



Newsletter

Newsletter 2 – September 2014

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ProSEco status

By the end of September 2014 the ProSEco project is reaching the end of the first year of activities. In this issue of our Newsletter we are happy to be able to present the first results of the project. During this year the further analysis of the State of the Art of technologies relevant for ProSEco was made as well as the analysis of the Industrial (Business) Cases and Requirements. In parallel to these activities, and based on the Industrial Cases and Requirements analysis, State of the Art as well as the ProSEco vision, the ProSEco concept was elaborated.

While the first newsletter issue presented the project in general, we aim in this second issue to provide some more details of the work done regarding the Business Case analysis and the ProSEco concept, as well as give an overview of the events that took place within this last six months aiming to increase ProSEco visibility in the research as well as in the industrial communities.

ProSEco concept

The ProSEco project aims to provide a novel methodology and a comprehensive ICT solution for collaborative design of product-services, using Ambient Intelligence (Aml) technology, lean and eco-design principles and applying Life Cycle Assessment techniques, allowing for effective extensions of products of manufacturers in different sectors (automotive, home appliances, automation equipment etc.). The ProSEco concept specifically defines a set of generic ICT tools and services for supporting generation of Product Service System (PSS). Products and services, so-called Meta products, using inputs from Aml systems at the products as well in processes where these products are used, will be capable to add highly innovative personalized functions, enabling new business models. The ProSEco system feedback loop will also enable an iterative data recapture that will allow an efficient improvement of future product- service designs by means of the application of a continuous improvement approach.

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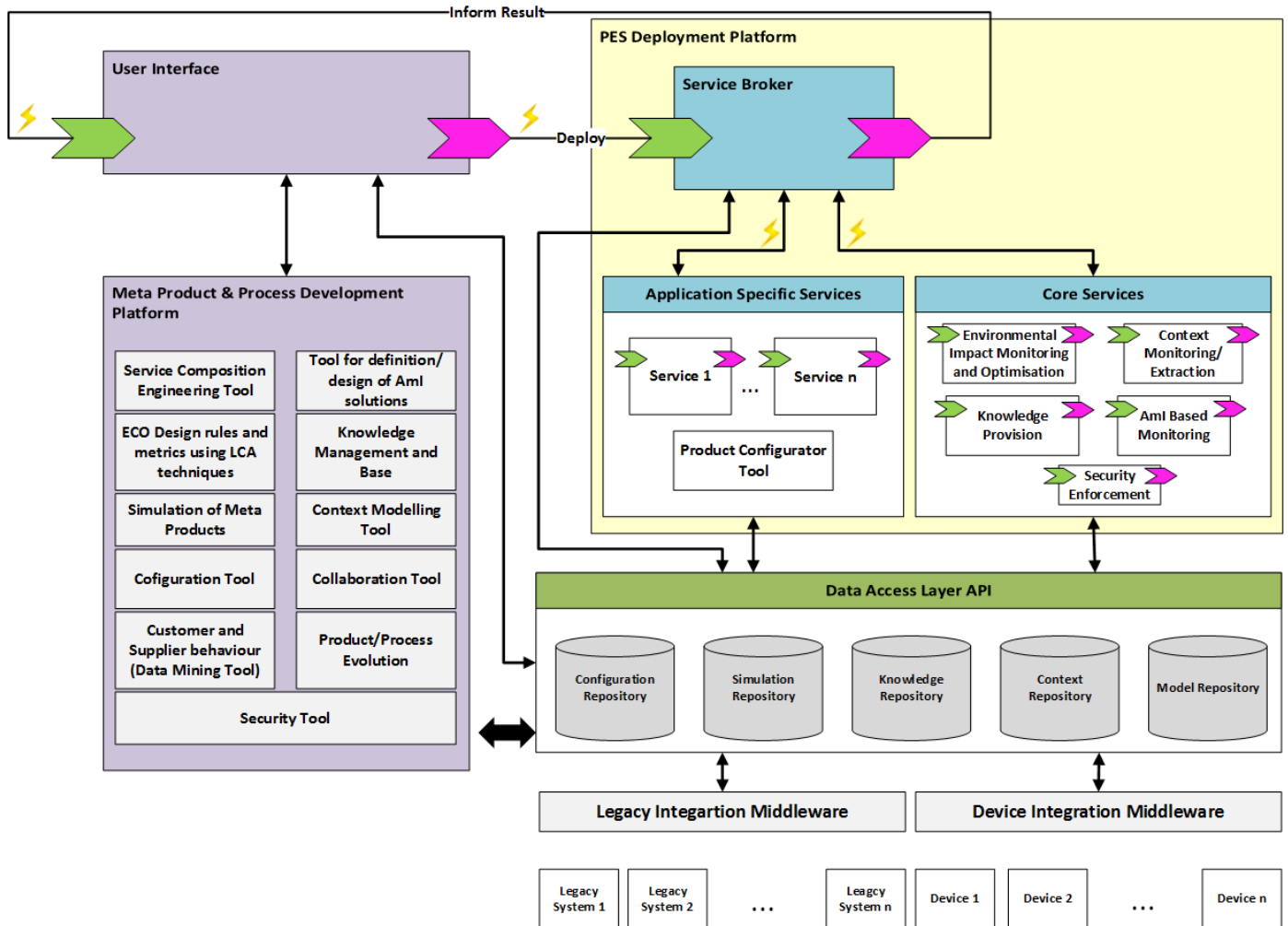
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The ProSEco Project is co-funded by the European Commission
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ProSEco concept (cont.)

