Business Informatics Group

Understanding the potential benefits of Enterprise Architecture Management

Prof. Dr. Hende*rik* A. Proper

We need to talk about models & modelling first …

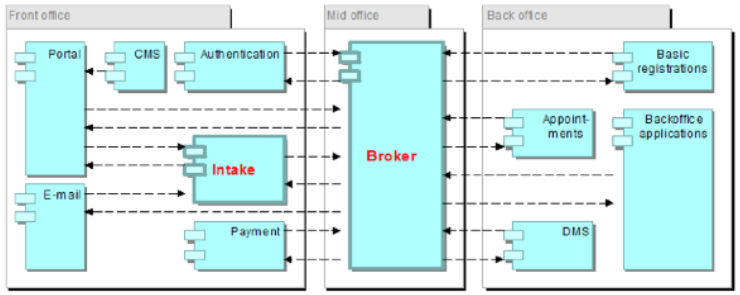
Driving hypothesis:

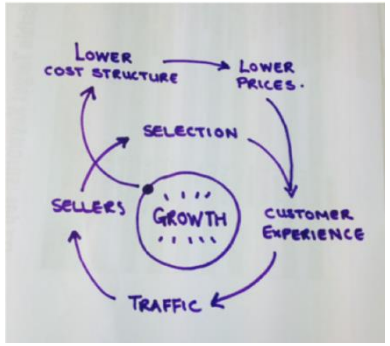
> Models & modelling are the key resources by which EAM can deliver value

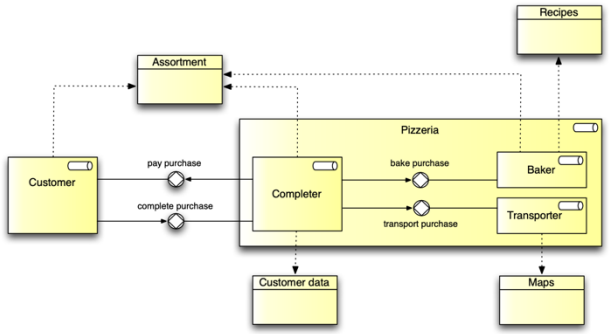
We need to talk about models & modelling first …

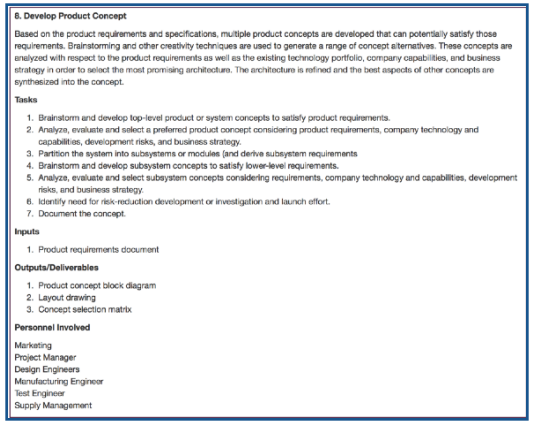
Domain model:

A social artefact that is understood, and acknowledged, by a collective human agent to represent an abstraction of some domain for a particular cognitive purpose









6. Develop Product Concept

Based on the product requirements and specifications, multiple product concepts are developed that can potentially satisfy those requirements. Brainstorming and other creativity techniques are used to generate a range of concept alternatives. These concepts are analyzed with respect to the product requirements as well as the existing technology portfolio, company capabilities, and business strategy in order to select the most promising architecture. The architecture is refined and the best aspects of other concepts are synthesized into the concept.

Tasks

1. Brainstorm and develop top-level product or system concepts to satisfy product requirements.
2. Analyze, evaluate and select a preferred product concept considering product requirements, company technology and capabilities, development risks, and business strategy.
3. Partition the system into subsystems or modules (and derive subsystem requirements
4. Brainstorm and develop subsystem concepts to satisfy lower-level requirements.
5. Analyze, evaluate and select subsystem concepts considering requirements, company technology and capabilities, development risks, and business strategy.
6. Identify need for risk-reduction development or investigation and launch effort.
7. Document the concept.

Inputs

1. Product requirements document

Outputs/Deliverables

1. Product concept block diagram
2. Layout drawing
3. Concept selection matrix

Personnel Involved

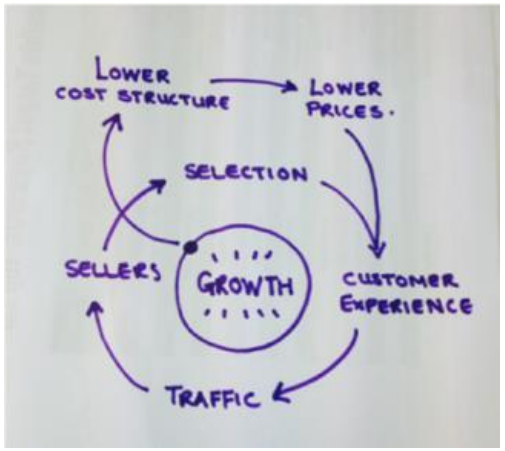
Marketing
Project Manager
Design Engineers
Manufacturing Engineer
Test Engineer
Supply Management

We need to talk about models & modelling first …

Modelling practices:

Roles, processes, and technology, pertaining to the purposeful creation, management, and utilisation of domain models

Modelling practices emerge naturally



A long standing fascination – RoME

Return on Modelling Effort (in ISE, EE, EAM)

