

Updated Dissemination Plan (M2)

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1 Introduction

This document presents the most recent status of the dissemination plan containing information about the publications obtained in the first year of the project, the submissions under review, the theses completed or under execution, the events where results related to the project have been presented, and the plan for future publications and dissemination activities.

2 Publications

The first year of the project has resulted in the following publications:

- Cristina Cabanillas, Manuel Resinas, Adela del-Río-Ortega, Antonio Ruiz Cortés: Specification and automated design-time analysis of the business process human resource perspective. *Inf. Syst.* 52: 55-82 (2015). This paper describes the most recent version of RAL (a textual language for defining resource assignments in business processes) and an implementation of a catalogue of analysis operations for the resource perspective of business processes based on description logics. In the context of SHAPE it is related to WP2.
- Cristina Cabanillas, David Knuplesch, Manuel Resinas, Manfred Reichert, Jan Mendling, Antonio Ruiz Cortés: RALph: A Graphical Notation for Resource Assignments in Business Processes. *CAiSE 2015*: 53-68 This paper describes the syntax and semantics of a novel graphical notation for the definition of resource assignments in business processes. In the context of SHAPE it is related to WP2.
- Stefan Schönig, Cristina Cabanillas, Stefan Jablonski, Jan Mendling: Mining the Organisational Perspective in Agile Business Processes. *BPMDS/EMM-SAD 2015*: 37-52. This paper presents a process mining approach focused on the organizational perspective of business processes that extracts resource assignment constraints from past executions stored in event logs, resulting in a declarative resource-aware process model. In the context of SHAPE it is related to WP3.
- Saimir Bala, Cristina Cabanillas, Jan Mendling, Andreas Rogge-Solti, Axel Polleres: Mining Project-Oriented Business Processes. *BPM 2015*: 425-440. This paper presents a mining approach for discovering project-oriented business processes from VCS logs that returns activity diagrams in the form of Gantt charts. In the context of SHAPE it is related to WP3.
- Cristina Cabanillas, Manuel Resinas, Jan Mendling, Antonio Ruiz Cortés: Automated team selection and compliance checking in business processes. *IC-*

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SSP 2015: 42-51. This paper presents an extension of RAL called RALTeam that aims at enabling the description of team compositions and which can be used both for defining team assignments in business processes and for defining and automatically checking team-related compliance rules. In the context of SHAPE it is related to WP2 and WP4.

- Giray Havur, Cristina Cabanillas, Jan Mendling, and Axel Polleres: Automated Resource Allocation in Business Processes with Answer Set Programming. BPM 2015 Workshops (BPI). In press. This paper introduces a novel approach for automatically allocating resources to process activities during process execution taking into consideration estimated activity durations and all potential parallel running executions. In the context of SHAPE it is related to WP2.
- Simon Steyskal, and Axel Polleres: Towards Formal Semantics for ODRL Policies. RuleML 2015: 360-375. This paper proposes an interpretation of the formal semantics of general ODRL policy expressions and motivates rule-based reasoning over such policy expressions taking both explicit and implicit dependencies among actions into account. In the context of SHAPE it is related to WP2 and WP4.
- Tudor Ionescu, and Daniel Schall: Architecting Semantic Process Mining-Driven Optimization and Adaptation of Business Workflows for the Mobility Industry. SEMANTiCS 2015. In press. This paper presents the conceptual architecture designed for SHAPE and its integration capabilities with the Camunda BPMS. In the context of SHAPE it is related to WP6.

3 Ongoing and Planned Papers

3.1 Papers under Review

- Stefan Schönig, Cristina Cabanillas, Stefan Jablonski, and Jan Mendling: A Framework for Efficiently Mining the Organisational Perspective of Business Processes. Decision Support Systems (DSS). This journal paper extends the BPMDS 2015 publication by adding a post-processing phase to the process mining approach and further evaluations.
- Cristina Cabanillas, Jan Mendling, Axel Polleres, and Alois Haselböck: Safety-critical Human- and Data-centric Process Management in Engineering Projects. Symposium on Data-driven Process Discovery and Analysis (SIMPDA 2015). This paper outlines the goals of the SHAPE project and describes the current status of the project and the directions for present and future work.
- Stefan Schönig, Cristina Cabanillas, Claudio Di Ciccio, Stefan Jablonski, and

Jan Mendling: Mining Team Compositions for Collaborative Work in Business Processes. Software and Systems Modeling (SoSyM). This journal paper extends the BPMDS 2015 publication by addressing not only individual work but also collaboration in business processes.

3.2 Planned Papers

- Giray Havur and Axel Polleres intend to write a paper on comparing declarative formalisms for resource planning in processes under expressive constraints as a result of recent work performed in WP2.
- Saimir Bala and Jan Mendling (and others) intend to write a paper on mining activities from user comments in VCS as a continuation of the work developed in WP3.
- Simon Steyskal, Sabrina Kirrane and Axel Polleres are working on a book chapter on policies, which has results from a previous publication in the NORMAS workshop. It is aligned with WP4.

4 Bachelor and Master Theses

The first year of the project has resulted in the following theses:

- BSc thesis by Julia Fuchsbauer: How to manage Processes according to the European Norm 50126 (EN 50126) – Status: submitted. This thesis reviews the EN 50126 norm to (i) extract rules that relate to business processes in safety-critical domains and (ii) select a language that could help to model such rules. In the context of SHAPE it is related to WP4.
- MSc thesis by Alexander Wurl: Formalisms and Tools to Describe and Monitor Engineering Processes – Status: ongoing, expected completion end of 2015 This thesis presents an evaluation framework for BPMS with the aim of selecting the most suitable one for accomplishing the goals pursued in the SHAPE project, and delves into the functionalities and integration capabilities of the system selected by implementing a real business process. In the context of SHAPE it is related to WP6 and implementing some of the results of WP2.

