Institute of Information Management

University of St.Gallen

Complexity Levels of Representing Dynamics in EA Planning

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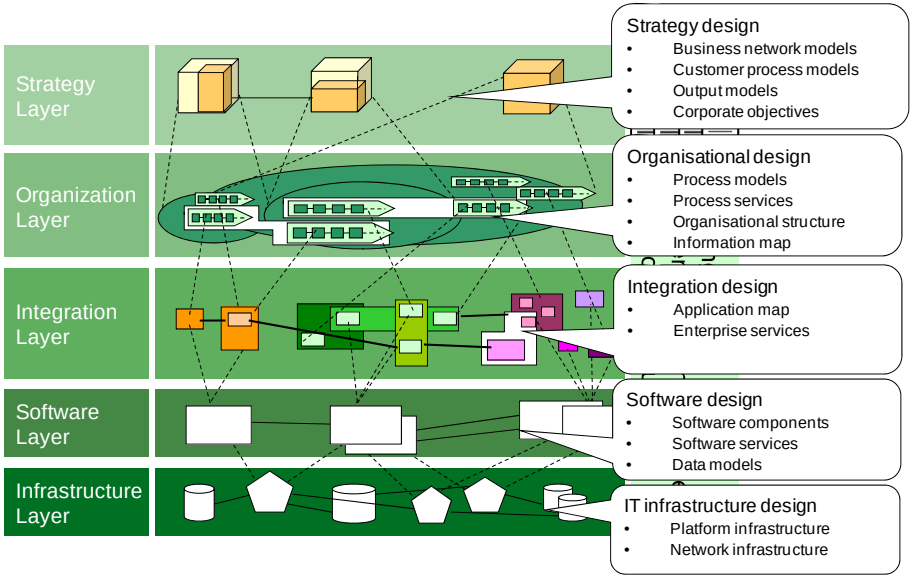
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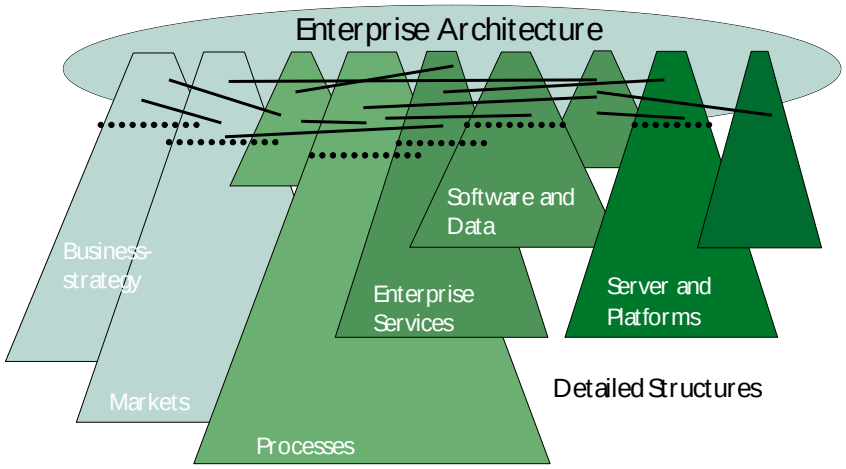
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Agenda

1. Enterprise Architecture and Enterprise Architecture Planning
2. The Need to Capture Dynamics
3. Levels of Complexity and a Process for EA Planning
4. Conclusion and Outlook

