How do you make sure a project is successful?

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This lecture:
our perspective is on successful execution, through elaborating the following themes:

- Success
- Time
- Objectives of a project (and decision making/tradeoffs)
- Work breakdown structure (WBS)
- Schedule
- Resources and cost (S-curve)
- Risks and risk management
- Keeping our sight in the future state (deviation reporting)

Why project success is an interesting issue?

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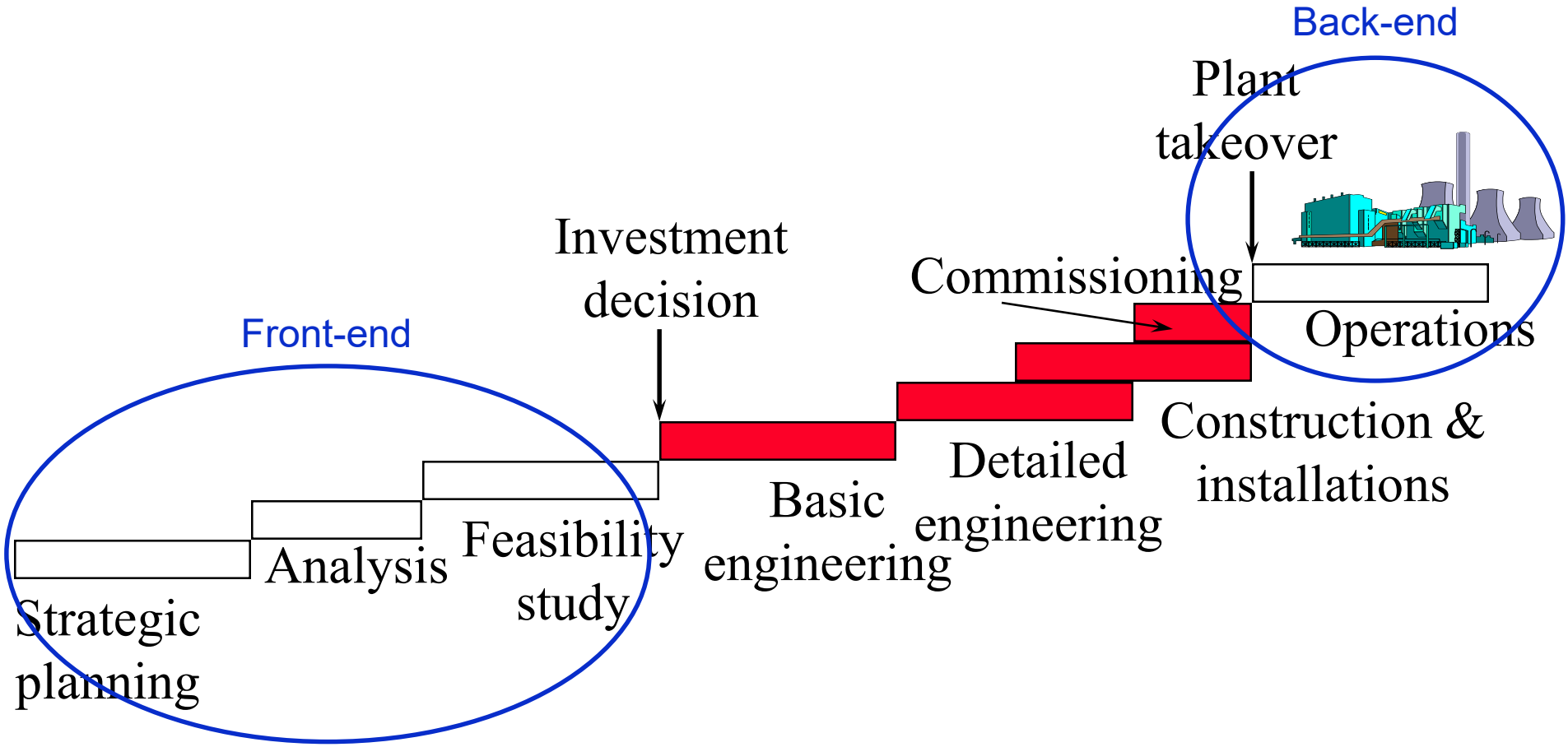
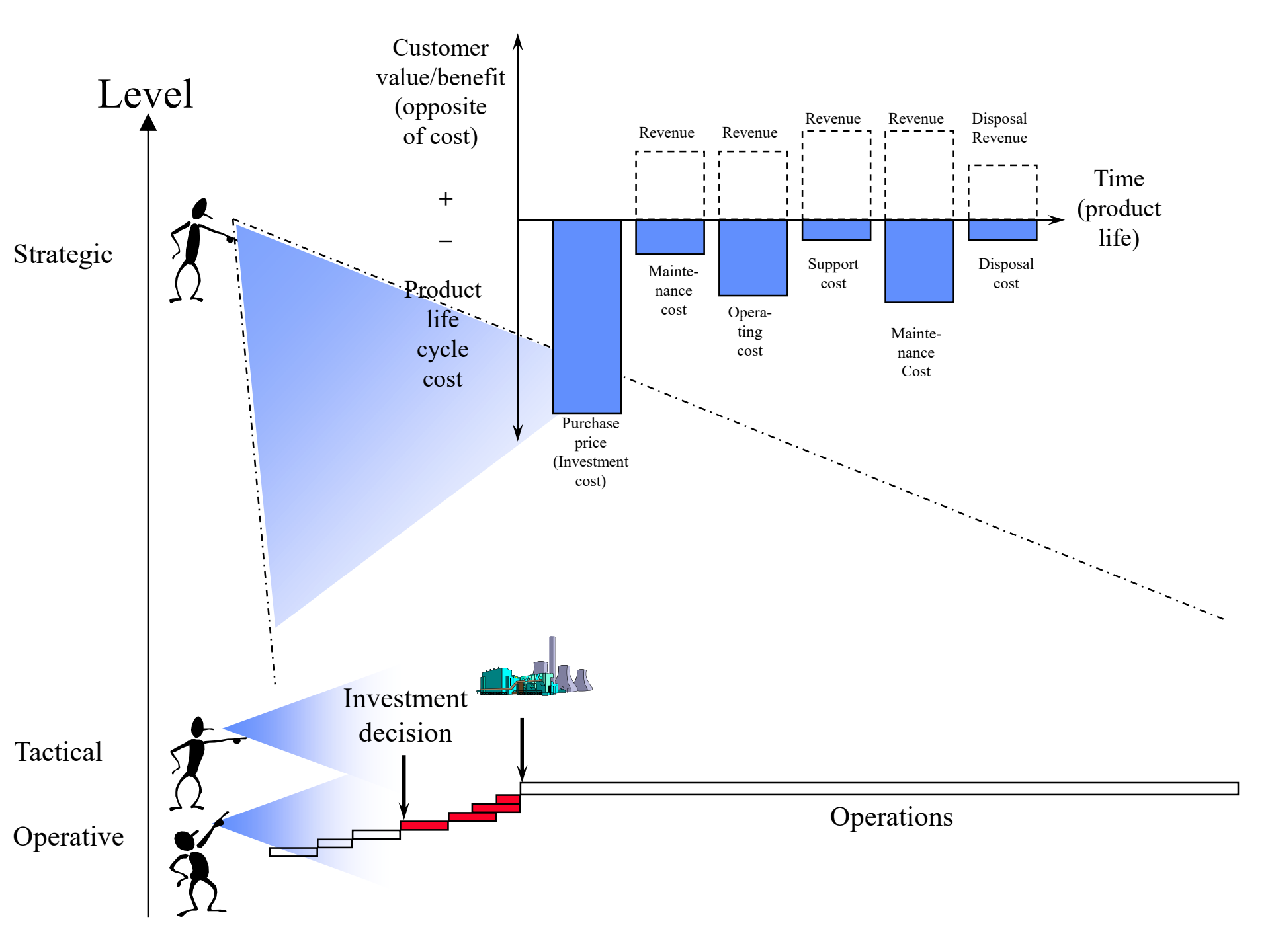
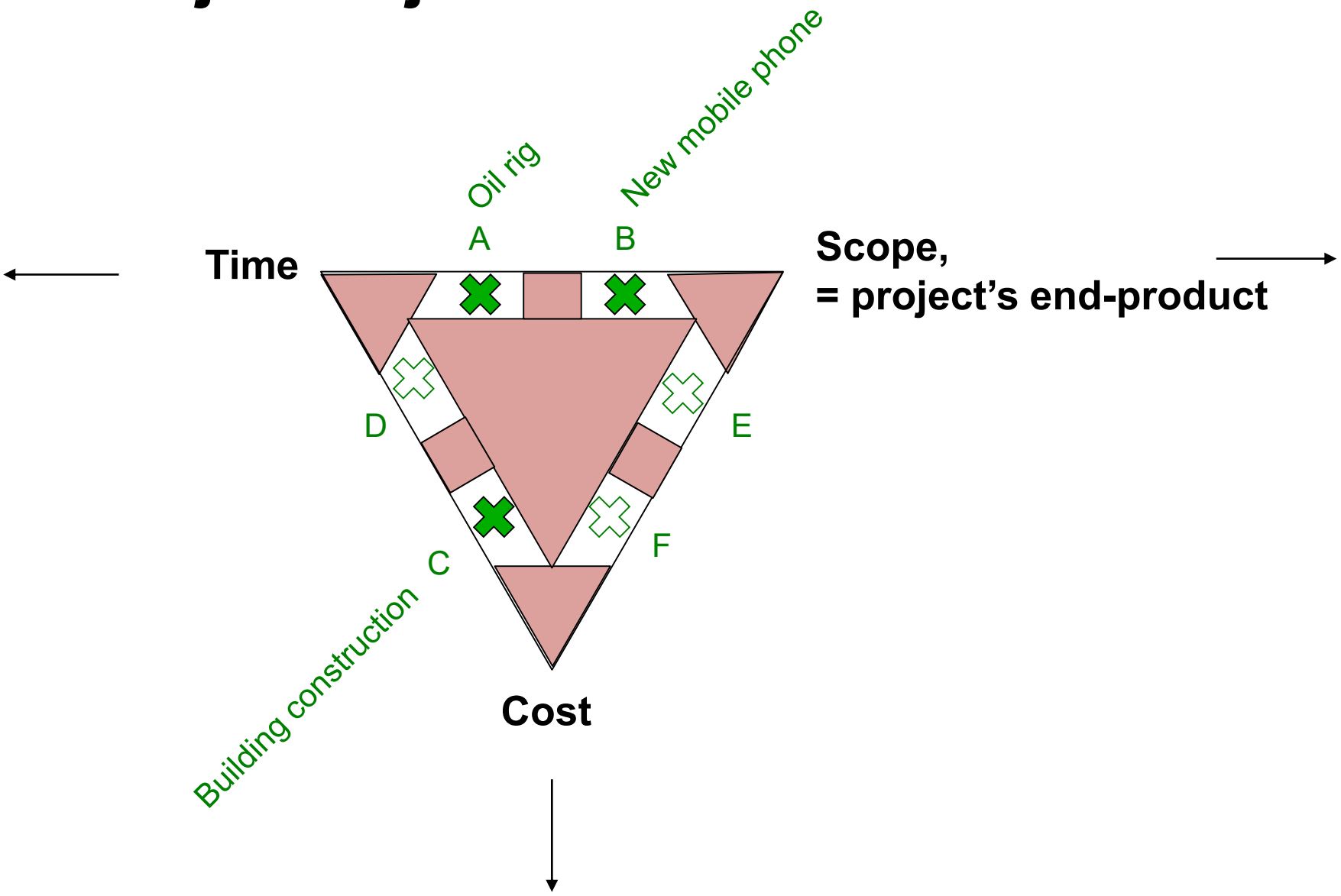
The “time” perspective: System lifecycle vs. project lifecycle

