FOSTERING SOCIAL INTERACTION OF HOME-BOUND AND LESS EDUCATED ELDERLY PEOPLE

Detailed Plan for the Pilots

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LIST OF ABBREVIATIONS

AAL	Ambient Assisted Living
ANCESCAO	Associazione Nazionale Centri Sociali, Comitati Anziani e Orti
FNP	Federazione Nazionale Pensionati
UCD	User Centred Design
UTAUT	Unified Theory of Acceptance of Use of Technology

EXECUTIVE SUMMARY

The objective of this Deliverable D 6.1 "Detailed plan for the Pilots" is to describe pilot studies planned in order to assess the technological solutions developed in the EasyReach project. The technological solutions developed in the project will be evaluated in its final phase by extensive trials involving primary users (elderly people) and secondary users (e. g. caregivers and/or relatives).

The relevant characteristic of these pilots is to conduct field trials bringing real users. The involvement of users is an essential feature of the User Centred Design approach adopted in EasyReach, based on the user participation from the early stages of the development process of ICT solutions, included in the final validation phase.

The rationale for utilising this approach is intended to foster the acceptance of the proposed solutions by the final users through the intuitiveness and ease-of-use of the developed solutions and the awareness of the resulting benefits.

In Part 1 of this deliverable the general framework, the techniques selected for data collection and th identified procedures to conduct the Pilots in the field are described. Part 2 will cover the Pilot plans, part 3 the consolidation of results and part 4 the overall schedule.

General framework

The user acceptance model UTAUT (the most recognized model to investigate use behaviour for emerging technologies and innovative ICT services) will be applied to measure both end-users reactions and acceptance. This model was successfully used in several interaction contexts even with innovative ICTs and for different classes of people. It provides widely tested and structured metrics to achieve results in studying most of the dimensions of user acceptance, even the intention to buy and the prediction over effective usage. In addition to the UTAUT, a set of Usability heuristics will be used to integrate the assessment, possibly as close as possible to those end-users will use in real life situations (home and/or Senior Centres, Senior Residence). Moreover, a set of User Experience scales will be used to reveal ways and special constructs of variables that can reduce the complexity of interaction. In fact, they may result very appropriate to the ageing group, since User Experience covers facets like emotion and affect usually positioned beyond the instrumental medium. The above theoretical framework could hopefully create a common view and a systematic design, as well as an agreed basis of metrics useful to compare the various pilots programmed in EasyReach.

Techniques/tools for data collection

Both subjective and objective techniques for data collection will be employed in the EasyReach pilots. For each measured variable the most adequate technique for data collection has been selected. The wide range of techniques include: semi-structured questionnaires for elderly people, individual or group interviews with secondary users, observations of interaction sessions of elderly people with the EasyReach solution, personal interviews with "privileged witnesses" in user organisations to evaluate user acceptance and user experience, log file analysis to assess usage of the solution, pre-post questionnaires for effectiveness evaluation.

General reference tools (questionnaires, guidelines for individual/group interviews, observation guidelines) will be produced. These general tools will be tailored for each pilot considering national, geographic, cultural context of use, the selected environment for the pilot (e.g. home, Senior Center, Senior Residence), user characteristics, etc.

Procedures for conducting the pilots in the field

Particular care will be devoted to the compliance to ethical principles during the Pilots. General guidelines to be followed by the experimenters of the EasyReach Project when interacting with the involved users have been identified.

For elderly people the procedures selected for training may have an important role to promote acceptance of the new system. The procedures adopted in Easy Reach pilots have the main aim to provide the elderly people with the necessary skills to correctly use the system. Besides, this training procedure could achieve some important psychological aims. This procedure could make the elderly think to be able to master the technological system without being afraid of making mistakes. This fact could provide a positive influence on the effectiveness of use reducing fear and sense of inadequacy.

The project will offer to elderly people participating in pilots at home a human support to provide any help about system use and to motivate the elderly people to correctly participate in the pilot. The person providing human support should be a sort of "tutor" for the elderly involved in the pilot. The best solution would be a tutor from the user organisations (or from Senior Centres of from Senior Residence) known in advance by the elderly people. This could be useful in order to overcome the natural suspicion attitude of elderly people and to build a trust attitude towards the pilot.

In Part 2 of this deliverable specific issues concerning the planning and the preparation phase of each Pilot, including the contacts established with user organisations, are presented.

The EasyReach pilots will be realised in different contexts: national, geographic, cultural, and in different environments (e.g. at home, at the Senior Centre, at the Senior residence).

We plan to develop these pilots in two European countries: Italy (Pilot 1 in Roma and Pilot 2 in Milano) and Germany.

The pilot in Roma will involve two Senior Centres of the Federazione Nazionale Pensionati (FNP) selected to be representative of two different kind of cultural areas in Roma.

In total forty elderly users will be recruited for the Pilot: ten will evaluate the EasyReach solution at home and thirty will evaluate the solution at the Senior Centre. Furthermore, five or six secondary users will participate at home or at the Senior Centre.

The other Italian pilot will be organised in Milano in The Castanese, an area in the northern part of Milano, with the cooperation with the Senior Centres of the ANCESCAO Association. In total forty elderly users will be recruited for the Pilot: ten will evaluate the EasyReach solution at home and thirty will evaluate the solution at the Senior Centre. Furthermore, six secondary users will participate at the Senior Centre.

The third pilot will be realised in Germany in the Florencenhort Seniorenzentrum at Stansdorf, a senior residence. The recruitment will be done among the people living in the senior residence using adequate selection surveys and working closely together with the management of the residence.

Each pilot will process collected data separately and will produce an evaluation report. Furthermore, a global phase of data processing will produce a final validation report and a set of Guidelines for further developments. The global evaluation document will be one of the inputs to the process of identifying the steps to market.

1. GENERAL FRAMEWORK (FUB)

1.1 INTRODUCTION

A recent qualitative investigation developed in Italy (Papa, Sapio and Pelagalli, 2011) confirms that the main need of elderly people is to socialise and to be in contact with the world. The elderly show a sense of isolation, not always real (presence of children or grandchildren) yet perceived, being out of the 'productive cycle'.
On the other hand some surveys developed in the USA, see for instance (Madden, 2010), indicate that while the use of social media has grown dramatically across all age groups, older users have been especially enthusiastic about embracing new networking tools. This result suggests that social networks could be adequate to satisfy the socialisation need of the elderly.

One of the main potentialities offered by ICT is to overcome social isolation of elderly people. There are a lot of barriers such as lack of access, lack of needed skills, fear and other psychological factors preventing elderly from benefiting from the information society. In addition, people over 65 often suffer from physical impairments (vision, hearing or dexterity problems) thus increasing their sense of frustration and dependency.

The basic hypothesis of the EasyReach project is that, specially for less educated elderly people who haven't got the required skills to use the Internet and social networks, the past experience with TV and remote control may be a key qualification to become effective users of ICT services and social networks.

The User Centred Design (UCD) approach based on user involvement from the
early stages of the development process of an ICT service (Maguire & Bevan, 2002) is adopted in EasyReach.
Following this approach, a preliminary investigation involving a group of elderly was realised in order to collect information about elderly needs, preferences and expectations towards EasyReach solutions (Papa et al, 2011).

The technological solutions developed in the project will be evaluated in the final period of the project by extensive trials with the involvement of primary users (elderly people) and secondary users (e. g. caregivers or relatives).
It is planned to develop these pilots in two European countries: Italy (Pilot 1 in Roma and Pilot 2 in Milano) and Germany.

 The EasyReach pilots will be realised in different contexts: national, geographic, cultural and in different environments (e.g. at home, at the Senior Center, at the Senior Residence).

This deliverable presents the detailed plans of these Pilots. In Part 1 the general framework, the techniques selected for data collection and the identified procedures to conduct the Pilots in the field are described. In Part 2 specific issues concerning the planning and the preparation phase of each Pilot, including the contacts established with users organisations, are presented. Part 3 will cover the consolidation of results and part 4 the overall schedule.

1.2 OBJECTIVES OF THE PILOTS

The general objectives of the EasyReach Pilots can be summarised as follows:

- to assess the ICT solutions developed in the EasyReach project in a real environment;
- to assess EasyReach solutions in different national, geographic, cultural contexts;
- to realise pilots involving users of the EasyReach solution: primary users (elderly people), secondary users (e.g. caregivers and relatives);
- to evaluate user experience and acceptance of ICT solutions developed in the EasyReach project;
- to evaluate system usability by the elderly people in different environments (e.g. at home, at the Senior Centre, at the Senior Residence);
- to evaluate the effectiveness of the EasyReach solutions in terms of social inclusion and improvement of quality of life.

