

The AALOA exploitation model for AAL project results

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Abstract

AALOA, the Ambient Assisted Living Open source Association, was born to create an environment to foster initiatives linked to AAL. AALOA offers an environment where people and organizations can start an AAL project. Most projects are expected to be software projects, to be released using a Free / Libre / Opens Source software licence, but other types of activities, like research, conference organization, standardization and lobbying are envisioned as well. This paper illustrates the idea of the Ambient Assisted Living Open Association, the actions initiated by AALOA and those planned for the future. The main focus is on the exploitation possibilities which AALOA provides to the outcome of several European and non-European projects. A collaboration here would be a win-win situation. On one side, AALOA has already appropriate prominence and is linked to European strategies which can help to group people and associations around different project results and to position them in the right way and manner. On the other side AALOA is depending on the community and on the projects it hosts. To demonstrate this ambition and to give a demonstration for other European projects, the paper presents the identified exploitable results of the universAAL FP7 project and their planned incubation in AALOA.

1 Introduction

Production of software infrastructures supporting AAL (Ambient Assisted Living) is the core topic of a number of EU projects some already completed, some still running. The legacy of these projects should not be allowed to die; rather, there is the need to promote them and support their evolution and maturation. This can best be done through an independent, non-profit association open to individuals, institutions and industry. In this sense, AALOA has so far been the actor of several political and strategic activities in Europe.

One aim of the Ambient Assisted Living Open Association (AALOA) is to fulfill its role by helping European research projects to exploit their results and to maintain them after the project lifetime. AALOA has already incubated some activities which follow now their own strategy including different stakeholders and interests. Prospective incubations in AALOA are based on exploitable results from the universAAL¹ FP7 European project. These incubations will play a major role as the resources on which the ReAAL² CIP project is built. ReAAL is committed to deploy the universAAL platform to 7000 houses all over Europe.

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2 Ambient Assisted Living Open Association (AALOA)

Starting from the problem of population aging, AAL is about intelligent systems that use technology to provide assistance for a better, healthier and safer life in the preferred living environment. Starting in 2006, various research projects funded by the EU FP6 and FP7 research programmes have been developing ideas in this field. Seven of these projects have now joined forces and decided that it is time to start a convergence process and build a consensus on the standardization of AAL systems. To do so, the projects now support the incorporation of an AAL Open Association known as AALOA.

The mission of AALOA is to provide a shared open framework for developers, technology and service providers, research institutions and end user associations to discuss, design, develop, evaluate and standardize a common service platform for Ambient Assisted Living.

The definition of shared open framework is intended in a very wide sense. In the long term, it should be a combination of:

- **Web 2.0 tools** in order to promote **discussions** inside and outside the Association;
- **Project Management** and **Collaborative tools** in order to **design** and **develop** open source software solutions;
- **Infrastructures** like living labs to **evaluate** software and services;
- **Committees** and **advisory boards** to promote **standardization** of services.

So far AALOA has worked on some activities to build support around the ideas of the Manifesto which you can find on AALOA's website at <http://aaloa.org>.

First to mention, we organized and set up the AMB'11 workshop in Brussels and the Lecce Declaration, which are natural continuations of the Manifesto. The AMB'11 workshop focused on the problems that have been experienced by companies trying to establish business in the young AAL market and discussed possible solutions. AMB'11 on June 7, 2011, was organized by AALOA and eInclusion and supported by AALA. The workshop brought together representatives from technology and service providers in the AAL ecosystem, representatives from AAL platform projects and representatives from European funding agencies, all in all 42 participants. The goal of the workshop was to identify topics for newly funded, joint projects that would lead to faster, cheaper or more flexible product development of AAL products and services, as well as obtain feedback from the industry on the form and content of possible new funding measures in the AAL area. Since the premise of this workshop was that all stakeholders in the AAL market would greatly benefit from a widely adopted platform, this workshop tried to achieve its goals by focusing on existing platforms suitable for AAL, analyzing the barriers for the widely adoption of a platform by the industry and trying to define measures to increase the adoption of at least one platform. In particular, the industry was asked to nominate existing and emerging platforms as candidates to serve as porting target in new funded projects.