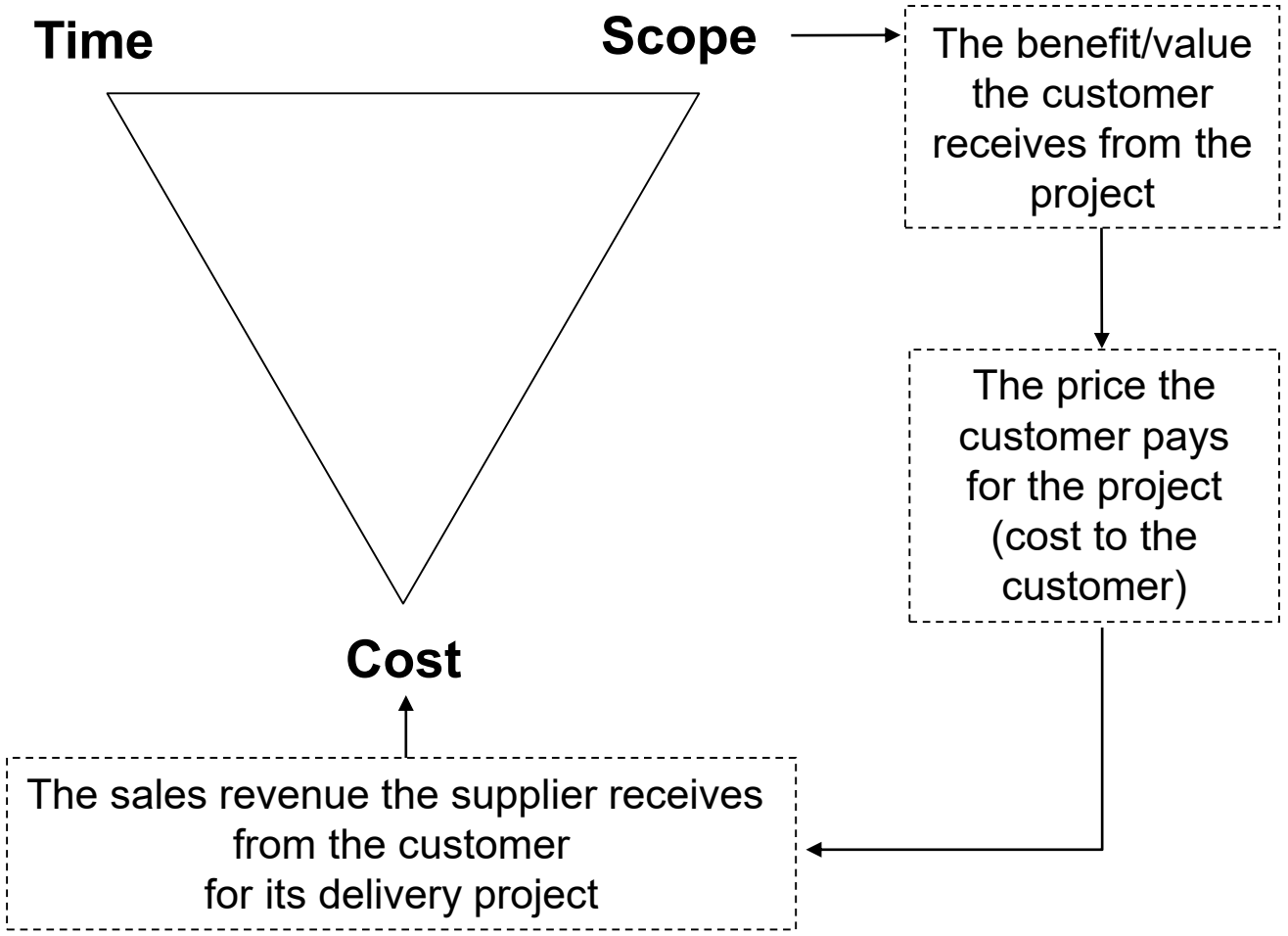


Artto K., Ahola, T., Vartiainen, V., 2016. From the front end of projects to the back end of operations: managing projects for value creation throughout the system lifecycle. International Journal of Project Management, 34(2): 258-270.