1.3 METHOD

1.3.1 REFERENCE MODEL(S) AND VARIABLES TO BE EVALUATED IN THE PILOTS

a) Reference concepts

The theoretical framework of the Pilots is referring to user experience and user acceptance models.
One basic concept in the EasyReach project is the attribution of fundamental importance to the understanding of elderly needs and expectations towards technological solutions. In a user centric approach the key concepts to be used in the evaluations of technological solutions are "system usability" and "user experience".
The user acceptance models are powerful tools to explain the individual acceptance and usage of a technological system by the elderly. They allow to identify the most relevant factors affecting usage.

System usability

There are a lot of definitions of usability in the literature mainly referring to the field of human computer interaction (see for instance Chapanis 1991; Scapin and Berns 1997).

In the definition of usability proposed by ISO (ISO/DIS 9241-11, 1998; ISO 9126-1, 2000) usability is understood as:

"The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specific context of use". In this definition effectiveness means "accuracy and completeness with which users achieve specified goals"; efficiency means resources (e.g.time, money, human effort) expended to achieve specific goals; satisfaction is understood as "physical comfort and acceptability of use".

This definition points out that usability is depending on the characteristics of the technological product, the specific class of users, the task to be performed using the system and the context of use (Shackel, 1986). An extensive discussion about usability can be found in the Deliverable D1.1 of the EasyReach Project (EasyReach Project, 2012).

User experience

The concept of user experience is a very broad concept dealing with all the aspects of the user's interaction with the product/service: how it is perceived, learned and used (Norman,1999).

Behind the user experience concept there is an holistic approach aiming for a balance between pragmatic aspects mainly related to the execution of the task and "non task related" aspects e.g. beauty, challenge stimulation or self expression.

In the scientific community there is little consensus about User Experience position respect to usability as defined by ISO (Hassenzahl et al., 2006).

In any case the holistic concept of user experience should not be considered as a "competitor" for traditional usability but as its extension.

User acceptance models

One of the most recognized user acceptance models is the Unified Theory of Acceptance of Use of Technology (UTAUT) (Venkatesh et al., 2003; Cornacchia et al, 2008; Sapio et al, 2010).

In the UTAUT model (see figure 1) the key dependent variable is the intention and/or the use of technology, thus the final purpose of the model is that of understanding and providing explanation of the phenomenon "use of information technology", taken as dependent variable. The role of intention, as an antecedent of behaviour (i.e. of use), is the actual critical factor of the model and was analysed and proved in literature.
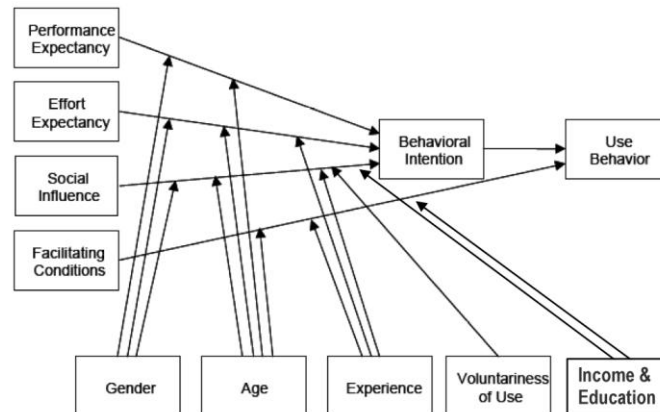
Figure 1. The UTAUT model (expanded)

In the formulation of the UTAUT model four constructs are identified which may play a significant role as direct determinants of the user acceptance and usage behaviour:

- Performance Expectancy is the degree to which an individual believes that using the system will help him or her to attain gains in job performance; this is the definition of perceived usefulness proposed by Davis (1989).
- Effort Expectancy is the degree of ease associated with the use of the system; this is strongly related to the degree to which a person believes that using the system would be free of effort (Davis,1989).
- Social Influence is the degree to which an individual perceives that important others believe he or she should use the new system.
- Facilitating Conditions are related to the degree to which an individual believes that an organisation or technical infrastructure exists to support the use of the system .

In addition, Age, Gender, Experience with technology and Voluntariness of Use are the moderators of the model.

Income and Education variables are also added in the model to be validated in future studies (see for instance Papa et al , 2009).

Metrics and tools (items in a questionnaire) to be adopted in evaluating constructs included in the UTAUT model are shown with detail in (Venkatesh et al, 2003).

The statistical processing of the data collected during the trials with users according to the UTAUT reference model will be able to identify the most relevant factors enabling the acceptance of the EasyReach technological environment by the elderly people .

Quality of life and loneliness

One common theme to emerge is about the link existing between the Quality of Life (QoL) and the perceived Loneliness envisioned as dimension of the Social Isolation. Either QoL and Loneliness are two wide themes applicable to a variety of subjects (i.e. not necessarily using ICTs) and indeed to all elderly people. As for the EasyReach pilots the idea is to integrate the items in the UTAUT section of the social influence of ICT usage with additional variables. These are recognized from

the already existing relevant measures of QoL and Loneliness in order to better point out the linear correlation presumable with User Acceptance.

b) Variables to be evaluated in the Pilots

The EasyReach working programme sets out some key issues to be addressed in an early study of the later life, in particular to advantage those categories of people resistant to the adoption of new technology or excluded from the digital innovation for cultural reasons. One important aspect of ageing is likely to be the individual or group perception in the use of technology, presumably due to the actual divide in the mental models of interaction or influenced by their personal attitudes. Having said that, if the EasyReach main aim is to create an interactive environment to enhance the social contact of elderly people and hopefully to respond to their needs, by using "traditional like" technology which doesn't introduce by itself any further resistance to the acceptance of even relatively modest innovation, then the second important aspect of ageing is the effective participation to the social life through this explicit tool.

There has been some research in the literature which looked at the positive and negative values coming from focusing on elderly experience. In our case the above mentioned model UTAUT (the most recognized model to investigate use behaviour of emerging technologies and innovative ICT services) will be applied as well as to measure end-users reactions and acceptance. This model was successfully used in several interaction contexts even with innovative ICT and for different classes of people. It provides widely tested and structured metrics to achieve results in studying most of the dimensions of the above concerning, even the intention to buy and the prediction over the effective usage. In addition to the UTAUT, a set of Usability heuristics will be used to integrate the assessment for a not controlled environment, possibly as close as possible to that end-users will use in the real life situations (home and/or Senior Centres). Moreover, a set of User Experience scales will be used to reveal ways and special constructs of variables that can reduce the complexity of interaction. In fact, they may result very appropriate to the ageing as the User Experience covers facets like emotion and affect usually positioned beyond the instrumental medium.

The above theoretical framework could hopefully create a "common view and a systematic design", that is as well an agreed basis of metrics useful to compare each other the various pilots programmed in EasyReach.

Under this vision important variables to be measured during the pilots will be:

- Comfort of use;
- Ease of use (e.g. intuitiveness of the interaction; easy to learn);
- Acceptance/ satisfaction of the users;
- Quality of the experience (boring , frustrating , good , enjoyable) and of the devices (use, look and feel, etc.);
- Willingness to buy;
- Usage of EasyReach solution (frequency of use, time duration of sessions, kind of services used, etc);

- Overall judgment and assessment of the EasyReach solution by the caregivers and relatives;
- Technical characteristics of the system such as robustness and reliability (no or reduced number of failures, ease or difficulty to rectify errors);
- Meeting the expectations of the elderly user, of the family members, of the caregivers.

Furthermore, we intend to assess the effectiveness of the EasyReach solution i.e. the capability of the application to enhance quality-of-life, social inclusion and of removing or reducing the loneliness perceived by the user.

We intend to quantify the impact of the EasyReach solution by involving the users with surveys proposed before and after the trial.

We will compare the report on the initial situation (for each participant a survey on the Quality-of-Life and on loneliness) with the outcomes of the same surveys submitted at the conclusion of the pilot.

1.3.2 TECHNIQUES AND TOOLS FOR DATA COLLECTION

Both subjective and objective techniques for data collection will be employed in EasyReach pilots. In the following table the main measured variables and techniques/tools selected for data collection are summarised.

