

SEPM Assignment - 2

Name:- Vinay Pawar

Roll no:- 22

Batch:- T-II.

Q. Differentiate between CPM and PERT

→ CPM :-

CPM is a technique of Project Management which is used to manage only certain activities of any project where time is known.

It is activity oriented technique which means that network is constructed on the basis of activities.

It is a deterministic model.

It majorly focuses on Time-Cost trade off as minimizing cost is more important.

It is appropriate for reasonable time estimation.

It has repetitive nature of job.

There may be crashing because of certain time limitation.

It uses dummy activities for representing sequence of activities.

PERT :-

PERT is the technique of Project Management which is used to manage uncertain C.I.E., time is not known to activities of any Project.

It is Event oriented technique which means that networks is constructed on the basis of events.

It is a Probability model.

It Majority focuses on time as meeting time trigger or estimation of Percent Completion is more important.

It is appropriate for high precision time estimation.

It is Non-repetitive nature of job.

There is no chance of crashing there is no certainty of time.

It doesn't use any dummy activities.

It is suitable for projects which required research and development.

Q. Explain the difference between -

i) Total Slack and Free Slack.

Total Slack (Total float)

Free Slack (Free float)

Amount of time a task can be delayed without delaying the project's overall completion date. The early start of any successor task.

Amount of time a task can be delayed without delaying the early start of any successor task.

Difference between the latest start time and earliest start time, or latest finish time & earliest finish of a task.

Difference between the start time of the next & the current task.

Indicates the flexibility or buffer available for a task within the project schedule.

Indicates the flexibility or buffer available for a task without affecting the start time of subsequent tasks.

Concerned with the project's overall timeline and completion date.

Concerned with the relationship between individual tasks within the project.

ii) AON and AOA Diagrams -

AON Diagrams

Activities represented by nodes (circles) connected by arrows depicting the sequence of activities.

AOA Diagrams

Activities represented by arrows connecting nodes (circles) representing events or points in time.

Nodes represent activities, arrows show Nodes dependent Events or milestones
 dependencies

lines represent activities between events

Offers more flexibility in representing complex relationship between activities, and nodes can be rearranged with multiple arrows. May be less flexible in representing complex project structures, as activities are directly connected between events.

Identified by tracing the longest path from the start node to the end node through the network.

Identified by tracing the longest path from the initial event to the final event through the network.

Q. Explain Risk Identification, Risk Projection, RMMM Plan in detail.

⇒ 1. Risk Identification -

Risk Identification is the process of recognizing and documenting potential risks that could affect a project, its objectives, or outcomes. It's a crucial step in risk management that involves identifying, describing, and understanding the risks that could impact the project.

Possible risks:-

- Product Size - Risks associated with overall size of the software to be built.
- Business Impact - Risks associated with constraints imposed by management or marketplace.
- Customer Characteristics - Risk associated with sophistication of the customer and the developer's ability to communicate with the customer in timely manner.
- Process definition - Risks associated with availability degree to which

the Software Process has been defined and is followed.

- Development Environment - Risks associated with availability and quality of the tools to be used to build the Project.
- Technology to be built - risks associated with complexity of the system to be built and the 'newness' of the technology in the system.
- Staff Size and Experience - risks associated with overall technical and project experience of the software engineers who will do the work.

2. Risk Projection-

Risk Projection, also known as risk assessment or risk analysis, involves analyzing identified risks to estimate their potential impact on the project objectives and outcomes. This step helps in prioritizing risk based on their severity and likelihood, allowing project teams to focus their efforts on managing high-priority risk effectively. Here's how risk projection is typically carried out.

- Risk Analysis - Each identified risk is analyzed to determine its potential impact on project objectives in terms of scope, schedule, cost, quality, and other relevant factors.
- Quantitative Analysis - For certain risks, quantitative analysis techniques such as Monte Carlo simulation, decision trees, or sensitivity analysis may be used to quantify the potential impact likelihood of occurrence.
- Qualitative Analysis - Qualitative analysis involves assessing risks based on subjective criteria such as expert judgment, experience, and historical data to determine their relative importance and

Prioritize them accordingly.

- Risk Prioritization - Risks are prioritized based on subjective criteria such as Effect Severity, Likelihood, and Potential Impact on Project Success. High Priority risks are given more attention and resources for mitigation and contingency planning.

3. RMM Plan (Risk Mitigation, Monitoring, and Management Plan) -

The RMM Plan outlines how identified risks will be managed throughout the project lifecycle. It includes strategies for mitigating, monitoring, and responding to risks to minimize their impact on project objectives.

Here's what a typical RMM Plan entails:

- Risk Mitigation - It is an activity used to avoid problems (risk avoidance).

Steps for mitigating the risks as follows.

1. Finding out the risk.

2. Removing the causes that are the reason for risk creation.

3. Controlling the corresponding documents from time to time.

4. Conducting timely reviews to speed up the work.

- Risk Monitoring - It is an activity used for project tracking. It has the following primary objectives as follows.

1. To check if predicted risk occur or not.

2. To ensure proper application of risk aversion steps defined for risk.

3. To collect data for future risk analysis.

4. To allocate what problems are caused by which risks throughout the project.

Risk Management and Planning. It assumes that the mitigation activity failed and the task is a risky. The task is done by Project Manager when task becomes risky and causes severe problems. If the Project Manager effectively used Project mitigation to remove risks during the project then it is easier to manage the tasks. This shows that the defense that will be taken for each task by a manager. The main objective of the Risk Management Plan is the risk register. This risk register describes and focuses on predicted threats to a software project.

- ① Consider a XYZ Company under take a Project to Computerized Working of ABC City Bank, then-
 - i) Develop W.B.S for the same Project.
 - ii) Develop Responsibility Matrix.

