

Deliverable D300.1.3

WP300 Month 30 Planning and Progress Report

WP 300

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The Flspace Project

Leveraging on outcomes of two complementary Phase 1 use case projects (Flnest & SmartAgriFood), aim of Flspace is to pioneer towards fundamental changes on how collaborative business networks will work in future. Flspace will develop a multi-domain Business Collaboration Space (short: Flspace) that employs FI technologies for enabling seamless collaboration in open, cross-organizational business networks, establish eight working Experimentation Sites in Europe where Pilot Applications are tested in Early Trials for Agri-Food, Transport & Logistics and prepare for industrial uptake by engaging with players & associations from relevant industry sectors and IT industry.

Project Summary

As a use case project in Phase 2 of the FI PPP, Flspace aims at developing and validating novel Future-Internet-enabled solutions to address the pressing challenges arising in collaborative business networks, focussing on use cases from the Agri-Food, Transport and Logistics industries. Flspace will focus on exploiting, incorporating and validating the Generic Enablers provided by the FI PPP Core Platform with the aim of realising an extensible collaboration service for business networks together with a set of innovative test applications that allow for radical improvements in how networked businesses can work in the future. Those solutions will be demonstrated and tested through early trials on experimentation sites across Europe. The project results will be open to the FI PPP program and the general public, and the pro-active engagement of larger user communities and external solution providers will foster innovation and industrial uptake planned for Phase 3 of the FI PPP.

Project Consortium

- DLO; Netherlands
- ATB Bremen; Germany
- IBM; Israel
- KocSistem; Turkey
- Aston University; United Kingdom
- ENoLL; Belgium
- KTBL; Germany
- NKUA; Greece
- Wageningen University; Netherlands
- PlusFresc; Spain
- FloriCode; Netherlands
- Kverneland; Netherlands
- North Sea Container Line; Norway
- LimeTri; Netherlands
- BO-MO; Slovenia
- MOBICS; Greece
- Fraunhofer IML; Germany
- Q-ray; Netherlands
- FINCONS; Italy
- Kühne + Nagel; Switzerland
- University Duisburg Essen; Germany
- ATOS; Spain
- The Open Group; United Kingdom
- CentMa; Germany
- iMinds; Belgium
- Marintek; Norway
- University Politecnica Madrid; Spain
- Arcelik; Turkey
- EuroPoolSystem; Germany
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- CIT; Spain
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Dissemination Level

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|-----------|---|--|
| PU | Public | |
| PP | Restricted to other programme participants (including the Commission Services) | |
| RE | Restricted to a group specified by the consortium (including the Commission Services) | |
| CO | Confidential, only for members of the consortium (including the Commission Services) | |

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| 001 | Creation of the document | 25.09.2015 |
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Document Summary

This is the third planning and progress report for Flspace WP300. In this report we summarize the work that was done in developing the Flspace Experimentation Environment (EE). This report covers the third phase of the work, the continued development of the EE platform and of our working procedures and the development of our experimentation facilities. At this point we have an advanced version of the EE that will be augmented and maintained as we move on with the Flspace project and an advanced version of our experimentation facility. We report on the meetings that were conducted (Teleconferences and face-to-face), and the deliverables that were produced. We also provide details on the activities in each one of the tasks and their respective subtasks. All together we have produced three deliverables during this reporting period.

Abbreviations

| | | | |
|--------|--|------|--|
| App | Software Application | i.e. | id est = that is to say |
| D | Deliverable | IP | Intellectual Property |
| DoW | Description of Work | IPR | Intellectual Property Rights |
| EC | European Commission | KPI | Key Performance Indicator |
| e.g. | Exempli gratia = for example | M | Month |
| EU | European Union | RTD | Research and Technological Development |
| FIA | Future Internet Assembly | SME | Small and Medium Sized Enterprise |
| FI PPP | Future Internet Public Private Partnership | ST | Sub-Task |
| FP7 | Framework Programme 7 | T | Task |
| GA | Grant Agreement | WP | Work Package |
| ICT | Information and Communication Technology | | |

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1 Introduction

Work Package 300's overarching goal is to enable the realization of the use cases defined in WP400 and to allow for large scale trials in phase 3 of the project. The project was extended by 6 months and therefore the period covered by this report is the final 18 months of the project. Building on the basic platform achieved in month 12, the partners worked on enhancing the platform and the experimentation facility. These were used for deploying the general platform services and the trials developed in Work Package 200 and Work Package 400 correspondingly. Overall, the contributions of the partners to the activities within WP300 are in line with their planned contributions and activities. With minor deviations, the use of resources by the WP partners within the reported period is also in line with the planned efforts. These deviations did not affect the activities and outcomes within the WP. Some delivery dates adjustments were made to reflect the six months extension.

