What is Language Based BPM?
A short explanation

Extended Version 2.0

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1 What is the problem? The Model-Language-Gap

Business Process Management is a main stream topic today. Companies know that they need to manage their business processes actively. They need to describe, analyze, and optimize business processes. This is a permanent task, because the environment is changing frequently – we see new regulations, new technology, new opportunities coming up.

Processes are complex. We need to describe processes from different views and for different purposes to enable analysis and optimization. We use visual models for this based on standard notations as BPMN (Business Process Model and Notation)[1]. A single notation is not able to show all views and details we are interested in. We have to combine different notations. A good BPMN model should be based on a business vocabulary. The vocabulary holds the terms and facts used in naming and describing model elements in the process model. The SBVR (Semantics of Business Vocabulary and Rules)[2] standard defines the elements of a vocabulary. The process activities reference Business Rules described using SBVR or Decision Models. The activities in the business process are linked to business requirements describing the needs for the activity. Business activities are linked to requirements for an IT implementation.

The models serve two different purposes[3]:
1. Models are used for communication. We communicated the As-Is state of the process, the To-Be state, we communicate requirements, details, etc. for the business process.
2. We use models as basis for the implementation of IT systems. We generate system components from models.

Especially in the context of business analysis models are used for communication between different people – between subject matter experts, business analysts and stakeholders, business analysts and IT experts, management and operations.

In this context we experience the "Model-Language-Gap":
- Language based descriptions are the base for model development. We collect information and transform them into formal models.
- The models need to be translated back into language to analyze or review the models.

Often the transformation of the model back into language and the original information are not identical or even worse – they are really different. This is what I call the ***Model-Language-Gap***. In the process of transforming language based information into visual models we lose information and meaning. This is a phenomenon know from Requirements Management but it is also true for Business Process Management or Business Rule Management. The gap is especially a problem when the creator and the user of the model are different people or stakeholders.

I developed different working techniques which help to transform unstructured, language based information into formal models systematically. Paragraph 2 is giving a short overview of such techniques. However – we have only limited techniques so far to bridge the model-language-gap and to check if the model is showing the original information. Language Based BPM is a step to solve this issue.

[1] See (OMG, Business Process Model and Notation (BPMN) Version 2.0 2011)
[2] See (OMG 2011)
[3] See also (Pitschke, What is a Model? (And if yes, how many?) 2009)

2 Language based techniques in the Modeling Process

Models are based on Natural Language.

We find many techniques to collect information about Business Processes, Business Requirements, Business Logic and other artifacts. This includes interviews, questionnaires, workshops, observations and others. The first result is an (unstructured) collection of natural language information. This information is transformed into more formalized natural language statements and model elements for visual models.

An important working technique for the transformation is Textual Analysis as sketched out in the White Paper "Textual Analysis – A Working Technique for Visual Modeling"[4]. Textual Analysis is a systematic approach to transform unstructured information into model information. There is a close connection to interview techniques – you get that you are asking for.

The value of Textual Analysis and related working techniques is a systematic approach for the forward engineering of models. Different team members should come up with similar and repeatable models when confronted with the same information. Textual analysis narrows the model-language-gap. Textual Analysis is combined with other techniques as "Target Questions".

Textual Analysis doesn't give an answer for the reverse question: How can we make sure that the formal model still reflects the original information? The model and the textual information are not necessarily in sync.

Natural language is used in many other places within business models. We describe the details of an activity, we use story boards to describe scenarios within a process, we use regulated natural language to describe business rules or business requirements. All such information should be created using the business vocabulary.

3 Language Based BPM – Synchronizing Language Presentation and Visual Models

Language Based BPM in short is the next step to close the Model-Language-Gap. We extend the techniques named in paragraph 2 to translate the created visual models back into natural language. The formal presentation of the model and the textual description of the model are hold in permanent sync this way. The modeler receives a feedback if the created model is semantically correct with regard of the original information by comparing the original information with the language based representation of the model. This ensures the semantic correctness of the model. We have a permanent round-trip-engineering between the original information and the created model. We need tools supporting this to make the approach practical.

