Working in Projects

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September 8, 2021

AFRY

Agenda

- About projects for product development
- Working in Projects

Why Erik?

Condensed CV

- Systems Design Engineer
- Project Manager
- Systems Design Line Manager
- Strategic Product Manager
- Management Consultant
  - Technology Management/Product Development
- New Business Incubation Leader @ AFRY X

About AFRY

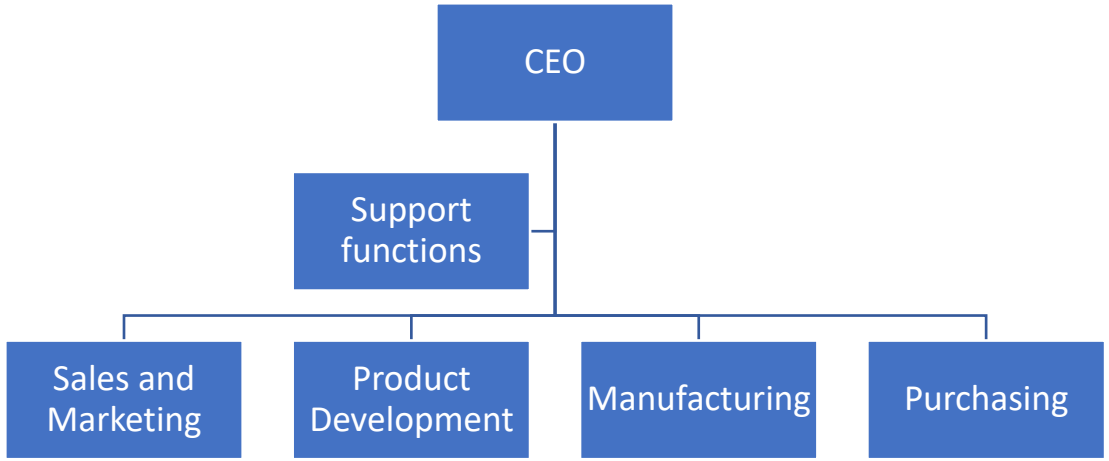
Why a project in this programme?

To give a sense of real life

- Solve a task and meet a deadline
- Work in teams
- Report to a manager
- Understanding business impact
- Taking responsibility for a customer relation

Why organize product development as projects?

Company Line Organization



Good for efficiency and stability

- Quality control
- Best practices/Standards
- Knowledge Management

- What if we want to do something new?
- How do we deliver value to our customers?

Why organize product development as projects?

- Structure for **cross-functional collaboration** –
  (The only way we can deliver true customer value)
- Common **focus and alignment** towards a goal

- Structure for handling concurrent tasks (coordination)
- Follow-up on progress according to a plan
- Follow an established process (quality management)

