

Workshop: Integration of AMI and AAL Platforms in the Future Internet (FI) Platform Initiative

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Abstract. The digital agenda of the European Commission includes plans for the building of Information and Communication Technology (ICT) based on a new generation of networks, or the Internet of the Future. To this end, the Future Internet Private Public Partnership (FI-PPP) has been established with the help of the European Commission. It will involve the building of a proof of concept FI platform in the coming two years. One of the main challenges of this platform is to be generic while serving the needs of specific application sectors. This workshop focused on the challenges of integrating Ambient Intelligence (AmI) and Ambient Assisted Living (AAL) platforms with this kind of platform. Participants in the workshop involved members of the AmI/AAL platform community and members of the FI community.

Keywords: AmI, AAL, Future Internet, Platforms.

1 Workshop Context

In March 2008, the ICT community in Europe produced the Bled declaration calling for a concerted European action to redesign the Internet [1]. The result was the Future Internet Public Private Partnership programme (FI-PPP) [2] which is coordinated by the CONCORD facilitation project [12]. It includes three phases as shown in Figure 1 and will involve a public budget of 300 MEuro. The first phase has started in April 2010 and consists of a technology foundation project focusing on the provision of an FI platform that will be used by up to eight use case scenario projects. The second phase will focus on further validation of this platform through five use case scenario pilots. The third phase will be dedicated to the expansion and enlargement of many test beds and pilots.

Ambient Assisted Living refers to “intelligent systems that will assist elderly individuals for a better, healthier and safer life in the preferred living environment and

covers concepts, products and services that interlink and improve new technologies and the social environment” [3]. AAL is supported by the European Commission's ageing well action plan [4] as well as a series of measures that involve more than one billion Euros in research and development between 2006 and 2013. Realising that many collaborative projects were dedicating resources to the development of platform features, the European Commission decided in 2009 to launch a call for proposals for the development of a common platform. This led to UniversAAL, an FP7 project [5] which is now coordinating AALOA, an initiative for an open source platform [6]. In parallel, work related to accessibility has led to the launch of the OpenURC initiative [7]. AAL is a compelling use case scenario for the Future Internet. Furthermore, the AAL community has accumulated a wealth of platform requirements [8,9] that could directly benefit the Future Internet. The vision of the FI-PPP is that the technology foundation project will provide generic enablers which would be associated with specific enablers developed within a domain to allow for the design, development and deployment of applications. The question is, can the FI-PPP enablers give leverage to the AAL community?

Further to technical integration, the FI PPP and AAL communities share the same development priorities: smartness, sustainability and inclusiveness, as well as similar social, regulatory and economic implementation barriers. This workshop discussed joint methodologies and instruments for collaborative research, development and innovation contributing to the European growth strategy. Such methods include user driven open innovation, public sector innovation, policy coordination methods, as well as living lab experimentation.

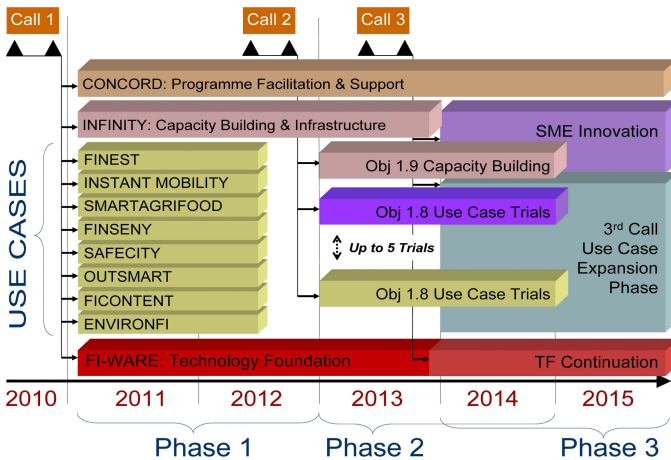


Fig. 1. FI-PPP Phases

2 Workshop Content

This workshop focused the challenges of integrating AmI and AAL platforms with the FI-PPP initiative. In this respect the workshop provided information on concrete

means to engage with the FI PPP future calls and experiments, either as a user or as a co-developer. A secondary objective was to explore the opportunities for joint statements and declarations addressing the grand societal challenges of aging, e-inclusion and e-competences, as well as the implementation of Digital Agenda.

The following topics were discussed:

- Architecture of an FI platform. Challenges from an FI viewpoint.
- Architecture of existing and to come AmI/AAL platforms. Challenges from an AmI/AAL viewpoint.
- How can integration take place? What are the hurdles?
- What are the means of experimentation? Can AAL be a usage area for the Future Internet?
- What is the impact of evaluation? How can we move towards a European digital single market?
- Identification of measures and instruments.
- Actions.