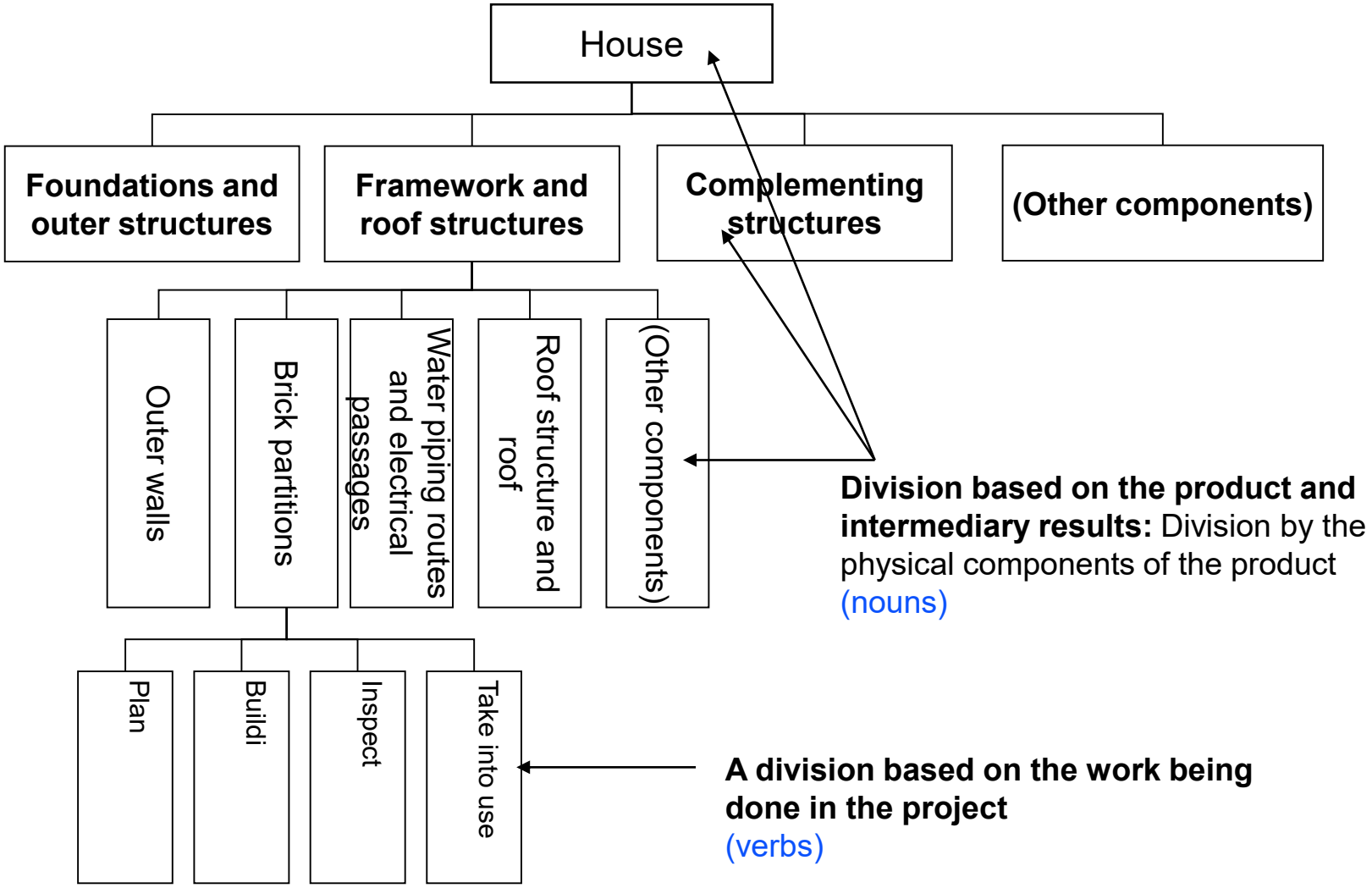

Level
Customer value/benefit (opposite of cost)
+
–
Time (product life)
Revenue
Revenue
Revenue
Revenue
Disposal Revenue
Strategic
Product life cycle cost
Maintenance cost
Operating cost
Support cost
Maintenance Cost
Disposal cost
Purchase price (Investment cost)
Investment decision
Tactical
Operative
Operations

Project objectives




Time
Scope
The benefit/value the customer receives from the project
The price the customer pays for the project (cost to the customer)
Cost
The sales revenue the supplier receives from the customer for its delivery project

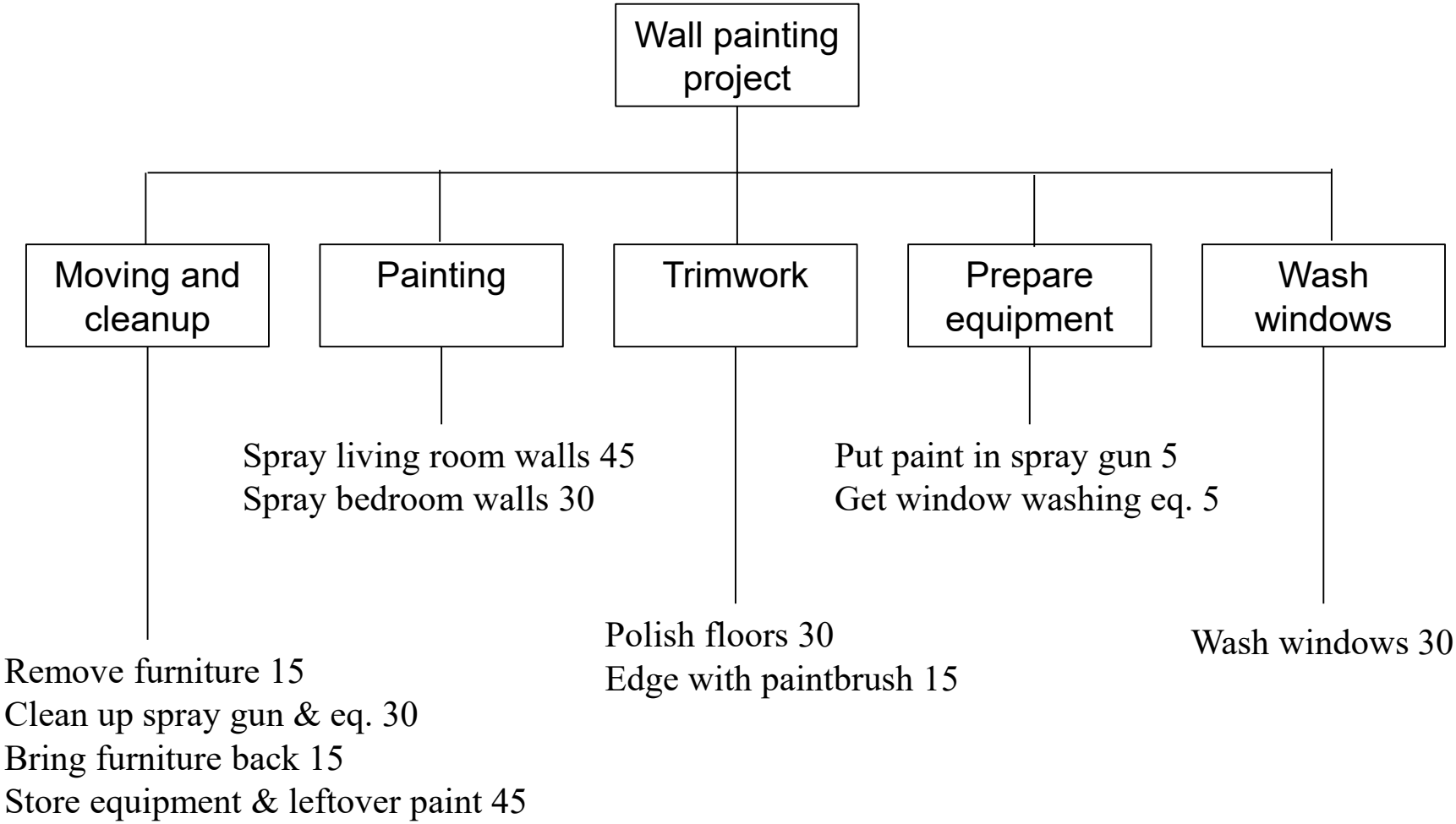
Work Breakdown Structure (WBS)