Scope and characteristics of Enterprise Architecture





Characteristics

- Holistic scope
- Goal orientation
- Formalization

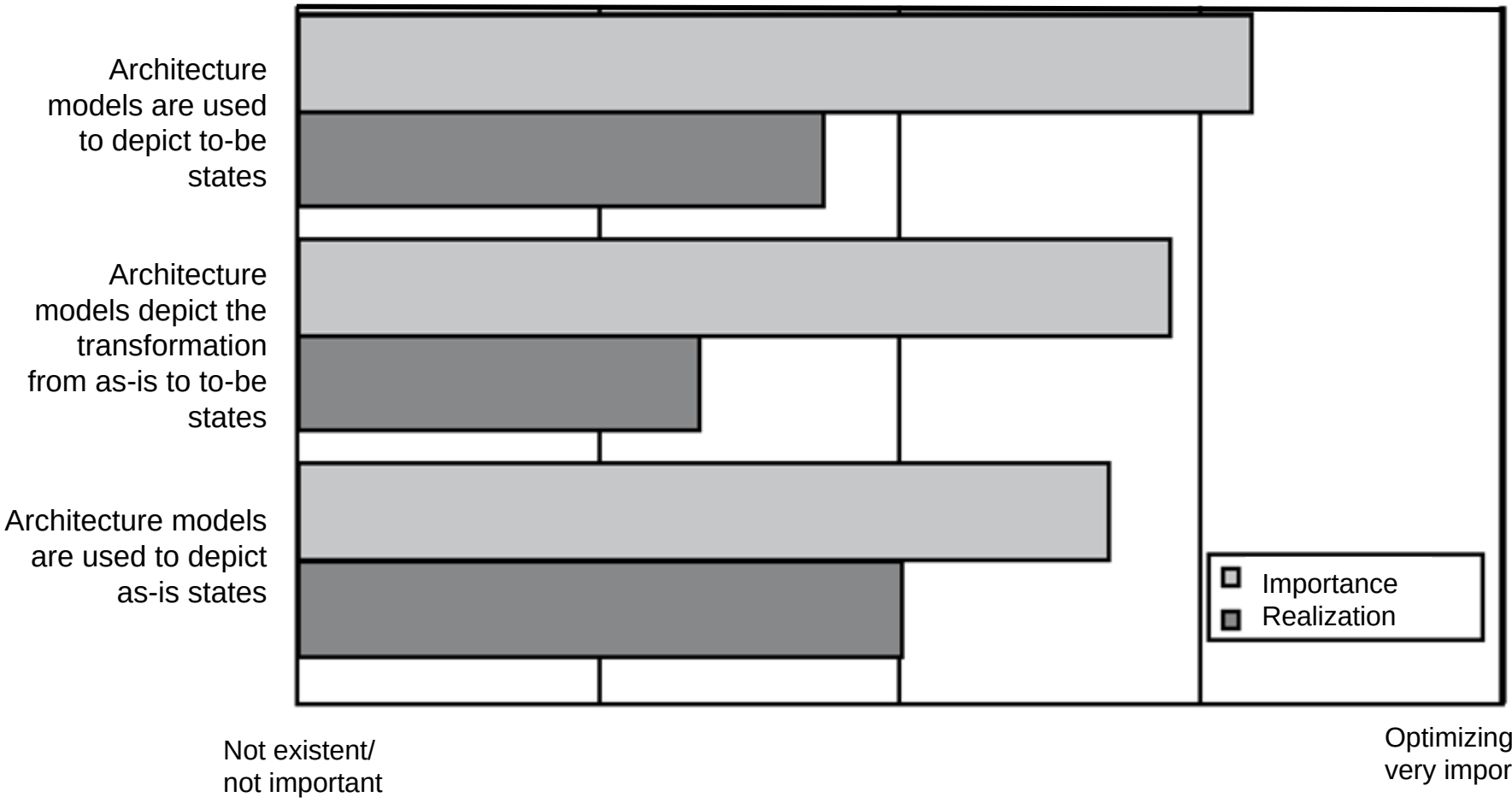
Purposes

- **Documentation** of organizational structure including artifacts from business and IT and their interrelationships (As-Is architecture),
- **Analysis** of dependencies and relationships of As-Is models,
- **Planning** and comparing future scenarios (To-Be models), and derivation of transformation projects and programs to achieve a desired EA.

