Unit 2: Project Management

By: Kabita Dhital

BIM(5TH Semester)

Introduction

- Project management is the discipline of applying processes, skills, tools, and knowledge to plan, organize, and execute tasks to achieve specific goals, delivering a unique product or service within defined constraints like time, budget, and scope.
- It involves leading teams, managing risks, communicating effectively, and ensuring all efforts align to meet objectives, turning ideas into tangible results through distinct phases like initiation, planning, execution, monitoring, and closure.
- In this chapter, we focus on the systems analyst's role as project manager of an information systems project.
- Throughout the SDLC, the project manager is responsible for initiating, planning, executing, and closing down the systems development project.
- Project management is arguably the most important aspect of an information systems development project.
- Effective project management helps to ensure that systems development projects meet customer expectations and are delivered within budget and time constraints.

Initiating a project:

- During project initiation, the project manager performs several activities to assess the size, scope, and complexity of the project and to establish procedures to support subsequent activities.
- The types of activities that will perform when initiating a project are summarized below:
- **Establishing the project initiation team:** This activity involves organizing project team members to assist in accomplishing the project initiation activities.
- **Establishing a relationship with the customer :** A thorough understanding of your customer builds stronger partnerships and higher levels of trust.
- **Establishing the project initiation plan:** This step defines the activities required to organize the initiation team while it is working to define the goals and scope of the project.
- **Establishing management procedures:** Successful projects require the development of effective management procedures.
- **Establishing the project management environment and project workbook :**The focus of this activity is to collect and organize the tools that you will use while managing the project and to construct the project workbook. Diagrams, charts, and system descriptions provide much of the project workbook contents. Thus, the project workbook serves as a repository for all project correspondence, inputs, outputs, deliverables, procedures, and standards established by the project team.
- **Developing the project charter:** The project charter is a short (typically one page), high-level document prepared for the customer that describes what the project will deliver and outlines many of the key elements of the project.

- The project management process involves four phases:-

1. Initiating the project
2. Planning the project
3. Executing the project
4. Closing down the project

Questions to ask during project initiation:

- Is this project feasible?
- What's the ultimate goal?
- What problem are we trying to solve?
- What outcome are we trying to achieve?
- How will we measure the success of this project?
- Which stakeholders are involved?