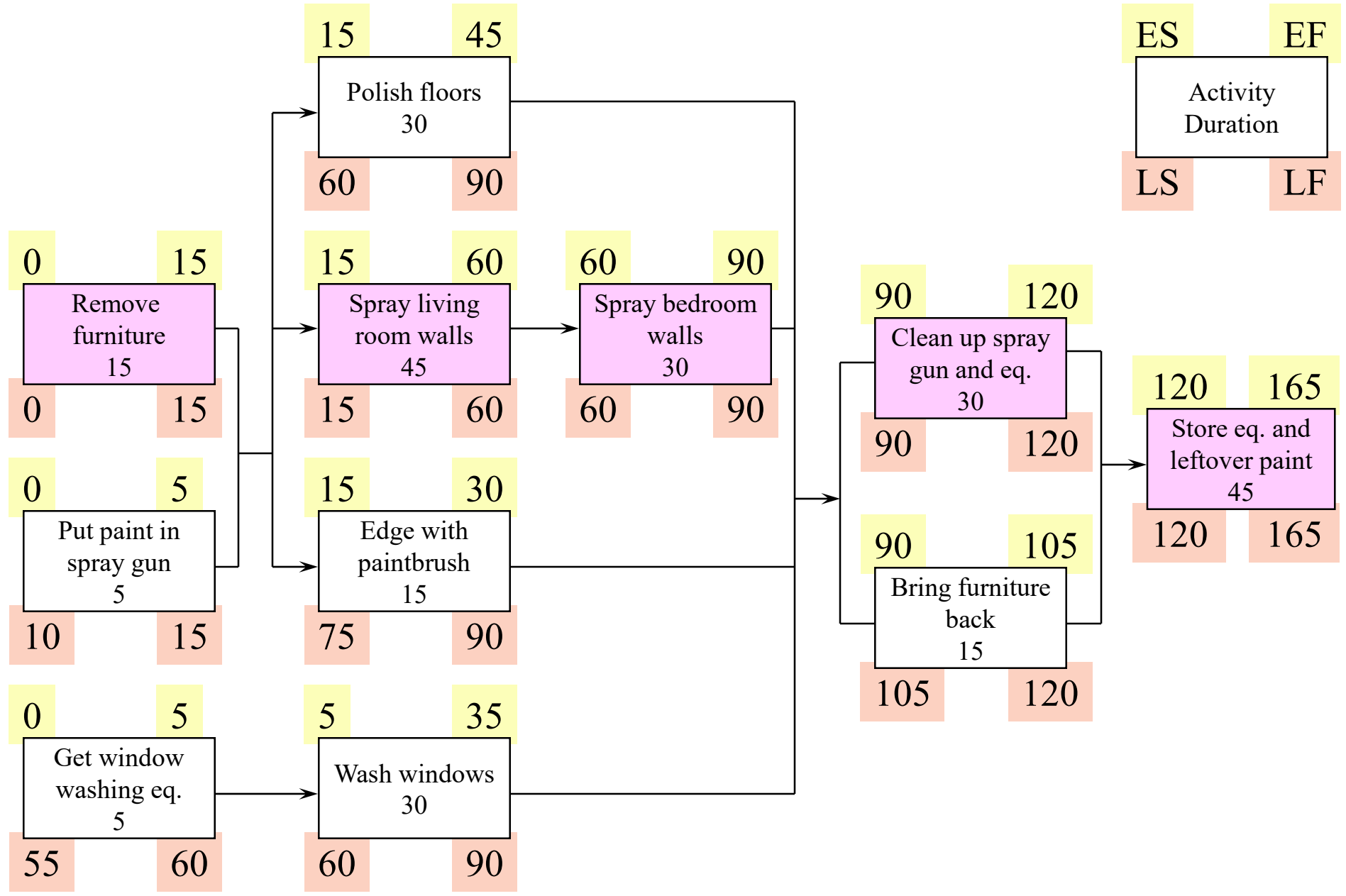
Project definition

- A project is a unique entity formed of complex and interrelated activities, having a predefined goal that must be completed by a specific time, within budget, and according to specification.

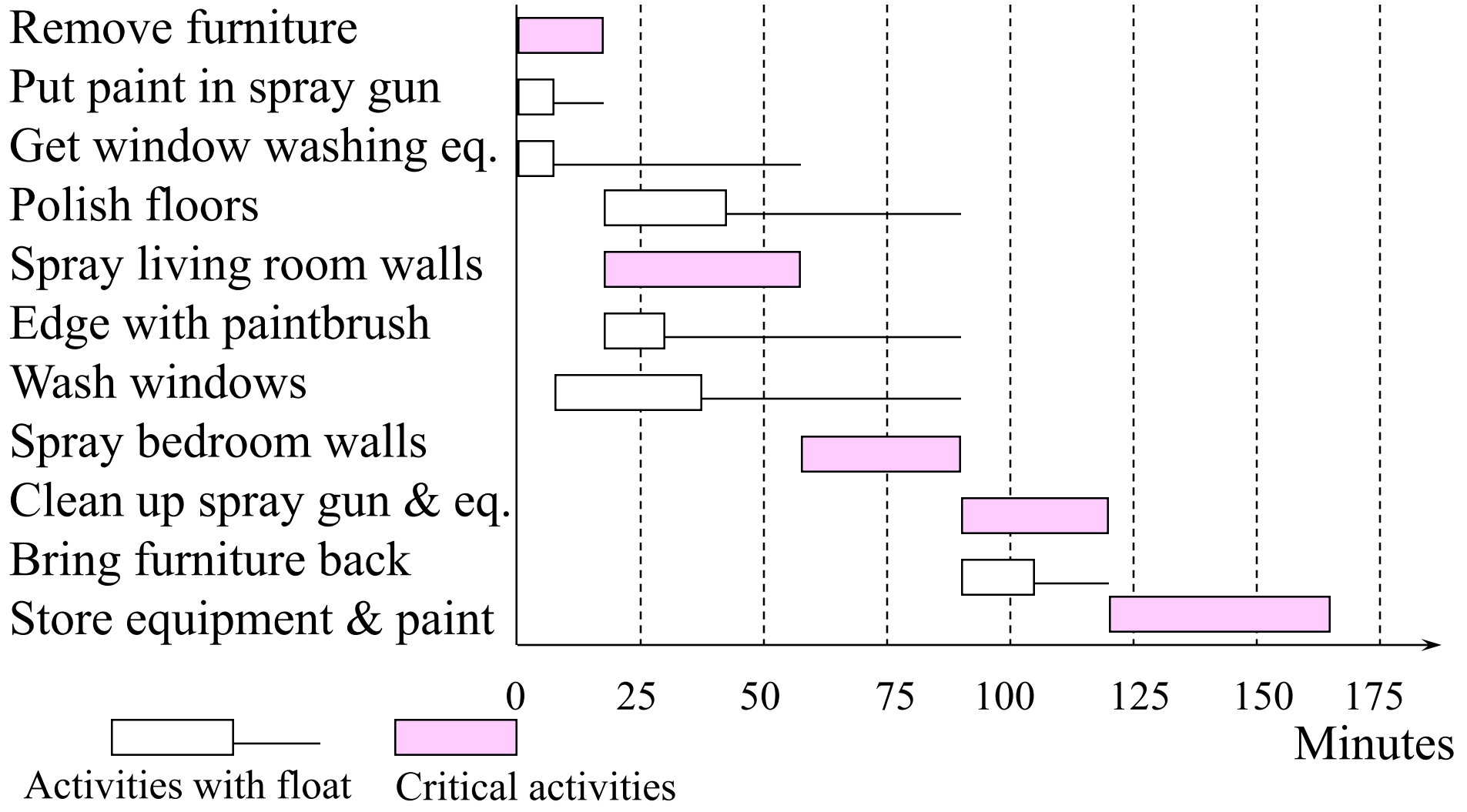
Work Breakdown Structure (WBS) for the wall painting project



