E4-E5 (MANAGEMENT)

Project Management

WELCOME

- **This is a presentation for the E4-E5 Management Module for the Topic: Project Management.**
- **Eligibility: Those who have got the Upgradation from E4 to E5.**
- **This presentation is last updated on 18-03-2011.**
- **You may also visit the Digital library of BSNL to see current version of this topic as well as updated version if any.**

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Project Management: An introduction

- **Project management is concerned with the overall planning and co-ordination of a project from conception to completion aimed at meeting the stated requirements and ensuring completion on time, within cost and to required quality standards.**

- **Project management is normally reserved for focused, non-repetitive, time-limited activities with some degree of risk and that are beyond the usual scope of operational activities for which the organization is responsible.**

Project and its Characteristics

- A project is generally defined as a program of work to bring about a beneficial change. Its characteristics are as under:-

- A start and end
- A multidisciplinary team approach
- Constraints of time, cost and quality
- A scope of work which is unique and involves uncertainty

Examples of project work

- **Development and introduction of new services**
- **Development of a management information system**
- **Improvement of an existing process**
- **Setting up a new care initiative**
- **The creation of a large tender or the preparation of a response to it**
- **Production of new customer newsletter, catalogue or creation of a web site**

Project Management Life Cycle

Project Management Life Cycle encompasses various stages like:-

1. Need identification
2. Initiation
3. Planning
4. Executing
5. Controlling
6. Closing out or Closure

Need identification stage

- **Involves the project manager and sponsor in the preparation and approval of outline of project justification, time lines, budget, plans etc.**

Initiation stage

- **It is the basic process that should be performed to get the project started.**

- **All stakeholders have to reach an agreement on its initiation.**

- **Involvement of all stakeholders helps in delivering the benefits to intended target customers.**

Planning stage

- **It is the most important phase in project management.**

- **It defines activities that will be performed; the products that will be produced, and describes how these activities will be accomplished and managed.**

- **It defines each major task, estimates the time, resources and cost required, and provides a framework for management review and control.**

Planning- cont'd

- **It involves identifying and documenting scope, tasks, schedules, cost, risk, quality, and staffing needs.**

- **The result of the project planning, the project plan, will be an approved, comprehensive document that allows a project team to begin and complete the work necessary to achieve the project goals and objectives.**

- **The project plan will address how the project team will manage the project elements.**

Executing

- **The project team and the project manager's focus now shifts from planning the project efforts to participating, observing, and analyzing the work being done.**

- **In execution phase planned activities of the project are executed, resulting in the completion of the project deliverables and achievement of the project objectives.**

- **This phase brings together all of the project management disciplines, resulting in a product or service that will meet the project deliverable requirements and the customers need.**

Executing-cont'd

- **During this phase, elements completed in the planning phase are implemented, time is expended, and money is spent.**

- **Execution phase means coordinating and managing the project resources while executing the project plan, performing the planned project activities, and ensuring they are completed efficiently.**

Controlling stage

- **Project Control function involves comparing actual performance with planned performance and taking corrective action to get the desired outcome when there are significant differences.**

- **Variances from plan can be identified by regular monitoring and measurements and corrective actions can be taken accordingly.**

Closing out or closure stage

- **Project closeout is performed after all defined project objectives have been met and the customer has formally accepted the project's deliverables and end product or, in some instances, when a project has been cancelled or terminated early.**
- **It is an important stage as by proper completion of the project closeout, the organizations can benefit from lessons learned and information compiled.**
- **The project closeout phase is comprised of contract closure and administrative closure.**

Jobs of a Project Manager

- **Gaining approval for the project objectives and goals**
- **Selecting and leading the team and setting individual objectives**
- **Ensuring a feasibility study is complete**
- **Ensuring that the project is planned in appropriate detail**
- **Allocating resources for different activities**
- **Monitoring various activities along with cost incurred**

Jobs of a Project Manager-cont'd

- **Motivating the team members**
- **Reporting progress back to the organisation**
- **Helping the team to solve project problems**
- **Achieve the goals, through the team**
- **Reviewing and closing down**

Skills for a Project Manager

A Project Manager requires following skills for execution of projects:-

- **Individual skills**
- **Team skills**
- **Technical skills**

Individual Skills

- **Written skills**
- **Presentation**
- **Persuasion**
- **Credibility**

Team Skills

- **Appreciate the differing needs of both individuals and the project team at different stages of the project.**
- **Promote and maintain team spirit among team members.**