Example of Line/Project Responsibilities around a project

Project

- Content
- Time schedule
- Cost
- Quality

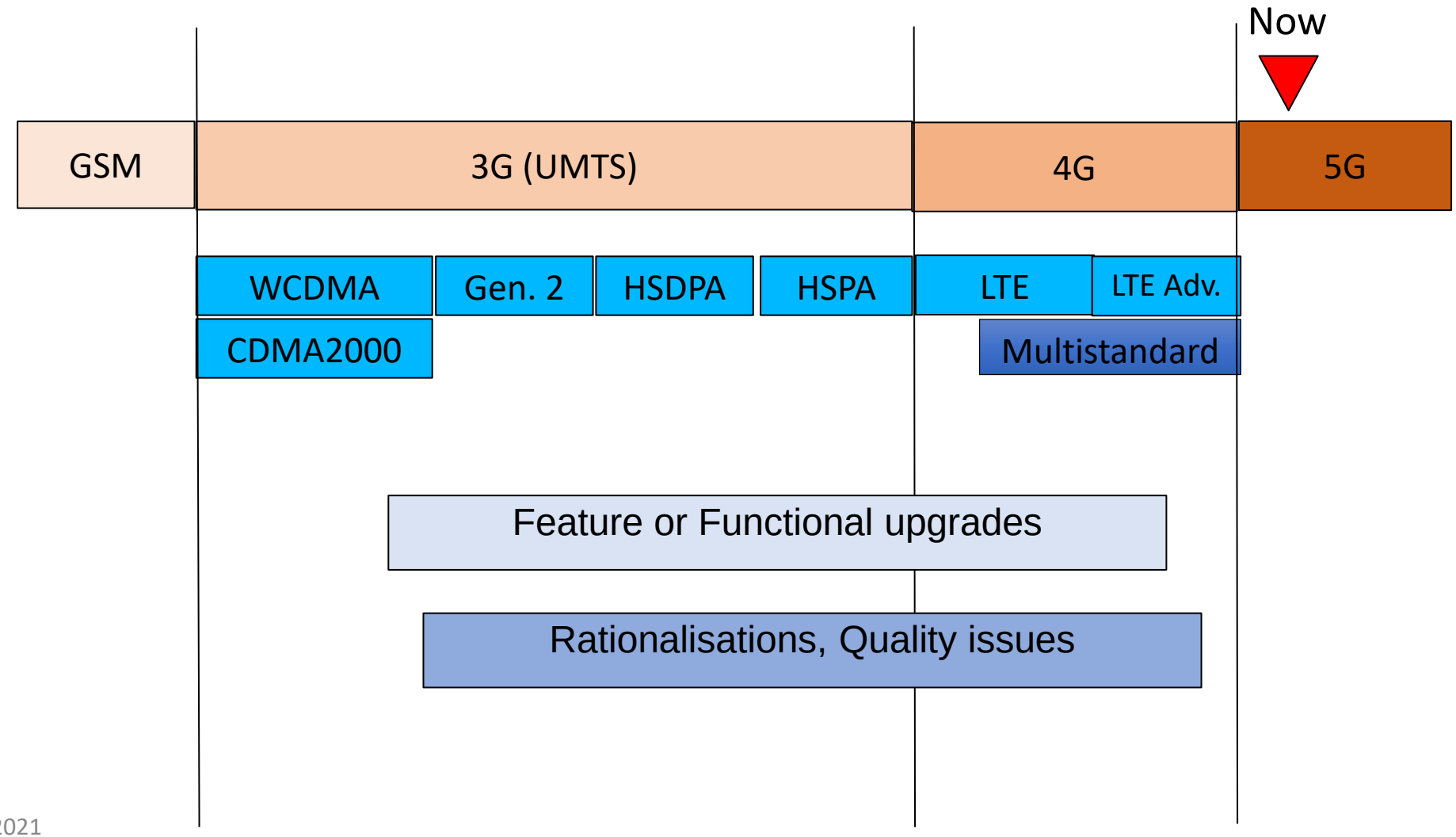
Line Organization

- Resources (personnel, equipment, buildings, etc…)
- Technical solutions
- Working procedures

