

MOKi

the Modelling WiKi ---

or ... how to support collaborative Knowledge Engineering
via Semantic MediaWiki

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Motivations

- Building high quality (formal) models of an enterprise is a strategic task:
 - improve knowledge management
 - provide knowledge-based services
 - reasoning and verification
 -
- It is a task we have to accomplish more and more in research and technology transfer projects.

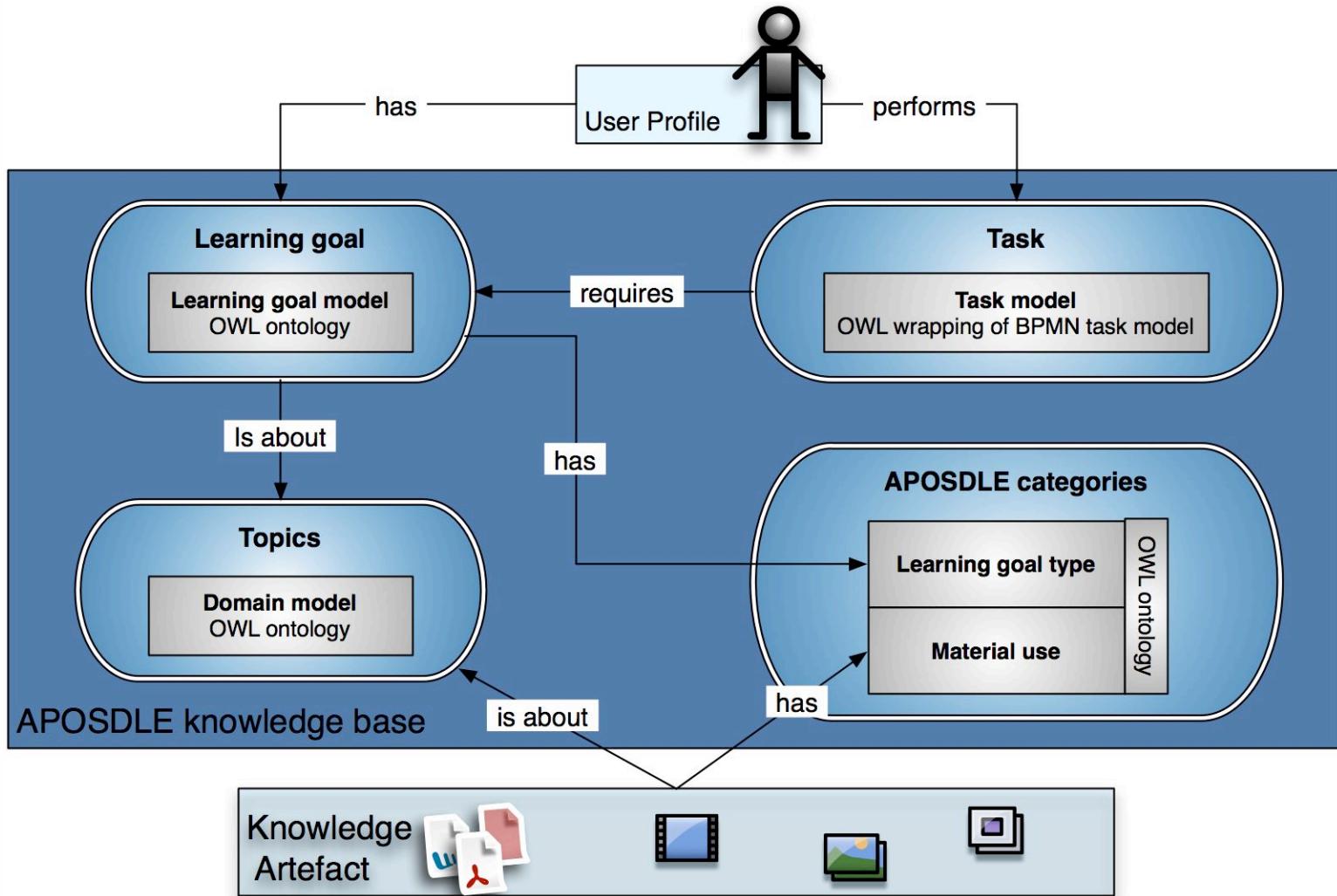


APOSDE aims at developing a software platform to support the process of learning@work, that is learning within the context of the immediate work of a user and within his/her current work environment.

Website: www.aposde.org

APOSDE is a 48 months research and development integrated project partially supported by the European Community under the Information Society Technologies (IST) priority of the 6th framework programme for R&D (contract no. IST-027023).

