A Brief Introduction To Multi-Perspective Enterprise Modeling (MEMO)

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Offen im Denken

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Motivation & Need for Multi-Perspective Enterprise Modeling

- The development, use and maintenance of information systems are often not satisfactory.
- Among other things, they suffer from a lack of
  - Reuse
  - Integration
  - Flexibility
- Division of labour & ever-increasing complexity demands for support.
- Conceptual models allow to capture different perspectives

> An enterprise model integrates at least one conceptual model of the information system (e.g. a class diagram) with at least one model of the relevant action system (e.g. a business process model).

Specifics of MEMO & Core Components

A multi-perspective enterprise model differentiates between various explicit **perspectives**, which will usually correspond to professional views. These perspectives are represented in models constructed with domain/purpose-specific modelling languages (DMSLs).

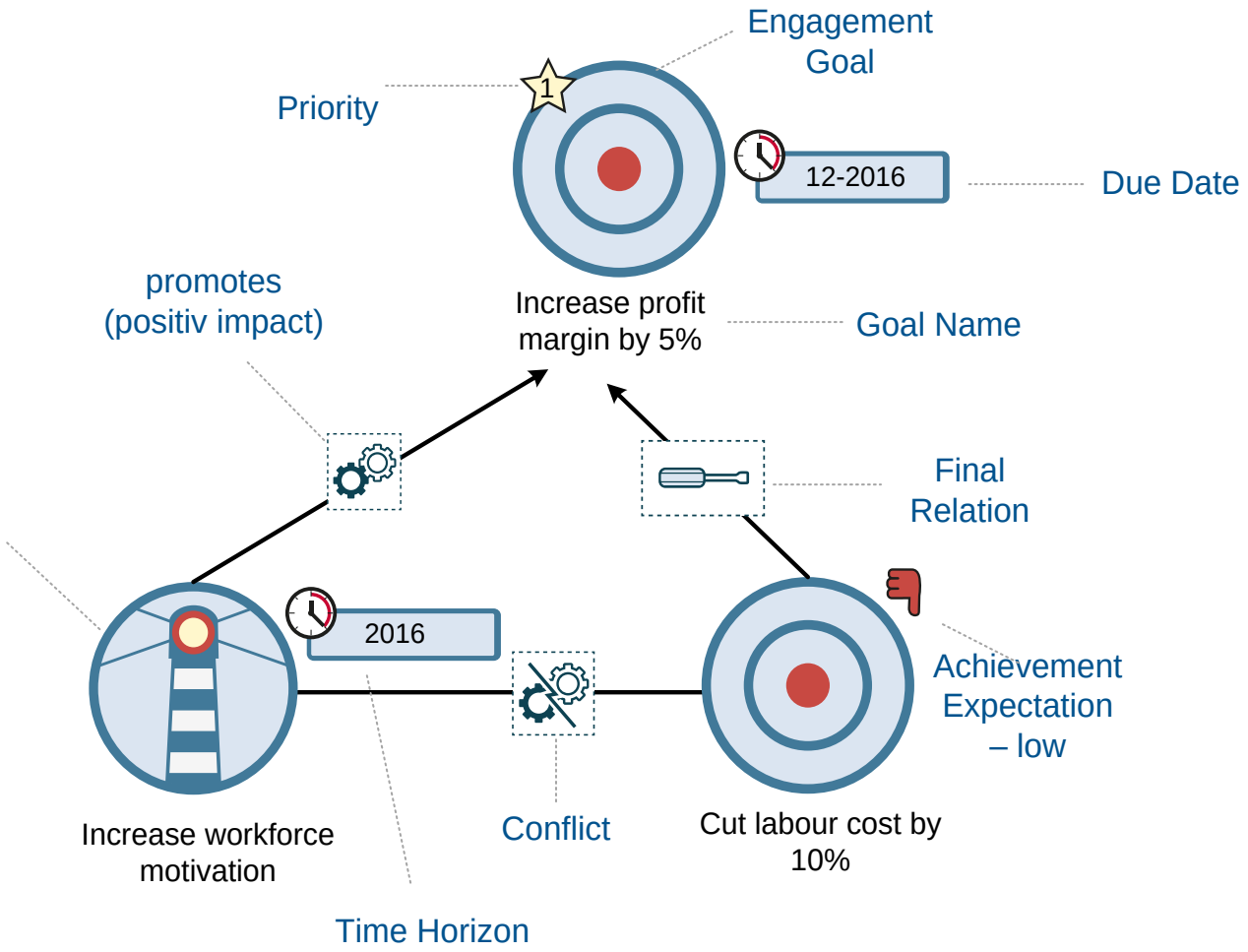
- Core Components
  - Extensible Set of DSMLs + Methods
  - Language Architecture
  - Method for Constructing Methods
  - Generic Framework
  - (Meta) Modeling Environment

Extensible Set of DSMLs

- Organisational Decision Support: MEMO-DecisionML
- Performance Measurement: MetricML
- Goal Systems: MEMO-GoalML
- IT Infrastructures: MEMO-ITML
- MEMO-OrgML
  - Business Processes
  - Organisation Structures

