



AAL 2 Business

Final Report

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Terminology

AAL	Ambient Assisted Living
AAL JP	Ambient Assisted Living Joint Programme
AAL2business	Name of the support action which has resulted in this Final report
AAL CMU	Central Management Unit of AAL JP
NCP	National Contact Person
IP	Intellectual property

Executive summary

At the end of year 2011, AAL CMU put out a tender requesting proposal for an action to support the projects of the AAL JP in market and dissemination oriented activities. Primary resource for preparing and tuning the methodology for a scaled-up action was a series of five workshops organized with AAL JP project participants. The workshops took place in May and June 2012 in Paris, Stockholm, Budapest, Vienna and Bilbao.

Workshop invitation was sent out to AAL JP project participants from both ongoing and already finished projects. Countries participating in AAL JP were divided into five geographical areas, each with one workshop.

Workshop was arranged as a half-day event, allowing time for travel in the morning and evening. Local NCPs took responsibility of practical arrangements, such as facilities. The workshops concentrated on role of business development in an AAL JP project, and systematic methodologies available for that purpose. The workshops consisted of a lecture about essentials of business development, and group work allowing collaboration, interaction and practical exercise of applying systematic business development tools in the context of an AAL JP project. Osterwalder's business model canvas was used as a tool for group work. After the workshop, there was an opportunity to continue working with the business model development with the help of mentoring provided by workshop organizers.

The workshops were well received and feedback was very positive. There were 24 participants in other workshops, except 20 in Bilbao. Additionally, 13 NCPs participated the workshops. According to the feedback received, the participants found the workshop theme relevant and important for their work, they were able to learn skills that they could utilize in their projects, and they valued an opportunity to collaborate and discuss with other AAL JP project participants about business development related issues. However, the provided opportunity to continue business development after the workshop with mentoring support was not received as well. Instead, the project participants would have hoped for mentoring for their project group, for example, related to project working meetings.

Analysis of collected data indicates that issues hindering market entry of AAL JP project results can be found in (1) practices and setup of AAL JP projects, (2) current state-of-the-art of AAL solutions, and (3) organizations needed in adopting AAL solutions.

The analysis identifies the following business development related challenges in AAL JP project practices and setup:

1. Consortium structure and business development ownership. Four challenges in consortium setup were recognized. First, it was quite normal that the understanding of

value network needed to commercialize the results grew during the project. This often lead to situation where not all value network actors were directly involved in the project. This usually means problems in value proposition definition and validation. As the consortium structure is fixed, the projects should find other ways of involving unforeseen value network actors. Second, projects could struggle with the problem of missing business development ownership. If none of the organizations have a direct goal to develop their own business in the project, the projects face problems in finding a working commercialization strategy. In these cases, problematic intellectual property agreements were common, because partners aimed in agreements where their contribution in someone else's business could be later acknowledged. Third, AAL JP projects involve a wide range of different kinds of partners with differing backgrounds, competences and motivations to participate. Collaboration in this kind of environment is challenging. However, collaboration between different kinds of organizations was reported by workshop participants to be generally very good, and it was highly valued and appreciated. Collaboration was usually done in creating user need understanding and field trials. Last, the primary criteria for choosing partners for an AAL JP project is the eligibility criteria of the call, not business development criteria. This might result in project setup which is not optimal from the business development point of view, e.g. missing relevant value network actors.

2. Validation of value proposition. Capability to create value for all value network actors is a cornerstone of a sustainable AAL business model. Projects analysed faced problems in validation of value proposition. Limitations in value proposition validation were identified in both the coverage and depth. Validation coverage problems were identified in cases where value proposition was evaluated only from a limited point of view, for example, from the viewpoint of older adult. In these cases, important value network actors, such as family members or service provider, were neglected in the validation process. Validation depth was an issue, if the project did not advance deep enough in the validation process, i.e. concentrated on technical testing instead of iterative value definition-validation-redefinition cycle.
3. Systematic business development. The workshop participants generally were well knowledgeable about business development and related methods. Especially methods for identification of user needs and requirements were well integrated into the projects. The workshop participants valued systematic methods and tools that help solving practical business development related problems. Based on our observations, the projects could benefit from learning and adopting methods for value proposition definition and validation.
4. Some projects had problems in formulating an integrated offering. Building business model for set of separate solutions is challenging.
5. As time frame from a business idea to results is relatively long in an AAL JP project, the solutions explored in the project are not necessarily the core business of the company. Instead, companies may use the projects to explore interesting side projects, something they think might prove out to be interesting for future business. This can cause problems, for example, in management commitment.
6. We identified two alternative commercialization strategies for the projects. First, one of the project partners could take responsibility of taking the results to the market as part of their offering. Second, the partners could systematically build IPR which they could then pass to external player during or after the project.

These observations can be used to plan the target of a full-scale support activity, and further development of the AAL JP.

1 Introduction

This document summarizes the results and findings from work starting April 2012 and ending August 2012 in AAL2business project. The project was launched as first step towards creating support activities which help AAL JP projects in market development and dissemination activities. The outcome of the project can be used to launch a more comprehensive business analysis and support activity which will help AAL JP projects in planning their market entry and increasing their business understanding.

