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& new **C**ommunication **E**xperience
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The Ambient Assisted Living (AAL)
Joint Programme

D6.2 Pilot Evaluation Summary

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Abstract	Deliverable D6.2 for the ALICE project is a summarization of results achieved in the pilot experiment performed in the second project year.
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Internal Reviewer	Mens en Zorg (IKV)
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Executive summary

This report was written at the end of the ALICE project in the beginning of 2012. It is a summary of the pilot phase of the project. The pilot started on the 17th of January 2011 with the pre-pilot and terminated on the 31st of December.

The layout of the report follows the chronological planning of the pilot. It starts with the pre-pilot, which was a first test of the product and the approach of the consortium to the target audience. This is followed by the original plans for the pilot as is described in the project proposal. The next chapter deals with the exact planning of the pilot, what is to be measured and how. Finally, the actual outcomes are described in detail. This leads to the recommendations and lessons learned in the conclusion.

The pre-pilot started on the 17th of January 2011 and lasted for 3 weeks. In this period only the video conferencing function of ALICE was tested, not the social services. The system was installed at 20 locations and the participants were asked to use the system as often as possible. The main conclusions of the pre-pilot were that the company doing the installations was not good enough and that the way participants were approached should be changed.

In the original planning of the ALICE project three different functions of the Set-Top Box were to be tested in a large scale pilot amongst some 100 households in the Netherlands: video conferencing, social services and a wireless device. The main goal of the project is to improve the quality of life of elderly people in Europe. The project should result in a viable business case for commercial exploitation. The planning of the pilot is that project partner IKV will select the participants, THU will install the Set-Top Boxes and IKV will maintain contact to clients and offer training and support to them during the pilot.

The planning of the pilot starts with how clients should be contacted. Based on lessons learned in the pre-pilot, a detailed approach has been formulated. Five different ways in which information was to be gathered have been formulated and detailed. These are: questionnaires, biweekly calls, interviews, monitoring of video data and testing of social services. There were five social services: Facebook light, Photo sharing, news service, greeting cards and a game. Finally, it was agreed that the wireless application would not be part of the pilot. While the technical side of the device was developed during the project and functioned properly, there was no backup available for the medical data.

The questionnaires were sent at the start of the pilot to the clients. This lead to some interesting data on the composition and preferences of the target audience and this data has been used for service definition, corresponding documents and in several presentations. In the biweekly calls it soon became clear that ALICE suffered from technical issues. The service itself was perceived as very useful. The other product for the pilot, the social services, has been tested later in the pilot. The outcome was that the services were appreciated. Several ideas for further developments have been proposed. An analysis has

been performed on the data of the calls. This shows amongst others that most calls do not take very long.

As part of the development of the business case several tertiary stakeholders have been contacted to discuss possible integration of the ALICE product in their service. One party has expressed a direct interest and would like to discuss future cooperation.

Finally, the pilot had several results and recommendations. These are described in the conclusion of the report. The most important are that it is essential that there are no technical issues, that an alarm is added to the system and that ALICE had a positive impact on the lives of the participants.

1 Introduction

ALICE (Advanced Lifestyle Improvement system & new Communication Experience) is part of Call 2 of the Ambient Assisted Living Joint Programme (AAL-JP). It is a project running for two years and partly funded by the European Union. The objective of ALICE is support the quality of life, well-being, social interaction and connectivity of elderly people in their home environments. The challenge addressed within ALICE is to prepare these elder years to become acceptable, meaningful and socially enjoyable.

This report is the second of Work Package 6: Pilot Phase & Evaluation of the ALICE project. There was one earlier deliverable in this Work Package, namely D6.1 Pilot Evaluation Plan. Having completed the operation and running of the Pilot, this report analyses the results and findings of the Pilot experience.

Within the ALICE project several research and development activities have been performed to integrate a set of ICT based services into the existing TV set and a Set-Top Box device (STB), allowing elderly people to enjoy experiences of communication and social interaction. The services offered by this STB are video conferencing and social services. The developed system has been tested in a large scale pilot amongst some 100 households in the Netherlands.

The setup of this chapter is the following:

- Chapter 2 describes the pre-pilot which was held at the start of the pilot phase. The pre-pilot was held amongst some 20 clients and lasted for 3 weeks. In this period some important discoveries were made with regards to the scheduled running of the pilot.
- In chapter 3 the original objectives and planning of the project are summarized, which will be compared later with the results from the pilot.
- In chapter 4 the setup of the pilot is described. This is an overview of how the pilot was to be executed and how the results are to be measured.
- In chapter 5 the actual outcomes of the pilot are described in detail, analysed and discussed.
- Finally, chapter 6 is the main conclusion of the report.

2 Summary of the Pre-pilot

Since the project encountered some technical difficulties when preparing for the pilot, it was agreed to include a pre-pilot phase at the start of the pilot. During the pre-pilot the process of installation and testing was conducted on the first 20 participants. The goal of this pre-pilot was to find out more about the clients experience with the Set-Top Box. It was also meant as a 'practise run' for the company installing the STB's – and it was expected that 20 clients would have encountered (almost) all possible problems with the configuration (Set-Top Box, network router etc.): this should lead to fewer challenges during the full pilot.

The pre-pilot lasted for 3 weeks, from 17 January to 4 February 2011. In this time the ALICE system was tested on 20 participants in the Netherlands, all of which were clients of the care organization 'Mens en Zorg' in Smilde.

During the pre-pilot only one service type of the Set-Top Box was tested, namely the video conferencing. During the pre-pilot clients were called 3 to 4 times a week by the care organization 'Mens en Zorg' and the clients were asked to use the system intensively to make calls to their friends and family (who already had the soft-clients installed on their PCs). The other service-types of the STB, social interaction services, and wireless application services, were not part of the pre-pilot.

There was one important update during the pre-pilot: On Friday 28 January 2011 the system had an upgrade to a newer version of the software. This upgrade went perfect for the clients who used the STB – as the new version was rolled out automatically. But for the soft clients on the computers of friends and relatives a manual upgrade was necessary. The results were dramatic: with a few noteworthy exceptions almost none of the participants knew what to do and so they were unable to perform the manual upgrade of the software. A relatively simple technical operation – removing an existing program from the computer and installing a new version of it – was too much for most of those clients. This resulted in a dramatic drop-out of clients and their relatives.

The reason for this problem has been analysed: the children and friends of the elderly people themselves are often also over 50 years old and have a very limited understanding of computers. It was therefore agreed that during the pilot there would be no more instances where a manual action on the part of the participants would be needed. All updates in software would have to be automatic in future (and during the full pilot).

There was a second important lesson learned from the pre-pilot, namely that the company doing the installations at the homes of the clients did not have the necessary skills to perform this operation with a satisfactory level. Therefore another company was selected to perform the installations. An installer from this company was trained by the staff from ThuisConnect and Zydacron, after which all installation-work was performed with a very high quality of service.

The pre-pilot led to various important lessons learned.

1. The installation of the Set-Top Box should be done correct in the first instance. The person installing the box needs to be trained and have a complete understanding of all details of the box. A test-call to an operator is an essential part of the installation process to test if the system is working correctly.
2. The time span between contacting clients about the ALICE project (and having them agreed to participate) and installing the box should not be more than a few weeks.
3. It is important to stress to the clients that they participate in a pilot so as to manage the (high) expectations of the clients.
4. In the first few weeks after the installation the clients need to be contacted several times to give them the opportunity to get used to the system. Because of the advanced age of the participants, continuous training of the functions of the system will be necessary.
5. The typology of the target group demanded intensive support to prevent early dropouts. This was not foreseen in this intensity during the pre-pilot. Therefore it was desirable not to have all of the clients in the rural area for the full pilot. With the transition from Mens en Zorg to Woonzorg the possibility occurred to connect clients that are in, or in the immediate vicinity of a residential complex. This offered the project consortium the possibility to give the desired service to originally planned large group of participants during the full pilot

3 Objectives & Planning

The aim of this chapter is to give an overview of the objectives of the pilot and the plan on how to achieve these objectives. At the initiation of the ALICE project, the Project Team established a set of objectives against which project progress would be measured. The objectives are first described in the ALICE Proposal Description (Part B) and later on in deliverable D6.1 'Pilot Evaluation Plan'. Deliverable D6.1 also specifies how progress on the objectives was to be measured in order to ensure feedback.

The first paragraph of this chapter therefore combines information from the ALICE Proposal Description (Part B) and Deliverable 6.1 'Pilot Evaluation Plan' to describe in detail what the objectives of the pilot are.

The second paragraph deals with the Pilot Plan as agreed at the start of the pilot, i.e. on how the Project Partners agreed the pilot should be conducted. This information is crucial in order to assess the level of success of the pilot in reaching the desired objectives, as will be done in chapters 3 and 4.

3.1 Objectives of the ALICE Project & Pilot

The objectives of the ALICE project are first explained in Chapter 1 of the ALICE Proposal Description (Part B):

The overall objective of ALICE is to support the quality of life, well-being, social interaction and connectivity of elderly people in their home environments. The challenge addressed within ALICE is to prepare these elder years to become acceptable, meaningful and socially enjoyable. ALICE will research, develop and integrate a set of ICT based services into the existing TV set, allowing elderly people to enjoy experiences of communication and social interaction based on ICT. By doing this, ALICE will lead the way for elderly people to distantly share moments of enjoyment, laughter and fun in a similar way as they were together face-to-face.

The objectives are summarized as follows:

- O1: To investigate current communication practices of elderly people.
- O2: To simplify electronic communication based on novel and existing technology in fields like TV and video conferencing.
- O3: To optimise visual user interfaces and related input devices for use by elderly people
- O4: To develop, test and comprehensively evaluate pilot Web applications, focusing on social networking and "togetherness".

- O5: To investigate business issues in order to guarantee maximum commercial impact of the research results.

ALICE will develop products and services, supporting the quality of live, well-being, social interaction and connectivity of elderly people in their own home environments. ALICE will define and test the services in close co-operation with the primary target group and finally evaluate them in a large-scale pilot phase.

The central part, around which ALICE will be developed, is a fit for purpose Set-Top Box (STB) directly connected to an existing TV set. This STB integrates a video camera and microphone for communication as well as computing resources for specific applications. It is equipped with a simple remote control for interactions within the applications and has a broadband connection to a service provider, both for video communications and Web access.

ALICE is based on services and technologies of the following three areas, where it will advance the state-of-the art:

1) Video interaction services for elderly people, to enable the distant sharing of enjoyment, laughter and fun as face-to-face contacts are hardly feasible
2) Multimedia social services for elderly people, to enable new user experiences and social interaction across new media for elderly people
3) Wireless applications services, to connect specific hardware devices in a standardized way used for a broad range of applications, including e-health.

The scope of the pilot is shown in the following picture:

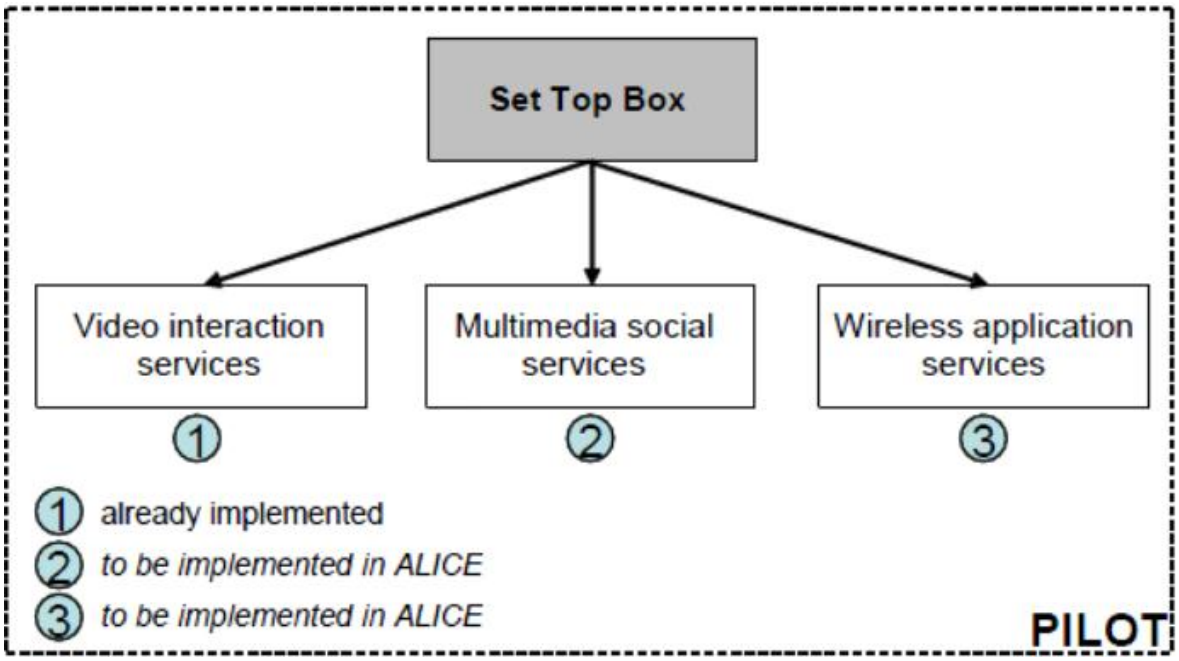


Figure 1: Scope of the ALICE pilot

3.1.1 Video interaction services

Internet Technologies have enabled new ways of communication. The willingness and ability of people to use a PC and certain applications is the limiting factor to access these technologies. This is a main barrier for elderly and PC-agnostic people for taking advantage of these new ways of social interaction.

The main innovation of the ALICE platform is to overcome this barrier and to form a novel, extremely simple to use communication platform. The TV set shall act as a central communication hub and using the implemented services will be as simple as using the TV set itself.

Hiding complexity to end-users requires perfect management and support processes, among them easy installation (“plug and play”, self-configuring to the internet and local network), central management of the STB, and automated rollout and update management.

3.1.2 Multimedia Social Services for elderly people

Social web platforms have become very popular, supporting many different types of social interactions including staying in contact with friends, sharing multimedia content or acquiring new friends based on common topics or interest. Although they are attracting up to hundreds of millions of members, their usage and generated benefits are limited to a very special target group – people with a minimum amount of affinity to the Web, which is still very low among elderly people.

Normally, social interaction on the Web requires three prerequisites: A personal computer as the common device for social interaction, technical skills to operate desktop applications, especially web browsers, and a very clear understanding how social web platforms work. All three requirements seem inapplicable to the primary target group – elderly people.

The TV set, inherent part of almost every household, usually constitutes the device in which elderly people have the highest degree of confidence. ALICE will develop technologies, which upgrade the known TV set to a comprehensive device for social interaction tailored to the needs of elderly people. ALICE will advance the state of the art in ICT based content sharing for elderly people by providing a lightweight service for the TV set, which builds upon experiences from accessing and sharing content in the Web 2.0. Such a service will empower elderly people for the first time to successfully access multimedia content uploaded to a social web platform like Facebook.com or Flickr.com via their TV set. The project will conceptualize, develop and install a basic and easy to manage web browser on the STB, tailored to the specific requirements of elderly people.

