

# Software Products

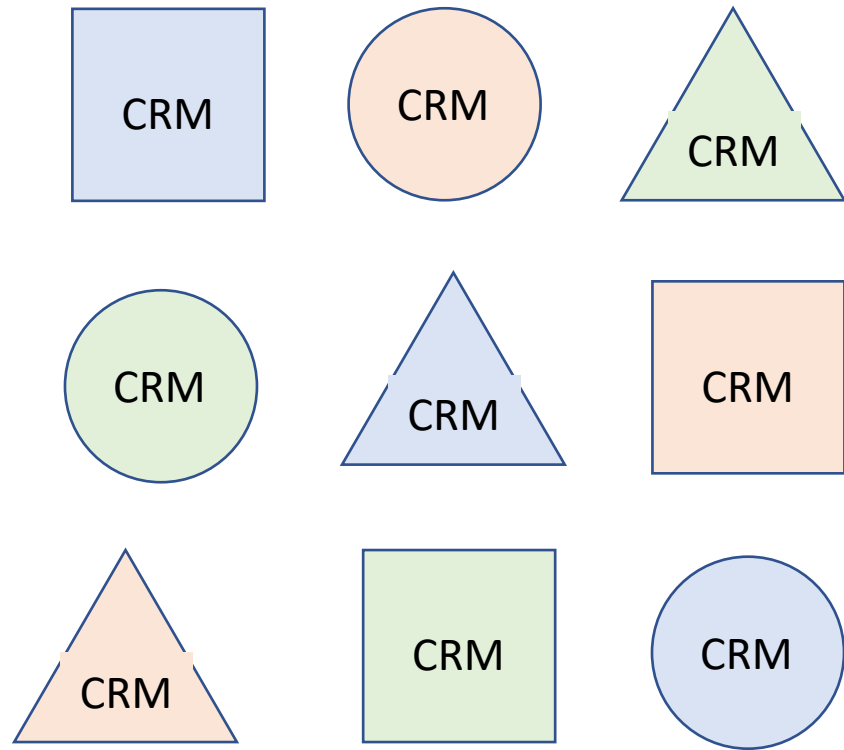
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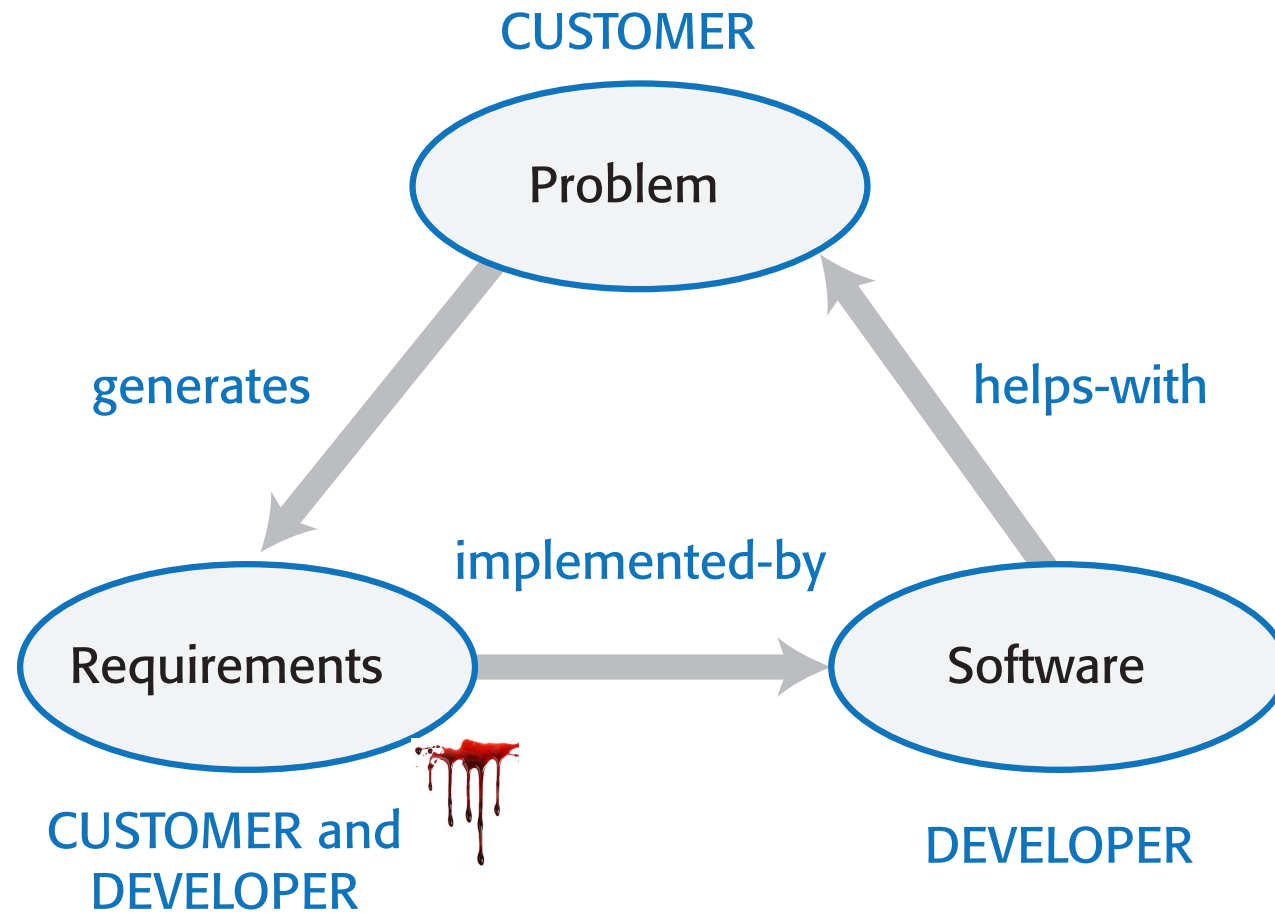
From project-based to product-based SE