The enterprise model (in APOSDEL)



Enterprise Modelling

- Modelling the relevant aspects of an enterprise
 - Static aspects (e.g. the organizational structure, the products, the documents, ...)
→ domain model
 - Dynamic aspects (e.g, the procedures, the activities...)
→ process model
- Domain and Process model need to be integrated.

Building the enterprise model

But.....

- Models cannot be completely extracted from data;
- Knowledge is owned by “experts”.

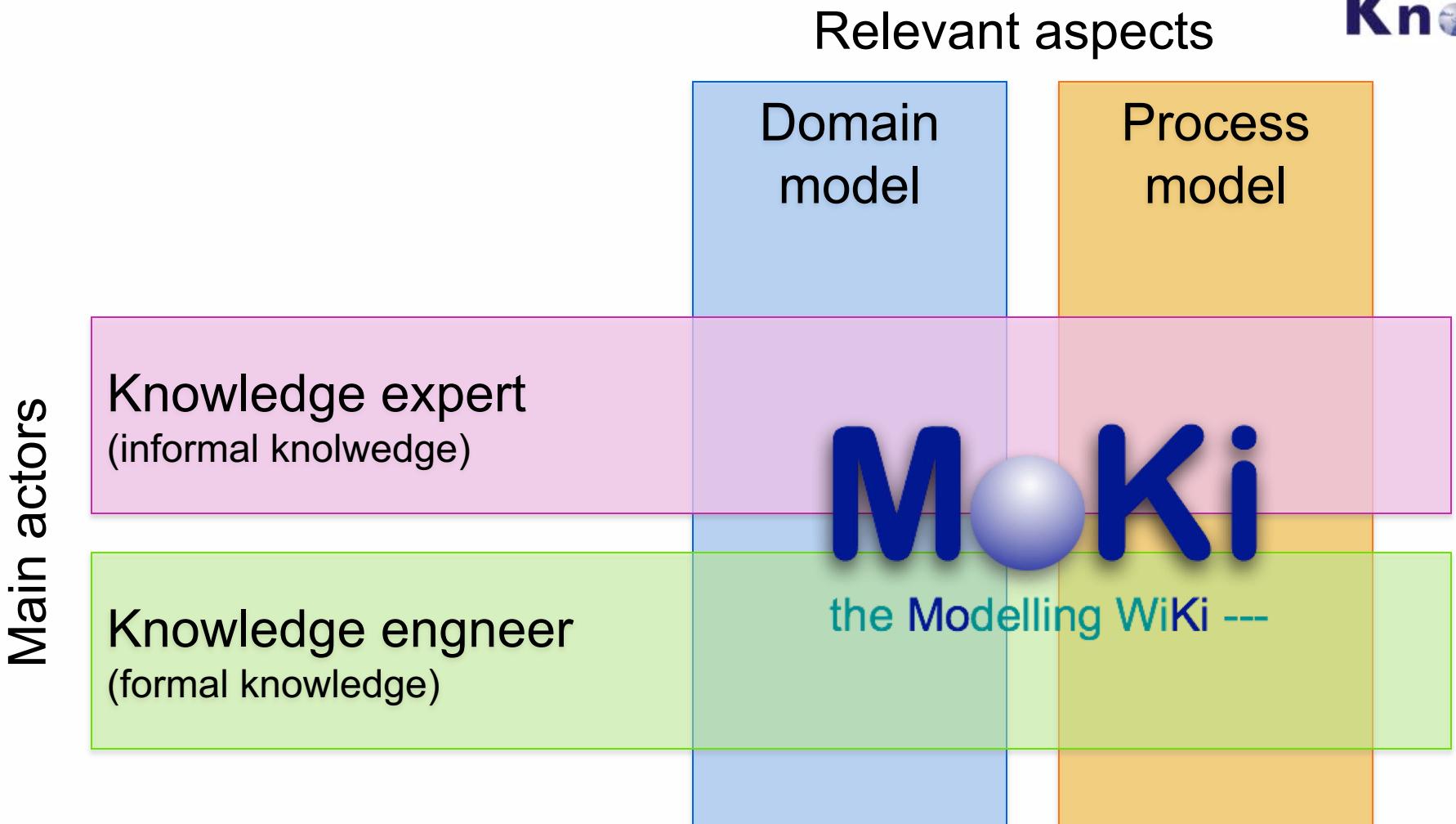
Modeling ia complex activity which requires the collaboration between:

- Knowledge **experts**;
- Knowledge **engineers**.