3.1.3 Wireless Communication Technologies

In addition to the communication capabilities, ALICE will research the integration of an innovative monitoring and alarm system. Wireless sensor networks may for example include sensors for temperature, humidity, smoke and gas. This information will be sent to the STB, which may present the information on the television screen or forward it to social or other services outside the home. Optionally text messages on the TV or voice messages, SMSs or emails to relatives or social services may be generated.

Going beyond existing solutions, ALICE will develop a software manager for the STB, which is able to establish communication to medical devices. It will comply with developments from the Continua Health Alliance industry group, which is developing the ISO/IEEE11073 standard, as well as with the Continua guidelines recommend for Personal Area Networks (PAN) using Bluetooth and possibly USB devices. For exchanging information ALICE will utilize standardized methods for messages such as HL7 (Health Level Seven).

The innovative aim of ALICE is to include household sensors as well as various amendments for personal devices including pulse oximeter, medication monitor, pulse/heart rate, blood pressure, thermometer, weighing scale, glucose, cardiovascular fitness monitor, strength fitness equipment and independent living activity. Testing and evaluating the interoperability of these various devices is a further so far unresolved research challenge.

3.1.4 Business Case

Another important goal of the pilot is to investigate business issues of the ALICE product. A comprehensive study needs to be performed to analyse the viability of a commercial business case. There are several steps needed to achieve this, amongst others:

- Establishing a cooperative framework, developing common business objectives and finding synergies among the industrial partners;
- Consequent market and technology watch;
- Dissemination activities;
- Contact with regulatory institutions.

3.2 Planning of the Pilot

The implementation of a pilot application of considerable scale is one of the major objectives of ALICE. The whole work plan is designed to accomplish this objective. Within the pilot phase the actual developments of the project are tested and evaluated in a real-world, realistic environment. The pilot started with the pre-pilot, as is described in chapter 2.

The proper pilot comprises some 100 households in Netherlands. This size is large enough to include a heterogeneous set of representatives of the target group, allowing meaningful statistical analysis in the evaluation. For the social networking the integration and contact to family and friends is also essential. For this group, which is younger and used to work with standard PCs, there is also the so-called soft client, a software solution for PCs available. Soft Clients can communicate with all other end-points on the platform including contacts using set-top boxes or thin clients.

The care organisation IKV will take charge of selecting the participating households within their existing customers. With the given size this can be easily achieved within one city, which has advantages in the overall support and supervision of the pilot, and is also beneficial for some additional socialising processes through direct neighbourhood of the participants.

This pilot is scheduled to run for some 8 months, allowing continuous feedback cycles to inform the development on potential improvements within the evaluated services. As development work is also running in parallel, such improvement findings can be immediately tackled and made available for the reminder of the pilot (the system can be updated via the Web without user interaction).

This design and set-up of this pilot phase will enable us to verify and demonstrate how end user needs are fulfilled, where improvements are necessary, and which additional steps are necessary before a large scale roll-out of the commercial services can be started.

The work of ALICE is organised in seven work packages: one is concerned with the overall management (WP1), four are technical RTD packages (WP2 to 5), one is for the evaluation and the assessment of the developed services by means of the pilot (WP6), and one coordinates the dissemination and exploitation activities (WP7).

The timing of the various Work Packages can be seen in the following picture:

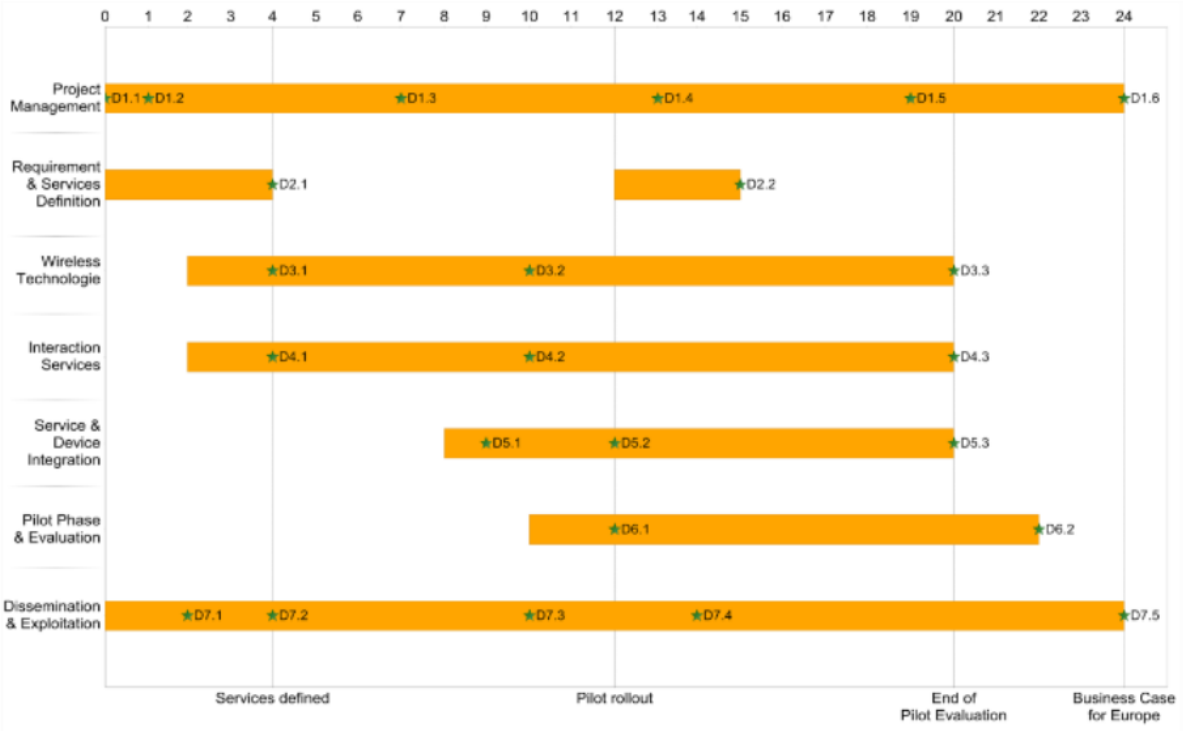


Figure 2: Timing of the 7 Work Packages in ALICE

The pilot (WP6) is planned to start in month 10 and finish in month 22. This translates in start on the 24th of March 2011 and finish on the 31st of October 2011.Work package 6 'Pilot Phase & Evaluation' describes in more detail the objectives of the Pilot:

- Set-up pilot phase with some 100 participants (elderly people households in the Netherlands) for evaluation of developed social interaction services
- Equip them with enhanced set-top box and access to services, and a limited amount also with wireless application services (environmental and monitoring sensors)
- Provision of adequate training for elderly people and their environment using the ALICE system in the pilot phase.

- Evaluate elderly-people-centred aspects such as usability, satisfaction and quality of life.
- Retrieve “soft facts” from the elderly people environment perspective (care giver organisation; family members; friends/neighbours) such as usability, satisfaction and compliance for elderly people.

One of the major success factors within the ALICE project will be the active inclusion of the target group of the elderly people themselves. Mens en Zorg, earlier Ina Koning Verzorging (IKV), as care organisation will take over this part to choose the right people for the pilot trial. Each of these persons can decide on his/her own if he or she wants to participate in such an endeavour or not.

It will be the role of the employees from IKV to directly interact with the participating elderly people who live in the 100 households which will be part of the pilot trial. It is additionally important for the success of the pilot trial that there is an already existing confidentiality base between the employees of IKV and the pilot trial`s participants before the ALICE project will start.

One of the first project activities of IKV will be the collection of the specific user requirements from the people who are going to participate on this large-scale trial. In this relation a simple questionnaire will help to guide interviews with the primary end users and to figure out the specific needs and probable challenges which have to be expected in connection with the pilot trial. The questionnaire will be used as documentation of this phase and filled out as a joint effort between the employees of IKV and the future target participants of the pilot trial.

During the complete pilot phase a 24-hours help desk will be provided by IKV to all pilot trial participants who will ensure that the accessibility, user acceptance and usability is kept as high as possible throughout the whole pilot phase.

4 Execution of the Pilot

Chapter 2 included an overview of the pre-pilot, which was done as a test run for the actual pilot. Chapter 3 described the objectives of the pilot as they were established at the outline of the project. It also had an introduction of the pilot plan as was agreed at the start of the ALICE project.

The current chapter has an overview of the pilot. It describes in detail how the pilot was set up, what was to be tested and how this would be done. Based on the findings of the pre-pilot, the rollout of the pilot was done in large residential complexes rather than at individual clients. The chapter also describes how information was gathered during the pilot and what was measured.

The two services which are tested in the pilot are the video conferencing and the Social Services. The third service of the ALICE proposal, the wireless devices, will not be tested as is explained in this chapter in paragraph 4.4. Finally the success criteria of the pilot are stated, which define to what extent the ALICE pilot can be seen successful.

4.1 Setup of the Pilot

In the original plans the pilot was planned to take 8 months, from March 2011 to the end of October 2011. During the pilot it was desired necessary to increase the length of the pilot by 2 months, and therefore November and December 2011 were added. These final 2 months were mostly used for the evaluation of the developed Social Services.

4.1.1 How to reach participants

In general, elderly people are not very open-minded when it comes to adopting new technology. From the results of our survey and from the pre-pilot, we learned that any change in the situation of elderly people is viewed by them as a threat, which makes it difficult to convince elderly of the benefits of new technology. This challenge can be overcome by gearing the marketing and sales activities towards the environment of the elderly. An extra complicating factor is that elderly people generally do not have many social interactions during the day. An indirect approach towards the elderly was therefore chosen, whereby the following channels were used:

- Friends and family
- Medical staff
- Care organisations

The lessons learned from the pre-pilot stressed amongst others the importance of getting an installed base of enthusiastic participants in the pilot. A lot of thought has therefore been

done in the correct way of approaching clients and getting them to participate. A proper communication before and during the initial phase of the rollout was deemed to be essential for the generation of a wide acceptance of the product. The following rollout of the ALICE demonstrator was chosen for the pilot:

Step 1: potential candidates for participation were approached by staff of Mens and Zorg and informed about the product and the pilot. Interested clients received a flyer with information and were pointed to the ALICE website. From the start, it was stressed that ALICE is a new product and therefore prone to technical issues – the reason for this is to ensure proper management of expectations.

Step 2: Interested clients received visits from the Mens en Zorg staff who gave a personal introduction to the project, the Set-Top Box and the opportunities which it offers. Clients were also informed about the various functions which would be rolled out during the pilot.

Step 3: At this visit the clients were handed out a questionnaire and an 'informed consent' form which stated their rights when participating in the ALICE project. The questionnaire was the first important source of information for the ALICE pilot and enabled us to learn more about elderly people, their social interaction practices and perception towards technology.

Step 4: The IT specialist doing the installations contacted the clients, made an appointment, visited the clients and installed the Set-Top Box. The installer also took care of any other issue, such as connecting the house to the internet, configuring the router and connecting the STB to the television. A test call to the operator at 'Mens en Zorg' was part of the installation by the installer to make sure the system worked correctly and the sound was of the correct level.

The main things which were stressed to the clients during the rollout phase were the following:

- There are no costs involved at all for participants and their relatives and friends for the duration of the pilot.
- The attitude of everybody involved is that it is a privilege for the clients to participate in the project.
- Delays and/or problems with the installation are communicated to the clients as soon as possible.
- The gap between informing the client about the system and installing it at their houses or flats should not be too long, i.e. not more than a few weeks.

4.1.2 The rollout

The pilot started as planned on the 24th of March 2011. However, the number of clients at the start of the pilot was less than the 100 specified in the original plan. At the start there were 32 clients participating in the pilot. The number of participants was increased during the pilot as shown in the following table.

Month	Cumulative number of clients
March	32
April	32
May	54
June	64
July	64
August	64
September	92
October	97
November	99
December	99

Table 1: Cumulative number of participants in the pilot

During the pilot there were several participants who indicated they no were no longer willing to participate (mostly due to technical reasons). In these cases the installer was sent to the client and the system was removed.

In September 2011 it was decided to install four computers in residential complexes in the Netherlands. The setup in these complexes was a desktop computer with the ALICE system installed. This allows potential clients to see the system in real-time and enables them to test the system before deciding to participate.

The following map shows the geographical locations in which the pilot was executed. It shows the area in which all participating clients live. All of them live in the three northern provinces of the Netherlands: Groningen, Drenthe and Friesland. The complexes for the elderly people where ALICE boxes have been installed are highlighted. Note the location of Smilde (location of Mens en Zorg) and of Steenwijk (location of Woonzorggoep) and of the test location Vijferhof.