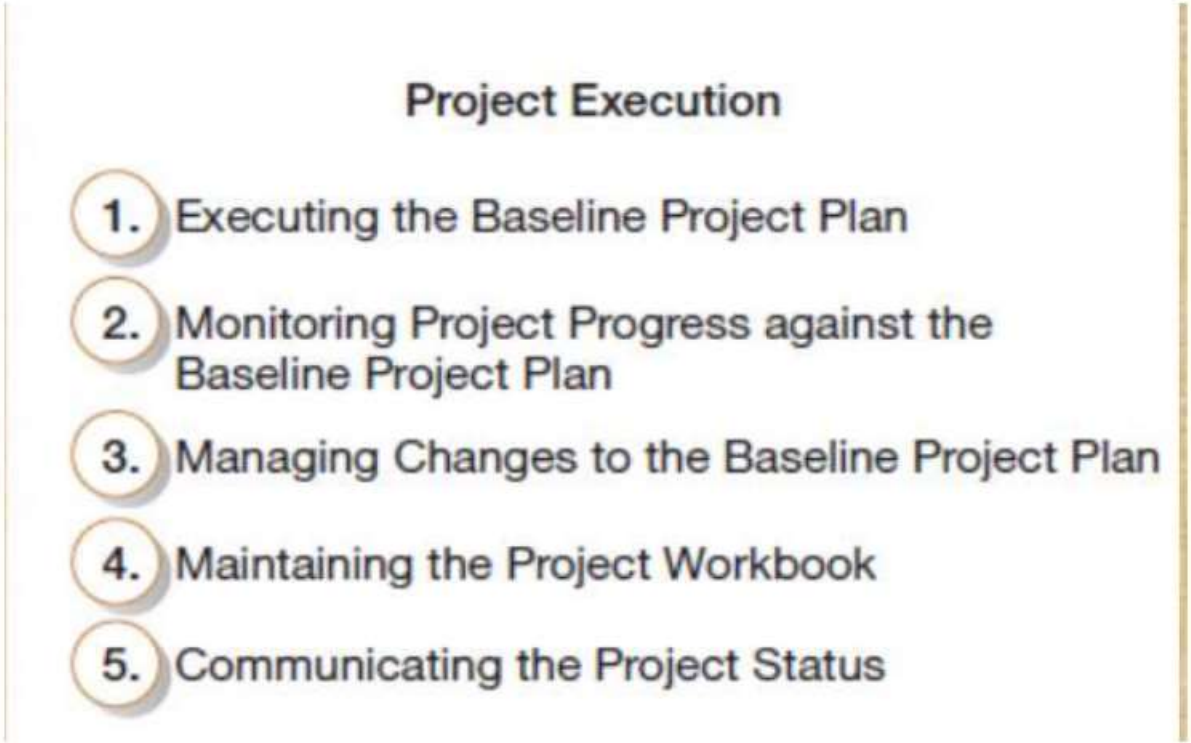
Planning the project

- Research has found a positive relationship between effective project planning and positive project outcomes.
- Project planning involves defining clear, discrete activities and the work needed to complete each activity within a single project.
- It often requires you to make numerous assumptions about the availability of resources such as hardware, software, and personnel.
- It is much easier to plan nearer-term activities than those occurring in the future. (In actual fact, you often have to construct longer-term plans that are more general in scope and nearer term plans that are more detailed).
- The repetitive nature of the project management process requires that plans be constantly monitored throughout the project and periodically updated (usually after each phase), based upon the most recent information.

Project Planning

1. Describing Project Scope, Alternatives, and Feasibility
2. Dividing the Project into Manageable Tasks
3. Estimating Resources and Creating a Resource Plan
4. Developing a Preliminary Schedule
5. Developing a Communication Plan
6. Determining Project Standards and Procedures
7. Identifying and Assessing Risk
8. Creating a Preliminary Budget
9. Developing a Project Scope Statement
10. Setting a Baseline Project Plan

Executing the Project:



Closing Down the project

- The focus of project closedown is to bring the project to an end. Projects can conclude with a natural or unnatural termination.
- A natural termination occurs when the requirements of the project have been met—the project has been completed and is a success.
- An unnatural termination occurs when the project is stopped before completion . Several events can cause an unnatural termination of a project. For example, it may be learned that the assumption used to guide the project proved to be false, that the performance of the systems or development group was somehow inadequate, or that the requirements are no longer relevant or valid in the customer's business environment.
- The most likely reasons for the unnatural termination of a project relate to running out of time or money, or both.

Representing and Scheduling Project

- A project manager has a wide variety of techniques available for depicting (to represent or show something in a picture or story) and documenting project plans.
- These planning documents can take the form of graphical or textual reports, although graphical reports have become most popular for depicting project plans.
- The most commonly used methods are Gantt charts and network diagrams. Because Gantt charts do not (typically) show how tasks must be ordered (precedence) but simply show when a task should begin and when it should end, they are often more useful for depicting (representing) relatively simple projects or subparts of a larger project, showing the activities of a single worker, or monitoring the progress of activities compared to scheduled completion dates.
- Recall that a network diagram shows the ordering of activities by connecting a task to its predecessor and successor tasks.
- Sometimes a network diagram is preferable; other times a Gantt chart more easily shows certain aspects of a project. Here are the key differences between these two charts

Gantt chart

- A **Gantt chart** is a bar chart that illustrates a project schedule.
- A Gantt chart is a **project management tool** that helps you plan, coordinate, and monitor tasks and their progress within a timeline.
- A Gantt chart, **commonly used in project management**, is one of the most popular and useful ways of showing activities (tasks or events) displayed against time.
- This chart lists the tasks to be performed on the vertical axis, and time intervals on the horizontal axis.
- The width of the horizontal bars in the graph shows the duration of each activity..

Key Elements of a Gantt Chart

- **Task List:** A vertical list of all activities needed.
- **Timeline:** A horizontal calendar showing dates/weeks/months.
- **Task Bars:** Horizontal bars representing each task's start, duration, and end.
- **Dependencies:** Links (often arrows) showing task relationships (e.g., Task B starts after Task A finishes).
- **Milestones:** Key project checkpoints.
- **Progress/Status:** Shading or markers indicating completion.
- **Resources/Owners:** Who is responsible for each task.

