

Framework for the strategic planning of enterprise architectures

Master's Thesis Final Presentation

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Administrative setup

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Cooperation between
research and practice!

Cooperation partner:  **iteratec**

- Software development and IT-projects
- IT management consulting
- Technology consulting

Current EAM approaches provide abstract method descriptions and rough meta-models, but ...

- ... do not integrate solutions to handle dynamics.
- ... do not provide descriptions how to act in collaboration.
- ... do not implement tools for seamless strategic planning.

On the other hand, Software Engineering covers the collaborative model evolution, but ...

- ... does not provide implementations tailored to the specifics of EAM.

Research objective:

Design and describe a framework for the strategic planning of enterprise architectures.

The following questions should be addressed in the thesis:

Q1

Which concepts concerning the strategic planning with EA models can be identified in state-of-the-art EA management approaches?

Q2

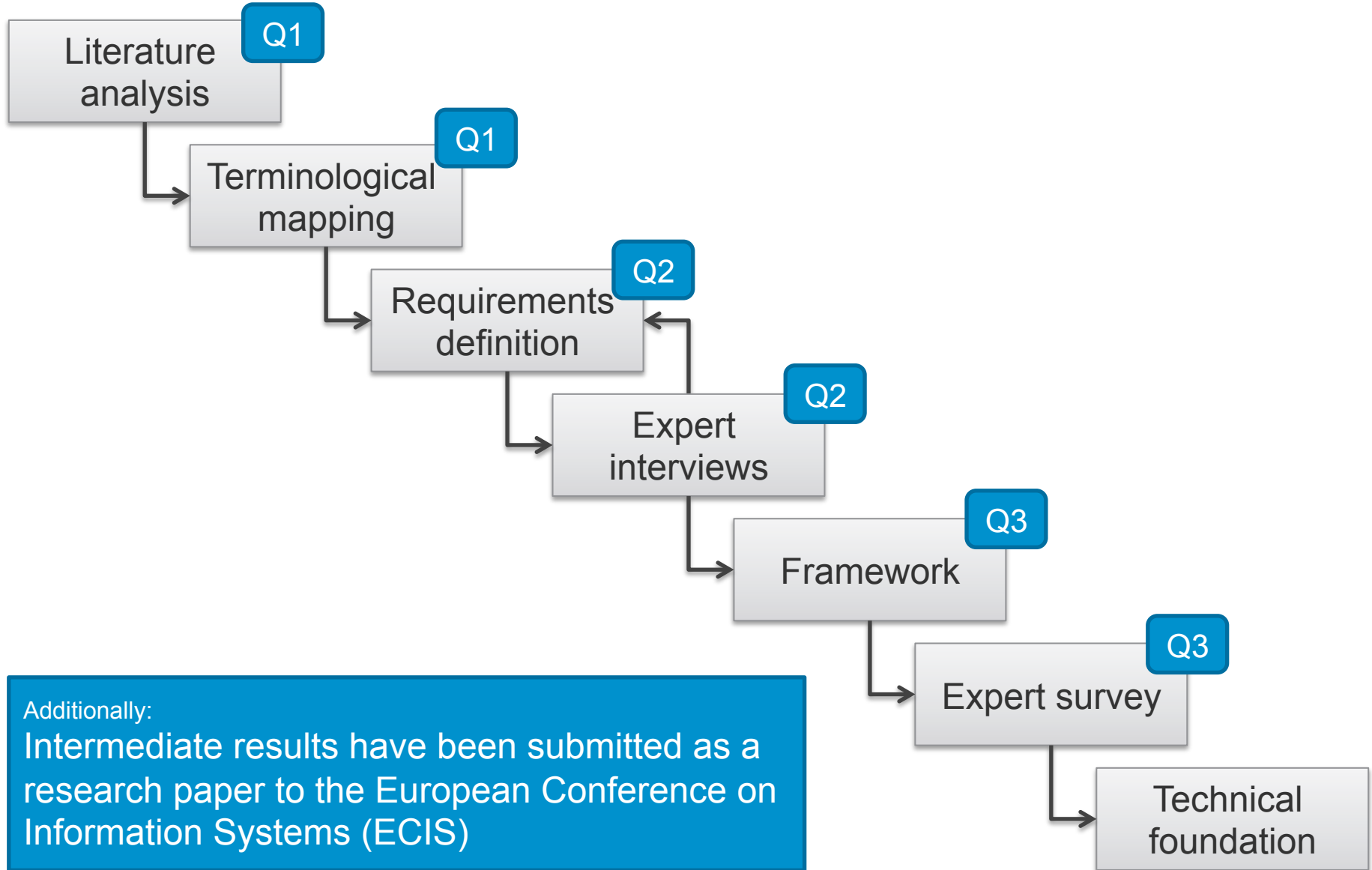
Which requirements regarding the strategic planning with EA models exist?