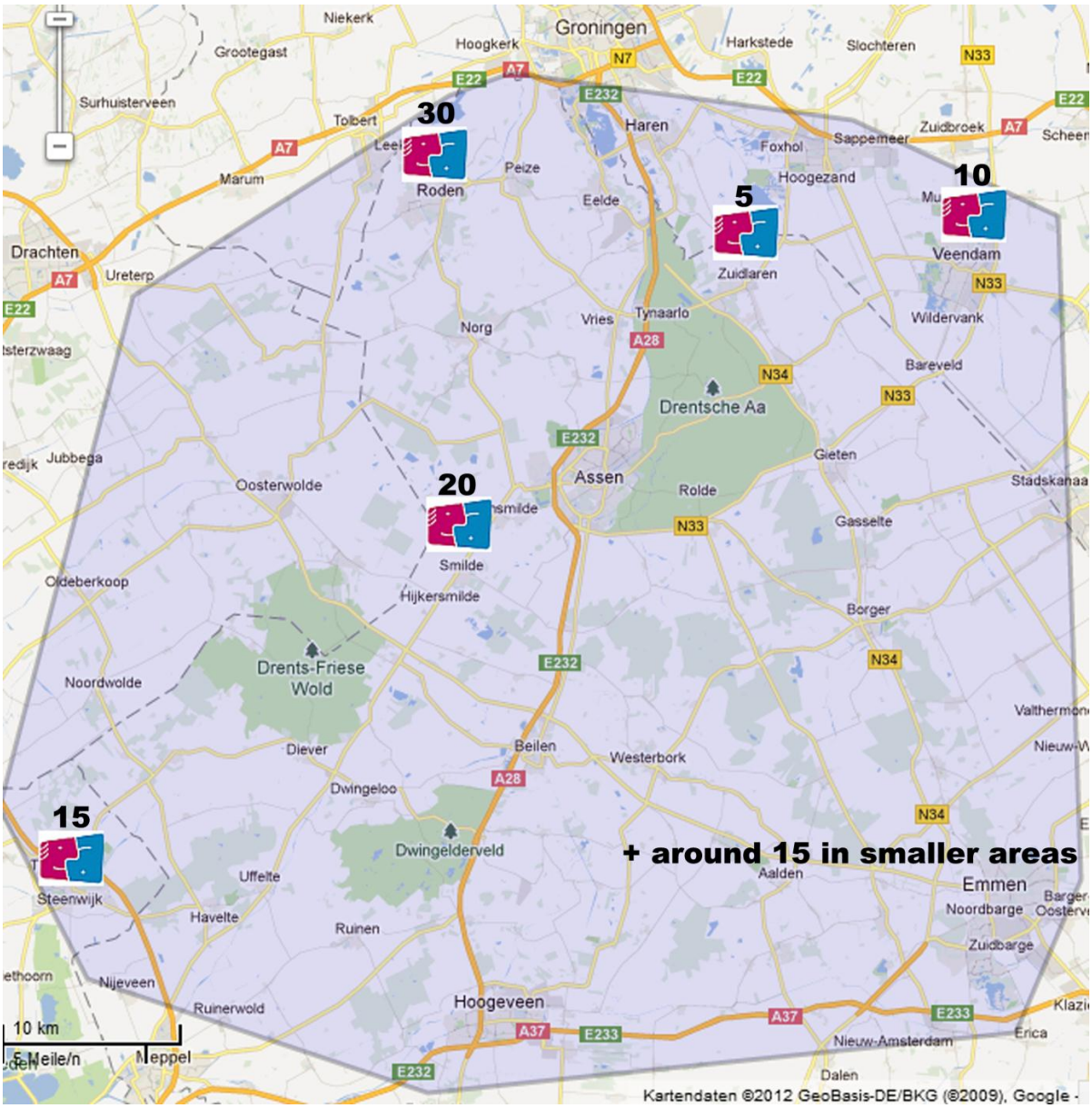


Figure 3: Map of installations of ALICE systems

4.1.3 Changes in the name of partner IKV

During the pilot the name of project partner IKV was changed from Ina Koning Verzorging (IKV) to Mens en Zorg and later to Woonzorggroep. These changes generated delays during the pilot as pilot participants were confronted with three different company-names, which had to be explained to them.

At the formulation of the ALICE project, the company “Ina Koning Verzorging BV” was contacted to represent the end-users in this project. At that stage Ina Koning Verzorging BV was privately held by Omale BV. Ina Koning Verzorging BV offered all sorts of home-care activities to approximately 250 to 300 clients in rural area. The name of the company was after the original founder Ina Koning.

Since she has left the company, early 2010, the urge appeared for changing the trade name. In January 2010 the trade name Ina Koning Verzorging BV was therefore changed into Mens en Zorg BV. The registered name remained Ina Koning Verzorging BV (IKV) which means that for the ALICE consortium nothing was changed.

In March 2011 the company Mens en Zorg BV merged with the Woonzorgroep and became part of a larger home care organisation. This was a great opportunity for the project since the Woonzorggroep served approximately 400 clients in rural and residential surroundings. Especially the residential complexes, where elderly people are served in their own private surrounding's, were very good locations for the roll out of the pilot. Most of the clients participating in the pilot were inhabitants of these residential complexes. The registered name remained Ina Koning Verzorging BV (IKV) so the changes for the ALICE project were minimal.

4.2 How to gather information

During the entire pilot phase the clients have been asked to contribute information on their experiences with the ALICE system. In order to make sure there is accurate and detailed information on the clients and their usage of the ALICE system, the following tools have been used:

- **Questionnaire**
- **Biweekly calls**
- **Interviews**
- **Monitoring of video conferences**
- **Testing the social services**

The overall timing of the information gathering can be seen in the following figure:

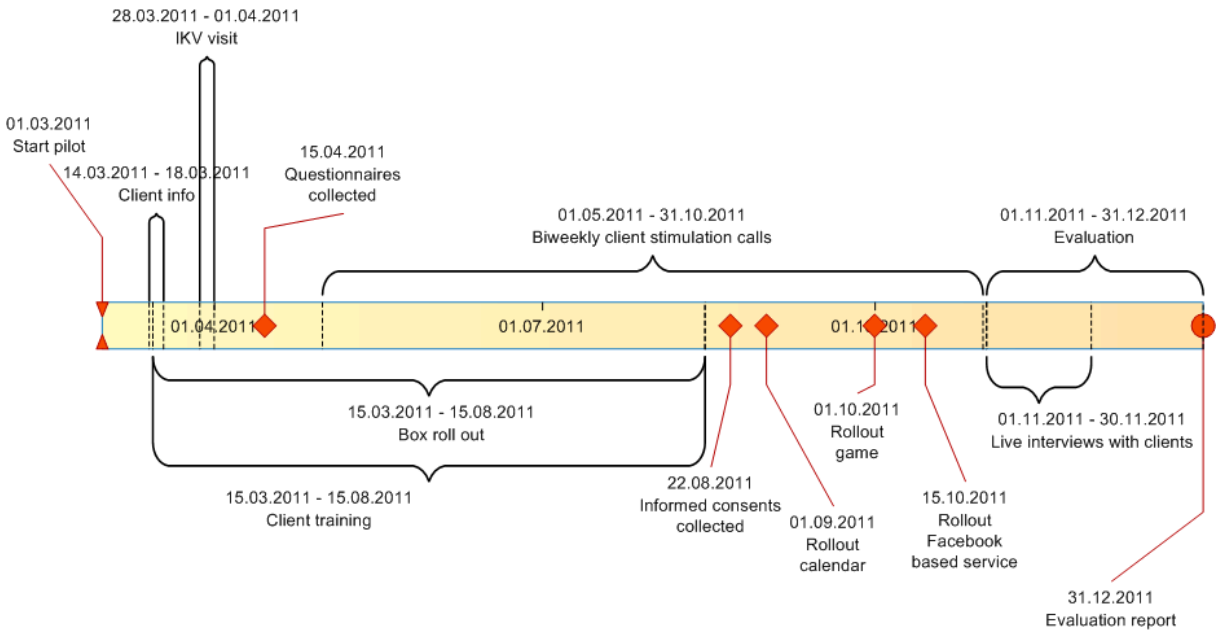


Figure 4: planning of the rollout of the Social Services during ALICE

4.2.1 Questionnaires

At the start of the pilot a questionnaire was handed out to clients of Mens en Zorg. This questionnaire can be found in Appendix 1 of this report. The main goal of this was to gather insight in the demography, the social networks and interaction of the elderly clients. Their communication habits and usage of traditional and modern media were asked, as well as a subjective impression of their mental and physical fitness along with their opinion on the modern and rapidly changing world. Finally the willingness to participate in a pilot trial of the ALICE project was tested. Evaluation and analysis of interviews and logging results were done during the pilot. The results are in chapter 4 of this report.

4.2.2 Biweekly calls

The biweekly calls were started in March 2011 to the participating clients. The pilot started with 32 participants, 2 of whom indicated early on that they did not want to be contacted on a biweekly basis and would only use the system for call to their relatives. During the remaining period of the pilot the biweekly calls were performed by the staff of Mens en Zorg and later by Woonzorg. Only in the month of August 2011 was there a period of 3 weeks with no calls because of the summer holiday.

The goal of the call was to keep clients interested in the pilot and to ask for feedback on their experience in working with the system. A basic format of topics was available for the person making the calls with the following subjects:

1) Is this a good time for a call?
2) How are you today?
3) How is the quality of the present call?
4) Did you use the ALICE system in the last 2 weeks?
5) What was your experience / Why not?
6) Talk about the Social Services
7) Any other subjects

4.2.3 Interviews

A live interview was held with selected clients at the end of the pilot. The interview was conducted by an employee of ‘Mens en Zorg’, who visited the clients in their house and had an individual session with the different clients. The interviews were held in January 2012.

The interview started with a general introduction, after which a total of 8 questions were asked. The questions were asked as open as possible to give the clients the opportunity to give their honest opinion. The questions were the following:

- What did you think of ALICE?
- How can ALICE be improved?
- What do you miss in ALICE?
- Which functions did you use frequently?

- Which functions did you not use?
- By using ALICE, did you have more frequent contact with your relatives and/or friends?
- Would you be willing to pay for the continuation of ALICE? If so, how much are you willing to pay?
- Do you have any additional comments?

4.2.4 Monitoring of video conferences

Data was collected on the video conferencing functionalities of the ALICE system. This data collection has been done during the entire pilot, and data therefore is available from both the pre-pilot and the actual pilot. The data is used to generate usage statistics, based on hard facts. The following information was recorded on the video conferencing:

- Date of call
- Time of call
- Length of call
- Name of caller
- Name of callee

4.2.5 Testing the social services

In order to have a good understanding of the experience of the elderly clients with the social services offered by the ALICE platform, several sessions have been held in which the elderly were monitored when tested the services. These sessions took place in the months following the rollout of the various social services. The main subject of the testing was the usability of the service and the ease of use for the elderly.

4.3 Social Services

At the start of the pilot, only the video conferencing was offered to the clients. During the pilot 5 social services were introduced. This paragraph includes an overview of these Social Services.

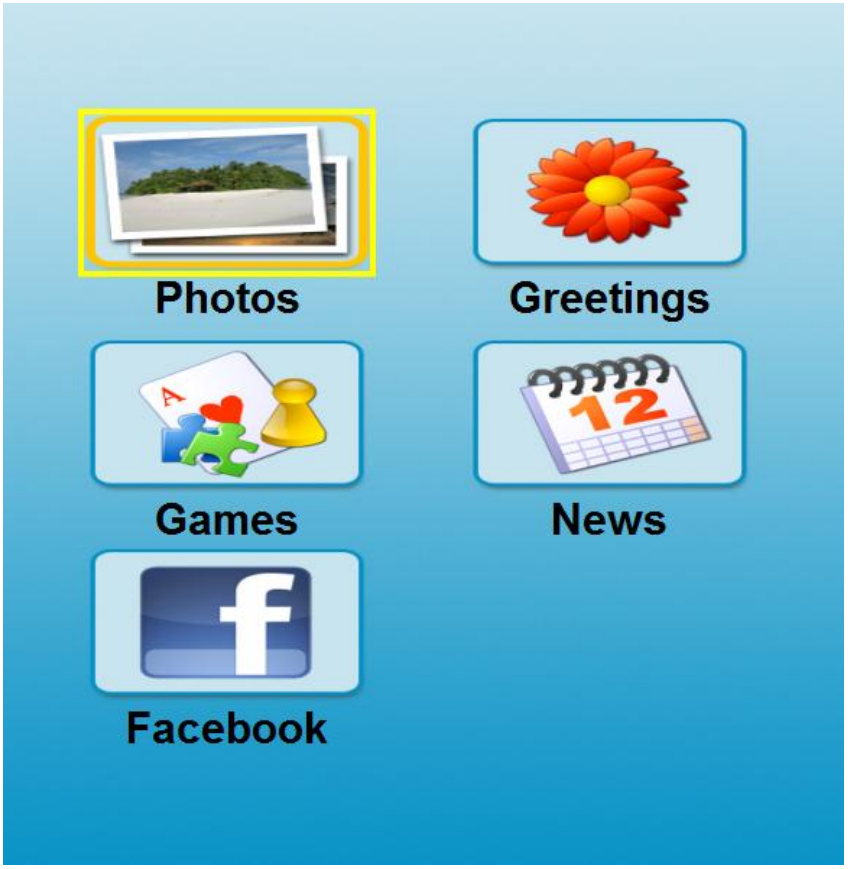


Figure 4: ALICE Social Services

4.3.1 Facebook

Facebook is a social networking service and website launched in February 2004, operated and privately owned by Facebook, Inc. As of February 2012, Facebook has more than 845 million active users. Users must register before using the site, after which they may create a personal profile, add other users as friends, and exchange several kinds of messages, including automatic notifications when they update their profile. Additionally, users may join common-interest user groups, organized by workplace, school or college, or other characteristics, and categorize their friends into lists such as "People from Work" or "Close Friends". The name of the service stems from the colloquial name for the book given to students at the start of the academic year by some university administrations in the United States to help students get to know each other. Facebook allows any users who declare themselves to be at least 13 years old to become registered users of the site. Facebook can also be use by children, relatives or friend of the target group of ALICE by sharing information, pictures, movies (linked to YouTube) and all sorts of other information and linked information pages. In this way a whole new world of information will open for the ALICE target group and it is in fact only one click away.

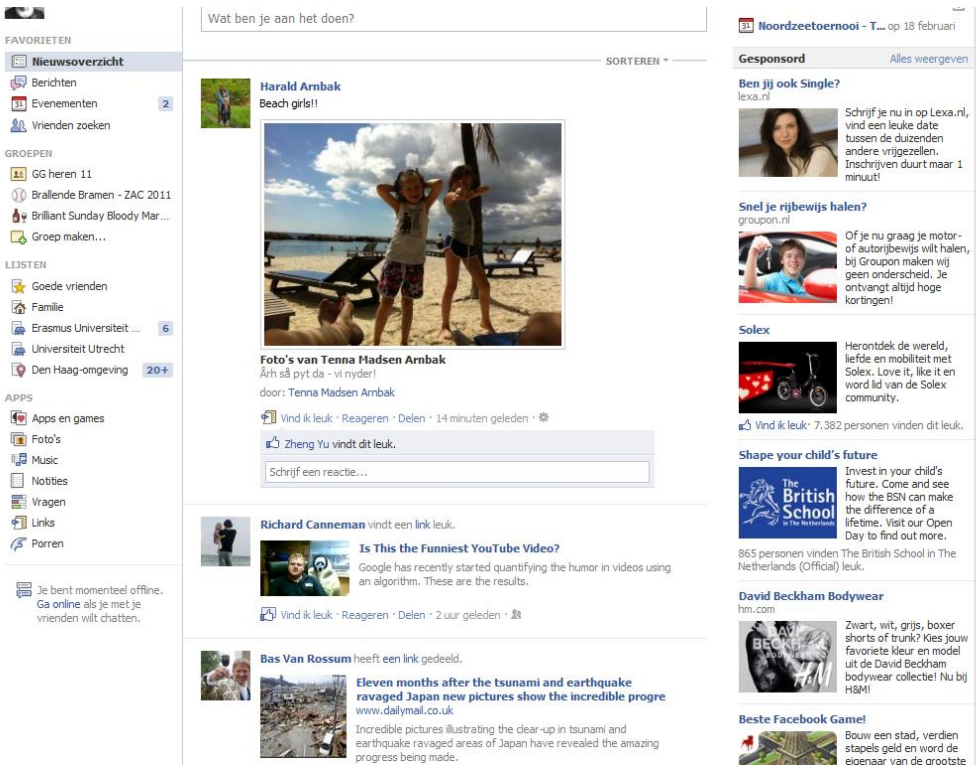


Figure 5: Average Facebook profile

Figure 6: ALICE Facebook "translation" page

The picture shows a screenshot of the ALICE Facebook service. The service takes the most recent status updates from Facebook friends and shows them on the Television set of the user. The paging (when clicking the "Next" button) allows viewing further status updates and the "Like" button allows interaction which is forwarded to the Facebook platform.

