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# Software Project Management



TECHNISCHE  
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- **The product is intangible**

(intangible =dt. nicht greifbar)

Project managers cannot (easily) see progress and have to rely on others to produce the documentation needed to review progress. (To alleviate this software, deliver working software frequently.)

- **There are no standard software processes (yet)**

In many other engineering disciplines the engineering process is better understood.

- **Large projects are often "one-off" projects**

These makes estimations and anticipations of problems (very) hard. Rapid technological changes also render previous experience obsolete.

- **Proposal writing**

=dt. Angebotserstellung / Antragsstellung

I.e., an important skill that software project managers have to have is to communicate effectively both orally and in writing.

- **Project planning and scheduling**

planning =dt. Planung, Planungsvorbereitung

scheduling =dt. Terminierung, Anberaumung eines Termins

- **Project cost calculation**

=dt. Projektkostenkalkulation

- **Project monitoring and reviews**

- **Personnel selection and evaluation**

- **Report writing and presentations**

# Project Planning is an iterative process.

- A plan drawn up at the start should be used as the driver for the project; this should be the best possible plan given the available information
- The plan evolves as the project progresses.

- **Project Plan** (dt. Projektplan) (following slides...)
- **Quality plan** (dt. Qualitätssicherungsplan)  
Describes the quality procedures and standards that will be used.
- **Staff development plan** (dt. Personalentwicklungsplan)  
Describes how the skills and experience of the project team members will be developed.
- **Configuration management plan**  
Describes the configuration management procedures and structures to be used.
- ...

## 1. **Introduction**

Objectives of the project and its constraints (time, budget,...).

## 2. **Project organization**

Organization of the development team, the involved people and their roles.

## 3. **Risk analysis**

Possible project risks, their likelihood and risk reduction strategies.

## 4. **Hardware and software resource requirements**

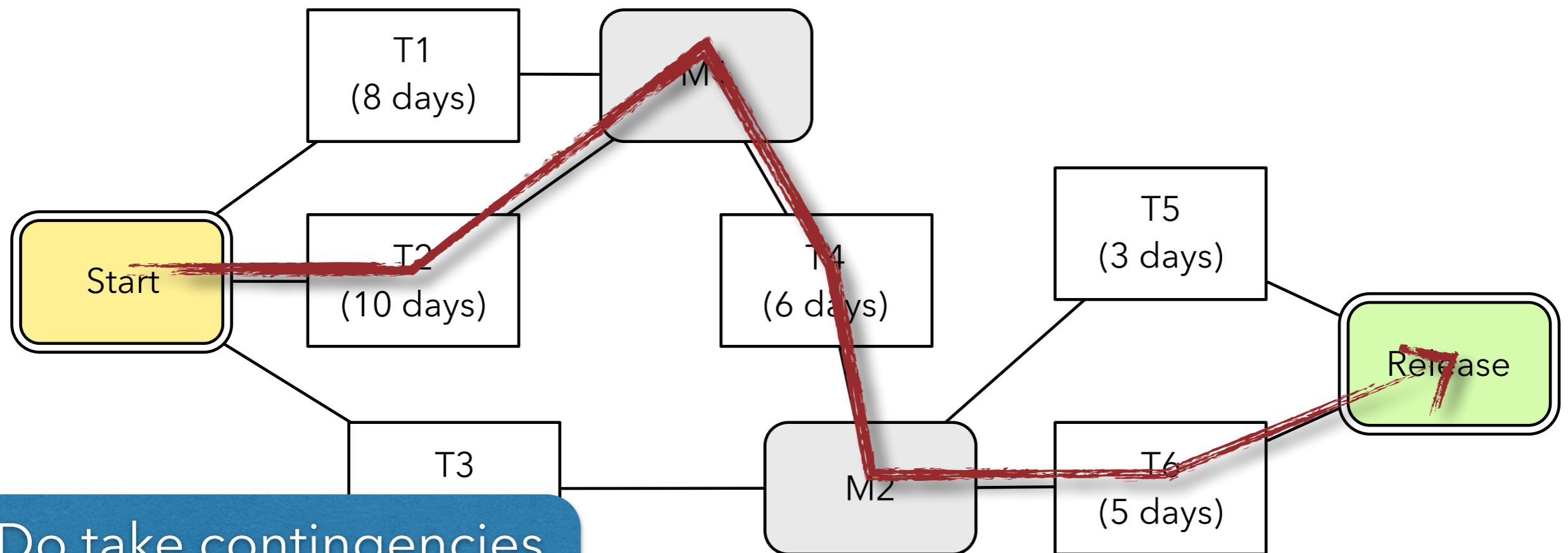
The hardware and support software required to carry out the project.