Specific Problems

- Different types of formal models (and tools to produce them);
- Complex Modeling team:
 - Different knowledge engineering skills;
 - Several domain/task/competencies/... experts;
 - Different locations (rare face-to-face meetings);
 - Different organisations (e.g, SMEs do not have knowledge engineering skilled people)
- Tools designed for knowledge engineers (Protégé, YAWL editor)
 - Experts write unstructured descriptions (or, Excel files);
- Little support for agile and interleaved collaboration between all actors
 - Descriptions and models are often contained in documents which are emailed back and forth

Our Contribution



MoKi; the Modeling Wiki

- A new tool for enterprise modelling based on two pillars:
 1. Semantic MediaWiki as a **uniform layer** for modelling domain and processes;
 2. Tight integration between **informal** and **formal** modelling to support knowledge experts and knowledge engineers.

MoKi basic technology

- Built on top of Semantic MediaWiki.
 - Supports collaborative editing;
 - Only a web-browser is required on the client side;
 - Users are quite familiar with wikis;
 - Basic versioning facilities;
 - Semantic information provided in the wiki helps to structure knowledge and to automatically extract formal models.

Ideas behind MoKi

- One “item” = one wiki page;
- Overview pages;
- Templates to guide informal but structured descriptions;
- Import/export of formal models;
- Provide some validation of knowledge;
- Insert/reuse existing techniques / tools for modelling

One item = one page

Domain model

- Concept Page
- Individual page
- Property Page

Process model

- Process Page

Concept Page

Conference – MoKi (The Modelling WiKi) – Version 1.0

https://moki.fbk.eu/moki/tryitout/index.php/Conference RSS Google

Home Gmail FBK-mail http://sslgate.fbk.eu/ DesktopFBK

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Conference

Description: A conference is a formal meeting that typically takes place over a number of days and involves people with a shared interest, esp. one held regularly by an association or organization

congress, meeting, convention,

Synonyms: seminar, colloquium, symposium, forum

Conference is a: Event

Conference is part of:

Conference ----(participant)----> Person

Subconcepts of Conference: InternationalConference

Conference has no parts

Individuals of Conference: ISWC2009

Category: Domain model

Domain model

- Concept Page
- Individual page
- Property Page

Process page

Write a paper – MoKi (The Modelling WiKi) – Version 1.0

https://moki.fbk.eu/moki/tryitout/index.php/Write_a_paper

Home Gmail FBK-mail http://sslgate.fbk.eu/ DesktopFBK

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Write a paper

Export to eRDF fromat (for Oryx) Only this process | Sub processes in separate file(Zip Archive) | Sub processes in same file as embedded design

```
graph LR; Start(( )) --> Define[Define paper's topic]; Define --> Review[Review state of the art]; Review --> Organize[Organize the original part]; Organize --> Revise[Revise and rewrite]; Revise --> Journal[Submit paper to a Journal]; Revise --> Conference[Submit paper to a conference]; Revise --> Report[Submit paper as a technical report]; Journal --> End((( )))
```