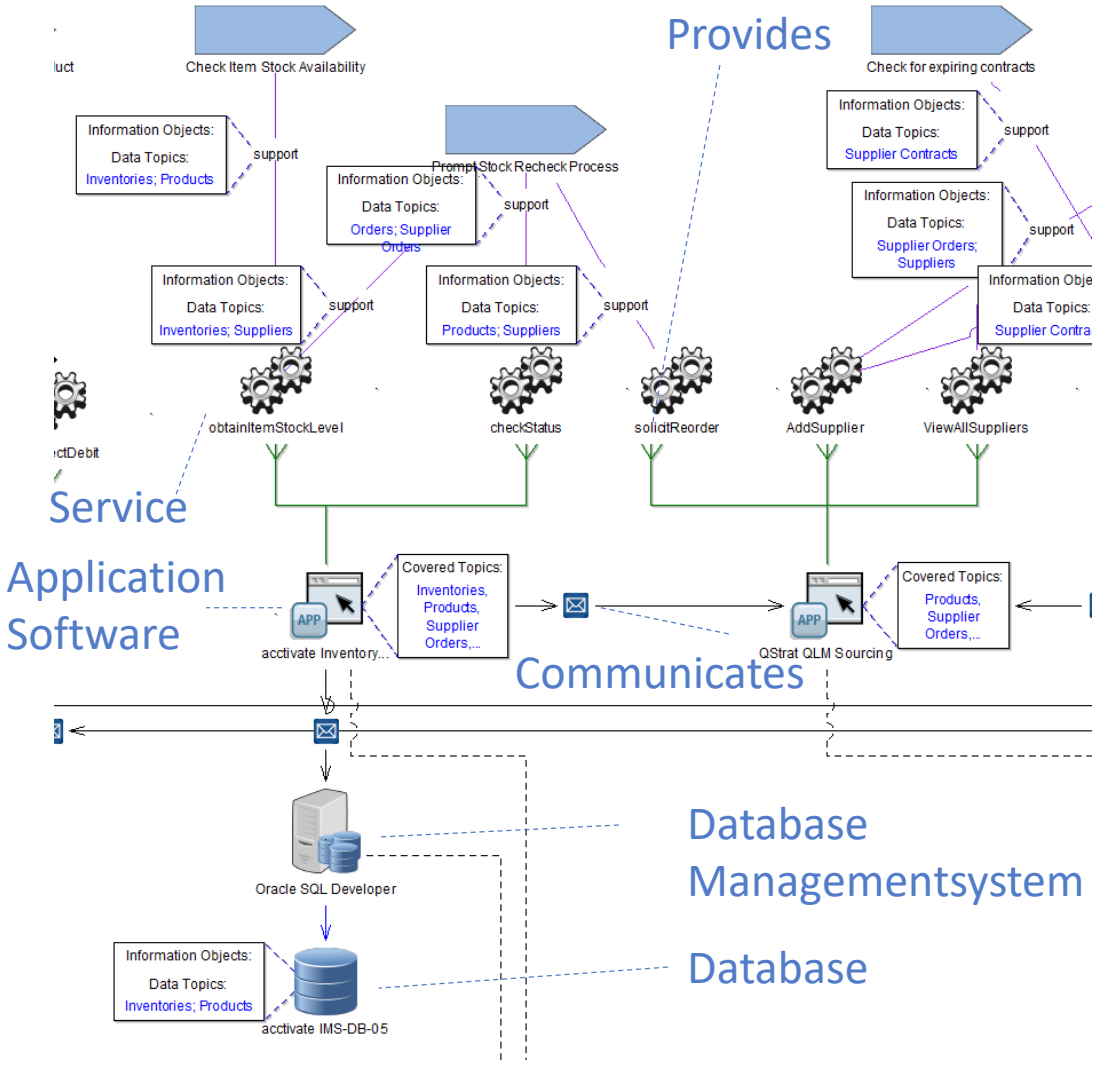
Extensible Set of DSMLs: MEMO GoalML

- Goals are an important premise for rational action
- In practice: often no explicit goal system available
- Modelling of goal systems promises significant advantages:
  - Contribution to the consistency of targets
  - Awareness of goals and thus: orientation for sense making
  - Provide an orientation for employees