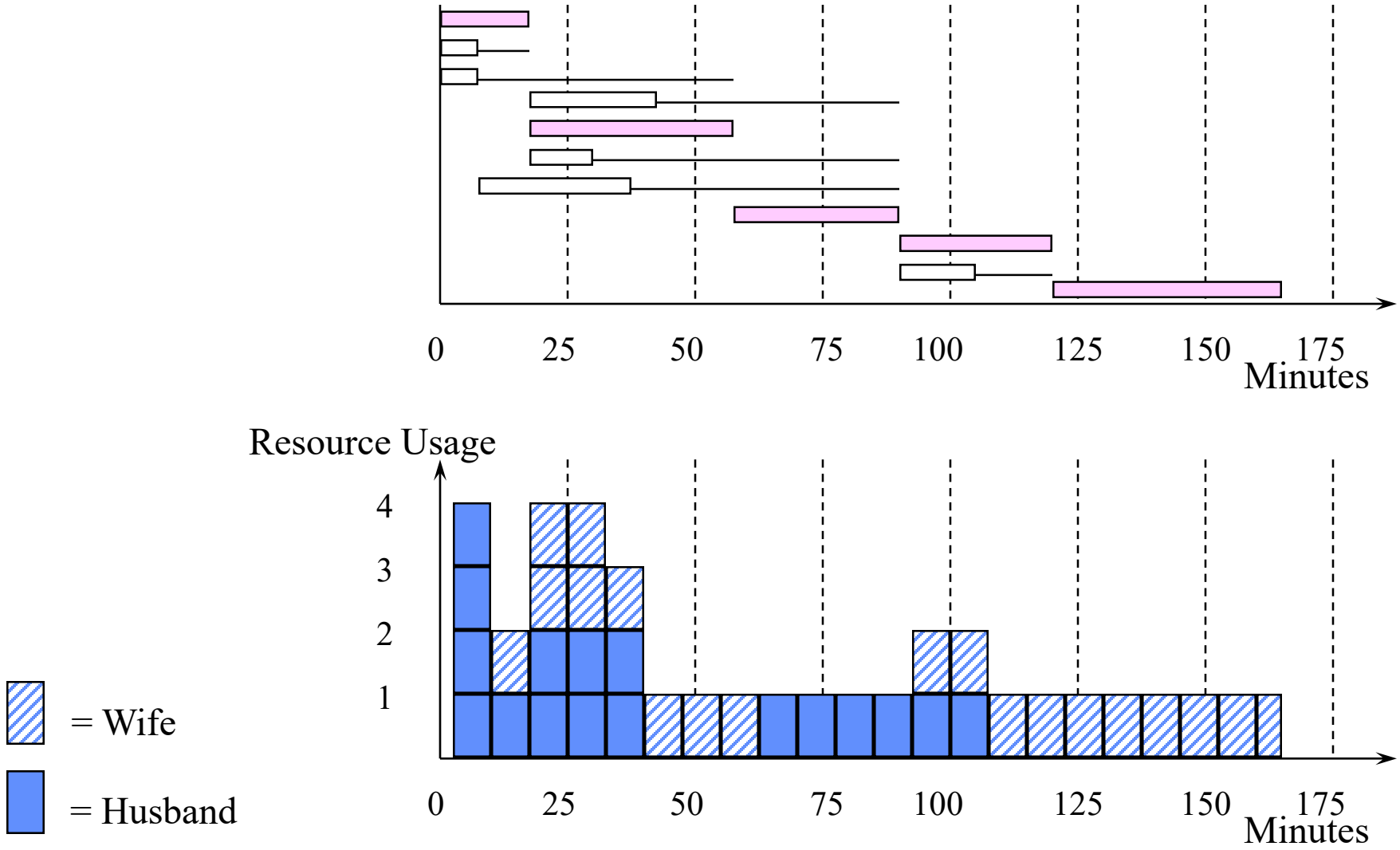
Activity network, critical path, floats, and timing the activities in the time axis (Gantt chart)



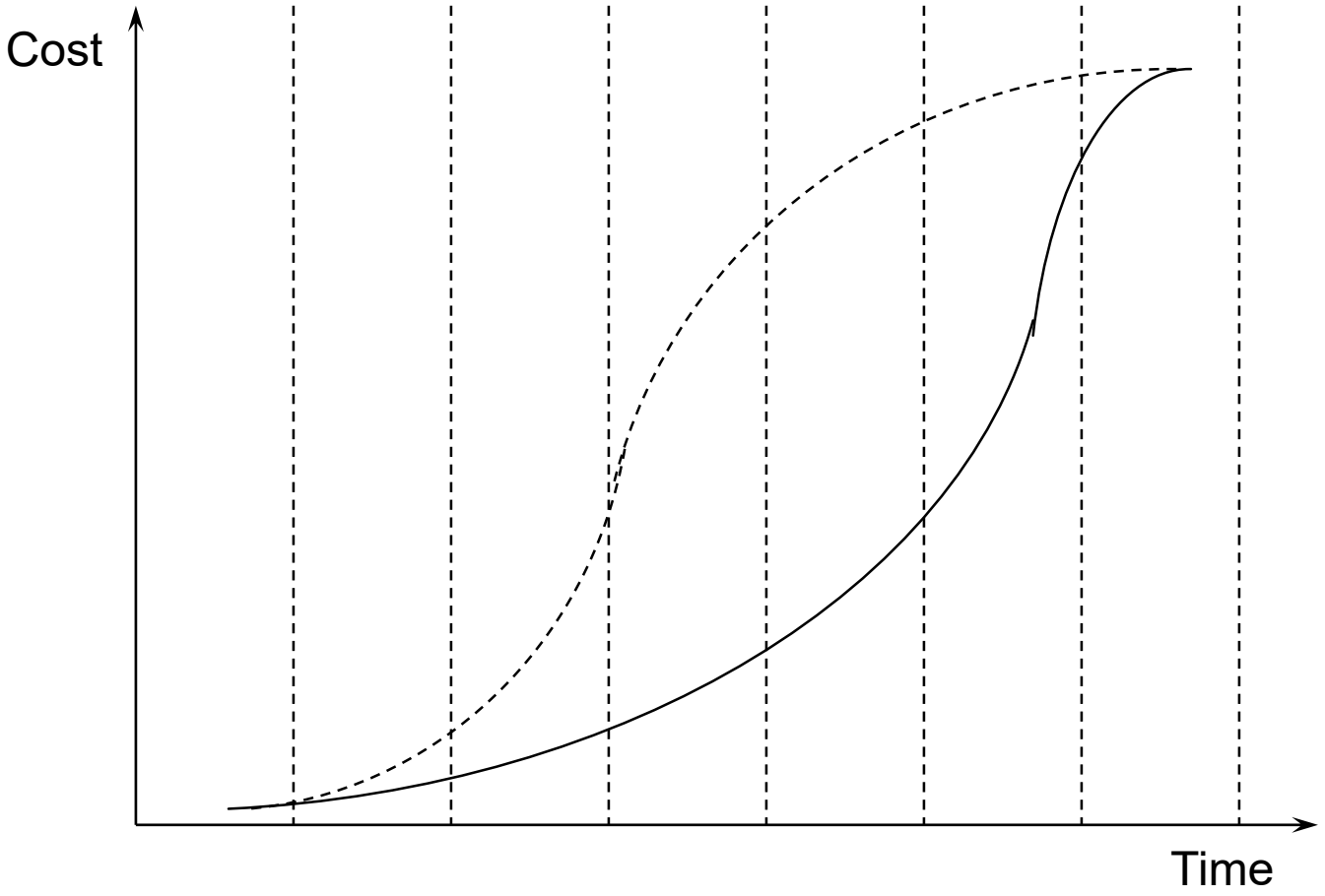
Gantt Chart (or bar chart) for the wall painting project