# From *projects* to *products*



(twentieth century)

# Project-based SE



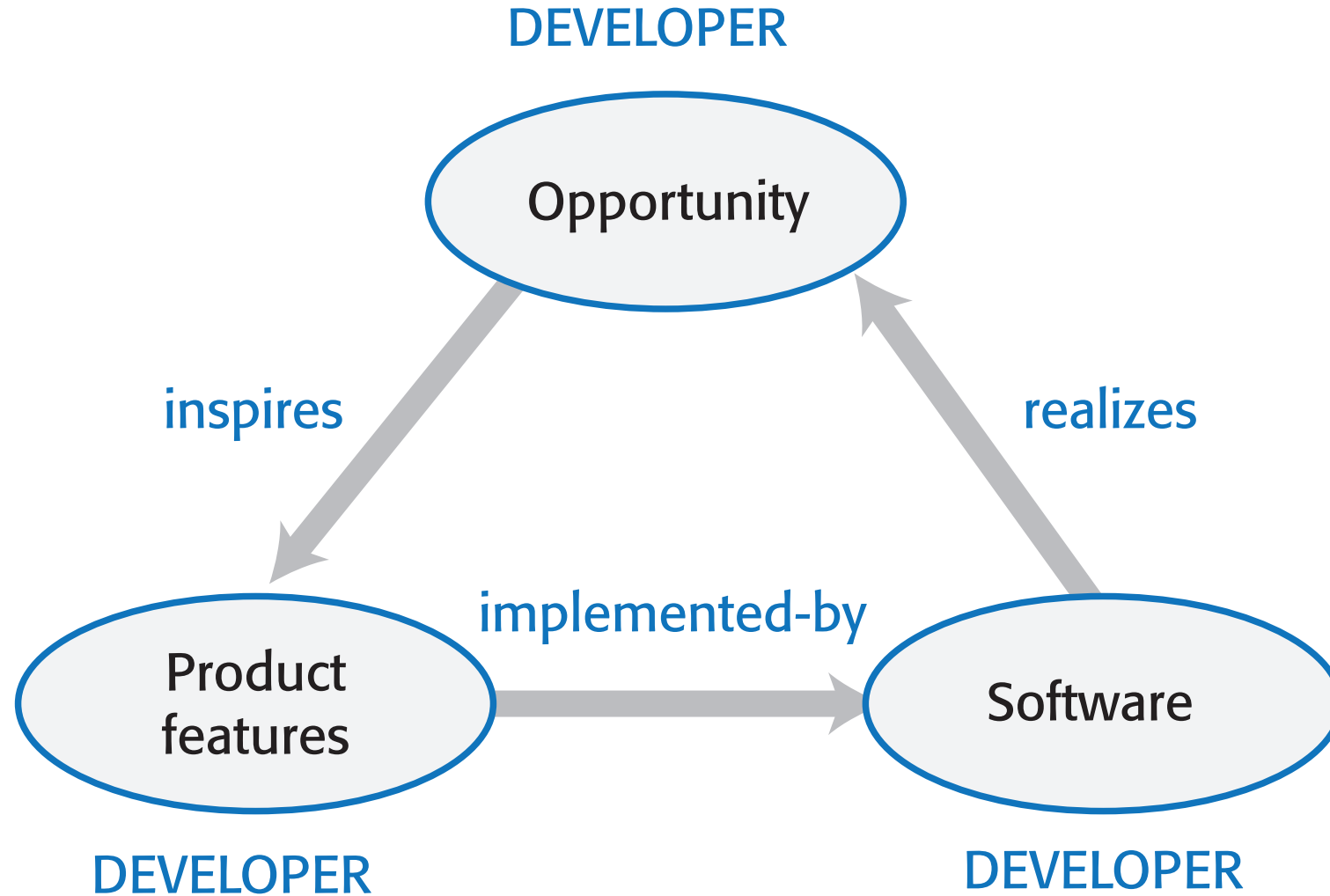
Customers decide system functionalities

Business changes → requirements change → software must change



Most businesses don't need customised software

# Product-based SE



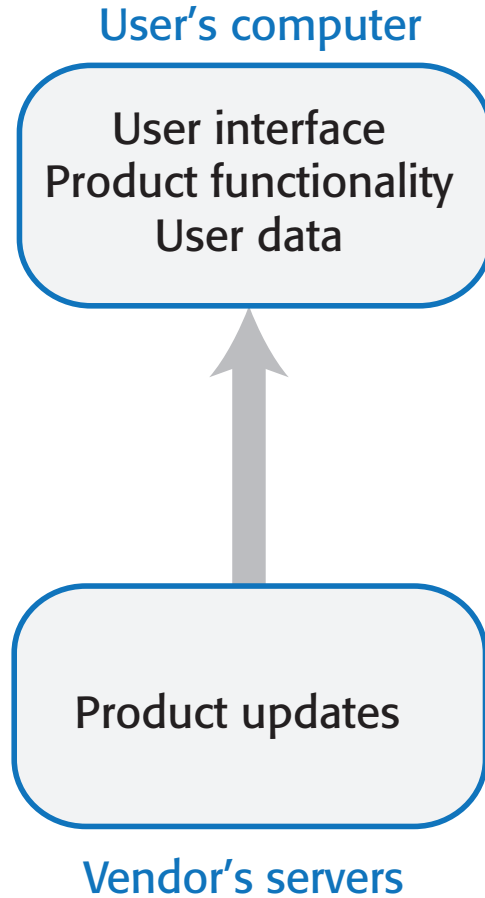