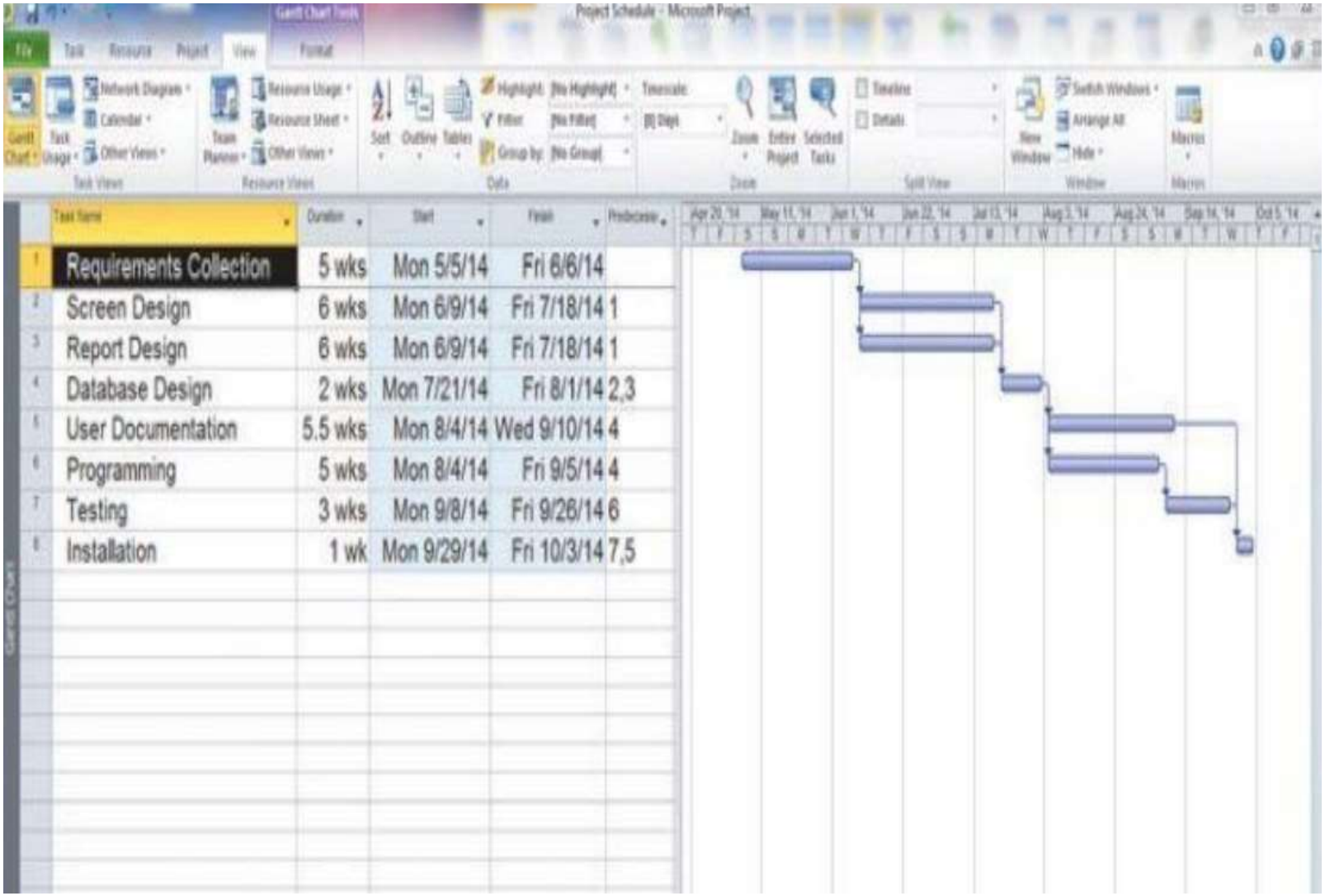
How It's Used in Project Management

- **Planning & Scheduling:** Breaks down projects into manageable tasks and sequences them. Decide how long each task is likely to take. Decide the order in which tasks need to be completed.
- **Progress Tracking:** Offers a quick visual check of how far along the project is.
- Identify areas where you don’t have enough resources (too many activities being allocated to one person), or tasks that will taking too long to complete (the order of activities results in the project being completed later than anticipated).
- **Dependency Management:** Highlights how tasks rely on each other to avoid bottlenecks. Identify areas where the schedule can be refined.
- **Resource Allocation:** Helps managers assign resources effectively. Determine and allocate your resources.
- **Critical Path Identification:** Finds the longest task sequence that dictates project completion time.
- **Stakeholder Communication:** Provides a clear overview of the project's roadmap.
- Anticipate the risks and problems you may encounter and create a contingency plan for potential problems.