## 5. ... (next slide)

- ...(previous slide)
- **Work breakdown** (=dt. Arbeitsaufteilung)  
Sets out the breakdown of the project into activities and identifies the milestones and deliverables associated with each activity.
- **Project schedule**  
(Sometimes mistakenly called "Project Plan.")  
Dependencies between activities, estimated time required to reach each milestone and the allocation of people to activities.
- **Monitoring and reporting mechanisms**

# Project Schedules can be illustrated using activity networks and / or gantt charts.

- A milestone has to be a concrete, verifiable goal



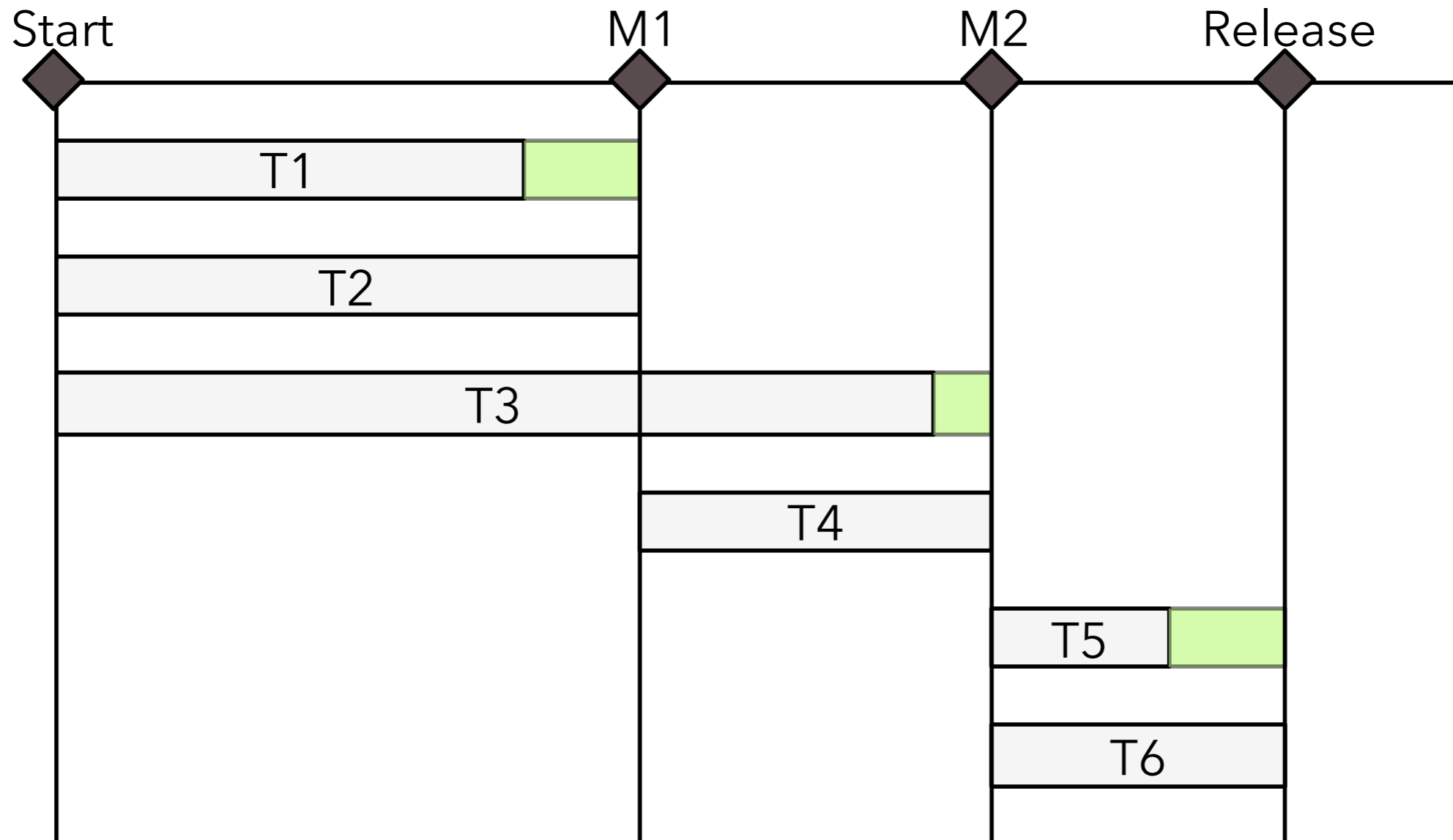
Do take contingencies (dt.= Eventualitäten) into account.

