

Requirements for Provenance Tracking of S-BPM Workflows

Coralie Blanc, the University of the West of England, Bristol UK

Abstract. Subject Oriented Business Process Management (S-BPM) is an emerging area of research that has triggered a resurgence of interest in the BPM field. This research has been primarily led with the focus of the process modelling being on the *subject* of the business process. An area that has been unexplored thus far is the adaption of S-BPM processes to a provenance enabled framework. Provenance, in the computer science world is known as recording the changes to a piece of data (or artifact). This allows people interested in provenance research to trace the source or origin of some element of interest. This traceability provides many different advantages in the analysis of elements such as replication or error detection and for researchers to view and investigate data/model evolution. Therefore one particular subject that merits new investigation is the recording of the evolution of S-BPM processes (i.e. their provenance). The main advantage of this is that it allows users to see *how* a process has evolved over time and more importantly *why*.

CRISTAL [1] is a fairly mature system which provides provenance by design. It has been developed by the University of the West of England (UWE), the European Centre for Nuclear Research (CERN) and the Centre National de la Recherche Scientifique (CNRS) for the tracking of the assembly of the CMS Ecal detector at CERN. This system has been chosen because it has been commercialised for over a decade as a BPM system by the M1i company in a product known as Agilium. This product is currently being actively used in industry and there is a requirement from some of its users to employ a S-BPM like language with their product because they need a more specific focus on the defined BPM Actors. This work will be conducted in the frame of the CRISTAL-iSE project [2], where one key area is adding semantic provenance to CRISTAL. The research areas of S-BPM and provenance have now been merged and an analysis is required of the system requirements therefore, the title of this proposed thesis is "Requirements for Provenance Tracking of S-BPM Workflows". This research proposes the following research questions: 1) What does provenance provide for the tracking of S-BPM workflows? This question will be answered by a literature survey concerning areas of provenance and (S-)BPM. 2) How can the S-BPM model be mapped to the (description-driven) CRISTAL provenance model? This will require a novel mapping for S-BPM workflows to the CRISTAL workflow model in order that usage data can be collected on the evolution of models. 3) How is it possible to evaluate the evolution of S-BPM workflows? This will concern qualitative based evaluation with Agilium users to see how useful they found the provenance tracking of S-BPM workflows. This work will make the following main contributions: a framework to track the evolution of the design of S-BPM workflows and a qualitative evaluation concerning the design provenance of S-BPM workflows.

References

- [1] Branson, Andrew, et al. "CRISTAL: A practical study in designing systems to cope with change." *Information Systems* (2014).
- [2] Shamdasani, Jetendr, et al. "CRISTAL-ISE: Provenance Applied in Industry." In *proceeding ICEIS* (2014).