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UNIVERSITY OF LISBON
INTERDISCIPLINARY STUDIES
ON SUSTAINABLE ENVIRONMENT AND SEAS

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Project Management

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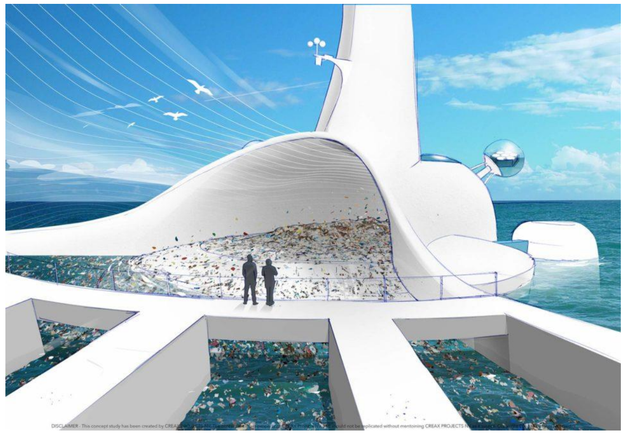
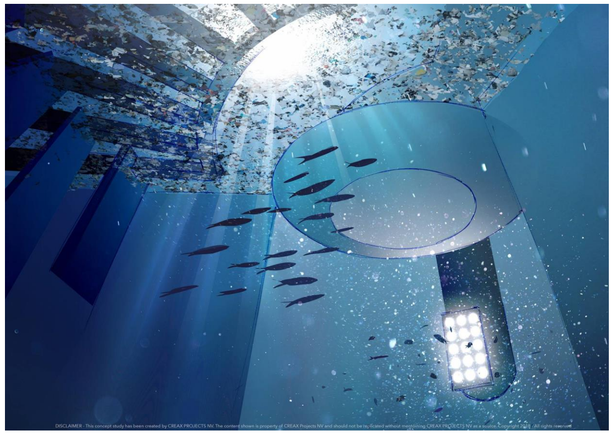
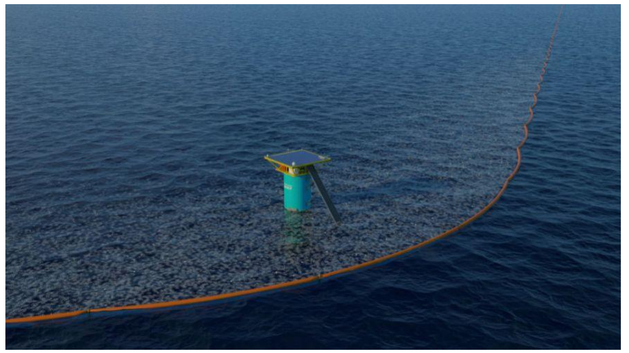
What is a project?

A set of activities, with the need of resources, executed to achieve a certain goal

