

Project

*follow-up - implementation - closure*

# Project management - follow-up

- Responsibility for project management and follow-up usually rests with the project manager, with the project owner as most important stakeholder.
- It is therefore not possible to disconnect the project employees from the follow-up, as a project can never be controlled based on objective data alone. (ie, to follow up and manage a project, many *assessments are required*, which require the opinion and competence of employees).
- Follow-up and control are crucial for a successful project
  - not only based on final results, but it also affects the working climate, the atmosphere, the workload and other things of great importance to the project employee.
- As a project employee, it is an advantage to know the basics of project management

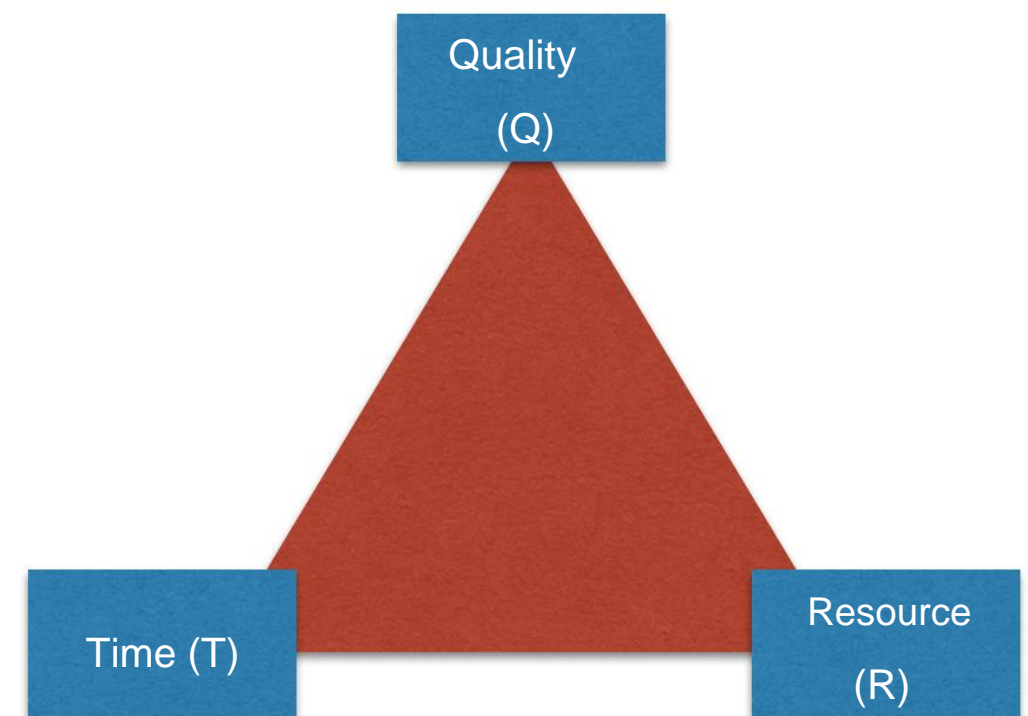
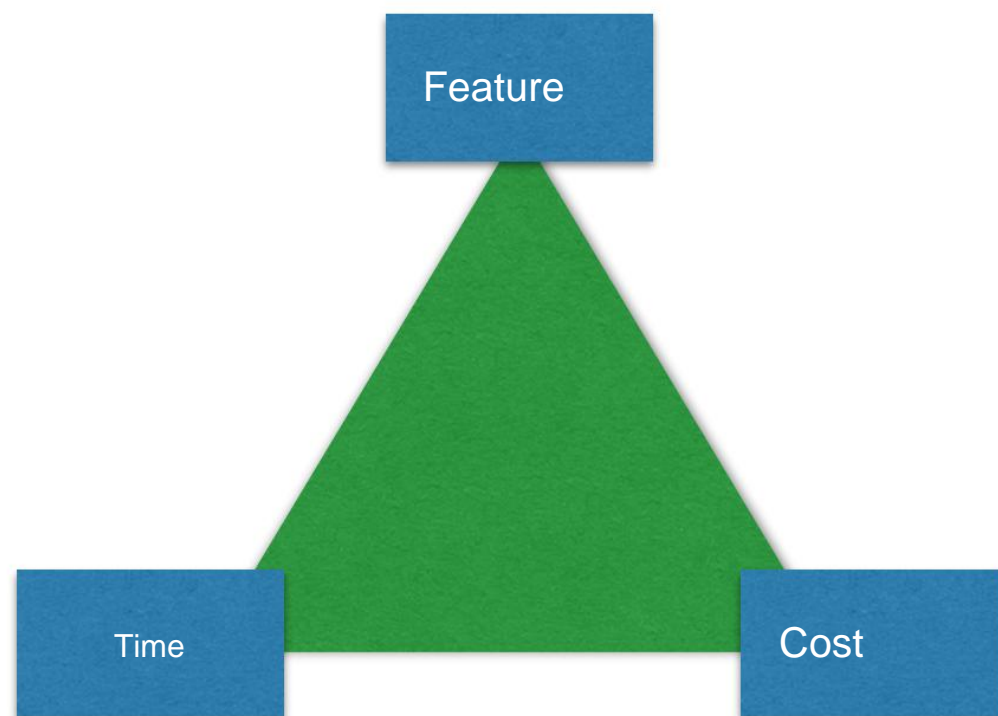
# Project management

- Managing projects is a lot about following the plan and handling deviations
- In order to gain an overview and control, close follow-up of all measurable activities is required
- A basic requirement is that the project has clear goals (SMARTa) and sufficiently accurate project plan.
  - The assignment description should be sufficiently specific to be able to form the essential part of the goal formulation - otherwise the project plan must be supplemented, it is then important that this is made clear to the steering group.
- A project plan must contain everything required to manage and follow up the project
- All activities in a project can be distributed between the three areas;
  - Time, Cost & Function
  - Often the dependence and distribution of the areas is depicted as a triangle, called the target triangle or the project triangle.

