

Topic B

Continuous Requirements Management

Why Continuous Requirements Management

Developing for

market-place ↔ **single customer**

Incremental releases
of a **continuously
evolving product.**

Delivery based on
a **contract.**

Permanent product
evolution

Requirements State Model

- When a requirement is captured, it is not clear, whether it will be accepted and implemented or rejected.

→ Requirements State Models

RDEM

Requirement **D**riven **E**volution **M**odel

Developed by Ericson Radio Systems AB.

Requirement Structure in RDEM

Requirement: hierarchical structure of **attributes**

Attributes can be: simple or complex
 optional or mandatory

Roles in RDEM

Main organisational unit: **Application Domain Team.**

Mandatory roles for an Application Domain Team:

- Domain Manager
- Architect
- Development Manager
- Lead Analyst
- Lead Designer
- Test Leader

The RDEM Life Cycle Model

Progression of a requirement based on what is known about it.

Knowledge defined in the requirements attributes.

States of a requirements define certain **levels of knowledge**.

States in RDEM

Captured

Nothing is a requirement until it is captured.

Commitment and an intention to further elaborate the requirement.

States in RDEM

Specified

Requirement holds all information needed to proceed with implementation and verification.

It does not yet hold any production-oriented information (e.g. when and how the requirement is best implemented)

States in RDEM

Deltas

At this stage requirements are grouped into requirements bundles called deltas.

A delta holds a specific set of attributes (i.e. information tied to the collection of requirements, rather than to the individual requirements).

States in RDEM

Planned

All items that are elevated to this state are deltas.

Only planned deltas can be implemented and verified.

Realization represents the execution phase of a small project to estimate the effort.

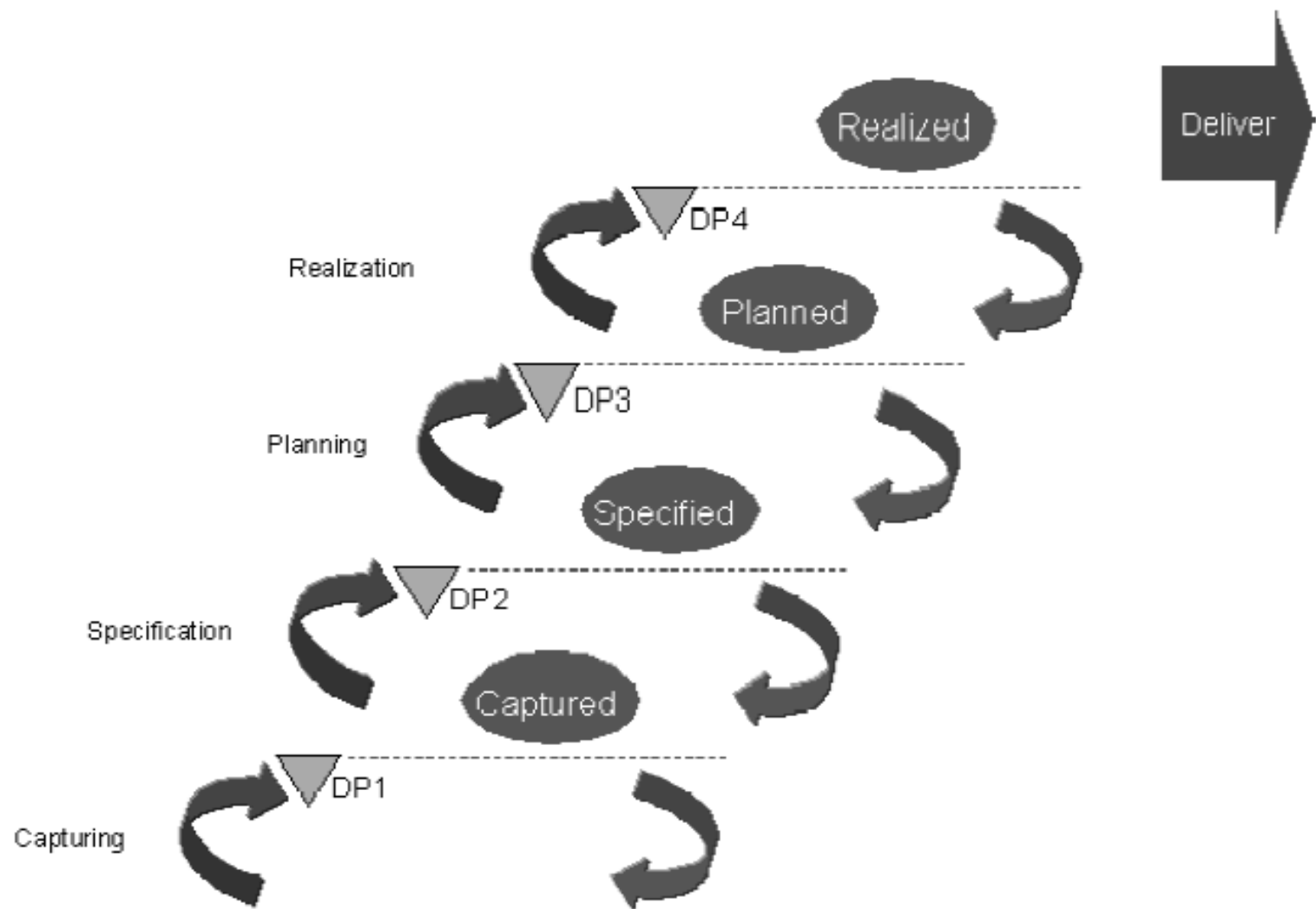
This realization process delivers more useful information to the delta.