Developer decides product features and evolution



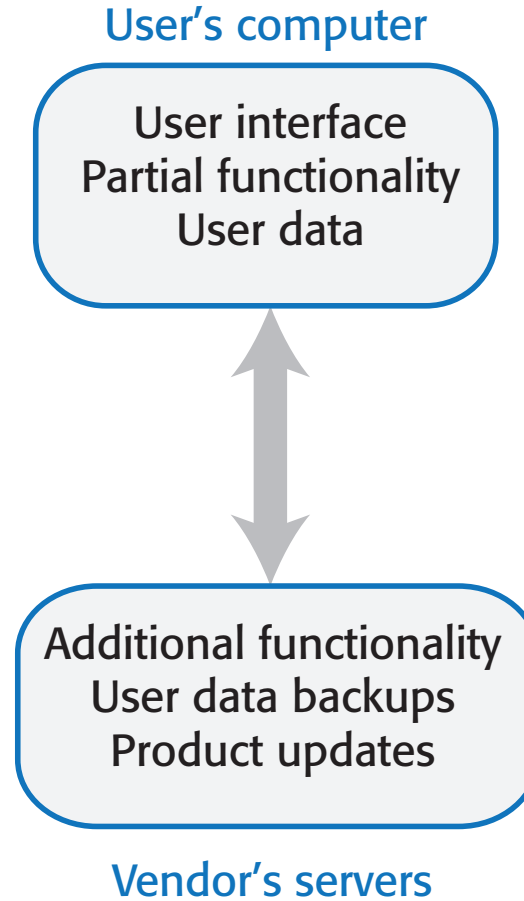
Customers reluctant to change product after investing on it  
→ Getting product to customers **quickly** is critical  
→ Need rapid software developments technique (**Agile** methods)