# The target triangle (the project triangle)

- There are different variations of the Goal Triangle, but they all serve the same purpose.
- The triangle illustrates that the three main areas have an opposite relationship to each other, ie all three areas cannot have the highest priority at the same time.

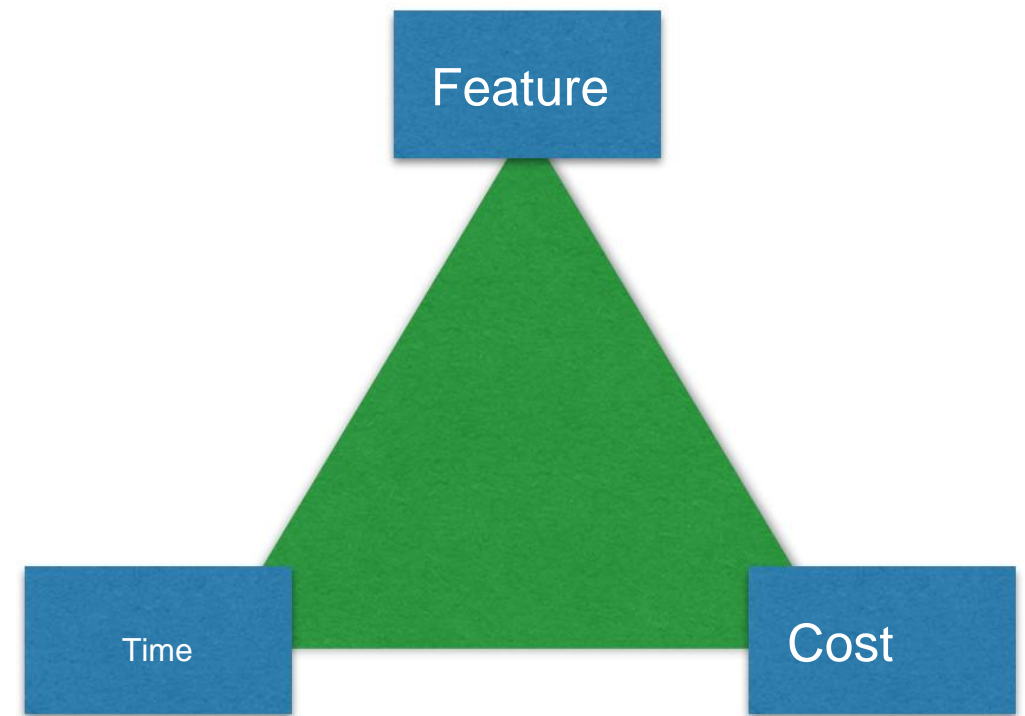
*Two variants:*



# The target triangle - an example

## The project to exhibit at a fair,

- Time is a hard factor, (the fair does not wait)
- Thus, Function and Cost must be more flexible
- In general, however, you put a ceiling on the costs...
- All that remains is to make greater sacrifices in quality,
  - (which you can often guess from especially the exhibitors who have a worse place, in a hall far away)

