PROJECT TIME MANAGEMENT

Project Management – 6th meeting

- Project Time Management includes the processes required to manage the timely completion of the project.

- Process :
  1. **Plan Schedule Management**
  2. **Define Activities**
  3. **Sequence Activities**
  4. **Estimate Activity Resources**
  5. **Estimate Activity Durations**
  6. **Develop Schedule**
  7. **Control Schedule**

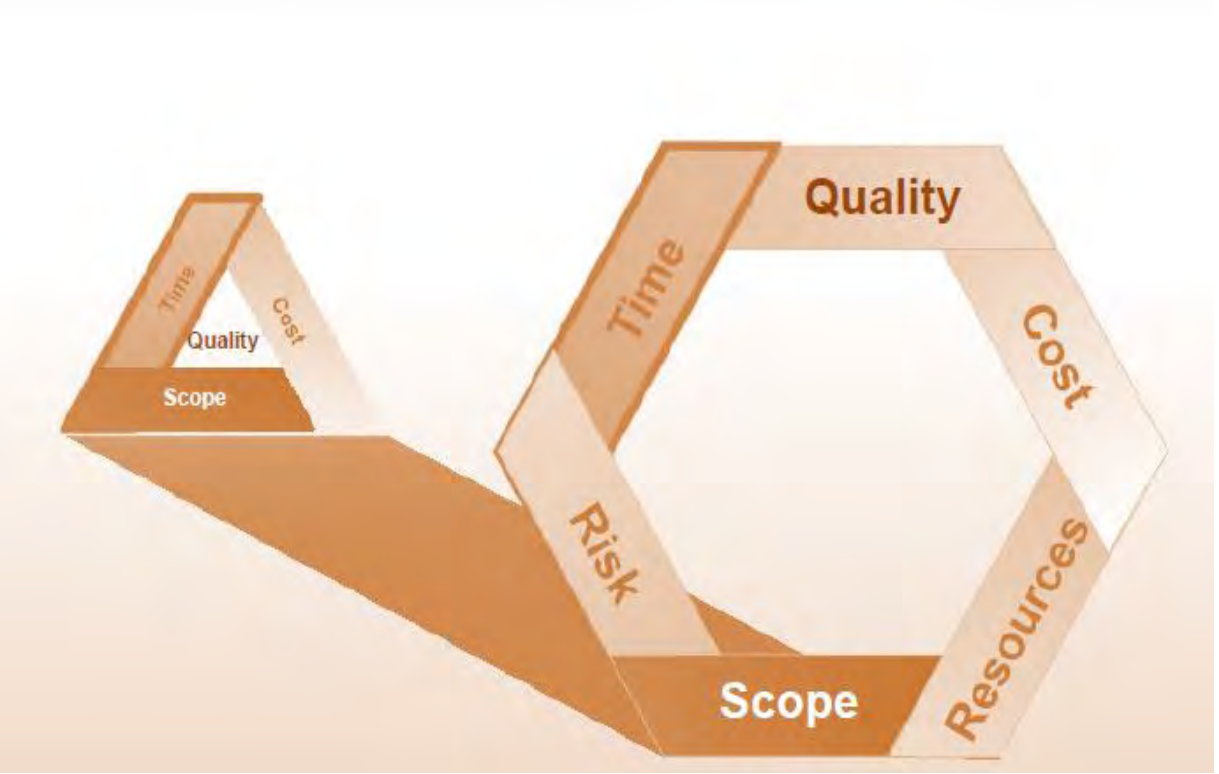
What is Project Time Management?

Overview

Overview of Project Time Management

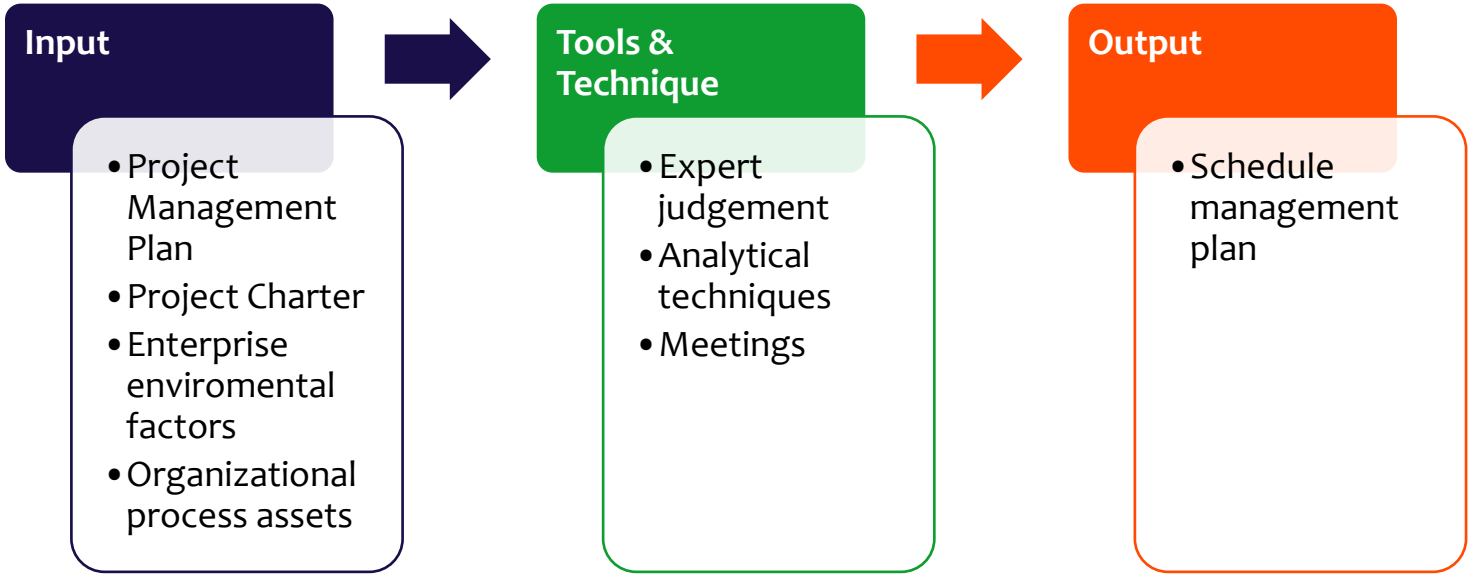
Triple Constraint Model

Project Constraints



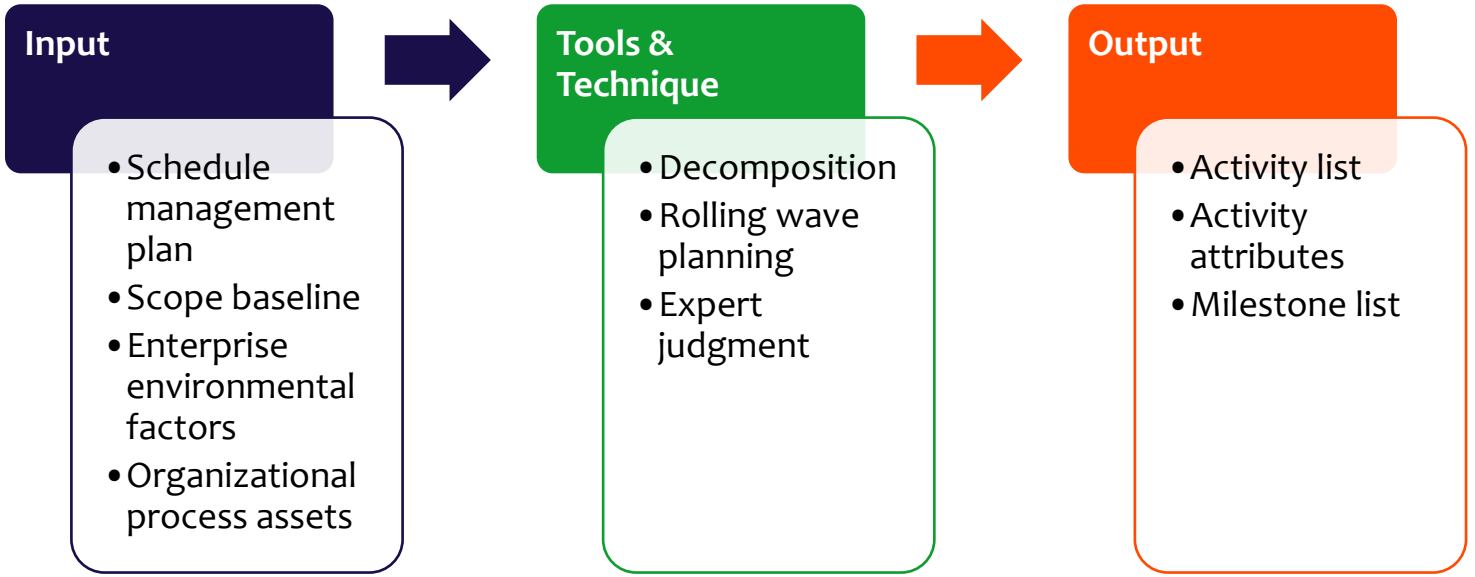
1. Plan Schedule Management

Plan Schedule Management is the process of establishing the policies, procedures, and documentation for planning, developing, managing, executing, and controlling the project schedule.



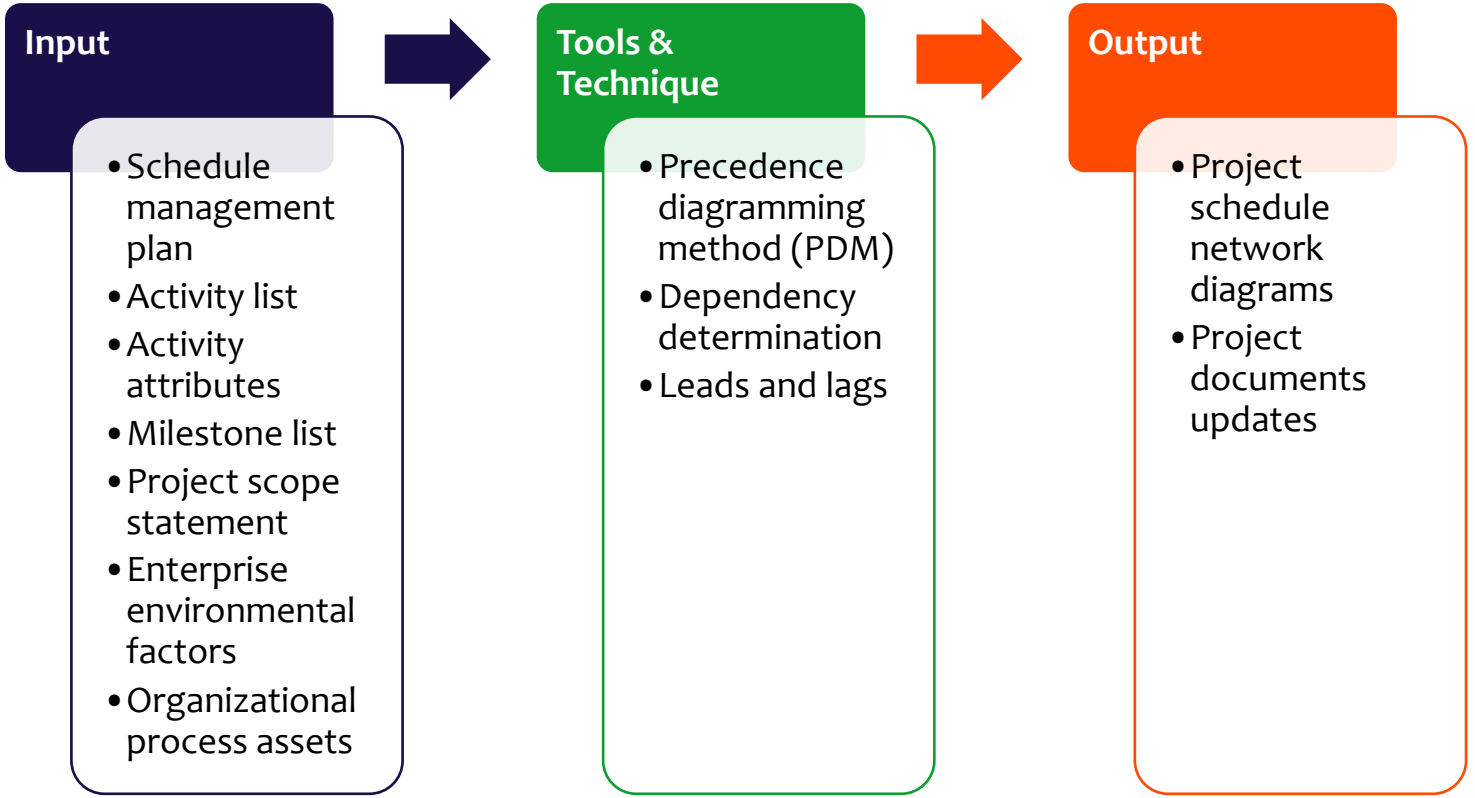
2. Define Activities

Define Activities is the process of identifying and documenting the specific actions to be performed to produce the project deliverables.