States in RDEM

Realized

Final state: when a delta has been implemented and verified, it moves to the realized state.

The RDEM Live Cycle Model



Continuous Requirements Management

REPEAT

Requirements Engineering Process At Telelogic

REPEAT Actors

Requirements Management Group (RQMG)

- Requirements management
- Makes decisions on which requirements to implement.
- Requirements change management
- Deciding step transitions in REPEAT states

REPEAT Actors

Customers & Users

- Provide input and feedback regarding user and market needs.

REPEAT Actors

Requirements Teams

- Analyse and specify a set of requirements.
- Includes persons participating in implementation, testing, marketing & sales, and customer support.
- Subordinated to the RQMG.

REPEAT Actors

Experts

- Evaluate a specific requirement in depth (e.g. cost estimation).

REPEAT Actors

Construction Teams

- Design and implement a set of requirements.

REPEAT Actors

Test Teams

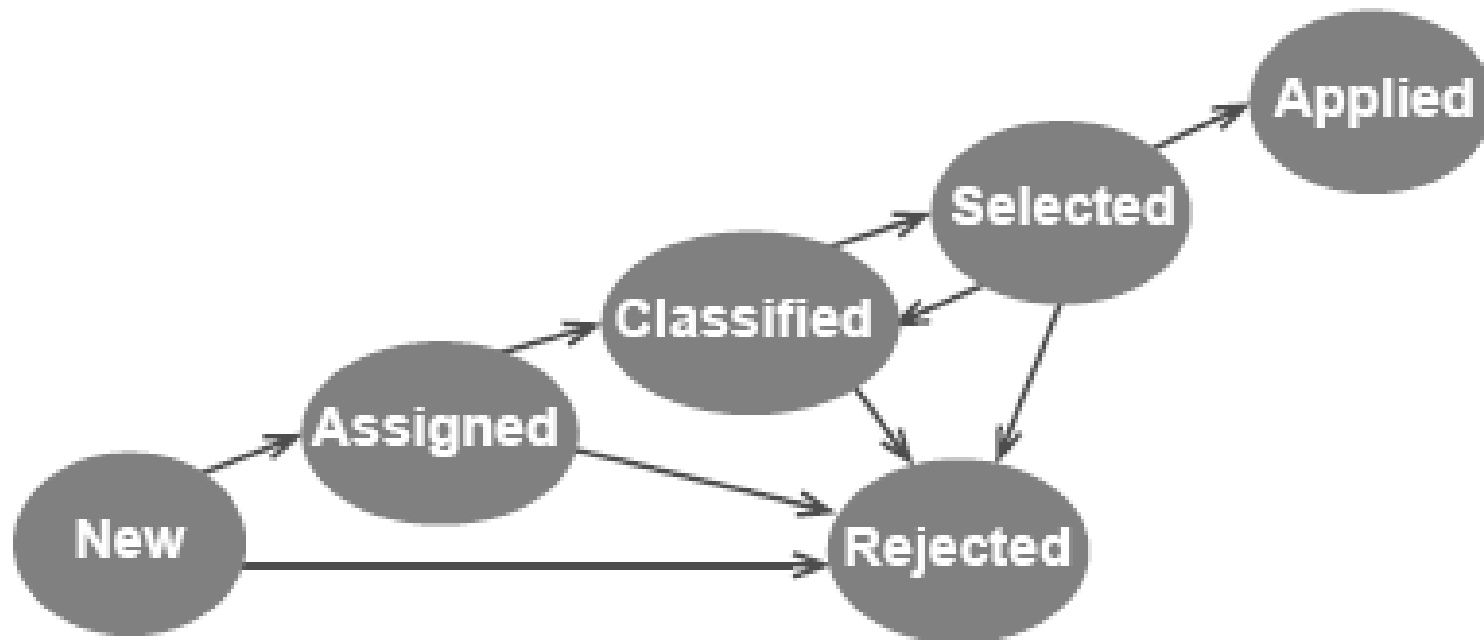
- Verify a set of requirements.

REPEAT Actors

Requirements Database (RQDB)

- Inhouse-built database system for storing all requirements.
- has a web-interface that can be accessed by Telelogic employees from a multi-continent intranet.

The REPEAT Life Cycle Model



The REPEAT Life Cycle Model

REPEAT is instantiated for each release.

Each process instance has a fixed duration of 14 months.

A new product version is released at fixed dates every six months

Different process instances overlap.

Each process instance passes specific milestones at pre-defined dates.

REPEAT States

New:

- Initial state of a requirement
- Every requirement is defined as new immediately after it has been issued and given an initial priority.

REPEAT States

Assigned

An expert is assigned to investigate the requirement and determine the value of a number of attributes.

REPEAT States

Classified

- An expert has assigned values to attributes representing a rough estimate of cost and architectural impact.
- Comments and implementation ideas may also be stated.

REPEAT States

Selected

- Requirements selected for implementation for the coming release.
- Two lists: must-list for mandatory requirements
 wish-list for “nice-to-have” requirements.
- Attributes assigned concerning detailed cost and impact estimations.
- More detailed textual specification of the requirement.

REPEAT States

Applied

- End-state
- Requirement has been implemented and verified.
- Requirement is now incorporated in a release that can be marketed to customers.

REPEAT States

Rejected

- End-state
- Requirement has been rejected, e.g. because it is a duplicate, already implemented, or it does not comply with the long-term product strategy.