A long standing fascination – RoME

Return on Modelling Effort

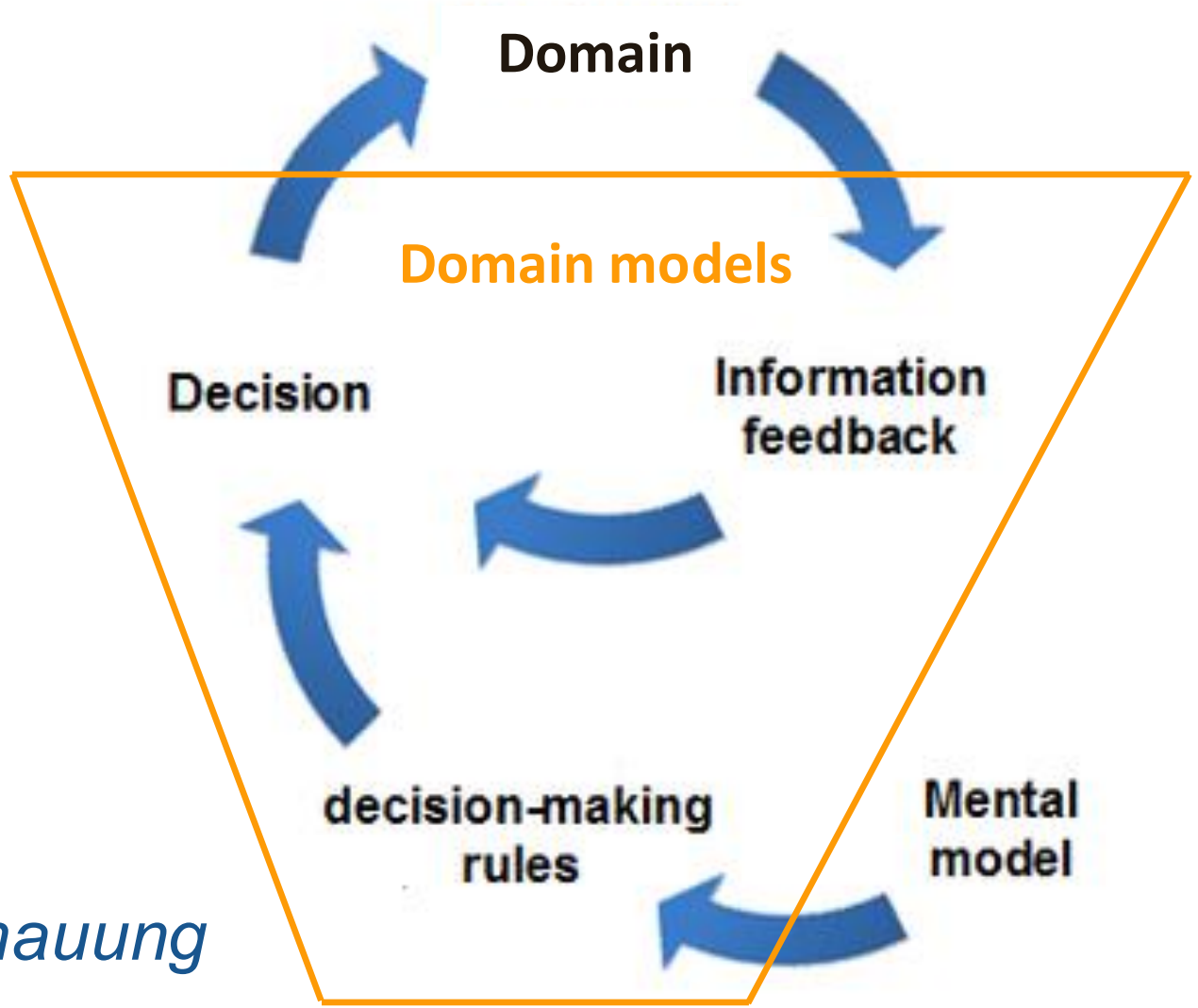
The cost of modelling versus the value in action of models