The overall ProSEco Reference architecture is shown in the following figure:



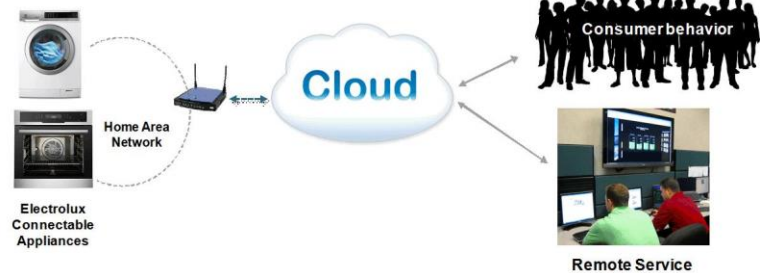
The two main components, i.e. the platforms to be developed are depicted, namely:

- Meta Product & Process Development Platform on the left hand side which includes:
 - a set of engineering tools for design of product-service such as simulation tool,
 - tool for composition and configuration of services,
 - tool for selection of Aml solution to be used for building services,
 - context modelling tool allowing for context sensitivity of the services to be built,
 - Eco design rules etc.
- PES deployment platform on the right hand side:
 - The set of generic, so-called core, services for easy building of services around products and processes
 - Application Specific Services
 - Service Broker

Business Cases

The project is driven by four industrial application scenarios – Business Cases (BC) – addressing different aspects of service and business building and product/process development, in order to assure industrially relevant development of the means for collaborative service generation and product/process design.

In BC1 the large automotive industry Volkswagen (VW) intends to provide infrastructure for building various services using information from Amls and sensors in the vehicles. The objective is to allow both internal and external Service providers to build various types of services using information from vehicle sensors. The main challenges are to provide tools to support selection of Aml systems and sensor for various services, as well as core services to allow for using information from Aml systems and to allow for context sensitivity of the services. The key aspects to be addressed are security and privacy, as well.



In BC2, Electrolux, one of the leading producers of household appliances as well as professional appliances and equipment for cleaning and kitchen, is looking for newer, smarter ways for consumers to interact with appliances, and it aims to connect innovative services with their washing machines, dryers, dish washers, ovens, refrigerators, air conditioners and even vacuum cleaners. There are 2 main service scenarios addressed by the business case: The first scenario addresses the consumer behaviour. In the second scenario, Electrolux addresses the maintenance problem. The scenario will demonstrate that the platform can predict and prevent future problems with the hardware, so the platform should behave, in order to schedule the maintenance activities according to this analysis. Therefore, the key need is to provide means for building services and allow for collecting and analysis data on customer behaviour.

BC3 involving DESMA, a shoe machine producer company, includes various scenarios which address different groups of their customers. One of scenarios is addressing shoe manufacturers using DESMA machines and is aiming at optimization of maintenance processes by implementing improved SW services for monitoring of machines, scheduling of maintenance tasks, diagnostics, reporting etc.



BC4 involves ONA, a machine tool builder, and their value chain supplier ALBERDI. Both are interested in collaborating more with the customers in order to improve the product design process and both are also interested in testing how eco-design principles and LCA techniques could help to reduce the environmental impact of their products. Moreover ONA needs means for the development of new services for remote maintenance and diagnosis. In order to achieve this, intelligent Product Extension Services (PES) will be installed to optimise the environmental impact of product design process and will be used to identify customers' patterns that can help to personalise product-services in a collaborative environment

Past Events

- **June 2014:** ONA, as a machine manufacturer presented ProSEco project along with their line of products in the Bienal Española de Máquina-Herramienta (running from 2nd to 7th of June), the main machine tool fair in Spain.
- **July 2014:** INDIN, 12TH IEEE International Conference on Industrial Informatics, in Porto Alegre, Brazil

The ProSEco project team organized the special session "Service-based Life Cycle Assessment and Engineering Methods for Industrial Cyber-physical Based Manufacturing Systems and Consumer Products" in the 12th IEEE International Conference on Industrial Informatics (INDIN 2014) Porto Alegre, Brazil, 27-30 July 2014 and presented following 3 project related papers from the consortium.

- Cross-domain Methods and Tools for Decision Support Services based on Context Sensitivity Approach (Sebastian Scholze, Dragan Stokic, Oliver Kotte)
- A survey of Service-based Systems-of-Systems Manufacturing Systems related to Product Life-Cycle Support and Energy Efficiency (Kevin Nagorny, José Barata, Armando Walter Colombo)
- Engineering Methods and Tools for Collaborative Development of Industrial Cyber-Physical Based Products and Services (Dragan Stokic, Sebastian Scholze)



Another ProSEco related paper was presented in the conference technical tracks:

- The Impact of Cloud Manufacturing on Supply Chain Agility (Javad Jassbi, Giovanni Di Orio, Diogo Barata, José Barata).

The session was well received and well attended and generated fruitful discussions. Furthermore, the ProSEco project was present in the associated exhibition.

Upcoming Events

- **November 2014:** 3rd International Conference On Through-life Engineering Services (TESConf 2014), Cranfield University, Cranfield, UK
- **April 2015:** 6th Doctoral Conference on Computing, Electrical and Industrial Systems (DoCEIS 2015), Caparica, Lisbon

ProSEco partners