The analysis presented in this document is based on data collected about challenges and issues faced by AAL JP projects in getting their results into market. During this project, no analysis of current practices of AAL JP or existing market support initiative was done. Therefore, analysis results concentrate on requirements arising from existing projects and their challenges. An action plan on how to improve or change existing practices needs further work including analysis of current practices and context.

2 Methods

2.1 Data collection

The results and findings are based on:

- five business development workshops arranged in Paris, Budapest, Stockholm, Vienna and Bilbao for AAL project participants from calls 1,2, 3 and 4.
- continued discussions after workshops with participants who were willing to develop their business models further
- discussions with AAL community in steering group meetings, AAL related events, email, informal gatherings, etc.
- experiences of the project group in participating AAL JP projects and other AAL related projects (with other funding)

All observations and analysis results are based on this data only. Therefore, one must be careful to generalize the findings.

The data collection instruments used in workshops are described in the following table.

How	Topics	Type of data
Questionnaire (along with registration)	<ul style="list-style-type: none"> • Needs about business development • Business development method knowledge • Business development challenges 	Quantitative and qualitative data from total of 60 answers to questionnaire.
Business modelling web-exercise	<ul style="list-style-type: none"> • Company's assumptions about their business model canvas components • Internal and external commercialisation challenges 	Qualitative data from total of 33 answers to web-exercises.
Workshop (small group work)	<ul style="list-style-type: none"> • Designing business model canvas • Challenges of working with canvas • Next action steps in business development 	Canvas and written down conversations from work in small groups. 4 groups per workshop = 20 groups
Post workshop support (emails, face-to-face)	<ul style="list-style-type: none"> • Business modelling continued • Needs of the projects 	Qualitative data from discussions with 10 case companies.

The data available for the workshops is very practical, as the workshops involved business case development of individual companies and organizations participating in the workshops.

Overall, the experiences from workshops and used methodology (described in detail in D1) were very positive. All five workshops attracted large audience (details can be found in D2.1 – D2.5). Some participants wanted to participate again to another workshop. The participants were very active during the workshop, and participated in discussions and group work.

However, the methodology has its limitations that need to be considered in interpreting the results presented in this document. The duration of the workshop was limited, which sets limits to the quantity and quality of the data. All details relevant for business development were not covered during a workshop, and the details covered could not be discussed in depth. Interaction and language skills of the participants may have limited the participation of some individuals.

The workshop participants represented well different calls, and different types of organizations. Also, the number of participants was very even between workshops arranged in different locations. Therefore, we conclude that the participants represent very well the variety of different actors involved in the AAL JP projects. However, there is likely a bias in participant selection. The following aspects are estimated to have an effect on workshop participation:

(1) Not many participants from projects which had already ended participated, as the individuals who worked in the project already have new assignments, and may have difficulties in allocating working time for this kind of activities. Also, not many AAL JP projects had finished at the of the workshops.

(2) It is likely that project participants had an interest towards business development activities. Therefore, our data lacks insight from individuals who have no business development interests.

(3) It might be possible that organizations, groups and individuals who already have very advanced skills in business development, and/or have progressed well in business development related activities, did not feel a need to participate. Therefore, our data might lack insight also from individuals who are very skilled in business development, and have done it successfully in a context of and AAL project.

2.2 Data analysis

The findings presented in this document are a result of a collaborative analysis process. The first step in the analysis process was the data walkthrough discussions that took place after each workshop. The project team discussed about their observations, and analysed the data collected in the workshop. Second, each project group member went through the data available, and wrote down their own interpretation of the findings. These texts were compiled into the first version of this document.

Ten business cases (D2.5) developed together with selected workshop participants were worked simultaneously with this deliverable. Therefore, the development and analysis of the business cases directly feed into this analysis as it progressed.

The first draft of the document was sent for review to experts who had not participated data collection, but have expertise on AAL solutions and markets. They sent their detailed review comments by email, and additional discussions took place to clarify unclear issues.

An early draft of the document was sent to AAL CMU for comments. The goal was to check that the structure and general content matches the expectations of the support action. The comments received were used as a basis for refined analysis round, which concentrated especially on issues raised by AAL CMU and their experts.

Finally, the results were presented to the AAL community in 2012 AAL Forum in Eindhoven in a session dedicated to AAL2business. The session was open for all AAL Forum participants, and an invitation was sent to all who had registered to the workshops. The session included a presentation of the results, opportunity to comment and discuss, and a panel discussion with selected AAL experts. Also, informal discussions took place after the presentation and session.

3 Business Development Challenges

This chapter discusses typical business development challenges faced by AAL projects. The challenges have been divided into four groups:

1. Challenges in AAL JP project setup, which summarizes challenges in project work, i.e. working practices and methods
2. Common bottlenecks and challenges in service models, which summarizes business development challenges faced by AAL JP projects in defining service models that would be successful in the market
3. Organizational challenges, which summarizes challenges in getting AAL JP solutions integrated into operation of relevant organizations.
4. Market challenges.

3.1 Challenges in AAL JP project setup and practices

This chapter describes business development challenges related to working practices and methods used in the AAL JP projects, and business development related skills of participants. Here, the focus is in the viewpoint of individual project, and what is done during the AAL JP project.