3. Sequence Activities

Sequence Activities is the process of identifying and documenting relationships among the project activities.



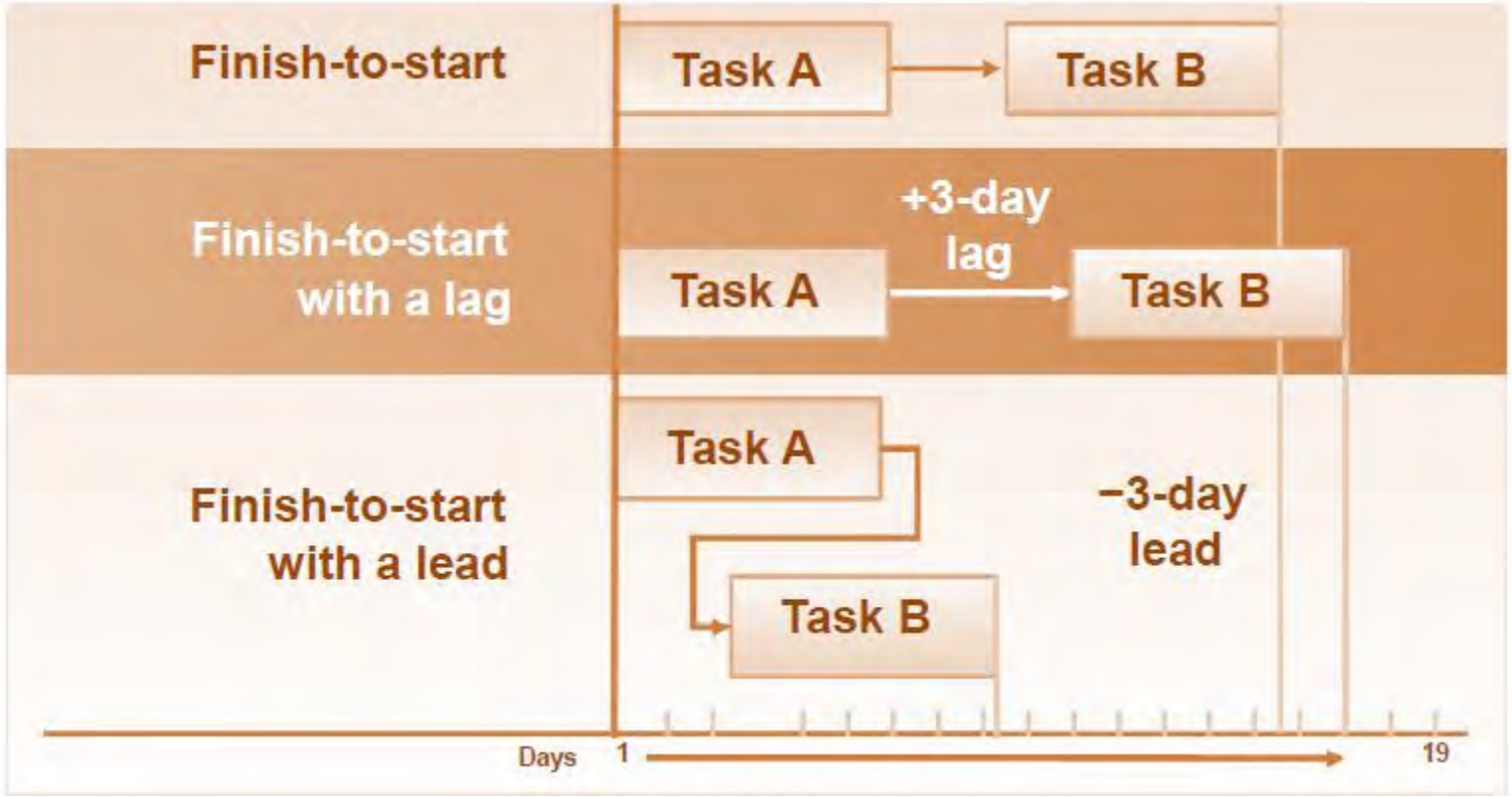
Dependency Determination

Types of Dependencies

- **Mandatory**
- **Discretionary**
- **External**

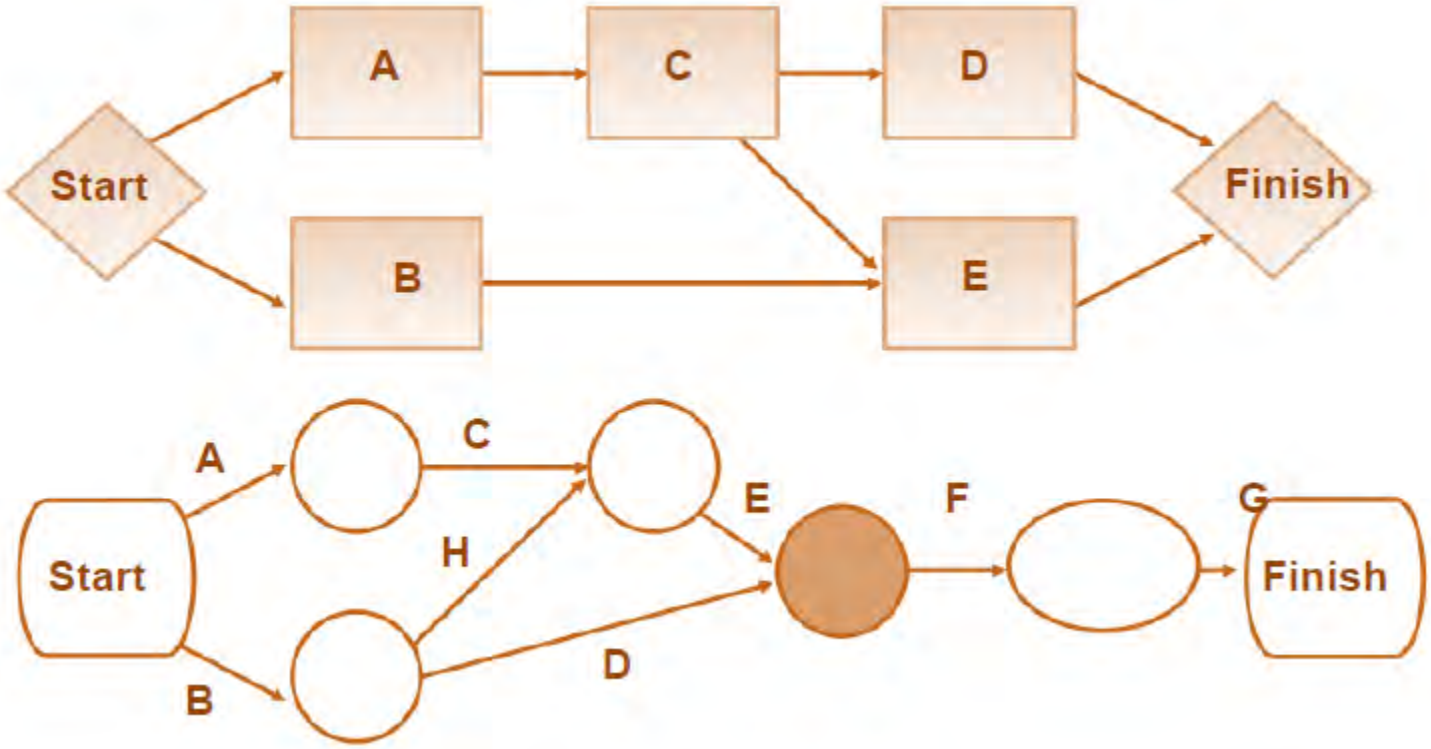
Tools and Techniques

Applying Leads and Lags



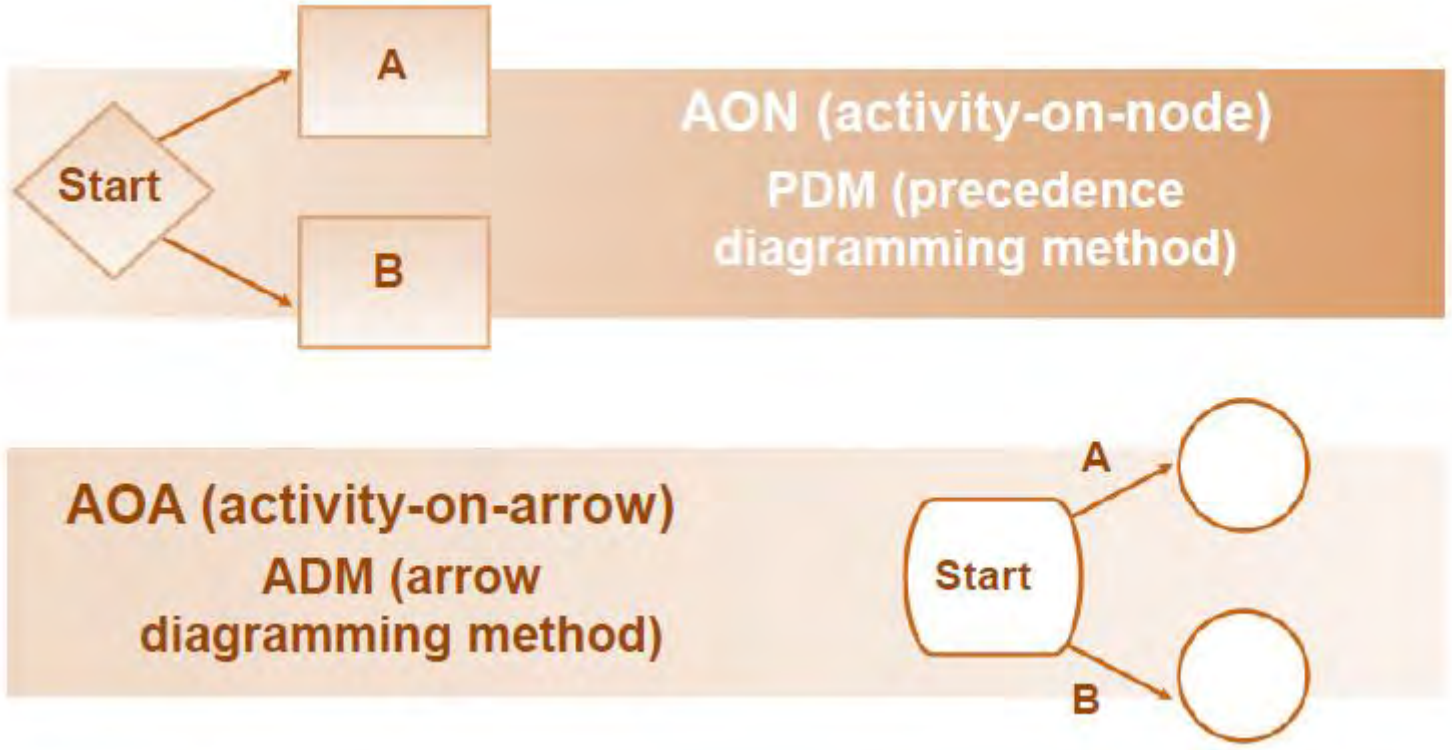
Outputs

Project Schedule Network Diagrams



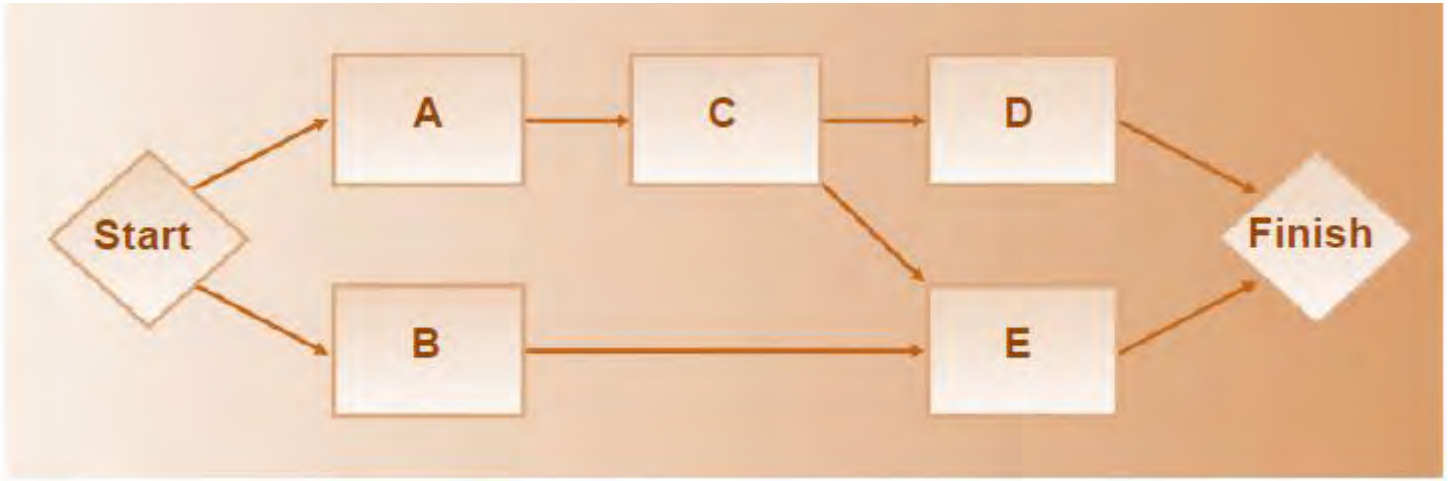
Project Schedule Network Diagrams

Types of Network Diagrams



