
Guidance for Domain Specific Modeling in Small and Medium Enterprises


11th Workshop for Domain Specific Modeling

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Outline

- Project Context
- Partner Survey
- Guidance for Modeling
- Guidance for DSL design
- Conclusions and Outlook

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Project Context: The „BIZWARE“ Project

- Duration: 09/2010 – 08/2013, Budget € 11.5M, Funding € 6.5M
- 2 academic, 8 industrial partners from Berlin
- 4 joint projects with 17 sub-projects and 6 single projects
- Develop a systematic approach to DSL engineering for small and medium enterprises

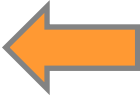


The central logo for the BIZWARE project features a stylized blue and green spiral icon above the word "BIZWARE" in a bold, green, sans-serif font. Surrounding this central logo are various partner logos:

- Fraunhofer FIRST**: Logo with a green square and white lines.
- Technische Universität Berlin**: Logo with a red "TU" and "berlin" text.
- klopotek.**: Logo with the name in a simple font.
- adesso**: Logo with the name and the tagline "business. people. technology."
- akquinet**: Logo with the name and a colorful arc.
- Cedavis**: Logo with the name and the tagline "Concentrating on solutions".
- ClinPath**: Logo with the name and a series of colored dots.
- Model Labs**: Logo with a stylized "M" and the tagline "System Integration & Consulting".
- eTASK**: Logo with the name and the tagline "Service-Management".
- IT Informatik**: Logo with the letters "IT" in a blue box.
- GEFÖRDERT VOM Bundesministerium für Bildung und Forschung**: Logo with the German eagle and a vertical bar.
- WACHSTUMSKERNE UNTERNEHMEN REGION**: Logo with the text "Die BMBF-Innovationsinitiative Neue Länder" and a stylized "U" icon.

<http://www.bizware.org>

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Partner Survey: Perceived & Demanded Benefits of DSM

- interviews conducted with the industrial partners
 - domains:
 - health care
 - finance
 - publishing
 - facility management
 - industrial production
 - web application development
 - system integration
- motivation for investing into a DSL development
- identify challenges
 - individual and systematical

Partner Survey: Perceived & Demanded Benefits of DSM

- categorize DSL developments
 - vertical (business) vs. horizontal (technical)
 - to be used by partners vs. their end customers
 - requirements and challenges for the engineering process
- interview pattern used
 - standards used within the domain
 - software engineering standards used at the partner
 - what is currently being modeled, and how
 - project goals
 - purpose of the DSLs and future modeling
 - perspective users of the DSLs
 - examples provided
 - requirements identified

Partner Survey Results: Motivation

- need to abstract from implementation details
- ease the software development process
- to be able to systematically involve customers and end users
- overcome discontinuity in requirements, design and specification documents and artifacts
 - to use design artifacts as first class development artifacts, without interrupting refinement processes
- to improve documentation
- to ease the software configuration
- ease deployment on different target platforms

Partner Survey Results: Benefits

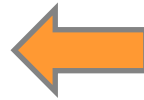
- better documentation already is achieved during DSL development
- effort reduction
- higher levels of abstraction
- improvement of development processes and their organizational aspects
- improved internal and external communication
- leverage existing documents
- integrate into existing development landscape
- overcome business/technical view mismatches