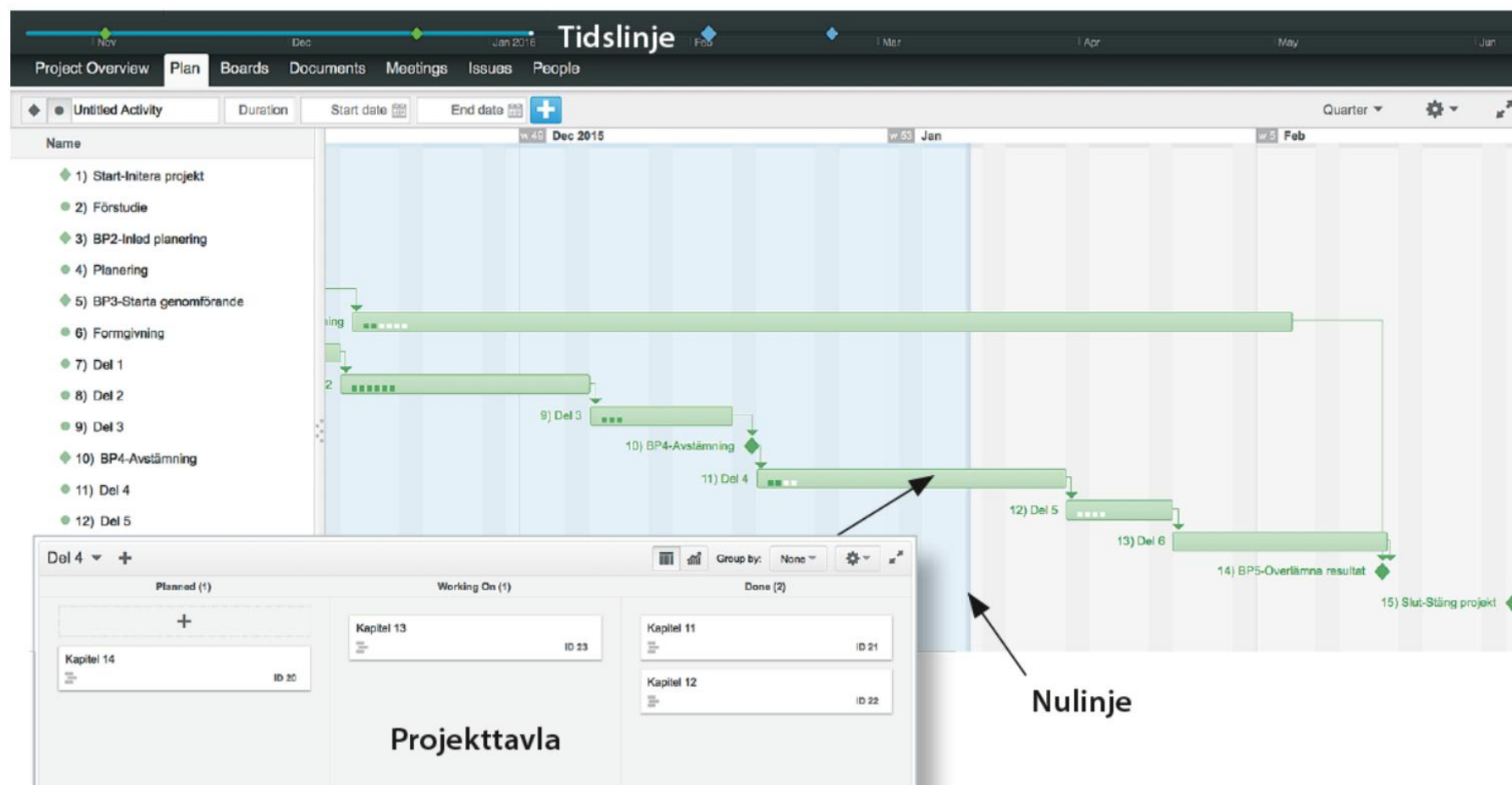


## The project to repair a broken window pane

- The window must be repaired, completely, it rains in - Function is a hard factor
- It is in a hurry, because things inside are damaged the more it rains, it gets cold, etc
- Cost becomes flexible, time is set to the 'shortest possible' while function is fixed.

# Project management - frequent partial deliveries and reporting

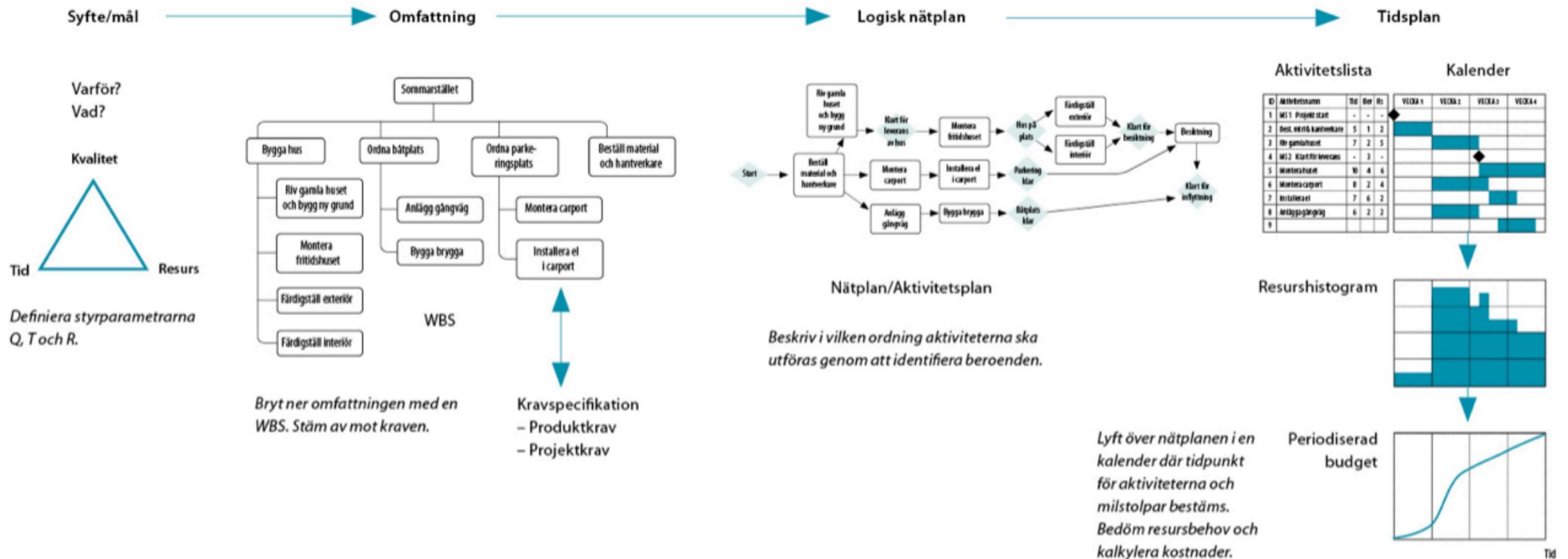
- Frequent partial deliveries create commitment on the part of both the project team and recipient (customer)
- Frequent deliveries or reports have many positive advantages,
  - commitment, holistic view, changes are made at the right time, deviations are caught early.
- The progress of the project is usually visualized, so that all stakeholders get a quick and good overview
- eg; Gantt chart with current status line



## More about the planning behind

- In order to be able to measure and follow up projects, reasonable underlying planning is required
- This can be part of a project plan, or a tool/substrate used along the way.
- We now take a look at some of those that are extra good also for following up and changing projects.,