3.1.1 Collaboration between different kinds of organizations in project consortium

AAL JP emphasized the need for involving different stakeholders in the project. All projects had a good balance of business partners, technology partners, research partners and end user organizations involved in the project. Collaboration between these different types of organizations was generally observed to be very good, and was appreciated by the project participants. Successful collaboration between partners was done, for example, in collecting user needs and requirements, and planning and executing field trials.

The projects generally aimed at true international collaboration. They found the international context to provide them an opportunity to learn. However, geographical distances and language barriers did have an influence in the level of collaboration, and many wished that they would have been able to do more international collaboration during the project.

3.1.2 Fixed partners during project

The AAL JP project, as most similar funding frameworks, is based on a fixed project consortium idea. The project partners are fixed at a very early state, and there is little, or no,

room for adding partners or modifying consortium setup. However, as business development activities in the project advance, most projects will eventually end up in a situation where the value network required for commercialization of the offering developed in the project would need actors who are not involved in the project. This is not always because of poor planning; it is quite common that the value network evolves through steps during business development and value proposition evaluation activities. This causes two problems:

1. It is difficult to evaluate and validate the value proposition during the project. Field trials and other real-world implementation methods are difficult to arrange, if some partners needed are missing.
2. It is difficult to create a viable business model, if the viewpoints of all value network actors are not considered. This can lead to situations, where the companies involved in the project build their business model assuming that there would be an "imaginary" network partner involved, who would take responsibilities in the value creation network that have no business potential and therefore have no chances to succeed at the market.

From the business development point of view, flexibility in partner setup would sometimes be needed, for example, through possibilities in involving partners who are not in project consortium.

3.1.3 Project partners chosen to optimize chances to get funding

AAL JP calls have very specific instructions for what kind of project partners are needed to meet the eligibility criteria of an AAL project. In selecting project partners, the participating organizations primarily focus on fulfilling the criteria stated by call, i.e. optimizing their chances in getting funding, instead of selecting partners who would be relevant in getting the results to the market. This may cause problems in later stages, if the project consortium is not optimal from the market entry point of view, and incentives of the partners to participate are not guided by business development goals.

However, it must be noted that concentrating on fulfilling the criteria stated by the call may create other benefits, for example, by bringing more diversity into the project consortium, and increasing the level of European collaboration.

3.1.4 Project focus is too broad

In some projects there are too many solutions that are being developed concurrently without clear focus. Focusing the work has been difficult, for example, because each project partner has their own incentives to focus on the development of a certain solution or combination of multiple solutions. This observation was made especially in some projects that were trying to develop services that would operate on a "common platform". In reality different solutions required different devices, usability between solutions varied and in the end, the whole service was too fragmented and required too much knowledge and resources from the end-user to make all things work as integrated offering.

One of the main reasons why focus was too broad might be that there was no clear owner for the platform. Each partner wanted to focus on development of a solution that was closely related to their current products and services. As a result, partners were more interested in developing their existing products than developing new business.

There were also examples, where the platform was owned by one of projects key partners, who had a direct business development goal for the platform. In these cases, developing solutions was more focused and hence also the focus of the project seemed to be in control.

3.1.5 Little iteration during the project

Perhaps due to the relatively short timeframe and the fixed partner setup of an AAL project, there seems to be surprisingly little iteration and agility in the projects analysed in this support action. Most projects execute only one "specification-implementation-validation" cycle implementing and validating the product or service concept. Identified reasons include:

1. As the project partners are fixed, even if the validation cycle indicates that the value network would require different partners, it is difficult to involve them in the project (see chapter 3.1.2.).
2. Prevailing methods for validating the business offering are rather heavy. They require lots of time and resources, and sometimes require involving various user groups and other key actors. For example, time is needed for recruiting users, installing devices, allowing enough time to overcome novelty effect and for providing adequate data about long-term user experience
3. Technology is too immature and evaluation is done primarily to test and fix technical features, and service or business model evaluation cannot be done during the project. If the project starts with an idea about a totally new technical device or concept which needs to be developed from scratch, there might be little room for the validation of the value proposition in a real life setting as technology does not mature enough for real-life deployment during the project.

3.1.6 Failure to address value proposition for all value network actors

The goal of an AAL project is typically to provide value for older adults, e.g. to prevent loneliness and social isolation, or alleviate problems caused by chronic conditions. As this is the primary goal of the project, the evaluation goals primarily tend to be targeted at evaluating the fulfilment of this goal. However, from the viewpoint of the sustainable business model, it is seldom enough to provide value only for one value network actor (i.e. older adults). Other value network actors whose contribution is needed to realize the service concept are as important from the business case point of view. We observed cases where concentrating on the primary goal of the project caused situations where the value proposition definition and evaluation for other value network actors, such as family of the older user or voluntary carers needed in the service process, was not sufficiently addressed during the project.

The projects generally realized the importance of covering the value proposition for the care sector. The efficiency challenges faced by the care sector in Europe were well understood, and the projects aimed at proving that their solutions would have relevant value proposition also for care sector organizations. However, they often faced challenges in:

- defining the correct value proposition, as they had no contacts to all relevant care sector players
- validating and evaluating the value proposition, as the concepts developed in the project were still too immature for proper value proposition validation, and/or relevant care sector players were not involved in the project

However, even though addressing value creation in the entire network is required, from the business point of view, it is equally important to ensure that a value proposal for a paying customer is addressed and understood properly to make the business model eventually sustainable. The special role of the paying customer must be acknowledged.

