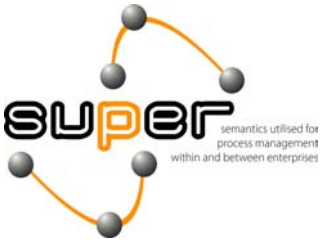

SUPER

Semantics Utilized for Process management within and between Enterprises

SUPER Annual Report

Covering period M13 – M24: 01 April 2007 – 31 March 2008

Project Coordinator: SAP

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1 Project Overview

Project Title: SUPER

Semantics Utilized for Process management within and between EnteRprises

URL: www.ip-super.org

Logo: 

Description of the project

By applying semantic technologies to business processes resulting in “Semantic Business Processes (SBP)”, SUPER aims to make a quantum leap with regard to efficiency and effectiveness in modelling and managing of business processes.

Impact

SUPER will enable companies to use information technology more efficiently and to improve the alignment between IT and business. In particular SUPER will enable companies to

- Overcome the gap between business and IT.
- Implement new business processes more quickly and efficiently.
- Make business processes accessible to reasoning and (advanced) querying.

SUPER’s main innovation

A consistent, holistic and “semantic” view on business processes that ranges from a more abstract business level to the implementation level.

2 Summary of Activities

During the reporting period all work packages have been active. The objectives and achievements during this period are summarised below:

- Continuation of efforts towards developing the SUPER ontology stack, providing full specifications of the ontologies involved in this stack or initial definitions
- Development inter-translation of process ontologies and delivery of the mediation design tool.
- Investigation of suitable algorithm for the dynamic composition and validation environment at design and execution levels, and finished the first prototype of composition platform, also the investigation of the feasibility of business process fragments, and aligned discovery functionality with the organizational ontology. Further description of the business process library stores process models using the Business Process Modelling Ontology (BPMO) and semantic Business Process Execution Language (sBPEL) Ontology.
- Finalisation of a complete semantic BPMN based modeling tool and provided to the use-case partners as well as to the public as intended. This modeling tool was used to gather feedback and it got improved several times during the reporting period.
- Continuation of work on all components of the SUPER execution environment; Demonstration and further development of prototypes. Enhancement and extension of the SBPELEE engine.
- Release of SUPER architecture conceptual description and the related API and set up of Semantic Service Bus based on open-source ServiceMix Enterprise Service Bus and a first version of SUPER component integration within SSB.
- Providing set of NGOSS ontologies and extension of the needed use case ontologies as a proof of concept. Overview of framework and provided NGOSS ontologies. Extension of these ontologies with concrete use case ontologies for each use case. Study of the integration of these ontologies with SUPER tools.
- Focus on one phase of the SUPER methodology and develop of the use cases, increment of knowledge on semantic technologies.
- Active contribution to the BPMN 2.0 standard, continuation to improve the SBPM community, further investigation of the accessed standards and new standards related to SUPER.
- Dissemination and training activities: PhD Programme, Workshops, scientific sessions and tutorials.

3 Important work areas

- **SUPER ontology stack:** The ontological representation of business process management artefacts (BPEL, BPMN) is needed in order to allow for reasoning and advanced querying support.
- **SUPER composition and discovery framework:** It is necessary to provide functionality to allow a business user to discover and compose services that implement a process that has been specified in a high modelling language like BPMN in order to be able to close the business IT gap. Business users are enabled to identify suitable compositions of web services by using semantic annotations. Annotations include non functional properties as well as behavioural aspects and functional aspects.
- **SUPER mediation framework:** Mediation refers to the ability to overcome heterogeneity between services and processes (semi)-automatically. In general, two types of mediation can be distinguished: data- and process mediation. While data mediation deals with bridging heterogeneity on messages, process mediation is concerned with mediating between differing behavioural interfaces of processes, e.g., different ordering of expected messages for both business partners.
- **SUPER modelling environment and execution engine:** It is necessary to provide semantic support for all important tools in order to fully exploit semantic annotations of business process artefacts. Thus, SUPER implements modelling and execution components that are capable of creating and using semantic annotations of artefacts in order to ease business process management tasks such as discovery, composition, mediation, binding, etc.

4 User Involvement, Promotion and Awareness

Interacting with different EU-funded projects focussing on similar topics such as DIP, TripCom, FUSION, and Genesis, was tremendously important from the beginning of SUPER. This interaction is further strengthened by the SUPER role in STI (Semantic Technology Institute International) where projects such as e.g. Knowledge Web, TripCom and SUPER work together to strengthen European research and industry through world-wide standardisation. They also coordinate their activities in research and dissemination (by coorganisation of such events as ESWC, ESTC and ASWC).

Until now SUPER presented its achievements in a number of research papers and during numerous events. To summarise some of SUPER efforts:

- over 115 research articles were published on prestigious conferences and workshops all over the world, as well as in high quality journals,
- 32 keynote and invited talks were delivered,
- 24 workshops on the SUPER topics were organised,
- 14 industry-oriented events took place (e.g. European Semantic Technology Conference - ESTC2007, Business Sessions held by MIP, Italy (2007), WfMC workshop, Poznan (October 2007), CEBIT Demonstration (March 2008), OASIS Symposium on Open Standards – tutorial (April 2008), etc.),
- 12 conferences were sponsored by SUPER (e.g. BPM, ISWC, ESTC),
- 19 tutorials were delivered during such events as e.g. OASIS Symposium, ESTC, ESWC, ISWC, BPM,
- 6 Summer Schools on SUPER-related topics were organised.

The detailed list of SUPER achievements is presented on the SUPER website, which also delivers the latest news concerning the project.

5 Future Work or Exploitation Prospects

Research in SUPER concentrates on a number of aspects in the area of semantically supported business process management. SUPER project results will include the following exploitable concepts, tools and methodologies:

- SBP Ontology Stack (including Modelling, Analysis and Organisational Ontologies)
- SBP Methodology (specifying activities for each phase in the semantic business process lifecycle)
- SBP Composition Framework
- SBP Mediation Framework
- SBP Modelling Tool
- SBP Analysis Tools (including tool support for process mining and reverse business engineering of processes)
- SBP Execution Environment
- SBP Overall Architecture & Integration Environment
- YATOSP (semantic framework based on TMF NGOSS standards)
- SBP Reference Application in the Telecommunications Domain

6 Further Information

www.ip-super.org

ESSI Cluster and Networking activities: http://cms-wg.sti2.org/home/