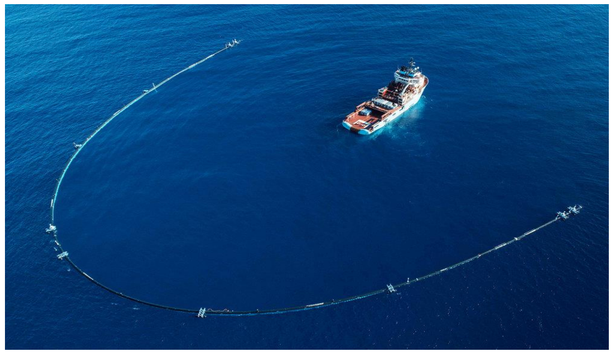




COMPILE-PROJECT

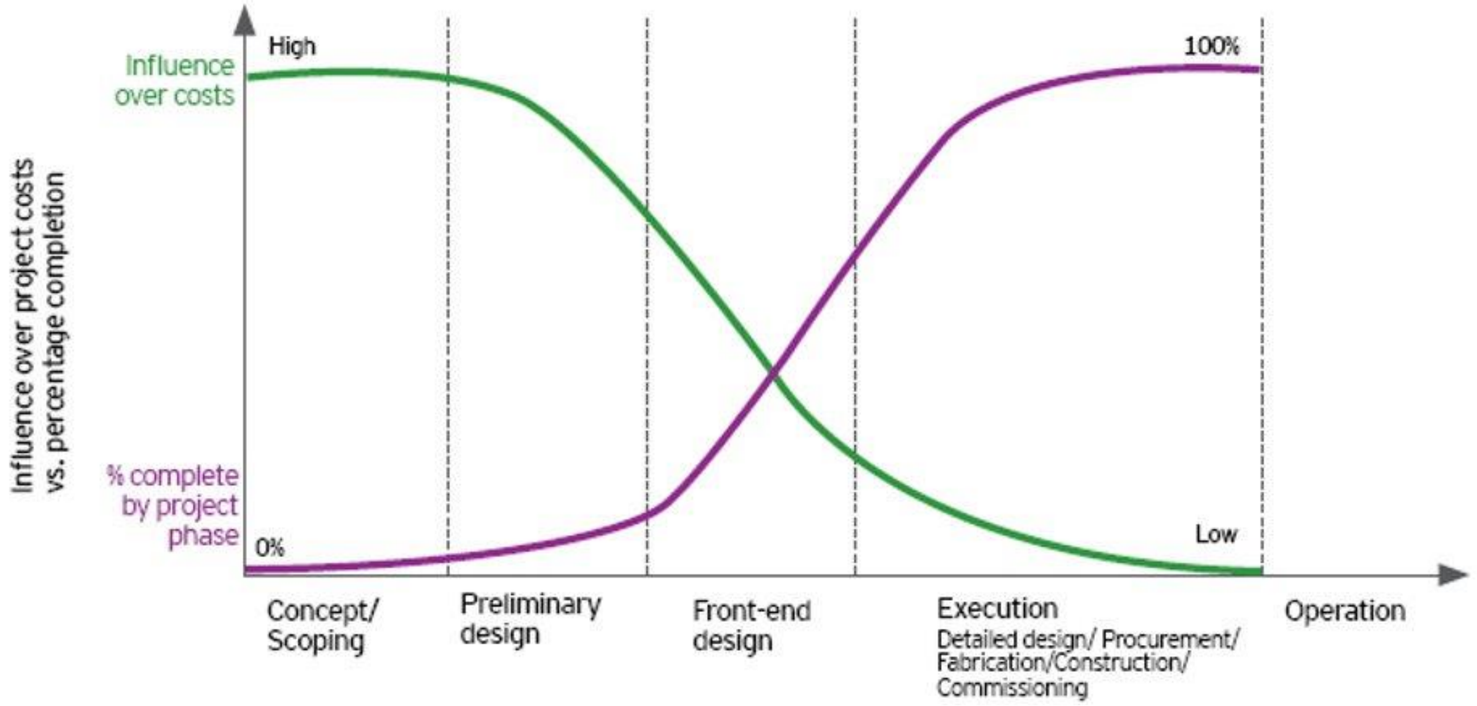


THE OCEAN CLEANUP



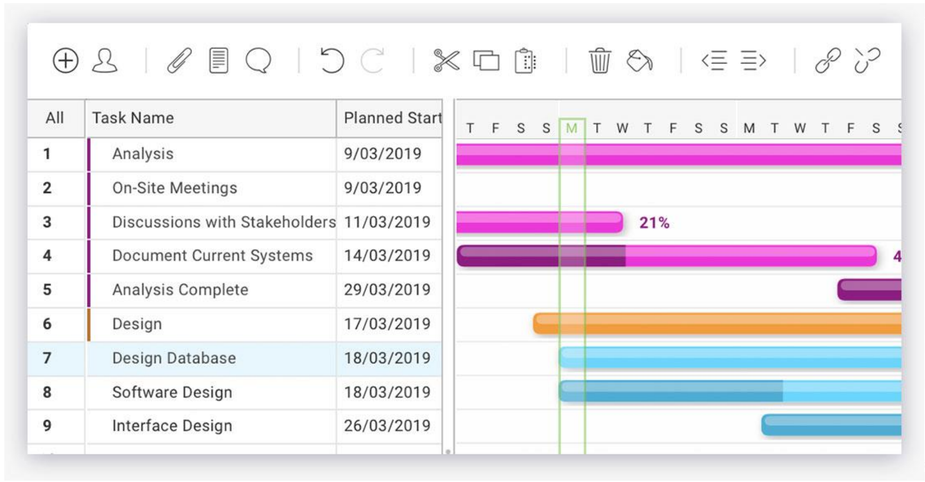
EWATER

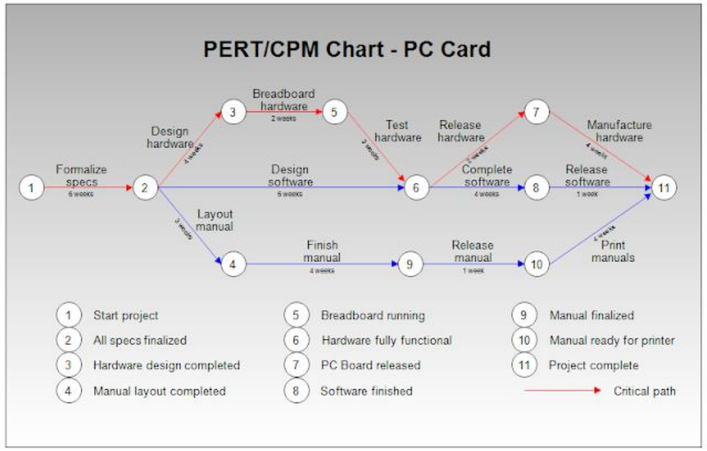
Importance of good planning in early phases