# The planning process as a whole...

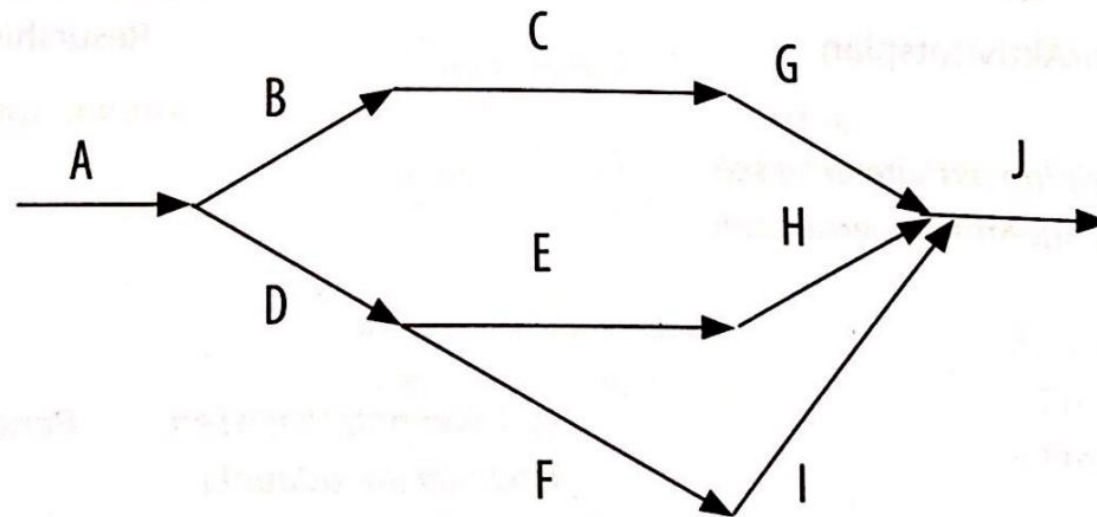
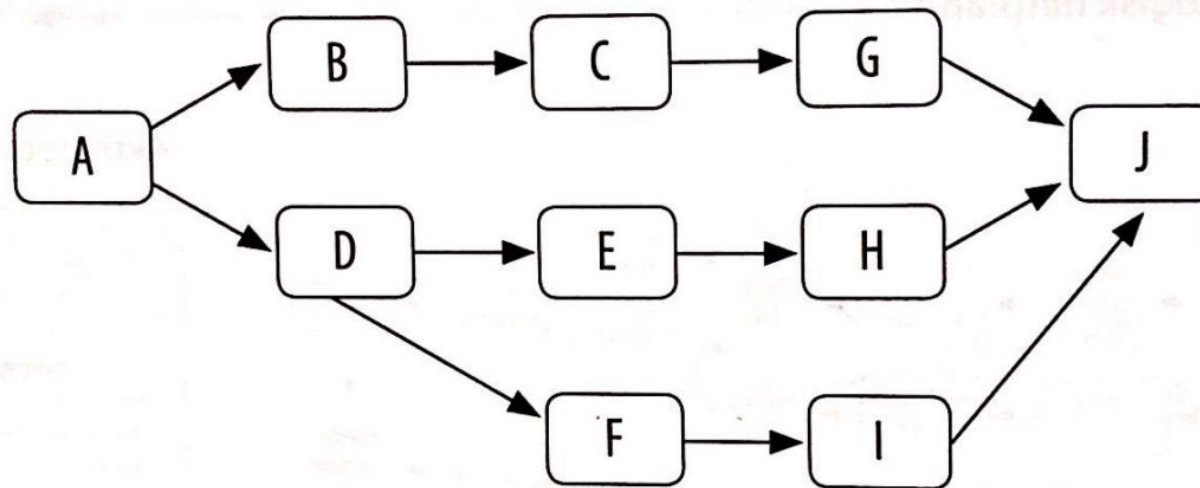


1. Agree on purpose and goals
2. Define the scope with a WBS
3. Match the requirements
4. Create a logical network plan
5. Break down the work packages into activities
6. Assess resource requirements, working hours and duration for each activity.
7. Create a schedule by entering the activities into a calendar
8. Analyze the project's resource needs in a resource histogram
9. Make an expense budget
10. Optimize the plan



## Network plan

An activity plan can be a list of activities, but in some contexts it is beneficial to draw them more graphically. The most common variants are; *block nets* and *arrow nets*



# WBS —> Network plan —> Activity plan with milestones

- From the project's WBS, we can create a more or less detailed network plan,
  - In this we can also introduce milestones
- the result is an often somewhat messy "map", which we can use to calculate and control the project.
- We consider an example.

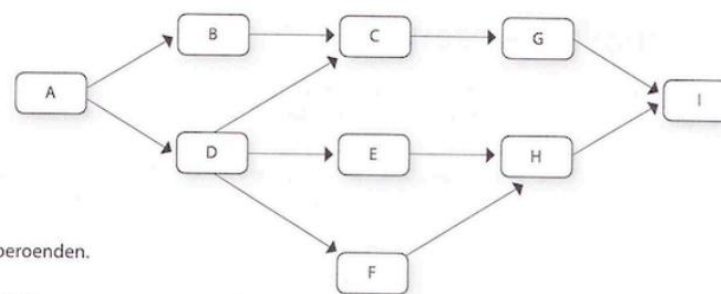
# Resource histogram - graphical overview of the occupancy

- In what resembles a Gantt chart with activity list, a Resource Histogram is sometimes made. This is a graphic representation of the project's resource needs. Color-coded, it provides more information, e.g. whether the resources are occupied full-time, or part-time, etc.
- The technique is based on planning the activists based on the resources you have access to, as well as activities' dependencies (ie, if a resource is busy in a certain activity, the next one cannot be started). The resource utilization is then summed up to show when the project has high or low occupancy.



# Exercise

## 7.8 Tidsplan



Boxarna i nätplanen är aktiviteter och pilarna anger beroenden.

a. Skapa en tidsplan för projektet.

Aktivitet	Varaktighet	Resurser			Summa/st	Beroende	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	Dagar	Typ 1	Typ 2	Typ 3																								
A	4	2 st	-	-	2																							
B	5	1 st	2 st	2 st	5																							
C	2	-	2 st	3 st	5																							
D	6	2 st	1 st	-	3																							
E	3	1 st	1 st	1 st	3																							
F	4	-	-	2 st	2																							
G	8	1 st	3 st	2 st	6																							
H	5	1 st	2 st	1 st	4																							
I	2	1 st	1 st	-	2																							

b. Illustrera resursbehovet med ett resurshistogram.

