MoKi: A Collaborative Enterprise Modelling Tool

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Introduction *Enterprise modelling* is the process of creating an *enterprise model*, that is a structured description representing the relevant aspects of an enterprise. Among the relevant aspects of an enterprise which are often modelled are the business processes, the business domain, skills required by the employees, business models endorsed by the enterprise etc. Building an enterprise model is not a trivial task and usually requires the collaboration of different actors. These different actors usually have different degrees of expertise on (i) the knowledge to be modelled, (ii) the ability of encoding such knowledge into formal computer-processable statements, and (iii) the ability of integrating different aspects of an enterprise (e.g. processes, information) into a uniform and coherent vision. To support these different actors we foresee a system in which content can be represented at different degrees of formality. This will allow domain experts to create, review and modify models at a rather informal/human intelligible level, and knowledge engineers to check the quality of the formal definitions and their correspondence with the informal parts they intend to represent. Translation between different levels of formality should be as much automatised as possible, in order not to increase the overhead of human work. To support a coherent development and integration of the different components of the enterprise model we also foresee a tool in which all the relevant aspects of an enterprise can be modelled in a collaborative and cooperative manner, thus exploiting the synergy of "having to think the same thing out only once". In this system demonstration we present MoKi (**Mo**delling Wi**ki**), a Semantic MediaWiki (SMW) based tool aiming at meeting the vision above described. MoKi is a collaborative tool that (i) supports access to the enterprise model at different levels of formality (informal, semi-formal and formal), (ii) supports integrated modelling of several aspects of an enterprise, and (iii) ensures a coherent development of the formal part. In the current implementation of MoKi we focus on an enterprise model describing the domain and the processes of an enterprise. The choice of these aspects was originally motivated by the EU-project APOSDLE[4].

Describing knowledge in a MoKi page The main idea behind MoKi is that an enterprise model is expressed as a collection of interrelated wiki pages connected by typed links. Model elements (domain concepts, properties, processes) are

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[4] www.aposdle.org

associated to MoKi pages which contain informal but structured information about the element itself. The typical MoKi page is usually composed of two parts. In the *structured part* the element is described by means of triplets of the form *(subject, relation, object)*, with the element itself playing the role of the subject; the purpose of this part is to represent the connection between the elements of the enterprise model. In the *informal part*, the element is described mainly using natural language sentences (images or drawings can be attached as well); the purpose of this part is to enrich the description of the model by documenting it and clarifying it to users not trained in the formal representation.

The user fills a page via forms, so he/she does not need to know any particular syntax or language to participate in the creation of the enterprise model. All the actors involved in the modelling activities can also interact with each others and exchange further ideas and comments using the SMW's built-in *discussion* functionality.

Functionalities of MoKi To support modelling, MoKi provides groups of functionalities, described below, that can be accessed via a wiki-style menu bar.

Import. These functionalities provide support for (i) importing pre-existing structured knowledge (e.g. OWL domain ontologies, list of domain concepts organized in a simple textual structure), and (ii) extracting relevant terms from digital resources.

Model Management. This set of functionalities supplies the basic functionality each modelling tool necessarily provides: creating, editing and deleting model elements. In particular, processes can be easily described using an integrated lightweight graphical editor.

Visualization. These functionalities give the actors a graphical overviews of the models. For example, the taxonomy and partonomy of business domain concepts are visualised as trees. Additionally, the taxonomy and partonomy can be directly manipulated via these visualisations.

Revision. These functionalities support the revision of the enterprise model. For instance, automatic checks analyse properties of business domain concepts and list those concepts which may need revision, based on experiences general rules-of-thumb in knowledge engineering.

Export. These functionalities support the fully automatic export of knowledge of the enterprise model into standard knowledge representation languages. At the moment the supported formalism is OWL for the whole enterprise model. Processes can also be exported separately in a BPMN specification (eRDF serialisation).

MoKi is built to facilitate the plugging-in of new or existing state-of-the-art tools. We plan to use this feature to add further functionalities in the future, e.g. tools providing knowledge elicitation techniques like card-sorting or laddering. We are currently extending MoKi to support modelling of individuals. A demo version of MoKi can be tried out on-line at `moki.fbk.eu`. A detailed description of the current version of MoKi is contained in the MoKi manual, available at the MoKi web site.