The role of enterprise models in coordinated continuous digital transformation

Henderik A. Proper

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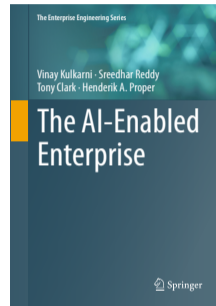
My interests

Understanding, and improving, domain modeling practices

In particular in the context of enterprises

Background to this presentation

Henderik A. Proper and Bas van Gils (2024). "Coordinated Continuous Digital Transformation". In: *The AI-Enabled Enterprise*. Ed. by Vinay Kulkarni et al. The Enterprise Engineering Series. Berlin, Germany: Springer, pp. 101–120. ISBN: 978-3-031-29053-4. URL: https://doi.org/10.1007/978-3-031-29053-4_6

Agenda

1. Coordinated continuous digital transformation

2. Enterprise design dialogues

3. Domain models

4. The role of domain models

5. Research challenges

Agenda

Digital transformation

The development and maturation of "digital technologies" drive enterprises to transform

IT's role in enterprises has progressed:

- from *automation of information processing*,
- via *automation of business processes*,
- to *being an integral part of their business models*

Digital transformation

Digital transformation

The deliberate effort to transform the (realized) architecture of the enterprise, with a significant impact on its digital capabilities.

Digital capabilities

The business capabilities, of an enterprise, that are digitally driven or at least highly digitally reliant.

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Architecture

Those properties of an artifact that are necessary and sufficient to meet its essential requirements; or in more colloquial terms it is about 'what (should) keep(s) stakeholders awake at night'.

Digital transformation

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So, digital transformations can change both the *operational capability* and the *dynamic capability* of an enterprise

Continuous digital transformation

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Driven by e.g.:

- Advances in digital technologies
- Opportunities offered by other (non-digital) new technologies
- Market dynamics, new regulations, ...

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But ...

Continuous digital transformation

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And, now we are part of the digital revolution …

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Examples: *Workflow engines, business rule engines, low-code, ...*

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The introduction of AI to support different tasks in digital transformations is a prelude towards things to come for the dynamic capabilities in AI-enabled enterprises

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As a result, we would argue that one needs to increasingly consider digital transformation to be a continuous process and certainly not as a "one-off" project

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Examples: *Business, IT, processes, culture, ...*

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Furthermore, digital transformation requires a deliberate effort to achieve a positive outcome

Combined, this requires a coordinated effort by different stakeholders, including (the roles of) senior management, architects, developers, workers, ...

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Requiring (guided and coordinated) dialogues about the enterprise's design

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- *Co-workers discussing how to divide work or conduct a (new) task*
- *Database engineers discussing with domain experts what needs to be captured in the database*
- *Enterprise architects coordinating with different stakeholders regarding the future direction of the enterprise*

Enterprise design dialogues

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- pertain to many different aspects and concerns, and
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While in the words of Taylor and Van Every, 2014, we:
"*author organizations*"

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Not just boxes-and-lines:

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The needed level of precision, formality, integration, compliance to a specific modeling language, etc, and other requirements on models, depend on the purpose of the model

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We specifically use domain models in the context of (enterprise design) dialogues …

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Important trade-offs to be made in modeling practices

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More elaborate discussion in Proper and Guizzardi, 2024

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A domain model of any aspect of the past, existing, and/or desired, state of affairs of an enterprise

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Across the enterprise

Across enterprise design dialogues; bottom-up and top-down

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   E.g. by using advanced AI-powered and data-evidenced modeling tools

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5. How to increase these?
6. How to make trade-offs regarding these costs and benefits?

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5. How to optimize RoME in these contexts?

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4. What requirements do these dialogues pose on the enterprise modeling practices?
5. How to optimize RoME in these contexts?
6. Effective technology support?

Agenda

1 Coordinated continuous digital transformation

2 Enterprise design dialogues

3 Domain models

4 The role of domain models

5 Research challenges

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