The Facebook based service was developed in September and October 2011, and the introduction was in November 2011. The Facebook based service had an introduction time of 1 month and the results of the usage were tested in November and December 2011.

4.3.2 Photo (share) service

Elderly people are in need of collecting and viewing pictures of their family and especially their offspring and grandchildren. The grandparents are often the family historians in the form of photographs, stories, and knowledge on distant relatives. Creating family photo albums, putting photos of relatives on the wall, and studying genealogy are familiar activities to the elderly. In other words, creating media in the form of photo albums, framed pictures, or family histories is nothing new to seniors. Therefore it is clear that elderly have a great need for sharing photos with their beloved ones. The ALICE target group is often too old or not able to continue their activities on this item. However it gives them comfort the feeling that they are still part of their family and surrounding by keeping up to date with the latest photo material. The ALICE photo(share)service can be a great help in achieving this goal.

Figure 7: The bedroom wall of an elderly couple

The positioning of the pictures shows the children (on the sides), the grandchildren (between the photo of themselves and the photo's of their children), and the grand- grandchildren (below the photo of themselves and on the table).

Development of the photo service has been done in June and July 2011. The photo service allows friends and relatives to upload photos on the ALICE system. These can be viewed by the user. In this way photos become visible on the Television set of the user. Users are generally elderly people with limited eyesight. They therefore benefit from the fact that the photo is expanded to the screen of their TV.

Figure 8: screens of photo sharing service (albums, album overview and detailed photo)

The service was introduced in September 2011 to the participants in the pilot. The photo sharing service had an introduction time of 1.5 months and the results of the usage were tested in October, November and December 2011.

4.3.3 News service

The news page was especially developed for the residential complexes that joined the second part of the pilot after the merger between Mens en Zorg and the Woonzorggroep. The inhabitants of these complexes are in fact facilitated by the organization who manages the central facilities of the complex. The inhabitants live totally independent, yet several central activities are organized and restaurant facilities are offered. To stimulate participation, a good communication is crucial and the communication via a central page conduces to this goal. The content of the pages can be attributed and customized for the individual complexes. Subject can be completely variable from general information about activities, consultation hours of medical specialists and paramedics, jointly organized trips, opening times of the surrounding restaurant, information about public transport and taxi companies.

Figure 9: Example of a news page

The news service was developed in August 2011 and the introduction and promotion took place in September 2011. The service had an introduction time of 1 month and the results of the usage were tested in October, November and December 2011.

4.3.4 Greeting Card

It is a given fact that emotional experience improves with age. In general we can say that the social integration and involvement decreases and elderly get lonelier when they get older. These two currents do not mix but in fact grow apart. A simple greeting card with a personal text can accomplish more positive emotion than the sender can foresee. With this service the ALICE project provides “a little help” and some contact, a sign of live, for the previous generation.

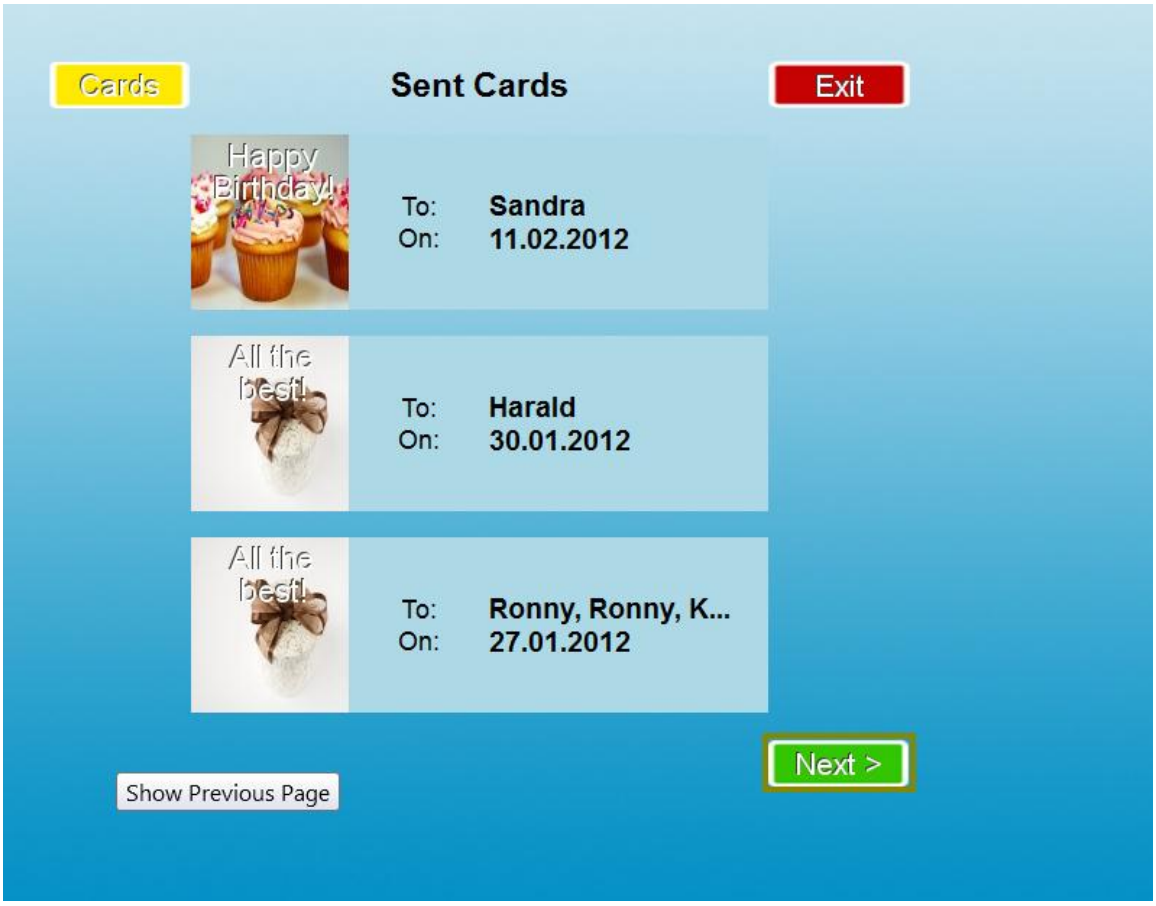


Figure 10: list of sent greeting cards

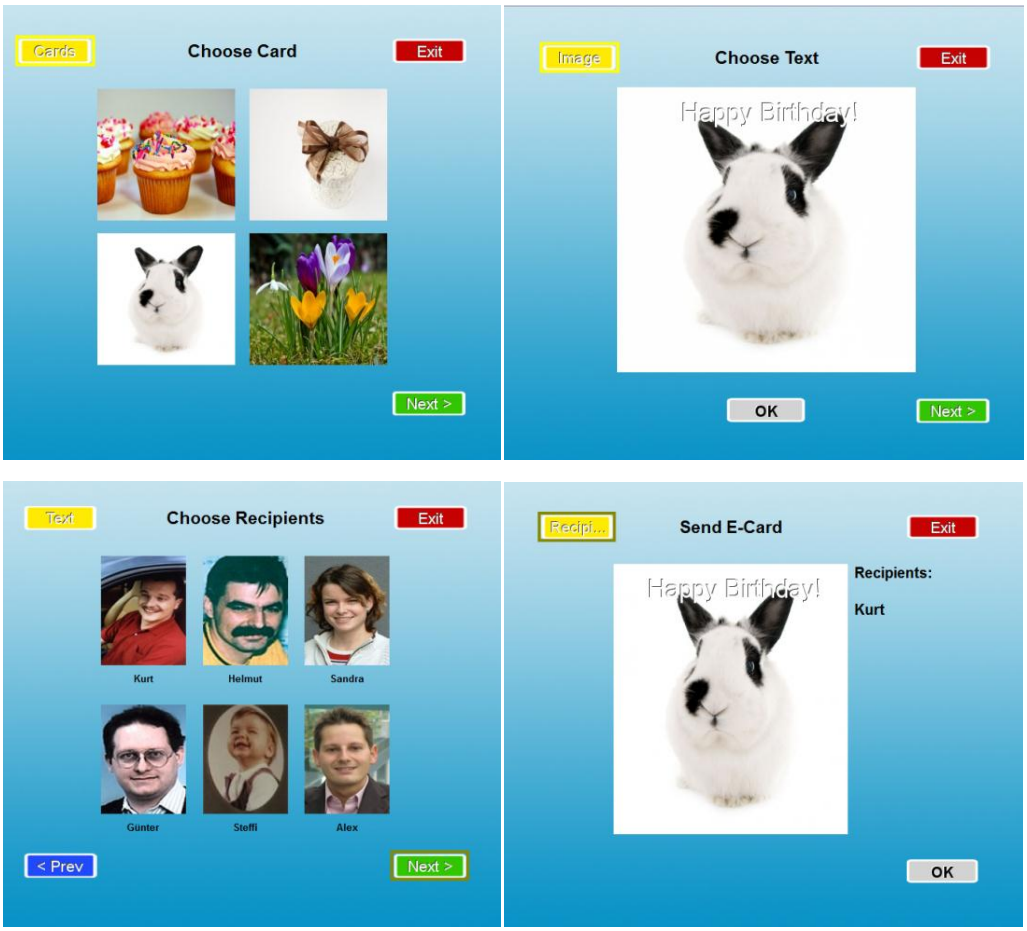


Figure 11: the stages of sending a greeting card

The greeting card service has been developed in May and June 2011 and was introduced to the clients in September 2011. The greeting card service had an introduction time of 1 month and the results of the usage were tested in October, November and December 2011.

4.3.5 ALICE Game Service

In theory strategy, memory and problem-solving skills necessary for mastering certain games may translate to benefits in the real world. The necessity for developing interactive games was therefore present. As a possible positive side effect, by using the ALICE remote-control, there might also be some training of the eye-hand coordination. To stimulate the elderly to use this application it was also necessary to use the effect of recognition. As we say “unknown makes unloved”. The development team went back to the eighties by rejuvenating a famous game. The growing strength of this game is that it appears to be a simple game, but turns out be difficult as the skill level increases.

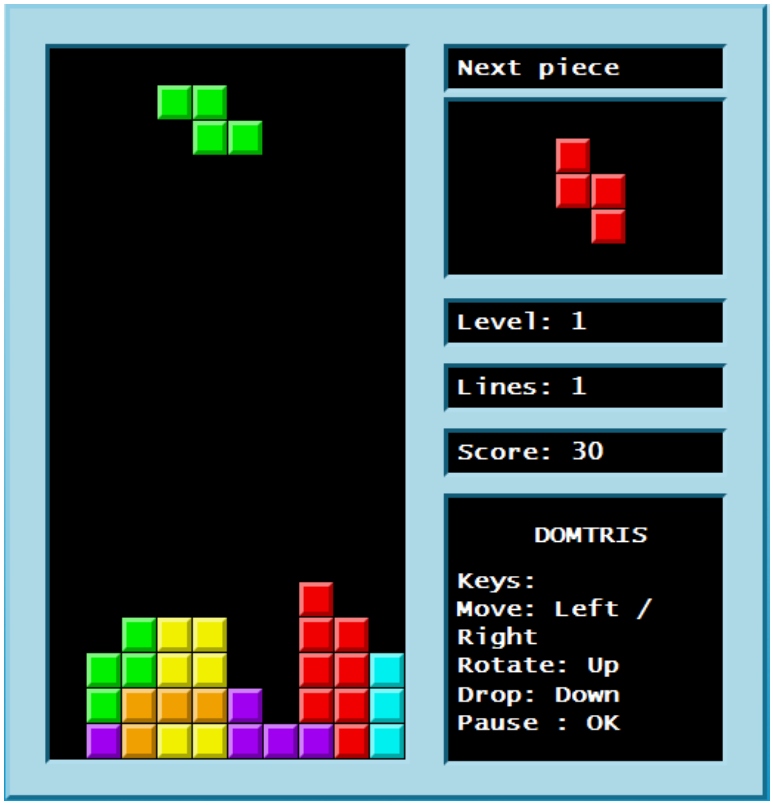


Figure 12: game Domtris

The development of the game was done in August and September 2011, and the game was introduced in November 2011. The game had an introduction time of 1 month and the results of the usage were tested in December 2011.

4.4 Wireless applications services

The initial work description also included the usage and evaluation of Continua compliant medical devices during the pilot phase. This goal could not be reached due to unforeseen technical problems on the STB. As reported in the six-monthly management report D1.5, the operating system of the STB did not meet the requirements of the software stack necessary to integrate this kind of medical devices. A change of the operating system would have caused a critical delay of the pilot phase. Since the focus of this project is on social interaction, the consortium members decided to not evaluate this aspect within the pilot. The integration of the medical devices on the STB has been done in parallel to the pilot phase and was successfully accomplished in January 2012.

4.5 Assessments of Services

The measurement of the two types of services offered by ALICE (video calls and social interaction services) was a continuous process. Most of the work was done by 'Mens en Zorg' with the help of the other partners. It is important to have a thorough understanding of the services being measured and the criteria which define success or failure. These were the following:

- Quality of video conferencing
- Usage of video conferencing
- Usage of social services
- Other services requested by clients

4.5.1 Quality of video conferencing

During the pre-pilot and in the initial stage of the pilot there was intensive contact between the staff of 'Mens en Zorg' and the clients. The clients were asked about the quality of the sound and the video of the calls and about the quality of the video conferencing service in general.

It is essential for technology acceptance that both are of a perfect quality. The sound should be similar to or better than that of a normal telephone. This means that the sound will have to be of a high level (compared to other clients) as elderly people often have hearing difficulties. The quality of the video will generally need to have a high resolution since the elderly often suffer from bad eyesight.

The only way to assess the quality of the services was by continuously asking the elderly about their experiences. This was done in the bi-weekly calls. Success was defined as the willingness to use the system after the initial 2 months. This means that if clients choose to use the system after the first 2 months have passed, it was assumed they were satisfied with the quality of video and sound.

4.5.2 Usage of video conferencing: how often and how long

The ALICE system keeps track of all calls being made by users of the system: the date and the length of the call. In this respect success is also defined as the willingness to use the system after the initial 2 months. Therefore an assessment will have to be made on the number of calls and the average length of the calls (after the first 2 months have passed).
The success criterion is set to at least one call per week, i.e. the client uses the system at least once a week to have a video conference. The calls from Mens en Zorg do not count in this criterion.