Q3

How does a framework for the strategic planning with EA models look like?

- Based on state-of-the-art approaches.
- Focus on concepts and modeling aspects.
- Realization in a conceptual planning framework.

Research approach



EA management approaches

Selection of approaches based on the state-of-the-art analysis of Buckl and Schweda.

- TOGAF
- ArchiMate
- GERAM
- SEAM
- BEAMS
- St. Gallen
- TU Lisbon
- Hanschke

Approaches from standardization bodies, research groups, and practice!

Analysis results

Analysis of around 80 papers.

No common terminology established in the field of strategic EA planning:

- “baseline architecture” (TOGAF)
- “particular architecture” (ArchiMate)
- “current state” (SEAM, BEAMS, TU Lisbon)
- “as-is landscape” (Hanschke)

Common concepts identified and mapped, and used as a basis for the set of requirements.

The framework must provide a mechanism ...

R1

... to describe multiple **states of the EA**. This description of a state must contain all relevant elements, their relationships to each other, and their properties.

R2

... to designate a state as the **current state** of the EA. This state reflects the present situation of the enterprise.

R3

... to designate a state as being the intended future **target state** of the EA. This state represents the unscheduled long-term vision of the architecture.

R4

... to designate a **planned state** as being intended to take effect at a given future point in time. There may be multiple planned states scheduled to be realized at the same time. These planned states guide the EA evolution from the current to the target state.

R5

... to **reschedule a planned state**. Therefore, the envisioned point of realization must be adaptable.

R6

... to **revise a state**. The result must be represented as a new version of the same state. Each version must be accessible independently.

R7

... to create a **duplicate** of (a part of) a state. Each duplicate must be represented as an own state.

The framework must provide a mechanism ...

R8

... to **consolidate** the descriptions of any two states into a new version of one of these states. The framework must support the selection of the state comprising the consolidation.

R9

... to **reject** a state. Consequently, it must ensure that rejected states can not be changed anymore.

R10

... to **access any version** of a state description for the purpose of analysis.

R11

... to **determine differences** between any two versions. Consequently, it must distinguish between new, revised, and rejected elements, relationships, and properties.