Value in action: value in use or value in creation

Two levels of potential value …

Two levels of potential value …

Single loop learning

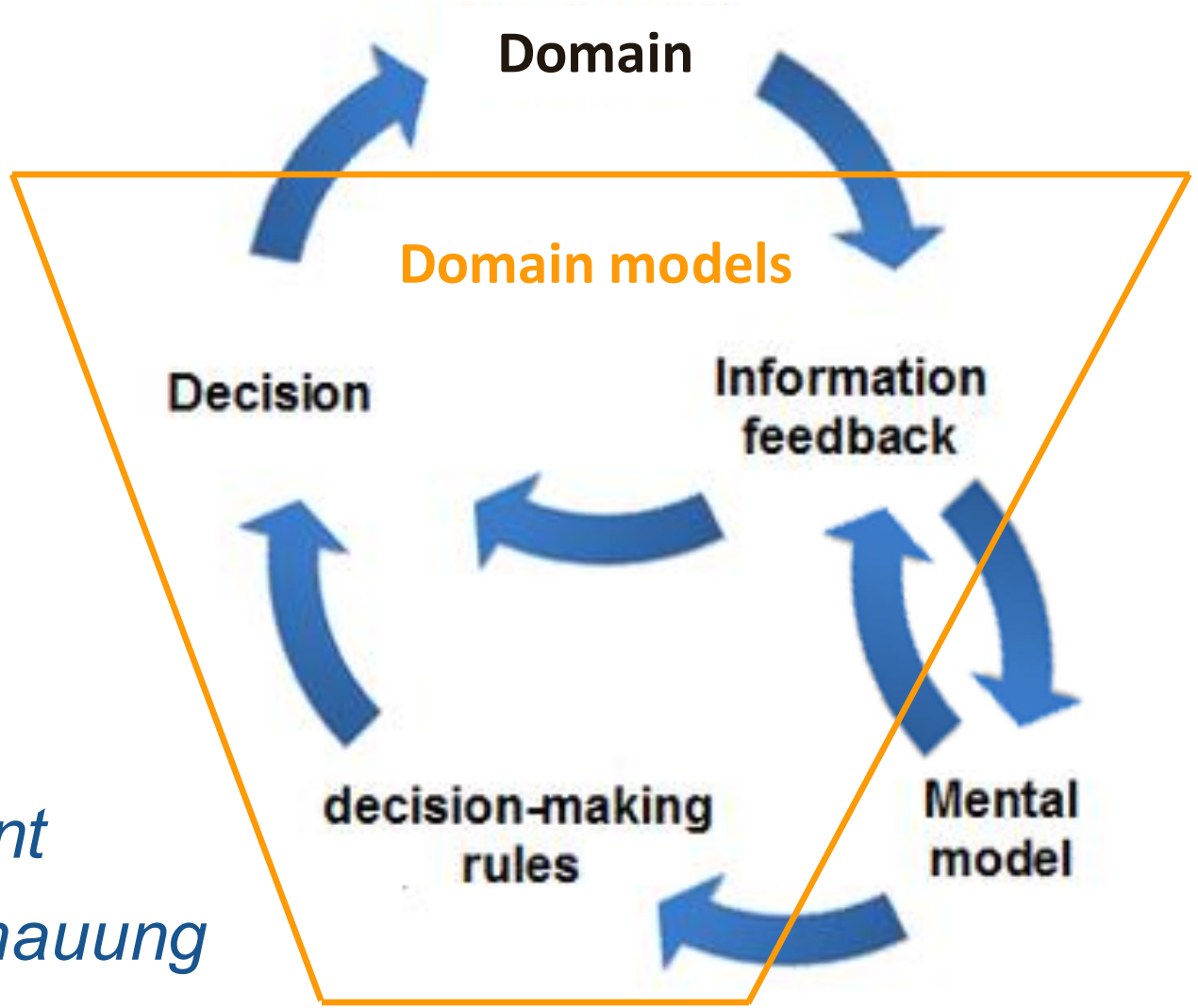


Confined to the current mental model / weltanschauung

Source: https://en.wikipedia.org/wiki/Double-loop_learning

Two levels of potential value …

Double loop learning



Not confined to the current mental model / weltanschauung

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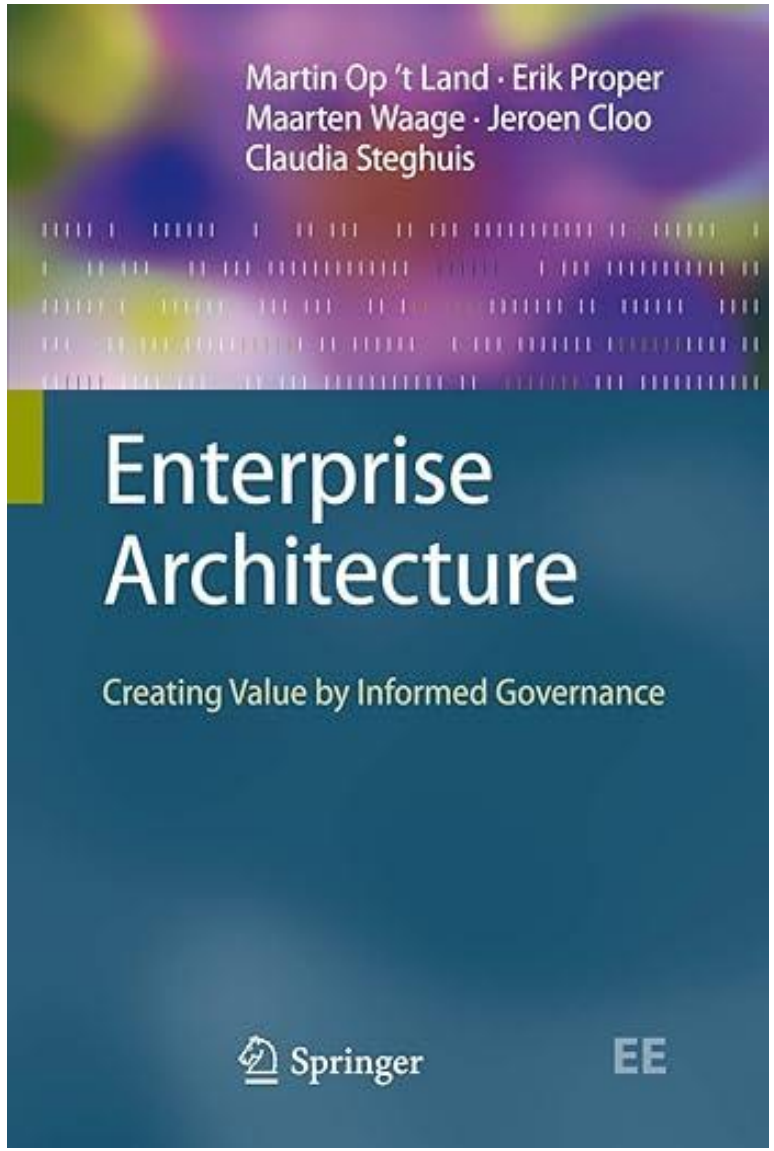
Enterprise Architecture Management