The workshop analysis shows, that not many projects had a clear vision and actual validation about value proposition for a paying customer. Two main reasons were identified. Firstly, the project could concentrate on other value network actors only (typically value proposition for an older user), not on the customer. Second, the project could have no plan or development of revenue model, which would define who the paying customer is. As AAL is not well established market, examples and reference models can be difficult to find.

3.1.7 Business development not a motivation to participate

Not all AAL JP project participants had a direct goal and motivation to develop new business activity for their organization. Some participants had a very narrow role in the project as a partner responsible for research activities only, or as a role for providing understanding about end user needs.

Some participants defined their organization's business model to be participating in European collaboration projects. In these cases, the organizations may have no interest on what happens to the project results after the project.

In some AAL JP project consortiums, none of project partners were motivated to develop their own business offering in the project, but thought that the project results should be taken to market "by someone else". As business model and business cases must always be owned by a company (operating in a business network and environment), lack of actual business partner in the project made business development challenging. Sometimes, partners assumed there would be some kind of "joint venture" of the partners after the project to bring project results to the market. However, typically there was lack of interest or commitment from any of the existing partners to take a lead in making this joint venture happen. Therefore, business development activities were hypothetical by nature, and therefore could not advance to a concrete level during the project.

3.1.8 Intellectual property agreements

Especially in situations, where project participants had no interest to develop their own business offering or capabilities in the project, there were often difficulties concerning intellectual property agreements. Some organizations saw their role as supporting someone else's business activities, and wished to have agreements that could ensure they would get compensation about the effort they invested in the project if the project results would bring profits to other partners after the project. There seemed to be a discrepancy between expectations, i.e. expectation to get compensation if the results will create profits, and with the commitment and willingness to carry the risks and responsibilities of bringing the solutions to the market.

3.1.9 Business development knowledge

During the registration to the workshop, participants were asked "how familiar they are with business development methods". Table 1 illustrates familiarity of *business model development and analysis methods* for respondent, which was chosen to be main focus area in the workshops. As table indicates, about 60% of respondents stated that they were familiar with the method used in the workshop (i.e. business model canvas) or knew it well before. Even though method was relatively well known, most had not used business model canvas or other business model development methods by themselves. Most of those, who had experiences with the business model canvas, had used it to design rough sketches of new business models without going into details. The more detailed evaluation of feasibility of business model seemed to be quite rare. Some participants said that they had identified the need for business modelling but they did not have project partners who would focus on systematical analysis of business aspects.

Table 1. Familiarity of business model analysis method before workshop

Familiarity of the method	# of respondents	percent of all responses
0. Never heard	3	4%
1. Rings a bell	26	36%
2. I'm familiar with it	32	44%
3. I know it well	12	16%
Total	73	100%

The business model development workshops were well received by the participating AAL projects. The participation was good, the feedback was generally positive, and according to the feedback, many were able to use the methods learned in the workshop in their organization and in the AAL project work. Also, participants directly commented that workshops or other learning opportunities for adopting new methods to help in business development would be something they would like the AAL CMU to arrange.

3.1.10 Utilization of business development methods in projects

There was large variation in the level of how advanced business development methods the AAL projects were using and how systematically those were used. During the registration to workshops, participants were asked how often different business development methods were used in their projects. Results indicate (Table 2) that methods for **analysing customer needs, desires and expectations** was important part of almost 90% of the projects. This same issue was highlighted in the discussions with workshop participants during and after the workshops. On the other hand, the question that asked about **analysing customers' experienced value** indicates that value propositions to customers are not validated that often. One of the reasons might be that the validation of value propositions is scheduled to be done later in the project. Even though this is quite normal development practise, it can lead to the situation where partners realize too late that customers do not value the solution that is offered to them. When project is close to its end, there may not be enough time and resources left in a project to redefine value propositions and redesign new solutions and business model to support those.

Also realistic evaluation of **revenue logic and early cost estimations** were recognized to be trouble areas in some of the projects. For example, some of the projects that participated in the workshops had not made realistic evaluations of costs and revenue streams for their supposed business. Thereby, during workshop conversations it became clear that current solution that they were building was either too expensive to target segment or there was no realistic revenue logic for their business. With help of business development experts (from inside or outside of the project) this kind of problems could most probably be addressed in earlier phase of the project.

Interestingly many SME participants stated in the questionnaire that they knew business development methods well, but it became clear that their business development was more concentrated on running everyday business activities. Hence, actual business development methods aimed, for example, at analysing industry attractiveness, segmenting markets, and designing new business models were not that frequently used by them. Therefore we claim that use of formal business development methods would help SMEs to shift their focus from their existing business operations to new business opportunities. Furthermore, we claim that increasing the use of systematic business model development methods in AAL projects

would help the projects to adopt a mindset needed to get the results to the market, and aid them in selecting the right actions to do so.

Table 2. Utilization of business development methods in the projects.

