

Cognitive Process - An Open-Source Tool to Capture Processes according to the Linked Data Principles

Demo Paper

Tobias Weller and Maria Maleshkova

AIFB (KIT),
Englerstr. 11, 76133 Karlsruhe, Germany
{tobias.weller,maria.maleshkova}@kit.edu
<http://www.aifb.kit.edu>

Abstract. Processes need to be captured in a structured way in order to analyze them by using computer-assisted methods. This circumstance becomes more important the more complex processes become. Although there are standardized formats, they do not capture semantics of input/output parameters, signals or references to external data sources. To address these problems we 1) provide an open-source tool to capture BPMN processes graphically in a Semantic MediaWiki; 2) allow users to define own semantics and 3) publish the information according to the Linked Data Principles.

Keywords: Process Modeling, Semantic MediaWiki, Business Process Model and Notation, Semantic BPMN, Semantic Annotations

1 Introduction

Process modeling languages are mostly graphical representations, which capture workflows. However, processes must be available in a structured way in order to analyze and optimize them.

Existing solutions allows to capture semantics partly, however, they do not publish the information according to the Linked Data Principles¹ and do not run in a collaborative platform [1]. However, the analysis of process models and its elements can profit from including semantic information [2, 3].

To this end, we present a graphical editor to capture Business Process Model and Notation (BPMN) processes and semantic information about them in a Semantic MediaWiki², which serves as a collaborative platform. In particular, our tool allows to 1) create, import and export BPMN processes – ensuring proposed standard formats for a facilitated communication with other tools, 2) editing already existing BPMN processes in Semantic MediaWiki – allowing to add, edit and delete BPMN process, 3) annotating BPMN processes – enriching BPMN elements with semantic information.

¹ <https://www.w3.org/DesignIssues/LinkedData.html>

² <https://www.semantic-mediawiki.org>

2 Cognitive Process

We use a Semantic MediaWiki to store process models and meta-information and providing them as Linked Data. Each element of the process has its own unique URI, which can be accessed and interlinked. Figure 1 shows an exemplary process modeled with Cognitive Process and an extraction of the semantically available information.

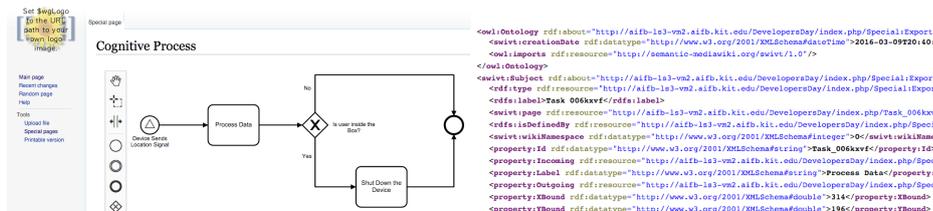


Fig. 1. The left figure shows a modeled BPMN process with Cognitive Process. The right figure shows an RDF extraction of the information stored in the SMW.

Besides creating and loading existing BPMN processes in Semantic MediaWiki and modifying them, allows Cognitive Process to import BPMN 2.0 XML³, which is a standardized format to represent BPMN processes. Moreover, Cognitive Process allows to export BPMN processes in BPMN 2.0 XML and in SVG, which is an image format. Therefore, Cognitive Process can handle proposed standard formats in order to share BPMN processes with different modeling tools.

3 Demonstration Setup

The demonstration of Cognitive Process involves the modeling of a BPMN process, taken from the domain Internet of Things. During the demonstration, we will show how the tool is suitable to 1) capture BPMN processes 2) store semantic information about the BPMN elements 3) handle proposed standard formats in order to import/export process models and 4) query the entered information.

References

1. Smith, F., de Sanctis, D., Proietti, M. A Platform for Managing Business Process Knowledge Bases via Logic Programming. Proceedings of the 28th Italian Conference on Computational Logic, Catania, Italy, September 25-27, 2013.
2. Celino, I., de Medeiros, A.K.A, Zeissler, G., Oppitz, M., Facca, F., Zoeller, S.: Semantic Business Process Analysis. Proceedings of the Workshop on Semantic Business Process and Product Lifecycle Management in 3rd European Semantic Web Conference (ESWC 2007), Innsbruck, Austria, June 7, 2007
3. Lautenbacher, F., Bauer, B., Seitz, C. Semantic Business Process Modeling Benefits and Capability. AAAI 2008 Stanford Spring Symposium - AI Meets Business Rules and Process Management (AIBR), Stanford University, California, USA, March 26-28, 2008

³ <http://www.omg.org/spec/BPMN/2.0/>