The Lecce Declaration was subsequently included in the Strategic Implementation Plan and Operational Plan of the European Innovation Partnership on Active Healthy Ageing, published at the end of 2011³. This led to the creation of the C2 action group focusing on interoperable and flexible ICT based solutions for independent living. AALOA submitted a commitment for participation and was active in the definition of the C2 action plan made official on November 6th⁴. The action plan⁵ includes in particular the following deliverables:

³Strategic Implementation Plan of the European Innovation Partnership on Active and Healthy Ageing

⁴European Innovation Partnership on Active and Healthy Ageing 1st Conference of Partners

⁵C2 Action Plan

- Interoperability process recommendation for EIP-AHA and recommendations for standardization
- Set of good practice documents for the implementation of independent living solutions
- A self-sustainable repository of information, practice and evidence to promote the deployment of independent living solutions

Beside this there have been some activities in the standardization efforts. More concretely, AALOA established a liaison with ETSI and IEC for starting a standardization process for AAL. After having organized the Track F of the AAL Forum 2010 in Odense⁶, connections have been created with the ETSI department on New Initiatives. In the context of AAL Forum 2011, more concrete discussions took place about the creation of an ETSI Industry Specification Group (ISG) for AAL; however, at the same time news about the creation of a Strategic Group for AAL at IEC known as IEC SG5 were published⁷, so that we decided not to initiate any competing group but try to get connected to IEC SG5. We will proceed by referring to their agenda for “a roadmap with a timeline that includes a reference architecture and prospective standardization projects” using the example of the universAAL project and its results in terms of *AAL reference use cases and requirements*, *uAAL reference model*, and *uAAL reference architecture*. We try to keep this link alive in the context of community activities, such as the C2 action of EIP-AHA above.

Ongoing and future tasks in AALOA are divided into different working groups. The overall goal is to involve more supporters and promoters actively in the tasks of AALOA. One group is working on incorporating AALOA, which includes registering it as a legal entity with an official statute and bylaws. Together with this there will also be a renewal of the AALOA steering board. Another working group is working on the relationships with EIP-AHA, the ReAAL project, the Engaged project and the standardization groups. Also dissemination and exploitation of the work AALOA is doing is something which has to be improved. Dissemination and Exploitation is always a critical task for research projects. AALOA may contribute by creating synergies among the research groups participating to European projects and willing to disseminate their work beyond the natural end of a project. The visibility acquired by sharing and maintaining research results help to create links with other groups and to be involved in other projects. A new campaign should begin to bring new resources in AALOA from European projects like FP7, AAL JP projects. It is important that AALOA gets better known as a organization which is a powerful unity of AAL stakeholders and can coordinate initiatives, influence politics and funding strategies and can be a powerful tool for the exploitation of AAL results and developments.

3 The AALOA exploitation model for exploiting EU project results

Exploitation of EU project results is about adoption and use of project results to the benefit of individual partners, groups of partners and/or also to the benefit of non-members of the project consortiums. The *benefit* can take on different forms: improving the skills of researchers in such a way as to enable new research business in the future; improving or extending the scope of

⁶AAL Forum 2010 Track F

⁷IEC

teaching in a university; producing or contributing to some product a partner has/wants to make (coordinated exploitation); or joint ventures (joint exploitation).

Industries are especially important in the first phase mostly as counsellors and providers of development forces. Industries have the need for clear business models about how the exploitable results can bring them return of investment which is important for the survival of the joint exploitation. AALOA can help to be a tool for joint exploitation and has already incubated and demonstrated some success stories.

In fact, AALOA is organized to be a *confederation of projects*, where a *project*, in classical Open Source parlance, is an independently managed activity inside AALOA with its own rules and responsible persons, which abides by AALOA's ideas, that is those explained in the AALOA Manifesto, and that uses resources provided by AALOA, such as web space, mailing lists and community tools.

Three successful projects that are alive so far are the **EvAAL competition** (<http://evaal.aaloa.org>) started by the universAAL project, **ZB4O** (<http://zb4o.aaloa.org>, formerly Zigbee4Osgi) started by the FP6 PERSONA and the universAAL projects and **HOMER** (<http://homer.aaloa.org>, HOME Event Recognition System) started by the Austrian project NovaHome. These three *AALOA projects* are based on the results of funded European projects and initiated by groups of former consortium and non consortium members, from both research and industry, which are committed to participating and contributing to the incubated projects because of common interests.

Of these three projects, ZB4O and HOMER are software projects. More software projects are expected to be incubated in AALOA when the universAAL project will start to officially release its results. This could encourage other parties to choose AALOA as the place of choice for releasing their software, by creating further projects.