Table 1. Techniques and tools for data collection

MEASURED VARIABLE	TECHNIQUE/TOOL	TIME OF THE FIELD TRIAL
Usability aspects 　User interface 　Support provided for use 　User satisfaction.	- Semi-structured questionnaire for elderly people. - Individual or group interview with secondary users. -Observation of interaction sessions (in real time and/or video recorded) of elderly people with EasyReach in the field.	After After During
Quality of the user experience 　Influence on interpersonal communication 　Emotional aspects	Semi-structured questionnaire to elderly people Individual or group interview with secondary users.	After
User Acceptance 　Perceived usefulness 　Perceived effort needed for use 　Future intention of use 　Willingness to buy 　Use behaviour	Semi-structured questionnaire for elderly people. Personal or group interview with secondary users. Personal interview with "privileged witnesses" in user organisations.	After
Usage of the solution (frequency, duration of the sessions, type of used services ,etc).	Log file analysis	During
Social inclusion and perception of loneliness	Pre-post questionnaire	Before and after

General reference tools (questionnaires, guidelines for individual/group interviews, observation guidelines) will be produced. These general tools will be tailored for each pilot considering national, geographic, cultural context of use, the selected environment for the pilot (e.g. home, Senior Centre, Senior Residence), users characteristics, etc.

Pretesting sessions have been planned to test in advance the tools for data collection (e.g. questionnaires) in each pilot. During these pre-test sessions the tools are administered to a small number of elderly people (e.g. two or three persons) in order to verify the tool comprehensibility and to guarantee an adequate time duration for compilation.

1.3.3 GENERAL PROCEDURES FOR CONDUCTING FIELD WORK AND FOR TRAINING ELDERLY IN THE SYSTEM USE

a) Procedures for conducting field work

Particular care will be devoted to the compliance to the ethical principles during the Pilots (see Annex I).

The following general guidelines will be followed for the pilot by the experimenters of the EasyReach Project when interacting with the involved users.

Before the pilot

- Emphasize that it is the system to be tested, not the user.
- Acknowledge that the proposed solutions are new and untested, and may have problems.
- Let users know that they can stop anytime.
- Explain any recording or other monitoring that is used.
- Tell the user that the test results will be kept completely confidential and that they will be diffused only in a global way for scientific purposes.
- Make sure that all the users' questions have been answered before proceeding.
- Provide training on the use of the devices/applications to be experienced and clearly explain how the pilot will be conducted.
- Ensure that the training procedure has been successful i.e. all participants are aware of the system potentialities and functions and all participant learned how to operate correctly with the system.

During the pilot

- Avoid to be intrusive, especially in the home environment.
- Provide any requested support for the correct system utilization
- Make adequate actions to motivate the user to participate in the pilot for the overall duration.

After the pilot

- Never report results in such a way that individual users can be identified.
- Show videotapes outside the EasyReach Project group only after getting the user's permission.

b) Procedure for training elderly people in the system use

For elderly people the attitude towards new technologies often oscillates in the dualism between fear and curiosity. On the one hand technologies instil a sense of reverential awe, which translates into a mental block against using them.

At the other extreme is the curiosity that drives elderly people (or at least part of them) to make small steps to try to penetrate this new world that intrigues and attracts them.

For elderly people the procedures selected for training may have an important role to promote acceptance of the new system. The procedure adopted for training the elderly in the system use should be aimed at reducing the negative attitudes connected to fear and to promote positive attitudes of curiosity towards the new technological solution.

As a consequence we will employ a procedure developing through the following main steps (Gnisci et al, 1999):

1. Providing elderly people with relevant information about the EasyReach solution and its opportunities for social inclusion .
2. Presentation to the elderly people of the EasyReach system configuration (without details) including:
    - available equipment (remote control, set-top-box, TV set);
    - audio and video communication features (e.g. a microphone to send audio messages, a camera to take photos)
3. Providing the elderly with indications about the behaviour to be adopted during the EasyReach session including:
    - possible equipment failure;
    - protocols of interaction.
4. Providing instruction about equipment use (by demonstration).
5. Setting up some simple practical exercises about the system utilisation, involving the elderly person.
6. Providing, if necessary, the elderly person with some written instructions depending on the elderly person's skills and complexity of the system configuration.

The steps from 4 to 5 have to be performed in an iterative way, with the main aim to provide user with the necessary skills to correctly use the system.

Besides these aspects, this elderly training procedure could achieve some important psychological aims. This procedure could make the elderly think to be able to master the technological system without to be afraid of doing mistakes. This fact could provide a positive influence on the effectiveness of use (Papa, Perugini & Spedaletti, 1998), reducing fear and sense of inadequacy.

This procedure has to be used before pilot starts. Typically the time duration of such kind of training procedure is half an hour. Of course this depends on the particular system configuration and on some characteristics of the elderly person: previous experience with technology, age and gender, individual attitude toward the technological system.

c) Human support provided during Pilots

The project will offer to elderly people participating at home a human support having the following main role:

- to provide any help about system use;
- to answer specific questions from users;
- to solve practical problems related to the pilot (excluded the technical support);
- to motivate the elderly people to correctly participating in the pilot.

The person providing human support should be a sort of "tutor" for the elderly involved in the pilot. The best solution would be a tutor from the user organisations (or from Senior Centres or Senior Residence) known in advance by the elderly people. This could be useful in order to overcome the natural suspicion attitude of elderly people and to build a trust attitude towards the pilot.
The tutor could be the same person training elderly for the system use.

Also at the Senior Centres (or at the Senior Residence) a tutor will be present on site during the pilot to provide to elderly people any help for EasyReach utilisation, to answer questions, etc.
Tutors will be trained using an adequate procedure with the main aim to provide the necessary skills.

A call centre will be provided to support the users from a technical point of view.

2. THE EASYREACH PILOT PLANS

2.1 THE PLAN FOR THE PILOT IN ROMA (FUB)

The first Italian Pilot will be organized in in cooperation with two Senior Centres of the Federazione Nazionale Pensionati (FNP) association (see Annex 2).

The two Senior Centres for the pilot will be selected to be representative of different kind of geographical and cultural areas in Roma: for instance, the first Senior Centre will be located in one working class city area in which the education level of residents is usually quite low, the second one will be located in a residential area in which the education level of residents is usually higher. Education, cultural and income variables might play specific roles in the use of the EasyReach system: the pilot in Roma will investigate these issues.

In the past years the selected Senior Centres have been involved in various projects promoted by FNP and related to the use of Information and Communication Technologies by older population.

The EasyReach pilot of Roma intends to verify:
   a. The usability, the quality of user experience and the acceptance of the EasyReach solution by the primary users i.e. the elderly people, including their willingness to buy;
   b. The judgment of the secondary users (the caregivers, the family members and the User Associations);
   c. The effectiveness of the EasyReach proposal in terms of achieving the objectives of the project and more specifically to foster the integration of the older adults in the social community through the use of ICT and Internet services, to avoid their loneliness and in general to enhance their quality of life;
   d. The actual usage of EasyReach solution by the elderly in terms of frequency of use, duration of sessions, interlocutors of communication, etc;
   e. Finally, to test the overall EasyReach system – fully integrated and operating in a real life scenario - from a technical point of view.
   f.

In line with these objectives the following Table 2 indicates where the trials will be located and the involved users

Table 2. Location of the trial, duration of the pilot and variables to be evaluated

LOCATIONS	Involved users (*)	Length of the pilot	Features to be tested	
			Primary users	**Secondary users**
At the home of the elderly users	10 older adults	4 months	Usability Quality of Experience, Acceptance, Willingness to buy, Effectiveness of the solution Usage, User Expectations	
At the Senior Centres	30 older adults	4 months		Overall judgment of the solution
(*) for the selection criteria see section 2.1,3				

A small number (five/six) of secondary users (i.e. relatives or caregivers) will be recruited for the pilot at home or at the Senior Centres.
Relevant persons of the user associations and of the Senior Centres will be involved as "privileged witnesses" of the elderly experience with the EasyReach solution in the pilot.