Process model

- **Process Page**

Description: The process of writing a scientific paper

Required concept: Publication, ResearchTopic, Event, Person

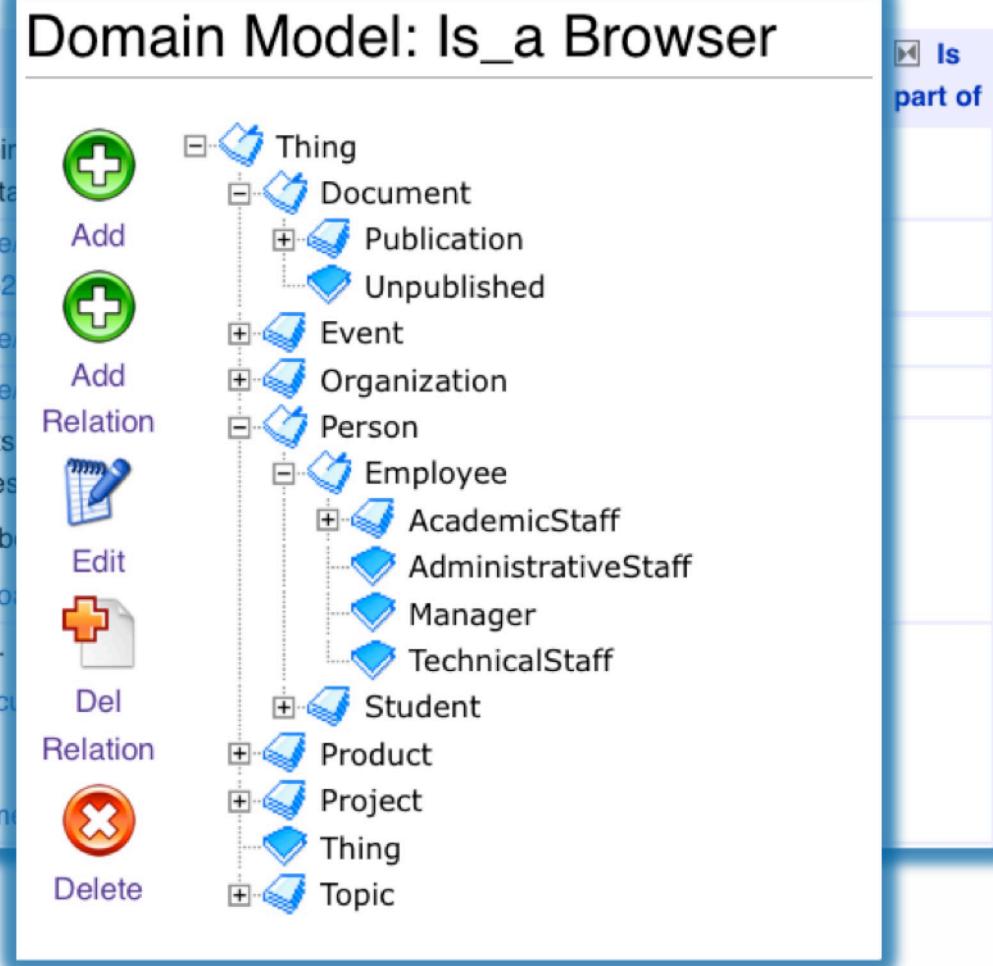
Category: Process model

Overview Pages

List domain concepts

Number of concepts in the Domain Model: 71

Concept	Description
Misc	Work of another or undetermined scheme is not explicitly stated.
UndergraduateIntermediateClass	see: http://www.neurolabor.de/cgi-bin/dict/urlexp/200307052
UndergraduateAdvancedClass	see: http://www.neurolabor.de/
GraduateClass	see: http://www.neurolabor.de/
Topic	If changing this concept (or its ontology depends on the foreseen changes). The swrc topic ontology can be found at: http://ontoware.org/frs/downloadable/ontologies/swrc.owl
Document	Dublin Core elements added. See: http://dublincore.org/documents/documents.html for document types see: http://www.bsz-bw.de/diglib/manuals/



Editing templates via forms

Modify Concept: Conference – MoKi (The Modelling WiKi) – Version 1.0

https://moki.fbk.eu/moki/tryitout/index.php?title=Conference&action=f... RSS Google

Home Gmail FBK-mail http://sslgate.fbk.eu/ DesktopFBK

Facebook | Home Modify Concept: Conference – Mo... BBC News – Copenhagen police b... +

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Modify Concept: Conference

Annotations

Description: A conference is a formal meeting that typically takes place over a number of days and involves people with a shared interest, esp. one held regularly by an association or organization

Synonyms: congress, meeting, convention, seminar, colloquium, symposium, forum

Hierarchical Structure

Conference is a: Event

Conference is part of:

Properties

Subject	Property	Object(s)
Conference	participant	Person

Add another

Notes (free text):

This is a minor edit Watch this page

Save page **Show preview** **Show changes** **Cancel**

Import/Export

Import Functionalities Export Functionalities

Edit

Add/Edit a Concept Add/Edit an Individual Add/Edit a Property Add/Edit a Process

List

List Concepts List Individuals List Properties List Processes

Visualise

IsA Browser IsPartOf Browser Individuals Browser

Validate

Ontology Checklist Individuals Checklist

Navigation

Main Page Recent changes

search

Go Search

toolbox

What links here Related changes Upload file Special pages

Appropriate
templates for the
different entities

Moki functionalities

Import/Export

- Import Functionalities
- Export Functionalities

Edit

- Add/Edit a Concept
- Add/Edit an Individual
- Add/Edit a Property
- Add/Edit a Process

List

- List Concepts
- List Individuals
- List Properties
- List Processes

Visualise

- IsA Browser
- IsPartOf Browser
- Individuals Browser

Validate

- Ontology Checklist
- Individuals Checklist

Navigation

- Main Page
- Recent changes

page discuss watch refresh

Main w Import/export in OWL and BPMN
Term Extraction facilities

Getting started

- Consult MoKi's User Manual
- Visit MoKi's Web-site

Login Details

To access MoKi on-line demo, use the following login details:

- User: Moki
- Password: moki

Edit a single item

List browsers

Validation Scripts and check list

Graphical browsers

Find: Highlight all Match case

MoKi @ work

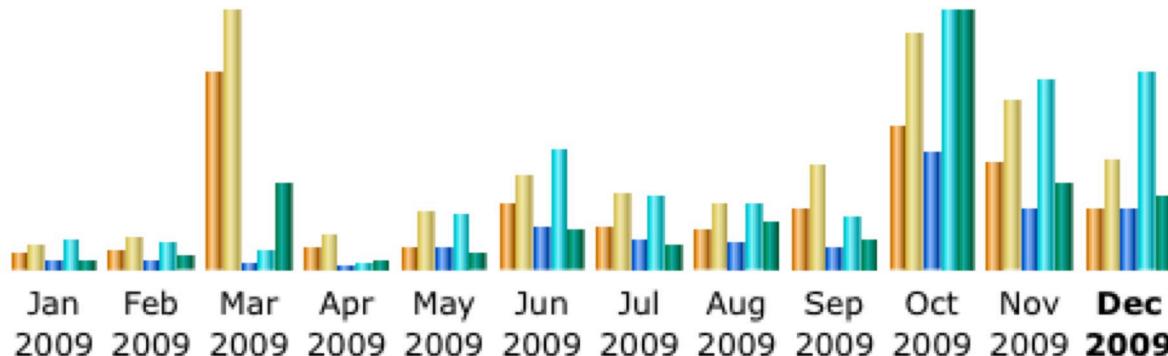
- Six medium-size enterprise models for the use cases in APOSDEL (FP6 EU-project (2008))
- Training in knowledge management courses at
 - university of Graz (6 MoKi's ~ 50 users each)
 - University and Bratislava
- Revision of an Organic Agriculture and Agroecology ontology(FP7 Organic.Edunet project)
- Experiments at CEII Trentino

Sister tools:

- Collection of italian medical lay terminology (oct 2008)
- Specification of medical guidelines (output in ASBRU)

Usage of the on-line version

Countries					
	Countries	Pages	Hits	Bandwidth	
	Italy	it	6505	16574	493.44 MB
	European country	eu	5435	15456	338.00 MB
	United States	us	1443	3765	91.88 MB
	Austria	at	601	1519	109.10 MB
	Germany	de	562	1191	29.71 MB
	Slovak Republic	sk	378	933	14.05 MB
	Spain	es	261	897	38.90 MB
	Portugal	pt	95	199	2.76 MB
	Great Britain	gb	94	319	8.25 MB
	Greece	gr	81	136	1.01 MB
	Norway	no	76	144	3.51 MB
	Japan	jp	58	197	2.57 MB
	Sweden	se	52	215	21.66 MB
	Hungary	hu	44	76	1.24 MB
	France	fr	30	55	4.80 MB
	China	cn	18	35	1.21 MB
	Indonesia	id	18	29	242.45 KB
	Brazil	br	16	30	200.77 KB
	Netherlands	nl	16	50	1.56 MB
	Belarus	by	15	53	1.02 MB
	South Korea	kr	10	34	515.32 KB



Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2009	10	15	414	1186	16.43 MB
Feb 2009	11	20	427	1044	20.66 MB
Mar 2009	123	162	326	720	149.55 MB
Apr 2009	14	22	190	329	16.31 MB
May 2009	14	37	819	2198	28.23 MB
Jun 2009	40	58	1557	4526	65.59 MB
Jul 2009	26	47	1121	2831	40.65 MB
Aug 2009	24	40	992	2473	79.73 MB
Sep 2009	39	65	826	2065	51.54 MB
Oct 2009	89	149	4424	9905	435.81 MB
Nov 2009	68	105	2348	7293	145.29 MB
Dec 2009	38	70	2403	7492	125.12 MB
Total	496	790	15847	42062	1.15 GB

Things we are working on...

- Add templates for different families of ontology concepts,
 - Events, Artifacts, Roles,
- (Re)Use patterns;
- Support more expressive constructs (axioms) both at modeling time and in import/export
 - Integrate formal modeling functionalities;
 - Present both the formal and informal parts as two views on the “same” knowledge in the MoKi.
- Extend support for validation and revision
 - highlight the effects of changes;
- Extend informal / formal modeling of business processes;
- Include “namespaces”;
- Include different term extractors;
-

And now....

- Play with Moki using the on-line demo at
<http://moki.fbk.eu>
- Send us your feedback;
- Ask us for the (Open Source) code and use it!