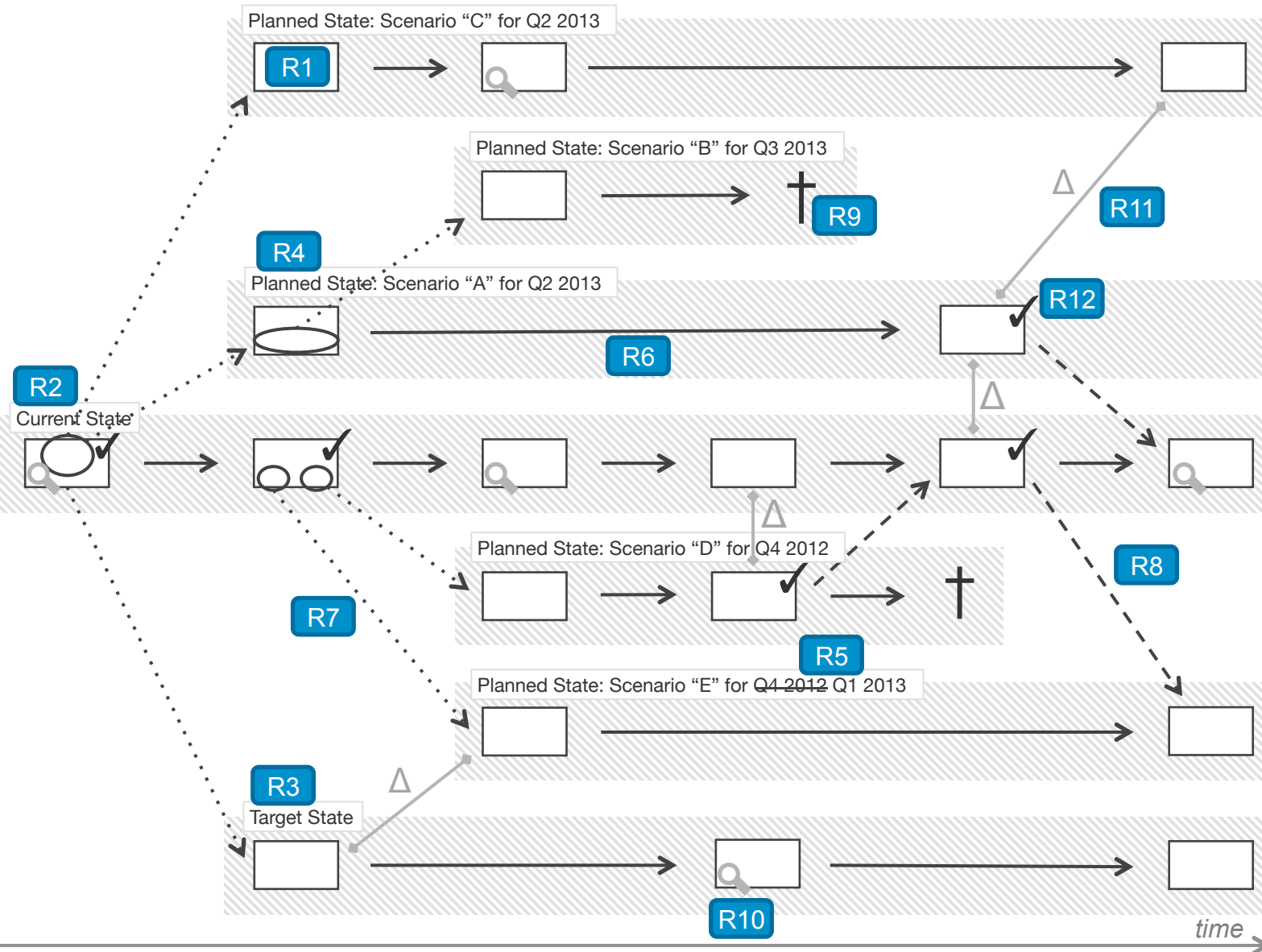
R12

... to mark certain versions as **approved**. There might be multiple approved versions at the same time.

R13

... to specify **user access rights**. Consequently, the mechanism must distinguish between reading and writing access, the duplication of states, their rejection and approval.

Framework for the strategic EA-planning



- ### Legend
- EA state
 - Version of an EA state
 - Revision of a version in the same state
 - Duplication of a version in another state
 - Duplication of a part of a version in another state
 - Consolidation with another version
 - Approved version
 - Rejected state
 - Analyzed version
 - Difference analysis between two versions