USoft Suite is the first tool in the category of Language Based BPM. USoft focuses especially on the language intense models: Business Requirements, Business Rules, and Business Processes. USoft supports forward engineering – your natural language input is analyzed and transformed. USoft also support the reverse step: The BPMN based process models are translated back into natural language.

[4] See (Pitschke, Textual Analysis - A Working Technique for Visual Modeling 2009)

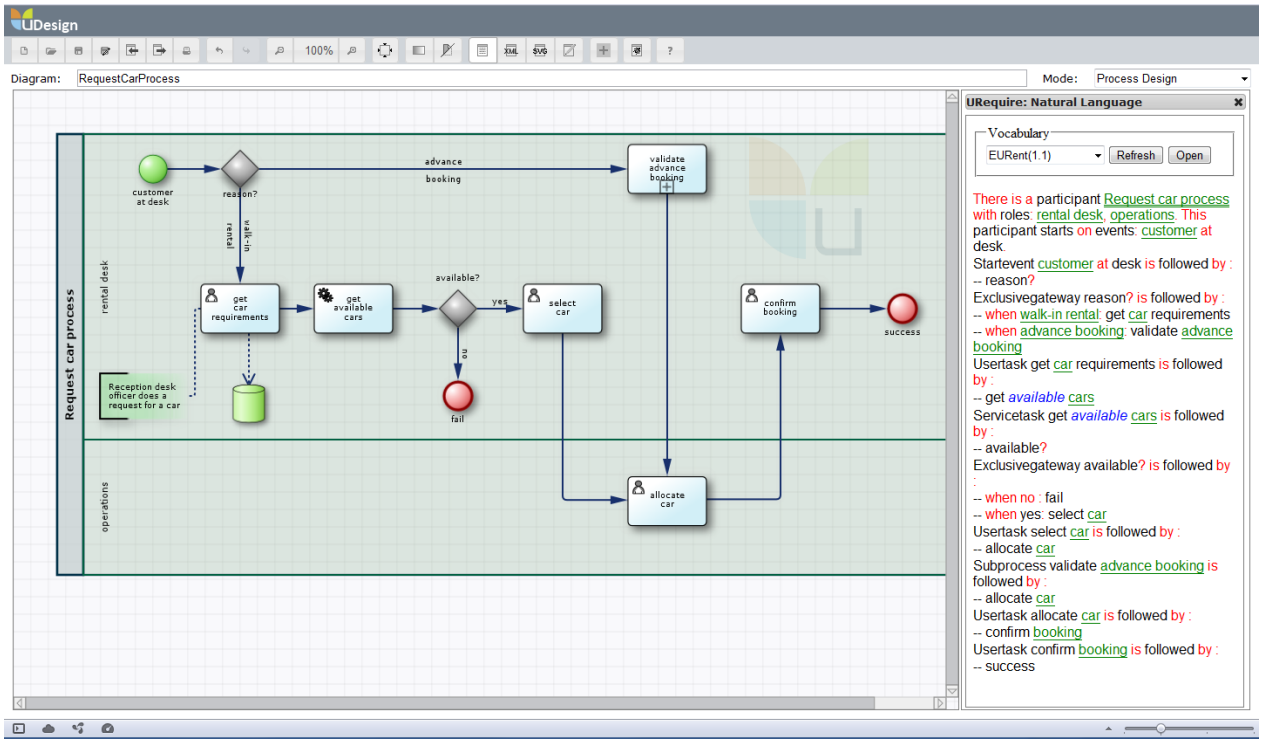

Figure 1: Visual model and textual presentation in USoft

Figure 1 is a sample screenshot showing the visual model and the textual presentation of the model side-by-side. For details of an activity or a concept you can click on the element.

For questions about the approach or USoft please contact us at info@enterprise-design.eu.

4 Low-Code – Backend-First

In the meantime, USoft extended the approach. USoft uses a "low-code, back-end-first" approach. From the business vocabulary and business rules, the low code, backend-first approach can be used to create complex applications with little IT knowledge. Of course, this also includes the font end.

Literature

OMG. *Business Process Model and Notation (BPMN) Version 2.0.* Object Management Group, OMG Document Number: formal/2011-01-03, 2011.

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