Method	How often are methods utilized in the project?			
	0. Never	1. Rarely	2. From time to time	3. Often
Industry analysis	42% (29)	35% (24)	20% (14)	3% (2)
Market segmentation and analysis	7% (5)	25% (17)	48% (33)	20% (14)
Competitor analysis	7% (5)	29% (20)	40% (27)	24% (16)
Business model development /analysis	13% (9)	25% (17)	46% (31)	16% (11)
Analysing customers needs, desires and expectations	1% (1)	10% (7)	41% (28)	47% (32)
Analysing perceived (experienced) customer value	10% (7)	36% (25)	38% (26)	16% (11)
Stakeholder/value network analysis	16% (11)	29% (20)	40% (27)	15% (10)
Cost-benefit analysis	7% (5)	35% (24)	36% (25)	22% (15)

To sum up, participants had good level of basic understanding of business development methods they could use. Analysing customer needs was a big strength observed, as in almost all of the projects there were some partners who stated that their role is to analyse customer needs. Hence, projects had clear understanding of the importance of involving customers to the development process. It seemed that this requirement was especially important for projects funded in later calls (3 and 4), and apparently this requirement had been emphasised in the call descriptions. In order to enhance the benefits of customer involvement, we recommend that in future projects, emphasis should be put on *early phase evaluation of actual experienced value of solution for the customer*.

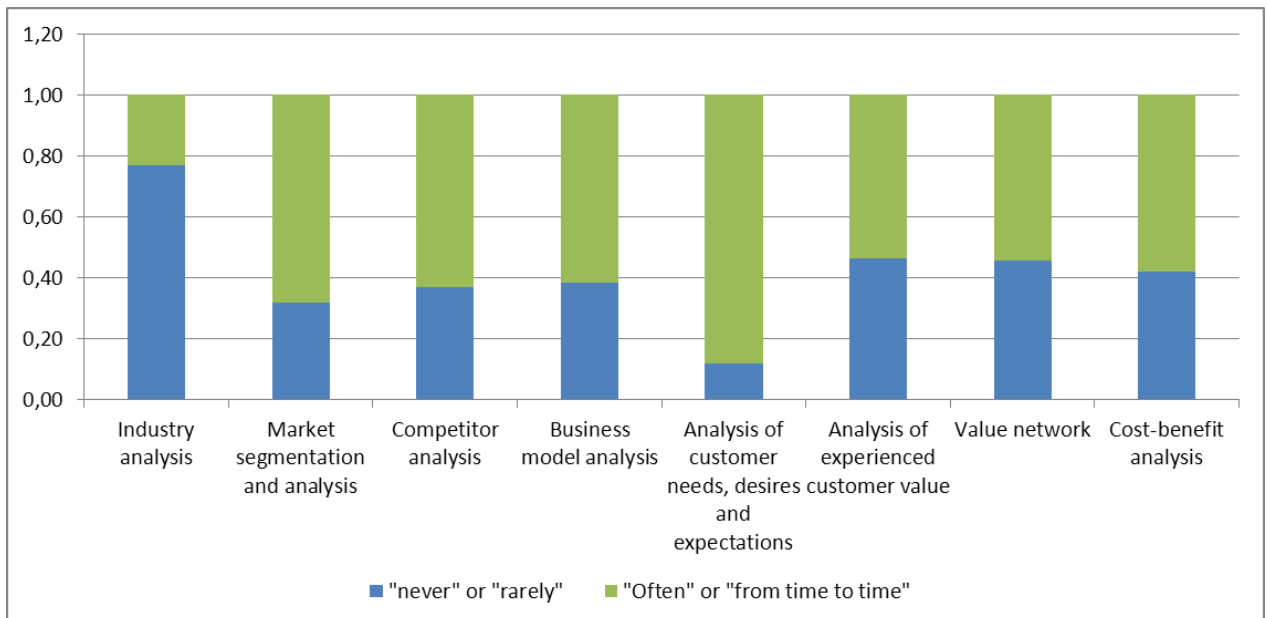


Figure 1. Utilization of business development methods in AAL projects.

3.1.11 No clear plan how to continue after the project

Most projects analysed did not have a plan on how to continue taking the results to the market after the project. The participants seemed to have very little knowledge or ideas about possibilities how to continue. Perhaps there is lack of example cases, or ideas for avenues that could open up after the AAL project. Best practice cases and easily accessible examples of success stories from previous AAL projects could be beneficial. However, currently this is very difficult, as at the time of writing this report, there are only a few projects finished already.

In some projects, SMEs are most willing to launch their solution to the market. However, they have often identified a problem that they would need funding for an additional 1-2 years before their solution would be ready for market launch, and SMEs are usually not capable of taking that kind of financial risk by themselves.

3.1.12 Time frame

The time frame of AAL projects from the initial idea to marketable solutions is long. Time needed from idea to the launch of the project is just too long for many companies, who have a direct business motivation. This leads to situations, where the ideas worked into AAL project propositions are often promising side projects the companies want to investigate for the future, and not concrete business ideas. If the company has a good business idea for an AAL solution, they will most probably find a faster way to get the development work funded.

Through more iterative way of working, the time frame for concrete results could be shortened. However, due to heavy validation methods, fast iteration cycles may not be realistic.

Consequently, a solution that is developed in the project may be launched to the market by someone else in very early phases of the project.

3.2 Common bottlenecks and challenges in service models

This subchapter summarizes issues that were commonly identified by AAL JP projects as challenges into getting the AAL service concept ready for the market. The focus is on the results of the project, i.e. what are the issues projects need to solve for defining a sustainable business model.