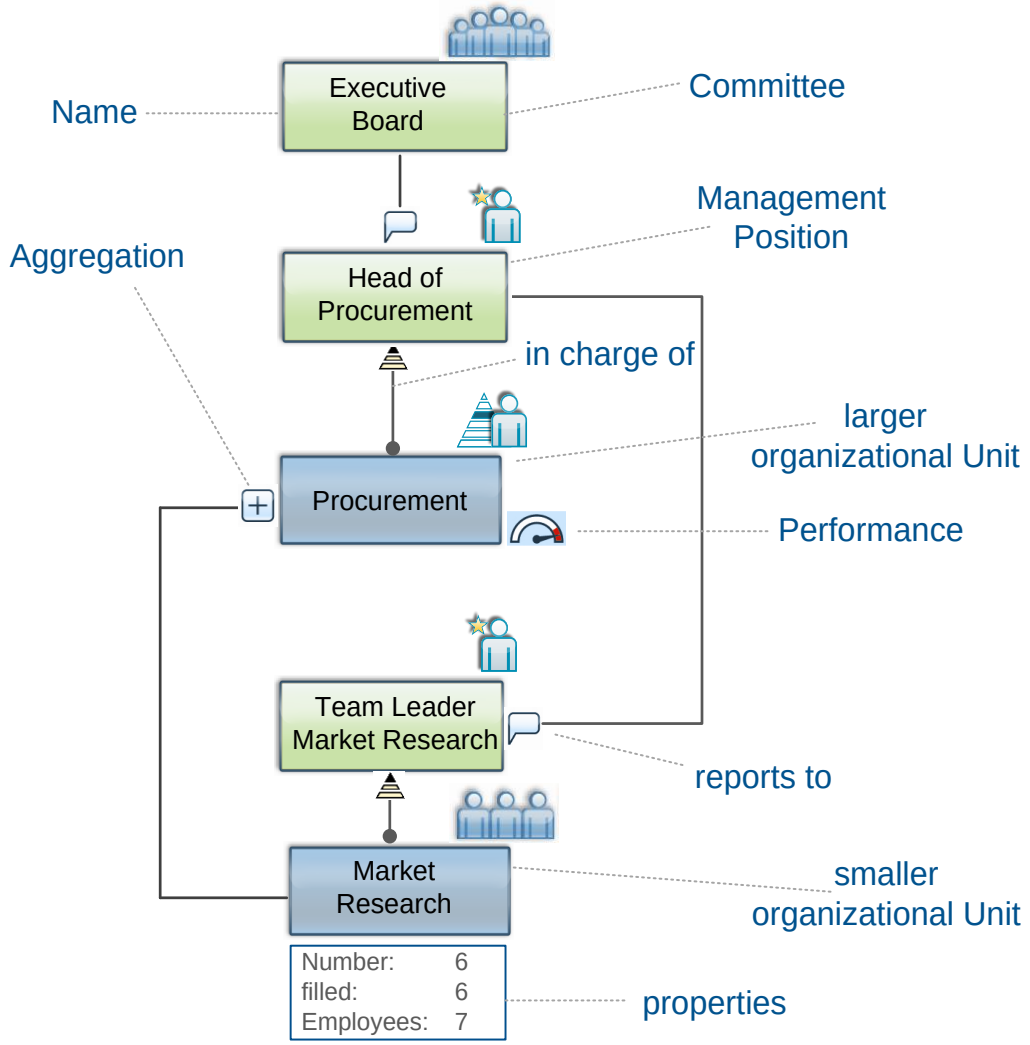
Extensible Set of DSMLs: MEMO ITML

- IT infrastructure are of remarkable complexity.
- At the same time, they are of increasing relevance for an organisation's competitiveness and its ability to change.
- Therefore, there is need for models that
  - reduce complexity
  - foster analysis of IT infrastructures
  - help with (re-)designing IT infrastructures
  - serve as a powerful tool for IT managers



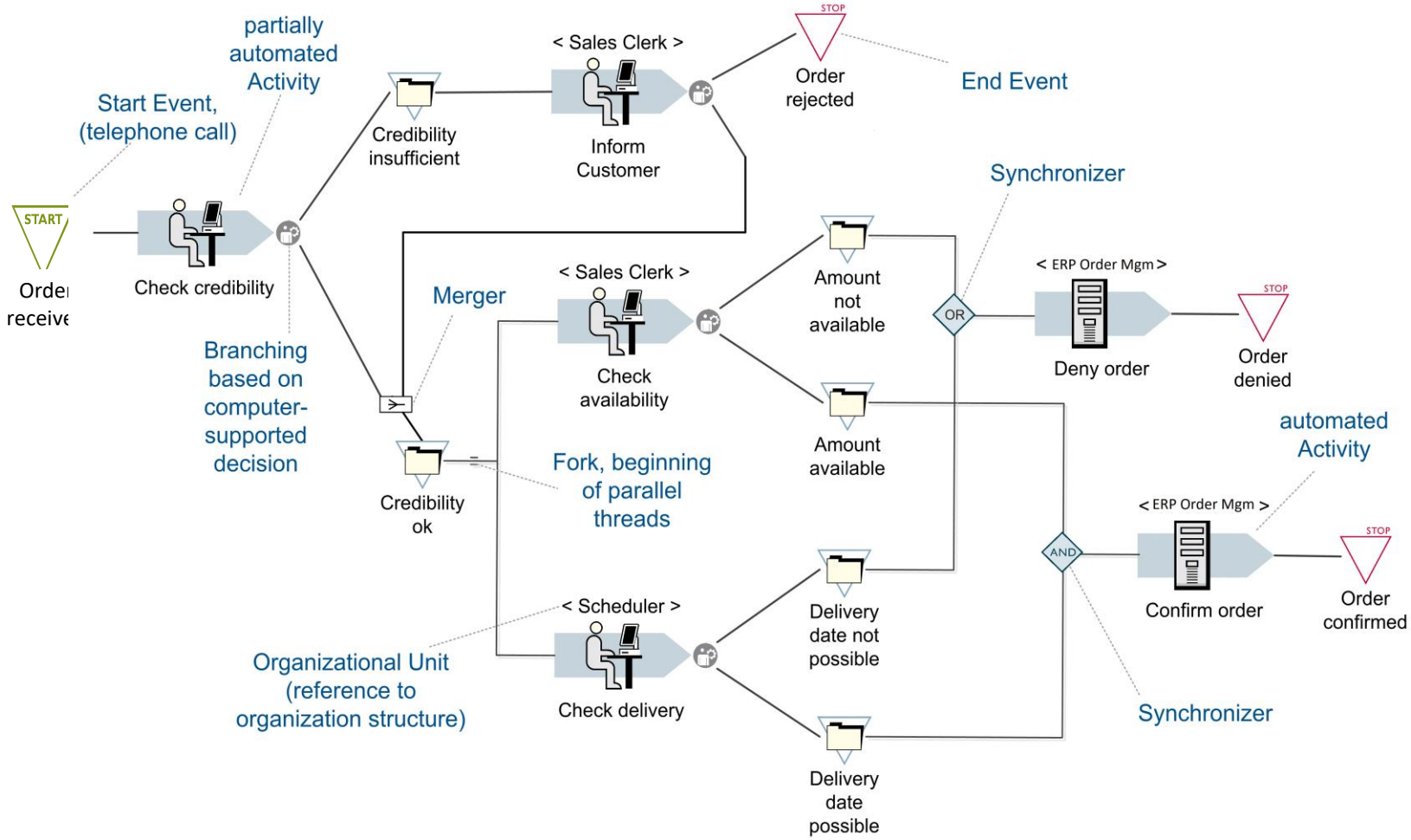
Extensible Set of DSMLs: MEMO OrgML for Organisational Structures