Resurser	Dagar																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
(Antal)																						
11																						
10																						
9																						
8																						
7																						
6																						
5																						
4																						
3																						
2																						
1																						

Resurs typ 1	
Resurs typ 2	
Resurs typ 3	

c. Hur många resurser/personer är inplanerade i projektet samtidigt?

d. Vilka dagar är det störst arbetsbelastning i projektet?



# Solution - Resource Histogram

a. Börja med att identifiera beroenden mellan aktiviteterna i nätplanen. Visa när aktiviteterna ska genomföras genom att markera deras längd i dagar i kalendern till höger.

Aktivitet	Beroende	Varaktighet	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
		(Dagar)																						
A	-	4																						
B	A	5																						
C	B, D	2																						
D	A	6																						
E	D	3																						
F	D	4																						
G	C	8																						
H	E, F	5																						
I	G, H	2																						

Visa beroenden med pilar.

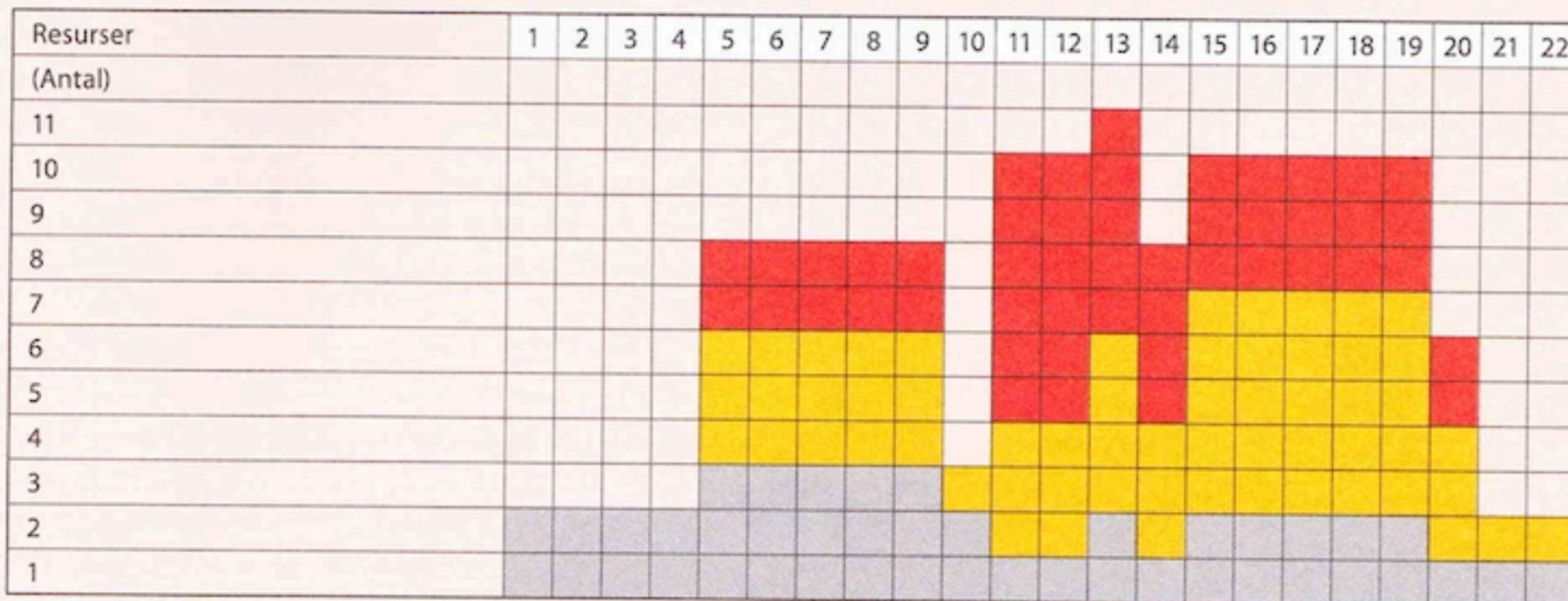
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För bättre överblick rekommenderas att aktivitet G flyttas upp mellan C och D i tidsplanen så att man undviker korsande beroendepilar.

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# Solution - Resource Histogram

b. Ett resurshistogram skapas genom att summera resurserna för de planerade aktiviteterna dag för dag.