Participants of the workshop included members of the AmI/AAL platform community and members of the FI community.

3 Session 1: The AAL Initiative

The session, chaired by Atta Badii (University of Reading) started with two movies [13, 14]. The chair presented a check list concerning user needs using inputs provided by Elizabeth Mestheneos from Age platform: rapidity of innovation, role of consultation, cost, user-friendly, standards of accessibility, digital literacy, specialized versus general needs, acceptability. He also commented on five points: lip service, gimmicks (pretending), shallow valued packing, old age/disability, mainstreaming.

Sabine Wildevuur (WAAG) presented Express2connect [15] where the *Play with your life* story telling game has been developed. She also presented the Health-lab living lab [16] in Amsterdam (focusing on solutions for care). She emphasized the need to work with the user (rather than for the user) and to work out in parallel business models.

Francesco Furfari (CNR-ISTI) presented AALOA [6] as a community to help coordinate development related to open platforms for AAL. He presented a number of coordinated work such as EvAAL [17] that focuses on evaluation and comparison of AAL solutions by exploiting Living Labs infrastructure, or Zb4osgi [18] that focuses on the integration of Zigbee networks with IP-based applications. Such networks are important enablers of healthcare scenarios.

Antonio Kung (Trialog) presented the context that led to this workshop, including the Lecce declaration [19] (which calls for the creation of ecosystems based on open common platforms), and the current preparation of a strategic implementation plan for the European Innovation Partnership on Active and Healthy Ageing [20].

4 Session 2: The Future Internet Initiative

Session 2 was chaired by Mikko Rieppula (Aalto University). He provided an overview of the programme, consisting of eleven projects: one technology foundation/software platform project, FI-WARE [21] bearing some resemblance and analogies to UniversAAL [5]; 1 capacity/testbed cataloguing project (Infinity [22]), 8 use cases (number and scope to be redefined for 2013 onwards; this is also where Health, Wellbeing and Active Ageing could fit in as a vertical domain), and finally, CONCORD [12] as the programme facilitation and support project for the whole FI PPP programme. FI PPP is a 5-year programme that started half a year ago, and opportunities exist for joining later (cf. open calls).

Thierry Nagellen (Orange Labs) then introduced the central FI-WARE platform itself, emphasising how it is to be an open specification with open source components for the reference implementation. Partners have not started from scratch, but each have brought their background IPR to the table. The resulting platform should of course be such that the partners can commercially extract revenue from their implementations later on. The so-called technical chapters include e.g. trust and security, Internet of Things (IoT) and cloud hosting, which should many be of interest also to AAL. At the same time, some components of IoT specifically are missing in this early stage of the FI-WARE project, which could be a opportunity for UniversAAL to feed in.

Josema Cavanillas (ATOS) presented some of the vertical use case domains in more detail. (ATOS is a project partner in several use cases in addition to FI-WARE).

Finally, Takis Damaskopoulos (EIIR) elaborated on the need for studies and recommendations to the EC on policy, regulations and governance when it comes to the access to, storage and use of, and disposal of various kinds of data and services, as may be implied by the term "Future Internet" and specifically the Public-Private partnership focus of the FI PPP programme. FI PPP/CONCORD tries to see policy, regulation and governance from two perspectives: policy, regulation and governance as seen from a 'technology perspective' and technology as seen from a 'policy, regulation and governance perspective'. The possibilities of the aging population using the Future Internet to their benefit is certainly a policy/regulation/governance item, since the business models are largely missing from free markets.

The discussion further revealed that it might be beneficial to formulate a future use case around Ambient Intelligence as a more widely applicable topic than to propose the scope of AAL anew in the open calls for new use cases.

5 Session 3: Panel on Technical Coordination

This session was chaired by Antonio Kung (Trialog) with questions prepared by Saied Tazari (Fraunhofer IGD).

Francesco Furfari (CNR-ISTI) presented the technical work achieved in the universAAL. He showed how the results of previous AAL projects on platforms have been consolidated into a common understanding from which the technical concept of

AAL space has emerged. He presented a number of application scenarios where this concept was used. Discussions in the panel led to two conclusions: first, there was a need of harmonizing technical terminology between the AAL and the FI technology communities, and secondly, the concept of AAL spaces could be a contribution as an enabler of a FI platform.