Roma Pilot - Organization and Management group

Task	*Responsible person*
Responsible for users' screening and recruitment	FNP representative
Responsible for the local activities and for the logistic issues	The Presidents of the two Senior Centres involved in the pilot
Coordination of the overall pilot in Roma	Filomena Papa (FUB)
Responsible for ethical issues	Filomena Papa) and Enrico Nicolò (FUB)
Technical Coordination	Raffaele Nicolussi (FUB) and Silvio Bonfiglio (FIMI)
Responsible for training	Bartolomeo Sapio (FUB)
Responsible for planning, data collection and analysis	Michele Cornacchia (FUB)

The overall plan of the Roma Pilot is described in the following diagram (Figure 2)
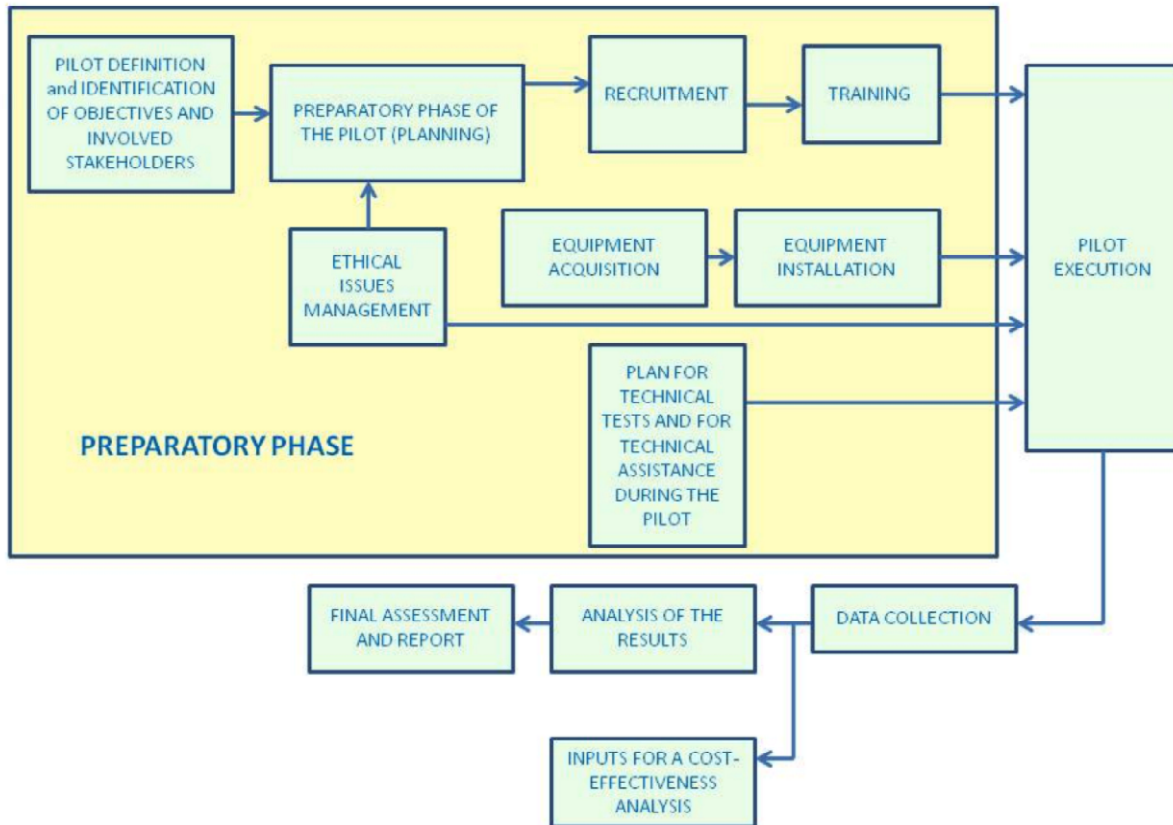
Figure 2. Diagram of the Roma Pilot

2.1.1 PREPARATORY PHASE

The preparatory phase will include:

a. The definition of the composition of the group of the participants (see section 2.1.2);
b. The recruitment of the participants (see section 2.1.3);
c. The analysis of ethical issues and the plan of suitable measures (see section 2.1.5);
d. The equipment acquisition and the plan for the field setting and the equipment installation (see sections 2.1.6.and 2.1.7);
e. The plan of the technical tests to be executed in the field during the pilot and the organization of the technical assistance for the pilot (see section 2.1.8);
f. The training of the elderly users participating to the pilot (see section 2.1.10);
g. The preparation of the questionnaires and the definition of the evaluation criteria (see sections 2.1.4 and 2.1.9 in agreement with the other pilot sites i.e. Milano, Germany).

2.1.2 THE SELECTION CRITERIA OF THE ELDERLY SAMPLE FOR THE PILOT

The selected persons must be representative of the different types of possible users of the EasyReach solutions.

The following Table 3 shows the type of users we plan to involve in the Roma Pilot.

Table 3. Criteria for selection and exclusion of primary users

ELIGIBILITY CRITERIA for the primary users		EXCLUSION CRITERIA for the primary users
Age group	65 to 80 years old	▪ Completely unable to use the technology due to serious mental and/or physical limitations;
Gender	Good balance between male and female	▪ Persons familiar with ICT devices and the Internet ;
Living arrangement for the users testing EasyReach at home	3 living alone; 4 living in pair 3 living with younger relatives. For older adults living in pair with another 65+ person, the test will involve both.	▪ People for which the participation to the pilot could represent a cause of psychological stress; ▪ For the users living in pair at home, lack of consensus to the participation by the partner.
Living arrangement for the users testing EasyReach at the Senior Centre	Not relevant	
Computer literacy	Low or Medium level (a balanced mix)	
Education	Not relevant but in any case people having the ability: a. To independently comprehend and complete the Validation Surveys; b. To give informed consent.	
Communication needs	In order to meet actual communication needs, the possibility to involve at home groups of elderly usually interacting among them will be verified with FNP and Senior Centres	

2.1.3 RECRUITING MODALITIES

In order to foster participation, we already started to involve FNP and the Senior Centres since the early stage of the EasyReach project through User Forums, small group interviews and presentations of the Project.

In particular, a preliminary investigation about user needs, preferences and expectations was realised in cooperation with FNP.

In this way awareness of the Easy Reach project objectives has been created in FNP and in the Senior Centres for future involvement in the pilot.

The persons responsible of the selected Senior Centres were already contacted and they declared their willingness to be involved in the pilot.

The participation of the end-users to the pilot will be on a voluntary basis and the inclusion and exclusion criteria above mentioned will be applied.

From discussions with FNP the opportunity emerged of a reward for the users involved in the pilot, for instance to leave the equipment (i.e. the TV set) to the users or to give them food coupons or book coupons.

The recruitment will be carried out by FNP using adequate screening tests in order to meet the criteria of eligibility and exclusion shown in Table 3.

The initial recruitment will involve around 20% people above the numbers anticipated as being required, since older adults are more prone to cancelling at the last minute for unforeseeable reasons.

2.1.4 DATA COLLECTION

The assessment will be mainly done through surveys and interviews with the elderly themselves, with secondary users and with "privileged witnesses" of the Senior Centres.

For participants at home a survey on the Quality-of-Life (the same type of survey that will be used after the conclusion of the trial) will be submitted. It will allow an assessment – through comparison – of the effectiveness of the intervention.

During the field trial objective data about the usage of the EasyReach solution will be collected (e.g. frequency of use, duration of each session, interlocutors in communication, kind of service used). Log files analysis will be used to investigate these usage aspects.

Audio/video recording of EasyReach sessions is planned to investigate the interaction of elderly people with the EasyReach solution.

At the end of the field trial user opinions about the user experience with EasyReach, the perceived usefulness of the solution, the perceived ease of use, the expectations for future use will be collected through questionnaires and interview.

At the end of the field trial secondary users (caregivers and relatives) will be interviewed to investigate their overall reactions about the system. Furthermore some "privileged witnesses" of the Senior Centres will be interviewed.

2.1.5 DISCLAIMER(S) TO BE SIGNED BY THE USERS

The pilot will be executed by complying with all the relevant ethical principles.
In the Pilot site one person will be nominated as responsible for ensuring that the pilot abides to the overall EasyReach Ethical Policy and the relevant National laws.

No personal data will be centrally stored; only selected people involved the EasyReach pilot organisation and user recruitment will have access to the user profiles, which in any case will be formulated without detailed personal data but simply – for each characteristic - by allocating the user to one of the 3-4 predefined ranges. Furthermore, it will be specified which data are essential for the project and which should be excluded from retention.

Core ethical issues within EasyReach including the conduct of the pilot are related to:
- Privacy protection and confidentiality.
- Informed consent.
- Risk assessment (Insurance).

These issues are addressed in the Annex 2 of this deliverable.

The following general guidelines will be followed for the pilot.

Before the pilot
- Emphasize that it is the system to be tested, not the user.
- Acknowledge that the proposed solutions are new and untested, and may have problems.
- Let users know that they can stop anytime.
- Explain any recording or other monitoring that is used.
- Tell the user that the test results will be kept completely confidential and that they will be diffused only in a global way for scientific purposes.
- Make sure that all the users' questions have been answered before proceeding.
- Provide training on the use of the devices/applications to be experienced and clearly explain how the pilot will be conducted.
- Ensure that the training procedure has been successful i.e. all participants are aware of the system potentialities and functions and all participant learned how to operate correctly with the system.

During the pilot
- Avoid to be intrusive, especially in the home environment.
- Provide any requested support for the correct system utilization
- Make adequate actions to motivate the user to participate in the pilot for the overall duration.

After the pilot
- Never report results in such a way that individual users can be identified.
- Show videotapes outside the EasyReach Project group only after getting the user's permission.