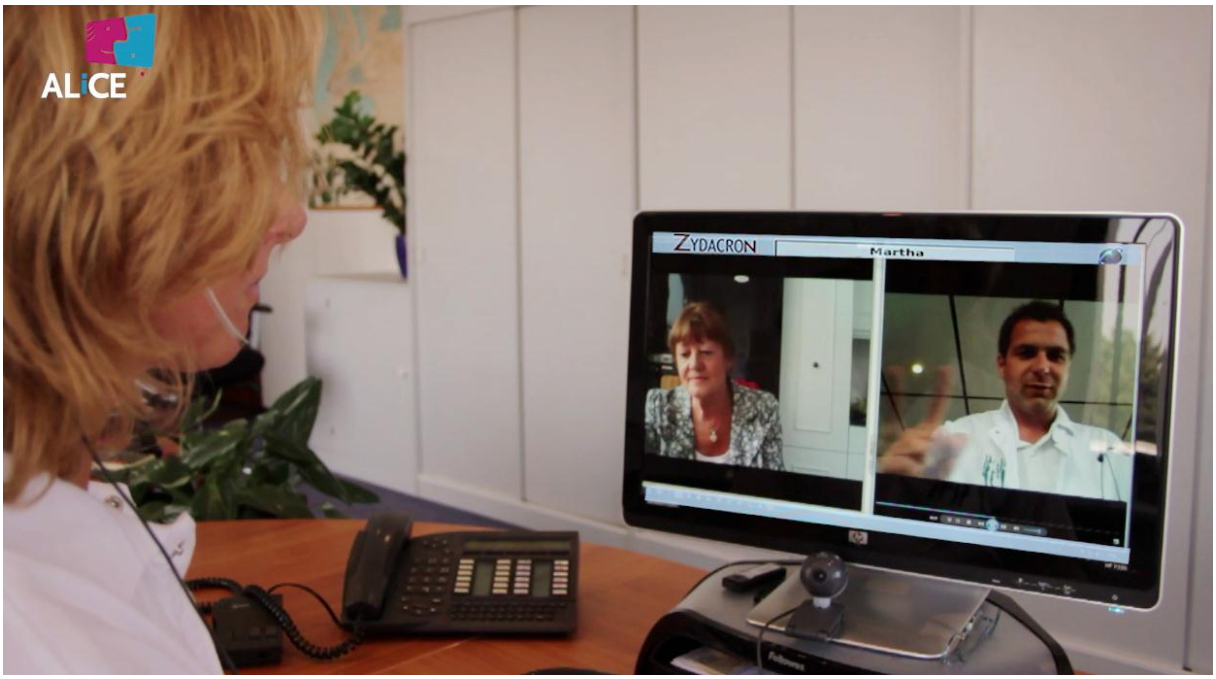


Figure 13: Video conferencing via ALICE

4.5.3 Usage of social services

The five social services which were introduced during the pilot were tested in order to get meaningful feedback from the users. In general, the introduction of a new service during the pilot was measured by the staff from 'Mens en Zorg' in the first month after its introduction.

The success criterion for the social services is the willingness to use the service after the initial month. At the end of the pilot the number of users who used the service is considered as clients who will continue using the service after the pilot terminates.

4.5.4 Other services requested by clients

A likely outcome of the pilot is that users make requests for other services besides the five which are tested in the pilot. 'Mens en Zorg' will ask the clients on a few occasions during the biweekly calls about their desires for other services. This will also be an important part of the final interview. The maximum number of services offered over the ALICE platform is foreseen with 10, as it is assumed that more services will not add value to the clients but will in many cases actually have the opposite effect, i.e. lead to confusion and thereby decrease the value of the ALICE system.

4.6 Success criteria

The main criterion for the success of ALICE is the willingness of users to continue with the ALICE product after the pilot has stopped and when they are charged for the use of the system. Further self-defined success criteria are therefore:

- Percentage of clients dropping out of the pilot is less than 25%
- Software and hardware is tested by the end users (100 people) on all phases of the project (development, validation, pilot project)
- Acceptance of the service (price, functionality) is more than 75% within the whole end-user group, i.e. at least 75% of the final participants of the pilot (defined as clients who use the system on the 29th of February 2012) express their willingness to continue with the product when it has a commercial price.

5 Results from the pilot

The previous chapter described the how the pilot was executed and identified the main problems encountered. We will now turn to the results of the pilot. The pilot plan of Chapter 3 will be compared with the pilot results from Chapter 4.

5.1 Questionnaires

To learn more about the target group, questionnaires were sent to the clients in advance. The overall return was 109 questionnaires. Among those returned were 63 women and 46 men. The following tables tell about age of participants, monthly household net income and highest level of education.

Age group	Total	Women	Men	Monthly household net income (€)	Total	Women	Men
<=60	3%	5%	0%	500-1000	26%	37%	13%
61-70	26%	30%	20%	1000-1500	37%	30%	47%
71-80	36%	31%	43%	1500-2000	16%	16%	16%
81-90	30%	28%	32%	2000-2500	12%	11%	13%
>90	6%	7%	5%	>2000	9%	7%	11%

Highest level of education	Total	Women	Men
primary	33%	39%	24%
secondary	50%	48%	53%
university	11%	7%	18%
other	6%	7%	4%

Table 2: Demographic data (age groups, household income, and education)

Half of the persons answered that they have reached the secondary education level, where men have a higher level than women. The income with less than 2000 € for about two thirds of the people also shows a difference with men earning more than women.

The distribution of residences (urban or rural) was checked at the care organisation. The urban area was defined as every village, city etc. The rural area includes single households in the countryside. The percentage of urban households was 82%.

In the following the family status and the number of (grand) children and good friends is shown. About half of the people live alone or are widowed. A large number have two or more children or grandchildren and a similar number of good friends.

Family status	Total	Number of children	Total	Number of grandchildren	Total	Number of good friends	Total
Married	39%	0	15%	0	19%	0	6%
living alone	17%	1	12%	1	2%	1	14%
widowed	43%	2 to 3	52%	2 to 3	28%	2 to 3	29%
		more than 3	21%	4 to 6	26%	4 to 6	21%
				more than 6	25%	more than 6	30%

Table 3: Family and friends

The distance to those persons in the social networks is also of interest. More than half of the relatives do not live in the direct neighbourhood. The situation differs for good friends who live more nearby (i.e. neighbourhood or same village).

Residence	Children	Grandchildren	Relatives	Good friends
in the same household	1%	1%	0%	0%
in the same building	2%	0%	2%	1%
in the neighbourhood	16%	13%	7%	19%
in the same city/village	16%	12%	25%	43%
within a radius of 50km	41%	39%	45%	28%
more than 50km away	23%	34%	22%	9%

Table 4: location of friends

With these questions social interaction between the target group and their social network should be studied. As can be seen more than half of the participants want to have personal contacts at least once a week. Contact to children is more desired than to friends and other family members.

Contacts desired	Children	Grandchildren	Relatives	Good friends
Every day	17%	6%	8%	5%
A couple of days a week	28%	17%	16%	16%
Once a week	37%	35%	32%	41%
Once a month	16%	35%	37%	30%
Once a year	3%	5%	5%	5%
Never	0%	2%	2%	3%

Table 5: contacts wish for communication

Beside that the current situation was questioned. Most contacts are happening once a week or once a month. Children are more often contacted which corresponds to the desired communication. On the other hand writing letters is unexpectedly low.

Face-to-face contacts	Children	Grandchildren	Relatives	Good friends
Every day	13%	4%	5%	8%
A couple of days a we	18%	8%	5%	8%
Once a week	32%	25%	23%	33%
Once a month	30%	48%	48%	34%
Once a year	7%	13%	18%	10%
Never	0%	2%	1%	7%

Writing letters	Children	Grandchildren	Relatives	Good friends
Every day	0%	0%	0%	0%
A couple of days a we	0%	0%	1%	1%
Once a week	1%	0%	0%	1%
Once a month	7%	5%	2%	4%
Once a year	11%	13%	22%	20%
Never	82%	83%	75%	74%

Table 6: frequency of face-to-face contacts and writing letters

The questions regarding the frequency of phone calls again showed that participants call their children more than the other groups (in most cases at least once a week). Grandchildren and other relatives are less frequently called than good friends. The table about email and internet based communication shows that those are not used very much.

Phone calls with children	Children	Grandchildren	Relatives	Good friends
Every day	18%	0%	5%	2%
A couple of days a we	24%	16%	15%	20%
Once a week	45%	18%	27%	21%
Once a month	4%	32%	38%	35%
Once a year	3%	15%	5%	11%
Never	5%	19%	10%	12%

Email / Internet	Children	Grandchildren	Relatives	Good friends
Every day	0%	0%	0%	0%
A couple of days in a v	3%	2%	4%	4%
Once a week	5%	2%	3%	3%
Once a month	12%	9%	11%	9%
Once a year	3%	2%	1%	3%
Never	78%	85%	81%	81%

Table 7: frequency of phone calls and contacts via email or Internet based services

Three important media in today's daily life and their current usage were questioned: TV, phone and internet/email. TV has a broad acceptance (rather independent from sex of the asked person). A similar rate appears for the phone. The internet/email is not very intensively used and more frequent within the male participants whereas the phone is more used by female persons.

Enjoy watching TV	Total	Women	Men
yes	78%	77%	78%
rather yes	19%	18%	20%
rather no	3%	3%	2%
no	1%	2%	0%

Daily TV consumption	Total	Women	Men
less than 1 hour	14%	9%	18%
1 to 3 hours	42%	47%	39%
3 to 5 hours	28%	27%	30%
more than 5 hours	15%	18%	13%

Enjoy using	Phone total	Phone women	Phone men	Email/Internet total	Email/Internet women	Email/Internet men
yes	78%	87%	64%	19%	13%	28%
rather yes	17%	8%	29%	9%	10%	9%
rather no	3%	2%	4%	4%	0%	9%
no	3%	3%	2%	68%	77%	54%

Table 8: Usage of TV, phone and email/internet services

The answers about daily consumption of TV programmes show that more than 40% of participants watch TV at least 3 hours a day, 15% even more than 5 hours.

Some more questions were asked around use of modern devices like mobile phones and about other aspects of media consumption (e.g. which content is consumed).

In the interviews done in a smaller group also the reasons were asked why new services or technologies are accepted or not. Reasons for not using mobile phones were „not necessary“, „too complicated“, „too modern“ or just „I’m too old for that“. When asking for the internet similar answers were given (e.g. “have not learned that“, “too old“, “no interest“ and “do not own a computer“).

5.2 Biweekly calls

The biweekly calls (one call every two weeks) were held throughout the pilot. With a few exceptions, clients were happy to participate in these calls and talk about their experiences with the ALICE system. The main outcomes of the biweekly calls were the following:

5.2.1 Technical Issues

The main problem throughout the entire period of the pilot was that the system was very often not working as expected because of a plethora of technical issues. The technical issues occurred far too often to make the pilot a success and therefore were very detrimental to the success of ALICE.

Figure 14: Technician is installing the set top box

5.2.2 Sound

In the beginning of the pilot, the feedback of many clients was that the sound was too soft. It was explained to the clients that the sound of the system can be changed with the remote control of the ALICE system and the remote of the television. While this does solve the

problem, it was agreed in May 2011 to increase the basic volume level. This was also tested more intensively during the first test call by the installer. After taking these steps there were no more problems with the sound of ALICE.

The conclusion regarding the sound is an obvious one: many elderly people suffer from bad hearing and therefore need a system with a high level of sound. The original setup needed to be adapted to their hearing level.

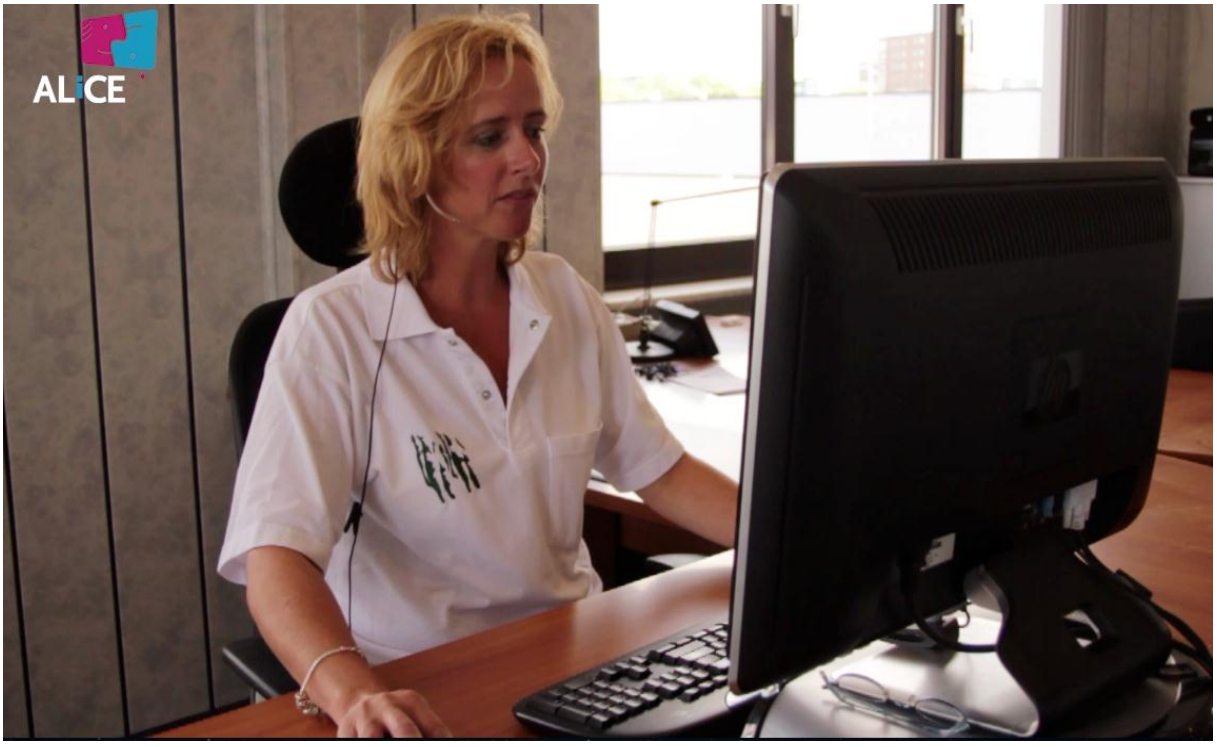


Figure 15: Nurse is doing a video call via the PC client

5.2.3 Video

Clients in general were very happy with the possibility of seeing the person they were speaking to. Most clients did not have any experience with similar video conferencing tools such as Skype and the feature therefore was new to them. During the biweekly calls the clients were asked about the quality of the video. The feedback on this was mixed. Since the STB is connected to television set of the clients the video is stretched to the size of the TV set. This means that the size is always good. However, the fact that the screen is stretched automatically leads to a loss in quality of the image as the pixels of the image also become stretched. Approximately half of the clients therefore reported that they had problems viewing the operator making the test calls. The other half was happy with the quality of the video.