Antonio Kung presented slides prepared by Jan Alexanderson (DFKI) on URC. URC is an ISO standard (ISO24751) for personalized user interfaces based on dynamic adaptation capabilities, i.e. deploying interfaces plug-ins matching personal profiles. The OpenURC alliance [7] has been established in a move to further coordinate the growing URC community (200 partners directly or indirectly using URC technology as of today). OpenURC would therefore be a coordination representative of URC based technology within AALOA. OpenURC would also support applications domains where user interfaces were needed (e.g. public transport), in particular developments associated with GPII [23], an initiative calling for the adoption of personalized interfaces in public infrastructures. Discussions in the panel led to the following conclusions: first, URC based technology could be considered as an enabler for accessibility, and secondly, this enabler was currently not implemented in FI technology community currently.

Questions prepared by Saied Tazari were addressed. It was confirmed that (1) FI-Ware connects cloud computing to the internet of things, (2) universAAL brings the concept of AAL spaces, (3) OpenURC is a generic approach for accessibility. The panel concluded with a discussion on the technical feasibility of joining forces. It was concluded that in order to integrate AAL enablers (including URC) four short term milestones had to be reached (1) terminology harmonization, (2) architecture harmonization, (3) defining an approach for long term interoperability, (4) defining an approach for long term support.

6 Session 4: Panel on Opportunities for Collaboration

The session was chaired by Antonio Kung. Martin Potts (Martel) presented the Infinity project [22] and how it would collect and coordinate the provision of information on FI related undertakings. Gaby Lenhart (ETSI) explained the role of standards and the involvement of ETSI in technological development. Ana Garcia (ENoLL or European Network of Living Labs) presented the role of ENoLL [24] in coordinating Living labs communities and provided examples of AAL living labs.

The panel first debated issues related to ecosystems based on open platforms. On coordination between AAL, OpenURC and the FI technologies, Thierry Nagellen said that FI-WARE is defining a methodology for defining integrating enablers. On coordination between AAL, OpenURC and the FI communities Martin Potts reported that Infinity is also defining a methodology (using in particular a *common description framework*). On the possibility that living labs use common platforms, Ana Garcia said that the presence of ENoLL as a partner of Concord would ensure that the FI undertaking is well integrated and taken into account by the living lab community. She also pointed out the need for flexibility and customizability, and the need to allow

for diversity. On how standardization could be anticipated at platform level, Gaby Lenhart provided two advices, first taking into account the issue of backward compatibility and secondly ensuring a good knowledge of the state of the art in order to identify gaps.

The panel then moved to discuss applications. Blanca Jordan (ATOS) confirmed the relevance and suitability to integrate AAL applications into a wider vision of active healthy ageing (AHA) combining eHealth, AAL and other aspects. Ana Garcia confirmed that ENoLL could act as a front door to find and engage living labs developing applications in the AHA area. Gaby Lenhart also widened the issues of standardisation to metrology, terminology and ontology, interoperability. A discussion then took place on policies for interoperability. It was agreed that while it should not be mandatory to be interoperable, it was mandatory to be able to express its intention (e.g. using a commonly understandable description). It was finally agreed that long term support was needed (e.g. ensuring that support provided by Infinity currently would be available after the project completion).

The panel finally discussed actions towards a MoU between the FI and the AAL communities. Identified area for collaboration were terminology, architecture, approach for interoperability, approach for support, and understanding of FI-PPP methodologies (i.e. FI-Ware methodology used to integrate a technology enabler, Infinity methodology used to describe capabilities). The proposed timeline was January 2012 for terminology and understanding methodologies, October 2012 for architecture understanding and possible agreements for convergence, and April 2013 for an approach for interoperability and for community support. This would be synchronized with the FI-PPP timeline (i.e. First release of FI-WARE platform in April 2012, second release in April 2013). Persons involved in the preparation of the MoU would be Mikko Rieppula or Petra Turkama, Juanjo Hierro, Patrick Gatellier, Thierry Nagellen on the FI-PPP side and Antonio Kung, Saied Tazari, Francesco Furfari on the AAL side.

7 Conclusion of the Workshop

Session 1 showed that the AAL community is well structured, with in particular the support of AALOA which coordinate efforts related to open platforms. Session 2 showed that FI community was also well structured, with in particular the support of FI-Ware to build a platform, the support of Infinity to interface with projects and the involvement of ENoLL to interface and integrate user communities (developers, SMEs, citizens, etc). Both communities are engaged into undertakings to create mainstream sustainable ecosystems, with initial contributions coming from the living labs community. The opportunity for having collaboration between ENoLL and AALOA was identified during the workshop as AALOA was in effect coordinating the development of enablers that could be used by living labs. An MoU or statement of intent will now be discussed on an identified list of topics with a proposed 18-month timeline.

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