Resource histogram of the wall painting project



S-curve

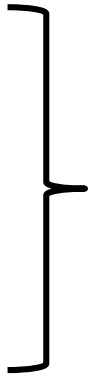


Project plan content

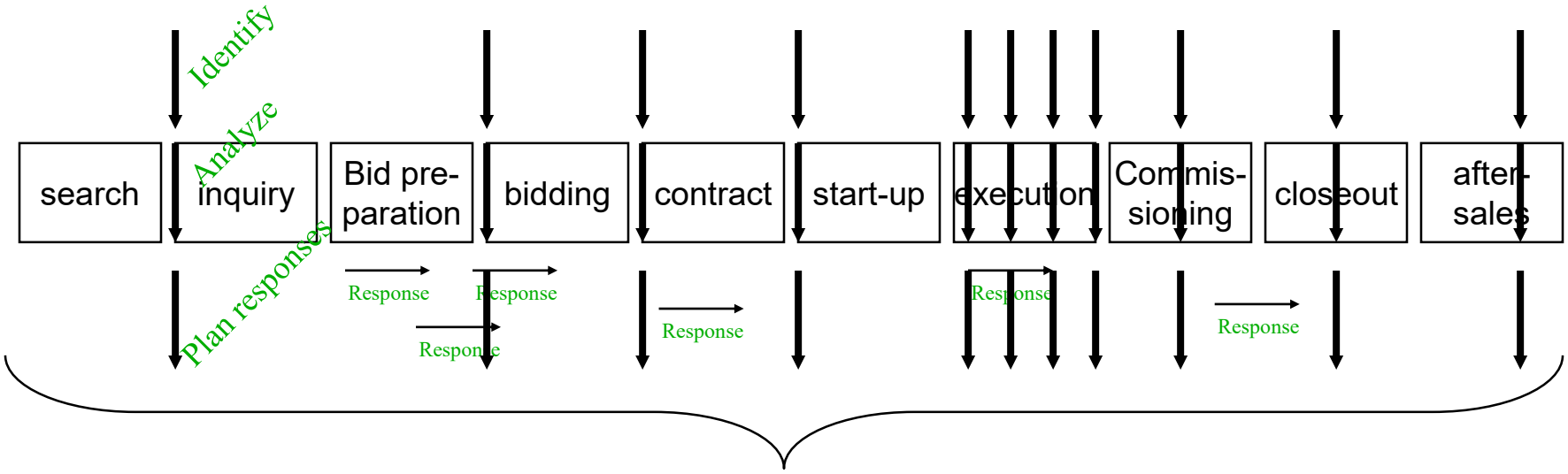
1. Background and benefits
2. Goal and objectives
3. Risks and risk management
4. Project organization and responsibilities
5. Scope and scope management
6. Work Breakdown Structure
7. Schedule and schedule management
8. Resources and resource management
9. Budget and cost management
10. Procurement management
11. Reporting and communication
12. Supplementary sections and appendices