- Organizational structure consists of organizational units and relationships between them
  - line of command
  - aggregation relations
- Positions
  - as smallest organizational unit
  - can have instances
- Organizational units
  - defined by competencies, tasks, responsibilities and resources
  - can be function- or object-oriented

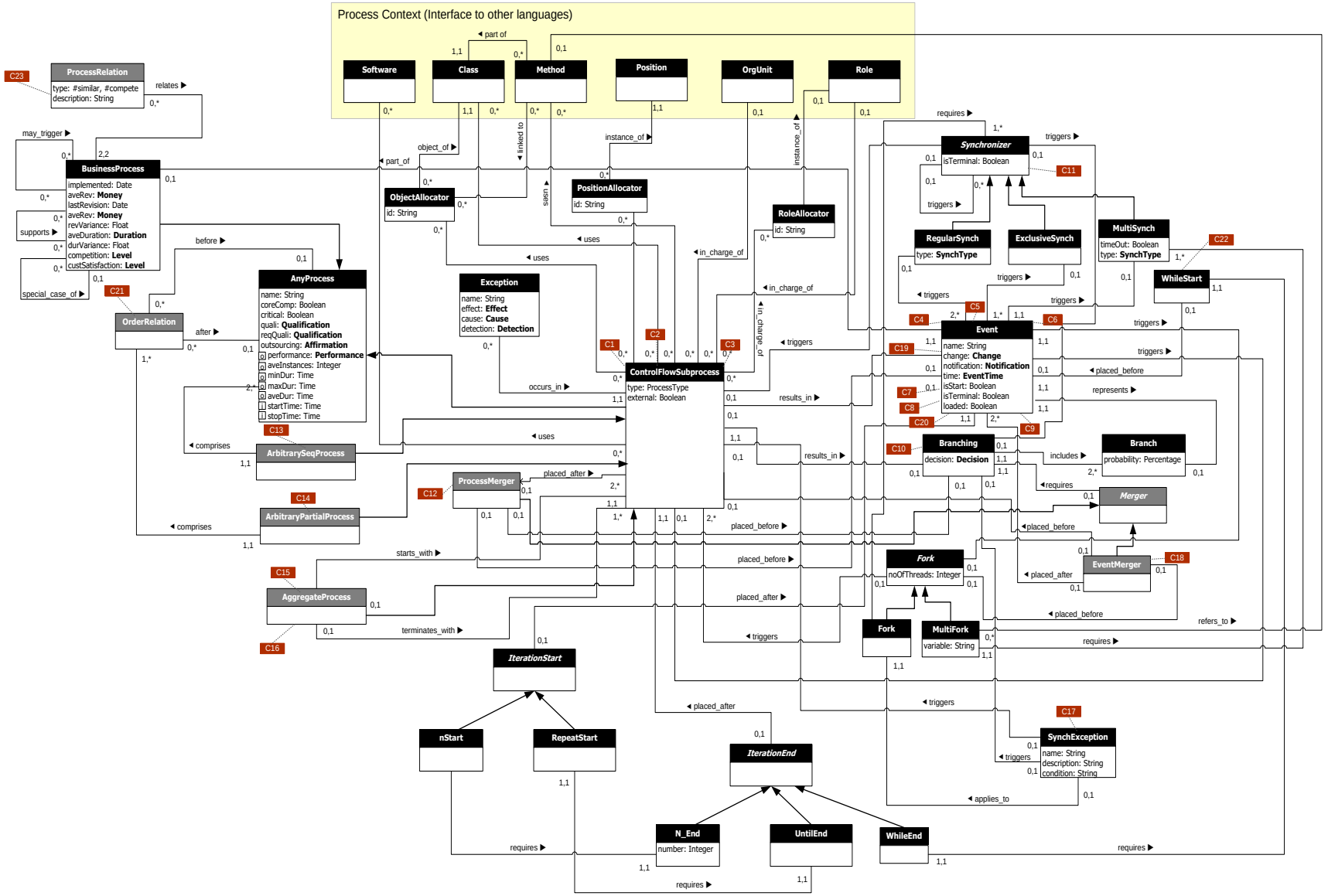


Extensible Set of DSMLs: MEMO OrgML for Business Processes

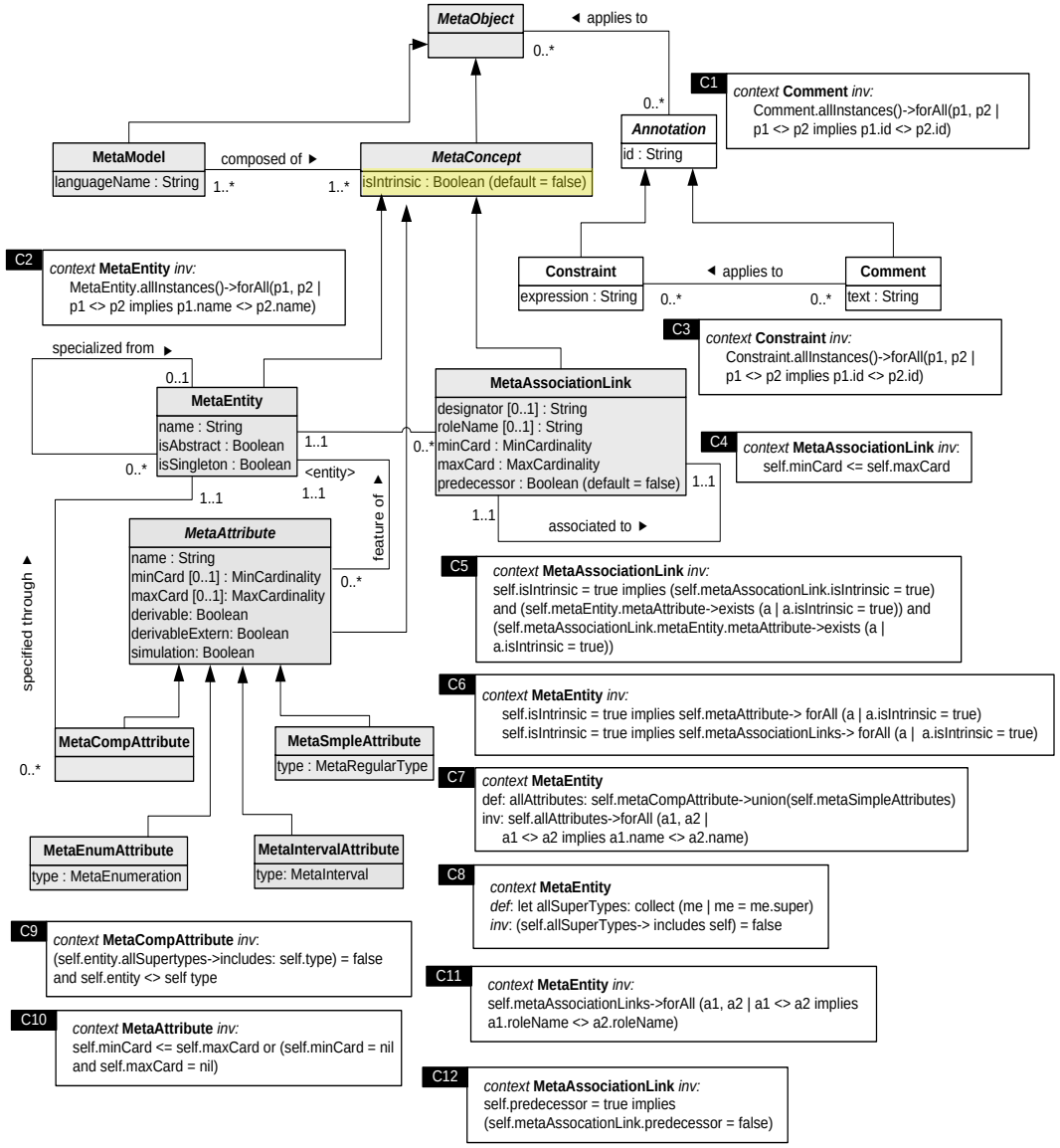
- Documentation of Activities, Events, Control flows
- required to achieve integration with other MEMO DSMLs
  - MEMO OrgML for Structures
  - MEMO ITML