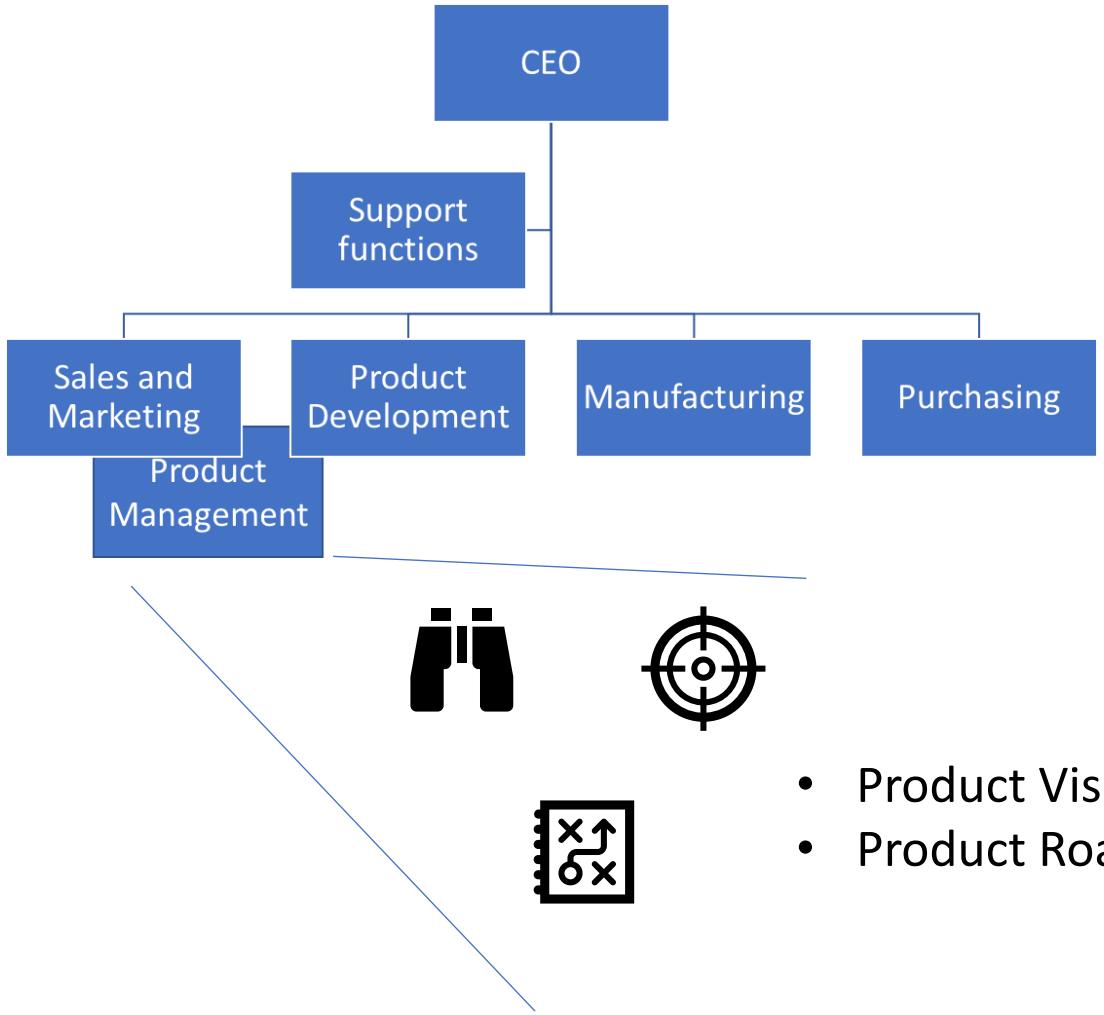
Every project is different

- Big or small (persons involved, budget)
- One or many organizations involved
- Ground breaking or incremental development
- Different levels of complexity
- Standard product or customer specific product
- Time schedule

Product Evolution

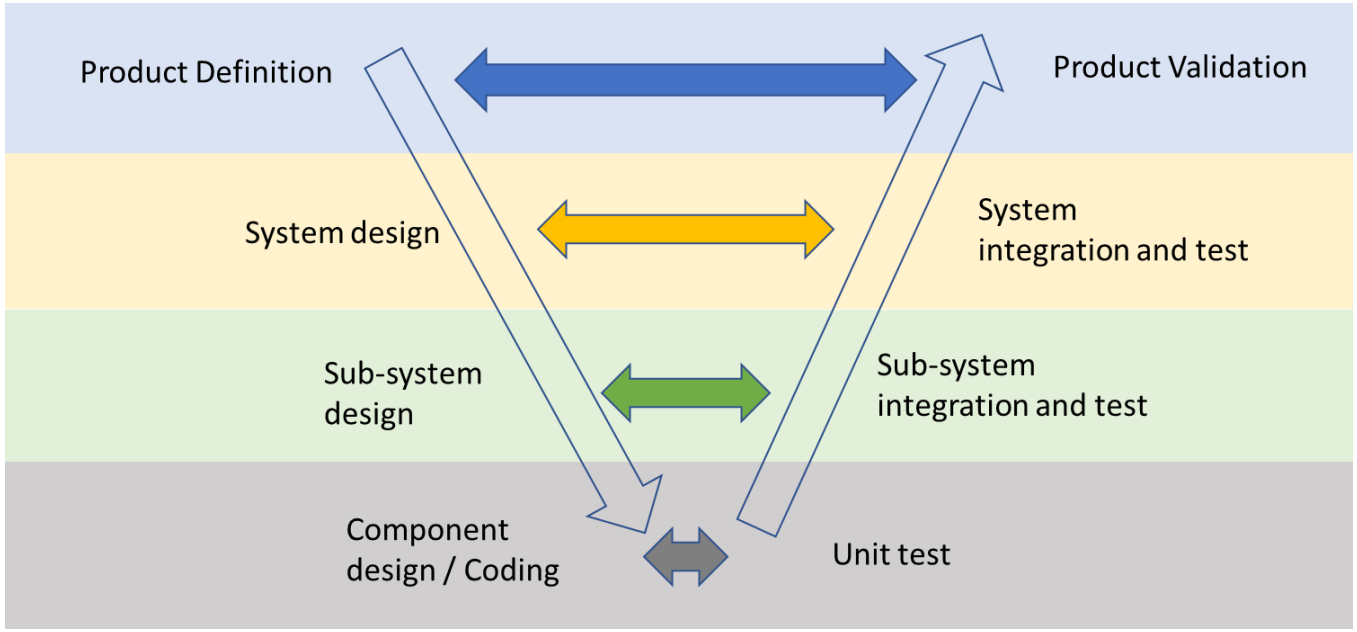


What triggers a Product Development Project?