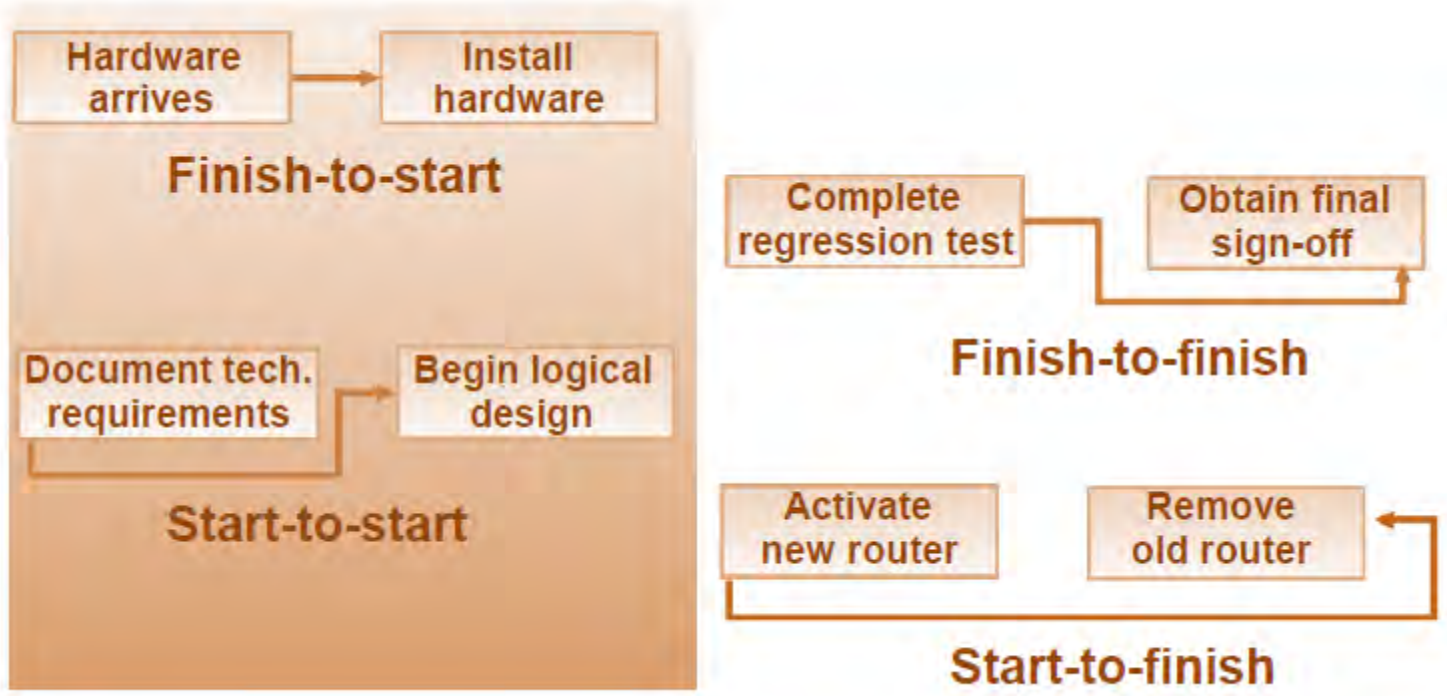
Project Schedule Network Diagrams

Activity-on-Node Diagramming Method



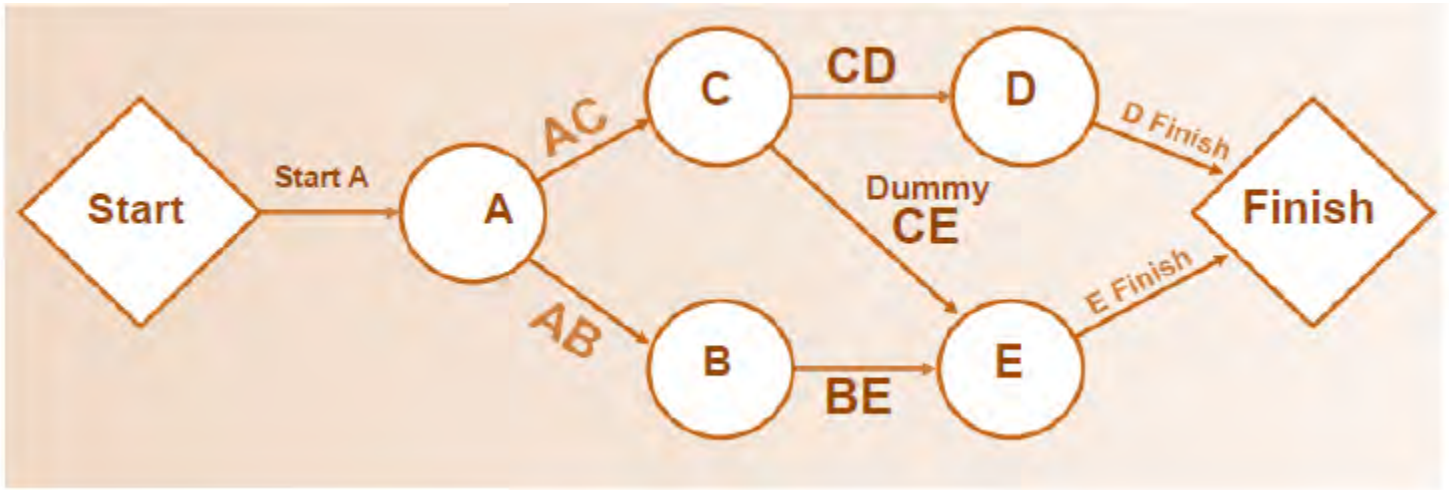
Activity-on-Node Diagramming Method

PDM Relationships



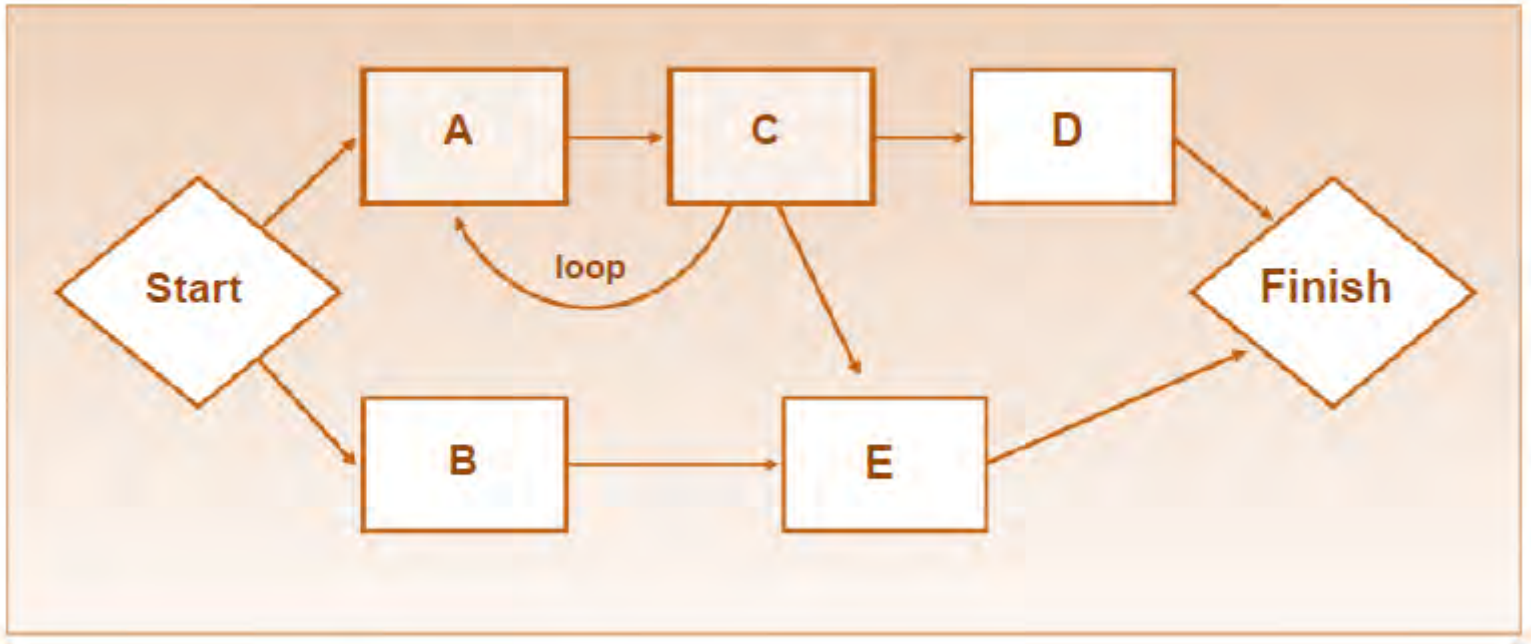
Project Schedule Network Diagrams

Activity-on-Arrow Diagramming Method



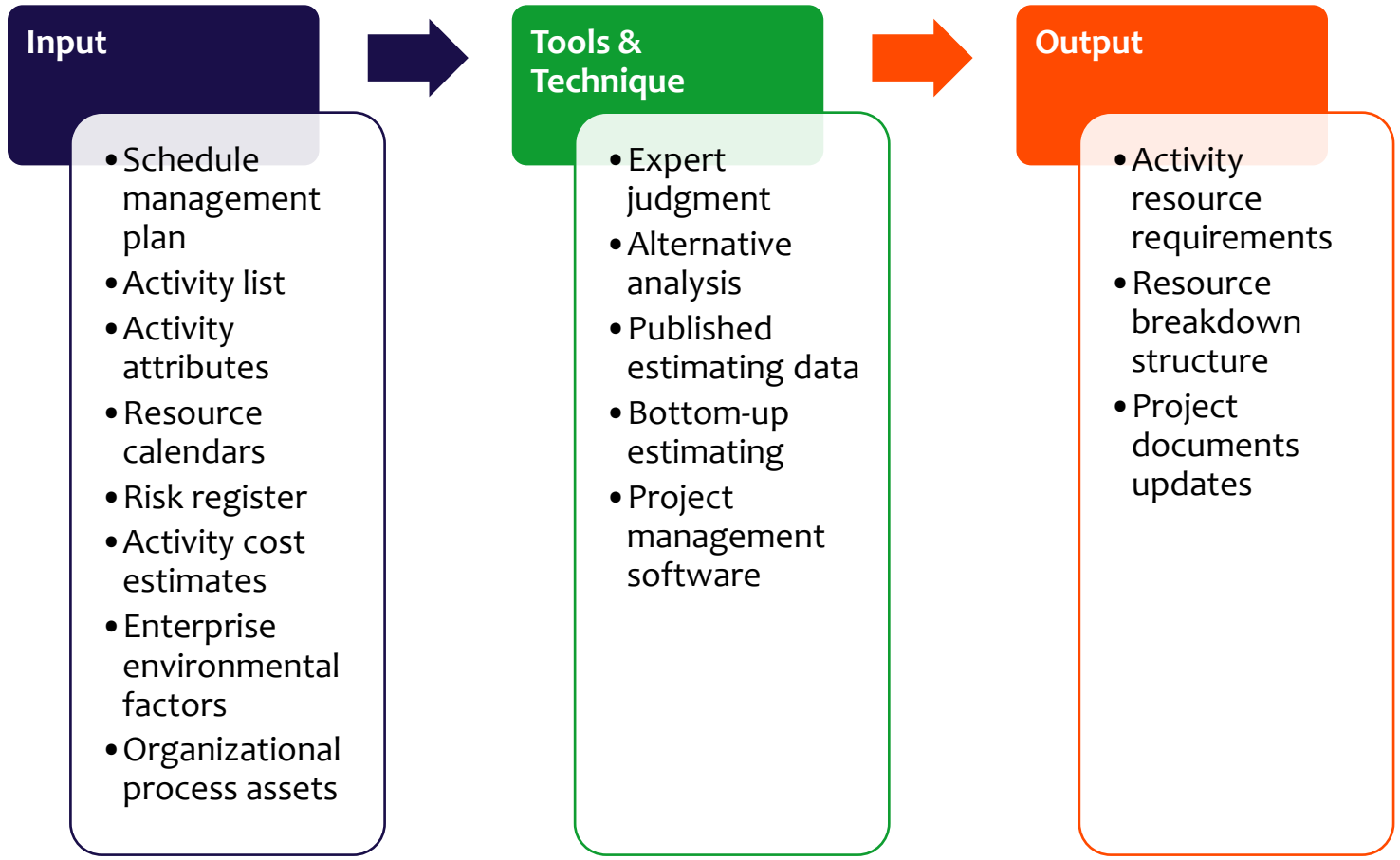
Project Schedule Network Diagrams

Graphical Evaluation and Review Technique



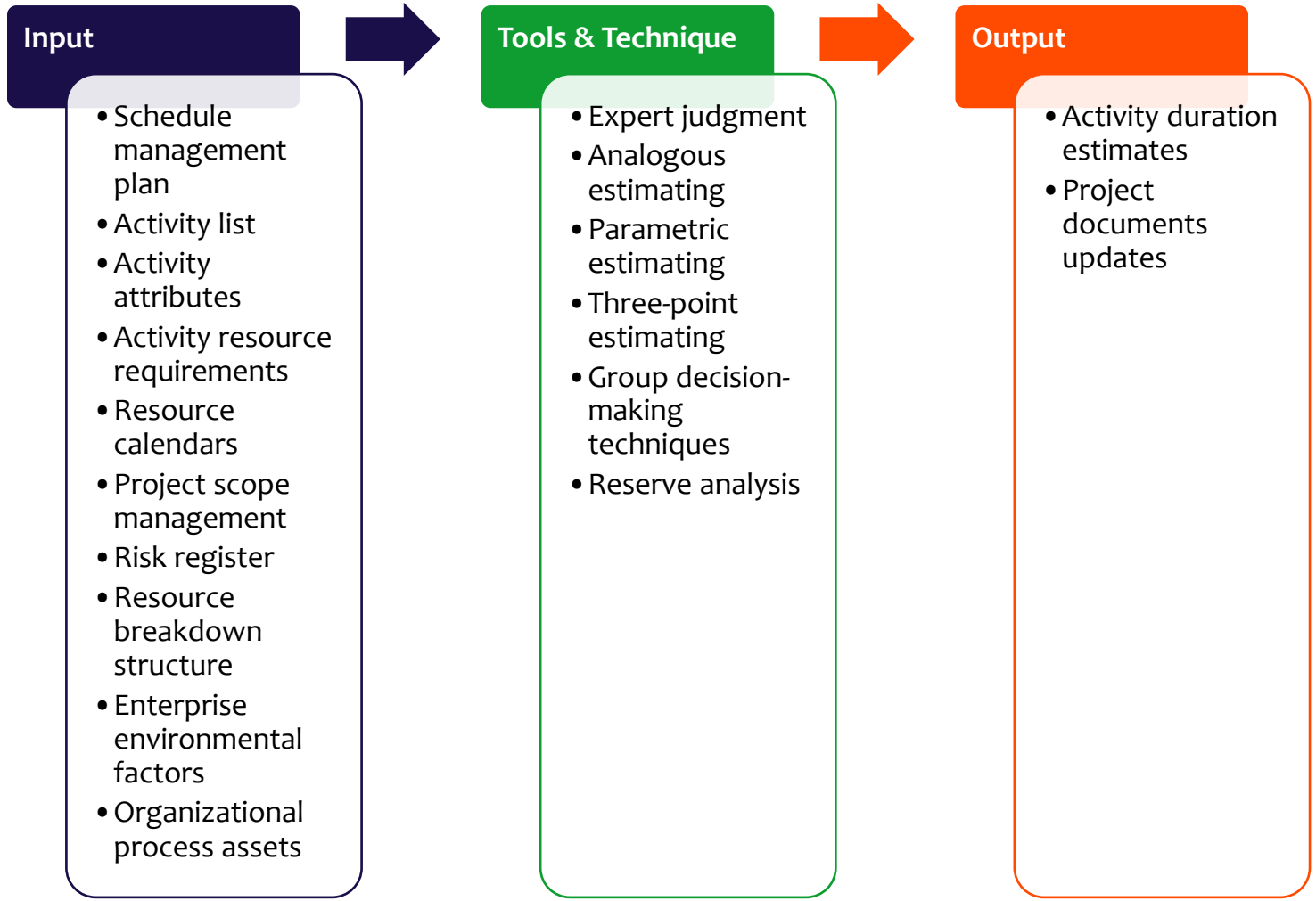
4. Estimate Activity Resources

Estimate Activity Resources is the process of estimating the type and quantities of material, human resources, equipment, or supplies required to perform each activity.



5. Estimate Activity Durations

Estimate Activity Durations is the process of estimating the number of work periods needed to complete individual activities with estimated resources.



Three-Point Estimates

PERT and Triangular Distribution

PERT	Triangular distribution
Mean = $\frac{T_O + 4T_M + T_P}{6}$	Mean = $\frac{T_O + T_M + T_P}{3}$
Standard deviation = $\frac{T_P - T_O}{6}$	Standard deviation = $\frac{T_P - T_O}{3}$
Variance = σ^2	Variance = σ^2

Question

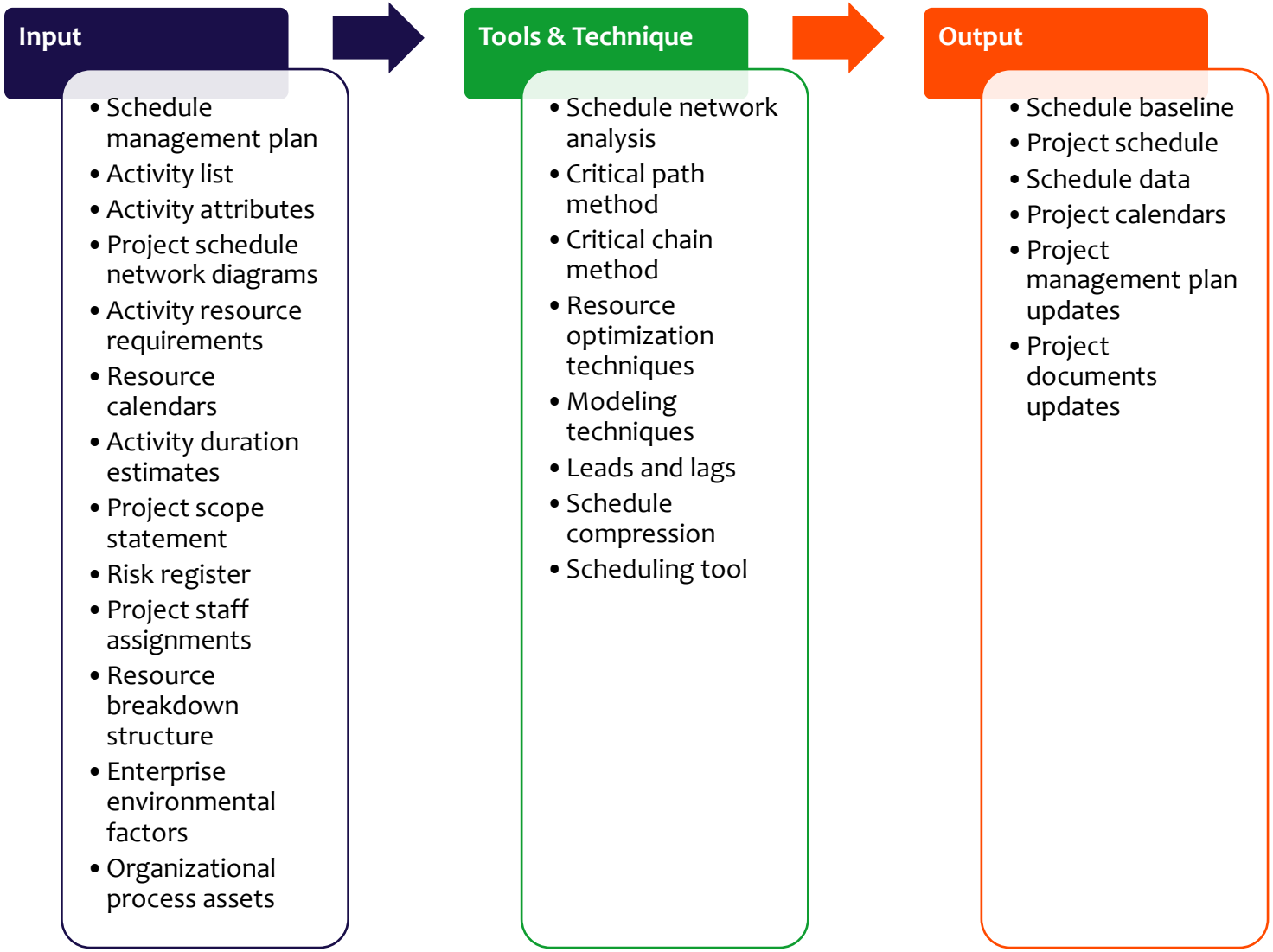
If you want to estimate the total project duration with a 95 percent confidence level, what is the range of project duration if the sum of the critical path items equals 30 days and the standard deviation equals 2.5 days?

Answer

25 to 35 days

6. Develop Schedule

Develop Schedule is the process of analyzing activity sequences, durations, resource requirements, and schedule constraints to create the project schedule model.



Tools and Techniques

Critical Path Method

Calculates the longest time path (CP)

Calculates ES, EF, LS, LF

Determines minimum duration of project

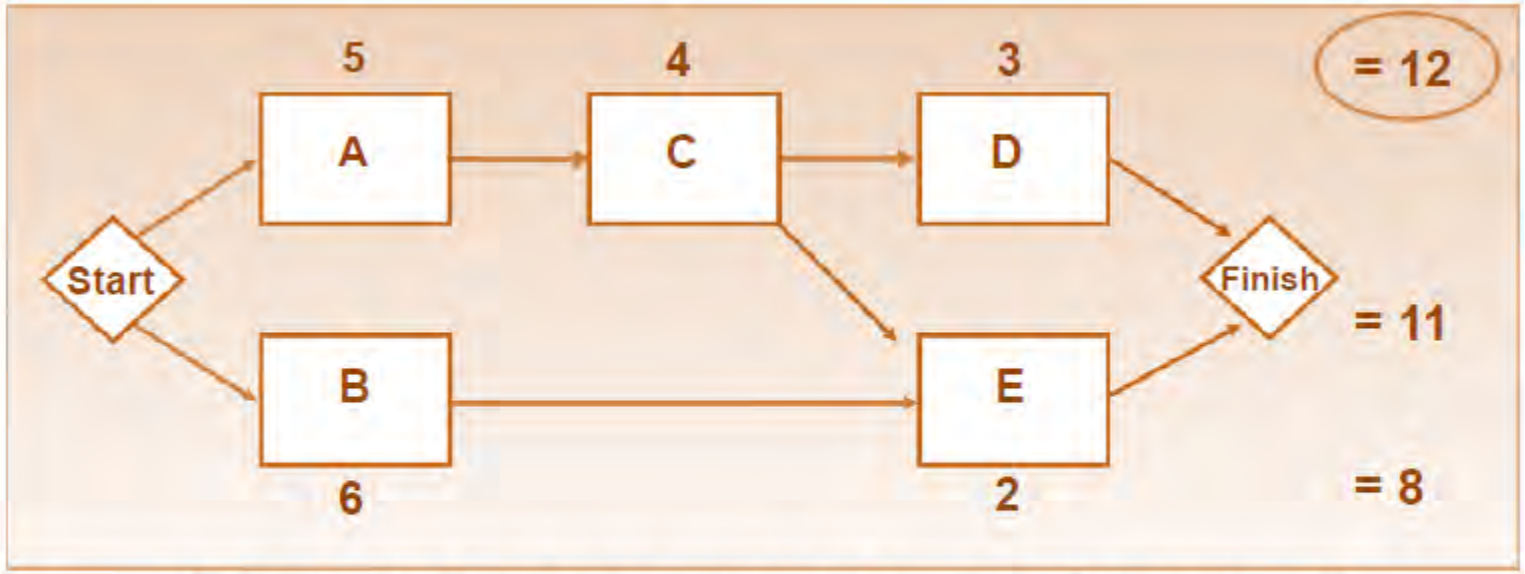
Determines scheduling flexibility (amount of float)

Uses a single duration time estimate

The critical path is the longest path in time through the network diagram that determines the shortest time in which the project can be completed.

Critical Path Method

Critical Path

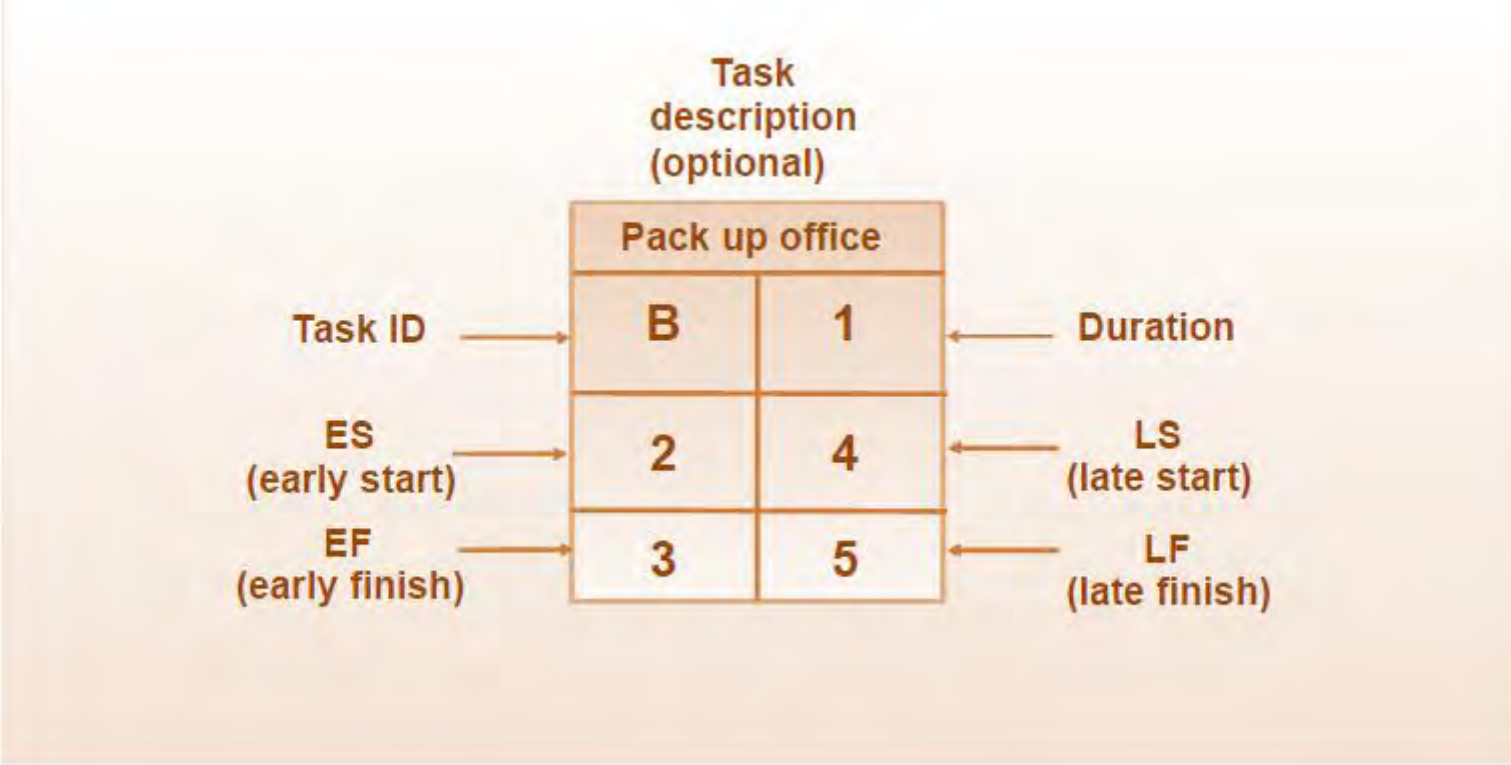


If the task durations are as shown in this network diagram, what is the critical path?

A-C-D

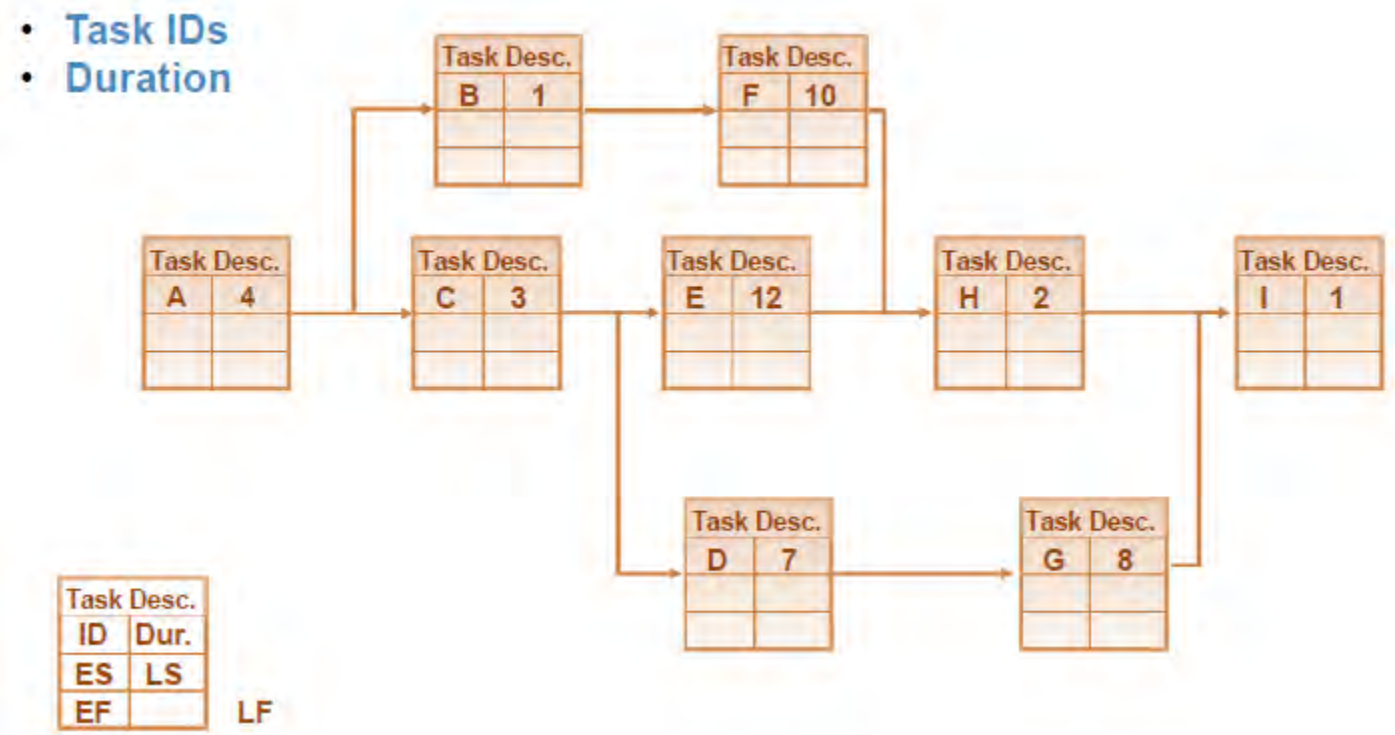
Calculating the Critical Path

Network Diagramming Conventions



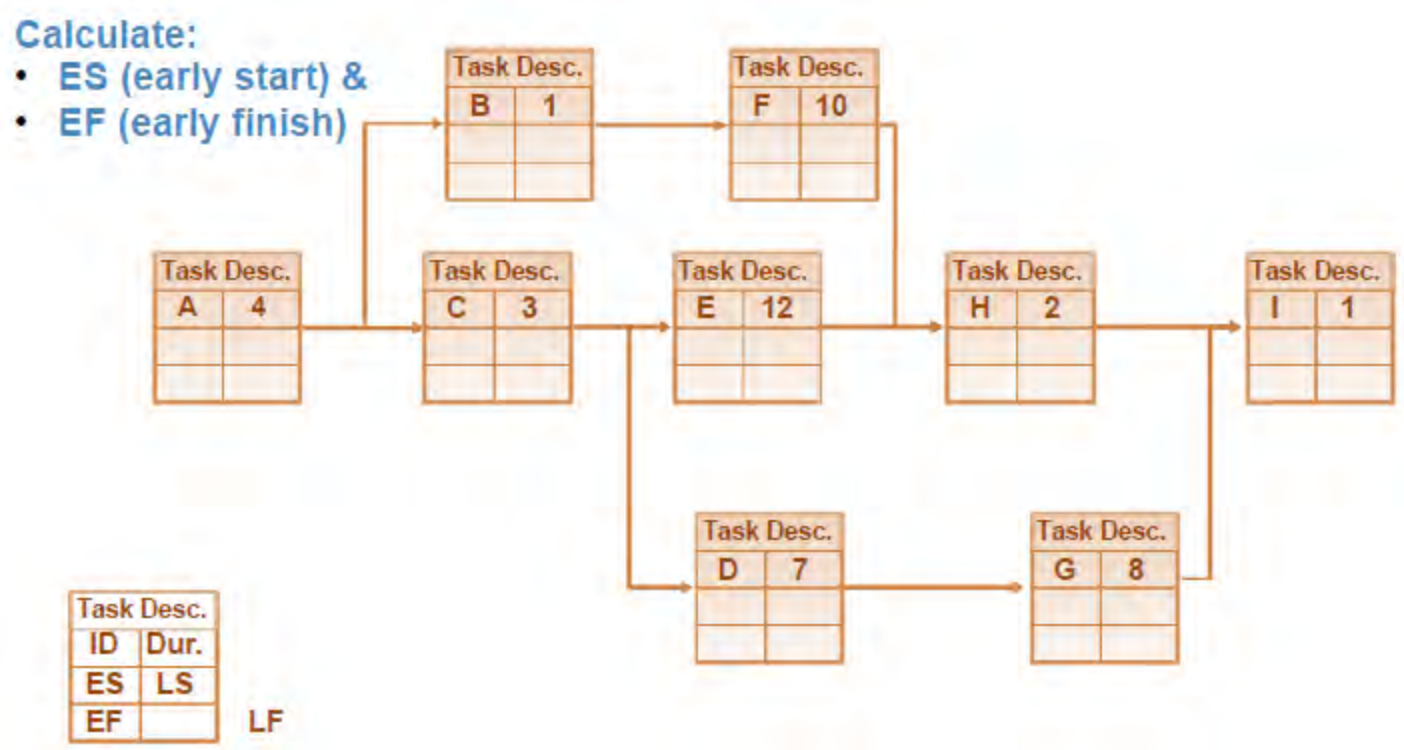
Critical Path Method

Network Diagramming Example



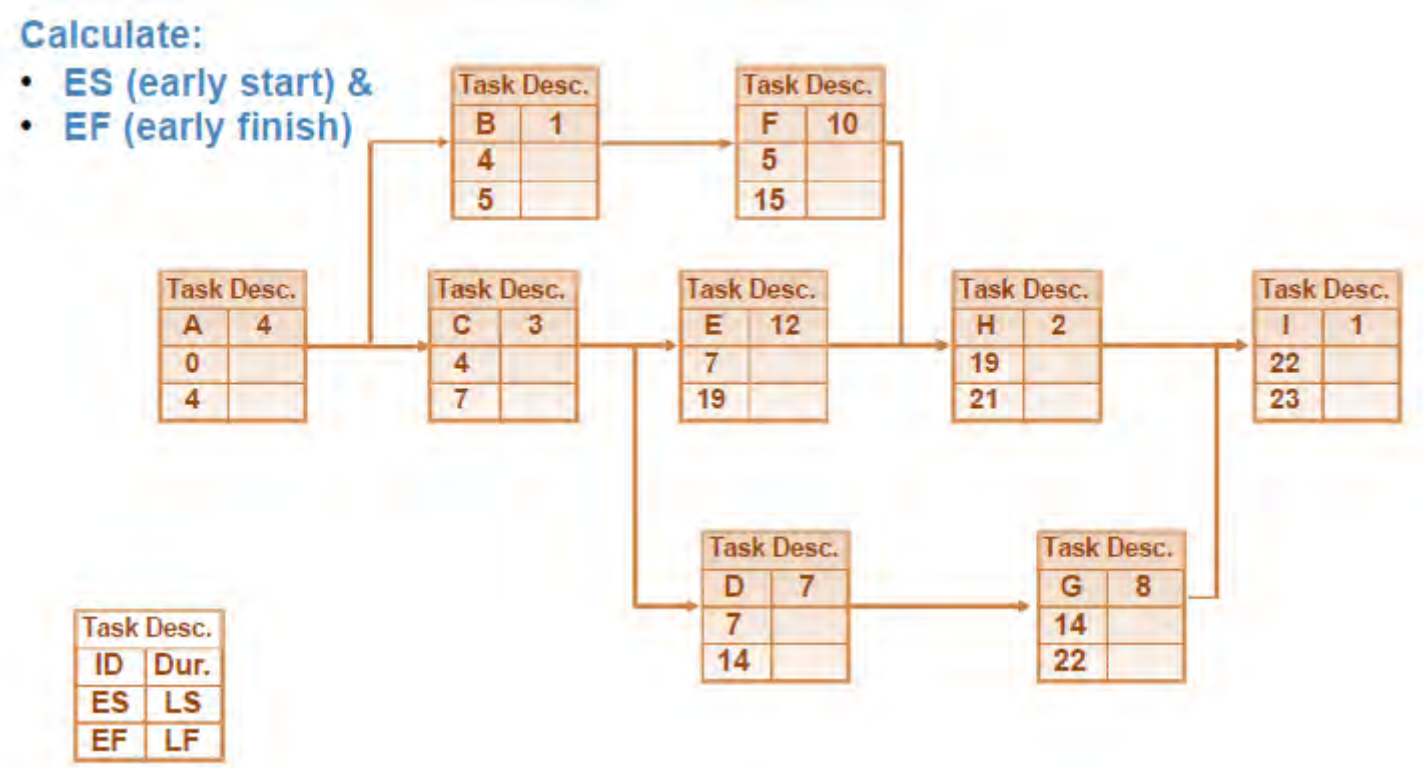
Network Diagramming Example

Forward Pass



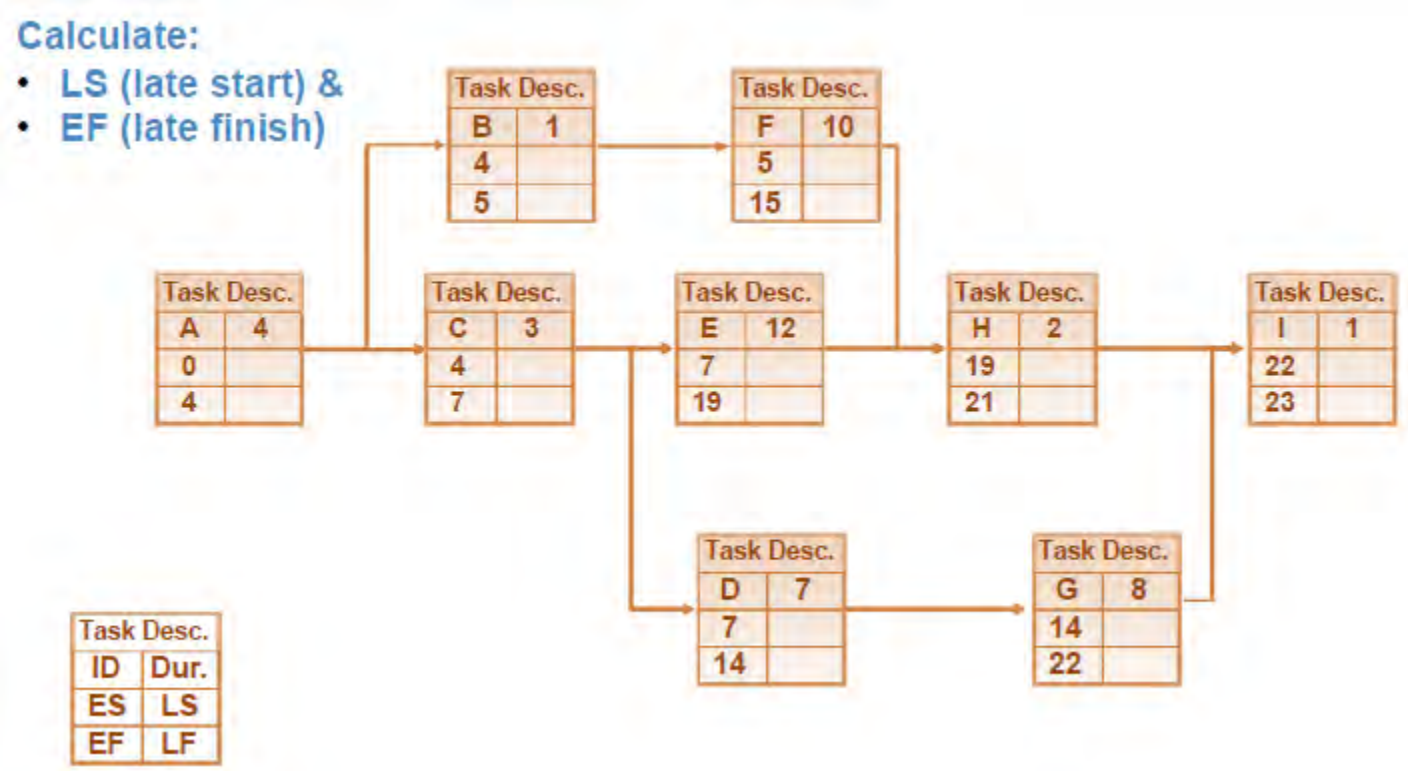
Network Diagramming Example

Forward Pass



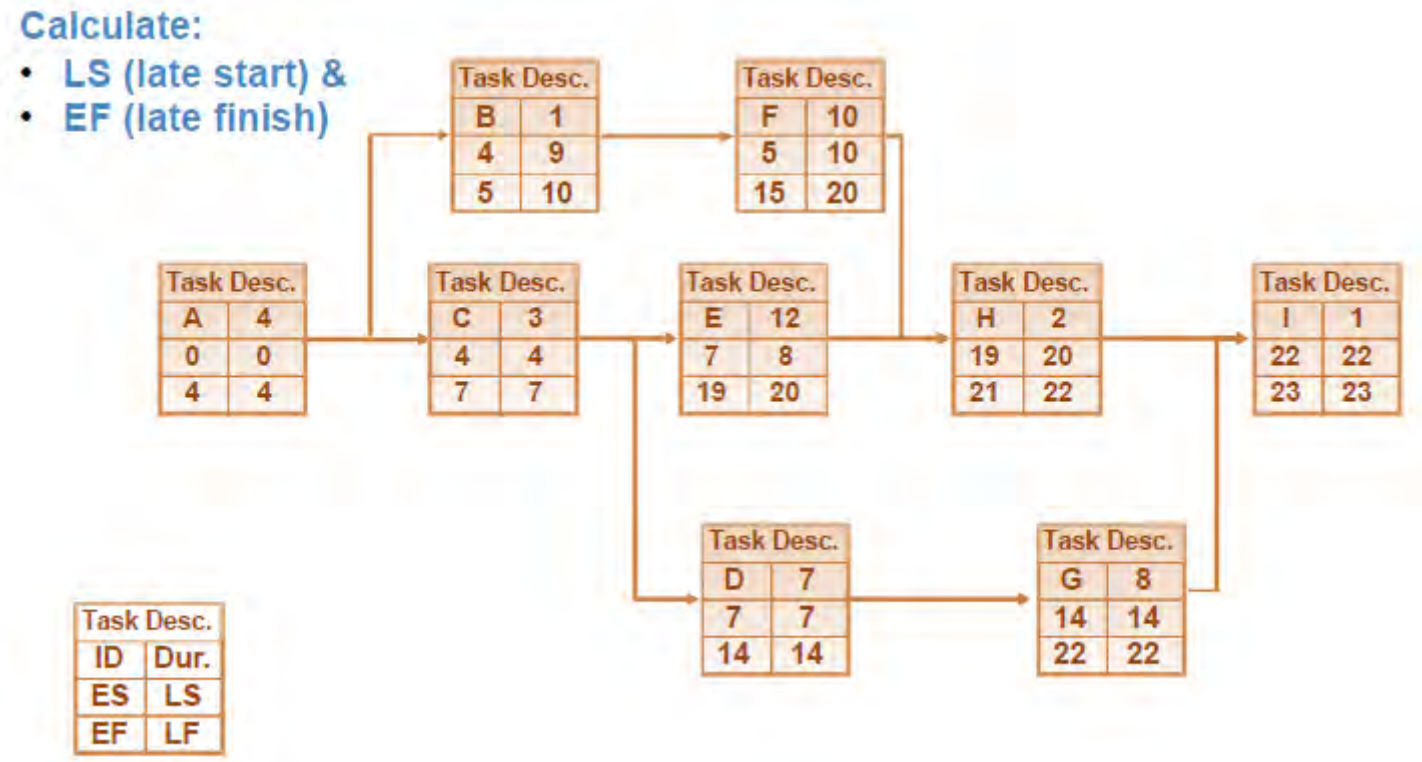
Network Diagramming Example

Backward Pass



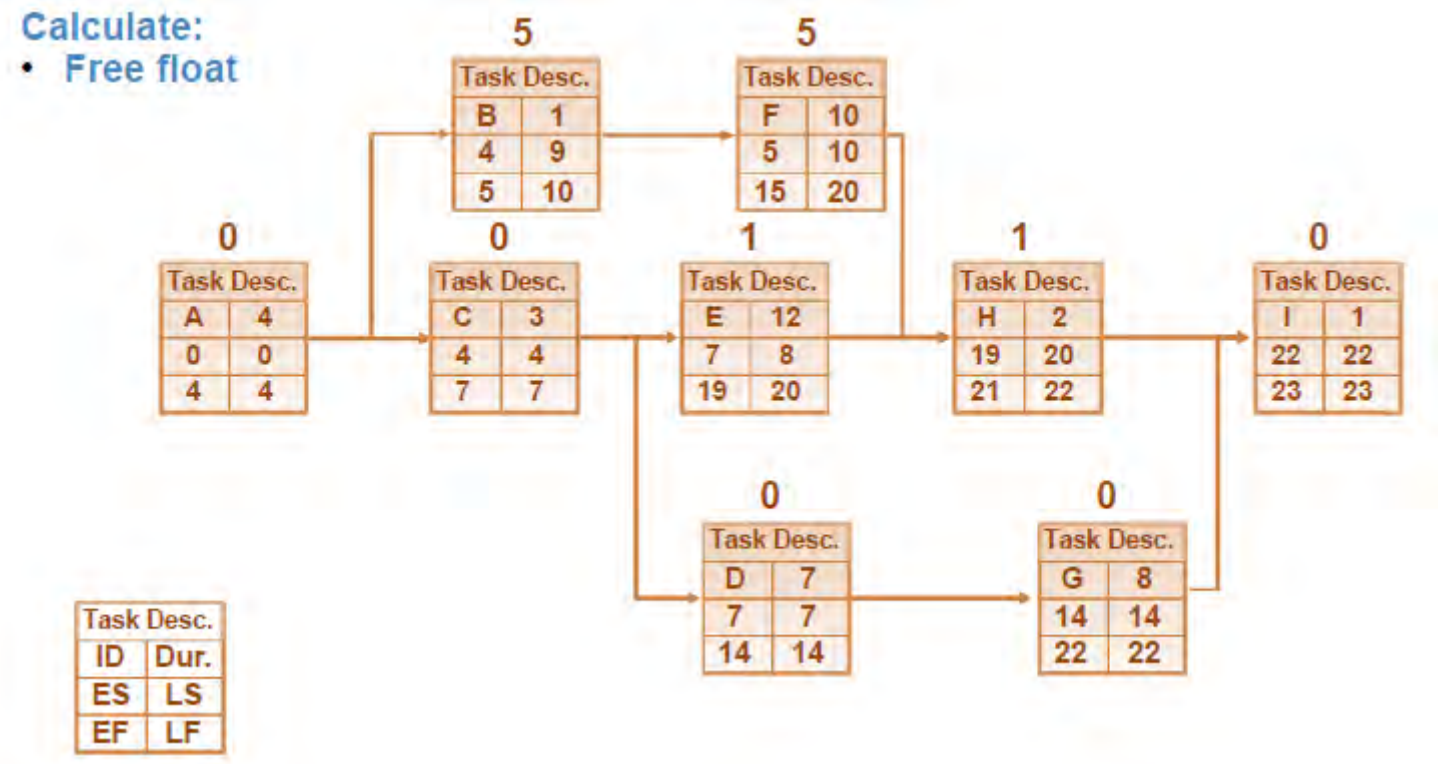
Network Diagramming Example

Backward Pass



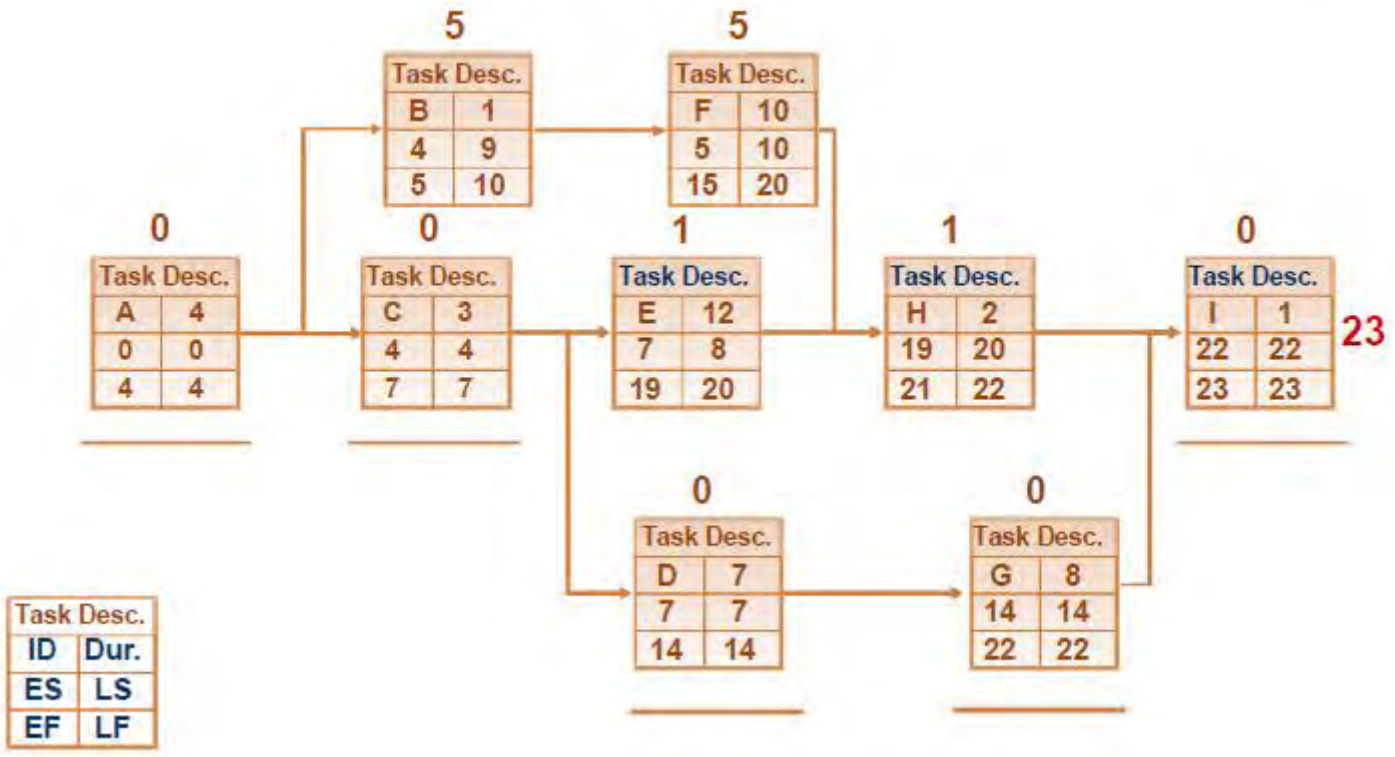
Network Diagramming Example

Free Float



Network Diagramming Example

Critical Path



Tools and Techniques

Schedule Compression

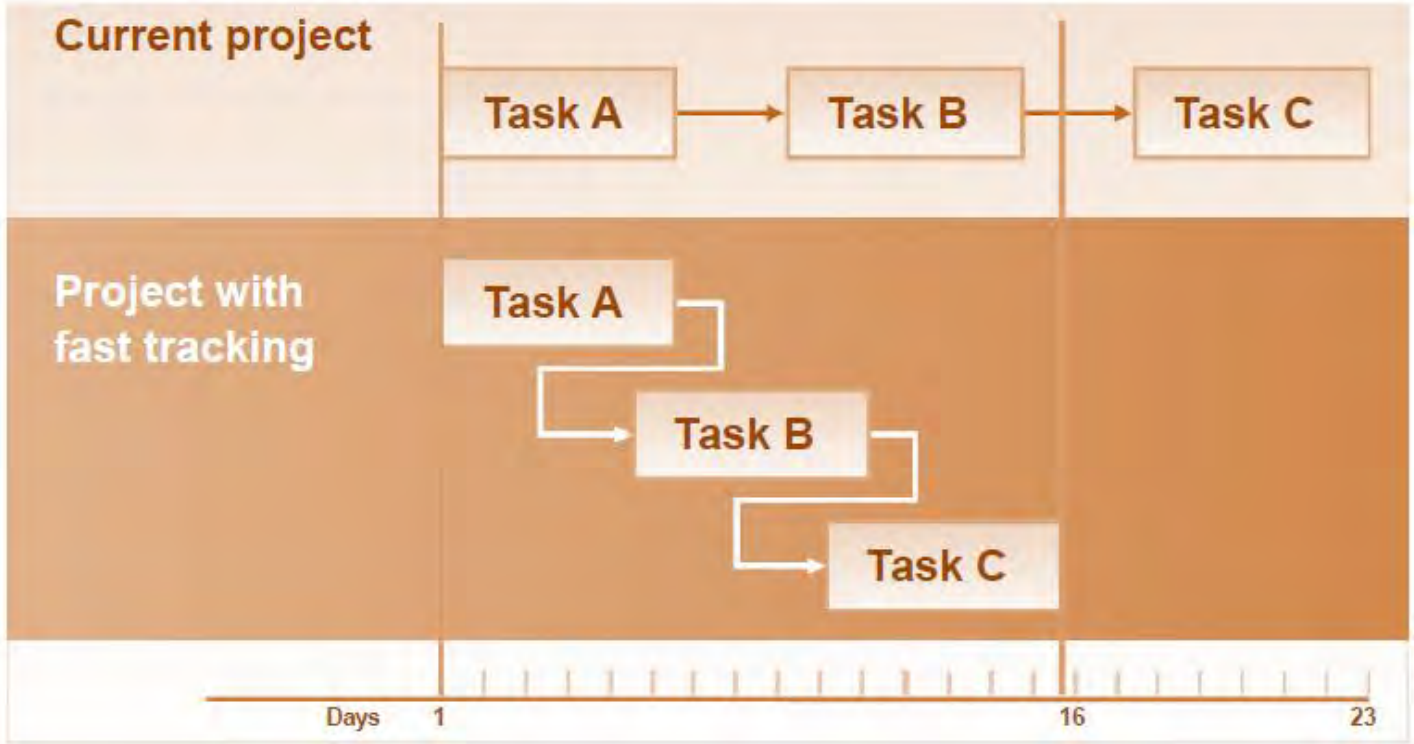
Crashing

- Adding resources to critical path activities
- Changing the resources

Trade-offs:

- Increased costs
- Unrealistic alternatives
- Communications challenges

Fast tracking



Output

Project Schedule

Project schedule:

- **Is calendar based**
- **Has resource assignments is signed off on as part of the PM plan After sign-off, forms the baseline for measuring schedule performance**
- **Includes milestones**

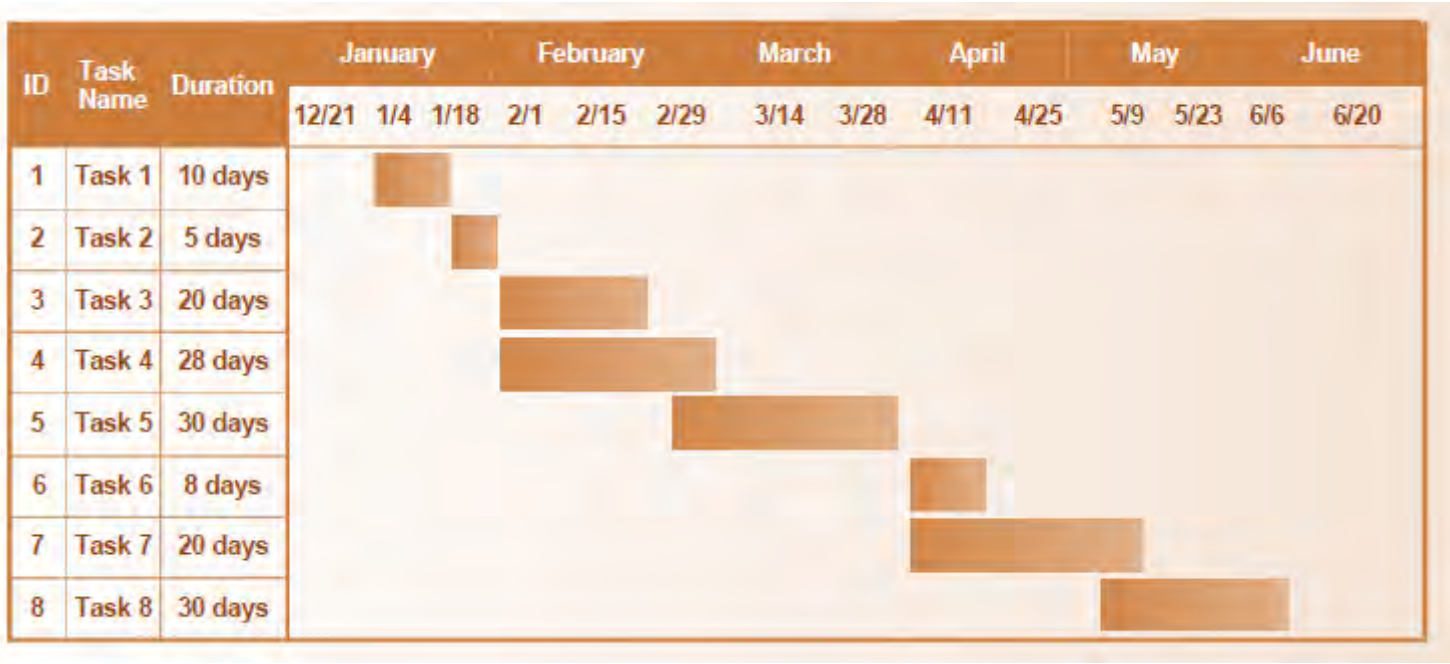
Project Schedule

Milestone Charts

Milestone	Scheduled Date	Actual Date
Functional requirements signed off	2/1	2/1