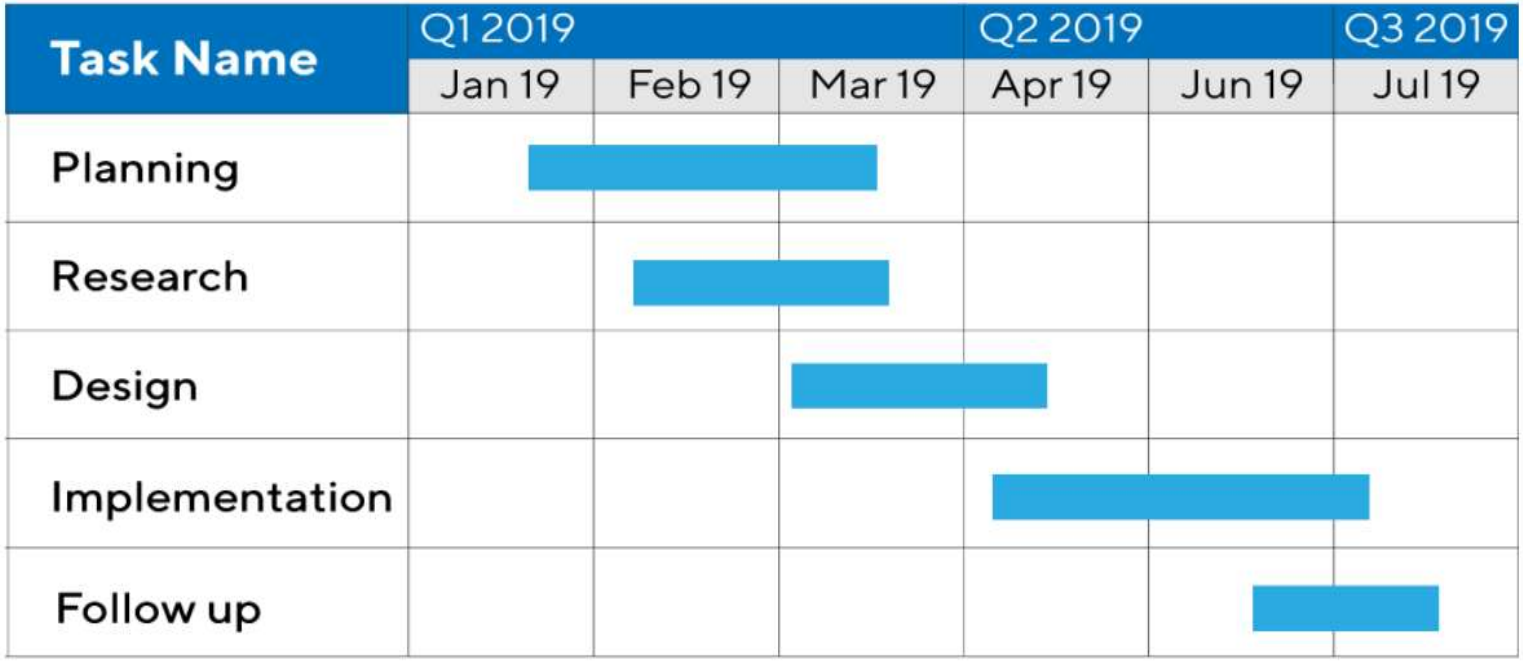
•

- Advantages of Gantt charts:
  • clear, visual representation of the plan
  • generally well understood and relatively simple to create
  • can be used to show progress and plan resources.
- Disadvantages of Gantt charts:
  • on their own, they don't show dependencies
  • there is a limit to the size of schedule that can reasonably be read and understood.
  • cannot easily cope with change as a result of progress or scope change
- **How to make a Gantt chart for projects in Excel**
- **Step 1**. List your project schedule in an Excel table. List each task as a separate row and structure your project plan by including the start date, end date and duration.
- **Step 2**. Set it up as a standard bar chart based on start dates.
- **Step 3**. Add the duration of your tasks.
- **Step 4**. Add task descriptions to the Gantt chart.
  Sometimes Gantt charts also display the cost and budget data for each activity; and progress data such as actual dates, percentage complete and remaining duration.
- **Step 5**. Transform the bar graph into the Excel Gantt chart through formatting.