Risk management process

1. Identify
2. Analyze
3. Plan responses
4. Implement responses (take action)



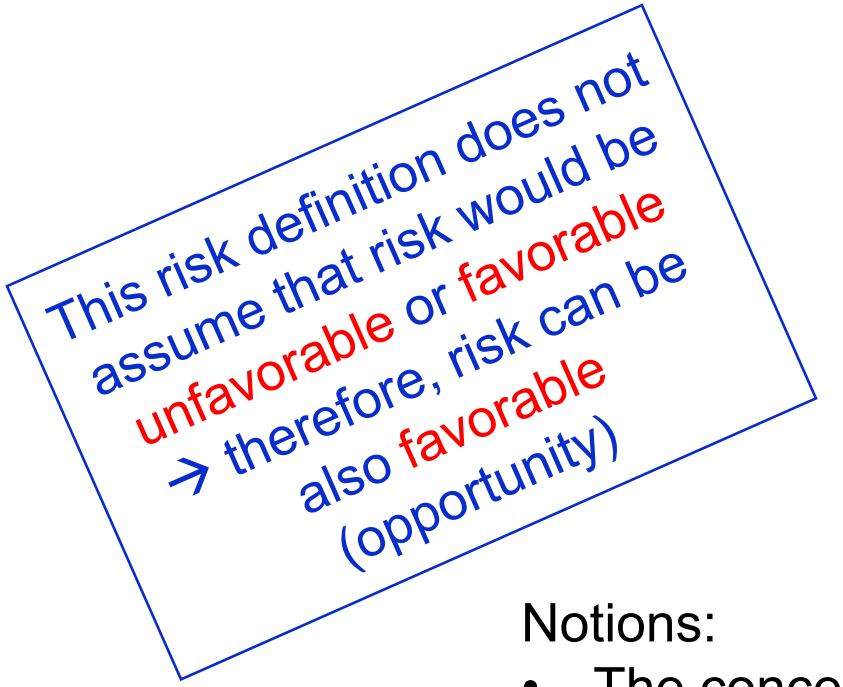
Managing the risk management process



Managing the risk management process

Risk

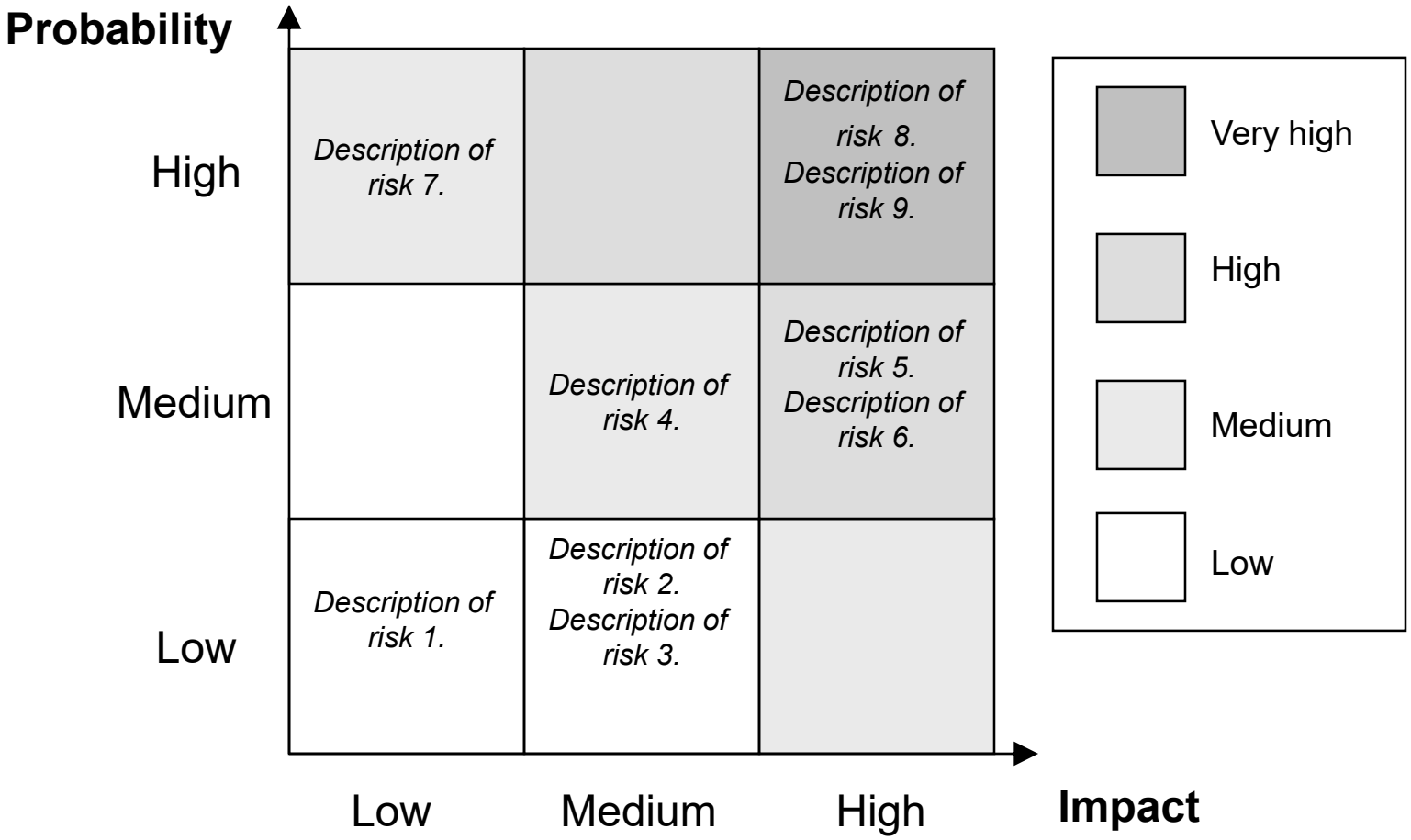
”In the context of project management, a *risk* is an *event* with a certain *probability* of realization that may affect the project schedule, cost, or scope.”



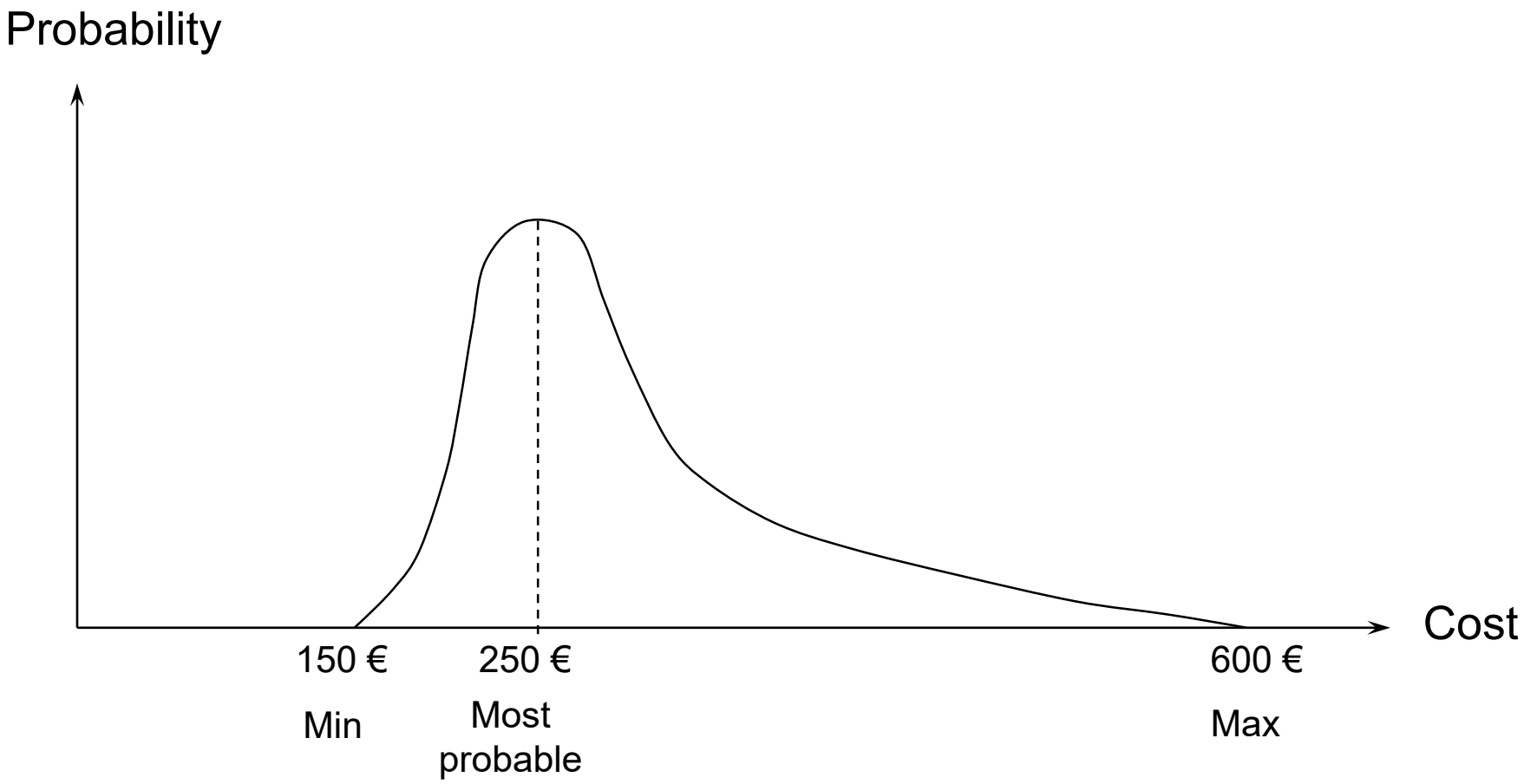
Notions:

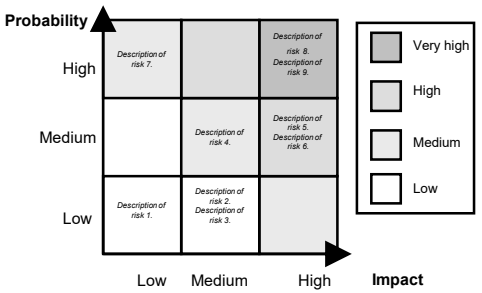
- The concept of “uncertainty”
- Subjectivistic expert estimates