2 Content and Purpose

This is the third planning and progress report for Flspace WP300. In this report we summarize the work that was done in developing the Flspace Experimentation Environment (EE). We focus on the work that was performed in months 13 – 30. This period covers the final phase of the work, the development of the EE platform and the establishment of our working procedures. At this point we have a working version of the EE that we support, maintain. We report on the meetings that were conducted (Teleconferences and face to face), and the deliverables that were produced. All together we have produced seven deliverables:

1. D300.5 – System and Support for V3 of the hosting environment + final integration of GEs
2. D300.6 – Final version of the hosting environment
3. D300.7 – Core Platform GE Assessment report
4. D300.10 – Advanced release of the EE + more scenario executions
5. D300.11 – Experimentation environment development final release
6. D300.12 – Final scenario executions
7. D300.1.3 – This planning and progress report.

3 Work package Objectives for the Period

The Flspace Experimentation Environment, facilitates the experimentation and testing of the use cases defined in WP400 (use cases) deployed on the Flspace platform that is developed in WP200. To that end continued to improve in this reporting period the basic cloud infrastructure for the EE. This infrastructure as a Service (IaaS), is based on software from FI-Ware and is used to deploy the software deliverables of Work Package 200 and FIWare GEs. The result is the Flspace platform for experimentation and testing of the use cases defined in WP400. The aim is to use physical sites as well as real time data and simulation in cases where real-time data and/or physical sites cannot be tested. The EE provides "labs services" for domain/business users to carry out the specified scenarios defined in the scope of WP400.

During the reporting period, the focus of WP300 was on enhancing the basic Flspace (FI-Ware based) hosting environment and supporting the deployment of WP200 services and more of the FI-Ware GEs. In parallel we continued to develop the Experimentation facility that allows WP400 use case owners to experiment with their application. More specifically, the following objectives (as stated in the DoW) have been pursued:

- **Task 310 Hosting and experimentation coordination (Lead: IBM).** The aim of this task is to efficiently address the technical coordination of the Work Package. In addition, the objective is to be a single point of contact to all the other Work Packages to coordinate their requirements and usage of the platform.
- **Task 320 Cloud hosting (Lead: KOCSSYSTEM).** Cloud hosting and support, and preparation for phase 3. The task involves planning, designing, implementing, testing and managing a cloud infrastructure (IaaS) to host Flspace. This task was the main focus of WP300 in the first 6 months.

In the last six months (since the sixth months review) the FIspace cloud was used to deploy the WP200 components and at the same time enhanced to provide better service (D300.4).

- **Task 330 Core Platform GE integration and deployment (Lead: KOCSISTEM).** This task is concerned with the assessment, deployment, and openness validation of GEs exploited by the FIspace project. We started compiling the GE requirements from the various stakeholders during this period. GE requirements will be further refined as the FIspace project progresses.
- **Task 340 Experimentation set-up and execution (Lead: IBM).** The FIspace EE's ultimate goal is to provide the facilities to run the tests defined in the scope of WP400 (use cases). This task is concerned with the actual execution set-up and support of the use case trials (test scenarios). The focus of this task in the first 6 months was facilitating the design of experiments. This was used as a blueprint for the implementation work in Task 350.
- **Task 350 Experimentation facilities (Lead: KOCSISTEM).** This task is concerned with the scaffolding and interfaces that are needed in order to have an environment that simulates the actual real life environment. Under this task we completed the scaffolding design process and developed the initial Experimentation Facility (D300.9).

The third reporting period (Month 13-30) involves all tasks of Work Package 300. In the following text, the progress made towards reaching the objectives of this Work Package is described, also presenting the significant results that have been achieved.

4 Progress towards objectives

Task 310 Hosting & experimentation coordination (M1 – M24)

Status:
on-going

Summary of work done

In order to coordinate the work within this work package we held regular phone meetings to discuss progress and raise any issues that came up. We also conducted one Work Package 300 face-to-face meetings:

- Kologn 02-10-2014, Informal meeting during the plenary meeting.