Sources
•Winter, R.; Fischer, R.: Essential Layers, Artifacts, and Dependencies of Enterprise Architecture, in: Journal of Enterprise Architecture, 3, 2, 2007, pp. 7-18.
•Aier, S., Kurpjuweit, S., Saat, J., Winter, R., Business Engineering Navigator – A "Business to IT" Approach to Enterprise Architecture Management, in: Bernard, S., Doucet, G., Gøtze, J., Saha, P. (Eds.), Coherency Management – Architecting the Enterprise for Alignment, Agility, and Assurance, 2009

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The use of EA models in organizations

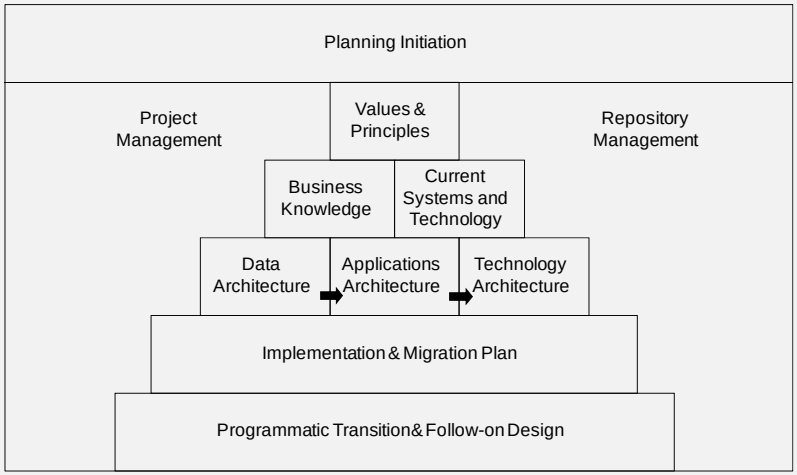


Based on 61 surveys filled in by EA professionals at two industry conferences (GER/CH) in 2007

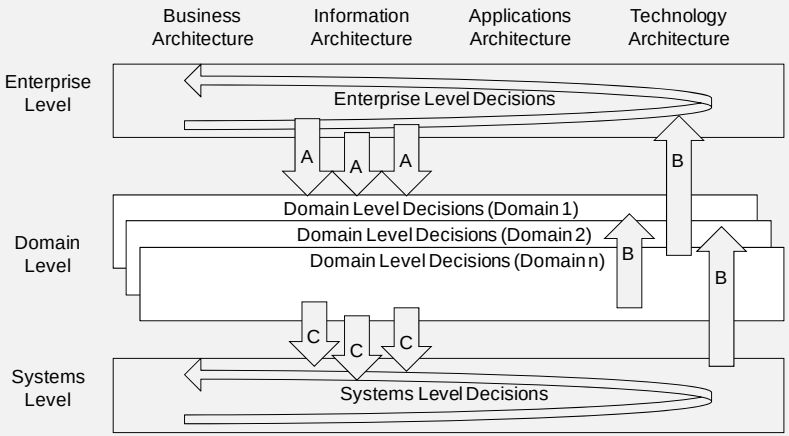
Source
•Aier, S.; Riege, C.; Winter, R.: Unternehmensarchitektur – Literaturüberblick und Stand der Praxis, in: Wirtschaftsinformatik, 50, 4, 2008, S. 292-304.