A Gantt chart



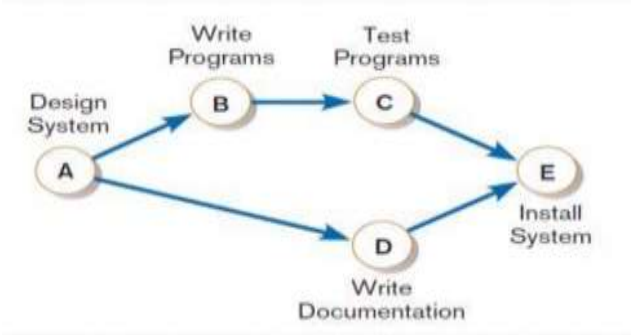
Gantt Chart


Task Name
Q1 2019
Q2 2019
Q3 2019
Jan 19
Feb 19
Mar 19
Apr 19
Jun 19
Jul 19
Planning
Research
Design
Implementation
Follow up

A network diagram

- Network diagramming is a critical path scheduling technique used for controlling resources.
- A critical path refers to a sequence of task activities whose order and durations directly affect the completion date of a project.
- A network diagram is one of the most widely used and best known scheduling methods.
- You would use a network diagram when tasks:

1. are well defined and have a clear beginning and end point,
2. can be worked on independently of other tasks,
3. are ordered, and
4. serve the purpose of the project



Major strength of network diagramming is its ability to represent how completion times vary for activities.

Because of this, it is more often used than Gantt charts to manage projects such as information systems development, where variability in the duration of activities is the norm.

Network diagrams are composed of circles or rectangles representing activities and connecting arrows showing required work flows