3.2.1 Usability of ICT components

In recent years, there has been enormous advancement in user interface technologies. Usability guidelines for older users are available and they are used in many AAL projects. Also, high user involvement emphasized in most projects helps in creating solutions with high usability. However, some common problems with usability were still identified in the projects:

- User authentication. Username and password –based authentication was seen problematic in some cases.
- Error situations caused by arbitrary technical failures, such as problems with internet connections or unplugged power cables.

3.2.2 Providing user support

In many projects, one of the bottlenecks in business development has been on finding a cost-effective model for providing users technical support with the devices and technology proposed to be used at the homes of the users. This was observed both in cases where the user base is widely distributed and distances between users are long, and also in cases where the users live nearby each others and the service provider.

One sustainable and viable method for providing user support used was to use the help of relatives, family members and the social network. However, relying only on this informal support network might not be practical in all business models. There has been little systematic effort for developing effective methods and tools for supporting informal network in providing technical support for older users.

3.3 Organizational challenges

This subchapter summarizes organizational challenges faced by AAL JP projects in involving relevant organizations into the co-creation process and organizational change processes.

3.3.1 Changing working practices

Many solutions developed in the AAL JP projects would require changes in attitudes, ways of organizing work and creating new value networks in both the side of the care service providers, technology providers and other involved partners. Creating new value network through transformation of old one is slow and difficult. There is lot of inertia with old practices. However, according to the data analysed in this action, tackling organizational change was rarely addressed.

For example, one of the examples we observed during the workshops was that the care personnel are often a key in adoption of new AAL solutions. However, many AAL projects mainly concentrate on old users in their user involvement activities, and do not have as thorough and strong involvement of care personnel in the innovation process. Even when the care personnel were taken into account in value proposition, they were often seen as representatives of care service provider, and not as human individuals who have their own value expectations, needs and aspirations.

3.3.2 No resources for innovation

Care organizations and healthcare systems, including public sector organizations dealing with administrative and coordinating activities required for changing healthcare practices and organizations responsible for operational healthcare, are struggling with keeping up with the obligations and requirements they need to fulfil in most European countries. Oftentimes, they have problems in fulfilling their legal obligations alone. This leads to a situation where care organizations do not have resources to invest on innovation. Because of this reason, the AAL projects have faced problems in involving care organizations in the project consortium, getting commitment to project activities and establishing collaboration relationships needed to study and understand issues related to market entry.

On the other hand, lack of healthcare sector interest and willingness to participate might be due to the focus of the projects. If the projects are very technology oriented, and do not focus on services and creating service networks, their attractiveness for healthcare sector might be low. On the other hand, due to limited resources, health sector organizations cannot be

deeply involved in many innovation activities, and the willingness to lock into limited number of specific solutions very early during innovation process may be low.

3.4 Market challenges

Most projects found the AAL market to be challenging in several ways, even though it was generally seen to have high potential and promise. Many organizations were motivated to participate in an AAL JP project to learn about this challenging market which was new for their business. During the project, they wanted to evaluate the potential of AAL market in their business.

Recognized challenges in the market are versatile. The challenges most frequently identified in the workshops were:

- Changing user needs. User needs and skills can change notably during the AAL project life-cycle. Skills of older users to use ICT solutions have developed significantly during the last five years. Also the usability of ICT solutions has developed notably. For example, many tablets based on touch screens are nowadays very easy to use and projects that defined 5 years ago their goals to develop easy to use touch screen solutions for older people might have recognized that their ideas are already on the market before they have even finished their projects. Another example is the older people readiness to use social media and video-communication applications. For example, many 60-70 year old people use video-communication applications available at the market (e.g. Skype) frequently and the network effect is getting more aging users involved. As a result, during the last five years it has become significantly harder to successfully launch new video-communication solution targeted to ageing population.
- Differences between geographical market segments are both a challenge and a opportunity. Due to the differences, for example, in language, culture, and capabilities, the solutions often need to be tailored to specific geographical markets. This narrows down market segments, but at the same time creates opportunities for smaller companies to create solutions that succeed in smaller geographical areas.
- Fragmentation of markets creates difficulties in identifying the payer for AAL solutions. The payment may come from an older user directly, reimbursement scheme, insurance, or public service provider. There are many alternative cost models, and different alternatives may work better with different user groups and in different contexts.

4 Methodology for scaled-up actions

4.1 Opportunities and support for building networks

A frequently faced problem was the difficulty of contacting, getting feedback and involving ecosystem actors, especially from the healthcare sector. Many projects struggled with a difficulty to contact and involve actors of the healthcare system and organizations in the project. We assume that part of the problem is that companies are not familiar with how the formal healthcare sector works, and how one could collaborate with them.

Projects would need:

- better knowledge about healthcare sector structure and operation to see their role in this network

- examples of how to involve healthcare sector players into AAL JP projects
- opportunities for networking

4.2 Methodology workshops

Face-to-face workshops combined with complementary material that helps projects adopt the introduced methods (such as document templates) proved to be a good method to both introduce new methods for those who were not familiar with them, and provide opportunities for getting feedback and collaboration for those who already were familiar with the methods covered.