- Product Vision and Strategy
- Product Roadmap

Organizing development work – Things to consider



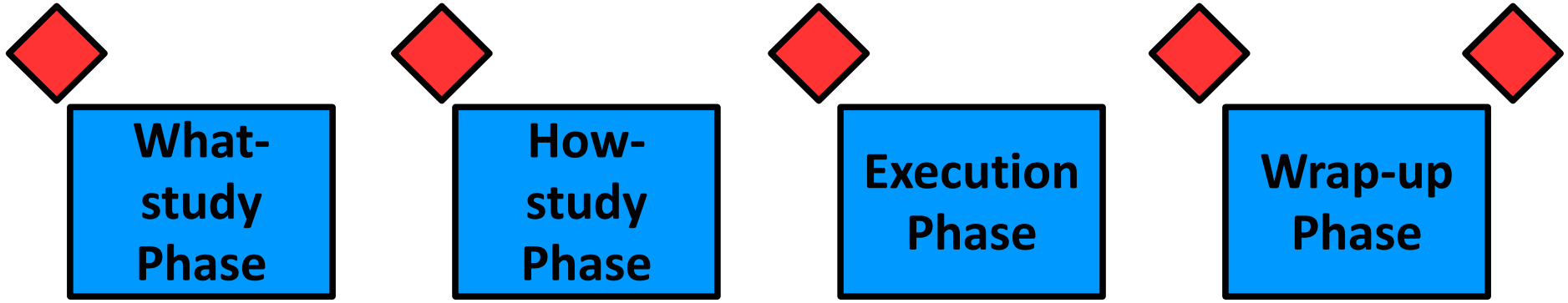
System break-down

Customer Features/ Functional domains

Areas of expertise

- Radio Design
- Digital Hardware Design
- Control Software Design
- Signal Processing Design
- Mechanical Design