Creating value by informed governance of enterprise transformations

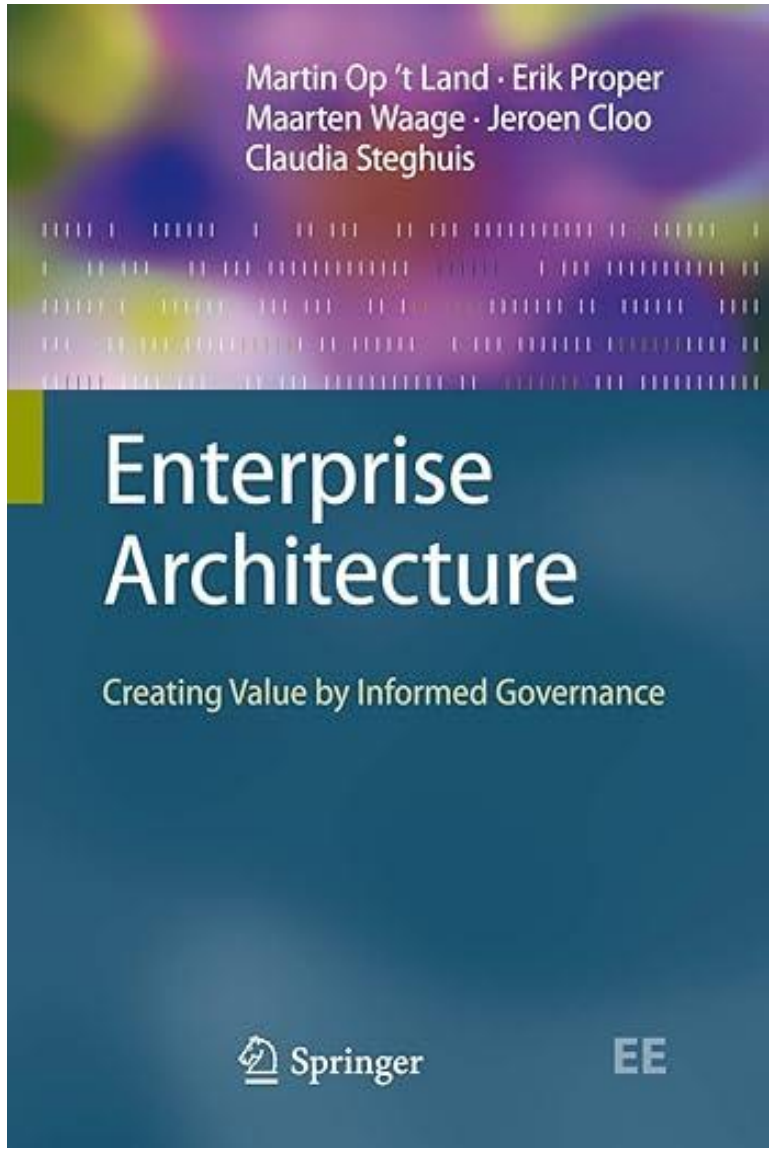


Enterprise Architecture Management

Creating value by informed governance of enterprise transformations

Enterprise (architectural) models

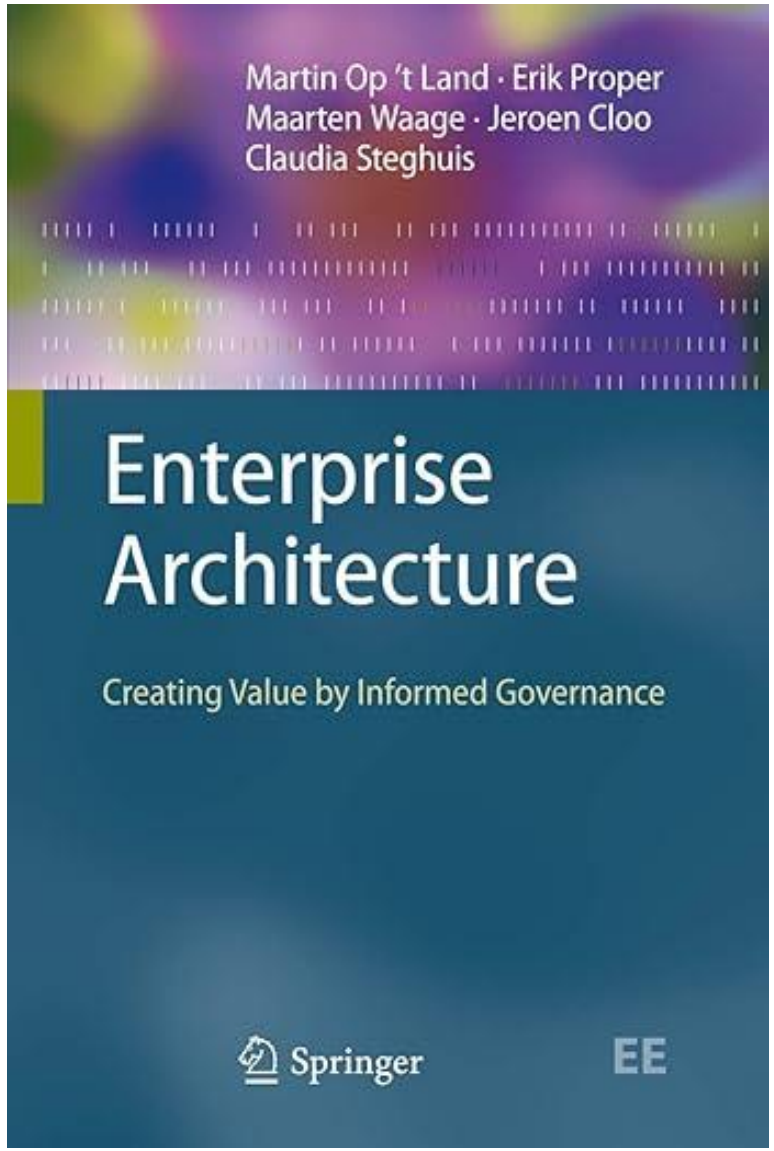
- Current affairs (descriptive)
- Planned affairs (de-prescriptive)
- Desired affairs (pre-prescriptive)