Organisations that were chosen as business cases in workshops were able to receive one-to-one support after workshop. It was noticed, however, that remote support right after the workshop was not very successful. Most of the participants who were contacted after workshop wanted to discuss issues within the consortium before getting back to business modelling. Some requests were made, if it would be possible that facilitators would join next project meeting. Moreover, participants needed some time for internalizing the learnings from the workshop and to adopt new thinking, skills and ways of working.

In those cases where it was possible to be in face-to-face contact with case companies, results of post workshop support was much better and those companies would have wanted to continue business development with facilitators even further. Based on this experience, we suggest that support for the projects should be focused mostly on face-to-face meetings and workshops.

The workshops could concentrate on different themes that would address the needs of ongoing AAL projects. In the five workshops arranged during this project, we identified the following possible themes for future workshops, which would complement successful business model workshops:

1. value proposition evaluation methods, e.g. how to manage different types of value propositions (e.g. revenue, subjectively experienced value, social capital etc.), methods suitable for evaluating subjectively experienced value (especially with the older adults and informal/formal caretakers), managing value creation in networks (how to share risks, costs and revenues, collaboration tools etc.).
2. methods for service design: service modelling, value network modelling
3. value capture models. Mechanisms for generating revenue and profits; pricing models, risk- and revenue sharing schemes, managing profitability, procurement
4. targeting international markets
5. planning of market entry after the project. Different alternatives for commercializing project results, funding options available, planning of competences needed for market entry, value network compositions, etc.

4.3 Business development support for the project preparation

Projects might benefit if in the project preparation phase the project plan could be jointly reviewed with business development professional. Co-operation with this professional would differ from projects proposal evaluation, and be more focused on validating initial business

assumptions and building project consortium with right vision and roadmap for the commercialisation. Role of the review would be to support:

- business environment analysis and value network development (identifying key roles and owners of product/service)
- initial business modelling
- integrating commercialisation process to the product/service development

4.4 Removing structural barriers to new markets and barriers to trade within EU

Development and commercialization of service concepts for international markets is very demanding, and therefore requires special support. Critical review of national and EU-level barriers to trade in the AAL market, including both formal and informal barriers, should be done. AAL market is often highly regulated, so understanding the regulation and deregulation is especially important when developing business for AAL services.

AAL JP projects may be one source of information for analysing this, but it is probable that it is not enough, as it is questionable how advanced business development activities for reaching international markets is done in current AAL JP projects.

4.5 Validation methods for the customer

During the last decade, a lot of effort has been put into creating new AAL products and services. Many solutions have been demonstrated and proposed. From the customer (here, “customer” typically means healthcare sector organization) point of view, it is still difficult to validate which solutions are worth adopting, and how to evaluate which opportunities should be passed and which should be selected for further investigation.

Lack of validation methods and criteria may lead to “paralyziz” where the customer refrains adopting new solutions as there are many alternatives and no way of knowing which ones are promising and safe in their specific conditions.

R&D funding could be directed not only for developing new AAL solutions, but also for developing methods and tools that would help adoption of the results of AAL projects.

4.6 Encourage experimentation and iteration

Market maturity can only be achieved by iterative market validation through experimentation. Projects repeatedly report that getting value propositions right has required several iteration rounds, where the service concept or product has been evaluated in real use. Experimentation is also needed in establishing a value creation network which can deliver the services in real market conditions.

In project planning, several iteration rounds with validation progressing beyond testing technology could be encouraged. In proposal evaluation, projects which have potential to proceed into validation phases where the value proposition can be evaluated in realistic context could be favoured.

In order to be truly iterative, it is possible or even likely, that also the value network needs to evolve. The consortium structure should therefore have the needed flexibility for including relevant value network actors.

4.7 Enable and encourage the utilization of versatile commercialisation mechanisms

It is not often necessary or even possible for AAL JP project partners to launch project results directly to the market. Firstly, partners may not be optimally positioned in the market space to make market entry, but some other company could benefit from the results and utilize those to speed up the market entry process. Secondly, in many cases project results could be one element of successful business, but many other elements are missing which create barriers for the market entry. However, if there are numerous projects that have managed create some elements right, putting pieces together might create significantly better results than just trying to commercialize the results of one project.

As a result, there is a need to develop the knowledge of complementary commercialisation mechanisms that project partners could use to benefit from the project and to create benefits for the society. Moreover, this kind of partial commercialisation of results should be made more acceptable so that it would not have to be masked into something else in unrealistic commercialisation plans.

4.8 Targeted actions for tailored AAL technology, service and business development methods

Unfortunately, the majority of prevailing methods used for technology, service and business development have been defined and used with “standard” users, e.g. male western office workers. Some of them can be well adopted also in AAL projects, but some AAL development activities would benefit from tailored and adapted methods. For example, researchers have reported challenges in methods used for involving end users in the design process, and evaluation subjective user experience from the viewpoint of an older adult. In the workshops, we observed projects having methodological problems in defining and evaluation of the value proposition for care personnel.

A very positive observation was that many AAL projects do methodological development as a part of their ongoing AAL project to create methods that would help them in their specific situations and challenges. In addition, systematic method development initiatives could both (a) collect, integrate and disseminate the methods developed and used in various AAL projects, and (b) develop comprehensive reusable methodology packages targeted for AAL projects.