Product Development Project Phases



Business need/
Potential
Feasibility
Profitability

Concept selection
Execution Planning
Cost estimate
Business case

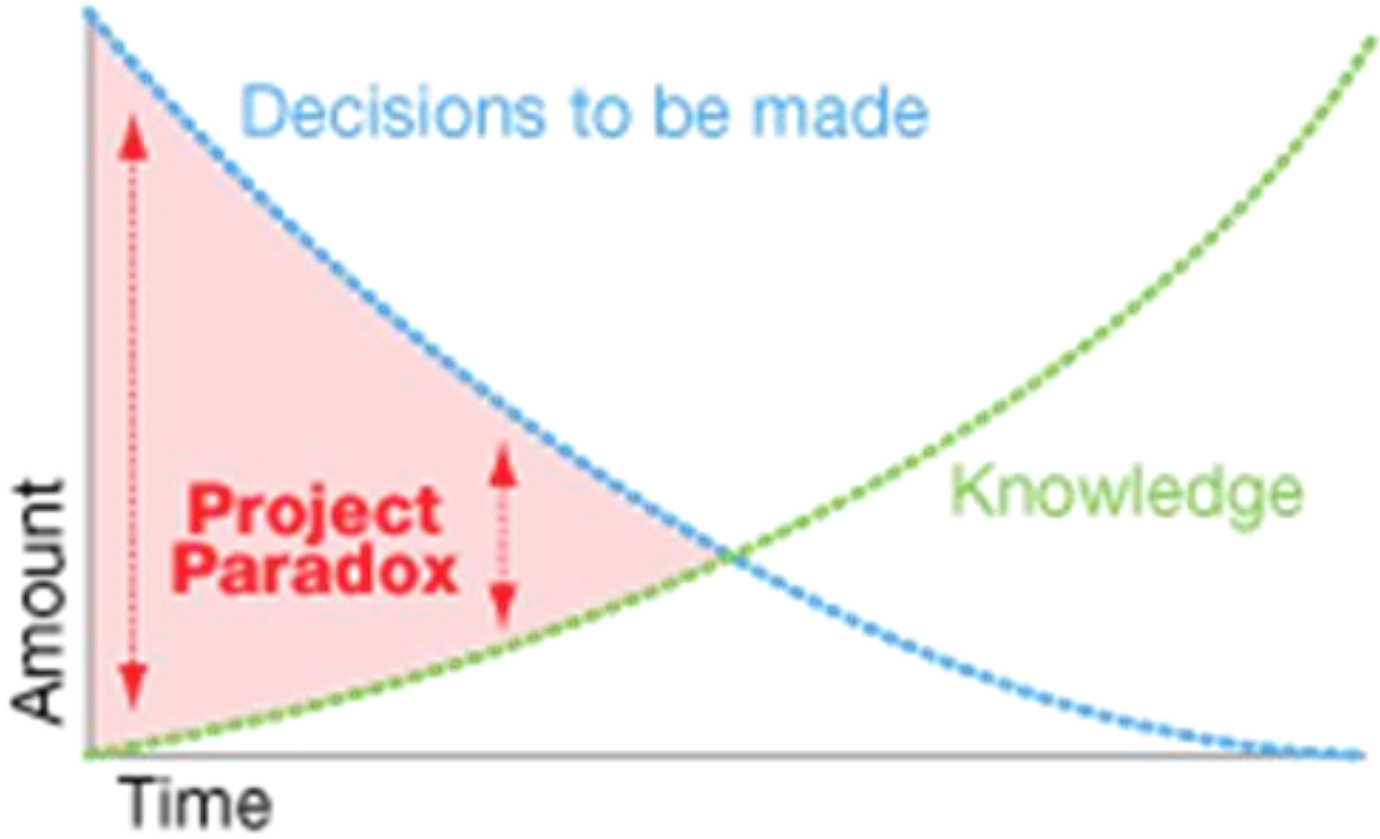
Detailed development
Verification
Preparation for:

- Production
- Sales and Marketing
- Aftermarket

Closing and hand-over

Challenges and an alternative approach

Addressing the project paradox…



… with Incremental and Iterative Development (Agile)

Moving from Project focus to Product focus

Project focus

- One task to be ready at one time
- Specific project team
- Specific project budget

- Several projects in parallel competing over same resources
- Overdraft or scope changes requires new budget decisions
  => Delays and conflicts

Product focus – Value stream

- One product continuously developed over time
- Stable teams
- Long term vision
- Roadmap
- Incremental development

Agile and Lean

- Response to
  - limitations in the basic concepts causing delays, exceeded budgets and unsatisfied customers…
  - Fast changing environment
  - Fierce competition for market shares and talents

- Agile – Quick and adaptive to change
- Lean – Focus on flow, product value streams, and continuous improvements

- SAFe – Scaled Agile Framework (Agile & Lean)

  www.scaledagileframework.com

The Agile Manifesto

We are uncovering better ways of developing software by doing it and helping others do it.

Through this work we have come to value:

Individuals and interactions over processes and tools

Working software over comprehensive documentation

Customer collaboration over contract negotiation

Responding to change over following a plan

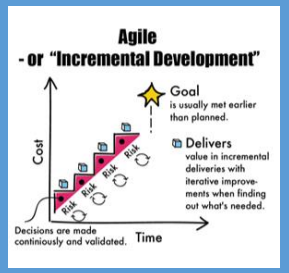
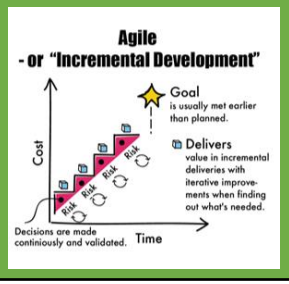
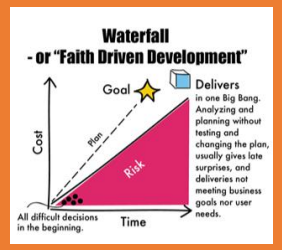
That is, while there is value in the items on the right, we value the items on the left more.

agilemanifesto.org

Comparison

High uncertainty / New development

Well known task

Agile project 	Agile value stream 
Traditional project 	Not applicable
”Build it once”	Evolving product