Technical Skills

- **Planning of complex tasks**
- **Negotiating resources**
- **Financial planning**
- **Contract Management**
- **Monitoring**
- **Creative thinking**
- **Solving Problems**
- **Subject matter knowledge**

Program Evaluation & Review Technique

- **PERT was developed in the late 1950's for the U.S. Navy's Polaris project having thousands of contractors.**

- **It has the potential to reduce both the time and cost required to complete a project.**

The Network Diagram

- **In a project, an activity is a task that must be performed and an event is a milestone marking the completion of one or more activities. Before an activity can begin, all of its predecessor activities must be completed.**

- **Project network models represent activities and milestones by arrows and nodes respectively.**

- **In PERT diagram, the activities are represented on the arrows and milestones on the nodes.**

- **The milestones generally are numbered so that the ending node of an activity has a higher number than the beginning node. The activities in the above diagram are labeled with letters along with the expected time required to complete the activity.**

Steps in PERT planning process

- **Identify activities and milestones**
- **Determine activity sequence**
- **Construct the Network Diagram**
- **Estimate activity times**
- **Determine the Critical Path**
- **Update as project progresses**

Example: Installation of new landline exchange

	Activity description	Activity code	Duration	Preceding activity
1	**Sanction of project estimate**	A	10 days	-
2	**Equipment/cable procurement**	B	180 days	A
3	**Land acquisition**	C	30 days	A
4	**Building construction (civil works)**	D	180 days	C
5	**Electrical works**	E	60 days	D
6	**Battery & power plant installation**	F	20 days	B, E
7	**Installation of equipment & MDF**	G	30 days	B, E
8	**Testing & Acceptance Testing**	H	20 days	F,G