Partner Survey Results: Challenges

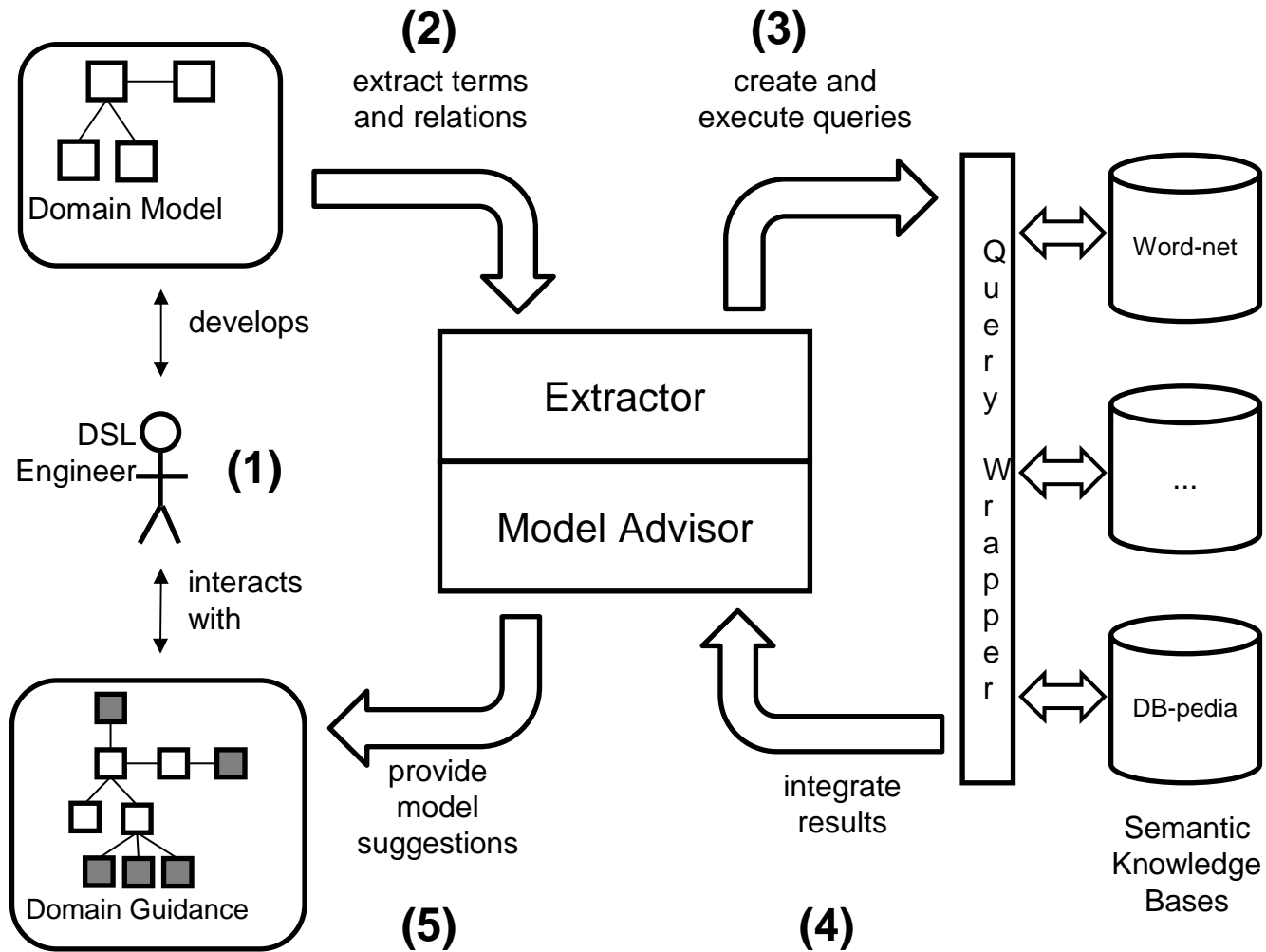
- methodological support required (guidance)
- difficulty in measuring design effort and communication benefits
- versioning and consistency preservation
- tool evaluation required