The conclusion regarding the video quality is that it needs to be as good as is possible. The fact the video is projected in the television screen means that it becomes stretched and therefore of a lower quality than on a small screen. However, for about half the clients the video was very acceptable as it is.

5.2.4 Softclients

During the biweekly test calls the clients were asked about their experiences with their relatives who had the soft clients installed. The feedback on this is twofold. On the one hand, it soon became clear that the process of installing the softclient was too complicated for the relatives. It seems the computer skills of the relatives are often very limited. It is important to note here that the relatives are often also of an advanced age and therefore not familiar with manually installing and updating software on their PC. On the other hand, once installed and working correct, the feedback was mostly positive. The clients especially appreciated the possibility of seeing the person they were talking to. In several instances this really leads to an increase of the quality of life, for example when grandparents could see their grandchildren.

During the pre-pilot almost all clients had friends or relatives who installed the softclient and used it for communications. Two weeks into the pre-pilot there was an update of the system which meant that the softclients had to reinstall the software. Most of them were not able to perform this task and therefore were lost to the pilot. At the pilot itself most clients had relatives who were interested in participating as softclient. However, the many technical problems plaguing the pilot meant that only a limited group of relatives was ever connected in the correct way over ALICE.

The conclusion regarding softclients is that the service delivered is very useful and appreciated when working. However, the current process of installing the softclient is too complicated for the relatives and needs to become more simplified.

5.2.5 Social Services

During the video calls the clients were informed extensively on the upcoming introduction of the various Social Services. The rollout of these is explained in the next paragraph. Before their introduction the elderly were in general neutral in their approach to the social services. This can be understood, as it is hard to visualise a social application for an elderly person with very limited computer experience.

At various moments during the pilot the different Social Services were introduced to the clients. When a new Service became available this was communicated to the clients in the biweekly calls. The feedback on this was again neutral. It was learned that explaining a new Service is not really possible over a video call.

The conclusion regarding the Social Services is that a video call is not the proper tool to communicate it and to introduce them to the elderly. For people with a very limited understanding of technology a new service needs to be explained in detail and in person, not over a video call.

5.3 Final Interviews

In January 2012 a final exit interview was held amongst selected participant of the ALICE pilot. The main goal of these interviews was to gain detailed information on their experiences

with the system and their ideas for improvement. The following information is a summary of their answers during the interview:

Q: What did you think of ALICE?

In general, the feedback was positive concerning the idea of ALICE. The possibility to remotely speak to relatives and friends is viewed as a great improvement to the 'normal' telephone. There were concerns about the high frequency of technical issues during the pilot. Some clients found the system very difficult to operate. Regarding the social services the interviews revealed that they were not used extensively. Some clients indicated that they would like to include an alarm function in the system.

Q: How can ALICE be improved?

The feedback was mostly about the technical issues and usability of the system. Also the fact that the set top box is very slow to react to commands from the remote control was mentioned. It would be better to have an integrated device or a system where the camera and microphone are both wireless. Finally, the feedback was that the social services were too complicated and that their explanation was too vague.

Q: What do you miss in ALICE?

This question raised some interesting ideas for future development. Throughout the pilot the feedback was that an alarm would be a very welcome feature, as elderly people worry a lot about what they could do in case of an accident. However, some other interesting ideas where:

- Brain training
- Full browsing on the internet, possibly with a separate remote or mouse/keyboard
- More games such as chess and checkers

Q: Which functions did you use frequently?

To this question the answer was that, with a few exceptions, the clients only used the video conferencing tool. Some clients also actively used the social services, mostly the Domtris game.

Q: Which functions you did not use?

Most clients indicated they did have a look at the social services because they were informed by the Mens en Zorg staff about the possibilities, but that it was too complicated to understand.

Q: By using ALICE, did you have more frequent contact with your relatives and/or friends?

Most customers indicated that they definitively had more contact with their relatives. One client actually states that the ALICE system was a perfect excuse to contact his son.

Q: Would you be willing to pay for the continuation of ALICE? If so, how much are you willing to pay?

Approximately half the clients indicated that they are willing to pay for ALICE, the other half did not. The only condition all participants made was that the system needs to be 100% operational and not have so many issues. The price clients are willing to pay ranges from EUR 10 per month to EUR 25/30.

Q: Do you have any additional comments?

To this question the feedback was mostly about the implementation of the pilot. Clients had the impression the product was tested too soon in its lifecycle and was not ready for a pilot yet. Similar remarks were made about the remote control and the social services, which both need to be improved.

5.4 Monitoring of video conferences

All calls made over the ALICE system during the pilot have been logged in a database. From this database information has been generated about the number and length of the calls over the system.

In total, there have been 3564 calls made during the ALICE pilot. The total time of calls is just over 139 hours, making the average length of a call 2 minutes and 20 seconds.

The following graph shows the number of calls per month:

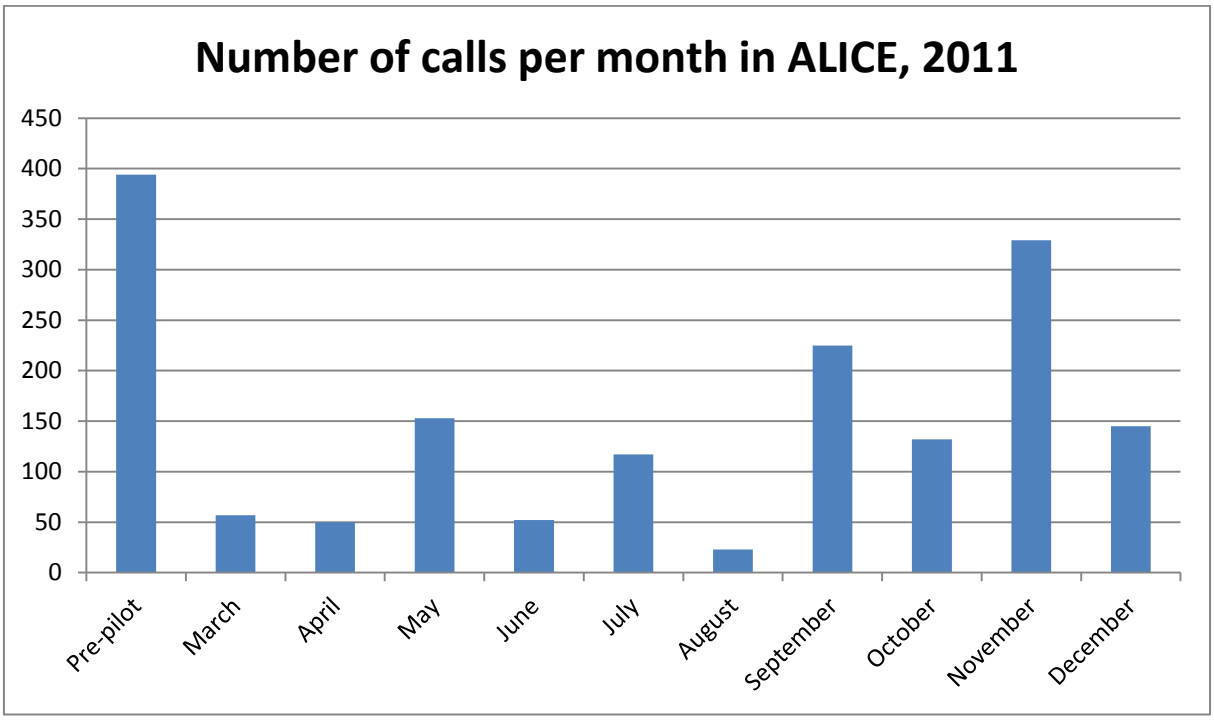


Figure 16: Number of calls per month during the ALICE pilot

The graph clearly shows that most calls were made during the pre-pilot and in the months of May and July and September till the end of December. Slow months were at the start of the pilot and in the summer.

The following graph shows the average length of the calls per month:

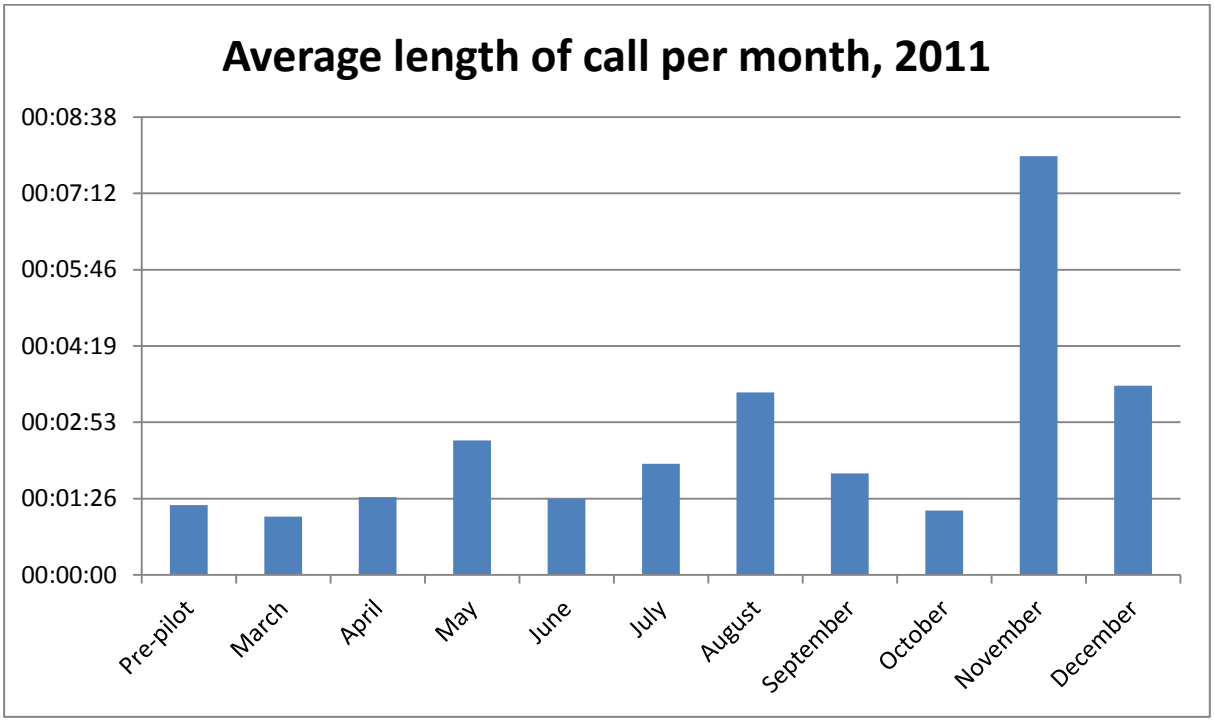


Figure 17: Average length of call per month

The average length of a call during the entire project is 2:20. These 2 graphs clearly show that the average length has been influenced by a peak of both the number of calls and the average length of the calls in the month of November 2011. A further analysis of the data shows that this is partly the result of a few calls made to the test locations. If these calls are removed the average is in line with the other months. A possible explanation is that a user forgot to terminate the call.

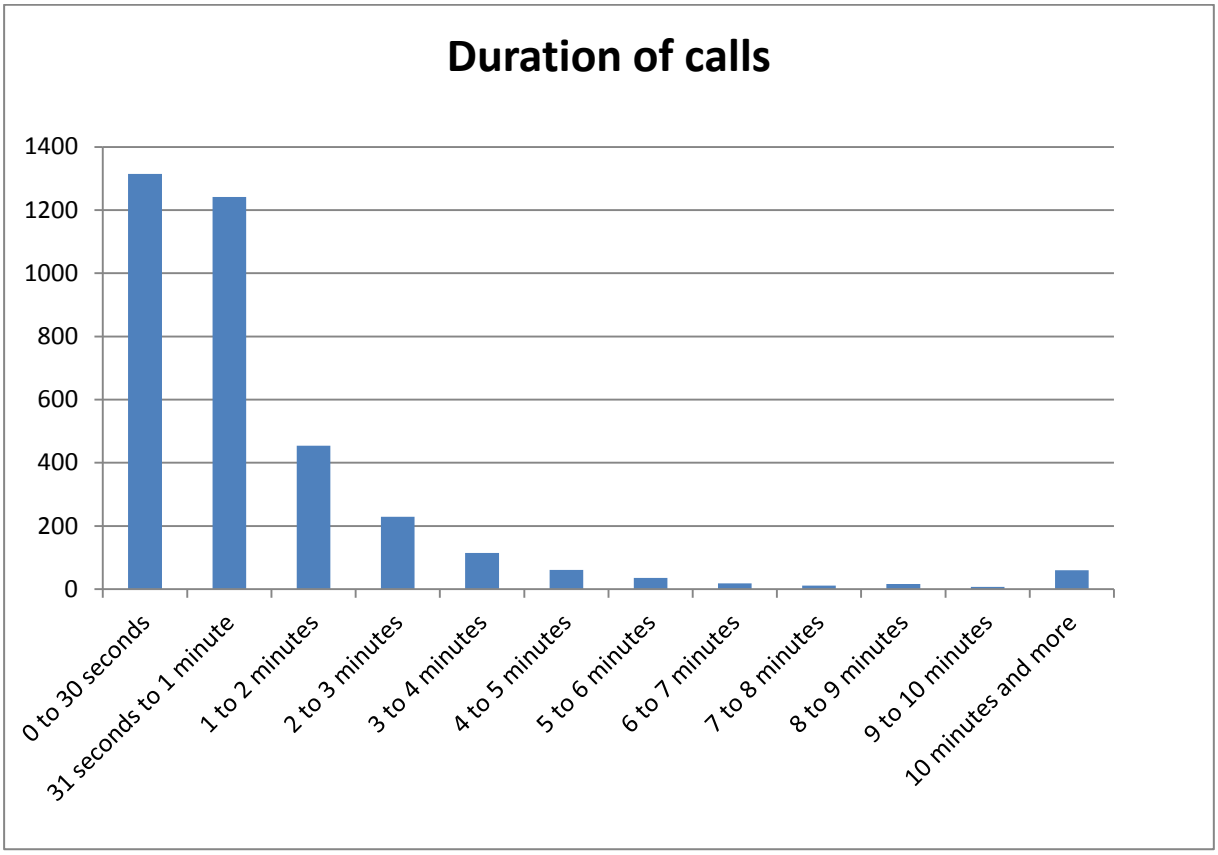


Figure 18: Duration of per call

The majority of the calls to participants were shorter than 1 minute. The reason for this was the many test calls, which were necessary to prepare the functioning of the infrastructure during the pilot. The clients were contacted every two weeks by the staff of Mens en Zorg. These calls were either very short (client was not interested or unable to make time for a call) or lasted ‘1 to 2’ or ‘2 to 3’ minutes.