Key Results

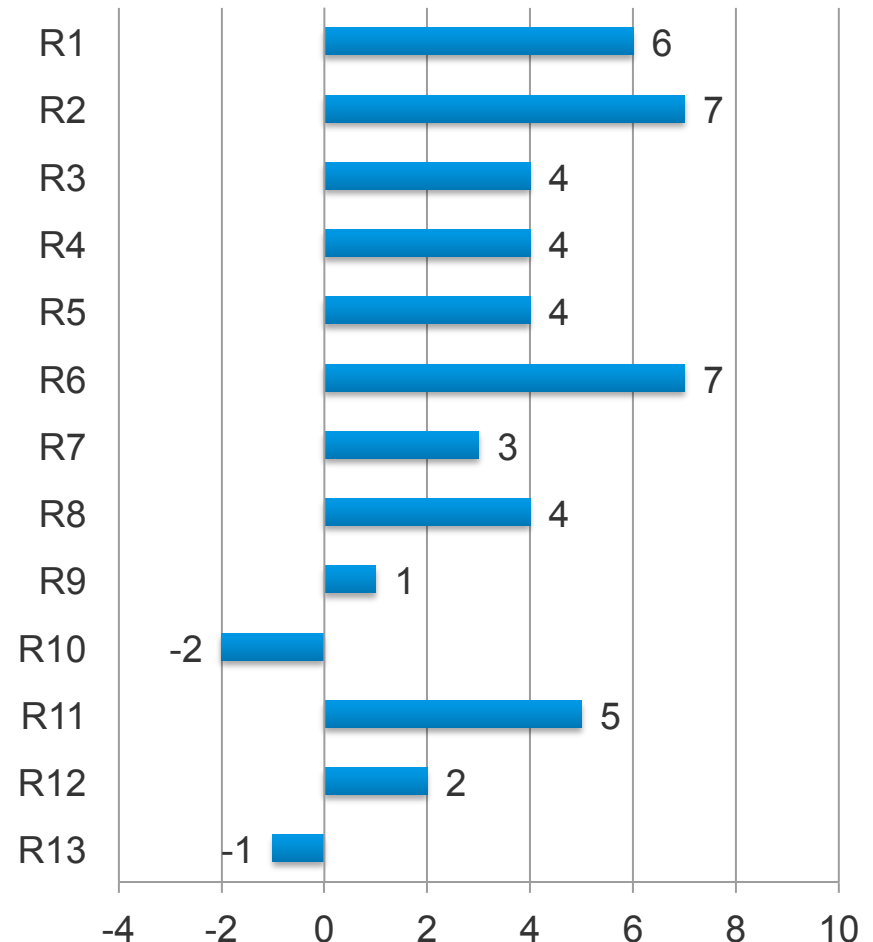
Evaluation based on expert interviews and an online survey with experts of various industries.

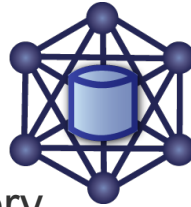
According to the experts:

- Most of the requirements are important
- No requirement is dispensable
- No requirements are missing
- All participants stated an implementation of our framework would be useful for their work

„All the requirements are worthless without the right processes and tools to manage the resulting models“

Average requirements importance





EMFStore

- Open-Source model repository
- Developed in the context of Eclipse
- Commercial support available
- Written in Java, based on EMF
- Client/server-architecture
- Pure model repository
- Integrated solution
- Operation-based versioning approach

MoVE



- Open-Source research prototype
- Developed by the Quality Engineering Lab (Prof. Breu) at the University of Innsbruck
- Written in Java, based on EMF
- Client/server-architecture
- Broader focus than classical model repository
- Based on SVN and EMFCompare
- Change-based versioning approach

	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13
EMFStore	✓	✓	✓	✓	✓	✓	~	✓	?	✓	✓	–	~
MoVE	✓	✓	✓	✓	✓	✓	✓	~	✓	✓	✓	✓	✓

✓ full support, ~ partial support, – no support, ? unknown support

Key contributions

- Analysis of state-of-the art EA-management approaches
- Mapping of terminologies used in literature
- Identification and description of requirements for the strategic planning with EA models
- Proposal for a framework targeting the strategic planning of the EA
- Evaluation of the requirements and the proposed framework based on expert interviews and an online survey
- Analysis of possible technical foundations for an implementation of the framework

Possible future research

- Extension of the literature research
 - Improve coverage of existing approaches
 - Extend initial terminological mapping
- Widening of expert-evaluation
 - Talk with more experts
 - Reach more experts in online survey
- Analysis of technical foundations
 - Evaluate alternative frameworks
- Implementation in an EA tool
 - Evaluate in practice

Many possibilities for future research

Questions? Remarks? Feedback?