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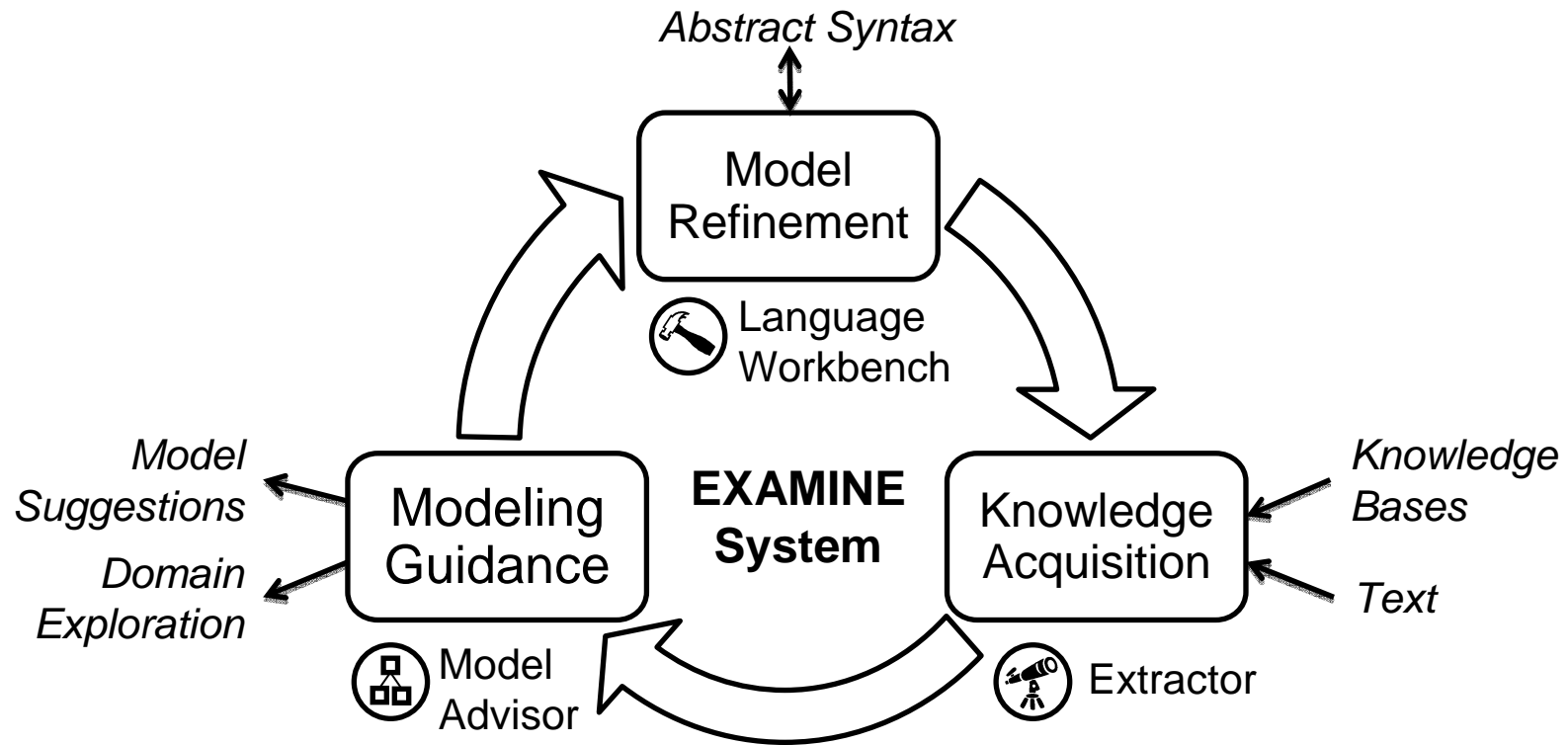
