**TUTORIAL 6**

➢ **Multiple Choice:**

1. Which of the following processes involves determining the policies, procedures, and documentation that will be used for planning, executing, and controlling the project schedule?
   1. planning schedule management
   2. defining activities
   3. estimating activity resources
   4. activity sequencing
2. Predecessors, successors, logical relationships, leads and lags, resource requirements, constraints, imposed dates, and assumptions are all examples of .
   1. items in an activity list
   2. items on a Gantt chart
   3. milestone attributes
   4. activity attributes

3.What are the different types of project planning?

* 1. Top – down plan
  2. Top plan
  3. Bottom -up plan
  4. Bottom plan

1. You cannot start editing a technical report until someone else completes the first draft. What type of dependency does this represent?
   1. finish-to-start
   2. start-to-start
   3. finish-to-finish
   4. start-to-finish
2. Which technique of project planning is used to break the project down into lower levels? A. Work breakdown.
   1. Times estimates.
   2. Milestone identification.
   3. Activity sequencing
3. What symbol on a Gantt chart represents a slipped milestone?
   1. a black arrow
   2. a white arrow
   3. a black diamond
   4. a white diamond
4. What are the techniques of project planning? A. Work breakdown.
   1. Times estimates.
   2. Milestone identification.
   3. Activity sequencing
   4. Scheduling
   5. Planning.
   6. Top – down
   7. Re-Planning
5. \_\_\_\_\_\_ is a network diagramming technique used to predict total project duration.
   1. PERT
   2. A Gantt chart
   3. Critical path method
   4. Crashing
6. About CPM (Critical Path Method), which of the following statements is false?

A. This path is the shortest route through the project network.

* 1. This path is a route through the project network.
  2. Tasks with no relation among them are put in parallel.
  3. This is the critical path for the project, and it defines the duration of the project.

1. In a project, the start date of Critical Path isn’t the start date of the project and end date of this path is the end date of the project?
   1. True
   2. False

➢ **Short Answer:**

1. Why is it important to determine activity sequencing on projects? Discuss diagrams you have seen that are similar to network diagrams. Describe their similarities and differences.

**Importance of Determining Activity Sequencing on Projects**

Determining activity sequencing on projects is crucial for several reasons:

* **Efficient Resource Allocation:** By understanding the order of tasks, resources can be allocated effectively, preventing bottlenecks and delays.
* **Risk Identification and Mitigation:** Identifying dependencies between activities helps in identifying potential risks and developing strategies to mitigate them.
* **Improved Communication:** A clear sequence helps in effective communication among team members and stakeholders, ensuring everyone is aligned on the project timeline.
* **Accurate Project Duration Estimation:** Understanding the dependencies between tasks allows for a more accurate estimation of the project's overall duration.

**Network Diagrams and Similar Diagrams**

Network diagrams are widely used to visualize the sequence of activities in a project. Some similar diagrams include:

* **Precedence Diagrams:** These diagrams use arrows to show the dependencies between activities. They are similar to network diagrams but often have a simpler layout.
* **Activity-on-Node (AON) Diagrams:** In these diagrams, activities are represented by nodes, and dependencies are shown by arrows between them. This is similar to network diagrams, but the nodes represent activities instead of events.

**Similarities:** Both network diagrams and similar diagrams depict the sequence of activities, dependencies between tasks, and the overall project timeline.

**Differences:** The specific representation of activities and dependencies may vary slightly between different types of diagrams. For example, network diagrams may use events to represent the start and end of activities, while AON diagrams directly represent activities as nodes.

1. Explain the difference between estimating activity durations and estimating the effort required to perform an activity.

**Estimating Activity Durations vs. Effort**

**Estimating activity durations** involves determining the amount of *time* required to complete a specific task or activity within a project. This time estimate typically considers factors such as:

* **Task complexity:** How intricate or challenging is the task?
* **Resource availability:** Are the necessary resources (e.g., people, equipment) available when needed?
* **Dependencies:** Are there other tasks that must be completed before this one can start?
* **Contingencies:** Are there potential risks or uncertainties that could affect the timeline?

**Estimating the effort required** for an activity, on the other hand, focuses on the *amount of human resources* needed to perform the task. This often involves determining the number of hours, days, or weeks of labor that will be necessary. Factors to consider when estimating effort include:

* **Task complexity:** More complex tasks generally require more effort.
* **Skill level:** The required skill level of the individuals performing the task will impact the effort needed.
* **Experience:** Individuals with more experience may be able to complete the task more efficiently, requiring less effort.
* **Work environment:** The working conditions, including factors like interruptions or distractions, can affect the efficiency of the work and, therefore, the effort required.

**In summary:**

* **Duration** is about the *time* it takes to complete a task.
* **Effort** is about the *human resources* needed to complete a task.

While duration and effort are often related, they are not always directly proportional. For example, a highly complex task might have a relatively short duration if it is performed by a skilled and experienced team, but it will likely require a significant amount of effort.

1. Explain the following schedule development tools and concepts: Gantt charts, critical path method, PERT, and critical chain scheduling.

**Schedule Development Tools and Concepts**

**Gantt Charts**

* **Visual Representation:** Gantt charts are a popular tool for project scheduling, providing a visual representation of the project timeline.
* **Activities and Timelines:** Each row on a Gantt chart represents an activity, and the horizontal axis represents time.
* **Progress Tracking:** Gantt charts are useful for tracking the progress of activities and identifying potential delays or bottlenecks.