Existing EA planning processes

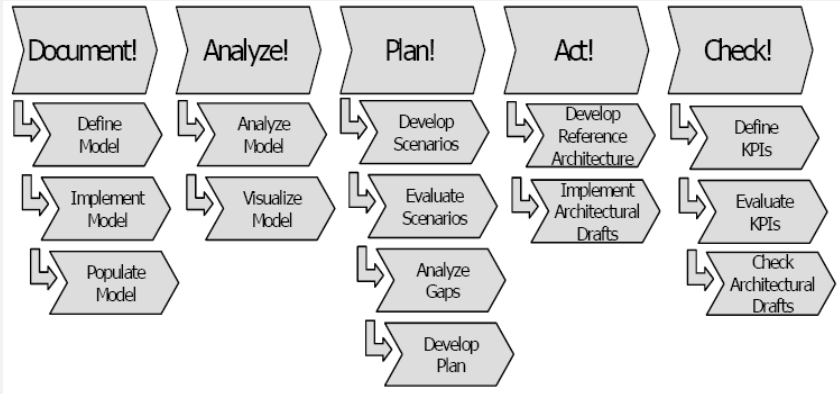
Spewak



Pulkkinen



Niemann



Sources
•Niemann, K.: From Enterprise Architecture to IT Governance. Elements of Effective IT Management, Vieweg, Wiesbaden, 2006
•Pulkkinen, M.: Systemic Management of Architectural Decisions in Enterprise Architecture Planning. Four Dimensions and Three Abstraction Levels, Sprague, R. (Eds.): Proceedings of the 39th Annual Hawaii International Conference on System Sciences (HICSS 2006), Honolulu, Hawaii, USA, 04.01.2006, IEEE Computer Society, Los Alamitos, CA, USA, 8, 2006, pp. 179a (1-9)
•Spewak, S.; Tiemann, M.: Updating the Enterprise Architecture Planning Model, in: Journal of Enterprise Architecture, 2, 2, 2006, pp. 11-19.

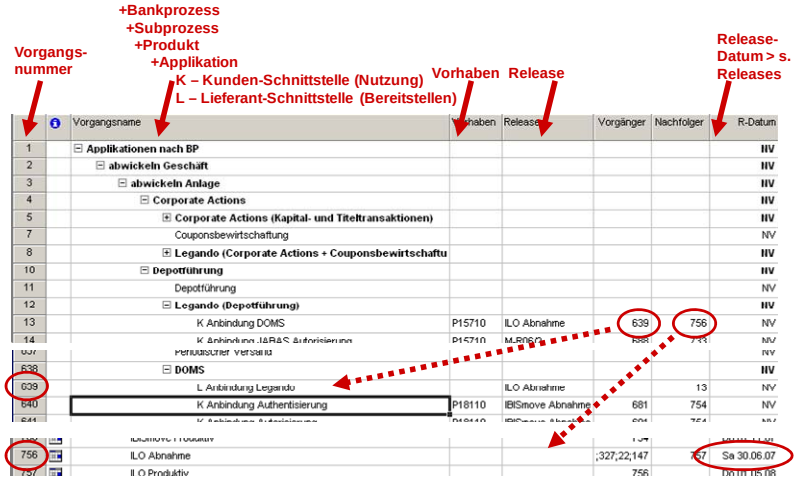
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Current industry practices for EA planning

Company A

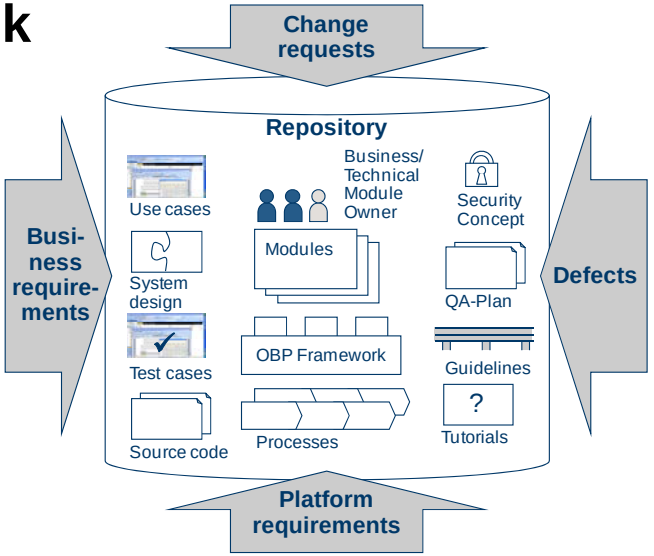
IT outsourcing provider



- What are the relationships of architectural elements and what are the impacts of local changes to other elements?
- How can lifecycles of elements and their impacts be modeled?