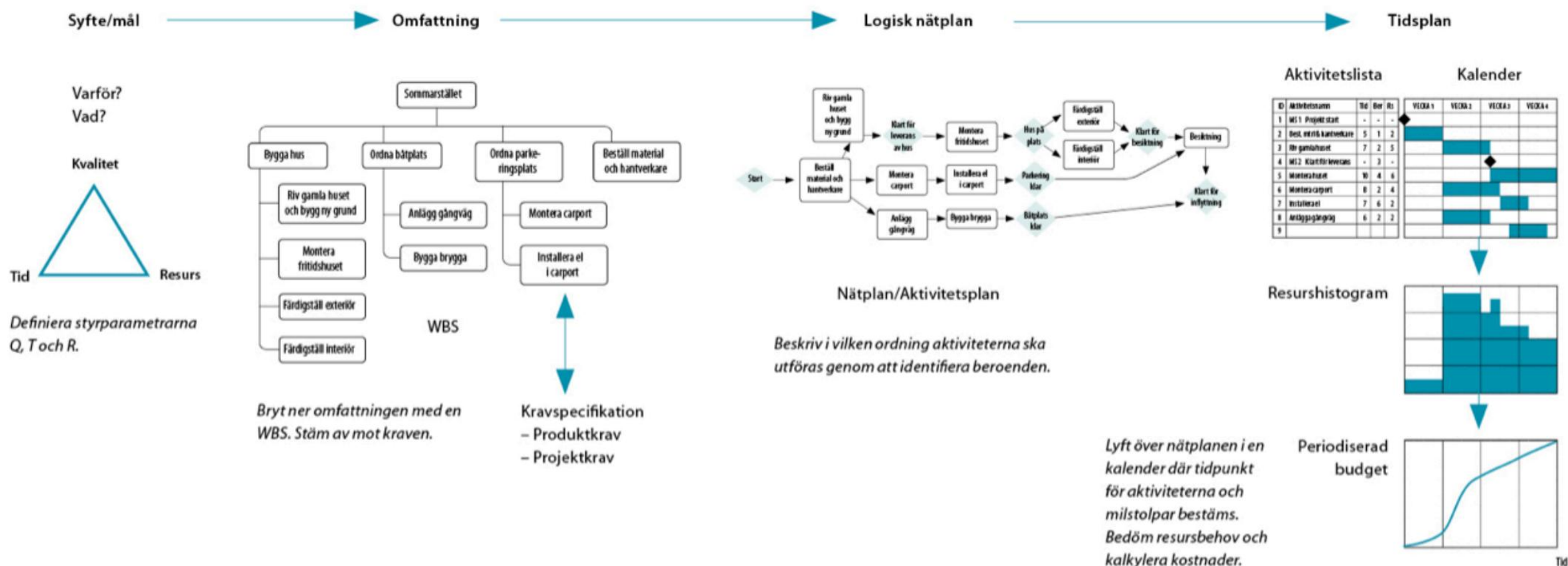
Resurs typ 1	
Resurs typ 2	
Resurs typ 3	

c. 11 stycken.

d. Dag 13.



# The planning process as a whole...



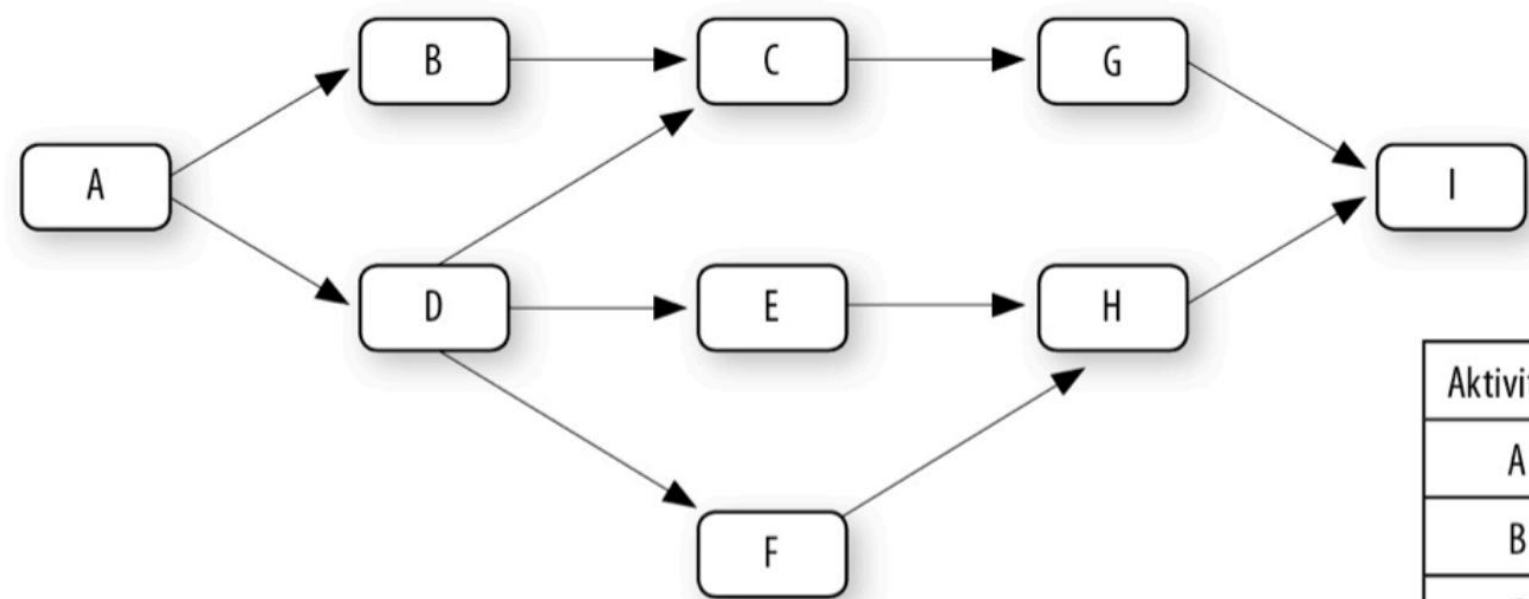
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# Critical path - CPM (Critical Path Method)

When a project does not only have a single stream of consecutive activities, but several parallel possibilities - we can use the critical line to calculate the shortest possible time consumption of the project.

With the help of "critical line" we can also find any *slack* for the less critical activities and thus find where we have the opportunity to let certain activities wait (those along non-critical lines).

example;



Aktivitet	Varaktighet
A	3 dagar
B	5 dagar
C	4 dagar
D	7 dagar
E	14 dagar
F	6 dagar
G	10 dagar
H	8 dagar
I	2 dagar

**Hur lång tid tar projektet?**

Kritiska linjen beräknas enklast genom att identifiera det flöde av aktiviteter som ta längst tid och summera dessa. I komplexa projekt med många aktiviteter och flera parallella flöden bör man börja med att ange tidigast möjliga start och tidigast möjliga slut för varje aktivitet. Därefter summeras tiderna från start till slut. I exemplet i figuren utgörs kritiska linjen av aktiviteterna A + D + E + H + I. Det är dessa som bestämmer projektets totala varaktighet.

