

Cluster: software development

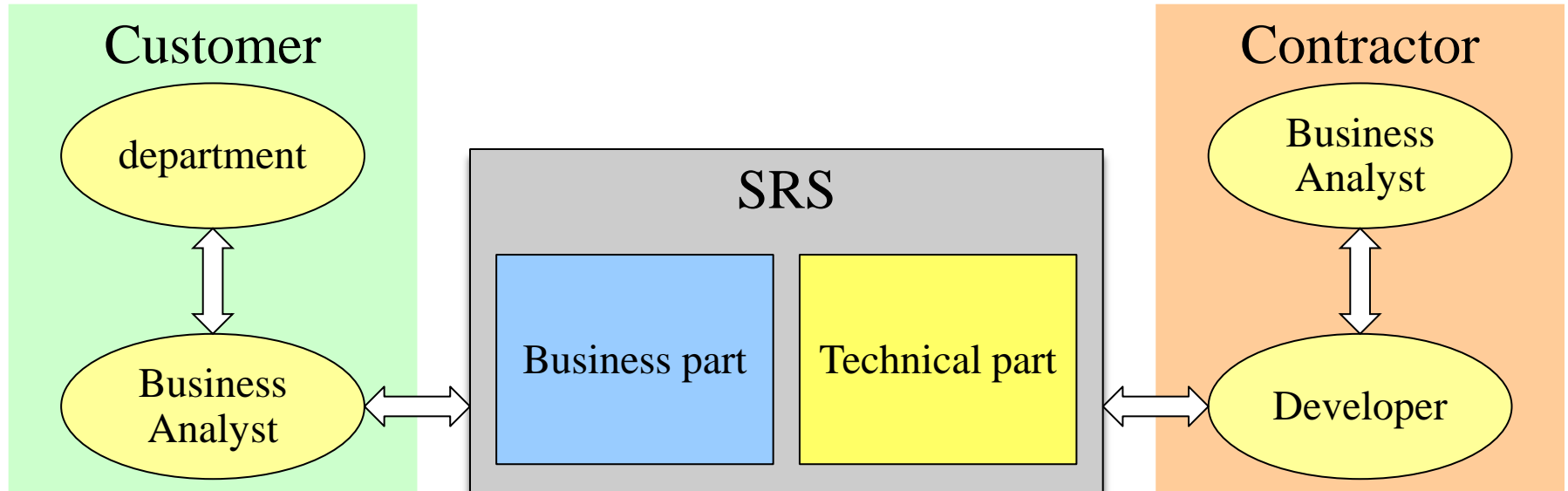
Content: design

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SRS

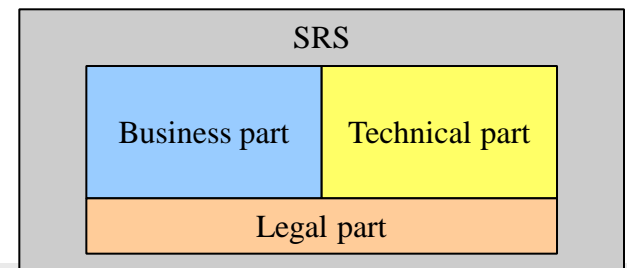
Who is working on this document?



- **Business part:** The departments define their needs.
- **Technical part:** A developer creates the technical solution based on the business needs.
- **Business Analyst:** A specialist with technical and business knowledge.

Risks in the software development without an SRS

- **Massive loss of productivity**
- **further development will be rather complex**
- **Expensive training of new staff member**
- **Dependence on staff member**
- **etc...**



Requirements validation

- To check whether the correct requirements are defined
- Prototypes
 - Prototypes can help to understand, but can also deflect from validation
- Validate the concept (model)
- Define the acceptance tests (OAT, UAT)
- User guide!

Finding and fixing a software problem after delivery is 100 times more expensive than finding and fixing it during the requirements and early design phases.

Barry Boehm

Prototypes and pilot systems

Prototyping

- Usual in other engineer branches
- Multifaceted benefits
 - To find forgotten functionality
 - To avoid misunderstandings
 - To detect inconsistencies
 - To point to critical parts in the development
 - To show (more) progress and professional competence

Quelle: I Somerville Software (Addison-Wesley 1996).

Prototypen and pilot systems

Evolutionary Prototyping

- Iterative development till a system ready to be launched
- Necessary, if there is no other way to define the requirements!
- Assumption: you need tools for Rapid Application Development (RAD)

Quelle: I Somerville Software (Addison-Wesley 1996).

Prototypes and pilot systems

Tools for RAD

- Executable descriptive programming language (Prolog, ML)
- Descriptive programming language (Smalltalk, Lisp)
- scripting languages
- Programming generators and 4GLs for database applications
- Concatenating of components (f. e. Unix-Filter and pipes)

Quelle: I Somerville Software (Addison-Wesley 1996).