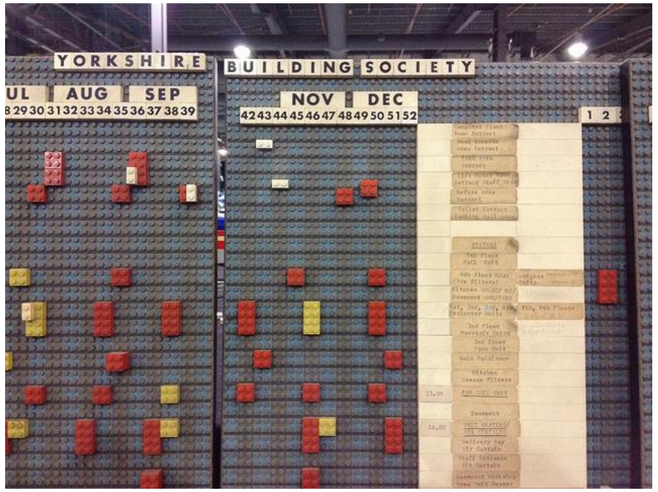


Project planning – schedule management

- Converting an action plan in to the operational staggering of the activities.
- It is the basis for monitoring and controlling the activities







Most common techniques:

PERT (Program Evaluation and Review Technique)

CPM (Critical Path Method)

Gantt

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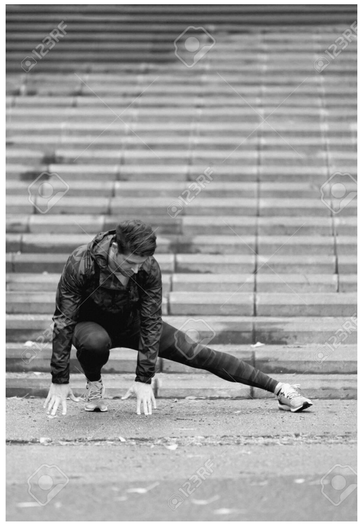
Why the need for schedule management?

- It’s 8am. Suppose you want to know the earliest time you can arrive your university for a class
- Define the tasks;
- Estimate time for each task
- Design the net of activities
- If you want to arrive técnico at 9am, what is the latest time you can start your morning tasks?



Easy! Lets look at a real project…

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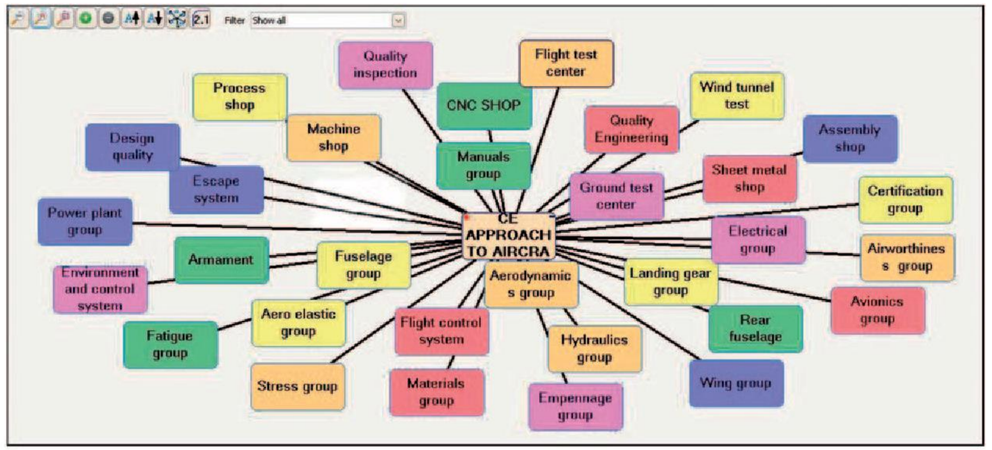
Why the need for schedule management?

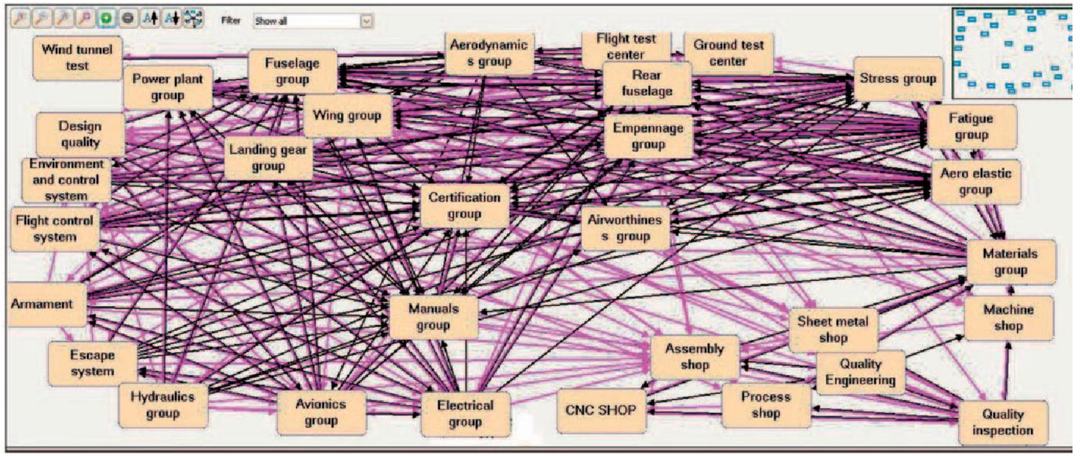
It’s 24th May. Suppose you want to know the earliest time you can finish a new aircraft project (from scratch)

Define the tasks;

Estimate time for each task

Easy?