5 Dissemination Activities

The following SHAPE-related presentations have been done in the first year of the project by members of the project team:

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- Presentation of the paper entitled RALph: A Graphical Notation for Resource Assignments in Business Processes by Cristina Cabanillas at CAiSE 2015 in Stockholm, Sweden.
- Presentation of the paper entitled Automated team selection and compliance checking in business processes by Cristina Cabanillas at ICSSP 2015 in Tallinn, Estonia.
- Presentation of the paper entitled Mining Project-Oriented Business Processes by Saimir Bala at BPM 2015 in Innsbruck, Austria.
- Presentation of the paper entitled Automated Resource Allocation in Business Processes with Answer Set Programming by Giray Havur at BPM 2015 Workshops (BPI) in Innsbruck, Austria.
- Presentation of the paper entitled Towards Formal Semantics for ODRL Policies by Simon Steyskal at RuleML 2015 in Berlin, Germany.
- Presentation titled Towards Formal Semantics for ODRL Policies: Defining Expressive Access Policies for Linked Data using the ODRL Ontology given by Axel Polleres at the Dagstuhl Seminar 15131 (Normative Multi-Agent Systems) in March 2015 in Dagstuhl, Germany.
- Presentation of the paper entitled by Architecting Semantic Process Mining-Driven Optimization and Adaptation of Business Workflows for the Mobility Industry Tudor Ionescu at SEMANTiCS 2015 in Vienna, Austria.
- Presentation of a poster by Simon Steyskal at SEMANTiCS 2015 in Vienna, Austria.
- Invited talk on Human Resource Management in Business Processes by Cristina Cabanillas at University of Bayreuth, Germany.
- Participation of Alois Haselböck in the RailML.org meeting on March 2015 in Vienna, Austria.
- Participation of Giray Havur in the 11th Reasoning Web Summer School in July 2015 in Berlin, Germany. The topics included semantic web, linked data and reasoning techniques.
- Saimir Bala attended the SOAMED Autumn School on Processes and Data in October 2015 in the Steinhöfel castle, Germany. The event addressed research on the integration of service-oriented architectures, data management and their application to healthcare systems.
- Jan Mendling participated in the organization of two seminars, one in Liechtenstein in February 2015 and one in Germany in July 2015, target at PhD students. Giray Havur and Saimir Bala took part in such seminars presenting their PhD topics to faculty members and fellow researchers from other universities. As

stated below, both PhD theses are developed in the context of SHAPE. They received very valuable feedback.

6 Status of the Dissemination Plan and Outlook

As stated in the dissemination plan described in the SHAPE project proposal, within the project three PhD theses are planned. Now we know that in particular:

- A PhD thesis on automated reasoning and optimization in engineering processes will be performed by Giray Havur;
- A PhD thesis on process discovery from unstructured and semi-structured data in safety-critical domains will be performed by Saimir Bala; and
- A PhD thesis on the application of semantic technologies in the field of engineering processes will be performed by Simon Steyskal.

These three project members are responsible for work packages 2, 3 and 4, respectively. Unpublished results from the current project deliverables are at the moment polished and planned to be submitted to one of the venues listed below.

In the SHAPE proposal we stated that it was a primary goal to publish as many scientific papers in high-end conferences and journals as possible, with a special interest in the following (i) conferences: International Conference on Business Process Management (BPM), International Semantic Web Conference (ISWC), European Semantic Web Conference (ESWC), International Conference on Advanced Information Systems Engineering (CAiSE), International Conference on Service Oriented Computing (ICSOC), International Joint Conference on AI (IJCAI), The annual conference held by the American Association of AI (AAAI), European Conference on AI (ECAI), International Conference on Knowledge Representation & Reasoning (KR), International Conference on Rules and Reasoning (RR), Conference on Innovative Applications of AI (IAAI); and (ii) journals: Information Systems, Decision Support Systems (DSS), Journal of Web Semantics (JWS), Semantic Web Journal (SWJ), IEEE Transactions on Services Computing (TSC), Computers in Industry, IEEE Transactions on Knowledge and Data Engineering (TKDE), Journal on Data Semantics (JoDS), ACM Transactions on Computational Logic (TOCL), IEEE Expert / IEEE Intelligent Systems, Journal of Systems and Software (JSS), Applied Ontology. We have already achieved publications in the BPM and CAiSE conferences, and in the Information Systems journal. Furthermore, we have a submission under review in the DSS journal. The previous list remains the main target for the SHAPE-related publications. However, we will keep submitting papers to other venues when we deem it may be interesting for a specific research or

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industrial community and for getting valuable feedback.

In the dissemination plan of the SHAPE proposal we also stated that within Siemens, the main results of SHAPE would be shared in the corporate knowledge management system TechnoWeb and in one of the annually organized Product Configuration Symposiums (where also Siemens-external participants are invited). In particular, the following dissemination activities are planned for the following months:

- Two articles in the Siemens Corporate Technology News channel (one in January 2016 and one at the end of the project).
- Regular postings about progress and achievements of SHAPE (e.g. accepted publications) in the Siemens TechnoWeb and in the Siemens Social Network:
 - TechnoWeb Communities of interest:
 - * Product Configuration
 - * Constraint-based Systems
 - * Semantic Systems
 - * Process Management Community Siemens
 - * Business Process Management ? Path towards intelligent operations
 - * Business Processes & Workflow
- A contribution to the Siemens Configuration Symposium 2016 (Oct. 2016)