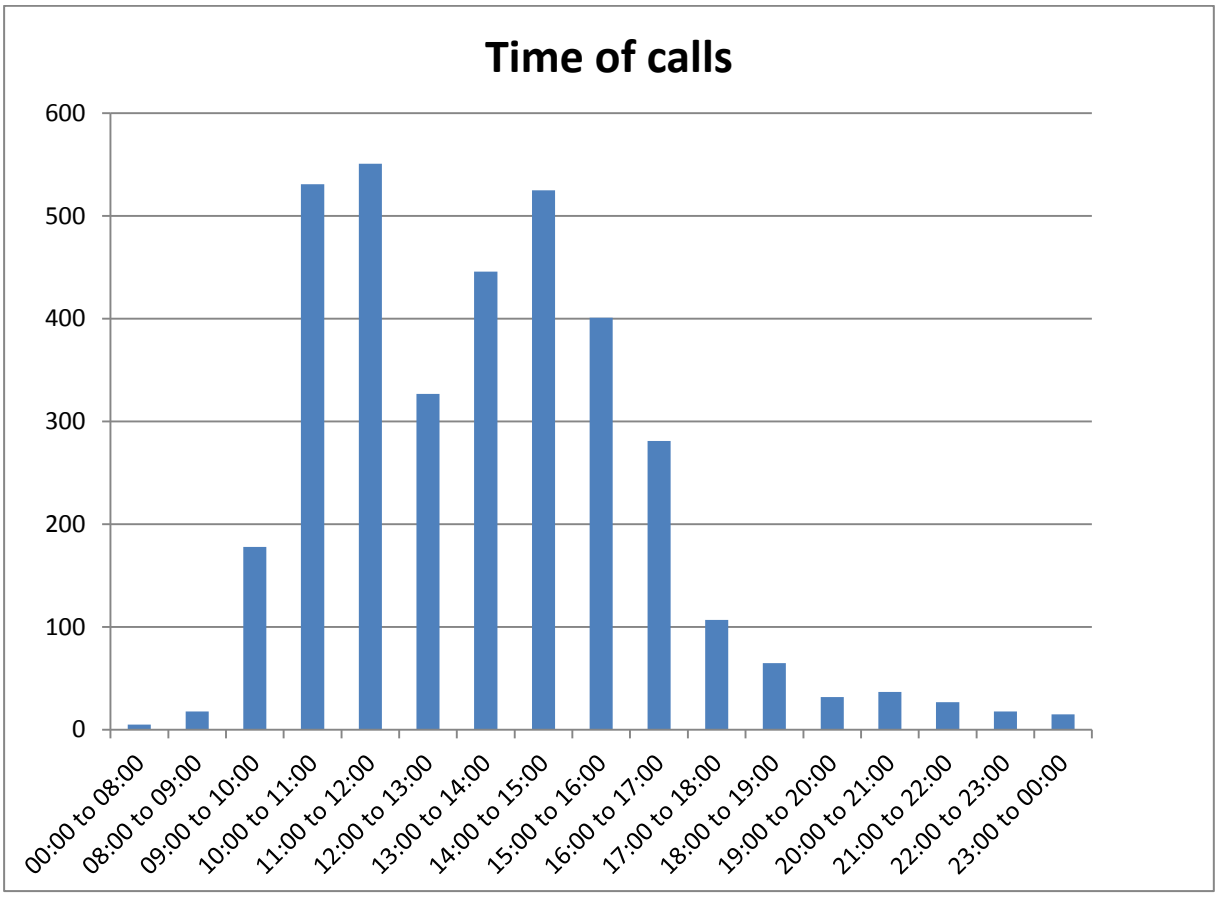


Figure 19: Time of calls

Most of the calls were conducted between 11:00 and 17:00. Most of the participants could be easily reached in this time span.

5.5 Social services

In order to have a good understanding of the experience of the elderly clients with the social services offered by the ALICE platform, several sessions have been held in which the elderly were monitored when testing the services. These sessions took place in the months following the rollout of the various social services. The main subject of the testing was the usability of the service and the ease of use for the elderly.

5.5.1 The ALICE Facebook Service

The opinion of the target-group of ALICE, the 60+ client, is that Facebook is an application for the much younger generation and it is too difficult for them to understand. That vision is not totally correct: Facebook is in fact a social medium which allows people of all ages to share and connect their personal profiles with friends and people they want to share information, special interest and experiences with.

Sharing social interaction however is in fact the interaction that is decreasing as age is increasing and loneliness appears when people stop working. The elderly experience that their children do not really need them to build their own life and social network and as a result do not come by so often anymore. An indication for that is the new social network for people in the age-group of 51 to 69 in the Netherlands called GO51. This age-group is especially interested in a large group of friends or followers. They just want to connect with the right persons and friend to share information and interests. This can also be said for the target-group of ALICE. However, there is the unbridgeable problem that people at this age dislike or are afraid a computer, smart phone or similar devices. Some are not able to operate these kinds of devices for health-reasons.

Within the ALICE project the added value should be generated by a very easy to use layer for the existing Facebook application that appears on the ALICE set-top box. With this service the clients are able to follow their friends or children, read their posts, and being informed of their activities and with the option to “like” an item (by clicking the like button) via the ALICE platform. The Facebook layer was produced at the end of the pilot. Therefore it was not tested on all of the participants, but in a small setting which gave the project consortium the opportunity to monitor the reaction and asking elderly people questions about the application. The conclusion of these sessions was that the need of social interaction was indeed present and the lack of knowledge on how to operate the devices was often a large barrier. Therefore it can be stated that the ALICE Facebook layer has an added value in the social interaction decreasing loneliness for the elderly people. But the current layer appears to be too complicated and does not offer enough interaction.

5.5.2 ALICE photo service

Photos of children, grandchildren and other beloved ones have a special place in the lives of elderly. They are proud of them and they want to see them often and show photos to visitors or care-givers during social conversation while taking care of them. Very often the children forget to provide their parents or grandparents with the latest photo material, for example of the first time cycling without side-wheels, the last hockey-game success or the most recent holiday experience. The ease of use for both parties (the sender and the receiver) of the photos actually stimulates the uploading of the latest optical experiences.

During the sessions with the elderly people the reaction was always very positive to this service. The participants reacted surprisingly happy when seeing for instance their grandchildren “full screen” on their own TV set. An additional advantage is that the photos are actually “blown up” to a large size which can give the visual handicapped elderly a bit extra of a visual experience. The conclusion is that the ALICE photo service generates added value for the target group. The future development of a smart phone application which makes it possible to upload photos instantly would be one other great possibility to keep the older generation up to date.

5.5.3 ALICE news service

At the end of the pre-pilot it was agreed that the clients in the pilot would be reorganized. The focus changed from approaching individual clients to clients living in residential complexes

(see chapter 3 for more information on this). Because of this new approach it was deemed essential to offer a central service which would allow the central management of a complex of elderly people to send information to participating clients. This was the basic idea behind the news service.

The news service was implemented during the final stages of the pilot. Therefore large scale testing of the service was not possible during the pilot. However, in several 1-on-1 sessions executed by the Mens en Zorg staff the opinions of the elderly with regards to the new service was tested. The feedback was mostly positive, as clients would be very interested to learn more about the activities in their complexes.

5.5.4 ALICE greeting card service

For the same reasons mentioned in the ALICE photo service, the ALICE greeting card service is a feature which gives the elderly the possibility to interact with others. The positive feedback from the users is that the service is easy to use. This actually stimulated the participants to use this service. There was also less positive feedback about the number of clicks the participants needed to do before sending a card (more than 30). Also the limited choice in the card and texts was criticized.

Overall the fact that the participants were able to send the card themselves, combined with the fact that there were no problems operating the feature and that the operation could take place in their own tempo was highly appreciated by the users and participants in the pilot.

5.5.5 ALICE game service

The saying that computer games and elderly people do not mix is not true. The developers of the Domtris game, which was in fact a rejuvenated and yet customized (for elderly people) remake of a similar game from the eighties, have done a tremendous job. They demonstrated that elderly people in the ALICE target-group actually are able to play this game from the eighties. The testing of the Domtris game took place in a small setting with several pilot members during one day. Although it cannot be proven scientifically, there was a significant improvement in result after practicing for several times but best of all the enjoyment of competing with others on a “simple” game gave lots of laughter and spirit and improved the mood of several “Guiney pigs” during the day. One remarkable comment needs to be mentioned because where one of the participants said “I came in this morning as a golden oldie and I left as a schoolboy”.

The added value of the ALICE game service is hereby accomplished.

5.6 Interviews with Tertiary Stakeholders

The ALICE consortium researched the possible involvement of stakeholders and tertiary end-user groups. Possible groups include public bodies like the Ministry of social affairs, insurance companies and care organisations. This is especially important with regards to the future deployment and exploitation of ALICE.

The partners from the Netherlands therefore researched the possibilities of partnerships with various stakeholders. The reason for this was to get insight into the commercial possibilities of the ALICE product and, if possible, to get firm commitments from the market. Several companies and organisations have been contacted since the mid-term review, five of which expressed interest in discussing ALICE in detail.

The conclusions from the five contacted parties are the following:

1- concluded that the product is not suitable for its clients.

2- concluded that the need for an application like ALICE is present and offers many possibilities. However the current system is not interesting because of the technical issues.

3- saw no possible use of the system.

4- sees the potential but will not participate as the project falls out of its scope being an insurance company.

5- is clearly interested in the ALICE project and would like to be informed about future developments of the system. It will only participate if the reliability of the system is enhanced to 99.9%.

Of the five contacted parties only 5- has expressed a direct interest in the ALICE project on the condition that the performance is enhanced.

5.7 Business Case & Service Continuity

The business case is discussed in Deliverable 7.5 Business case for ALICE services in Europe. One of the conclusions of 7.5 is that the service of the current box is not ready for a commercial launch. The main reason for this is that the platform is not stable enough yet because of technical issues. However, it is foreseen that these issues can be removed in the coming months, after which a commercial launch at the end of 2012 should be possible.

The commercial launch will build on the existing participants alias future customers who wish to continue the services offered in ALICE for a fee. These clients have been informed of the end of the ALICE project on the 1st of March 2012. At the moment the consortium partners have not yet finalised the business continuation, and therefore for the next months the clients can continue using the system free of charge. The commercial launch will be on the new Set-Top Box, which is an updated version of the current box. According to the business case, new clients will have to buy the box. In order to get an installed base of consumers and to reward their loyalty, pilot-clients who wish to continue will receive the new box free of charge. They will have to pay the monthly fee, which is the same as for other clients.

5.8 Evaluation of success criteria

As is stated in the previous chapter, the main criterion for the success of ALICE is the willingness of users to continue with the ALICE product after the pilot has stopped. The interviews teach us that about half the clients are willing to consider a subscription, but on the condition that the system is improved.
The other success criteria that have been defined as follows:

Percentage of clients dropping out of the pilot is less than 25%

This has not been met during the pilot, as more than half of the participants stopped their active participation before the end of the pilot.

Software and hardware is tested by the end users (100 people) on all phases of the project (development, validation, pilot project)

The pilot was conducted on 99 clients who participated in all the phases of the project. This criterion is therefore met.

Acceptance of the service (price, functionality) is more than 75% within the whole end-user group, i.e. at least 75% of the final participants of the pilot (defined as clients who use the system on the 29th of February 2012) express their willingness to continue with the product when it has a commercial price.

As indicated, about half the remaining clients have indicated that they are willing to continue using the service once they have to pay for it. However, many clients stopped their participation before the end of the pilot. If we take these in account the percentage of pilot participant willing to continue drops to 25%. The criterion therefore is not met.

The business model is checked and perceived valid. The business model includes a detailed plan on the rollout after the pilot terminates and includes plans for a rollout in at least 3 European countries before the end of 2013. The estimated number of users within two years beginning at the end of the project is more than 10 000.

The business plan has been completed and foresees a rollout in the next 3 years in 3 different countries. The business plan is described in Deliverable D7.5 Business case for ALICE services in Europe.

6 Conclusion

This section describes a number of key conclusions and recommendations that our team has reached as a result of this Pilot.

An overarching conclusion of the pilot is that the system is not yet ready for a commercial launch at this moment. However, if the stability of the software is increased and some functions are added there is chance to follow a viable business plan.

The other conclusions and recommendations are not in any order of priority.

6.1 Key Conclusions and Recommendations

1) The elderly in general are very positive about video conferencing. Although the possibility to actually see the person that they are talking to is a new feature for most of them and has to be thoroughly explained to them.
2) The ALICE system generated troubles by too many technical issues, which is usually the case during pilot tests. But this made it very difficult to execute a successful pilot targeting elderly people, which resulted in many clients dropping out of the pilot at an early stage.
3) The social services are viewed as nice to have but not important to elderly people. The pilot has shown that they are not a key determinant for the elderly participants to adopt a system such as ALICE.
4) The interviews conducted with the elderly people have shown that the key service missing in ALICE is an alarm function. This would have increased their personal feeling on safety and security.
5) Video conferencing and the social services have a positive effect on the social isolation of the elderly as statements of participants during the interviews have shown.
6) There is a direct correlation between the age of a client and his/her aversion against the adaptation of a new technology although some studies tell the opposite.
7) The current interface and remote control of the ALICE system are not usable enough for a successful commercial launch as a product.
8) Elderly clients need time to get to know a new technology. They should not be flooded by information in one visit only, but continuous training is needed over a period of several weeks with several visits.

9) Manual updates of the software should be avoided at all costs as elderly people and their elderly relatives are no computer experts.

10) The wireless device has not been tested in this pilot. Feedback from clients shows that there is a demand for such a device, as it will allow remote monitoring of their personal health status which will increase their feeling on safety and security.

Appendix 1: Example of the questionnaire

QUESTIONAIRE ALICE PILOT (version 0.2)

***Introduction**: We are developing a very innovative communication device which will be especially designed according to the needs of elderly people. Our research project is called ALICE (**A**dvanced **L**ifestyle **I**mprovement System & new **C**ommunication **E**xperience).*

In ALICE, we conduct a survey amongst elderly people to learn more about their specific situation, their needs and their wants to make our system a success. Answering all questions will enable us to develop a product which is a great help to elderly people and which will prevent social exclusion. Using this product should also be a lot of fun.

We would be very happy if you find a few minutes to answer the questionnaire together with your nurse.

Demography

What is your **year** of birth?