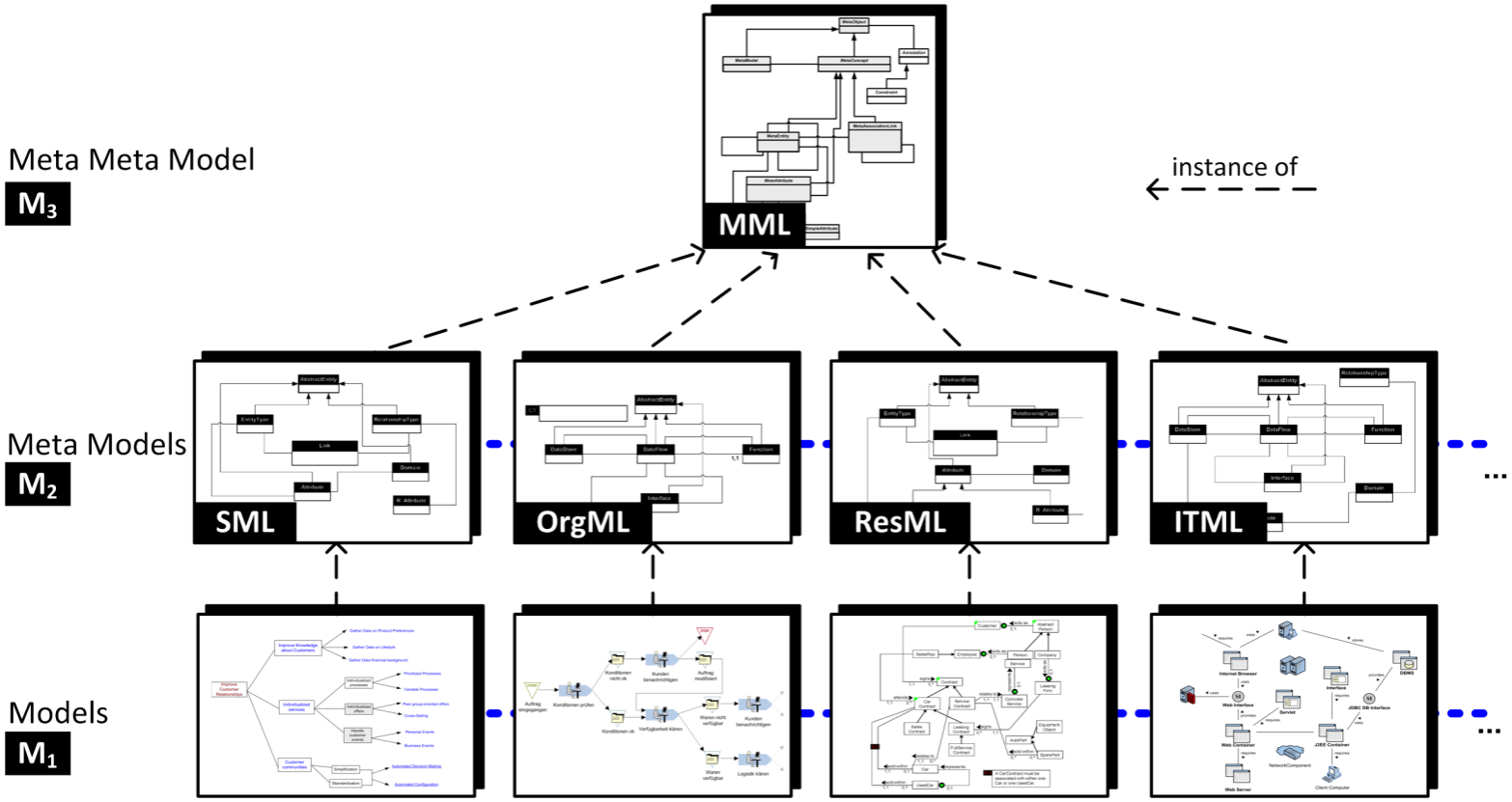
MEMO-OrgML (Processes): Metamodel



MEMO Meta Meta Model (MML)