Once AALOA has matured enough to host several software projects of which at least one is mature enough to be considered for final engineering and production, AALOA will probably take a decision on a single technology to focus on. It will be the second phase of its life. This may be an abrupt process or a smooth one, where a single platform will be endorsed by AALOA or simply a single platform will get the most attention from AALOA's governance. After this decision, all or most of AALOA's efforts should be directed to promote the chosen platform and to push it towards a suitable development stage. Such change should be led primarily by industrial partners, and accompanied by a substantial change in leadership and governance. AALOA should switch, more or less abruptly, from a research-oriented attitude where academics and developers lead the way, with industries as counsellors and contributors, to a market-oriented attitude, with industries leading the way with academics as counsellors.

Figure 1 depicts the demand and supply actors in relation to each other and AALOA. It shows how demand side and supply side can benefit from a common open platform and what role they have to play. It also includes the facilitators which can get in the role of advising or evaluating AALOA and can benefit from open platforms as they are not locked in that case to certain distributors, systems or support.

In the second phase of life, AALOA's will strive to include members from a wider range of stakeholders: policy makers, industrial associations, service providers, caregivers and society groups will need to be involved, from as much European countries as possible. National regulators will need to be contacted or involved, in order to harmonize legislative requirements across Europe and allow a single market to be born. AALOA could serve as a lobbying centre, and could seek the status of European Technology Platforms (ETP). The above planning sees AALOA as the centre of AAL initiatives in Europe. This might not probably be the case, but it is not possible now to foresee which other entities are going to gain importance in the field.

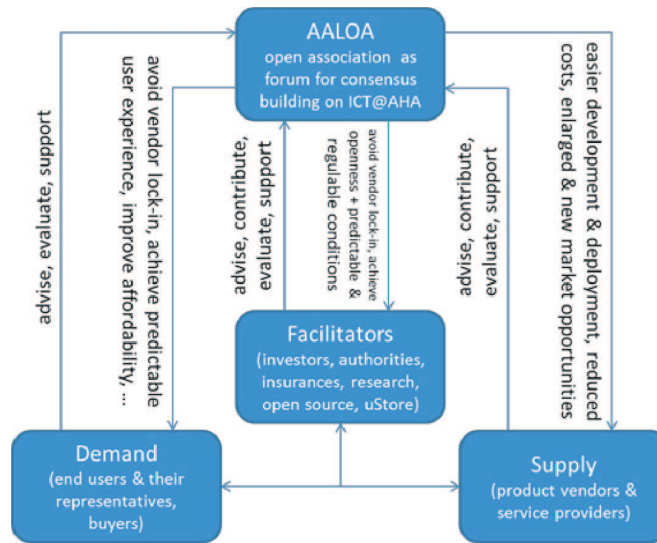


Figure 1: Demand supply actors in the provisioning of open platforms

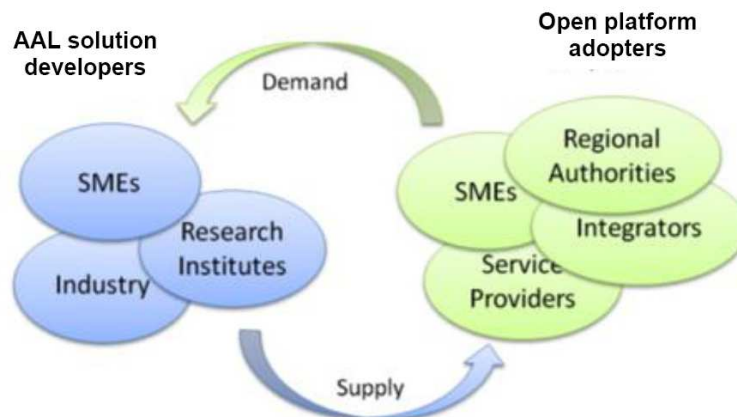


Figure 2: Closed loop of demand and supply side for an open AAL platform

Most likely, AALOA will try to get in touch and associate, incorporate or merge with other initiatives with similar aims.

Figure 2 shows the closed loop of demand and supply of open platforms. The market is stimulated in different ways as there are SMEs which can take both roles or respectively on or the other role.