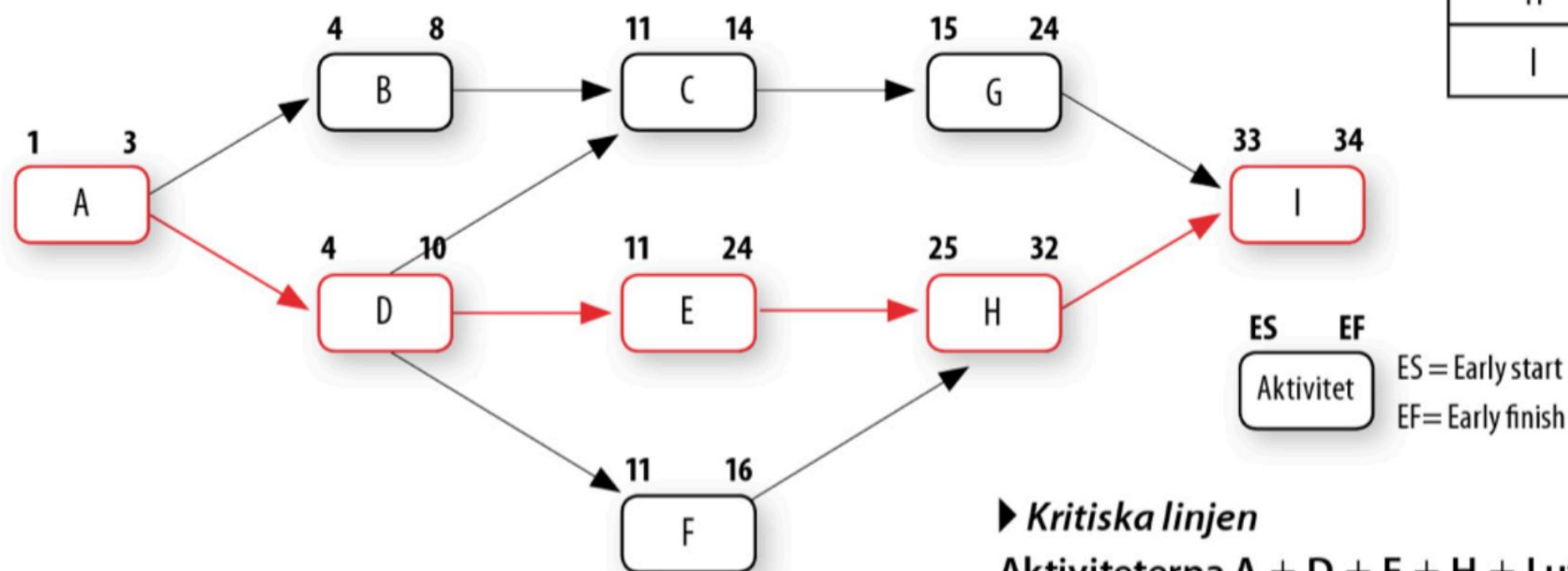


# Critical path - CPM (Critical Path Method)

## Hur lång tid tar projektet?

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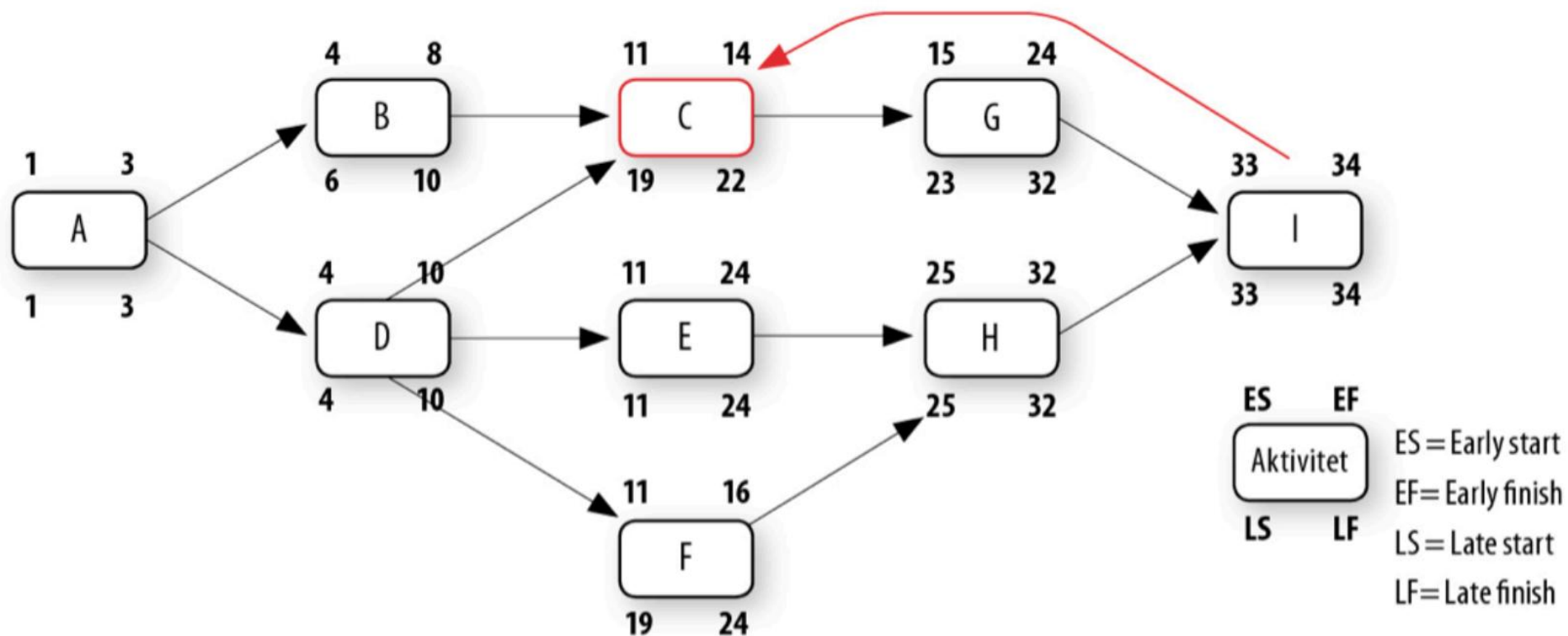
### ► Kritiska linjen