4.9 Leveraging market entry with business support after the project

The goal of an AAL project is to get its results to the market within a couple of years after the AAL project has ended. Based on the analysed data, most project partners seemed to have no realistic plans how to continue with finalizing the results and commercializing them successfully. Typically, there is need for refining the offering through validating value propositions and assessing the value in use with different stakeholders, creating complementing partnering relationships, establishing marketing strategies and revenue models, etc.

Currently, it seems to be a huge step for project partners to move from the AAL JP project “mode” directly to phase where you acquire funding from market sources. Making this transition would require totally different mindset and skills compared to ones needed in the AAL JP project. Targeted coaching and business mentoring with additional funding for creating a sustainable plan for market entry could be offered either by the AAL JP itself, or national or local initiatives. Targeted business accelerator services could help some companies in “switching mode” directly after the project. However, this type of support might have limited benefit, if none of the project partners is willing to take this step after the

project. In addition, the accelerator models typically expect quick market entry and fast revenue building; both targets that are difficult to reach in AAL.

4.10 Supporting phases towards market entry

To increase the agility and flexibility of the project setup, and support the project in moving from project-mode towards market-mode, the projects could be encouraged to think of the development work as a phased process. AAL JP could support the projects in seeing the role of AAL JP project as one phase in this process.

There is a clear need for support for market development phase after the AAL JP project. Firstly, projects should realize that in order to get the results into the market, there still is lot to do after the project, so that they can plan that phase already during the project. Second, they should have better resources to define, what can be done after the project to get the results to the market. Third, support for finding and getting funding to cover the phase after AAL JP project and getting the results to the market is needed. The projects could benefit from a mentor who would support them in planning market entry activities already during the course of the AAL project.

4.11 Building on existing technology

To emphasize the nature of the AAL JP, i.e. being close to markets, the projects should build on technology development activities and research work that has already been done before the AAL JP project starts. This is the only way to ensure that the solutions are mature enough that required level of market closeness can be achieved.

4.12 Ensuring that projects have a proper exploitation path

There seems to be two alternative exploitation paths for the project results:

1. business partner involved in the project will exploit the results in their own business
2. project builds intellectual property which is passed to external partners

Having a business partner who wishes to use the project results in their existing business or starting up new business would greatly help the project in practical business case development during the project. When the business partner is already involved, it is easy to integrate their viewpoint to the value proposition evaluation and business development activities. However, if the project aims to build IP with the plan to sell the IP to an external party after the project, this becomes more complex. In this case, the project should have strong competence in market analysis for defining possible IP exploitation partners, and clear plan on how the project can evaluate the value proposition if this partner is not involved in the project. Also, projects must allocate significant resources for IPR development activities, including refining agreements between partners.

During the proposal evaluation resources, capability and motivation of the proposed business partner should be carefully evaluated. This evaluation could be supported by specific evaluation criteria. Information about proposed business partners could be acquired, for example, through experts of national funding organizations or NCPs.

Special caution is required with selection to fund proposals which aim to bring the results to the market through a joint venture of partners. Establishing such joint venture is extremely complicated, and not very realistic if the project partners start to work together only in the proposed project. Alternatively, if successful cases are available, case examples of how to set up a joint venture could be provided for projects which aim to establish one.

4.13 Summary

The following table will summarize the proposed methodology into three groups:

- immediate actions, which include actions that can be launched very soon (1 months – 1 year)
- mid-term actions, which include actions that can be launched with little preparation, or requiring attention in call formulation and/or selecting projects for funding (1 year – 2 years)
- long-term actions, which need long-term commitment and efforts (over 2 years)

	immediate actions	mid-term actions	long-term actions
Opportunities and support for building networks		x	
Methodology workshops	x		
Business development support for the project preparation		x	
Removing structural barriers to new markets and to trade within EU			x
Validation methods for the customer			x
Encourage experimentation and iteration		x	
Enable and encourage the utilization of versatile commercialisation mechanisms	x		
Targeted actions for tailored AAL technology, service and business development methods	x		
Leveraging market entry with business support after the project		x	
Supporting phases towards market entry	x		
Building on existing technology		x	
Ensuring that projects have a proper exploitation path		x	

5 Conclusion

Overall, AAL JP projects were observed to be end-user oriented, and were tackling problems in good collaboration between different types of international partners. The projects had a good variety of competences. However, their business development skills, or capabilities of utilizing them, were not effectively used in the projects.

We identified several issues that are needed to increase the capability of the project participants in getting the results to the market. The most critical ones are the following:

- Having the right partners with market oriented incentives in the project. This is needed both for successful execution of the project, and for ensuring continuity after the project.
- Clear commercialization strategy. The roles of the partners in commercializing the results need to be clear already in the planning phases to prevent deadlocks where expectations and responsibilities of partners for exploiting the results do not meet.
- Validation of value proposition. Agility and iterative development is needed to validate the initial value proposition in real context, with real value network partners. In AAL market, especially the customer (i.e. actor who will pay) value proposition needs to be iteratively validated with real actors.
- Targeted support both during and after the project. Support for business development activities can help the project participants both to focus their work on relevant business development issues, and provide opportunities for peer support and mentoring. Switching the mindset from “project mode” to “business mode” should be supported after the project.