2.1.6 FIELD SETTING (E.G. EQUIPMENT PLACED IN THE ELDERLY HOUSE)

The following Table 4 lists the equipment used during the Roma pilot:

Table 4. Equipment used in the Roma Pilot

Equipment and infrastructures	Qty	Use
32 inch LCD TV set	8	Used at the homes of the elderly of Group 1 (at home)
42 inch LCD TV set	2	Used in the 2 Senior Centres
Special EasyReach Remote Control	10	
EasyReach set top box	10	
Internet access	10	
Desktop PC with peripherals (keyboard / mouse/ printer) connected to the Internet	1	At the offices of Fondazione Ugo Bordoni as a central point where to store all the data related to the pilot

Each of the Partners responsible for the EasyReach Pilots will make a decision (on a local basis) whether to take back or leave the equipment (TV set). to the participants after the conclusion of the pilot.
In any case it was strongly suggested by the user organisations to provide some kind of reward for the users participating in the pilot in Roma.

2.1.7 PROCEDURES FOR EQUIPMENT INSTALLATION

Particular care will be paid to the interaction with elderly at home in the preparation phase of the pilot to promote the user participation, to motivate the elderly people and to avoid to be intrusive in the users' homes.

Before the installation, the devices and the EasyReach applications will be tested to verify their correct operation.

The position of the TV set at the homes of the elderly users and at the two Senior Centres will be decided by the users and by the Presidents of the Senior Centres.

If not available, an Internet access point will be provided and a connection contract with a network operator will be subscribed for each location.

A careful test of the installed equipment is planned before the start of the pilot with the users in order to minimise inconvenient for elderly people, especially at home.

2.1.8 PLANNING TECHNICAL TESTS IN THE FIELD

The EasyReach Project will take the opportunity of the pilot to plan and execute a cycle of functional testing in the real life scenario.
In order to avoid troubling the elderly users at home, the tests will be carried out at the two Senior Centres, while the systems installed in the private houses will be simply monitored to detect and correct possible failures.

The EasyReach project will organize a first level Technical Support to give technical assistance to the users (through a call centre) and to ensure the maintenance of the used equipment. This call centre will the same utilised for the other Italian pilot in Milano.

2.1.9 PRE-TEST OF TOOLS FOR DATA COLLECTION

The tools for data collection (e.g. questionnaires and interviews) will be tested before the start of the pilot setting up pre-test sessions in which the tools will be administered to a small number (two or three persons not involved in the pilot) of elderly people. The objective of this pre-test is:

- to ensure the comprehensibility of the tools by elderly people
- to obtain an acceptable time duration for compilation of questionnaires and of interviews administered in the pilot.

2.1.10 TRAINING OF ELDERLY PEOPLE IN THE SYSTEM USE

Users selected for the pilot (included the elderly people recruited in excess) will be introduced to the EasyReach solutions and will be instructed with regard to their potentialities and practical use. Adequate procedures for training this particular type of users will be adopted. These procedures have the objective of getting the elderly person to think to be able to master the technological system, reducing the sense of fear and inadequacy.

The elderly people training will be performed by persons from FNP or from the Senior Centres adequately trained by FUB researchers.

The project will provide elderly people participating at home with a reference person for any kind of help about usage, about specific questions, about solving practical problems related to the pilot (excluding the technical support).

This reference person should be a sort of "tutor" for the elderly involved in the pilot, having also the task to motivate the elderly in correctly participating to the pilot.

The best solution would be a tutor from the Senior Centre or from FNP known in advance by the elderly people. This could be useful in order to overcome the natural suspicion attitude of elderly people and to build a trust attitude towards the pilot.
The tutor should be the same person training elderly for the system use.

Also at the Senior Centres (where the system is placed) a tutor will be present on site during the pilot to provide to elderly people any help for EasyReach utilisation, to answer questions, etc.

FUB researchers will execute training of tutors using adequate procedures.

As mentioned before, a call centre will be provided to support the users from a technical point of view.

2.1.11 TIMING OF THE PILOT

The timing of the pilot (Figure 3) has been defined taking into account also the availability of elderly people, especially in the preparatory phase of the pilot. In fact, elderly people in Senior Centres usually take a holiday period in the summer according to the school calendar. The elderly usually are not at home in July and August, since they go away from home together with their grandchildren.

Activity	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
1 Dissemination activities to generate awareness																					
2 Presentation of the trial to the userrs																					
3 Recruitiment and Informed Consent																					
4 Survey on QoL and assessment according to loleliness scale																					
5 Delivery of the equipment and of the EASYREACH systyem																					
6 Installation at the pilot site and pre-test																					
7 Training of the users																					
8 Execution of the pilot - Group 1 (Easyreach experienced at home)																					
9 Execution of the pilot - Group 2 (Easyreach experienced at the Senior Center)																					
10 Technical assistance during the pilot																					
11 Assessment surveys with the primary users																					
12 Assessment by the carers																					
13 Technical tests of the EASYREACH system in a real life scenario (Senior Center)																					
14 Data collection and analysis																					
15 Report on the pilot																					

original length of the project M1-M28

6 months extension period

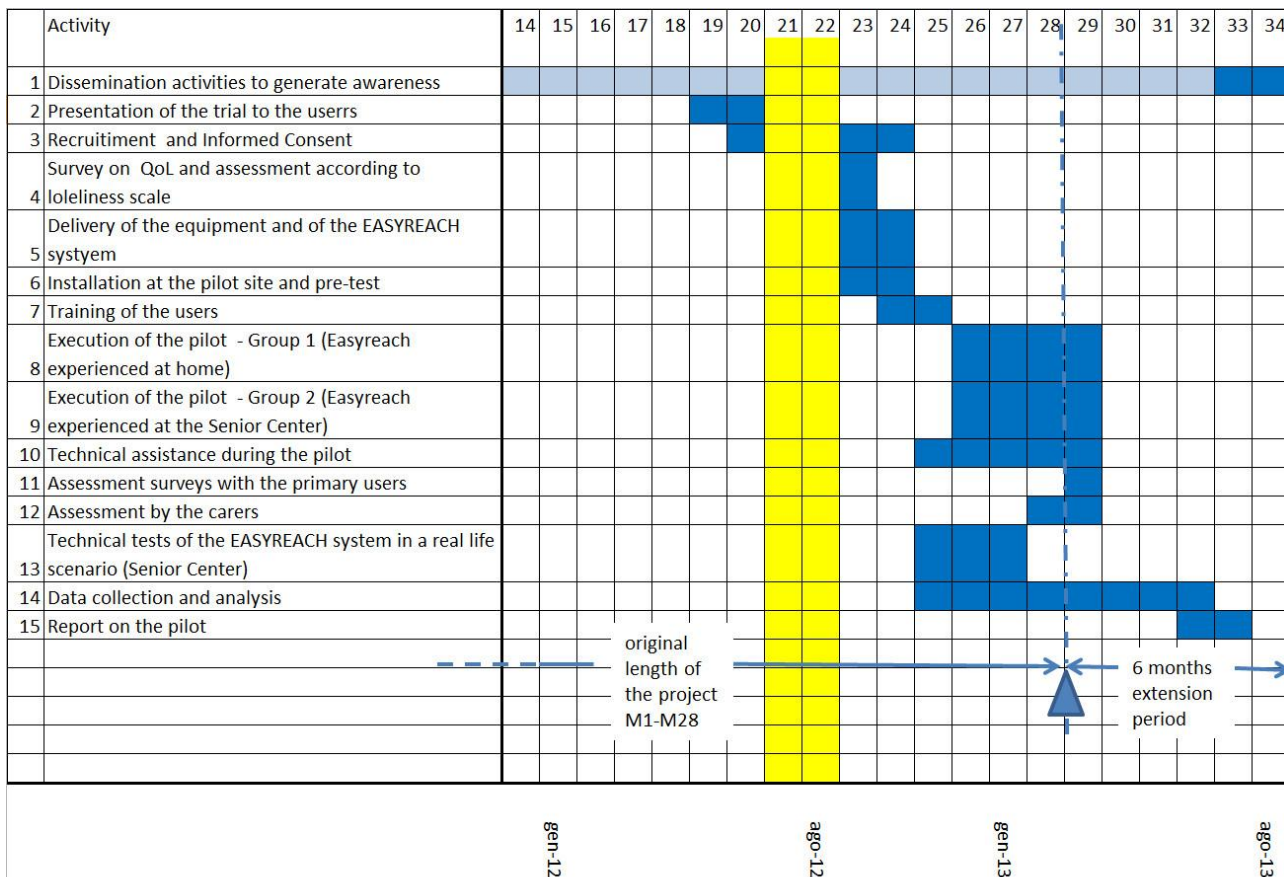gen-12   ago-12   gen-13   ago-13

Figure 3. Timing of the pilot in Roma

2.2 THE PLAN OF THE PILOT IN MILANO (FIMI)

The second Italian Pilot will be organized in Castanese, an area in the northern part of Milano withthe cooperation with the Senior Centers of the ANCESCAO[1] Association.