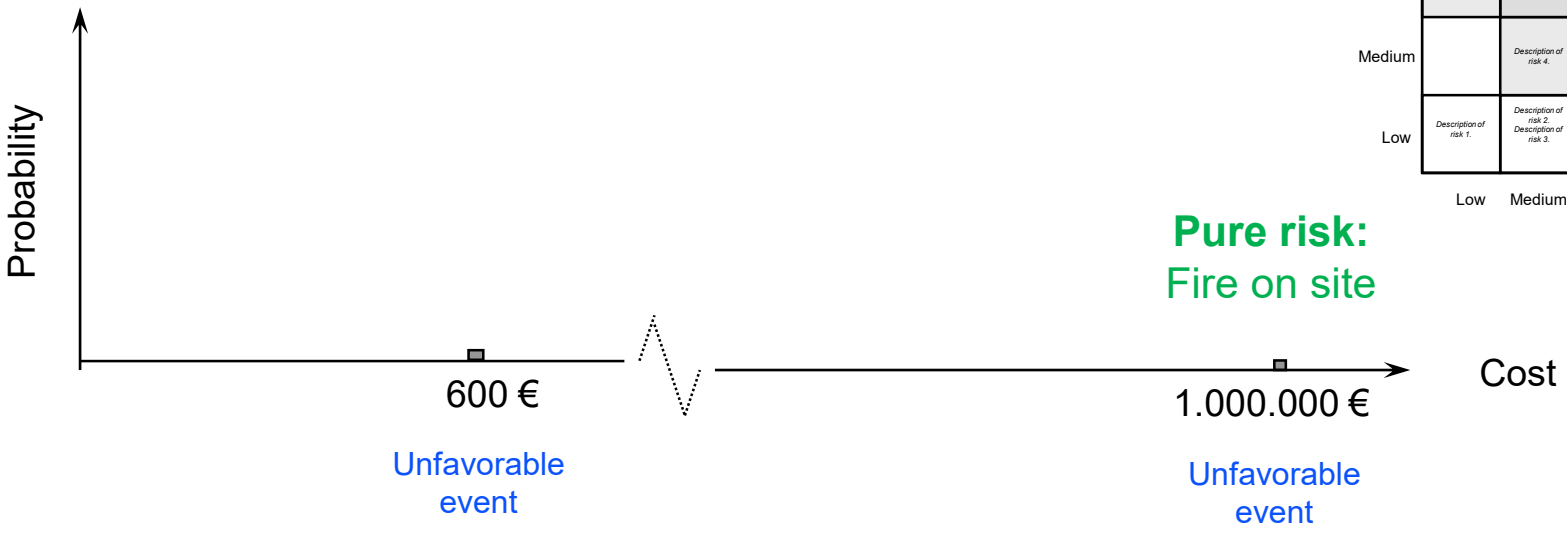
Probability-Impact matrix



Cost estimate







Pure risk:
Fire on site

Unfavorable event

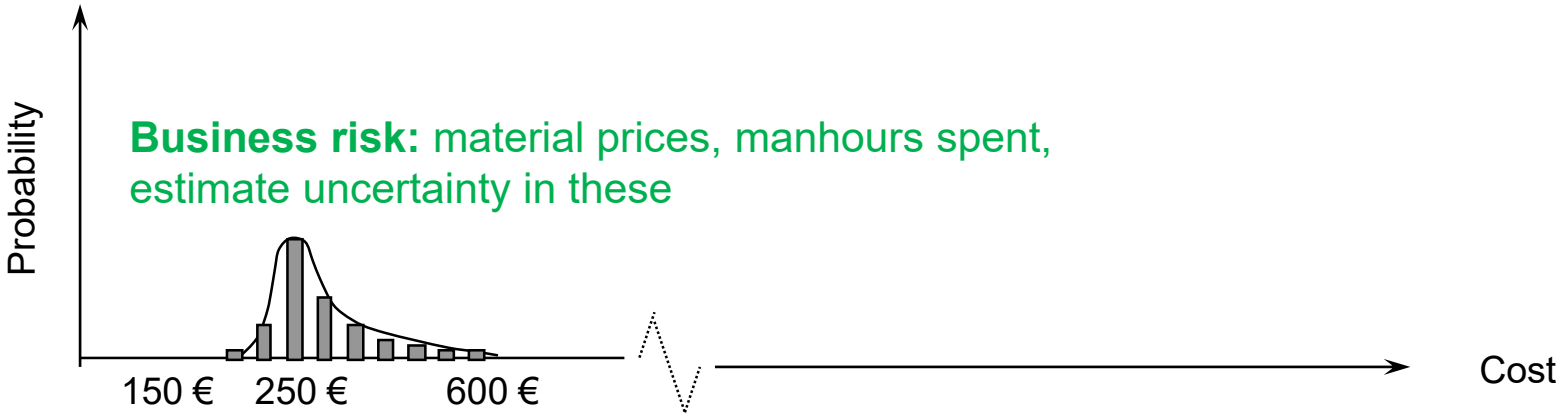
Unfavorable event

Probability = 0.01 for the event with a cost impact of 600 €

But what are the other events with a probability of 0.99 ?

Probability = 0.0001 for the event of losing 1.000.000 €

Probability = 0.9999 for the event of losing 0 €



Business risk: material prices, manhours spent, estimate uncertainty in these

Favorable events

Unfavorable events

Reporting deviations (look at the estimated state at the project's completion)

Objective (state at the project's completion),
budget, and
plan for achieving the objective

Scope
Cost
Time

Follow-up, reporting:
Report and compare deviations between the objective and the estimate at the project's completion!

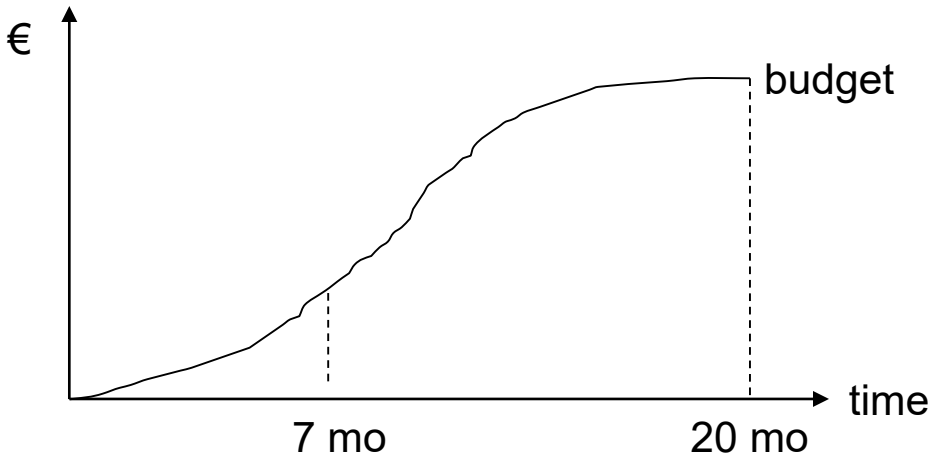
Corrective actions:
Actions must be conducted well in advance during the execution, to have an impact on the outcomes at the completion of the project

Knowing the status of the project:

- Not focusing on reporting the current situation,
- not looking too much at the rear view mirror,
- but rather producing **estimates about the situation/state achieved at the project's completion**

Scope
Cost
Time

Karlos explains the message of the previous slide by using this simple drawing:



time
now

Cost report at 7 months from inception:

From inception
to 7 month (time now)

Budget	Actual
500	400

At completion

Budget	Cost estimate
1000	1500

Key learnings

- When managing a project, keep your sight in the future
  - Estimate at project's completion, deviation reports of the state at the project's completion
  - Risks and risk management
- Decision making (trade-offs) on project objectives
- Systematically decomposing the project's product and work
  - Work Breakdown Structure (WBS)
- Activity network, dependences between activities, critical activities, use of floats in planning effective resource use
- Interdependence between time and resources/cost (S-curve)