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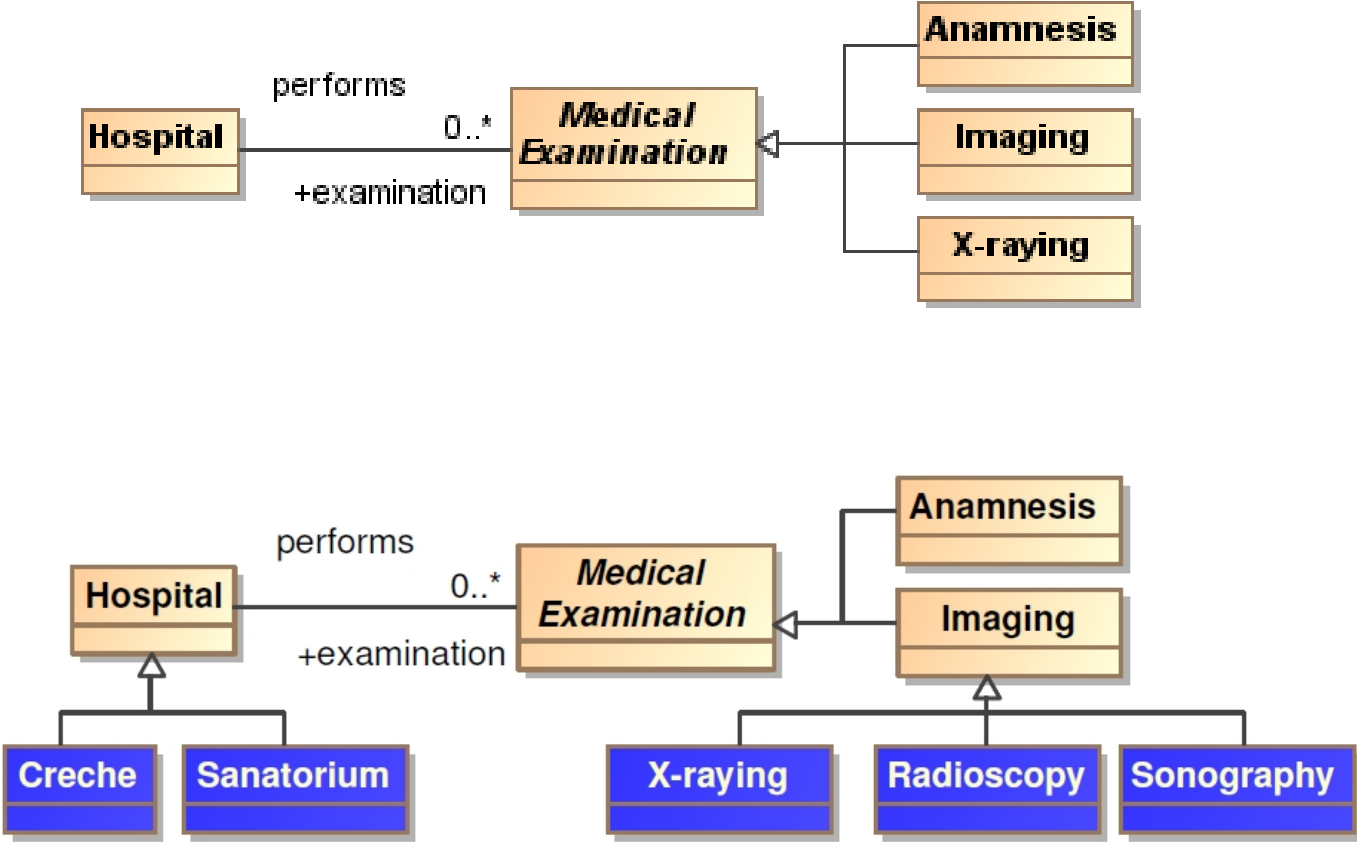
Guidance for Modeling