The **_Castanese_** _includes 11 small towns :_ Arconate, Bernate Ticino, Buscate, Castano Primo, Cuggiono, Inveruno, Magnago-Bienate, Nosate, Robecchetto con Induno, Turbigo, Vanzaghello.

It covers an area of 118,55 sqKm and has 68,700 inhabitants of which 7,200 with age over 65.
The Castanese is not far from the Malpensa airport (approx. 10 Km).

The Senior's Centres of Castanese have been involved in the past years in various projects promoted by ANCESCAO and related to the use of the older population of the Information and Communication Technologies.

The EasyReach pilot of Milano intends to verify:
- The usability and the acceptance of the EasyReach solution by the primary users i.e. the elderly people, including their "willingness to buy";
- The judgment of the secondary users (the carers, the family members and the User Associations);
- The effectiveness of the EasyReach proposal in terms of achieving the objectives of the project and more specifically to foster the integration of the older adults in the social community through the use of ICT and Internet services, to avoid their loneliness and in general to enhance their quality-of-life;
- To assess the socio-economic benefits of the solution (cost effectiveness analysis);
- Finally to test the overall EasyReach system – fully integrated and operating in a real life scenario - from a technical point of view.

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[1] **ANCESCAO** is a no-profit association having the mission of supporting the older people to avoid loneliness and exclusion and to be fully integrated into the community. It coordinates the activity of more than 1,200 Senior Centres located in all the regions of Italy, and promotes initiatives aiming at enhancing the quality-of-life of the older citizens.
More than 350,000 senior citizens are affiliated to ANCESCAO.

In line with these objectives the following Table 5 indicates where the trials will be located and the involved users

Table 5. Location of the trial, duration of the pilot and variables to be evaluated

LOCATIONS	Involved users (*)	Length of the pilot	Features to be tested	
			Primary users	**Carers / secondary users**
At the home of the elderly users	10 older adults	3 months	Usability, Acceptance, "Willingness to buy", Effectiveness of the solution	
At the Senior Centre	30 older adults + 6 carers	6 months		Overall judgment of the solution
(*) for the selection criteria see section 2.2.2				

A Group will be responsible for the management of the Milano Pilot as indicated here below:

Milano Pilot - Organization and Management Group

Task	Responsible person
Responsible for Users screening and recruitment	Tarcisio Lattuada, President of ANCESCAO in Milano *(see note 1)*
Responsible for the local activities and for the logistic issues	The Presidents of the Senior Centers involved in the pilot
Coordination of the overall pilot in Milano	Silvio Bonfiglio and Luca Morganti (FIMI)
Responsible for ethical issues	to be appointed
Technical Coordination	Pierluigi Barrale (FIMI)
Responsible for Training	Luca Morganti (FIMI)
Coordination of ethical issues	Silvio Bonfiglio (FIMI)
Responsible for planning, data collection and analysis	Gianlorenzo Paoletti (FIMI) Roberto Bisiani (UNIMIB)

The overall plan of the Milano Pilot is described in the following diagram (Figure 4):
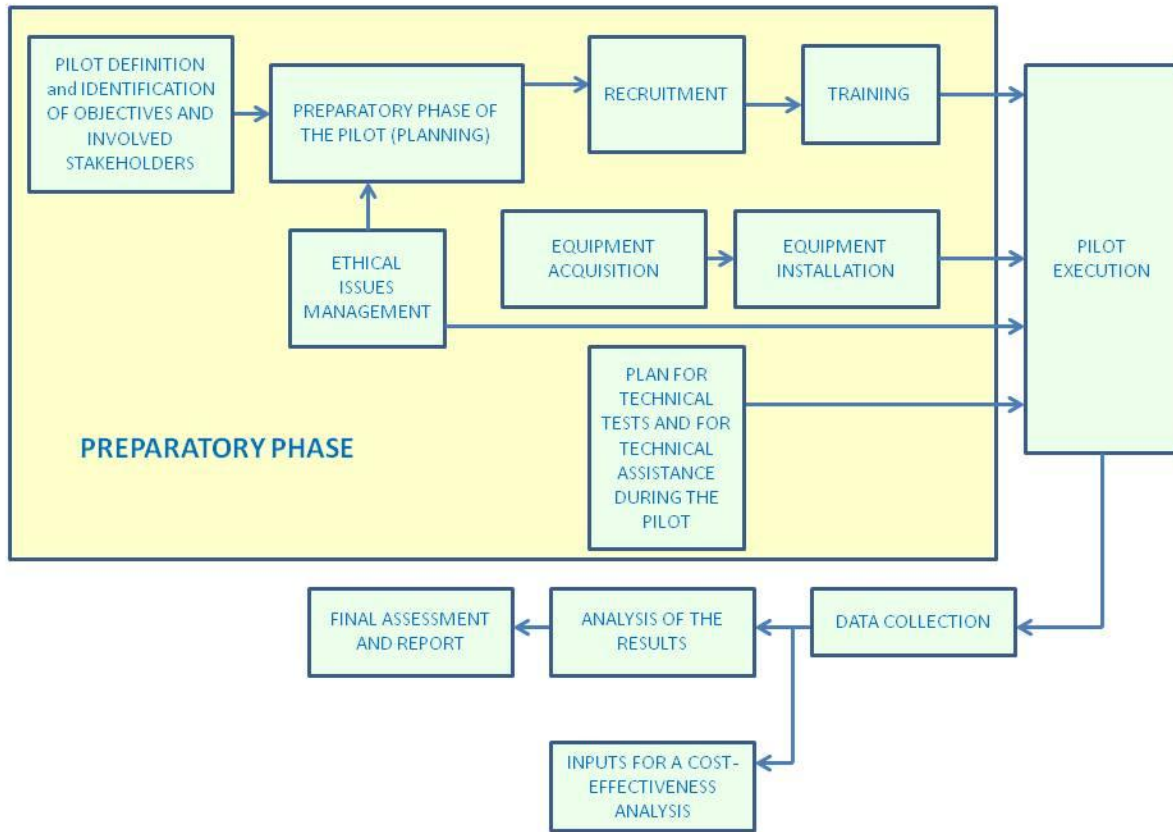
Figure 4. Diagram of the Milano Pilot

2.2.1 PREPARATORY PHASE

The preparatory phase (planning phase) will include:

a. The definition of the composition of the group of the participants (see section 2.2.2);
b. The recruitment of the participants (see section 2.2.3);
c. The analysis of ethical issues and the plan of suitable measures (see section 2.2.4);
d. Report on the initial situation at the intake (see section 2.2.3) and the definition of the indicators to be used for the Cost-Effectiveness Analysis;
e. The equipment acquisition and the plan for the field setting and the equipment installation (see sections 2.2.6 and 2.2.7);
f. The plan of the technical tests to be executed in the field during the pilot and the organization of the technical assistance for the pilot (see section 2.2.8);
g. The Training of the elderly users participating to the pilot (see section 2.2.9);

h. The preparation of the questionnaires and the definition of the evaluation criteria (qualitative and qualitative) (in agreement with the other pilot sites i.e. Roma and Germany).

2.2.2 THE SELECTION CRITERIA OF THE ELDERLY SAMPLE FOR THE PILOT

The selected persons must be representative of the different types of possible users of the EasyReach solutions.

The following Table 6 shows the type of users we plan to involve in the Milano Pilot:

Table 6. Criteria for selection and exclusion of primary users

ELIGIBILITY CRITERIA for the primary users		EXCLUSION CRITERIA for the primary users
Age group	65 to 80 years old	▪ Completely unable to use the technology due to serious mental and/or physical limitations;
Gender	Good balance between male and female	
Living arrangement for the users testing EASYREACH at home	3 – living alone; 4 – living in pair 3 – living with younger relatives. For older adults living in pair with another 65+ person, the test will involve both.	▪ Persons familiar with ICT devices and Internet ; ▪ People for which the participation to the pilot could represent a cause of psychological stress; ▪ For the users living in pair at home, lack of consensus to the participation by the partner.
Living arrangement for the users testing EASYREACH at the Senior Centre	Not relevant	
Health status	Elderly people who experience mild cognitive and/or physical impairments due to ageing; it is recommended to include people with problems regarding sensory ability (hearing and eyesight) and / or showing problems with memory ,concentration or divided attention.	
Computer literacy	Poor or Medium/Low level (a balanced mix)	
Education	Not relevant but in any case people having the ability of: c. To independently comprehend and complete the Validation Surveys; d. To give informed consent.	