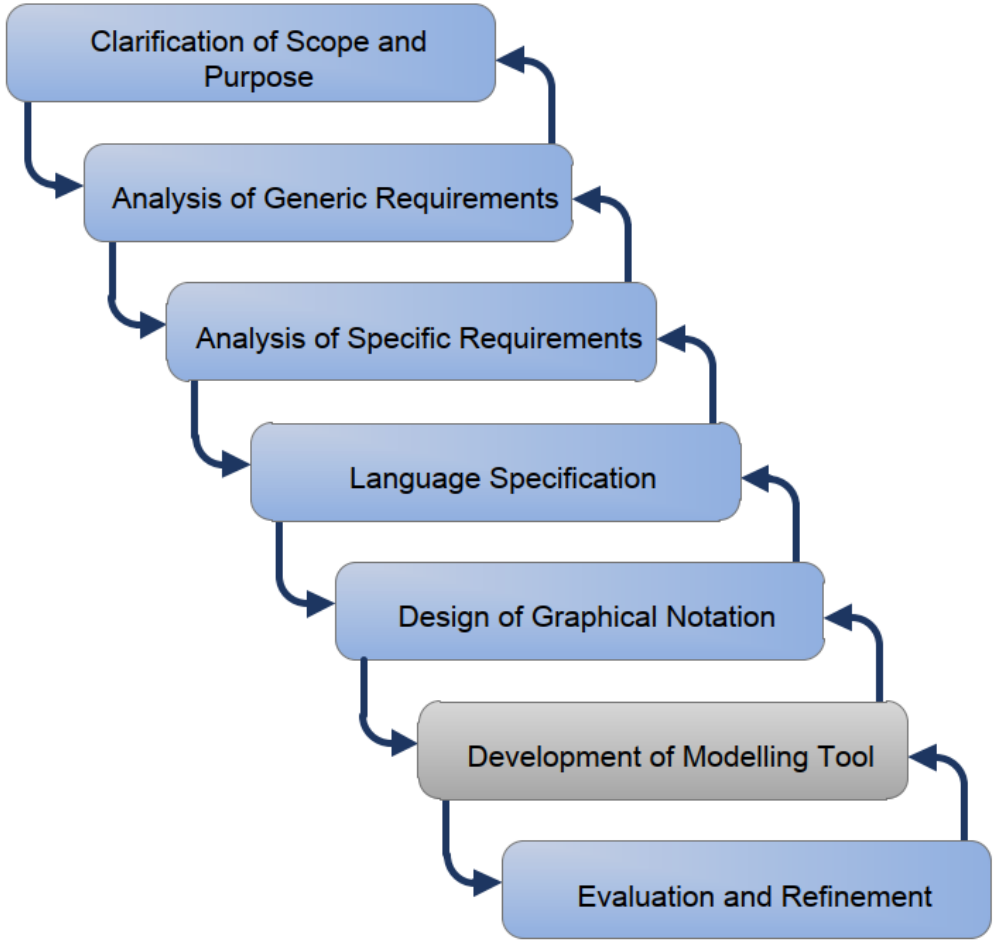


Language Architecture



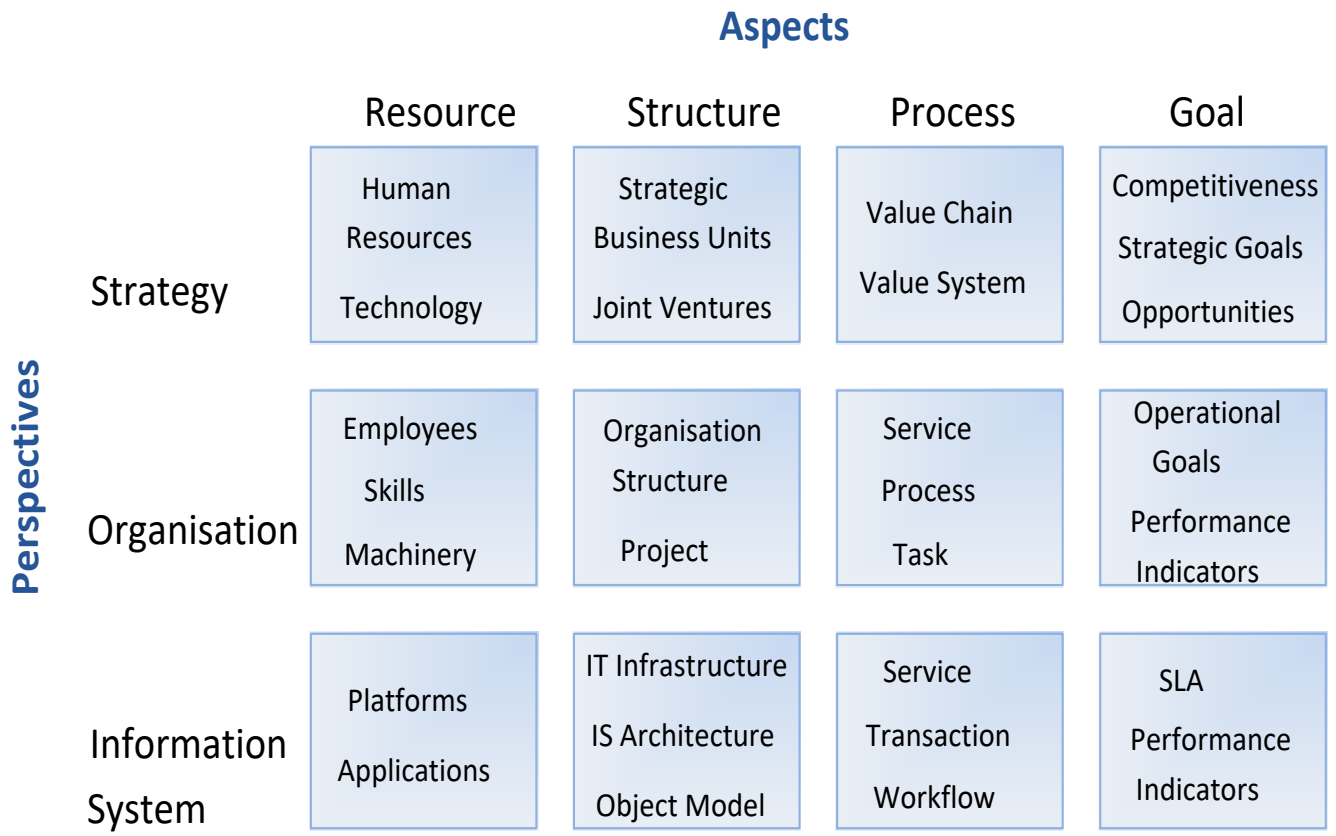
Method for Constructing Methods

- Guides the construction of DSMLs
- Criteria that seem useful for different DSMLs
- Criteria that help to determine which language level a concept might be assigned to