Company B

Bank

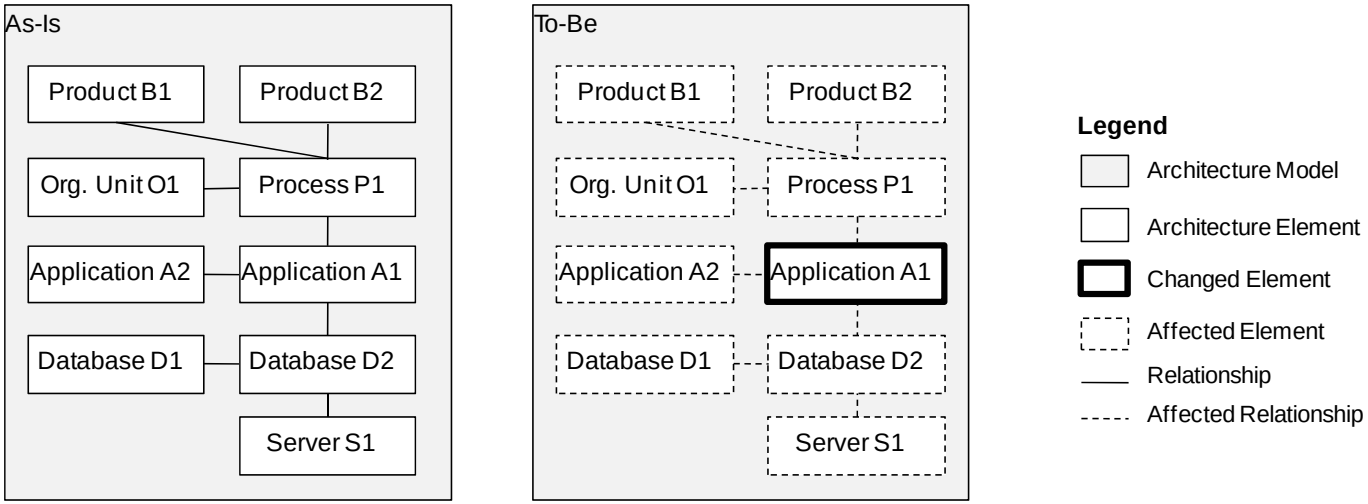


- Which projects should be shifted back or forward in order to meet the needs of a certain solution roadmap?
- Which projects affect which lifecycle planning of a certain solution?
- Does postponing of a project affect the lifecycle planning of a certain solution?

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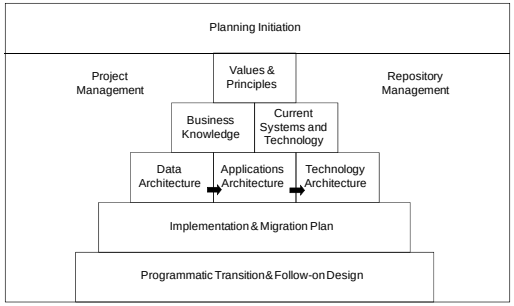
The need to capture dynamics in EA planning

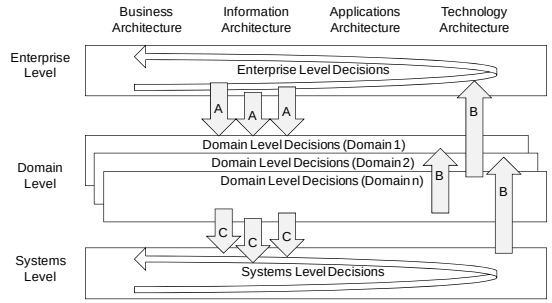
- project management (organizing programs and individual projects)
- release management (planning development roadmaps)
- lifecycle management (phases and milestones for different EA elements)
- technical and temporal dependencies
- Example:

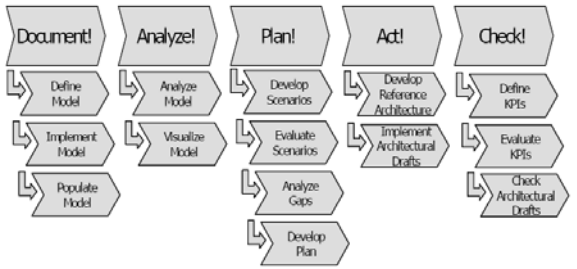


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A condensed EA planning process