Enterprise Architecture Management

Creating value by informed governance of enterprise transformations

Especially portfolio level decision taking, execution, and monitoring



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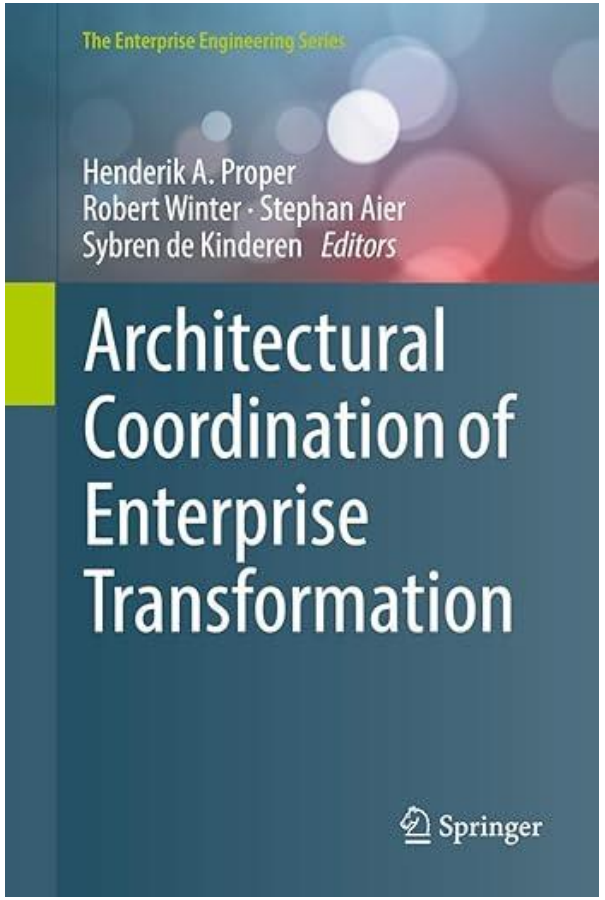
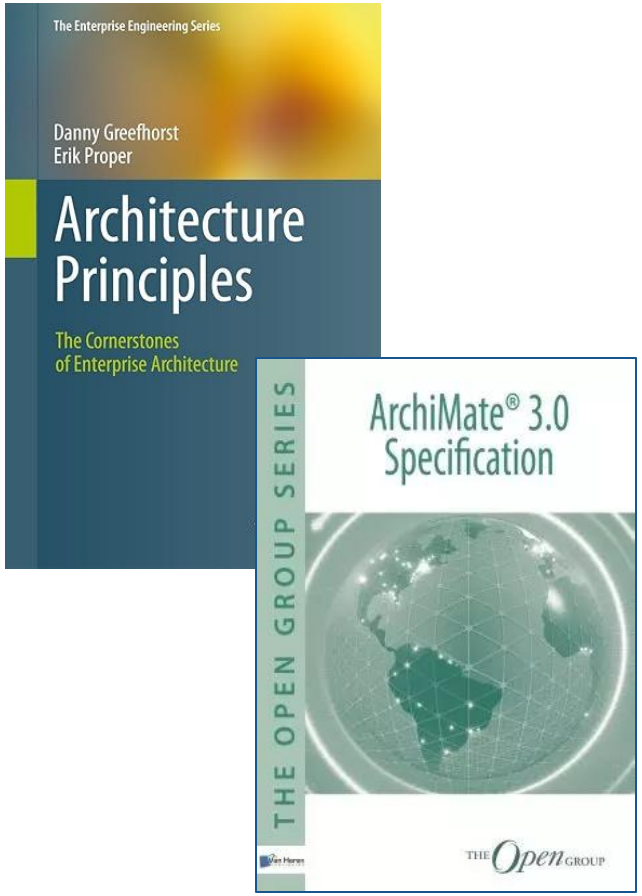
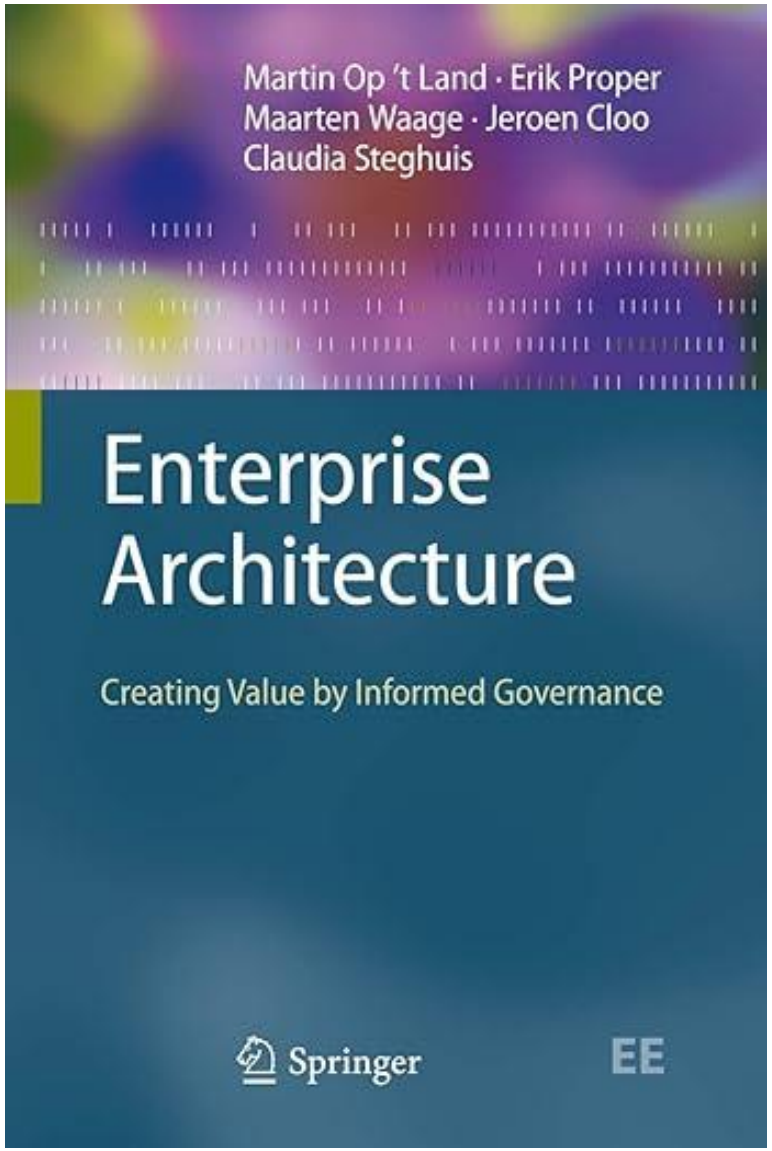
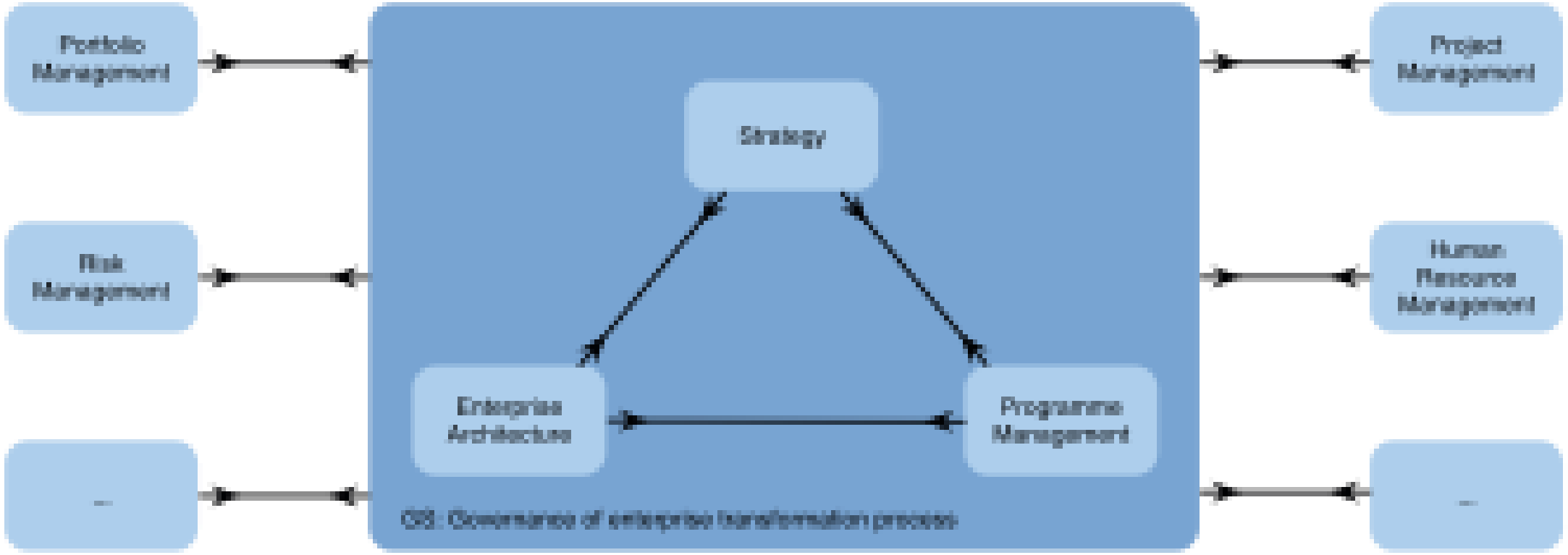




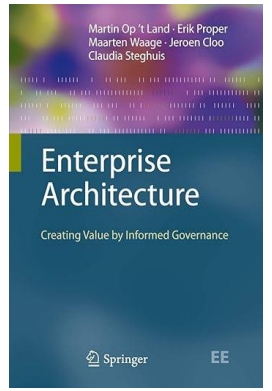


The role of Enterprise Architecture (Management)



Potential role of models?