**Critical Path Method (CPM)**

* **Sequential Activities:** CPM focuses on identifying the sequence of activities that determine the overall project duration.
* **Critical Path:** The "critical path" is the longest path through the project network. Any delay in activities on the critical path will directly impact the project's completion date.
* **Slack:** Activities that are not on the critical path have "slack" or "float," meaning they can be delayed without affecting the project's overall timeline.

**Program Evaluation and Review Technique (PERT)**

* **Probabilistic Estimates:** PERT is similar to CPM but uses probabilistic estimates for activity durations to account for uncertainty.
* **Three-Point Estimates:** For each activity, PERT uses optimistic, most likely, and pessimistic estimates to calculate the expected duration and standard deviation.
* **Risk Analysis:** PERT can be used to assess project risk and identify potential areas of concern.

**Critical Chain Scheduling (CCS)**

* **Buffer Management:** CCS focuses on managing buffers to improve project predictability.
* **Project Buffers:** CCS introduces project buffers at the end of the project to account for unforeseen delays or uncertainties.
* **Feeding Buffers:** Feeding buffers are placed between dependent activities to ensure that the next activity can start on time, even if the previous one is delayed.
* **Resource Constraints:** CCS also considers resource constraints and adjusts the schedule accordingly to minimize delays.

**In summary:**

* **Gantt charts** provide a visual overview of the project schedule.
* **CPM** identifies the critical path and determines the project's overall duration.
* **PERT** incorporates uncertainty into the schedule using probabilistic estimates.
* **CCS** focuses on managing buffers and resource constraints to improve project predictability

1. How can you minimize or control changes to project schedules?

**Minimizing Changes to Project Schedules**

**1. Comprehensive Planning:**

* **Detailed Project Plan:** Develop a thorough project plan that outlines all activities, dependencies, and resource requirements.
* **Contingency Planning:** Incorporate contingency plans to address potential risks and uncertainties.

**2. Effective Communication:**

* **Regular Updates:** Maintain open and transparent communication with stakeholders, providing regular updates on project progress and any potential issues.
* **Change Management Process:** Establish a clear process for managing changes, including procedures for evaluating requests, obtaining approvals, and communicating changes to the team.

**3. Risk Management:**

* **Risk Identification:** Identify potential risks that could impact the project schedule.
* **Risk Assessment:** Evaluate the likelihood and impact of each risk.
* **Mitigation Strategies:** Develop strategies to mitigate or avoid risks.
* **Risk Monitoring:** Continuously monitor for emerging risks and adjust plans as needed.

**4. Change Control Process:**

* **Formal Procedure:** Implement a formal change control process that outlines the steps involved in requesting, evaluating, and approving changes.
* **Impact Assessment:** Assess the potential impact of any proposed change on the project schedule, budget, and scope.
* **Decision-Making:** Establish clear criteria for decision-making regarding changes.

**5. Flexibility:**

* **Built-in Flexibility:** Incorporate a certain degree of flexibility into the project schedule to accommodate minor changes or unforeseen circumstances.
* **Buffer Time:** Allocate buffer time or contingency reserves to account for potential delays or unexpected tasks.

**6. Monitoring and Control:**

* **Regular Tracking:** Monitor project progress closely to identify any deviations from the planned schedule.
* **Corrective Actions:** Take prompt corrective actions to address any issues that could impact the schedule.

**7. Stakeholder Involvement:**

* **Active Participation:** Involve stakeholders in the project planning and decision-making process to ensure their buy-in and support.
* **Clear Expectations:** Set clear expectations with stakeholders regarding the project timeline and the potential for changes.

By following these strategies, you can significantly reduce the likelihood of schedule changes and improve the overall predictability and success of your project

1. Why is it difficult to use project management software well?

**Challenges in Using Project Management Software**

**1. Complexity:**

* **Learning Curve:** Many project management software tools can be complex, requiring significant time and effort to learn and master.
* **Customization:** Tailoring the software to meet specific project requirements can be challenging, especially for complex projects.

**2. Data Entry and Maintenance:**

* **Time-Consuming:** Entering and maintaining accurate data in the software can be time-consuming and error-prone.
* **Data Quality:** Ensuring data quality is crucial for accurate reporting and decision-making, but it can be difficult to maintain consistency.

**3. Integration with Other Systems:**

* **Technical Challenges:** Integrating project management software with other systems (e.g., accounting, HR) can be technically challenging and require expertise.
* **Data Synchronization:** Ensuring data synchronization between different systems can be difficult and time-consuming.

**4. Resistance to Change:**

* **User Adoption:** Introducing new project management software can face resistance from team members who are comfortable with their existing methods.
* **Cultural Barriers:** Overcoming cultural barriers and ensuring that all team members are comfortable using the software can be a challenge.

**5. Limited Flexibility:**

* **Customization Constraints:** Some software tools may have limitations in terms of customization, making it difficult to adapt to specific project needs.
* **Scalability:** The software may not be able to scale effectively as the project grows in size or complexity.

**6. Cost:**

* **Initial Investment:** The initial cost of purchasing and implementing project management software can be significant.
* **Ongoing Costs:** Ongoing costs, such as maintenance, support, and training, can also add to the overall expense.

**7. Lack of Training and Support:**

* **User Proficiency:** Inadequate training can lead to inefficient use of the software and potential errors.
* **Support Availability:** Limited access to technical support can make it difficult to resolve issues and get assistance when needed.

Addressing these challenges requires careful planning, adequate training, and a commitment to ongoing improvement in the use of project management software.

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