2.2.3 RECRUITING MODALITIES

40 older adults will be recruited.
For 10 of them the EasyReach system will be installed at home and they will experience the solution in their familiar environment.
As already mentioned this group will be composed by:
- ✓ three elders living alone;
- ✓ two married couples;
- ✓ three elders living with younger relatives (e.g. with the family of their son /daughter).

The second group (30 participants) will include elders frequenting the local Senior Centres; the EasyReach system will be installed in the Centres of two different villages of the Castanese Territory (most probably Buscate and Vanzaghello).

To foster the participation, we started already to involve the Senior Centres and the overall community of the Castanese since the early stage of the EasyReach project through User Forums, small group interviews and presentations of the Project.
The Mayors of the two selected villages and the Departments for the Social Affairs were already contacted and they declared their willingness to support the activities of EasyReach; they will be consulted in the selection of the elders of the first group who will experience the EasyReach solution at home.

The ANCESCAO Association and the Presidents of the local Senior Centres will support the selection of the second User Group, i.e. of the elders associated to the Senior Centres.
The participation to the pilot will be on a voluntary basis and the Inclusion and Exclusion criteria above mentioned will be applied.

We will over recruit initially around 20% above the numbers anticipated as being required. In fact older adults are more prone to cancelling at the last minute for unforeseeable reasons.

The preselected people will be grouped per characteristics:
  a. Age range (65 to 70; 70 to 75; 75 and older);
  b. Gender,
  c. Level of computer literacy and familiarity with ICT devices /services including Internet (very low (never used a technological device), low (use of the mobile phone only), medium-low level (seldom using but not owning a PC),
  d. Level of physical and cognitive ability (hearing, eyesight , memory problems) (no problem, some problems, serious problems even if not invalidating);
  e. Attitude towards technology (suspicious, neutral, enthusiastic).

The assessment will be done through surveys and interviews done with the elders themselves and with the responsible persons of the Service Centres.
For each group, the names of the final participants will be drawn for.
A survey on the Quality-of-Life (the same type of survey that will be used after the conclusion of the trial) will be submitted. It will allow an assessment – through a comparison – of the effectiveness of the intervention.

2.2.4 DISCLAIMER(S) TO BE SIGNED BY THE USERS

The pilot will be executed by complying with all the relevant ethical principles.
In the Pilot site one person will be nominated as responsible for ensuring that the pilot abides to the overall EasyReach Ethical Policy and the relevant National laws.

No personal data will be centrally stored; only few people (the Responsible for Users screening and recruitment, the Presidents of the two selected Senior Centres and the Coordinator of the

Milano Pilot) will have access to the user profiles, which in any case will be formulated without detailed personal data but simply – for each characteristic - by allocating the user to one of the 3-4 predefined ranges. Furthermore, it will be specified which data are essential for the project and which should be excluded from retention.

Core ethical issues within EasyReach including the conduct of the pilot are related to:
- Privacy protection and confidentiality.
- Informed consent.
- Risk assessment (Insurance).

These issues are addressed in the Annex 1 of this deliverable.

The Informed consent is designed to ensure that a participant will be fully informed about the research in which he/she is going to participate. It originates from the legal and ethical right the participant has to direct what happens to his/her body and personal data and from the ethical duty of the investigator to involve the participant in research.

The following procedure will be followed for the pilot:

Before the pilot:
- Emphasize that it is the system to be tested, not the user.
- Acknowledge that the proposed solutions are new and untested, and may have problems.
- Let user know that they can stop anytime.
- Explain any recording or other monitoring that is used.
- Tell the user that the test results will be kept completely confidential.
- Make sure that all the user's questions have been answered before proceeding.
- Provide training on the use of the devices / applications to be experienced and clearly explain how the pilot will be conducted.

After the pilot:
- Never report results in such a way that individual users can be identified.
- Show videotapes outside the usability group only after getting the user's permission.

A distinction between three informed consent elements is possible: the information given, the capacity to understand it and the voluntariness of any decision taken.

The informed consent information will be in very simple language and a lot of time will be given to the people to reflect his / her decision of giving or withholding consent

In seeking informed consent, the following information will be provided to each participant:

1. Purpose of the research and of the pilot, expected duration and related procedures;
2. Explanations on confidentiality of all personal data and explanations on the protection of privacy;
3. Possible risks, discomfort, adverse effects and side effects (if any) related to the experiment;

4. Full description of benefits to the participant or to third parties (if any) which may reasonably be expected from the research / experiment;

5. Participant's right to decline to participate and the right to withdraw from the research at any time, even after the pilot has begun;

6. Contact details for further questions the participant might have about the experiment and/or his/her individual rights as a volunteering participant.

When appropriate, one or more of the following elements of information shall also be provided to each participant:

1. anticipated circumstances under which the participant's participation may be terminated by the investigator without regard to the participant's consent;

2. the consequences of a participant's decision to withdraw from the research and procedures for orderly termination of participation by the participant;

3. a statement that significant new findings developed during the course of the research which may relate to the participant's willingness to continue participation will be provided to the participant.

2.2.5 FIELD SETTING (E.G. EQUIPMENT PLACED IN THE ELDERLY HOUSE)

The following table 7 lists the equipment used during the Milano pilot:

Table 7. Equipment of the Milano pilot

Equipment and infrastructures	Qty	Use
32 inch LCD TV set	8	Used at the homes of the elders of the Group 1
42 inch LCD TV set	2	Used in the 2 Senior Centres
Special EASYREACH Remote Control	10	
EASYREACH set top box	10	
Internet access	10	
Desktop PC with peripherals (keyboard / mouse/ printer) connected to Internet	1	At the office of ANCESCAO in Milano , as a central point where to store all the data related to the pilot

It will be decided by each of the Partners responsible for the EasyReach Pilots and on a local base if – after the conclusion of the pilot - to take back or to leave to the users participant to the pilots the equipment (in the specific case the TV set).

2.2.6 PROCEDURES FOR EQUIPMENT INSTALLATION

Before the installation, the devices and the EasyReach applications will be tested to verify their correct operation.

Exact location of the TV set at the homes of the elderly users and at the two Senior Centres will be decided by the users and by the Presidents of the Senior Centres.

If not available, an Internet access point will be provided and a connection contract with a network operator will be subscribed for each location.

2.2.7 PLANNING TECHNICAL TESTS IN THE FIELD AND TECHNICAL ASSISTANCE

We will take the opportunity of the pilot to plan and execute a cycle of functional testing in the real life scenario.
To avoid to trouble the elderly users at home, the tests will be carried out at the two Senior Centres, while the systems installed in the private houses will be simply monitored to detect and correct possible failures. It will allow a refinement of the development.

Furthermore we will organize a first level Technical Support to give technical assistance to the users (through a call centre) and to ensure the maintenance of the used equipment. This activity could be sub-contracted to an external Organization.
The Developers (EasyReach Partners) will ensure their availability for supporting the local Technical Teams in the resolution of problems related to the equipment / solutions developed and used in the pilot.

2.2.8 PRE-TEST OF TOOLS FOR DATA COLLECTION

The tools for data collection (e.g. questionnaires and interviews) will be tested before the start of the pilot, setting up pre-test sessions in which the tools are administered to a small number of elderly people.

Together with the adoption of the measures and tools for data collection specific attention will be devoted to the measures ensuring the privacy of the collected data.

Personal data on subjects will be used in strictly confidential terms and will be published as statistics (anonymously).
During the EasyReach Pilot :
1. Elderly participating in the trials will give their names, address, and contact phone, together with age, gender, nationality and, if any, functional problem type (not medical term of disability!), to a single person in each pilot site, to be stored in a protected local database (to contact them and arrange for the tests). The database will be accessible only to three persons. The contact person will issue a single Test ID for each of them.
2. The names, address and contact phone will be kept in the database only for the duration of the pilot. Once the test ends, they will be deleted.
3. Each month the anonymized data will be re-sorted randomly, to mix participants order.
4. Since personal data will be deleted, no follow-up studies with the same people will be feasible.

2.2.9 TRAINING OF ELDERLY IN THE SYSTEM USE

Users will be introduced to the EasyReach solutions and will be instructed with regard to their use.
A call centre will be established for supporting the patients from a technical point of view.

2.2.10 TIMING OF THE PILOT

The timing of the Milano pilot is shown in figure 5.