From a single loop organisational learning perspective …



Potential roles, and added value, of models for EAM

Value in action: value in use or value in creation

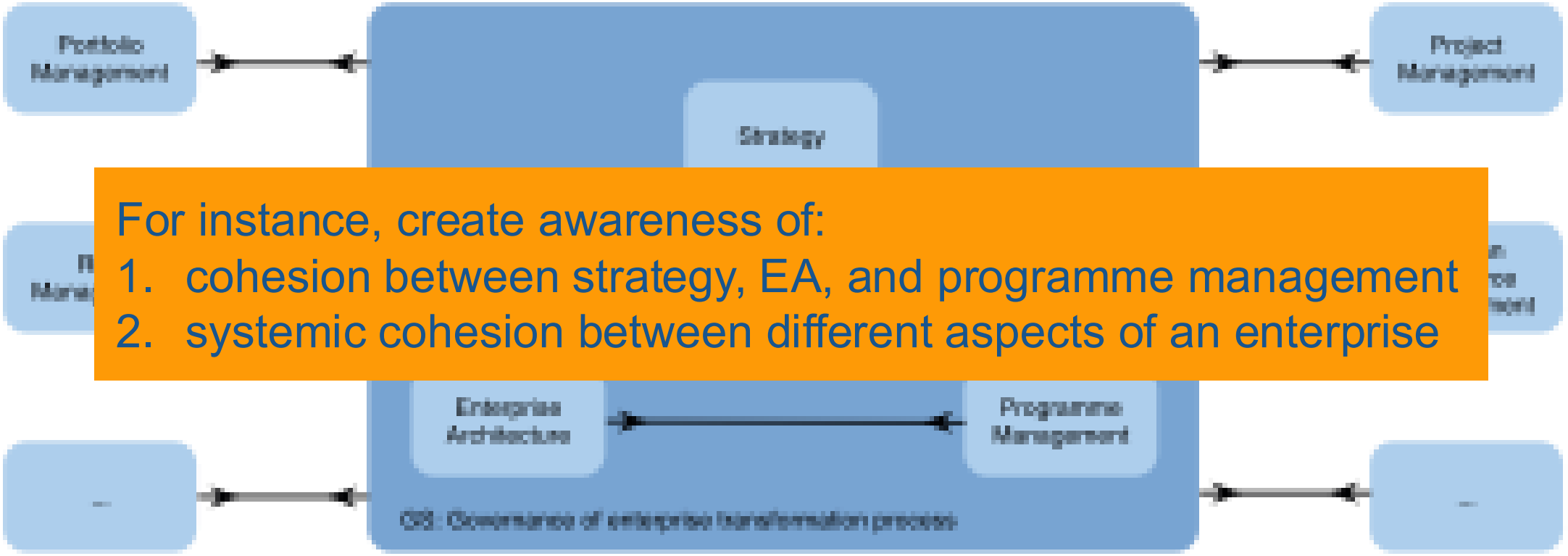
Value in use:

{ understand, assess, diagnose, design, realise, operate, regulate, … }

Value in creation:

{ collaborative, individual } x { appreciation, ideation, … }

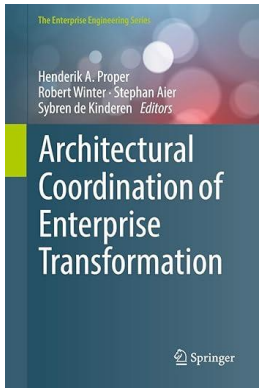
The role of Enterprise Architecture (Management)

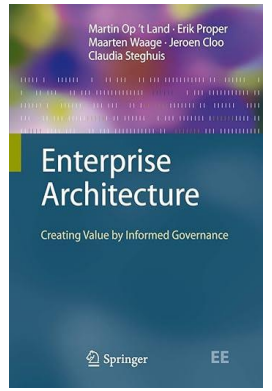


For instance, create awareness of:

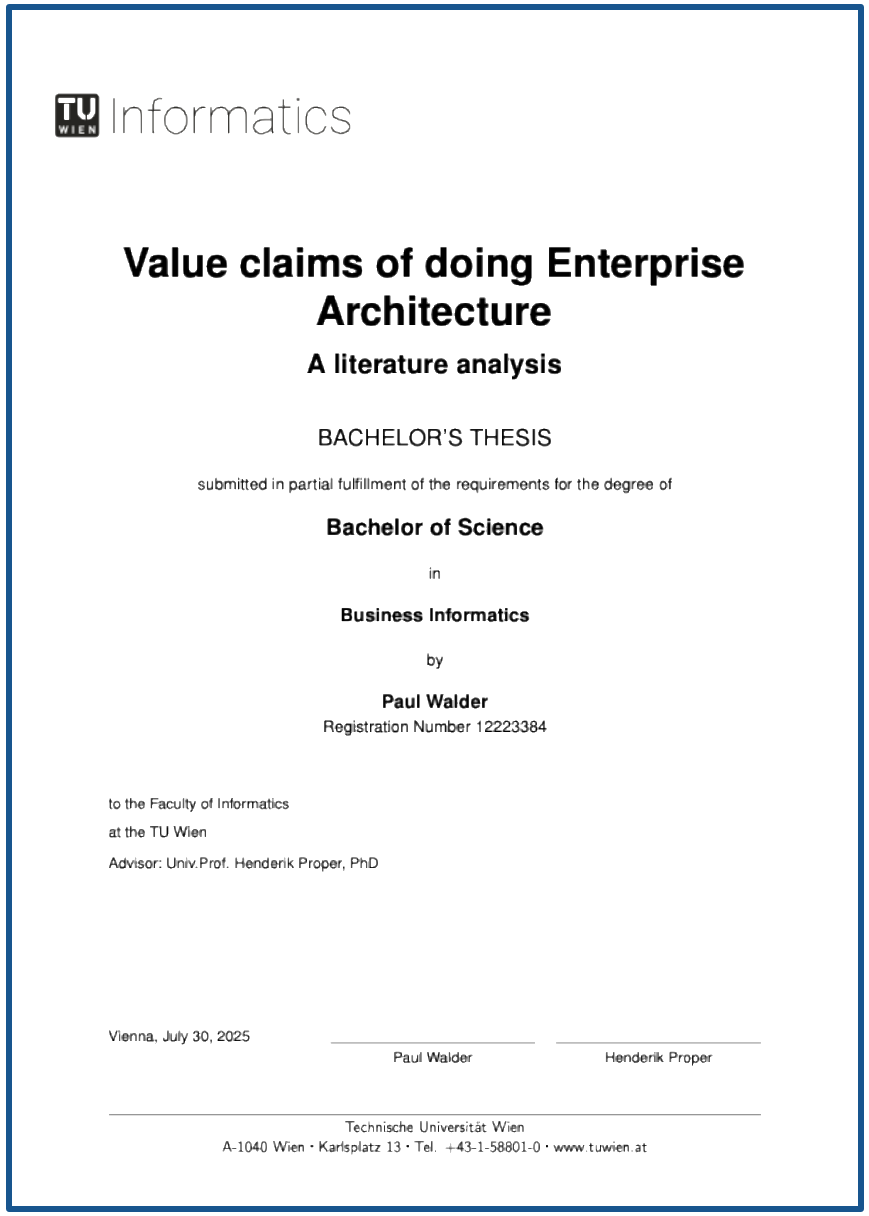
1. cohesion between strategy, EA, and programme management
2. systemic cohesion between different aspects of an enterprise

Double loop organisational learning?





So … what can we find in practice and literature?



TU WIEN Informatics

Value claims of doing Enterprise Architecture

A literature analysis

BACHELOR'S THESIS

submitted in partial fulfillment of the requirements for the degree of

Bachelor of Science

in

Business Informatics

by

Paul Walder
Registration Number 12223384

to the Faculty of Informatics
at the TU Wien
Advisor: Univ.Prof. Henderik Proper, PhD

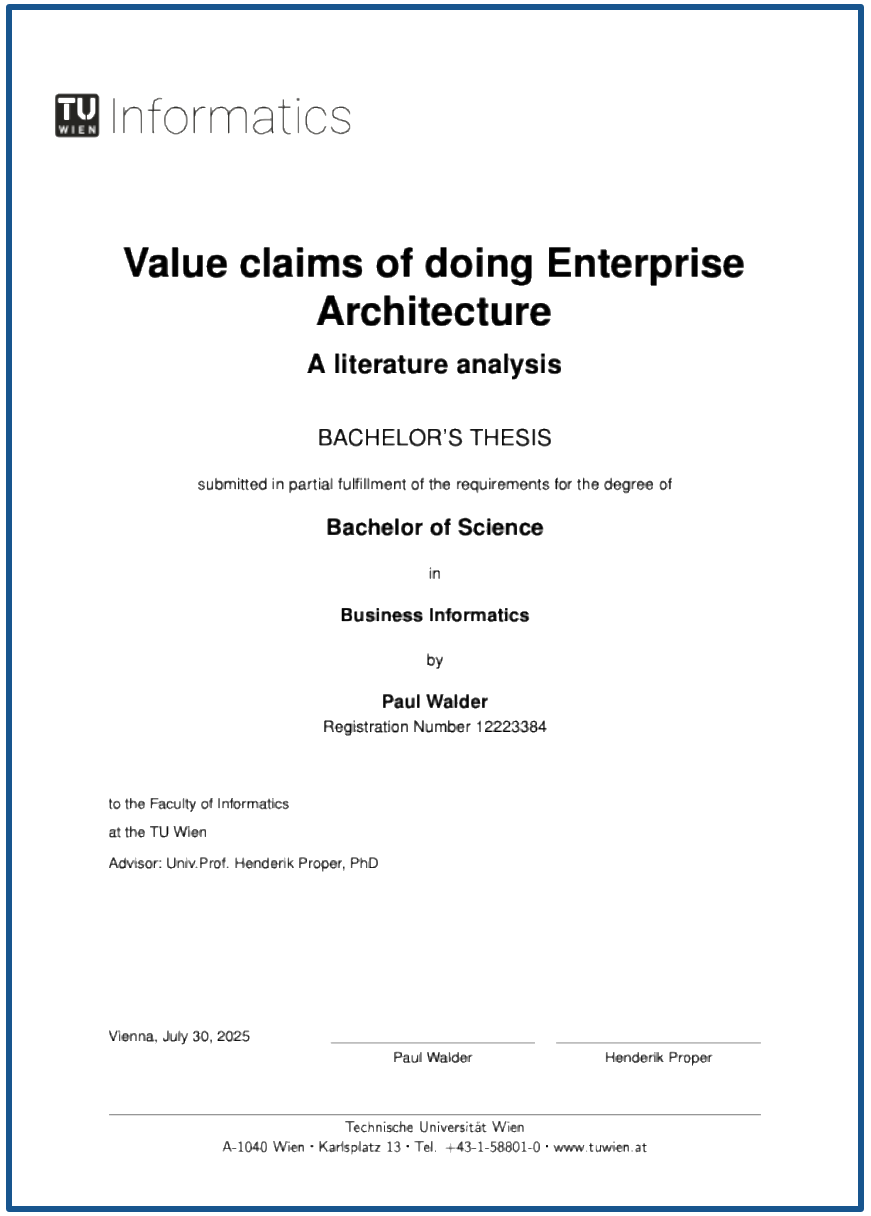
Vienna, July 30, 2025

Paul Walder | Henderik Proper

Technische Universität Wien
A-1040 Wien · Karlsplatz 13 · Tel. +43-1-58801-0 · www.tuwien.at

- Primary focus: single loop learning
- Literature analysis:
  - Academic sources
  - Industry sources
- Two perspectives:
  - IT perspective
  - Business perspective

So … what can we find in practice and literature?



