Enabling the business-based
Internet of Things and Services

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D11.1 Demonstration Plan

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1. Executive summary

This deliverable is part of Task T11.1 Demonstration. The activities are designed to prove the viability of the ebbits platform before it can be commercialised, e.g. testing of product-like prototypes. The target groups for the demonstrations are manufacturing industries, public and private organisations engaged in traceability, equipment and device manufacturers and research organisations.

The described demonstration plan covers various activities in five countries targeting a wide range of potential users. A hands-on workshop for software developers will be held in Denmark, targeting developers from companies working in the food production sector. In cooperation with a supermarket chain, the end user traceability application will be demonstrated to consumers and retailers.

CNet will arrange hands-on workshops in Sweden for IoT Developers using the ebbits platform, specifically the middleware. This will be part of the IoT Developer Course organised in collaboration with Swedish Computer society.

Software developers are also targeted at the Campus Party Europe held in London where hackers, developers, gamers and technophiles equipped with laptops are given a challenge on-site of developing applications that relate to the traceability scenario.

SAP will do the demonstration via their Virtual Future Factory, which facilitates research, development, and co-innovation in a Living Lab environment, providing an infrastructure for test, validation, and demonstration. Using a real-world setup, it shows leading edge software and the latest hardware with different scenarios, SAP products, and prototypes in a typical discrete manufacturing environment.

ISMB and COMAU will do joint demonstrations at the COMAU production facilities. Guests are mainly potential clients - customers coming from the manufacturing world, while in the case of ISMB there are people from a large variety of sectors, like SMEs, Public Authorities, University, involved in various fields including manufacturing and traceability.

It is expected that the demonstration effort will spread the awareness of the ebbits platform and that it will give the project a valuable feedback for improvements. All demonstration activities and relevant feedback will be reported at the end of the 4th project year in deliverable 'D11.2 Feedback from demonstration activities'.

2. Introduction

This work is carried out as part of WP11 Demonstration. The validation activities will be broadened out to include a limited demonstration to external users. This is necessary to ensure that the Consortium takes a broader view of the potential user community. These limited activities will be treated as demonstration as they are part of the process of taking the project message to a wider community. It further paves the way for subsequent exploitation of project results by the partners.

The demonstration activities are designed to prove the viability of the ebbits platform before it can be commercialised, e.g. testing of product-like prototypes. This type of activity goes beyond the validation activities internal to the project, which will be based on prototypes with limited functionality.

The target groups for the demonstrations are manufacturing industries, public and private organisations engaged in traceability, equipment and device manufacturers and research organisations.

Demonstration will be performed towards the end of the project when a stable version of the ebbits prototype with sufficient functionality will be available. The demonstration platform will be available for individual exploitation one year after the project ends.
The lessons-learned will be documented in a report for each application domain

Demonstration Activities

We foresee the following types of demonstration activities to be carried out:

- Translation of the ebbits platform to new languages and limited trials with users in the food sector and the manufacturing industry.
- Customisation of the whole or parts of the ebbits platform to new application areas and limited trials with end-users
- Hands-on workshops with users and/or developers
- Site-surveys and application analysis for potential uses and customers

Exhibitions and conference presentations are not considered as Demonstration activities rather than dissemination and exploitation.

Not all demonstration activities have been scheduled at the submission date for this deliverable. A complete overview of the demonstration schedule is expected to be given at the M36 review.

The demonstration activities will be closely coordinated with the dissemination, exploitation and use the training material already developed to the furthest extent possible.

3. Demonstration Platform

The Demonstration platform will be based on the month 36 architecture of ebbits, as it is depicted in Figure 1. Detailed description of the ebbits architecture was provided in the deliverable D7.6.1 "Technical description and prototypes of data and event management subsystems 1".

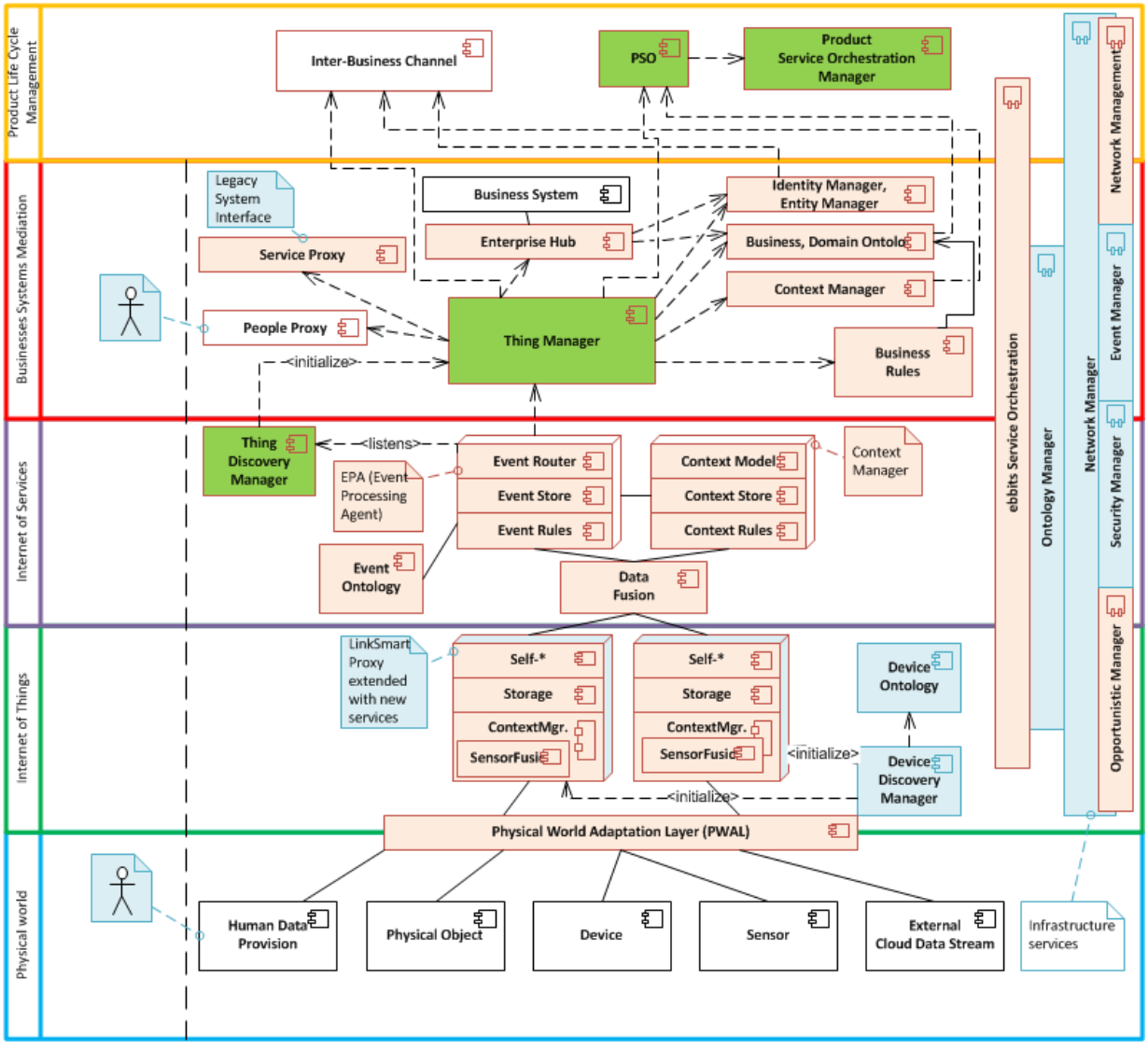

Figure 1: The ebbits architecture diagram

4. Planned Demonstration Activities in different countries

Denmark

A great part of the traceability software has been developed in Denmark in cooperation with partners from the food industry. Together with these partners, the ebbits platform and tools will be demonstrated to software developers working in the industry. The traceability software will be demonstrated in Denmark to retailers and consumers with help from the supermarket chain Super Best and the slaughterhouse Danish Crown.

4.1.1 Hands-On Workshop with software developers from the food industry

A hands-on workshop will be held in Denmark during February 2014 (preliminary scheduled to be held 5th of February 2014). The target group is software developers working in the food production sector, which includes

- Providers of management software for cattle- and pig farmers
- Producers of feeding equipment
- Slaughterhouses
- Feed production companies.

The workshop will focus on demonstration of the ebbits core functionality and include a presentation of the developed service layers for communication between stakeholders in the traceability scenario.

During the workshop the participants will have the opportunity to view and discuss specific programming examples.

Approximately 10-15 companies will be invited to join the workshop.

Experience from the workshop will be reported in deliverable D11.2 Feedback from demonstration activities.

4.1.2 Demonstration of end user traceability app to consumers

In cooperation with the supermarket chain Super Best we will demonstrate the traceability app live in one of their stores. Packages of meat will be equipped with QR codes and costumers will have the opportunity to scan the meat packages and view traceability information on a smart phone.

During the demonstration (estimated to be held during April 2014), randomly chosen costumers will be asked questions resulting in a small survey.

Results from the survey will be reported in deliverable D11.2 Feedback from demonstration activities.

4.1.3 Demonstration in the "Stop Wasting Food" project

The Danish organization "Stop Spild af Mad" (http://www.stopspildafmad.dk), in English: "Stop Wasting Food" is focused on the daily waste of food. One of their goals is to improve the process from farm to store:

"B*y having a better cooperation between farmer and customer, better planning in the chain from farm to store, better inventory management, better logistics".*

This could lead to a demonstration of the traceability app, live with the same scenario as with the SuperBest demonstration.

To demonstrate the traceability and the manufacturing solutions concept to a wider audience, a slide show or short film will be prepared, which can be used for demonstrations at events as well as be added to the ebbits website and social media sites (either YouTube or the sharing site http://www.slideshare.net/). The aim is to present the traceability and the manufacturing scenario in terms that are easy to understand and which can inspire to the use of ebbits as a generic monitoring platform in other areas and with other products.

Contact to and demonstration for selected IoT forums in Denmark will be established and both the traceability and manufacturing solutions concepts could be demonstrated.

Sweden

CNet will mainly focus on the use of the ebbits platform in the food traceability scenario.

4.1.4 Hands-on Workshops

CNet will arrange hands-on workshops in Sweden for IoT Developers using the ebbits platform, specifically the middleware. This will be a part of the IoT Developer Course organised in collaboration with Swedish Computer society. The developers are given a short introduction to the ebbits platform and are able to connect some sensors and devices that can be controlled and polled for data. One course has already been carried out in May 2013. At least one more course is foreseen before project ends.

4.1.5 Adapation to new uses

CNet will also make an adaption of the ebbits platform to work with the CALIS project (http://www.calisprojects.com) which is focused on "Crop & Livestock Intelligent Integrated Solution for Monitoring, Control and Marketability of Agribusiness Data and Resources" to demonstrate the adaptability to new food and agriculture scenarios of use. The aim would be to adapt to an OPC Unified Architecture (OPC UA, https://www.opcfoundation.org/UA/) model to allow integration and control of various livestock and crop devices and equipment, as well as heterogeneous information systems.

England / international

4.1.6 Campus Party

The ebbits project will join the Campus Party Europe held in London 2-7 September 2013 (see at http://www.campus-party.eu/2013). Campus Party is an annual week long, 24-hours-a-day technology festival where thousands of "Campuseros" (hackers, developers, gamers and technophiles), equipped with laptops, camp on-site and immerse themselves in a truly unique environment.

At the Campus Party ebbits partners will demonstrate the ebbits concept and form a challenge to a group of software developers (expected number around 20). The challenge will be based on a combination of real and simulated data from cattle meat production. The developers are expected to invent and develop minor innovative apps, based on the ideas behind the traceability scenario.

The ebbits project group will evaluate the developed applications, and choose a winning app at the end of the campus party week.

Germany

4.1.7 Demonstration at SAP

For the 4th ebbits year SAP is continuing its ebbits demonstration activities. We plan to demonstrate on trade and technology fairs, continue the Future Factory Initiative, and contribute to internal projects with customers. The ebbits technologies will be used, e.g. to shape the planned architecture for machine to machine communication, in internal projects with our customers, including a German compressor manufacturer.

The Virtual Future Factory allows one to explore SAP's current manufacturing solutions and gives a preview of potential future solutions. The Future Factory facilitates research, development, and co-innovation in a Living Lab environment, providing an infrastructure for test, validation, and demonstration. Using a real-world setup it shows leading edge software and the latest hardware with different scenarios, SAP products, and prototypes in a typical discrete manufacturing environment. With more than 20 partners including large, medium, and small companies, the Future Factory Initiative constitutes a strong and heterogeneous ecosystem of market and technology leaders. The business processes at the Future Factory are closely following the Supply-Chain Operations Reference-model (SCOR, http://supply-chain.org/scor). SCOR enables users to address, improve, and communicate supply chain management practices within and between all interested parties in the Extended Enterprise. The SCOR model is based on five distinct management processes: Plan, Source, Make, Deliver, and Return (Service). Interested stakeholders are invited to take the opportunity to come to Dresden and attend one of the Future Factory Visitor Days, held on a quarterly basis. Visitors can get in touch with researchers from SAP to discuss and explore how SAP is working on the future of IT in the area of manufacturing industries. Not being located nearby is not a problem, they also offer regularly webcam tours of the Future Factory.

Ebbits technologies have been (and will be in the future) influencing demonstrators in the Future Factory. The Virtual Future Factory[1] can be accessed online and is a virtual representation of the real Future Factory located at SAP in Dresden. Two examples with ebbits impact are

1. KPI Monitoring (Virtual Tour > Make > Monitor Future Factory KPIs) providing a dashboard with views customized for the engineer or for the plant manager respectively
2. Remote Services Management (Virtual Tour > Service > Remote Service Management) to monitor machine conditions, trace the root cause of a situation and trigger actions, e.g. the replacement of a machine part.

Italy

For the 4th year demonstration activities in Italy has been foreseen an effort from both the Italian partners ISMB and COMAU, which will be detailed in the following subsections. The foreseen demonstration model is the same: to have one or more demonstrative prototypes in a well-equipped environment in order to show the

[1] http://sap.com/futurefactory

project activities to all the respective companies stakeholders. Both the companies have a continuous guest's turnover. In the case of COMAU guests are mainly potential clients coming from the manufacturing world, while in the case of ISMB there are people from a large variety of sectors, like SMEs, Public Authorities, University, involved in disparate fields including manufacturing and traceability. Furthermore, being both the companies in the same city, Torino, it has been agreed to share or redirect involved stakeholders among companies in order to go deep within any ebbits details if necessary.

4.1.8 COMAU Demonstrations

In COMAU premises, the development of a stable demonstration area is currently under study, including all the main outcomes of ebbits and other projects where COMAU participates. There are several benefits driving this activity:

- All visitors (Customers, Students and Suppliers) can easily understand the main innovation themes, where COMAU activities are focusing;
- A centralized area will be used for training and new solutions testing;

Within the ebbits project the main achievements that will be taken into account are as follows:

- Line monitoring tests on consumer devices (Smartphone and Tablets);
- Production systems energy monitoring applications, for Comau Smart Robots (NJ4 series) energy consumption characterization;
- WSN applications: Acceleration and Temperature monitoring based on STMicroelectronics sensors (LIS302DL, STLM20 and STLM32) for motion performances improvement.

4.1.9 ISMB Demonstrations

In ISMB a set of three prototypes will be prepared and made constantly available for demonstration purposes. The prototypes, which will cover both the traceability and the manufacturing scenario, will be associated with all the relevant dissemination materials, including poster, leaflets and published papers. The prototypes are the results of the ongoing development activities and have already been used during other demonstration activities (like the Researchers' Night 2012 or the IoT Week 2013). It is up to ISMB to maintain the prototypes and place them on an appropriate demonstration area. Prototypes taken into account are:

- Manufacturing Scenario
    - Cooling and Lighting System (demonstration of the control of multiple highly power consumption devices trough the ebbits middleware, thanks to the integration of multiple wireless devices). At the time of this deliverable the prototype is running (Figure 2).
    - Robot Control (demonstration of the control of two different type of robot thanks to the ebbits middleware). At the time of this deliverable, the prototype is ready for demonstration activities (Figure 3).

Figure 2 - Cooling and Lighting System

Figure 3 - Robot Control

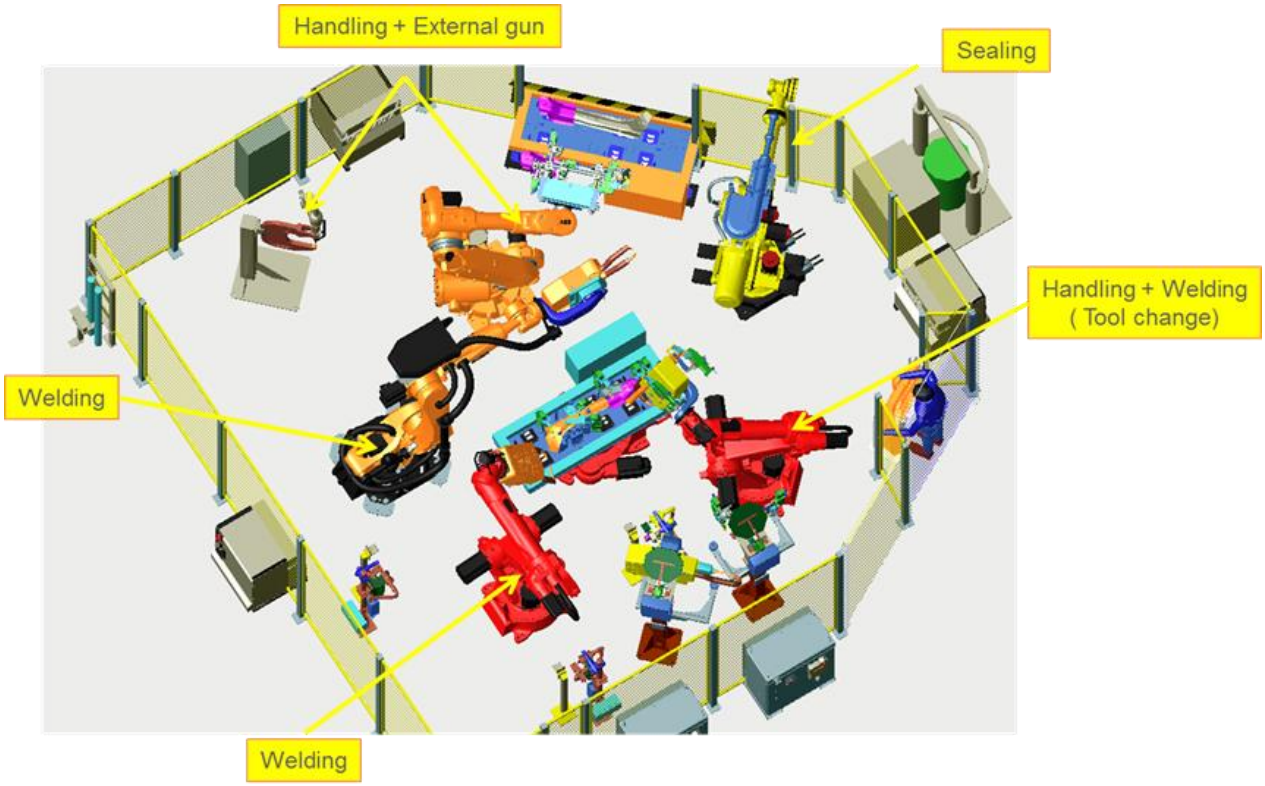

Figure 4: COMAU Innovation Centre - Showroom

- Traceability Scenario:
  - Food Transportation simulation (demonstration of the control of transportation stage from the slaughterhouse to the supermarket leveraging on RFID to trace meat and WSN devices to monitor transportation temperature). At the time of this deliverable, the prototype, which is a subcomponent of the M36 DEMO, is under finalization (Figure 4).

Figure 5 - Food Transportation simulation

5. Conclusions and Future Work

The described demonstration plan covers various activities in five countries targeting a wide range of potential users. It is expected that the demonstration effort will spread the awareness of the ebbits platform and that it will give the project valuable feedback for improvements.

The demonstration plan might be adjusted during the 4th project year as new opportunities for demonstration might appear.

All demonstration activities and relevant feedback will be reported at the end of the 4th project year in deliverable 'D11.2 Feedback from demonstration activities'.