# Software execution models

*Stand-alone execution*

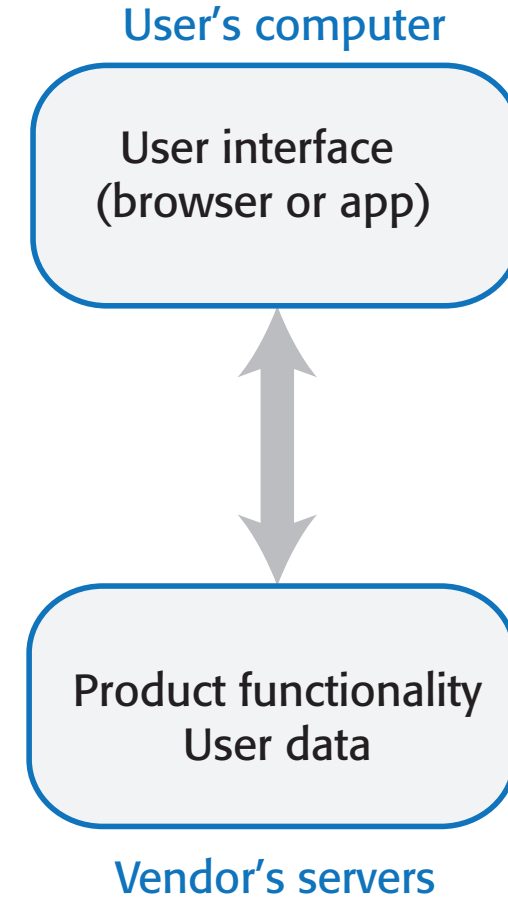


*Hybrid execution*



e.g. many phone apps

*Software as a service*



e.g.





From project-based to product-based SE  
The product vision

# The product vision

Starting point

Three fundamental questions:

**WHO** are the targeted customers?

**WHAT** is the product to be developed?

**WHY** should customers buy the product?

**FOR** (target customer)

**WHO** (statement of the need or opportunity)

**THE** (product name) is a (product category)

**THAT** (key benefit, compelling reason to buy)

**UNLIKE** (primary competitive alternative)

**OUR PRODUCT** (statement of primary differentiation)

# Product vision: examples

**FOR** a mid-sized company's marketing and sales departments

**WHO** need basic CRM functionality,

**THE** CRM-Innovator is a Web-based service

**THAT** provides sales tracking, lead generation, and sales representative support features that improve customer relationships at critical touch points.

**UNLIKE** other services or package software products,

**OUR PRODUCT** provides very capable services at a moderate cost.

**FOR** teachers and educators

**WHO** need a way to help students use web-based learning resources and applications,

**THE** iLearn system is an open learning environment

**THAT** allows the set of resources used by classes and students to be easily configured for these students and classes by teachers themselves.

**UNLIKE** Virtual Learning Environments, such as Moodle, the focus of iLearn is the learning process rather than the administration and management of materials, assessments and coursework,

**OUR PRODUCT** enables teachers to create subject and age-specific environments for their students using any web-based resources, such as videos, simulations and written materials that are appropriate.


## product vision

***Domain experience*** - The product developers may work in a particular area (say marketing and sales) and understand the software support that they need. They may be frustrated by the deficiencies in the software they use and see opportunities for an improved system.

***Product experience*** - Users of existing software (such as word processing software) may see simpler and better ways of providing comparable functionality and propose a new system that implements this. New products can take advantage of recent technological developments such as speech interfaces.