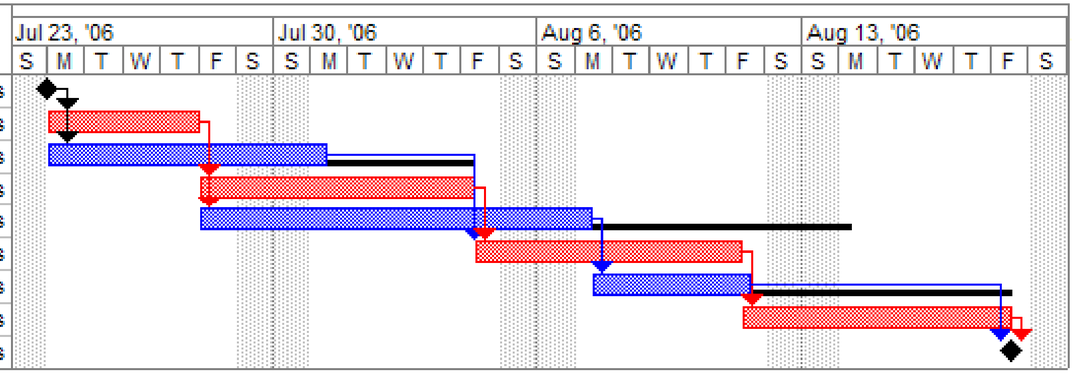




Project planning – schedule management

1. Activity definition
2. Activity sequence
3. Activity duration estimation
4. Schedule development
5. Schedule control

ID	Task Name	Predecessors	Duration
1	Start		0 days
2	a	1	4 days
3	b	1	5.33 days
4	c	2	5.17 days
5	d	2	6.33 days
6	e	3,4	5.17 days
7	f	5	4.5 days
8	g	6	5.17 days
9	Finish	7,8	0 days



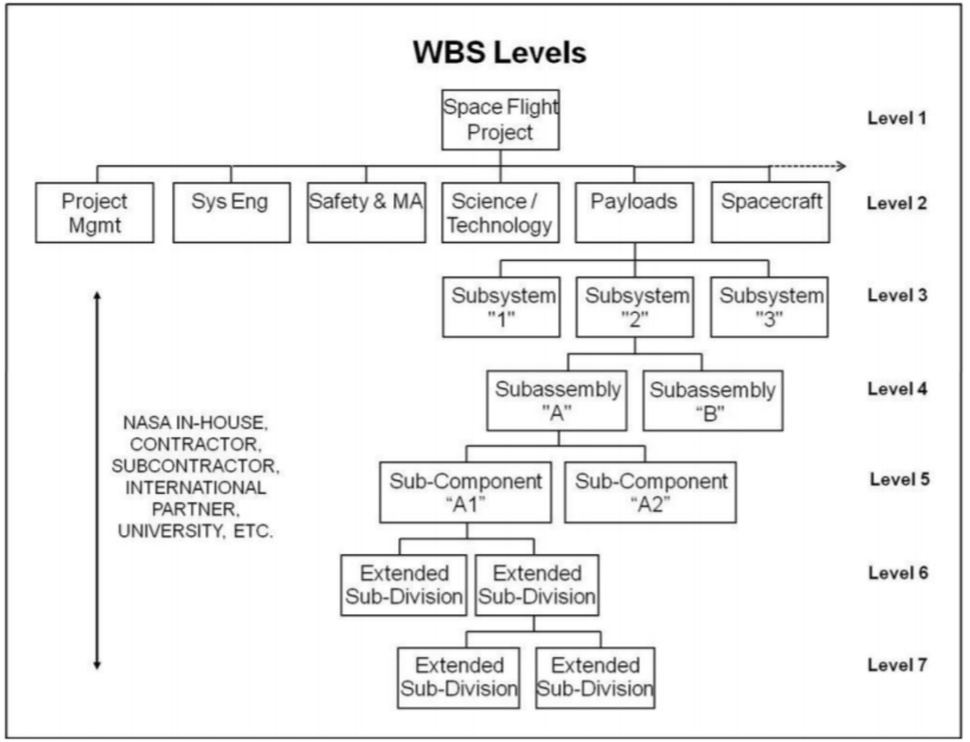
Project planning – schedule management

WBS – Work Breakdown Structure - Identifying the main deliverables of a project is the starting point for deriving a work breakdown structure.

In general, there are a few "rules" used for determining the smallest task chunk:

✓In "two weeks" rule, nothing is broken down smaller than two weeks worth of work.