To coordinate with the rest of the project, we have participated in regular development meetings of WP200. We supported Work Package 500 tasks that required our input and established procedures for collecting requirements from the Work Package 400 use cases. We also participated in the regular project management meetings to present and discuss WP300 status and alignment with the rest of the project.

Externally, we have established communications with Xi-Fi and with several FIWare GE owners, as well as the FIWare IaaS platform. During this period we had 7 deliverables.

Significant/major results for months 13-30.

- Continued communication with FIWare, Xi-Fi and FI-Lab
- Delivered D300.5 System and support for V3 of hosting environment (Month 18), on time
- Delivered D300.10 Advanced release of the Experimentation Facility + scenario execution plan (Month 18), behind schedule due to the unavailability of the base FIspace platform
- Delivered D300.6 Final version of hosting environment (Month 30), on time (adjusted to project extension)
- Delivered D300.7 Core Platform GE Assessment report (Month 30), on time (adjusted to project extension)
- Delivered D300.11 Experimentation environment development final release (Month 30), on time (adjusted to project extension)
- Delivered D300.12 Final scenario executions (Month 30), on time (adjusted to project extension)
- Deliverable D300.1.3 WP300 Month 12 Planning and Progress Report (Month 30), on time (adjusted to project extension)

Task 310 has three subtasks:

- **ST311 Coordination of technical activities**
 - **Lead: IBM, Participants: KOCSISTEM**

- Held regular biweekly and then weekly meetings by phone. Agenda and minutes are published.
- Used open e-mail communication
- Represent WP300 in the PMG
- **ST312 Coordination of all activities with other WPs**
 - **Lead: IBM, Participants: KOCSISTEM**
 - Provided input to other work packages and discussed their requirements.
 - Established work procedures for installing GEs and other software, obtaining login credentials, etc.
 - Participated in Architects meetings
 - Served as a single point of contact for WP 300 activities.
- **ST313 Coordination of all activities with Core platform**
 - **Lead: IBM, Participants: KOCSISTEM**
 - Established communication with XiFi and FIWARE
 - FI-WARE openstack software is installed on our system
 - Kept a close watch on the stability of the Open Stack platform and the required GEs and their leads

Deviations (if any) and mitigation actions

The Open Stack IaaS didn't achieve yet the desirable out-of-the-box stability. Not all GEs have been delivered on time or as promised. We are evaluating the situation on a case by case basis. We insist on installing one version of a GE (and not several) in order to get consistent results.

Task 320 Cloud hosting (M1 – M24)

**Status:
on-going**

Summary of work done

We worked on the architecture of the Flspace EE and adopted the Open Stack based IaaS recommended by FI-Ware (Xi-Fi). We established relations with Xi-Fi and deployed the cloud which is now ready for our developers (Flspace WP200 and WP400).

Significant/major results for months 13-30

- Continued communication with FI-Ware and in particular Xi-Fi
- Provided support for WP200 developers
- Delivered D300.5 and D300.6 Final version of hosting environment

Task 320 is further divided into three subtasks:

- **ST321: Architecture design and requirements of the cloud hosting environment**
 - **Lead: KOCSISTEM, Participants: IBM**
- **ST322: Building and testing the cloud hosting environment**
 - **Lead: KOCSISTEM, Participants: IBM**
 - Developed the third and final versions of the hosting environment: D300.4
- **ST323: Support and maintenance of the cloud hosting environment**
 - **Lead: KOCSISTEM, Participants: IBM**
 - Established working procedures to regulate the development work on the hosting platform.
 - Supported users of the platform

Deviations (if any) and mitigation actions

Working on stability issues of the IaaS. New version of Open Stack was installed. Network hardware was upgraded, and configuration of the platform was adjusted.

Task 330
FI-WARE GE integration & deployment (M1 – M24)
Status:
on-going

Summary of work done

Requirements for using GEs and other software are being collected in an orderly way. We are assessing the status of the GEs and experimenting with them. We also made sure to define the boundaries of responsibilities between WP 300 and the users of the platform: WP 200 and WP 400. We will deploy only GEs that are fully validated by the developers.