(1) Define Vision

(2) Model As-Is Architecture

(3) Model Alternative To-Be Architectures

(4) Analyze and Evaluate Alternative To-Be Architectures

(5) Plan Transformation from As-Is to To-Be Architecture

(6) Implement Transformation

New Planning Cycle

Feasibility Information

Based on implicit assumption of stability and planability

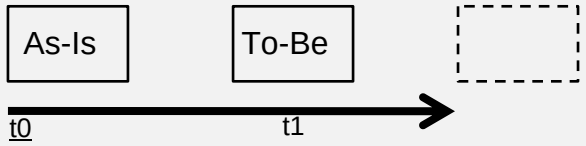
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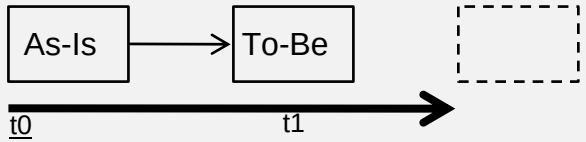
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Complexity levels in EA planning (1/4)

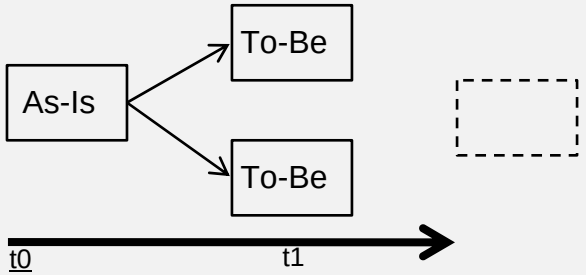
1) Based on an as-is model in t0, a to-be model for t1 is created according to the architectural vision.



2) There exists a plan how to transform the as-is architecture to the desired to-be architecture.



3) Multiple to-be models are created that all help to develop the current architecture towards the architectural vision. Alternatives might address priorities of different stakeholders or be favorable for different goals. Different transformation plans are possible.



Legend

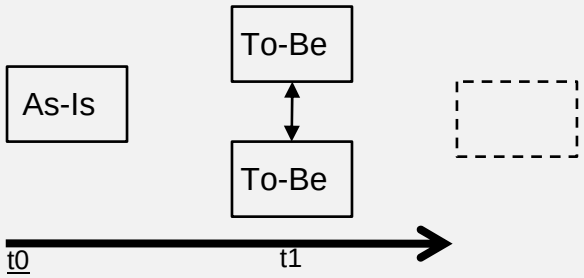
Comparability — Transformation Plan — Unplanned Shift — Time Line

t0 Point in time — Model — Vision

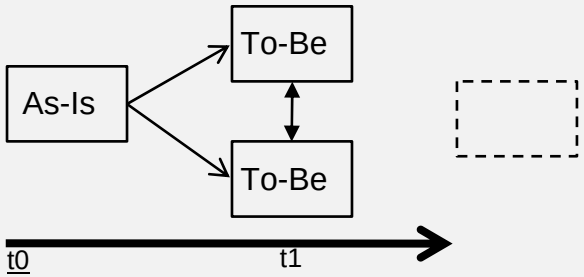
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Complexity levels in EA planning (2/4)

4) Multiple to-be models are created. The alternatives can be compared, e.g. by adequate metrics. Therefore it exists an idea, which alternative is more favorable under given assumptions.



5) Combination of levels 3 and 4.