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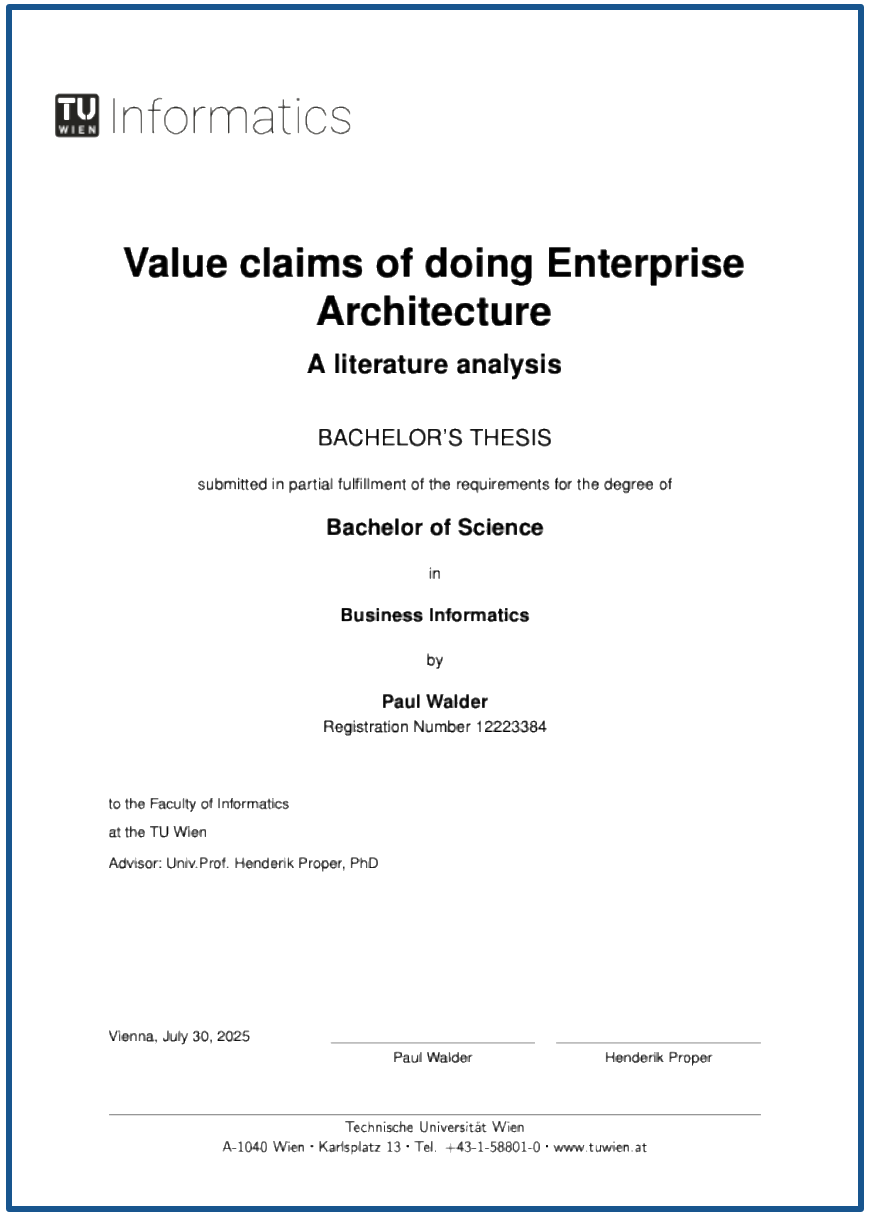
Cost Reduction	Academic Papers	Industry Papers
Accelerate delivery & reduce project duration	[5, 19, 14, 6, 36, 30, 14, 2, 18]	[23, 35, 4]
Enhance project management effectiveness	[33]	[34]
Optimize costs and cost-management	[36, 30, 14, 16, 25, 6]	[1, 23, 35, 34, 4, 24, 38, 22, 10]
Reduce maintenance & support costs	[36]	[35, 38, 17, 34, 10]
Improve return on investments	[25, 2]	[35, 23, 38]
Complexity Management		
Reduce organizational complexity	[5, 6]	[23]
Reduce project complexity & overhead	[5, 19, 14, 30, 25, 16]	[23, 3, 32, 4, 24, 38, 17, 10]
Facilitate the integration, of processes & systems	[25, 2, 5, 31, 30, 6]	[32, 28, 38, 10]
Risk Management		
Identify & reduce project risk	[19, 30, 6, 36, 5, 16, 2]	[23, 38]
Reduce IT compliance risk	[18][30]	[1, 32, 28, 23, 10]
Reduce dependency- and change risk	[36, 25]	[3, 35]
Improve security management	[14, 18]	[32, 4, 24, 38]
Quality Increase		
Standardize & drive consistency	[19, 14, 36, 2, 30, 25, 5, 16]	
Enhance IT platform functionality	[33]	
Increase IT asset reuse & mitigate duplication		[23, 3, 35, 17, 10]
Enhance interoperability	[1, 30, 14, 2, 14, 36]	[38]

IT

Models enabled

So … what can we find in practice and literature?



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Strategy & Innovation	Academic Papers	Industry Papers
Provide Transparency & Enterprise Overview	[6, 18, 19, 2, 5, 16]	[23, 3, 32, 24, 38]
Identify change requirements & foster innovation	[25, 14, 30, 19, 2]	[23, 3, 28, 24, 17, 10]
Drive business growth	[14, 25, 30]	[1, 23, 10]
Increase customer centricity & value	[25, 33, 30, 14, 2]	[23, 3, 32, 24]
Decision Making & Agility		
Increase agility & situational awareness	[5, 19, 33, 16, 30, 14, 2, 36, 6, 25]	[23, 3, 32, 24, 38, 17, 22, 10]
Support better investment & solution-selection decisions	[16, 36, 25, 14]	[38]
Provide prioritized guidance	[2, 16, 36, 25, 14]	[1, 32, 24, 17]
Improve decision quality	[36, 25, 30, 33, 18, 31, 14]	[34, 3, 22, 10]
Alignment & Governance		
Align business strategy & IT	[30, 5, 18, 6, 16, 25, 33, 19, 14, 2]	[3, 32, 24, 28, 38, 23, 22, 17, 10]
Foster collaboration & shared knowledge	[16, 25, 6, 19, 2, 30, 31, 14]	[1, 32, 35, 34, 4, 28, 24, 10]
Enable governance standards	[25, 6, 30, 2, 18, 14]	[3, …

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s

Models enabled

Next steps

In terms of real-world projects:

- Identify the added value of EAM from an “informed governance” perspective
- Identify the use of “model-ish” artefacts in the underlying EAM activities
- Identify the value in action of these “model-ish” artefacts
- Develop guidelines to improve RoME

Next to … developing strategies to

- reduce the overall cost of modelling, and
- improve informed governance and associated decision making

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