Significant/major results months 13-30

- Maintained communication with FI-Ware and in particular Xi-Fi
- Delivered D300.7 Core Platform GE Assessment report

This task has three subtasks:

- **ST331: Identification and prioritization of exploited GEs**
 - **Lead: KOCSYSTEM, Participants: UDE, IBM, ATOS, NKUA**
 - We used and refined procedures for documenting the GE usage
 - We used and refined the procedures that WP300 use to support the GE deployment
- **ST 332: Installation/configuration and support of exploited GEs**
 - **Lead: KOCSYSTEM, Participants: UDE, IBM, ATOS, NKUA**
 - Selected GEs are now part of our hosting environment.
- **ST333: Assessment of exploited GEs**
 - **Lead: UDE, Participants: KOCSYSTEM, IBM, ATOS, NKUA**
 - A study and evaluation of GEs was delivered.

Deviations (if any) and mitigation actions

We continue validating the GEs that are to be used. In cases where it is clear that the appropriate GE will not be available on time for Flspace, alternatives are being evaluated. This is done on a case-by-case basis.

We also learned (late) that some of the GEs we selected are no longer supported by FIWARE

Task 340
Experimentation set-up and execution (M1 – M24)
Status:
on-going

Summary of work done

Building on the deliverables of the two preceding projects, Finest and SmartAgriFood, we have designed the experimental setup and validation process. This is documented in deliverable D300.8. We adopted a scenario based approach in order to make sure that we are covering all the required setups.

Significant/major results months 13-30

- D300.8 EE architecture and development plan was use as a blue print for our work on Task 350.

Task 340 has three subtasks:

- **ST341: Experiment design and configuration**
 - **Lead: IBM, Participants: ATB, UDE, ATOS, KOCSYSTEM , TOG, NKUA, UPM**

- The work is documented in D300.8
- **ST342: Experiment execution and analysis**
 - **Lead: IBM, Participants: ATB, UDE, ATOS, KOCsISTEM , TOG, NKUA, UPM**
- We developed guides for setting the experiments. All available in the WP300 Wiki
- **ST343: Experiment knowledge sharing**
 - **Lead: IBM, Participants: ATB, UDE, ATOS, KOCsISTEM, TOG, NKUA, UPM**
- Delivered D300.12 Final scenario execution

Deviations (if any) and mitigation actions

None reported.

Task 350
Experimentation facilities
(M1 – M21)
Status:
on-going

Summary of work done

Since our platform will not work initially in a real-life setup, there is a need to build the scaffolding that will provide an environment that is as close as possible to a real-life setup. Hence we need to simulate operations, for example the input from in-field sensors. This will be done with data collected from actual sensors that will be streamed into the platform as if these were transmitted from actual sensors. Since we are running an experiment we might run the data at a faster pace in order to conveniently run multiple experiments. We designed these scaffoldings and identified the required simulation and other software that are needed to run the Flspace experiments.

Significant/major results months 13-30

- We developed the experimentation facility, deliverable D300.10: Advanced EE release and D300.11 final release of the EE
- **Task 350 has three subtasks**
- **ST351: Flspace test**
 - **Lead: KOCsISTEM, Participants: ATB, UDE, NKUA, UPM, M&A, LimeTri**
 - Ongoing work.
- **ST352: Experiment environment core**
 - **Lead: NKUA, Participants: ATB, UDE, KOC, UPM, M&A, LimeTri**
 - Components of the core facility were identified and developed. These were later integrated with the front-end.
- **ST353: Experiment environment front-end**
 - **Lead: UPM, Participants: ATB, UDE, KOCsISTEM, NKUA, M&A, LimeTri**
 - Components of the front end were identified and developed. These were later integrated with the core components.

Deviations (if any) and mitigation actions

None reported.

5 Significant results for months 13-30

- Continued communication with FIWARE, FI-Lab and Xi-Fi
- Delivered D300.5 System and support for V3 of hosting environment (Month 18), on time
- Delivered D300.10 Advanced release of the Experimentation Facility + scenario execution plan (Month 18), behind schedule due to the unavailability of the base Flspace platform
- Delivered D300.6 Final version of hosting environment (Month 30), on time (adjusted to project extension)
- Delivered D300.7 Core Platform GE Assessment report (Month 30), on time (adjusted to project extension)
- Delivered D300.11 Experimentation environment development final release (Month 30), on time (adjusted to project extension)
- Delivered D300.12 Final scenario executions (Month 30), on time (adjusted to project extension)
- Deliverable D300.1.3 WP300 Month 12 Planning and Progress Report (Month 30), on time (adjusted to project extension)