Figure 3 shows the overall relationship and the AALOA role in the exploitation of project results or exploitable project through the incubation of projects, being AALOA the container where different OSS (open source software) projects are hosted. The supply stakeholders can contribute to the open source ecosystem and most of all use the resources that fulfill the needs of the demand side. In between the demand and the supply side there can be a business

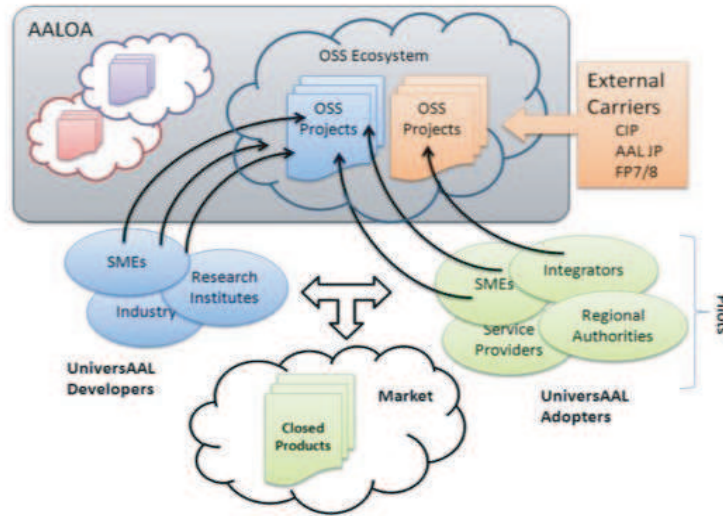


Figure 3: Exploitation options based on OSS ecosystem

established (based on the resources of the ecosystem) which provides some products or certified modules for the market (not necessarily anymore as open source projects).

4 Example: the incubation of universAAL into AALOA

As an illustration of one EU project is thinking of exploiting its results using AALOA, in this section we briefly describe the plans of the universAAL FP7 EU project. universAAL sees AALOA as an umbrella that enables evolution of the project’s results after its end, thanks to the rich interaction between its members and the promotion of exchange of knowledge among projects.

The universAAL project⁸ aims at producing an open platform providing a standardized approach making it technically and economically feasible to develop AAL Solutions. universAAL Exploitable Results (ERs) are the collection of all outcomes under development by universAAL that can be commercially or non-commercially exploited either as stand-alone products or as part of a more complex interaction between elements. universAAL is identifying several project results that are options for exploitation. There is a variety of Exploitable Results (ERs) that result out of the different project research activities. An “exploitable” result in this context is defined as something that can be used by others for any purpose: commercial, research, standardization, and publications. Some are important big components, such as uStore or Development Depot or the Runtime Execution Platform, while others are oriented to a very detailed functionality or benefit such as the Android-based universAAL runtime environment or general purpose reasoners (reasoner here is in the sense of artificial intelligence).

universAAL has identified commonalities between ERs following some criteria, which can be seen as clustering dimensions:

- Beneficiary (Target Stakeholder): the entities that benefit from the exploitation of the

⁸universAAL

result.

- Who exploits the results: an entity or group of entities that exploits universAAL's result. Normally, these entities are universAAL partners. However, it could be also the case that some results could be exploited by entities outside universAAL consortium.
- Purpose: for which purpose the result is exploited: commercial, research, for free (public).
- Economical income: in case revenues are expected, indicate how they arrive from customer and/or user to the software producer.
- Openness: results can be open or closed. This is applicable to software, documents, artifacts.

After the clustering, a number of ERs have been identified as key ER to be exploited in the context of AALOA. The goal is to continue developing and evolving the solutions with other interested parties in the AAL community: companies, research entities, individuals. universAAL is conscious that in order to promote the evolution it is necessary to create a community around the results and AALOA is a promising option where universAAL can also become a reference and a leader.

Open source projects expected to be exploited under AALOA are:

- universAAL Middleware: the core execution platform
- universAAL Managers: context management, service infrastructure, remote interoperability, security, user interaction framework, local device discovery and integration (hardware interfaces)
- universAAL Development Tools: AAL Studio and Development Depot
- universAAL uStore: an application store for selling software artifacts and services

More exploitable results can become AALOA (non-software) projects. For instance, the universAAL Reference Architecture is progressing to be partially adopted as a standard as previously discussed. Establishing it as an AALOA project would be helpful to gather the interest of the community around AALOA to ensure external participation and consensus to make the standard evolve.

The effect of creating an AALOA project is to improve the AAL market situation, enhance the AAL ecosystem, and enable others to build up business or use a broad variety of AAL solutions. Particularly, software projects, which are open source, are available to be exploited beyond the universAAL project and enable third parties to directly use them. The advantage for the organization creating an AALOA project is that it puts itself in the position of being the first first to exploit it, while encouraging others to adopt it.

universAAL plans to do its first official public release during the second quarter of 2013, including the overall universAAL platform, to migrate it to AALOA by the third quarter of 2013 and consolidate its presence there by the end of the year, by starting to promote a community of developers around it.