Critical Path



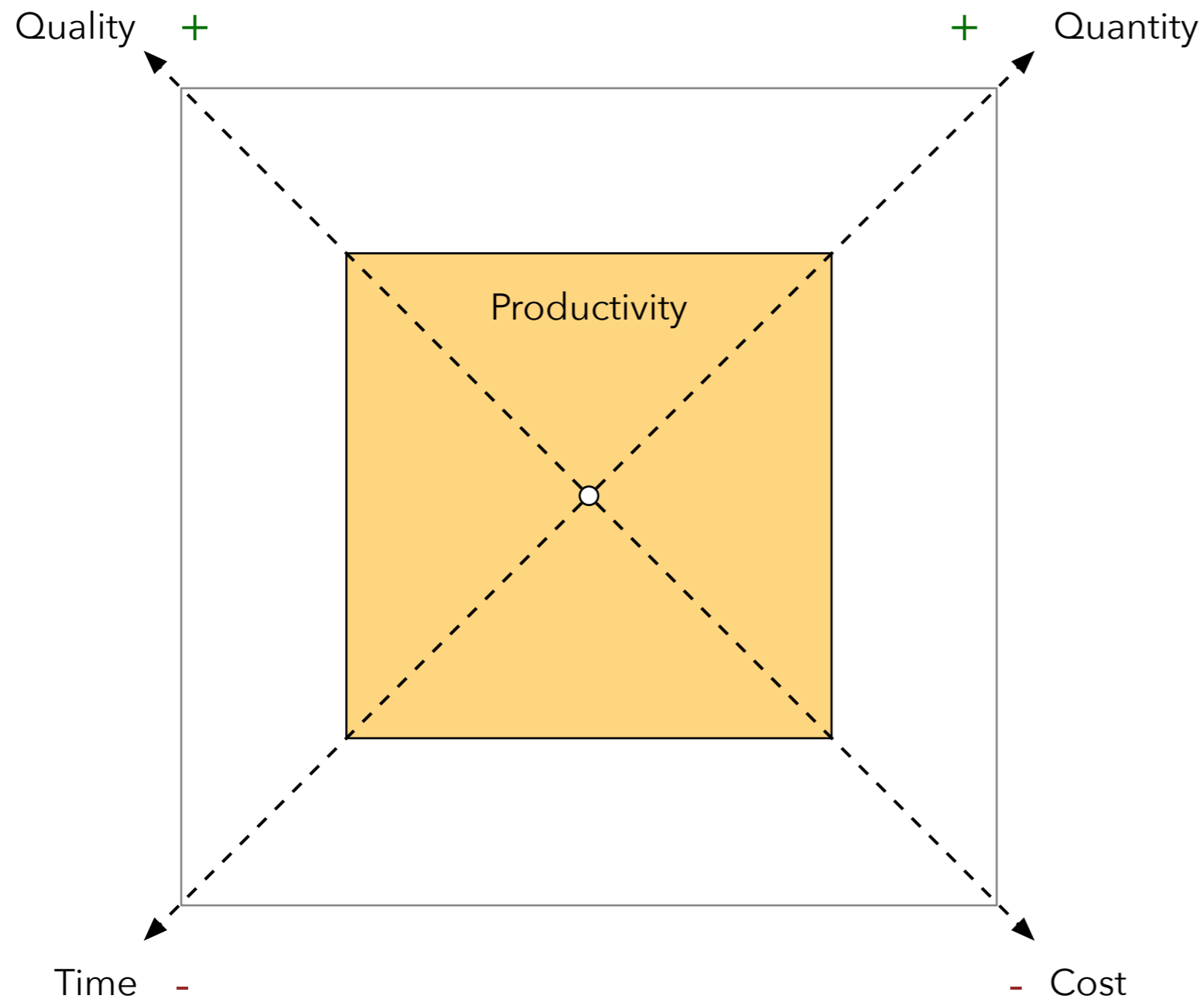


Project Schedules can be illustrated using activity networks and / or gantt charts.



