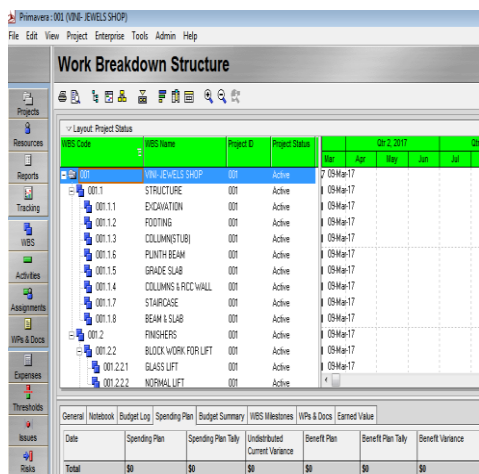
ENTERPRISE PROJECT STRUCTURES

This identifies the company wide project and enables organizing and management of those projects. This is the first step to distribution of work according to the project.



V. WORK BREAKDOWN STRUCTURE

One of the first steps in planning a project is to break down the project into its major deliverables i.e. major product or service components. This is known as the Work Breakdown Structure (WBS). After you have created the WBS, you can then create the activities required to achieve those deliverables



GANTT chart Scheduling Method

The bar chart was originally developed by Henry L. Gantt in 1917 and is called a Gantt chart. A bar chart is —a graphic representation of project activities which are shown in a time-scaled bar line with no links shown between activities. It quickly became popular in construction industry because of its ability to graphically represent a project’s activities on a time scale

Network Scheduling Method

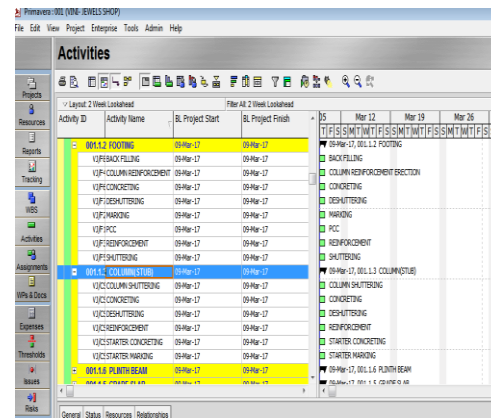
One of the major network scheduling methods which have been used in the construction industry is CPM (critical path method). This method involves the use of a geometric representation of flow chart which depicts the precedence between activities. The critical path method (CPM) is a duration-driven technique in which the basic inputs are project activities, their durations, and dependence relationships. Activity durations are functions of the resources required (rather than available) to complete each activity.

Line of Balance (LOB)

The line of balance (LOB) method was originated by the Goodyear Company in the early 1940s and was developed by the US Navy during the Second World War for the programming and control of both repetitive and non-repetitive projects. A common characteristic of LOB techniques is the typical unit network

Activity

It refers to the process of parsing a project into a number of individual tasks which must be completed before the deliverables.



Network in Primavera:

Use the Activity Network View to display a visual diagram of your project's activities and activity relationships according to the work breakdown structure (WBS). An Activity Network is a graphical display of activities and their logical relationships according to the WBS.

User Defined Fields:

User defined fields allow you to create and maintain data specific to your organization. For example, you can track additional activity data, such as delivery dates and purchase

order numbers. You can also track additional resource data or project cost-related data, such as profit, variances, and revised budgets

Constraints:

Constraints are recognized real-world restrictions that affect project performance. Any factor that potentially delays when an activity can be scheduled is a constraint.

The most typical constraints are date restrictions. Constraints can apply to the entire project or only to individual activities and can even reflect external project requirements that cannot be built into the network logic.

Trace Logic:

Trace logic provides a graphical display of dependency relationships for an activity. You can step forward or backward through a sequence of activities to focus on predecessor and successor relationships

Cost Accounts:

Cost accounts enable you to monitor project expenses, activity costs, and earned value throughout the project life cycle. Costs are attached to activities and resources so you can track the amount of work accomplished against the amount of money spent.

Baselines:

A baseline is a copy, or snapshot, of project data at a given time. Because a baseline is a static representation of a project plan, it can be used as a benchmark against which to measure performance as a project progresses. You can create multiple baselines to establish metrics throughout the project life cycle.

VI. CONCLUSION

Through this study we learned about the:

Proper planning software with details will help to analyses the project planning more wisely.

Finding drawbacks or setbacks in planning is possible only when activities are very detail and clear. Planning and scheduling of project will provide us a detail information about.

- Cost control.
- Time management.
- Working hour's management.
- Update and Monitoring.
- Delay of activities with reasons.
- Paper less project management at site.

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

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