3) A Work Breakdown Structure (WBS) helps break down the project into manageable phases and tasks. Below

level 1 : Project Name - Computerization of ABC City Bank.

Level 2: Major Phases-

1. Project Initiation and Planning -
 - Requirements gathering
 - Feasibility study
 - Cost estimation & budgeting
 - Risk assessment

2. System Design and Development -
 - Database design and structuring
 - Software and application development
 - System testing & implementation

- 3. Hardware and Infrastructure Setup - Server Installation 8 networks
 - Workstation deployment
 - Cloud Infrastructure setup.
- 4. Software Implementation and Testing - Core banking system integration
 - ATM and online banking mobile testing
 - Security testing.
- 5. Employee Training and User Acceptance Testing (UAT) -
 - Staff training decisions.
 - Customer awareness programs.
 - Feedback collection and troubleshooting.
- 6. Deployment and Maintenance -
 - Final system rollout
 - Data migration from old system
 - Post-implementation support and updates.

ii) Responsibility Matrix -

A Responsibility Assignment Matrix (RAM), also called a RACI Matrix, outlines the roles and responsibilities of key stakeholders. Below is a sample responsibility matrix for the Computerization of ABC City Bank.

Task	Project Manager	Software Developers	Network Engineers	Bank Managers	IT Team
Requirement Gathering	R	A		C	
System Design	R	A	C	I	
Software Development		A		C	
Hardware Setup			A	C	
Security Testing		A	R	I	
Staff Training	R			A	C
Deployment	R	A	C	I	
Post-Implementation Support	R			C	A

Legend:

- R (Responsible): Person responsible for execution
- A (Accountable): Final decision-maker
- C (Conducted): Provides input
- I (Informed): Needs to be kept informed.

Q Explain Software Configuration Management in detail.

⇒ Software Configuration Management (SCM) is a set of practices and processes used to systematically manage and control changes to software products throughout their lifecycle. It involves tracking and managing software configurations, ensuring that all changes are properly documented, controlled, tested to maintain the integrity and quality of the software.

1. Version Control - Version Control is a fundamental aspect of SCM, involving the management of different versions of software artifacts such as source code, documents, and binaries.

Version Control Systems (VCS) are used to track changes made to files, allowing developers to collaborate on projects, manage concurrent development, and revert to previous versions if needed.

VCS tools like Git, Subversion (SVN), and Mercurial provide features for branching, merging, tagging, and conflict resolution to facilitate effective version control.

2. Configuration Identification - Configuration identification involves identifying and labeling software components, versions, and releases

throughout their lifecycle.

Each software configuration item (SCI) is assigned a unique identifier and documented in a Configuration Management System (CMS) or repository.

3. Change Management - Change management encompasses the process of requesting, evaluating, approving, implementing, and verifying changes to software configurations. Change requests (CRs) are submitted to propose modifications, additions, or deletions to software components. Changes are implemented, tested, and validated before being integrated into the mainline codebase or released as part of a new software version.

4. Configuration Control - Configuration control involves enforcing policies and procedures to manage changes systematically and prevent unauthorized modifications to software configurations. Access controls, permissions, and workflow automation are implemented to regulate who can make changes to artifacts and under what conditions. Versioning and audit trails are maintained to track the history of changes and facilitate accountability and traceability.

5. Configuration Status Accounting - Configuration status accounting captures and reports information about the current state and history of software configurations.

CSA provides visibility into the status of configuration items, including their versions, changes, dependencies, and relationships.

6. Release Management:

Release Management focuses on planning, coordinating, and delivering software releases to users or customers. It involves defining release schedules, conducting release testing, managing release packages, and coordinating deployment activities.

Q Explain the significance of Gantt-Charts in Project management.

⇒ Gantt Charts are visual representations of tasks plotted against time. They represent crucial information in a project, such as who is assigned to what, task are connected. Gantt Charts are useful because they show the activities and progress of a project.

Benefits of Gantt Charts -

1. Allows Better Tracking -

Project leaders and members can use a Gantt Chart to keep track of tasks, milestones, and overall workflow. The chart can show potential constraints or concerns, allowing project leaders and members to make appropriate adjustments.

2. Provides High-level Overview -

For both individuals who are directly involved and those with less involvement, such as executives and other stakeholders, a Gantt Chart provides an overall perspective of a project and its timeframe.

3. Boosts Productivity-

A Gantt Chart enables workers to collaborative work. In order to increase production. A Gantt Chart's great visibility helps workers keep focused on the tasks they need to finish. The transparency also ensures that all team members are held accountable for their tasks. Keep track of your project plans and teams' progress and generate detailed reports with Project Planning Software.

4. Illustrates Overlaps and Dependencies-

A Gantt Chart illustrates how tasks on a project may intersect. It also demonstrates how the start of one job might be contingent on the completion of another. This type of data enables project managers to schedule work and allocate resources in a way that does not stymie project progress.

5. Manage Complex Information -

A Gantt Chart's visual clarity can aid in the simplification of a complex set of tasks. The chart depicts tasks in a straightforward and simple manner for those who must complete them. Team members can stay focused and avoid becoming overwhelmed by a huge numbers of duties because of the transparency.

6. Balance Multiple Projects -

Managers can quickly track many projects using a Gantt Chart. Below the chart shows how to give the proper resources at the right time, or allows those managers to balance the work on each project.

a. Draw the AON and AOA network diagram for the following Project and show the Critical Path.

Activity	Time	Immediate Predecessor
A	2	-
B	3	A
C	2	A
D	5	B
E	5	B
F	5	C
G	1	D
H	1	D
I	2	G
J	1	E, F, H, I

⇒ AON C activity on Node C Diagram-