PERT Diagram
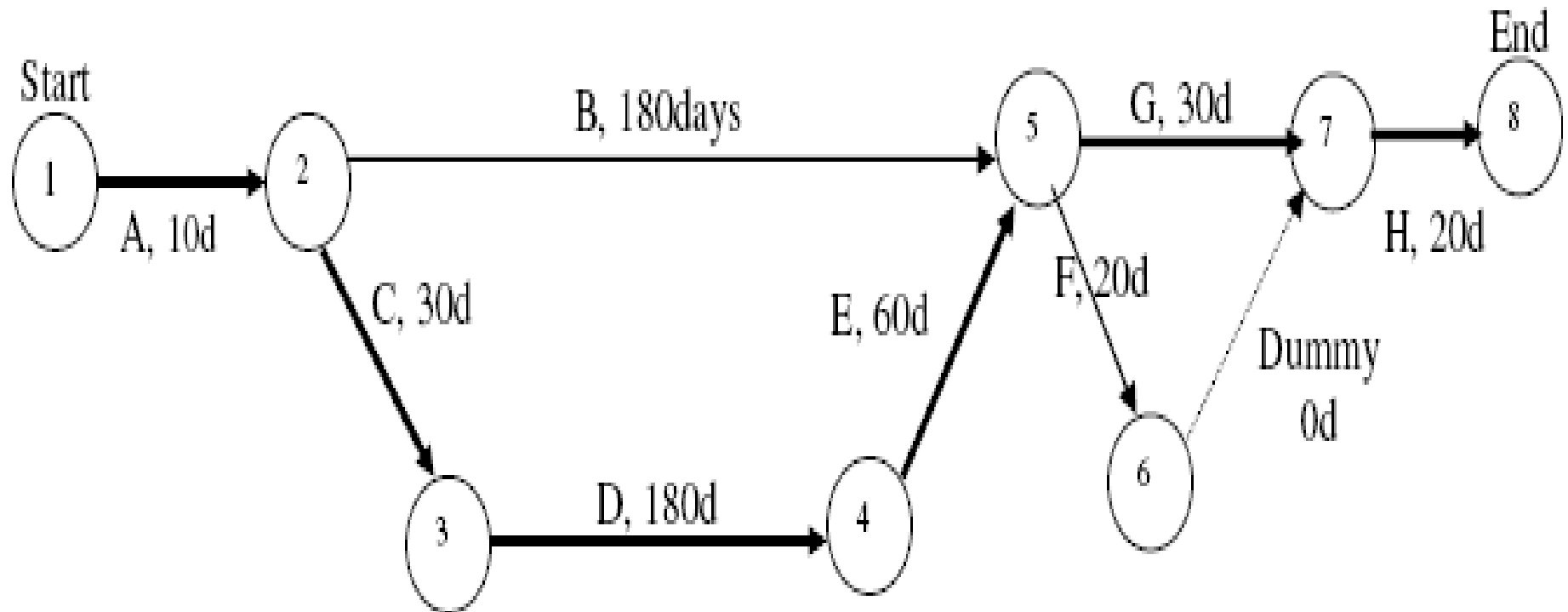
Estimating Activity Times

- *Optimistic time* (To): generally the shortest time in which the activity can be completed.

- *Most likely time* (Tm): the completion time having the highest probability. This is different from expected time. Seasoned managers have an amazing way of estimating very close to actual data from prior estimation errors.

- *Pessimistic time* (PT) - the longest time that an activity might require.

Estimating Activity Times-cont'd

- *Expected time* (T_E): The expected time for each activity can be approximated using the following weighted average:

  $T_E = (To + 4\ Tm + Tp) \div 6$

  This expected time might be displayed on the network diagram.

- Variance for each activity is given by:

  $[(Tp - To) / 6]^2$

Determining Critical Path

- *Critical Path*: **The critical path is determined by adding the times for the activities in each sequence and determining the longest path in the project. The critical path determines the total time required for the project.**

- **If activities outside the critical path speed up or slow down (within limits), the total project time does not change.**

- *Slack*: **The amount of time that a non-critical path activity can be delayed without delaying the project is referred to as** *slack time.*

- **Since the critical path determines the completion date of the project, the project can be accelerated by adding the resources required to decrease the time for the activities in the critical path. Such a shortening of the project sometimes is referred to as** *Project Crashing*.

Update as project progresses

- **Make adjustments in the PERT chart as the project progresses. As the project unfolds, the estimated times can be replaced with actual times.**

- **In cases where there are delays, additional resources may be needed to stay on schedule and the PERT chart may be modified to reflect the new situation.**

Benefits of the PERT

The PERT has many benefits like:-

- **Knowing expected project completion time.**

- **Knowing probability of completion before a specified date.**

- **Knowledge of critical path activities that directly impact the completion time.**

- **Information about activities that have slack time and that can lend resources to critical path activities.**

- **Knowing activities start and end dates.**

Software for Project Management

- **Simpler projects can be managed manually by making Network diagram etc.**
- **But for complex projects, it becomes essential to use some project management software.**
- **There are several project management software available in the market. Most popular are MS Project and Primavera.**

Microsoft Project

- **Microsoft Project is a project management software program developed and sold by Microsoft which is designed to assist Project Managers in developing Plans, assigning resources to Tasks, tracking progress, managing budgets and analyzing workloads.**

- **The application creates critical path schedules, although critical chain and event chain methodology third-party add-ons are available.**

Microsoft Project-cont'd

- **Schedules can be resource leveled, and chains are visualized in a Gantt Chart (in the form of horizontal bars).**

- **Additionally, Project can recognize different classes of users.**

- **These different classes of users can have differing access levels to projects, views, and other data.**

- **Custom objects such as calendars, views, tables, filters and fields are stored in an enterprise global which is shared by all users.**

Primavera

- **Primavera Systems Inc. provides project and program management software for the Architecture, Engineering and Construction industry.**

- **Focused on project portfolio management, or PPM, Primavera's solutions let users measure progress, assure governance, improve team collaboration and prioritize project investments and resources.**

Primavera-cont'd

- **The newest addition to the suite of project management solutions is Primavera P6, which is an integrated PPM (project portfolio management) solution that provides a real-time view of portfolio performance.**

- **P6 also offers what-if scenario modeling, tabular scorecards and capacity analysis.**

Conclusion

- **All organizations use projects as the way to translate strategies into actions and objectives into realities.**

- **The art of managing projects is about having consistency in achieving stated objectives within limits of time, budget, and stakeholders' satisfaction, by directing and coordinating human and material resources.**

- **In order to remain competitive in this fast changing telecom market, it is essential for BSNL to use project management techniques.**