Guidance for Modeling



Guidance for Modeling: Example

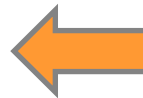


Guidance for Modeling

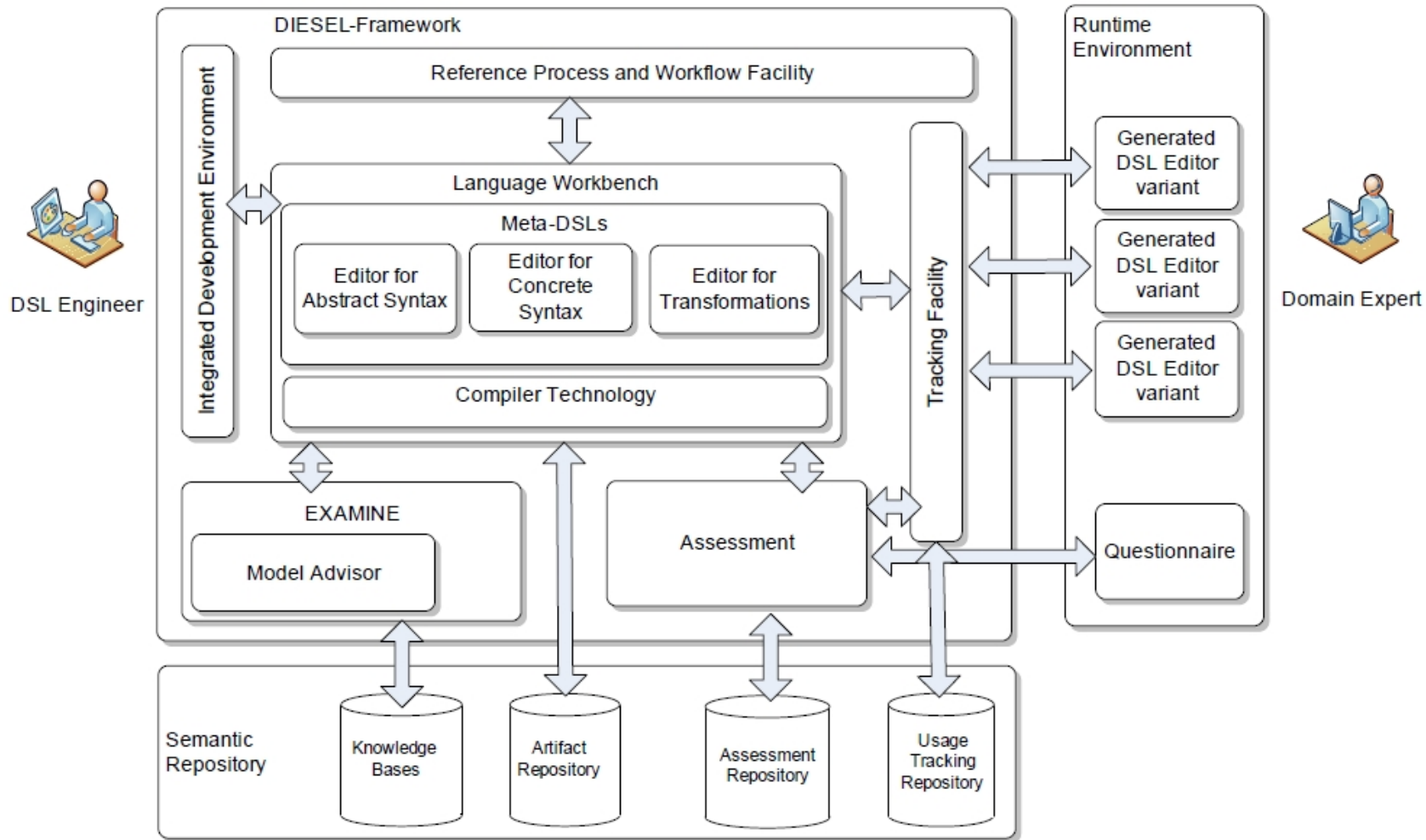
- generated guidance model from existing knowledge sources
- assistance to overcome problems:
 - completeness
 - correctness
- not automatically added
 - brain power still required
 - then use feedback from domain expert

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Guidance for DSL design



Guidance for DSL Design

- identify concepts required and used in the DSL
- survey domain expert's associations of common symbols or concepts in a questionnaire
 - to assess concepts known to the user of the DSL
- identify possible syntaxes considering the assessment and the required expressivity
- test user acceptance of proposed syntaxes
- make a selection of the best approaches
- provide metrics support
- perform the next step of DSL rapid prototype implementation

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Conclusions and Outlook

- let DSL engineering processes benefit from the use of knowledge bases and metrics
- novel features required for better adoption of domain specific modeling in small and medium enterprises (SME)
 - lower the entry barrier
- supply guidance to both DSL engineer and domain expert
 - guidance for when using the DSL

Thank you for your attention

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