✓8/80 rule- no task should be smaller than 8 hours of work and should not be larger than 80 hours of work.



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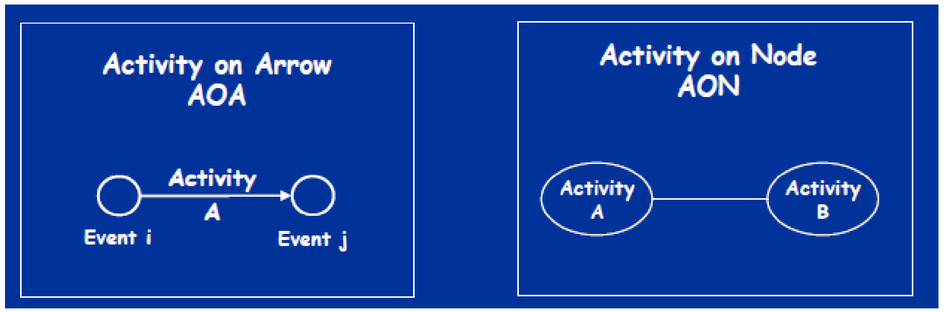
Schedule management – PERT basics

A network is a graphical representation of a project plan, showing the inter-relationships of the various activities



Activities and events net

Relations between activities and events

Their location in time

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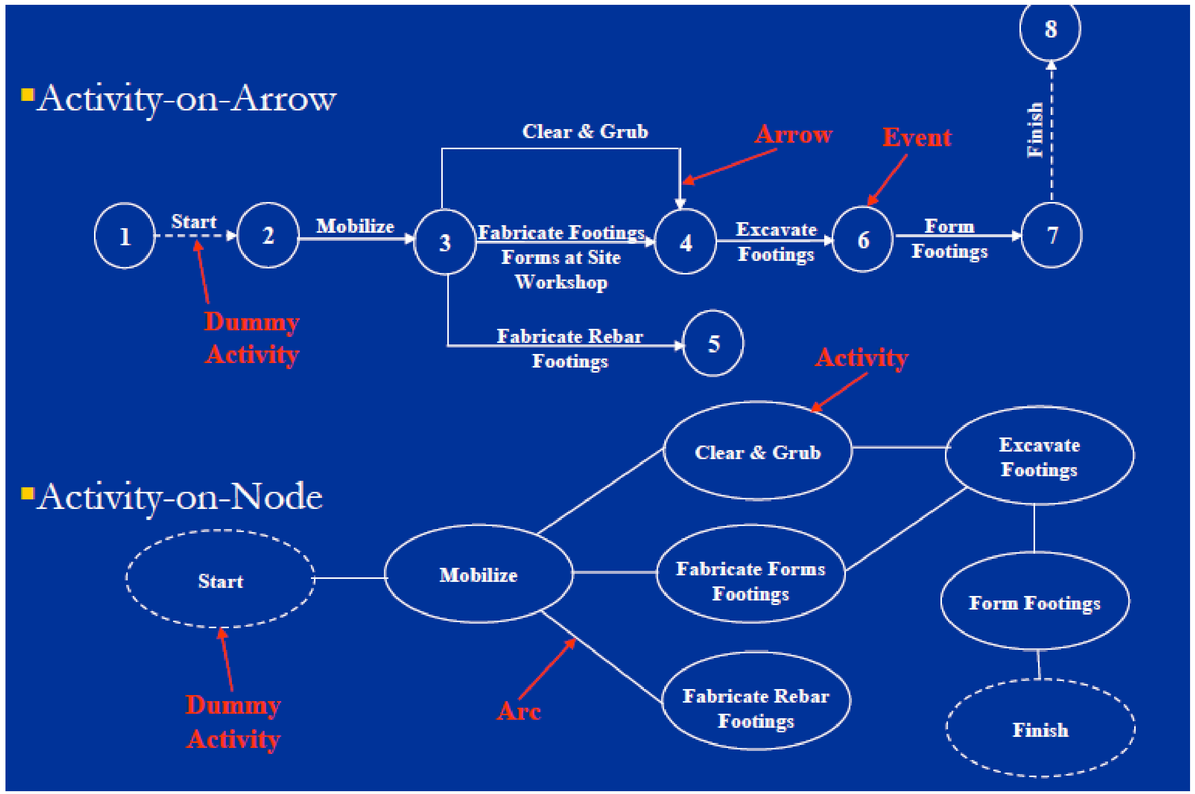
Schedule management – PERT basics



Terminology

Activity – Specific task (or set of tasks) required by the project, use resources and occur in time

Event – Result of the conclusion of one or more activities. State perfectly identifiable of a project. The events do not use resources and occur instantly in time.

Net – Combination of all activities and events that integrate a project with their relations of dependencies.

Path – Set of successive activities between two events of a project.

Critical – Path or activities that if are delayed cause the delay of the project. In a typical project only 10% of the activities are critical.

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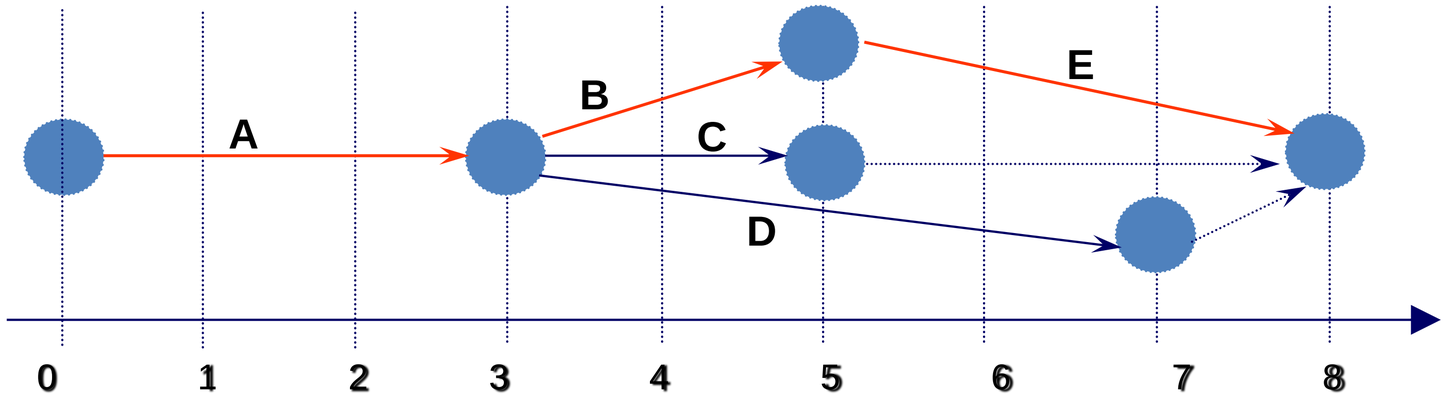
Schedule management – PERT example #1 with critical path method (CPM)

Activity	Dependency	Duration (days)
A	-	3
B	A	2
C	A	2
D	A	4
E	B	3

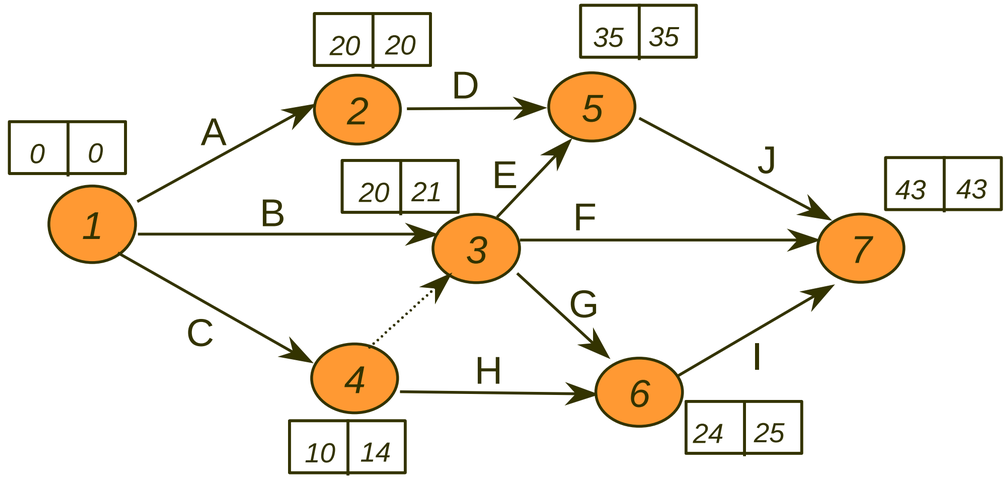


Expected duration: 8 days.

Critical path: A – B - E

Schedule management – PERT, Example #2

Activity	Dependency	Duration (days)
A	-	20
B	-	20
C	-	10
D	A	15
E	B, C	10
F	B, C	14
G	B, C	4
H	C	11
I	G, H	18
J	D, E	8

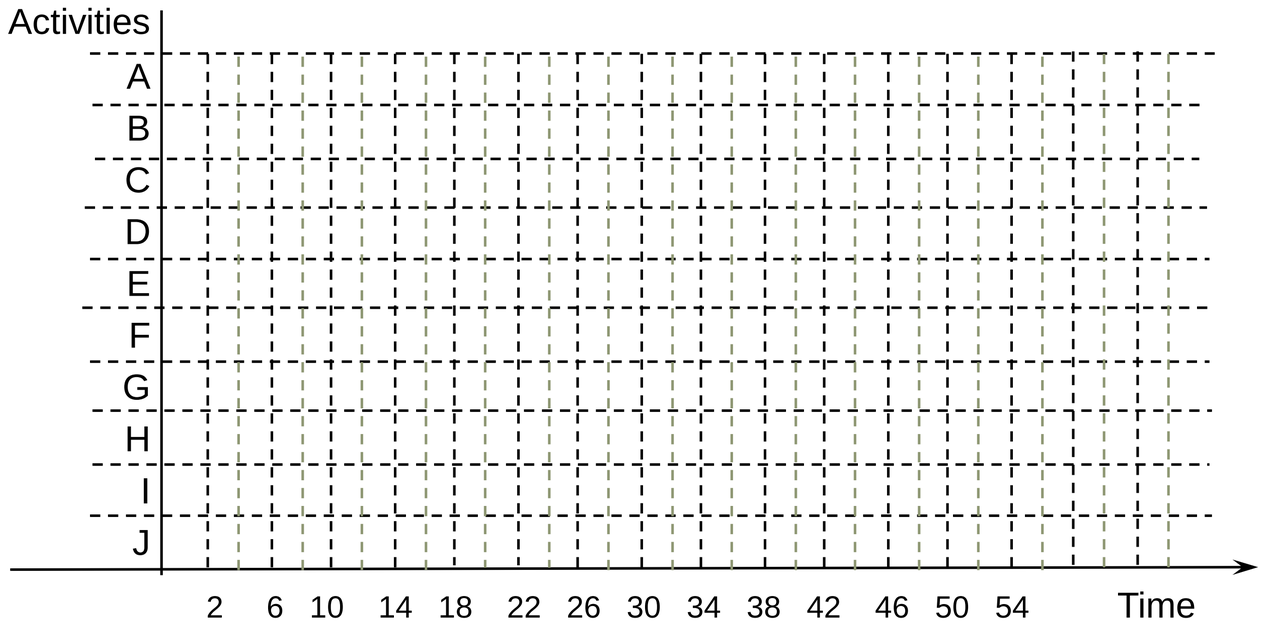


Expected duration: 43 days.

Critical path: A – D - J

Schedule management – Gantt charts

Gives evidence to the planning and progress of activities listing them in a time scale



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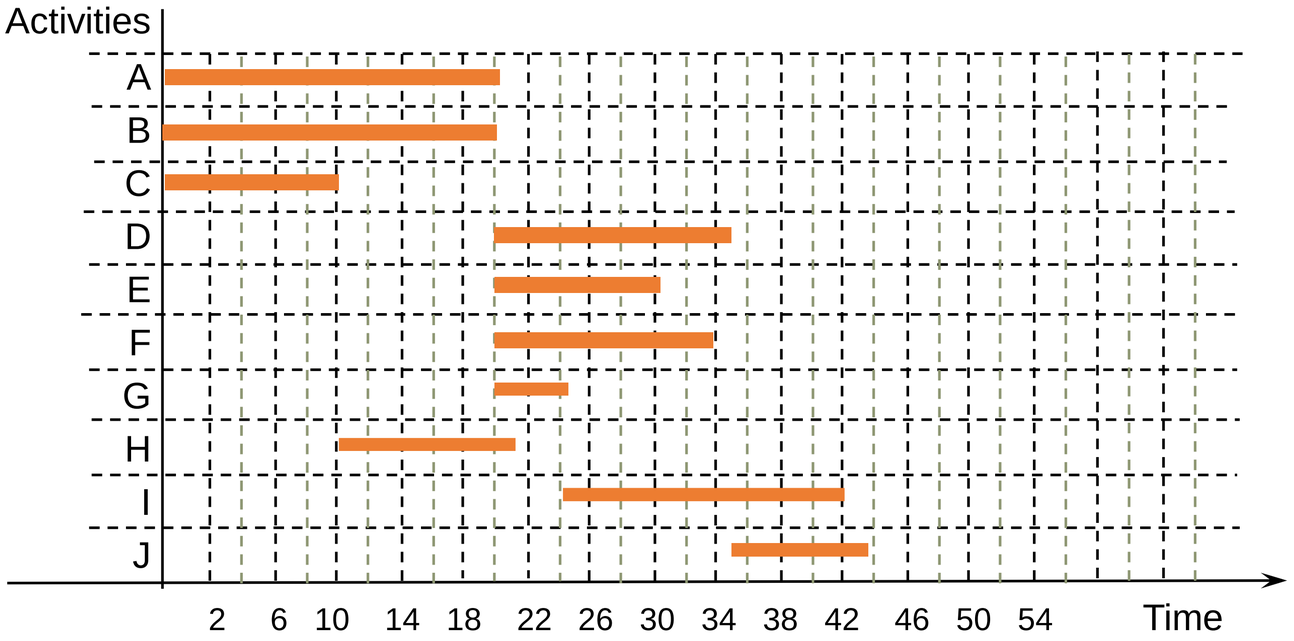
Schedule management – Gantt, Example #2