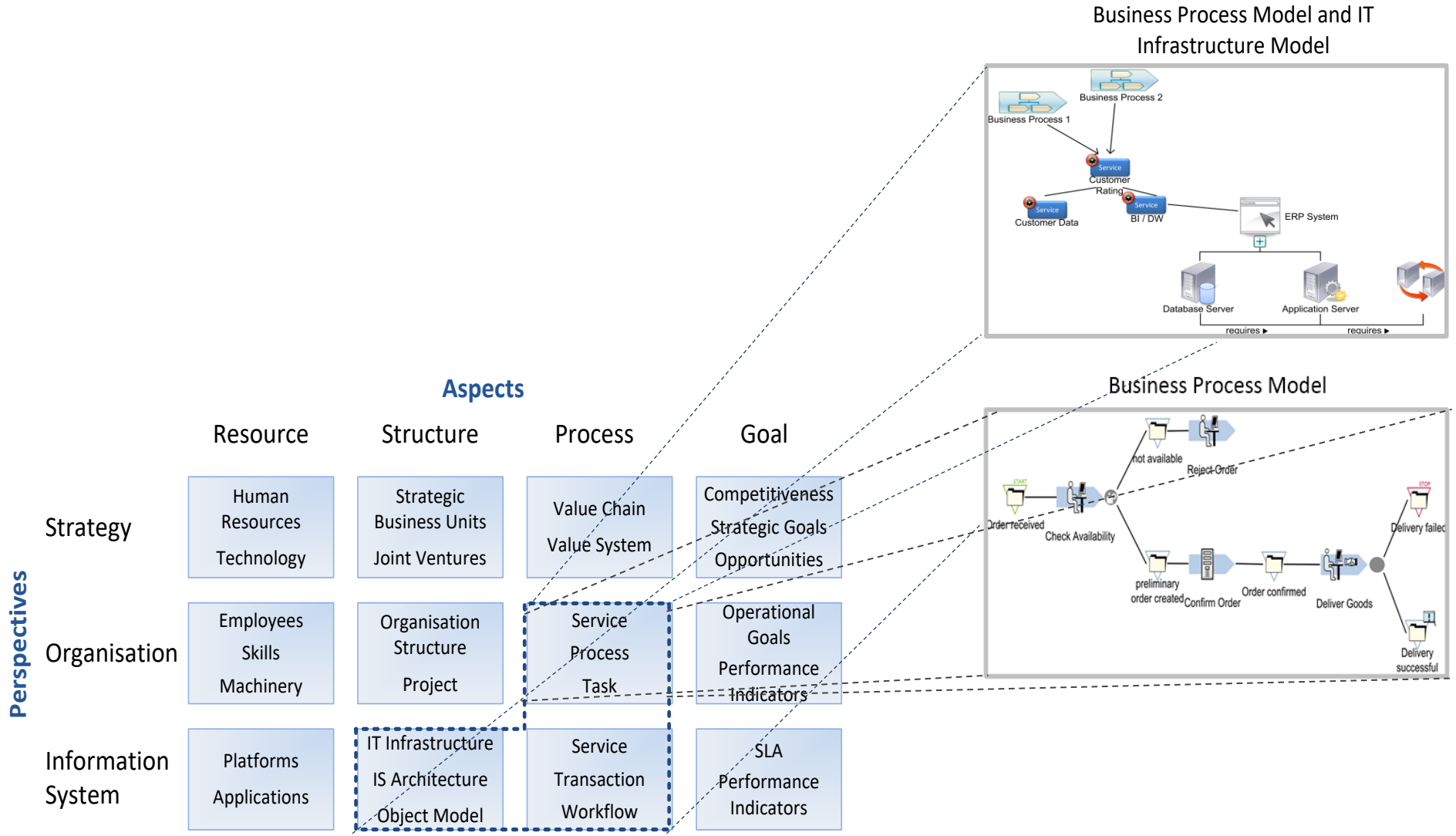


Generic Framework: Two Dimensions As a Starting Point

- Common starting point for more specific kinds of analysis.
- Should provide a "ball-park" view of an enterprise and its information system
  - Accounts for interplay of action system and information system
  - Is adaptable



Generic Framework: „Zooming in“ to Specific Types of Diagrams

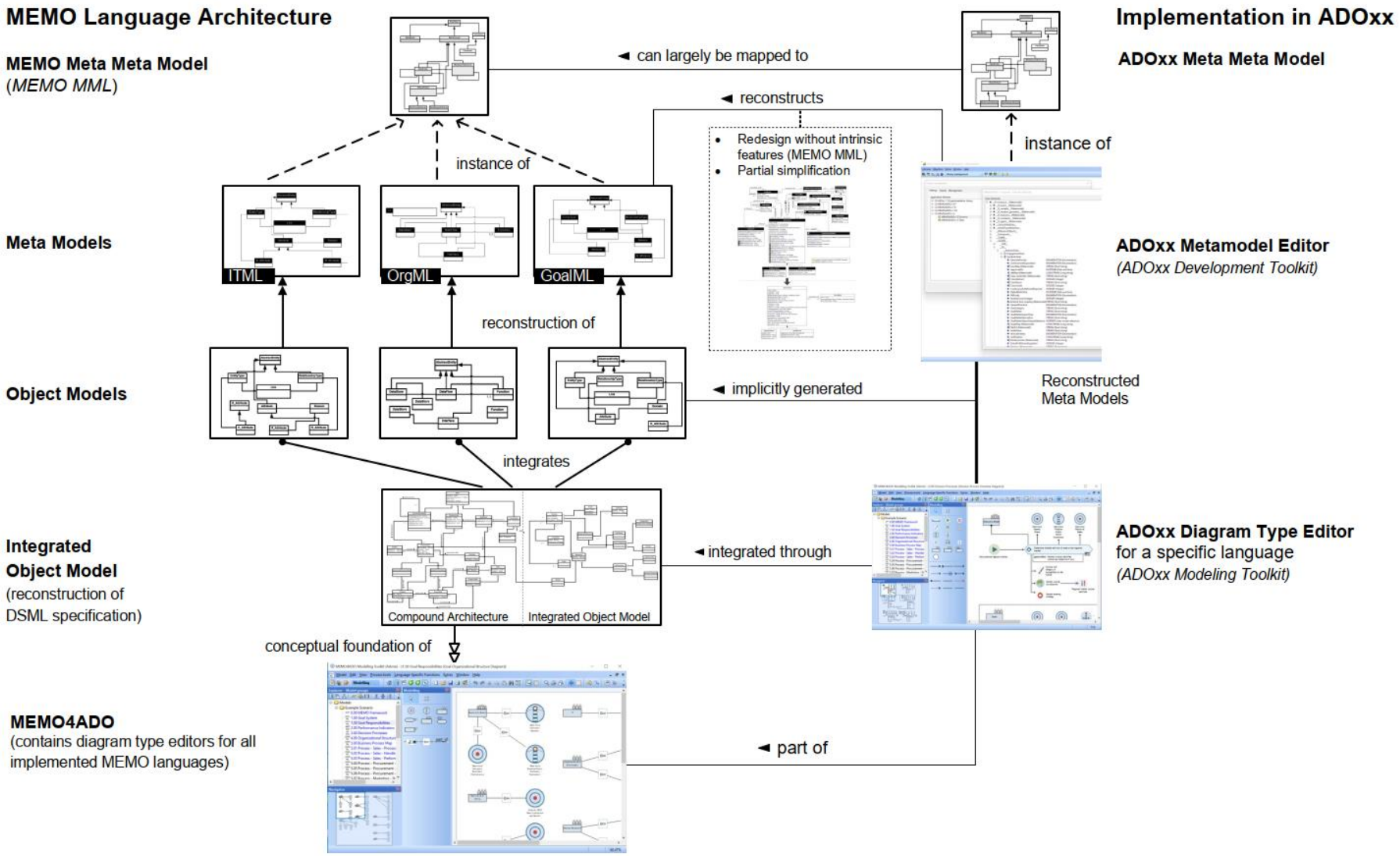


(Meta) Modelling Environment: MEMO4ADO

- Implementation of various MEMO DSML within the meta-modelling environment ADOxx.
- Provides editors for several MEMO languages.
- Models created with different DSMLs can be integrated.
- The integrated meta-modelling environment allows to modify existing languages and to add new ones.

Bock, Alexander; Frank, Ulrich: Multi-Perspective Enterprise Modelling – Conceptual Foundation and Implementation with ADOxx. In: Karagiannis, D.; Mayr, H.C.; Mylopoulos, J. (ed.): Domain-Specific Conceptual Modeling – Concepts, Methods and Tools. Springer 2016

MEMO4ADO and Language Architecture



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Further material can be found here:
https://www.umo.wiwi.uni-due.de/forschung/forschungsprojekte/memo4ado/