# Sneed's "Devil's Square"

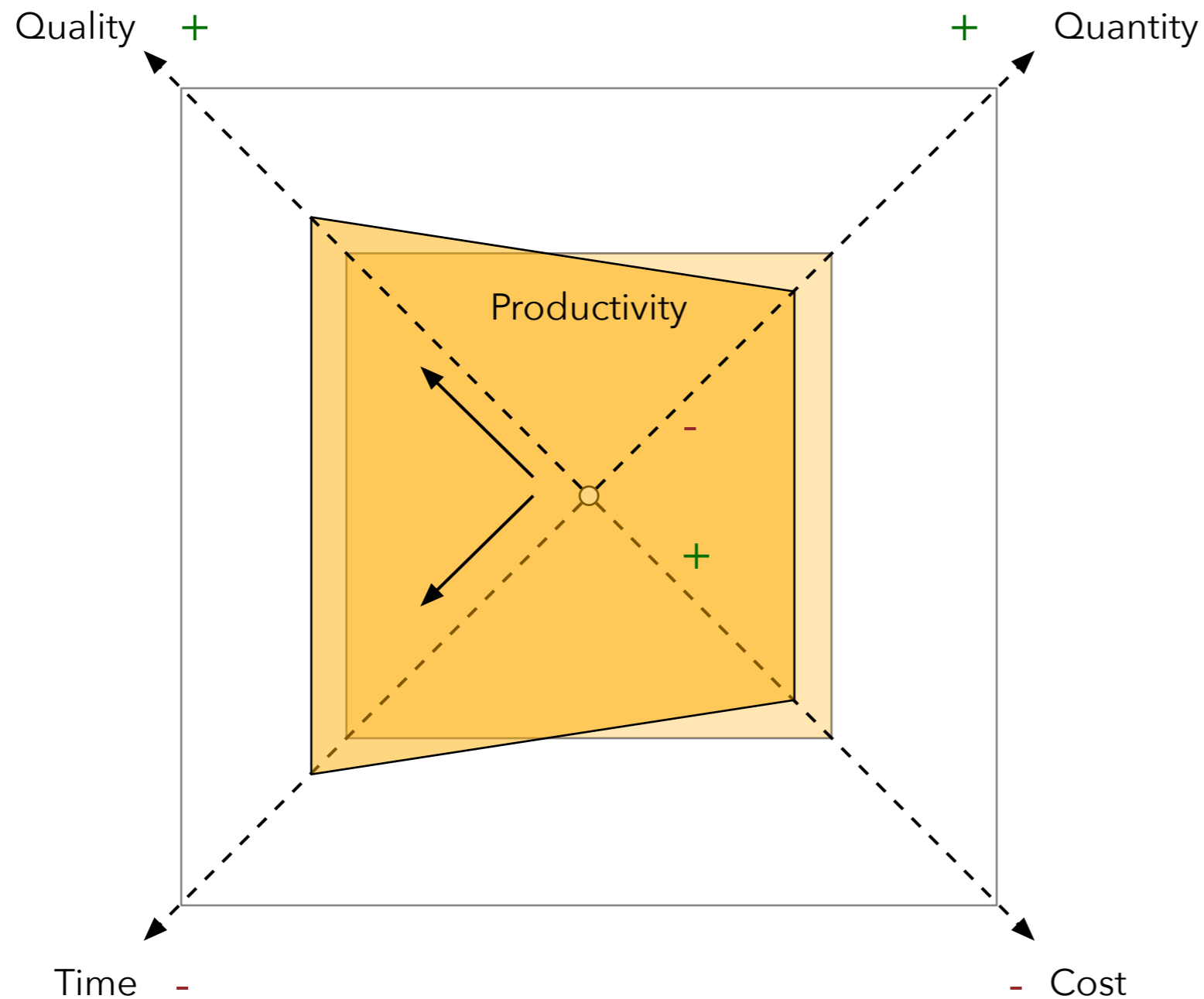
The quality and the quantity of the software is measured as well as the time and costs it takes to complete the project.



In the **short term**, the productivity (the "orange" area) is fix.

# Sneed's "Devil's Square"



If the quality of the software should be increased and the time should be reduced, the costs will rise and the number of features has to be reduced.



In the **short term**, the productivity (the "orange" area) is fix.

The goal of this lecture is to enable you to systematically carry out small(er) commercial or open-source projects.

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-  You should now have a good understanding of the specifics of software projects.
-  You should have a very rough idea of some tasks that need to be carried out when managing software projects.