Legend

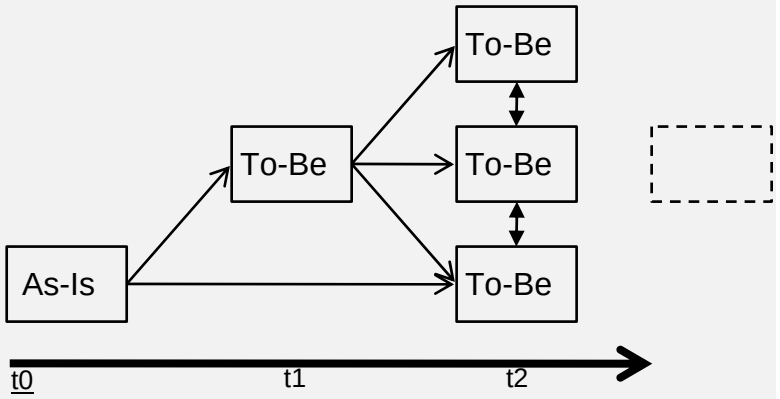
Comparability | Transformation Plan | Unplanned Shift | Time Line

t0 Point in time | Model | Vision

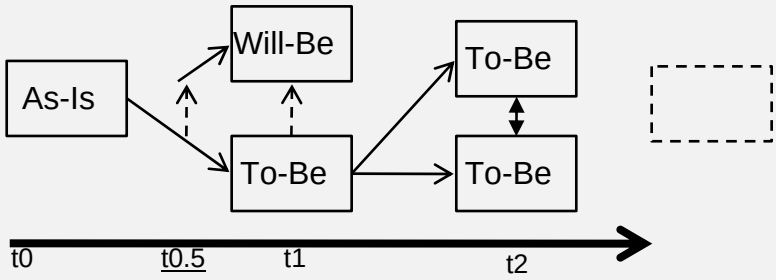
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Complexity levels in EA planning (3/4)

6) There are alternative to-be models and also alternative models for different points in time. Planning a multi-step transformation path helps to structure the transition. It needs to be considered that uncertainties about the usefulness of a to-be model in tx will rise the more time is in between t0 and tx. Alternative transformation plans might address different intermediate to-be models.



7) During the transformation from as-is to to-be, say in t0.5, changes might occur which cause unplanned shifts and adjustments in the transformation plan and the to-be architecture, which is then called the will-be model…



Legend

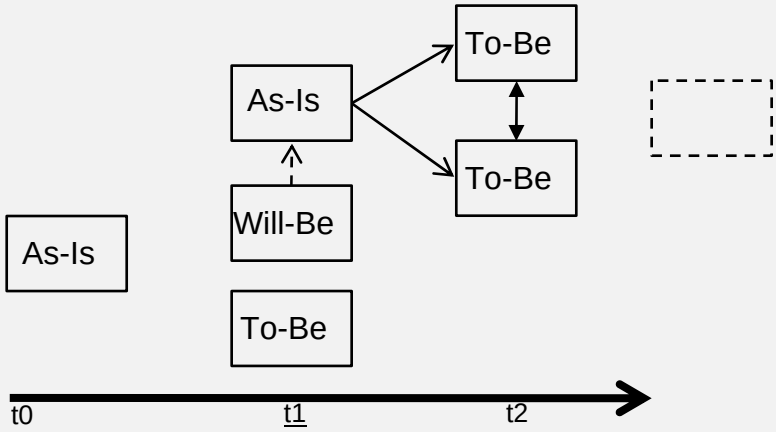
Comparability — Transformation Plan — Unplanned Shift — Time Line

t0 Point in time — Model — Vision

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Complexity levels in EA planning (4/4)

8) The will-be model created in t0.5 for t1 (again depending on the time and uncertainties in between t0.5 and t1) however might not be the actual model in t1. The actual model in t1 then is the as-is model as foundation for future planning.



