Software Engineering in der industriellen Praxis (SEIP)
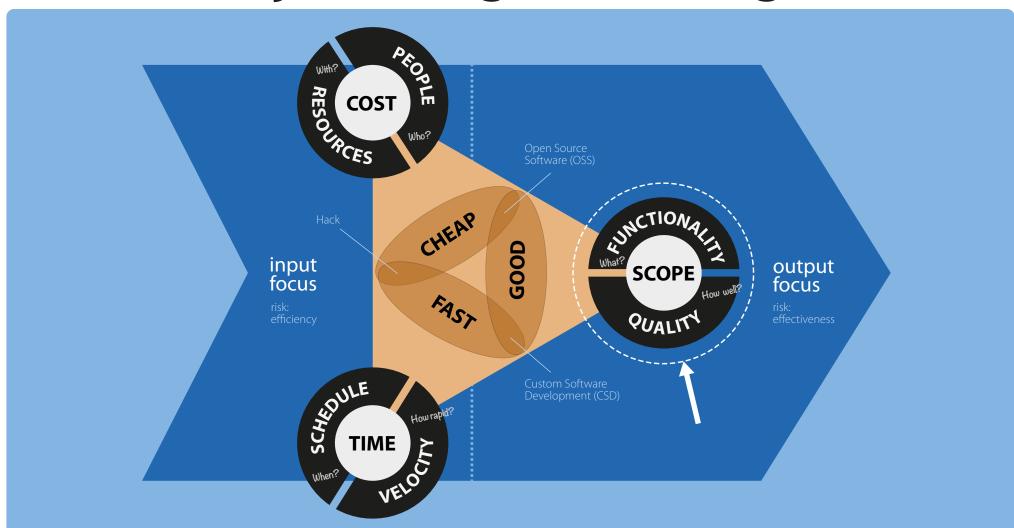
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Project Management Triangle

ENGINEERING FUNDAMENTALS

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Definition of a *Project*:
"*Temporary endeavor undertaken to create a unique product, service or result.*"
Temporary in that it has a defined beginning and end in time, and a defined scope and cost.
Unique in that it is not a routine operation, but a one-time, single-goal, and risk-containing operation.

Project Management *Iron Triangle*:
A project is constrained by **time**, **cost** and **scope**. No constraint in this triangle can be changed without affecting the others. Time splits into **schedule** and **velocity**. Cost splits into **people** and **resources**. Scope splits into **functionality** and result **quality**.

Project Management *Trilemma*:
"*Fast. Cheap. Good. Pick two!*"
Each project optimization effort has the choice among **three** favourable options — only **two** of them are possible at the same time.

project & constraints

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Project Management Building Blocks

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STRUCTURE

Time Periods

Product Stage — STG (1)
Giant step in the development of the product, to deliver a distinct **major** version of the product.

Project Phase — PHS (2)
Major time period in the project process, to split the project into distinct **focus periods,** separated by major milestones.

Project Period — PRD (3)
Minor time period in the project process, to split the project phases into distinct time-, cost-, or scope-based **time units.**

Work Streams

Organisation Scope — SCP (12)
Top-down scopes, Portfolio, Program and Project, to manage initiatives at different granularity levels.

Product Increment — INC (11)
Regular step in the development of the product, to deliver a distinct **minor** version of the product.

Disciplines Iteration — ITR (9)
Work stream consisting of a single sequential or parallel pass over all disciplines.

Disciplines Track — TRK (8)
Work stream consisting of a continuous repeated flow through the domain of related disciplines.

Engineering Discipline — DIS (6)
Distinct knowledge and work area of Software Engineering.

Process Flows

Flow Sequencing — SEQ (7)
Sequential process flow of multiple disciplines, iterations, tracks, slices, increments, phases or stages.

Flow Parallelization — PRL
Parallel process flow of multiple disciplines or tracks.

Flow Interleaving — ILV
Interleaved process flow of multiple disciplines, iterations, tracks, slices, increments, phases or stages.

PROPERTIES

Progress Modes

Voluntary (Supplier-Push) — VOL (4)
Supplier pushes requirements and work packages **into** the project and controls the progress.
OSS

Planned (Customer-Push) — PLN
Customer pushes requirements and work packages **into** the project and controls the progress.
RUP

Agile (Supplier-Pull) — AGL
Supplier pulls requirements and work packages **out of** the project and controls the progress.
Scrum

Lean (Customer-Pull) — LEA
Customer pulls requirements and work packages **out of** the project and controls the progress.
Kanban

Work Focuses

Project Focus — PRJ (5)
Focus on the project itself, to initiate, define, plan and successfully close it.

Technology Focus — TEC
Focus on the IT technology, to use it for implementing the solution.

Domain Focus — DOM
Focus on the domain, to analyse and specify it.

Environment Focus — ENV
Focus on the environment of the solution, to transition the solution into it.

Work Goals

Extension Goal — EXT (10)
Following the goal of making a **functional** extension of the product to create a **new** increment.

Revision Goal — REV
Following the goal of making a **quality** revision of the product to improve an **existing** increment.

Reduction Goal — RED
Following the goal of making a **functional** reduction of the product to destroy an **existing** increment.

PROCESS BUILDING BLOCKS:
Every Project Management process in Software Engineering is made of the above building blocks. All building blocks can occur (structure) or be applied (properties) zero, one or more times in a particular process.

PROCESS TAILORING & CREATION:
To tailor an existing process, use the defined building blocks to better understand the given process. To create a process from scratch, decide on the building blocks by following steps 1 to 12 in the given order.

process & building blocks