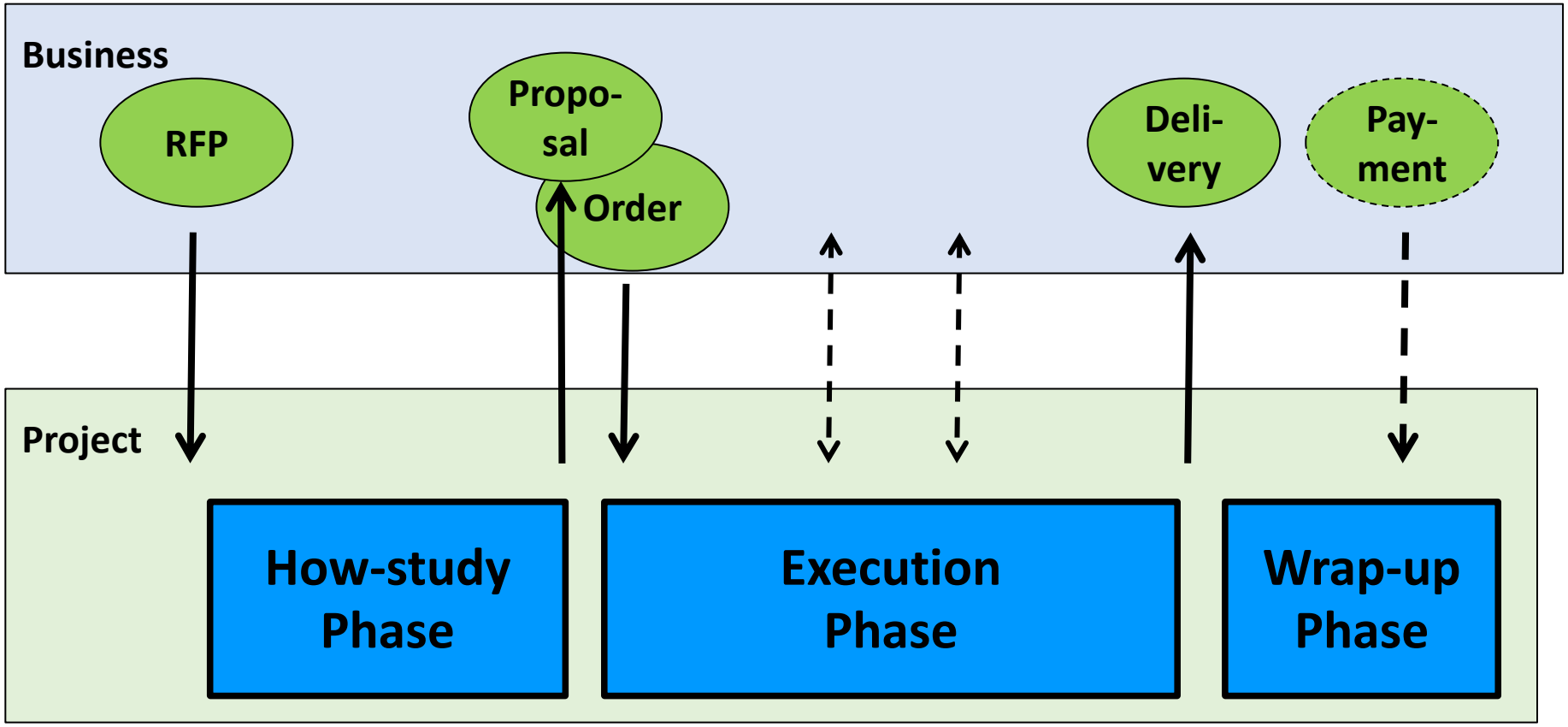
Concluding the comparison

- Big and complex tasks?
  - Incremental and Iterative development (Agile) is always a better approach!
  - The way you do it depends on the context.

- Small task?
  - The difference between Iterative, Incremental development and Waterfall approach is not substantial
  - If the task is small enough you can easily iterate the waterfall ☺