Aktiviteterna A + D + E + H + I utgör kritiska linjer med den totala varaktigheten  $3 + 7 + 14 + 8 + 2 = 34$  dagar.

# Critical path - CPM (Critical Path Method)

## Hur länge går det att vänta?

I exemplet i figuren går det att vänta till dag 19 med att starta aktivitet C utan att projektets totala varaktighet påverkas. Detta går att räkna ut genom att ange senaste start- och sluttid för respektive aktivitet. Utgå från slutet i flödesplanen och förflytta dig mot starten. Jämfört med den tidigaste starttid för denna aktivitet är det 8 dagar, vilket motsvaras aktivitet C:s och G:s gemensamma glapp.



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A	3 dagar
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G	10 dagar
H	8 dagar
I	2 dagar

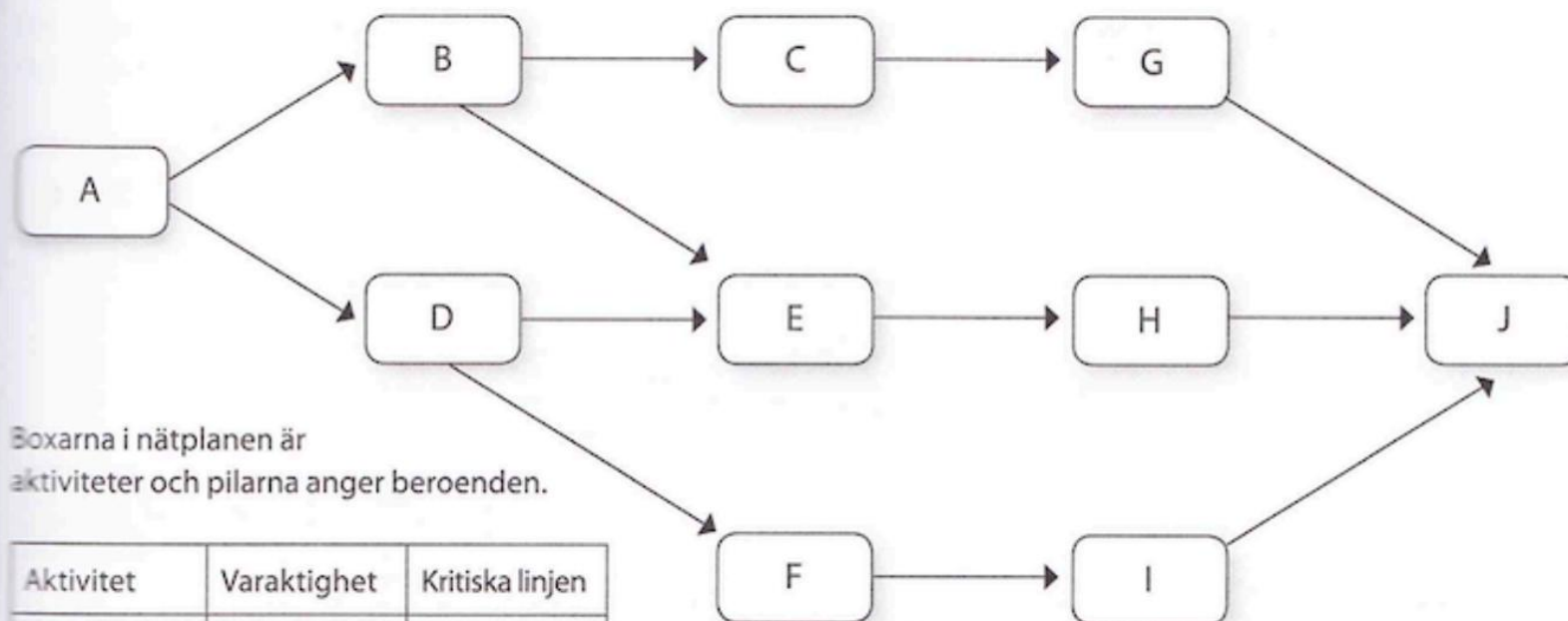
Aktiviteter på kritiska linjen sitter fast, de har inget glapp.

### ► Senaste starttid för aktivitet C.

Börja från slutet och beräkna senaste slut-, respektive starttid för aktivitet I, G och C.  $34 - 2 - 10 - 4 = 18$ , dvs. aktivitet bör startas senast dag 19.

## 7.4 Kritiska linjen

### Exercise



Boxarna i nätplanen är aktiviteter och pilarna anger beroenden.

Aktivitet	Varaktighet	Kritiska linjen
A	3 dagar	
B	3 dagar	
C	4 dagar	
D	2 dagar	
E	7 dagar	
F	5 dagar	
G	6 dagar	
H	5 dagar	
I	3 dagar	
J	2 dagar	

- Identifiera den kritiska linjen.
- Beräkna hur lång tid projektet kommer att ta att genomföra.
- Beräkna tidigaste starttid för aktivitet F.
- Beräkna senaste starttid för aktivitet F.