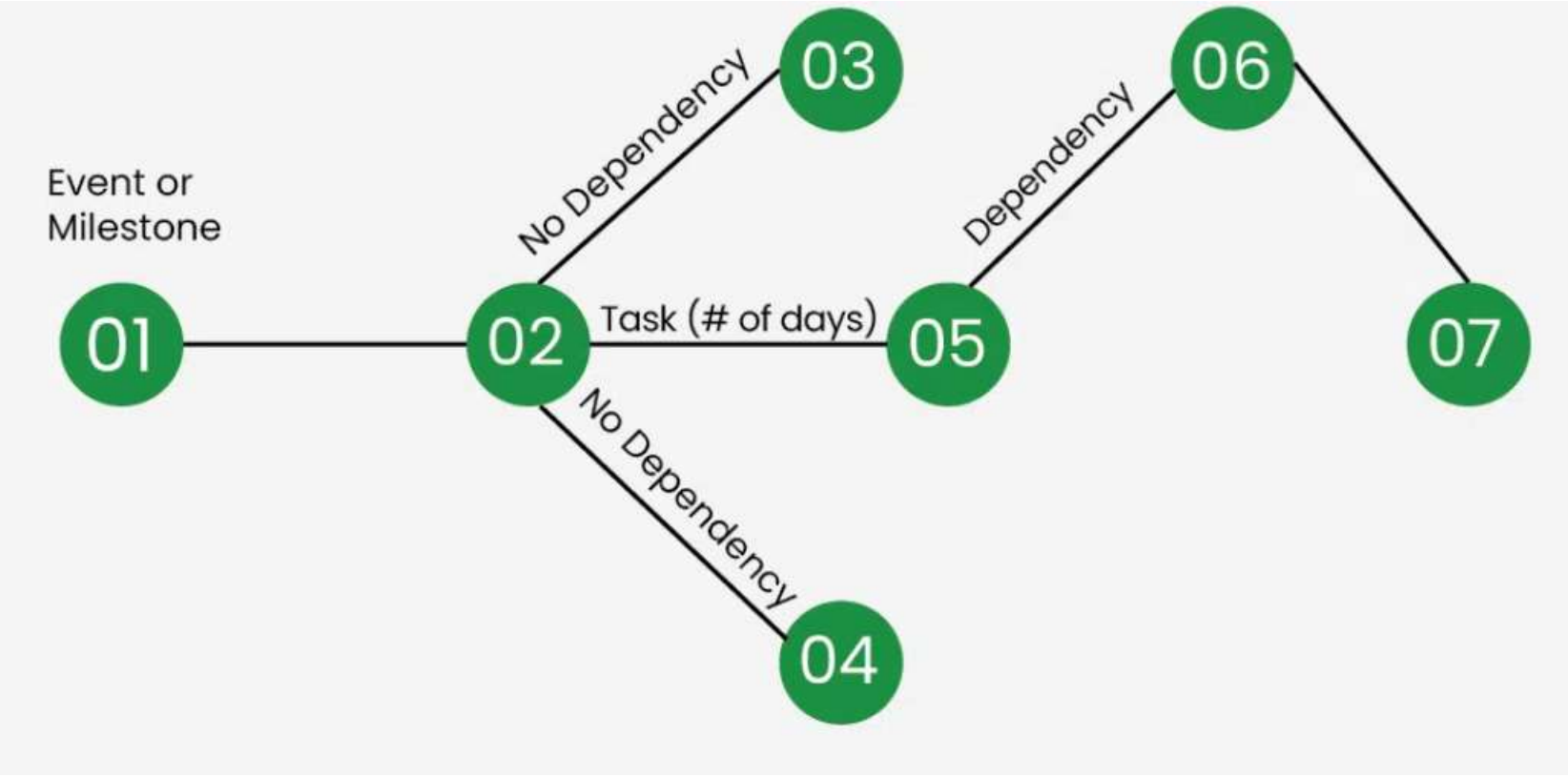
Critical Path Method

- The Critical Path Method (CPM) is a project management technique to schedule complex projects by identifying the longest sequence of dependent tasks (the "critical path") that determines the minimum project duration, ensuring timely completion by highlighting activities with no slack, meaning any delay directly delays the entire project.
- The Critical Path Method (CPM) is a project management technique to schedule complex projects by identifying the longest sequence of dependent tasks (the "critical path") that determines the minimum project duration, ensuring timely completion by highlighting activities with no slack, meaning any delay directly delays the entire project.

Program Evaluation and Review Technique: Making a PERT Diagram

- Several project scheduling techniques help teams plan and track their work effectively. Among them is the program evaluation and review technique, also known as PERT. This method uses a diagram to visualize tasks, their dependencies and estimated durations.
- The program evaluation and review technique is a project scheduling method that uses a network diagram to represent tasks and their sequence.
- A program evaluation review technique (PERT) chart is a graphical representation of a project's timeline that displays all of the individual tasks necessary to complete the project.
- A PERT chart uses circles or rectangles called nodes to represent project events or milestones. These nodes are linked by vectors, or lines, that represent various tasks and their dependencies.
- A PERT chart allows managers to evaluate the time and resources necessary to manage a project.

Program Evaluation and Review Technique: Making a PERT Diagram



Gantt Charts vs. Network Diagrams

- Here are the key differences between these two charts:
- Gantt charts visually show the duration of tasks, whereas a network diagram visually shows the sequence dependencies between tasks.
- Gantt charts visually show the time overlap of tasks, whereas a network diagram does not show time overlap but does show which tasks could be done in parallel.
- • Some forms of Gantt charts can visually show slack time available within an earliest start and latest finish duration. A network diagram shows this by data within activity rectangles.

Using project management software

- A wide variety of automated project management tools is available to help you manage a development project.
- New versions of these tools are continuously being developed and released by software vendors.
- Most of the available tools have a set of common features that include the ability to define and order tasks, assign resources to tasks, and easily modify tasks and resources.
- Project management tools are available to run on IBM-compatible personal computers, the Macintosh, and larger mainframe and workstation-based systems.
- These systems vary in the number of task activities supported, the complexity of relationships, system processing and storage requirements, and, of course, cost.
- When using this system to manage a project, you need to perform at least the following activities:

1. Establish a project starting or ending date.
2. Enter tasks and assign task relationships.
3. Select a scheduling method to review project reports.

- Project management software helps project managers (PMs) and teams collaborate and meet goals on time while managing resources and cost. Functions may include task distribution, time tracking, budgeting, resource planning, team collaboration, and many more
- People also refer to project management software as Task Management Software or Project Portfolio Management (PPM).
- Project management software covers a range of platforms, each with a slightly different mix of functionality. It’s crucial that the vendor you select makes your projects easier to manage and doesn’t add unneeded complexity. The transition should be as smooth as possible.
- The three major pillars of project management are planning, tracking, and collaboration.