_____

What is your **sex**? (Choose only one option)

○ female ○ male

What is your highest level of **education**? (Choose only one option)

○ Primary (or elementary)
○ Secondary education
○ University
○ Other _____

What is your **professional background**? (Choose only one option)

○ Handcraft
○ Engineering
○ Teaching
○ Sales
○ Administrative
○ Other _____

What is your **monthly** net household **income**? (Choose only one option)

○ 500-1000 EURO
○ 1000-1500 EURO
○ 1500-2000 EURO
○ 2000-2500 EURO
○ More than 2500 EURO

Family and Friends

What is your **family status**? (Choose only one option)

○ Married
○ Living alone
○ Widowed

How many **children** do you have? (Choose only one option)

○ 0
○ 1
○ 2-3
○ More than 3

How many **grandchildren** do you have? (Choose only one option)

○ 0
○ 1
○ 2-3
○ 4-6
○ More than 6

How many **good friends** do you have / are still alive? (Choose only one option)

○ 0
○ 1
○ 2-3
○ 4-6
○ More than 6

Where do the following persons **live**? (Choose only one option per row)

	In the same household	In the same building	In the neighbourhood	In the same city/village	Within a radius of 50 km	More than 50 km away
Children	○	○	○	○	○	○
Grandchildren	○	○	○	○	○	○

Relatives	○	○	○	○	○	○
Good Friends	○	○	○	○	○	○

Social Activities

How often do you **feel the need** to have contact with the following persons? (Choose only one option per row)

	Every day	A couple of days in a week	Once a week	Once a month	Once a year	Never
Children	○	○	○	○	○	○
Grandchildren	○	○	○	○	○	○
Relatives	○	○	○	○	○	○
Good Friends	○	○	○	○	○	○

How often **do** you physically **meet** the following persons on average? (Choose only one option per row)

	Every day	A couple of days in a week	Once a week	Once a month	Once a year	Never
Children	○	○	○	○	○	○
Grandchildren	○	○	○	○	○	○
Relatives	○	○	○	○	○	○
Good Friends	○	○	○	○	○	○

How often **do** you write letters to the following persons on average? (Choose only one option per row)

	Every day	A couple of days in a week	Once a week	Once a month	Once a year	Never
Children	○	○	○	○	○	○
Grandchildren	○	○	○	○	○	○
Relatives	○	○	○	○	○	○
Good Friends	○	○	○	○	○	○

Which **activities** do you have pleasure in together with the following persons? (Multiple choices allowed)

	Talking	Playing games	Watching photos/videos	Listen to music	Travelling together	Going for a walk

Children	☐	☐	☐	☐	☐	☐
Grandchildren	☐	☐	☐	☐	☐	☐
Relatives	☐	☐	☐	☐	☐	☐
Good Friends	☐	☐	☐	☐	☐	☐

Other:
_____
_____

Are you an **active member** in clubs, associations or other communities? (Choose only one option)
○ Yes
○ No
If **yes**, why? _____
If **no**, why not? _____

Media Usage and enjoyment

Do you **enjoy** using your **TV-Set**? (Choose only one option)
○ Yes
○ Rather yes
○ Rather no
○ No
If **no**, why not? _____

How **often** do you use your **TV set**? (Choose only one option)
○ Every day
○ A couple of days in a week
○ Once a week
○ Once a month
○ Once a year
○ Never

How **long** do you on average use your **TV set** per day? (Choose only one option)
○ Less than one hour
○ Between one and three hours
○ Between three and five hours
○ More than five hours

Which **programmes** are you consuming on TV? (Choose only one option)
○ Documentations
○ Game shows

O News
O Movies
O TV Series
O Courses & Training
O Programmes for elderly people
O Other _____

Do you **enjoy** using your **telephone?** (Choose only one option)
O Yes
O Rather yes
O Rather no
O No

If **no**, why not? _____

Do you own a **mobile phone**? (Choose only one option)
O Yes
O No

If **no**, why not? _____

How often do you use your **telephone** to have contact with the following persons? (Choose only one option per row)

	Every day	A couple of days in a week	Once a week	Once a month	Once a year	Never
Children	O	O	O	O	O	O
Grandchildren	O	O	O	O	O	O
Relatives	O	O	O	O	O	O
Friends	O	O	O	O	O	O

Do you **enjoy** using **email/internet** for communication? (Choose only one option)
O Yes
O Rather yes
O Rather no
O No

If **no**, why not? _____

How often do you use **email/internet** to have contact with the following persons? (Choose only one option per row)

	Every	A couple	Once a	Once a	Once a	Never

	day	of days in a week	week	month	year	
Children	○	○	○	○	○	○
Grandchildren	○	○	○	○	○	○
Relatives	○	○	○	○	○	○
Friends	○	○	○	○	○	○

What are you using the **internet** for as well? (Multiple choices allowed)

☐ Search for information
☐ Get informed by online news
☐ Go online shopping
☐ Make online bank transactions
☐ Play online games
☐ Watch videos online
☐ Share photos online
☐ Stay in touch with friends and family
☐ Consume web sites aimed for elderly people

Other: _____

Elderly people in the modern world

How do you in general **feel in the modern world** today? (Choose only one option)

○ Excellent
○ Good
○ Fair
○ Poor

How do you **perceive the modern world** including all its technological advances? (Multiple choices allowed)

☐ Scary
☐ Complicated
☐ Exciting
☐ Difficult
☐ Boring
☐ Complex
☐ Surprising
☐ Neutral

Do you enjoy **trying out** new technical equipment or products which have lately been available on sale? (Choose only one option)

○ Yes

○ Rather yes
○ Rather no
○ No

If **no**, why not? _____

If **yes**, which? _____

Physical and mental fitness

How would you overall rate your **physical fitness**? (Choose only one option)

○ Excellent
○ Good
○ Fair
○ Poor

What are you doing to **improve** your physical fitness?

_____

How would you overall rate your **mental fitness**? (Choose only one option)

○ Excellent
○ Good
○ Fair
○ Poor

What are you doing to **improve** your mental fitness?

_____

What are your hobbies? _____

ALICE-Project

Do you have **interest to test** a new communication tool? (Choose only one option)

○ Yes
○ Rather yes
○ Rather no
○ No

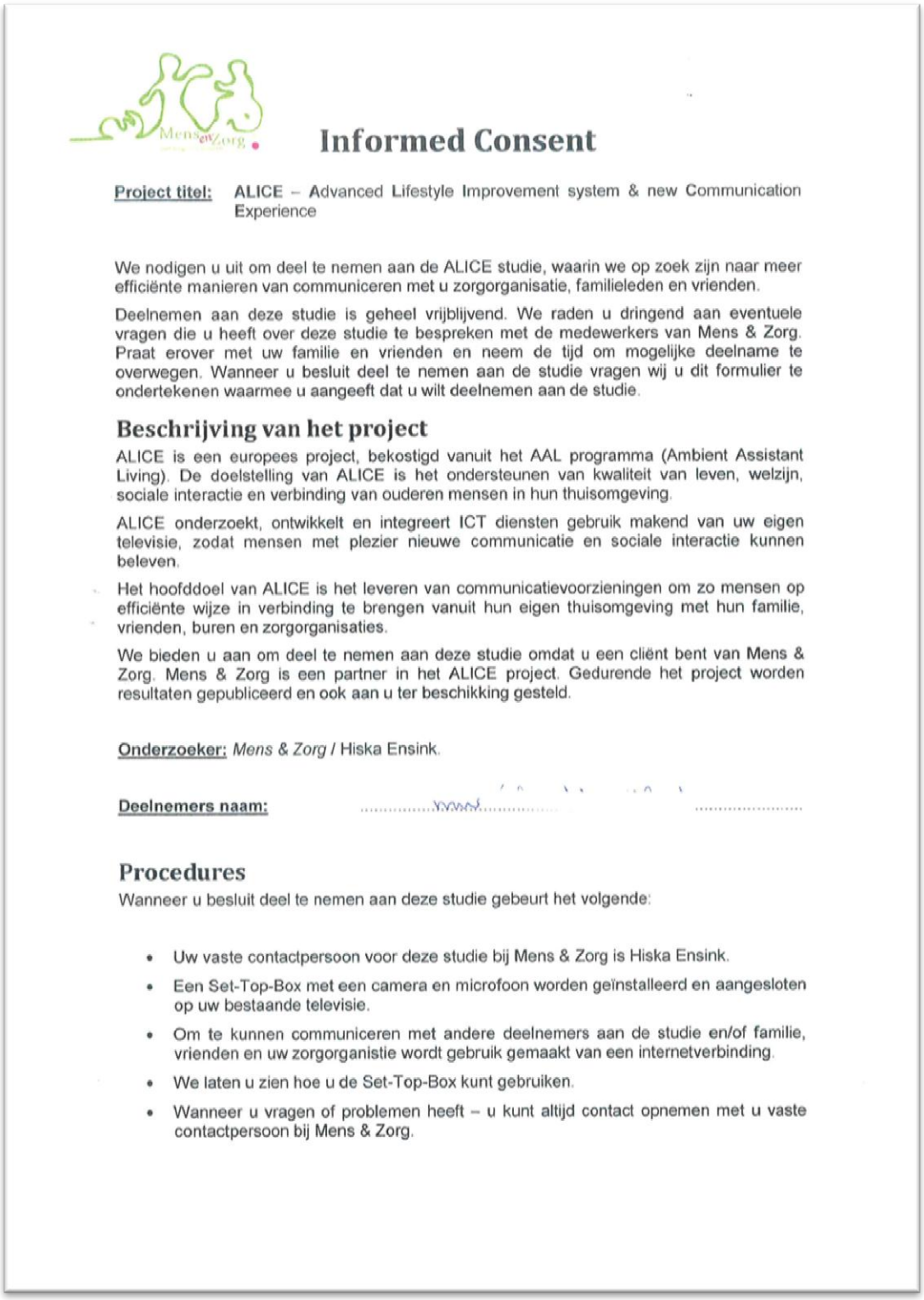
Do you want to participate in the ALICE project dealing with such tools?

○ **Yes**, I/we want to participate.
Name _____ Telephone _____

○ I/we do not know yet. Yes, please contact us for further information.
Name _____ Telephone _____

○ No, I/we do not want to participate.

Appendix 2: Sample informed consent



Mens & Zorg

Informed Consent

Project titel: ALICE – Advanced Lifestyle Improvement system & new Communication Experience

We nodigen u uit om deel te nemen aan de ALICE studie, waarin we op zoek zijn naar meer efficiënte manieren van communiceren met u zorgorganisatie, familieleden en vrienden.

Deelnemen aan deze studie is geheel vrijblijvend. We raden u dringend aan eventuele vragen die u heeft over deze studie te bespreken met de medewerkers van Mens & Zorg. Praat erover met uw familie en vrienden en neem de tijd om mogelijke deelname te overwegen. Wanneer u besluit deel te nemen aan de studie vragen wij u dit formulier te ondertekenen waarmee u aangeeft dat u wilt deelnemen aan de studie.

Beschrijving van het project

ALICE is een europees project, bekostigd vanuit het AAL programma (Ambient Assistant Living). De doelstelling van ALICE is het ondersteunen van kwaliteit van leven, welzijn, sociale interactie en verbinding van ouderen mensen in hun thuisomgeving.

ALICE onderzoekt, ontwikkelt en integreert ICT diensten gebruik makend van uw eigen televisie, zodat mensen met plezier nieuwe communicatie en sociale interactie kunnen beleven.

Het hoofddoel van ALICE is het leveren van communicatievoorzieningen om zo mensen op efficiënte wijze in verbinding te brengen vanuit hun eigen thuisomgeving met hun familie, vrienden, buren en zorgorganisaties.

We bieden u aan om deel te nemen aan deze studie omdat u een cliënt bent van Mens & Zorg. Mens & Zorg is een partner in het ALICE project. Gedurende het project worden resultaten gepubliceerd en ook aan u ter beschikking gesteld.

Onderzoeker: *Mens & Zorg* / Hiska Ensink.

Deelnemers naam: .....

Procedures

Wanneer u besluit deel te nemen aan deze studie gebeurt het volgende:

- Uw vaste contactpersoon voor deze studie bij Mens & Zorg is Hiska Ensink.
- Een Set-Top-Box met een camera en microfoon worden geïnstalleerd en aangesloten op uw bestaande televisie.
- Om te kunnen communiceren met andere deelnemers aan de studie en/of familie, vrienden en uw zorgorganistie wordt gebruik gemaakt van een internetverbinding.
- We laten u zien hoe u de Set-Top-Box kunt gebruiken.
- Wanneer u vragen of problemen heeft – u kunt altijd contact opnemen met u vaste contactpersoon bij Mens & Zorg.

- Om de gebruiksvriendelijkheid van de Set-Top-Box te evalueren worden interviews met u gehouden bij u thuis. Tijdens deze interviews willen we ook graag horen in hoeverre u tevreden bent met de Set-Top-Box.
- De doorlooptijd van de studie is 4 weken.
- Wanneer u besluit zich terug te trekken uit de studie kunt u dit aangeven bij uw vaste contactpersoon bij Mens & Zorg. Wij zullen u vragen dit schriftelijk te bevestigen zodat alle verzamelde informatie op correcte wijze kan worden verwijderd uit de studie.

Risico's of hinder

We verwachten niet dat u enig risico of hinder ervaart door deelname aan de studie. Tijdens de studie is de set-top box eigendom van Thuisconnect / Mens en Zorg. Dit betekent dat eventuele schade aan de hardware tijdens de studie zal worden betaald door Thuisconnect / Mens en Zorg.

Voordelen van deze studie

Door deel te nemen aan deze studie kunt u nieuwe communicatiemiddelen testen in het contact met uw zorgorganisatie, uw familieleden of vrienden. Op die momenten waarop u ze nodig heeft.

Doordat onze onderzoekers meer informatie verkrijgen over mogelijke problemen met het gebruik van de Set-Top-Box kunnen wij deze dienst verder optimaliseren.

Als u besluit om deel te nemen aan de studie, zal het gebruik van de Set-Top-Box , camera en microfoon kosteloos ter beschikking worden gesteld tijdens de gehele duur van de studie.

Vertrouwelijkheid

Uw deelname aan dit onderzoek is vertrouwelijk. Informatie zal nooit naar u persoonlijk te herleiden zijn. Alle informatie wordt verkort en anoniem opgeslagen en wordt alleen gebruikt in relatie tot het ALICE project.

In eventuele publicaties of presentaties die voortvloeien uit de studie zal geen persoonlijk identificeerbare informatie opgenomen zijn.

Vrijwillige deelname en terugtrekking

Deelname aan de studie is vrijwillig. U hebt het recht om te weigeren deel te nemen. Als u besluit deel te nemen maar in een later stadium toch van gedachte veranderd, kunt u ten alle tijden zich terugtrekken uit de studie zonder opgave van redenen. U kunt ook altijd besluiten om delen van de studie over te slaan.

Vragen, risico's en klachten

Als u vragen hebt over het project Alice of de studie, bel Hiska Ensink op telefoonnummer 0592 – 412959.

Als u vragen of opmerkingen heeft over uw rechten als deelnemer van deze studie, neem dan contact op met Hiska Ensink.

U krijgt een kopie van dit formulier.

Ondertekening

Ik heb een exemplaar gekregen van dit formulier. Ik heb het gelezen of het is te lezen voor mij. Ik begrijp de informatie en hebben mijn vragen beantwoord gekregen. Ik heb besloten deel te nemen aan deze studie.

Datum: 8-2-2011 Handtekening: