

PMI-CAPM®
Certified Associate
Project Manager

3

3. Schedule

6 Processes

Schedule - Table of contents

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1. Plan Schedule Management

Plan how to plan, manage,
control schedule

Planning



Plan Schedule Management

Input



- Project Charter
- Project Management Plan
 - Project Life Cycle
 - Development Approach

T&Tools



- Meetings (w/ sponsor, stakeholders, team)

Output



- Schedule Management Plan

2. Define Activities

Identify single steps to complete the project

Planning



Define Activities

Input



- Project Management Plan
 - Schedule Management Plan
 - Scope Baseline
- EEFs
- OPAs

T&Tools



- Rolling Wave Planning
- Decomposition
- Templates
- Expert Judgment

Output



- Activity list (+ Activity attributes)
- Milestone list
- Change Request

3. Sequence Activities

Determine the order of the different steps of the project

Planning



Sequence Activities

Input



- Project Documents
 - Activity list
 - Activity attributes
 - Milestone list
 - Assumption log
- OPAs

T&Tools



- Precedence Diagramming Method (PDM)
 - FS - Finish to Start
 - SS - Start to Start
 - FF - Finish to Finish
 - SF - Start to Finish
- Dependencies Determinations
 - Mandatory / Discretionary
 - External / Internal
- Leads & Lags
- PMIS software

Output



- Network Diagram / Project Schedule Network Diagram
- Project Documents updates

4. Estimate Activity Durations

Estimate duration of every
single step (activity)

Planning



Estimate Activity Durations

Input



- Project Documents
 - Activity list
 - Activity attributes
 - Assumption log
 - Lesson Learned Register
- Resource Breakdown Structure
- Resource Requirements
- Project Management Plan
- EEFs
- OPAs

T&Tools



- Analogous estimate (top-down)
- Parametric estimate
- 3-points estimate
 - Triangular Distribution
 - Beta Distribution
- Bottom-up estimate
- Data Analysis
 - Alternative Analysis
 - Reserve Analysis
- Decision Making (Vote)

Output



- Estimates + Reserves
- Bases of estimates
- Project Documents updates
 - Activity attributes
 - Assumption log
 - Lesson Learned Register

5. Develop Schedule

Create a project schedule
based on sequencing &
estimates

Planning



Develop Schedule

Input



- Project Management Plan
 - Schedule Management Plan
 - Scope Baseline
- Project Documents
 - Activity list & Activity attributes
 - Assumption Log
 - Bases of estimates
 - Network Diagram
 - Estimate durations
 - Estimate resources
 - Resource Calendar (availability)
 - Risk register..
- EEFs
- OPAs

T&Tools



- Schedule network analysis
- Critical Path Method
 - Critical path
 - Near-critical path
 - Float
- Schedule Compression
 - Fast tracking
 - Crashing
- Data Analysis
 - MonteCarlo Analysis
- Resource optimization
 - Resource Leveling
 - Resource Smoothing
- Agile release planning

Output



- Schedule Baseline
- Project schedule
 - Milestones Charts
 - Bar Charts
- Change Requests
- Project documents updates

6. Control Schedule

Monitor project work and manage changes VS Schedule Baseline

- determining the current status of the project schedule
- influencing the factors that create schedule changes
- determining whether or not the project scheduled has changed
- and managing changes as they occur

Monitor & Control



Control Schedule

Input



- ...

T&Tools



- Data Analysis
 - Trend analysis
 - Variance analysis
 - Value analysis
 - What-if scenario
- PMIS - Software

Output



- Work Performance Information
- Schedule forecasts
- Change requests
- Project Management Plan updates

What is included in **Schedule Management Plan**?

The schedule management plan **establishes the criteria** for developing, monitoring, and controlling the schedule.

What's included

- Project schedule model development
- Release and iteration length
- Level of accuracy
- Units of measure
- Organizational procedure links
- Project schedule model maintenance
- Control thresholds
- Rules of performance measurement
- Reporting formats

What is the difference between... ?

Leads

How long an activity can start before the previous one is finished

VS

Lags

Time to wait between the end of one activity and the start of another (e.g. the cement that needs to dry)

They are both Techniques & Tools for Activities Estimation

What is the difference between... ?

**Triangular
Distribution**

VS

**Beta
Distribution**

$$(O+M+P) / 3$$

$$(O+4M+P) / 6$$

They are both Techniques & Tools for Activities Estimation
(3-points estimation)

- O = Optimistic
- M = Most Likely
- P = Pessimistic

What is the difference between... ?

Contingency Reserves

VS

Management Reserves

- “Know unknown”
- Estimated by Project Manager

- “Unknown unknown”
- Additional funds to cover unpredictable risks
- Require formal change request approval

They are both Techniques & Tools for Activities Estimation
(Data Analysis ⇒ Reserve Analysis)

What is the difference between... ?

**Creating
Reserves**

VS

Padding

Estimated by Project Manager

Added arbitrary by the Team,
while making estimations

What is the difference between... ?

Fast Track

Activities previously planned in sequence, now work in parallel

VS

Crashing

Add or review resource allocation
(teams / people)

They are both Techniques & Tools for Schedule Compression

What are options to **reduce Project Schedule**?

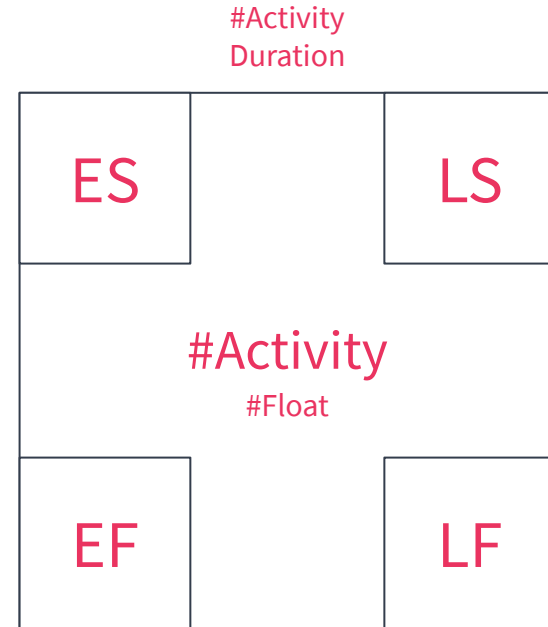
Fast track	Add Risk Add time to manage by PM
Crashing	Add Costs Add time to manage by PM (maybe add Risks)
Reduce scope	Save Costs, Resources, Time (maybe impact on Customer Satisfaction)
Cut quality	Save Costs, Resources, Time Need new metrics for control (maybe impact on Customer Satisfaction)

What is float?

Float is the **flexibility of the project.**

$$\Rightarrow \text{Float} = \text{LS} - \text{ES}$$

$$\Rightarrow \text{Float} = \text{LF} - \text{EF}$$

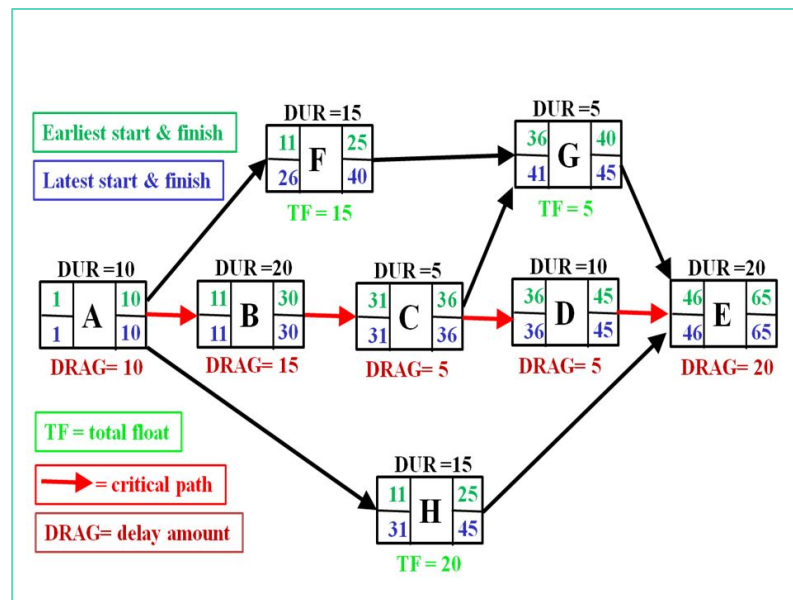


Pay attention to convergences

What are Critical Path & Critical Path Method?

Critical Path is the **longest duration path** through a **network diagram**, the **shortest time to complete** the project.

Activities on Critical Path have **Float = Zero**



Credits: Wikiwand

What is the difference between... ?

Total Float VS **Free Float** VS **Project/
Positive Float**

How much an activity can delay without delaying the whole project

How much an activity can delay without delaying the next one

How much a project can according to stakeholders / customer deadline

Activities on Critical Path have Float = Zero!



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THANK YOU