***Customer experience*** - The software developers may have extensive discussions with prospective customers of the product to understand the problems that they face, constraints, such as interoperability, that limit their flexibility to buy new software, and the critical attributes of the software that they need.

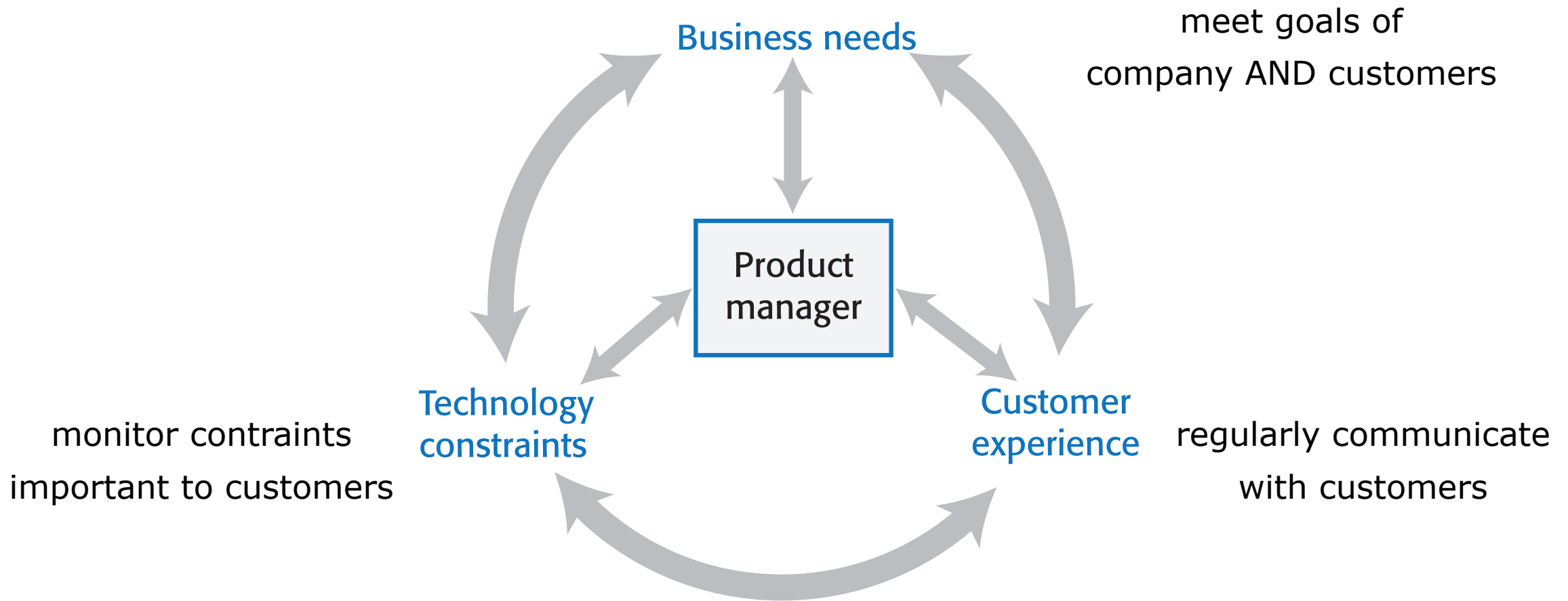
***Prototyping and playing around*** - Developers may have an idea for software but need to develop a better understanding of that idea and what might be involved in developing it into a product. They may develop a prototype system as an experiment and 'play around' with ideas and variations using that prototype system as a platform.



From project-based to product-based SE  
The product vision  
Software product management


# Software product management

PM must ensure that development team implements features that delive **real value** to customers



# Technical interactions of PMs

Product roadmap	(set goals, milestones, success criteria)
User story and scenario	(to identify product features)
Product backlog	(to-do list to complete project development)
Acceptance testing	(to verify that release meets set goals)
Customer testing	(to get feedback on usability & fit of features)
UI design	(monitor simplicity/naturality)



From project-based to product-based SE  
The product vision  
Software product management  
Product prototyping



# Product prototyping



garden swing



prototype

- Critically important to demonstrate software to potential customers and funders
- Can help revising design
- Aim at having first –reduced- prototype quickly ( $\sim 6$  weeks)

# Reference



## Chapter 1 – Software products