# TOWARDS DSL-BASED WEB ENGINEERING

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IT-Management and Web Engineering
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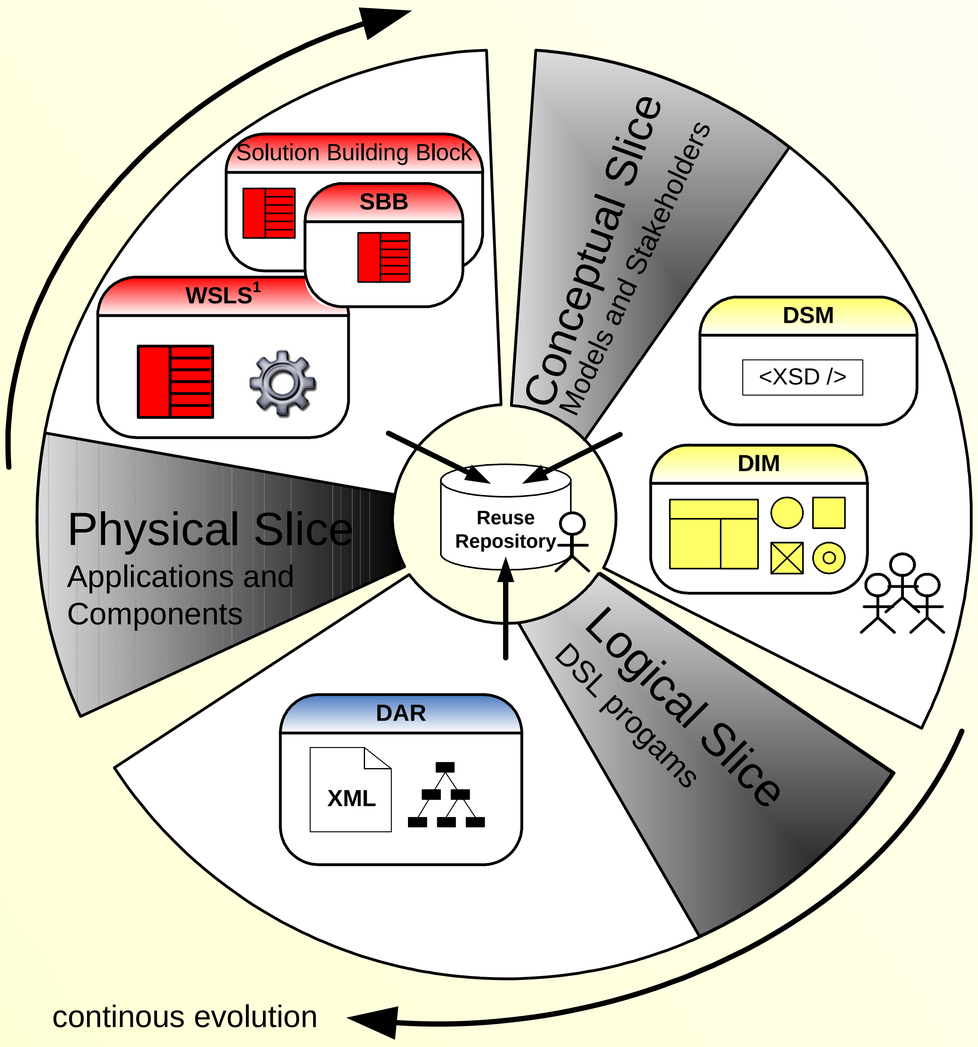
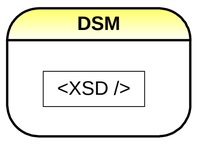


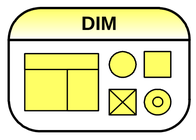

## The Idea

Strong user involvement and clear business objectives, both relying on efficient communication between the developers and the business, are key factors for a project's success. Domain-Specific Languages (DSLs) being simple, highly-focused and tailored to a clear problem domain are a promising alternative to heavy-weight modeling approaches in the field of Web Engineering. Thus, they enable stakeholders to validate, modify and even develop parts of a distributed Web-based solution.

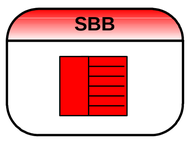
## DSL Elements



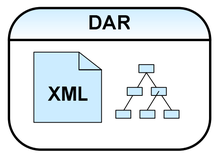

**Domain-Specific Model (DSM)**
- Formal schema for all DSL programs
- Design according to the problem domain
- Specified as am XML Schema Document (XSD)




**Domain Interaction Model (DIM)**
- Specifies graphical notation based on DSM
- Symbols and concepts derived from the problem domain
- Easy to understand and use
- Supported by dedicated editor




**Solution Building Block (SBB)**
- Highly configurable software component
- Adapts its behavior according to a DSL program
- "Executes" the DSL program

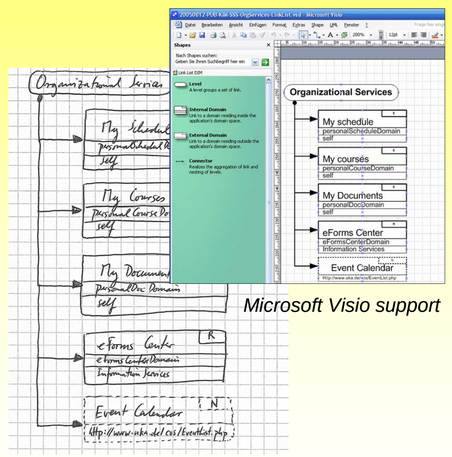



**Domain Abstract Representation (DAR)**
- A DSL program
- Created and modified by using a DIM
- Serialized into an XML document based on the DSM