Working in projects

Business and Product Development



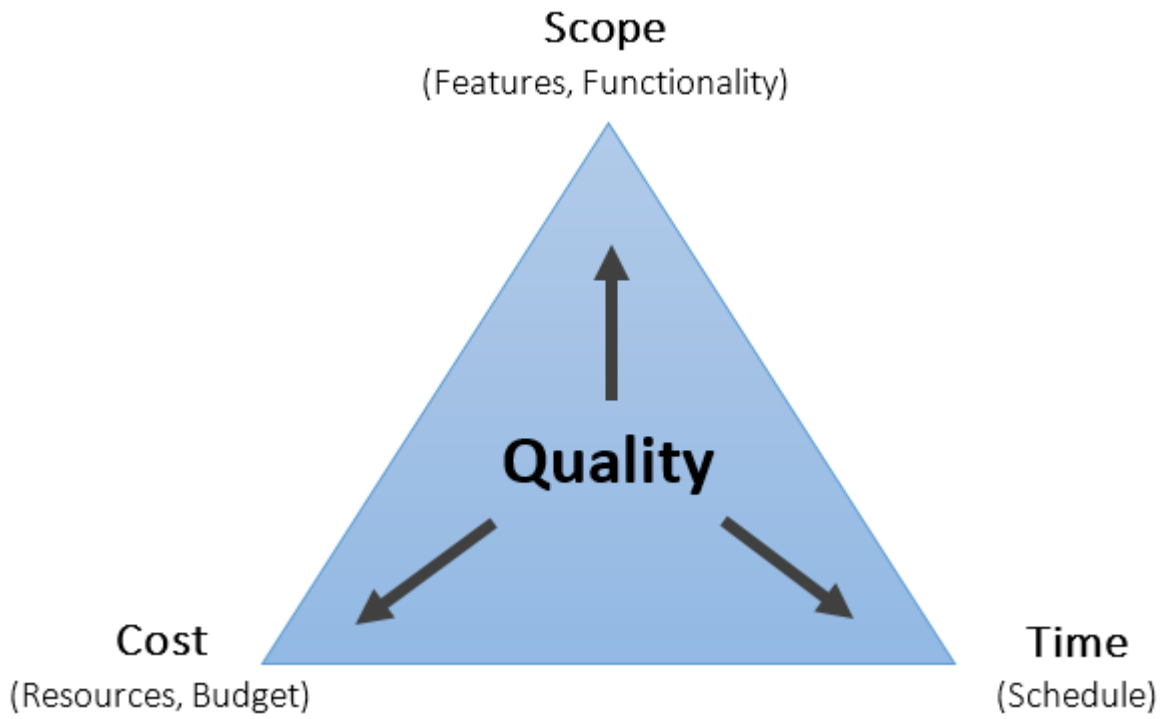
Project Team Common values

Examples:

- How to make decisions
- How to cope with responsibilities and deviations
- Basic priorities
- How to behave in meetings
- Who takes initiatives and how
- …

Project priorities

- Establish guiding principles for prioritization between:
  - Time
  - Cost
  - Content