Prototypes and pilot systems

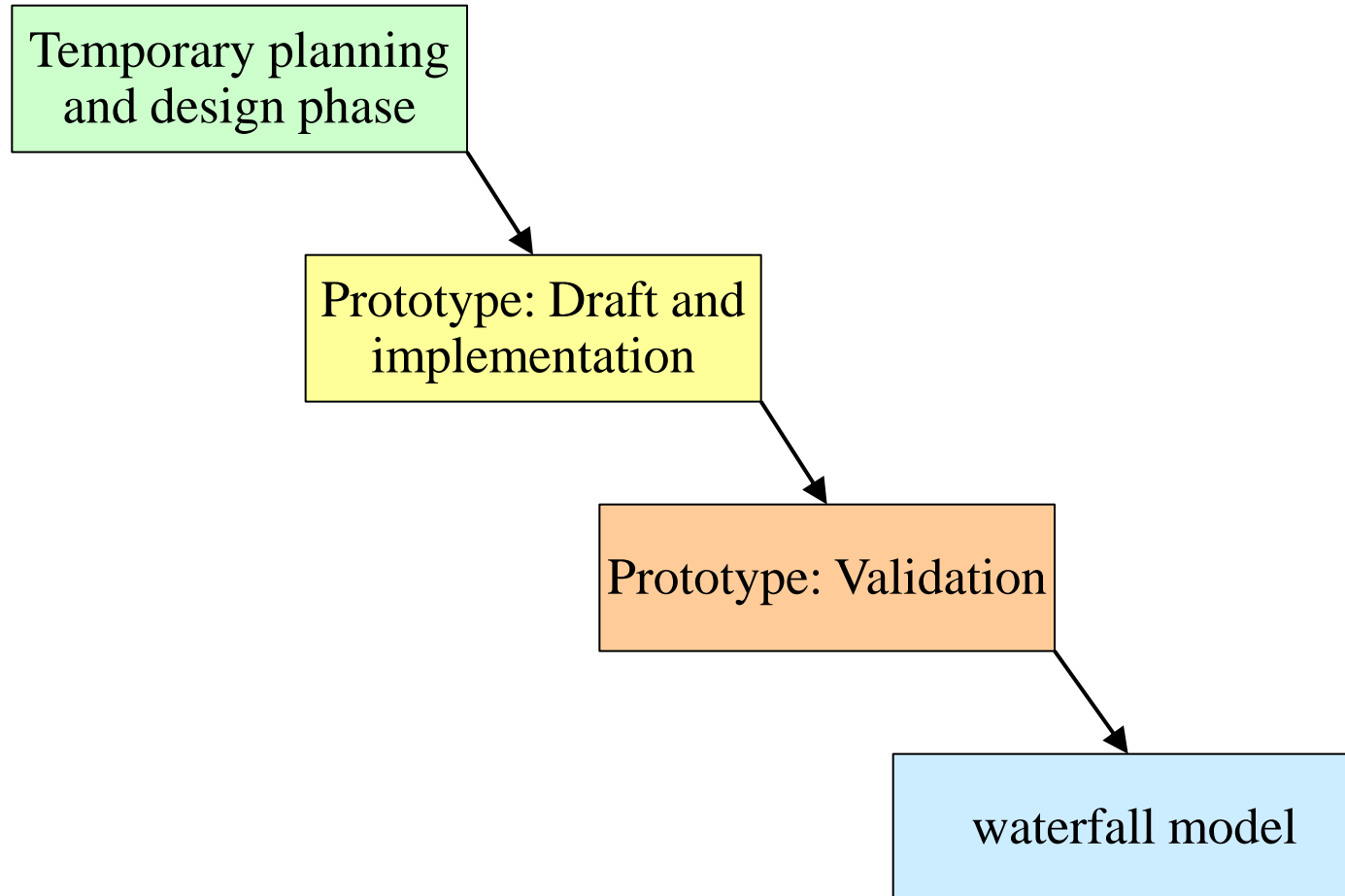
Problems

- Special documentation necessary
- Many iterations in draft and architecture necessary (trial-and-error method)
- Many highly qualified developers necessary
- Rather expensive!

Quelle: I Somerville Software (Addison-Wesley 1996).

Prototypes and pilot systems

The approach



Prototypes and pilot systems

Plan to throw one away. you will,anyhow.



Walter Rafeiner-Magor

Prototypes and pilot systems

Prototyping cuts the work
to produce a system by 40%.

Larry Bernstein
Bell Communications Research

Good judgement comes from
experience, and experience
comes from bad judgement.

Fred Brooks
University of North Carolina

Requirements management

- **Manage the attributes**
 - Unique name
 - classification
 - Result of validation
 - planed acceptance (tests)
- **Trace the requirements**
 - Source
 - Dependence
 - Changes (Change-Management)

Requirements management



Requirements for the system to develop:

- are **never** complete,
- could be **wrong**,
- mostly **ambiguous** and
- are frequently **changed**.
- Implication:
 - Do not freeze the requirements!
 - It's a „living document“!

Vielen Dank!