[1]*WebComposition Service Linking System*

# DSL Catalogue

## Conceptual Level




*Microsoft Visio support*

*Pen&paper approach*

## Logical Level

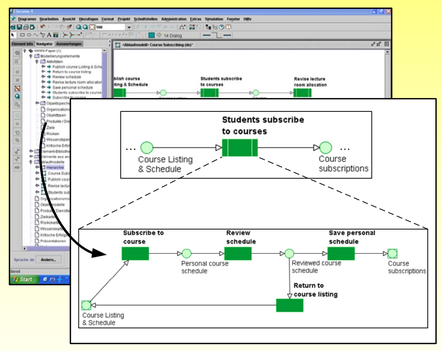
```
<linklist
   xmlns="urn:mwrg:dsl:linklist"
   xmlns:xlink="http://www.w3.org/1999/xlink">
  <level label="Organizational Services">
    <domain
      xlink:type="simple"
      xlink:actuate="onRequest"
      xlink:href="personalScheduleDomain"
      xlink:title="My schedule"
      linkbase="self"
      xlink:show="embed" />

      [… further link definitions …]

  </level>
</linklist>
```

*Linklist*

## Conceptual Level



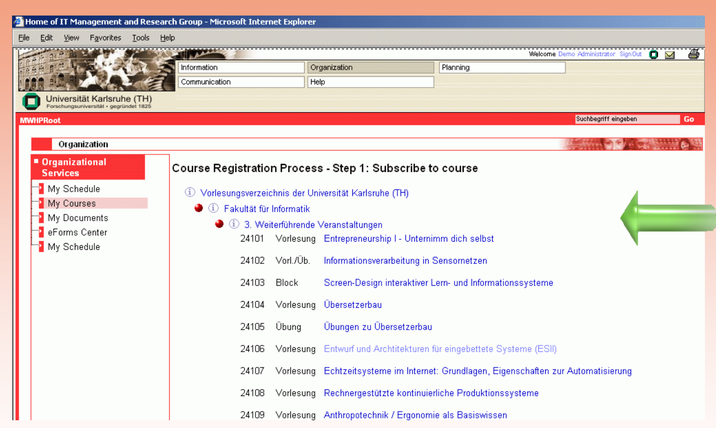

*INCOME Support tool for modeling petri nets*

## Logical Level

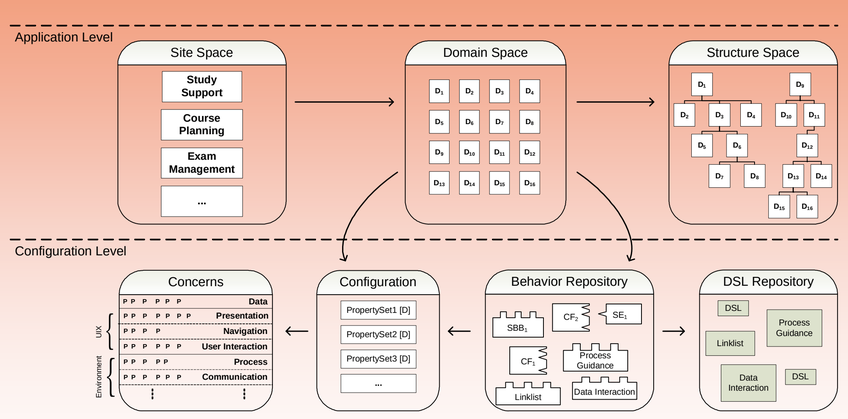
```
<wf:StudySupportSystem
   xmlns:wf="urn:mwrg:dsl:process-guidance"
   xmlns:xlink="http://www.w3.org/1999/xlink">
   <wf:SBB
      wf:linkbase="studySupportSystem"
      xlink:href="courseOverviewDomain"
      xlink:title="Course Registration Process.."
      xlink:role="urn:kim:study-support-system"
      xlink:type="locator" />
      [ … further worksteps … ]
   <wf:transition
      wf:token="select"  xlink:type="arc"
      xlink:from="courseOverviewDomain"
      xlink:to="subscribeCourseDomain"
      xlink:actuate="onRequest"
      xlink:arcrole="urn:kim:process-step" />
      [ … further transitions … ]
</wf:StudySupportSystem>
```

*Web-based Process Guidance*

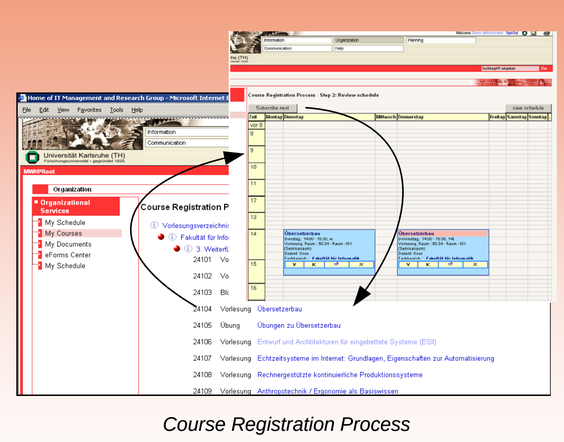
# Physical Level




*Study Support System*




*Technical Support System*




*Course Registration Process*

**Further Information at http://mwrg.tm.uni-karlsruhe.de**