Activities – Earliest dates



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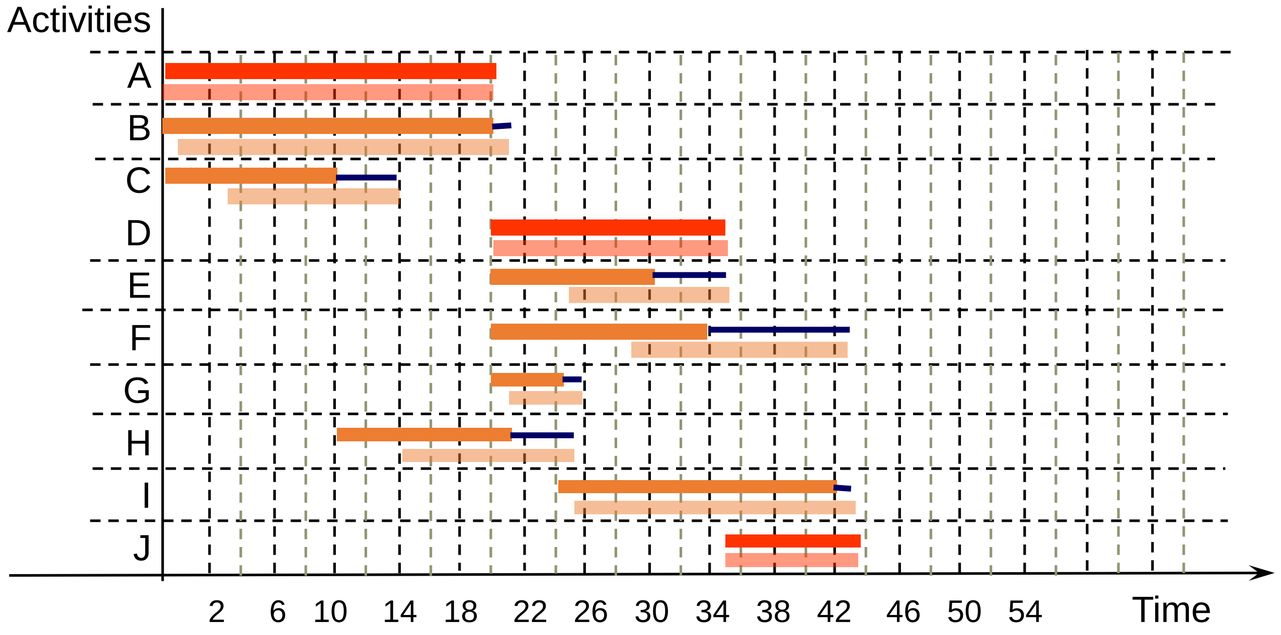
Schedule management – Gantt, Example #2



Activity	Dependency	Duration (days)
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F	B, C	14
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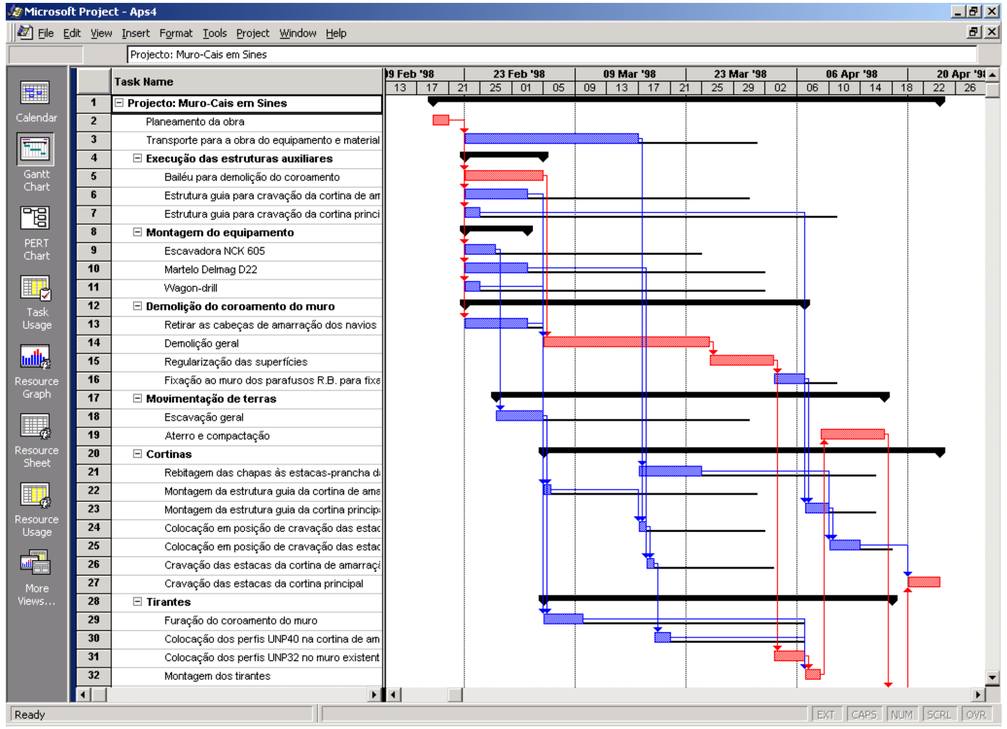
I	G, H	18
J	D, E	8

Activities with earliest time
Activities with latest time
Critical Activities
Margin

Software can help!



Examples:

Microsoft project

Open Project (Free)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