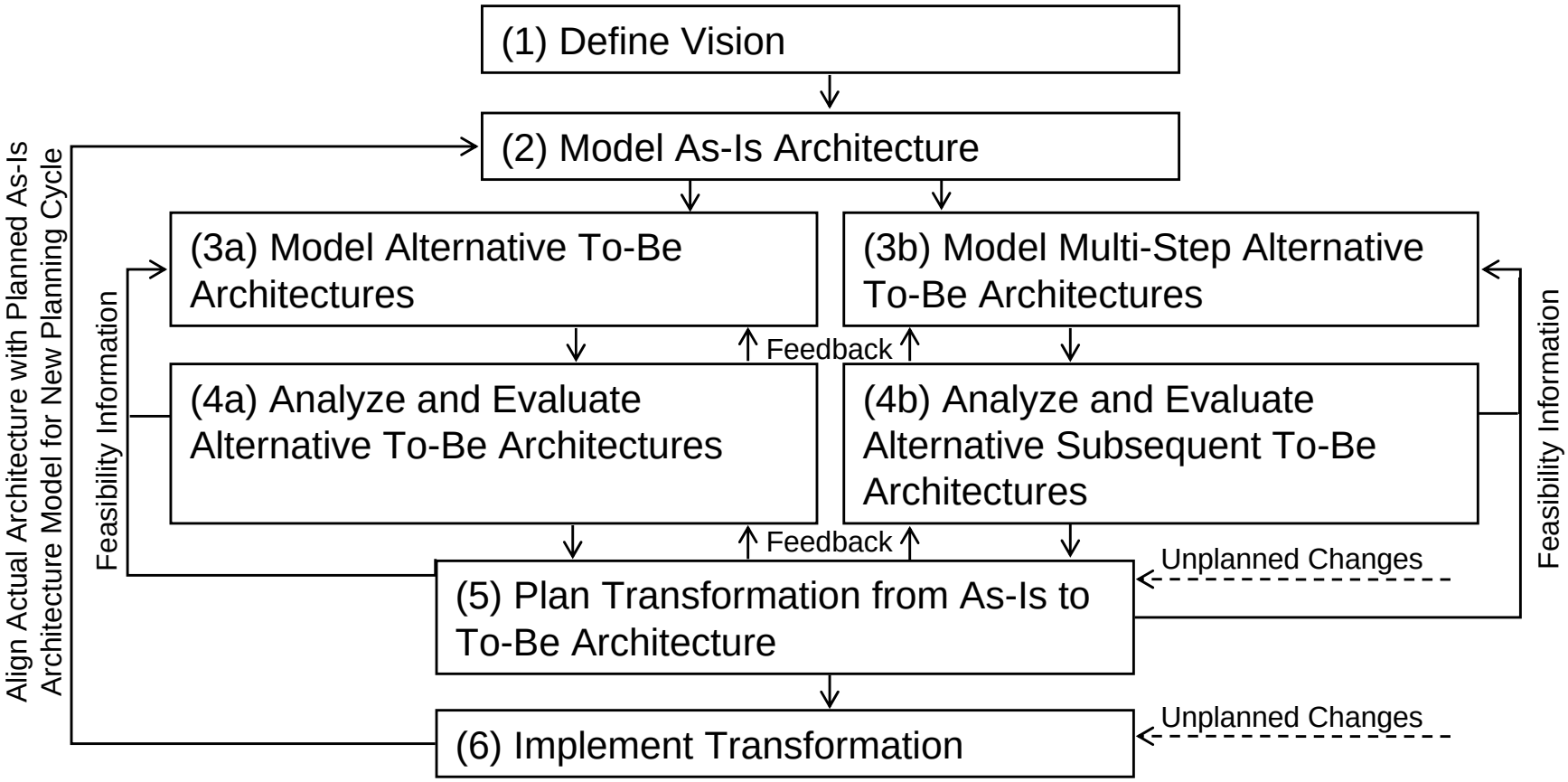
Legend

Comparability | Transformation Plan | Unplanned Shift | Time Line

t0 Point in time | Model | Vision

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A Process to capture dynamics in EA planning



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Conclusion and Outlook

Contribution

- Proposition of levels to structure complexity of EA planning
- Proposition of process to capture complexity of dynamics in EA Planning

Open Questions

- Is there a desired level for dynamic complexity in EA planning?
- How do we decide what architectural elements are relevant for planning, and therefore part of to-be models?
- What are relevant dimensions and methods for the evaluation of to-be models?
- What lessons can be learned from project and program management to structure the transformation process?
- What requirements arise for an integrated planning method?

Research Agenda

- Meta modeling for EA planning
- Creating comparability to support selection of to-be models
- Refine and evaluate planning process in projects and case studies

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