Phase I coding completed	4/5	4/8
Phase I code tested	5/20	
Training complete	6/10	
Implementation	6/15	
Customer acceptance and sign-off	6/23	
Project closeout	6/23	

Project Schedule

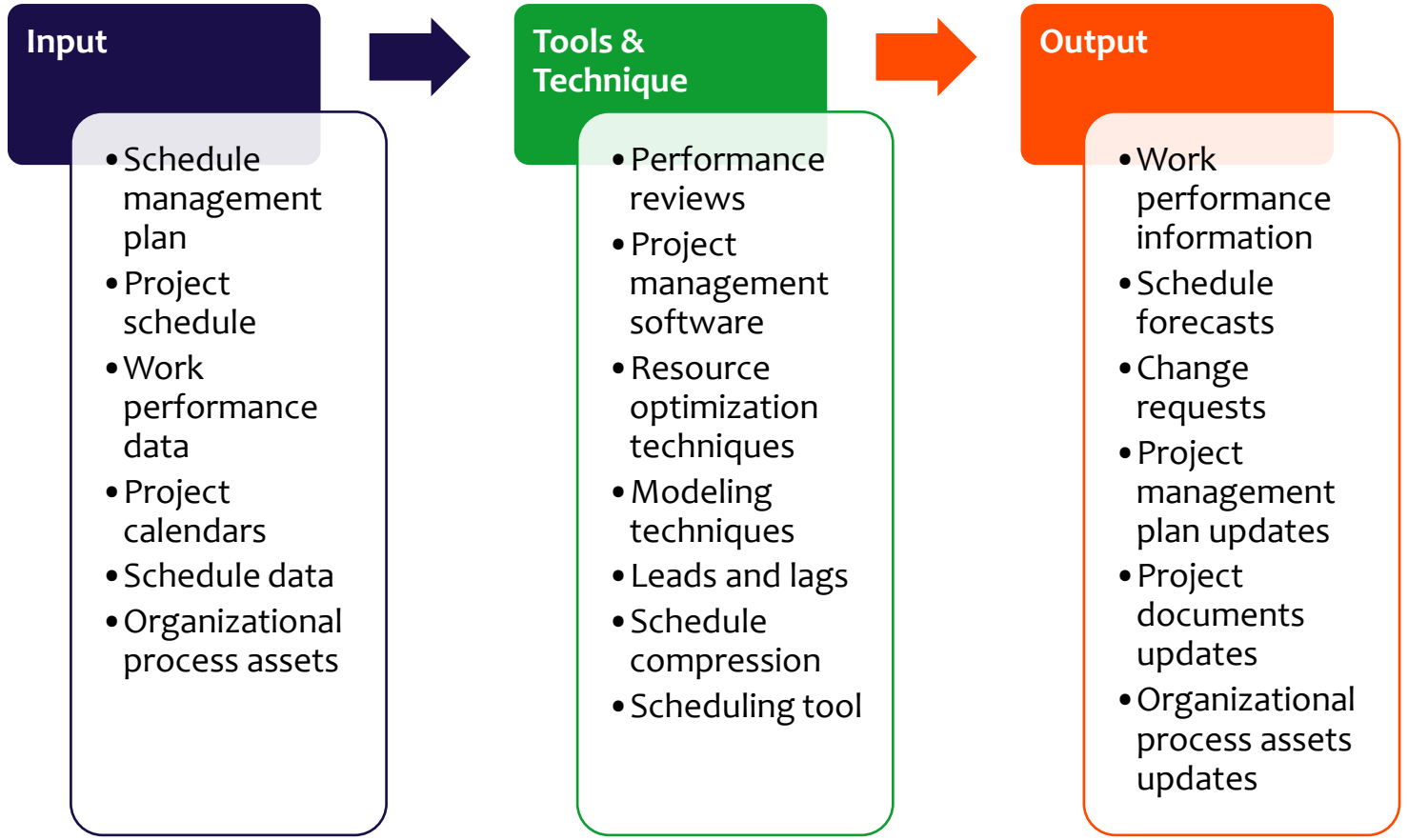
Gantt Charts



ID	Task Name	Duration
1	Task 1	10 days
2	Task 2	5 days
3	Task 3	20 days
4	Task 4	28 days
5	Task 5	30 days
6	Task 6	8 days
7	Task 7	20 days
8	Task 8	30 days

7. Control Schedule

Control Schedule is the process of monitoring the status of project activities to update project progress and manage changes to the schedule baseline to achieve the plan.



ThankYou

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