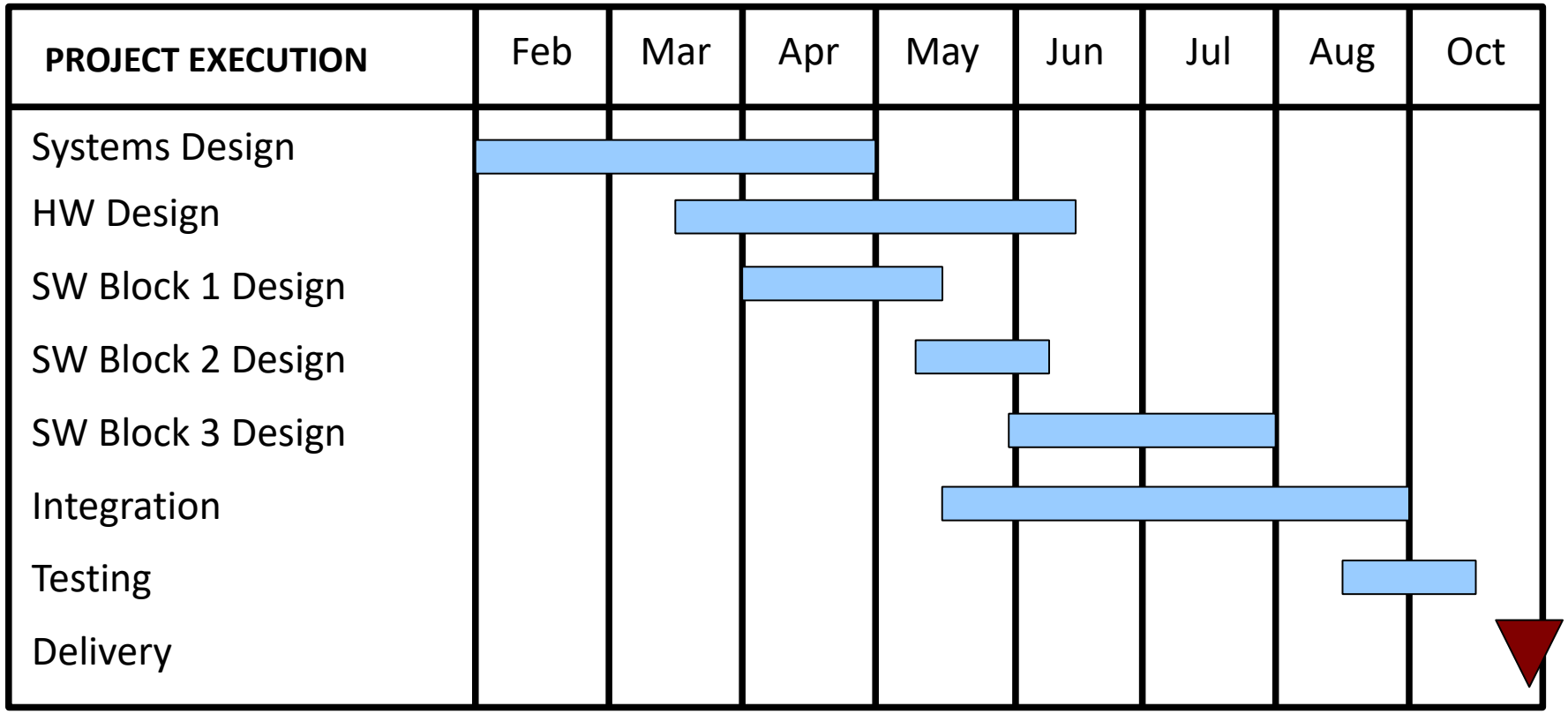


- Act according to those principles in the daily work
- Bring up difficult or important issues for a project decision

How-study phase

- Select a **technical solution** and make an appropriate system break-down
- Make a **work package break-down** and establish an organization
- **Estimate work effort** for the work packages
- Make a **time schedule**
- Allocate **resources** and **responsibilities**
- Describe it all in a **Proposal**

Time Schedule



Risk Analysis

- Identify risks (uncertainties)
- Rank them according to probability to occur and magnitude of impact
- Find measures to reduce probability and/or impact for your most severe risks
- Include the measures in your project plan
- Revise the risk list regularly

Business Context

- The purpose of product development is always to make profitable business

- Provide what the customer wants in an efficient way
- Beware of competition

Profitability calculation

(direct cost is only for development in your case)

\+ Price (what the customer pays)

\- Direct Cost (man hours x hourly rate)

\- Overhead cost (Support functions)

\- Warranty Cost (Estimate of future cost)

Profit

Formula for you to use (Example)

Direct cost	(200 x 800)	160 000
Overhead cost	(160 000 x 0,15)	24 000
Warranty Cost	(160 000 x 0,05)	8 000
Profit	(160 000 x 0,2)	32 000
Price (SEK)		224 000

Execution phase

Before (from How phase):

- Specify any sub-systems and components in sufficient detail
- Find a way to test your solution in small steps as early as possible
- Decide on how to coordinate your work

During

- Get the job done
- Integrate and test often to find problems early
- Follow-up towards the plan to be able to act in time in case of deviations

Guidelines for everyone

- Go and seek the information that you need
- Tell others what you need from them and when
- Alert others concerned as soon as you realize that you will not be able to meet a deadline

Guidelines for Project Managers

- Keep yourself updated on the progress
- Find out when someone needs help
- Take decisions and communicate them
- Involve the team in planning and decisions
- Escalate issues the require action or decision on a higher level

Expect this to happen

- Some specification items will be misunderstood
- Some work efforts will be under-estimated
- The time schedule will have to be updated
- Others will cause you unexpected trouble

Keep in mind

- Be honest and keep each other informed
- Assume a positive intent
- It pays off to be helpful. You may be the next one who needs help.
- Focus on the main goal. Make compromises when necessary to reach the main goal.

Wrap-up Phase

- Share and summarize your experience within the project team and write the experience report.
- You will experience problems that you can learn from if you don’t deny them. Be honest!
- Discuss the experience with the other teams.

Reading guidelines

- Working in Projects (Pär Mattisson, 2015)
- Lecture slides
- Project Memo

Good Luck!