	Activity	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
1	Dissemination activities to generate awareness																					
2	Presentation of the trial to the userrs																					
3	Recruitiment and Informed Consent																					
4	Survey on QoL and assessment according to loleliness scale																					
5	Delivery of the equipment and of the EASYREACH systyem																					
6	Installation at the pilot site and pre-test																					
7	Training of the users																					
8	Execution of the pilot - Group 1 (Easyreach experienced at home)																					
9	Execution of the pilot - Group 2 (Easyreach experienced at the Senior Center)																					
10	Technical assistance during the pilot																					
11	Assessment surveys with the primary users																					
12	Assessment by the carers																					
13	Technical tests of the EASYREACH system in a real life scenario (Senior Center)																					
14	Data collection and analysis																					
15	Socio-economic assessment																					
16	Report on the pilot																					

original length of the project M1-M28
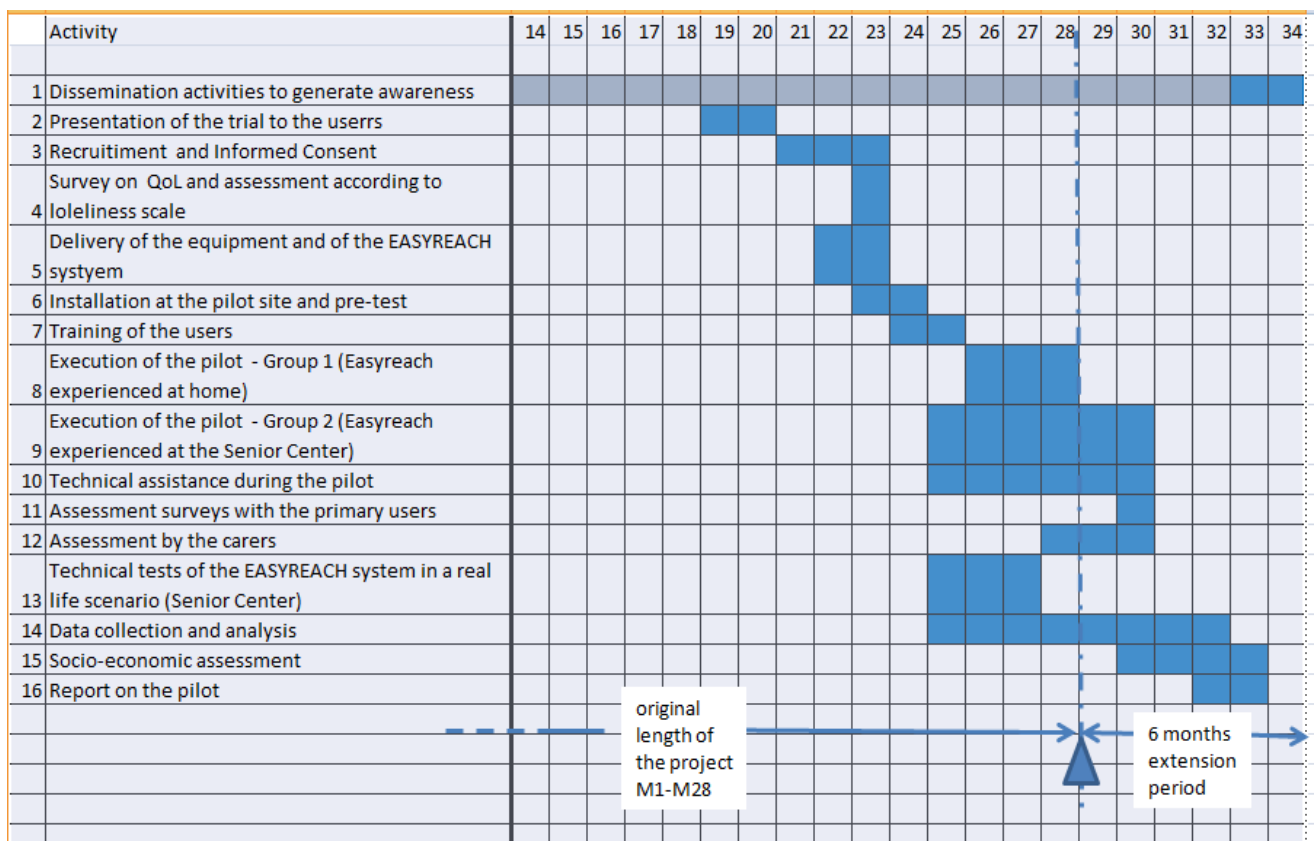
6 months extension period

Figure 5. Timing of the Milano pilot

2.3 THE PLAN OF THE PILOT IN GERMANY (UNIPOTS)

2.3.1 THE SELECTION CRITERIA OF THE ELDERLY SAMPLE FOR THE PILOT

The German pilot will be in Florencenhort Seniorenzentrum at Stansdorf, a seniors residence.

The 'Florencehort' is an institution of the 'Innere Mission'.

The 'Landesausschuss' for the 'Innere Mission' supports diaconal institutions and diaconal services for the elderly.

'Florencehort' is a Protestant nursing home for the elderly. It is located in Stahnsdorf, a village on the outskirts of the German capital Berlin and the Brandenburg state capital Potsdam. Stahnsdorf is situated near Parforceheide, a forest and lake area. The house is surrounded by a park with old trees.

'Florencehort' provides all services for all caretaking stages.

It has 18 single rooms and 48 double rooms. All rooms have telephone and cable TV.

Common areas offer the opportunity for joint discussion groups, crafts, and cultural performances. Pastoral care is provided by the parish priest.

As part of the Assisted Living initiative of the Institute for Informatics at the University of Potsdam, collaboration with 'Florencehort' runs since 2009. In a project dealing with mobile sensor technology, we develop a system to support dementia patients in everyday life and indoor orientation. Furthermore, we investigate the use of peripheral devices (Wiimote, Balance Board, ...) for the control of exercises and movement therapy.

2.3.2 RECRUITING MODALITIES

The recruitment will be done among the people living in the seniors' residence. We will closely work together with the management of the residence. The head must approve the selected group.

During selection we will use methods like interviewing and surveying. We have already started working on preparing a questionnaire. This questionnaire will be carried out during a group interview. The results of this questionnaire will be used for assessing some key characteristics of people in the pre-selected group. These characteristics are:

- Age range

- Gender
- Level of computer literacy and familiarity with ICT devices/services
- Level of physical and cognitive ability
- Attitude towards technology

2.3.3 DISCLAIMER(S) TO BE SIGNED BY THE USERS

The pilot will abide to the overall EasyReach Ethical Policy.

The whole pilot process will ensure privacy protection and confidentiality. During and after the pilot there will not be any reports in such a way that individual users can be identified. Video recordings produced during the pilot can only be published only after asking for user's permission.

The users have the right to direct and decide what happens to his/her body and personal data. This is ensured by informed consent. The users will be informed related to the purpose of the research and the pilot. How personal data and information is handled and how privacy is protected will be explained clearly.

Specific attention will be given related to privacy of the collected data.

The confidential data will be kept only during the duration of the pilot. Later on they will be deleted.

Any kind of publication will be anonymized version of the real data captured during the pilot.

2.3.4 FIELD SETTING (E.G. EQUIPMENT PLACED IN THE ELDERLY HOUSE)

The main list of equipment that will be placed in senior residence rooms.

- 32 inch LCD TV (if already existing TVs in rooms are not suitable for the EasyReach system)
- EasyReach Remote controller
- EasyReach set top box
- Internet access

2.3.5 PROCEDURES FOR EQUIPMENT INSTALLATION

All the equipment will be tested before installation.

The exact places of the TV and STB inside rooms will be decided by the management of the residence centre.

In case of Internet unavailability, a convenient connection will be provided

2.3.6 PLANNING TECHNICAL TESTS IN THE FIELD

Technical tests will be requested by EasyReach partners which should aim at implementing real-world scenarios. Each test should define basic steps to be done before actually launching the test. These steps might include updates to the system, in advance assistance to the users and caregivers, etc. These pre-requisite steps will be carried out in the field before the start of the test.

Tests should also define the outputs clearly. The data that should be analysed after the test should be explicitly described. During data gathering full confidentiality must be considered.

2.3.7 PRE-TEST OF TOOLS FOR DATA COLLECTION

The tools for data collection (e.g. questionnaires) will be tested before the start of the pilot setting up pre-test sessions in which the tools will be administered to a small number of elderly people to verify the comprehensibility of the adopted tools.

2.3.8 TRAINING OF ELDERLY IN THE SYSTEM USE

There will be training sessions for the selected users related to the EasyReach system. Instructions on how to operate specific components like TV, STB, and remote controller will be provided.

In order to increase the efficiency of training caregivers at the seniors' residence will also be trained. Since the selected elderly already know the caregivers, the training session performed by caregivers can be much more helpful and fruitful.

2.3.9 TIMING OF THE PILOT

We need to collaborate with the head of the residence to decide on the timing of the pilot.
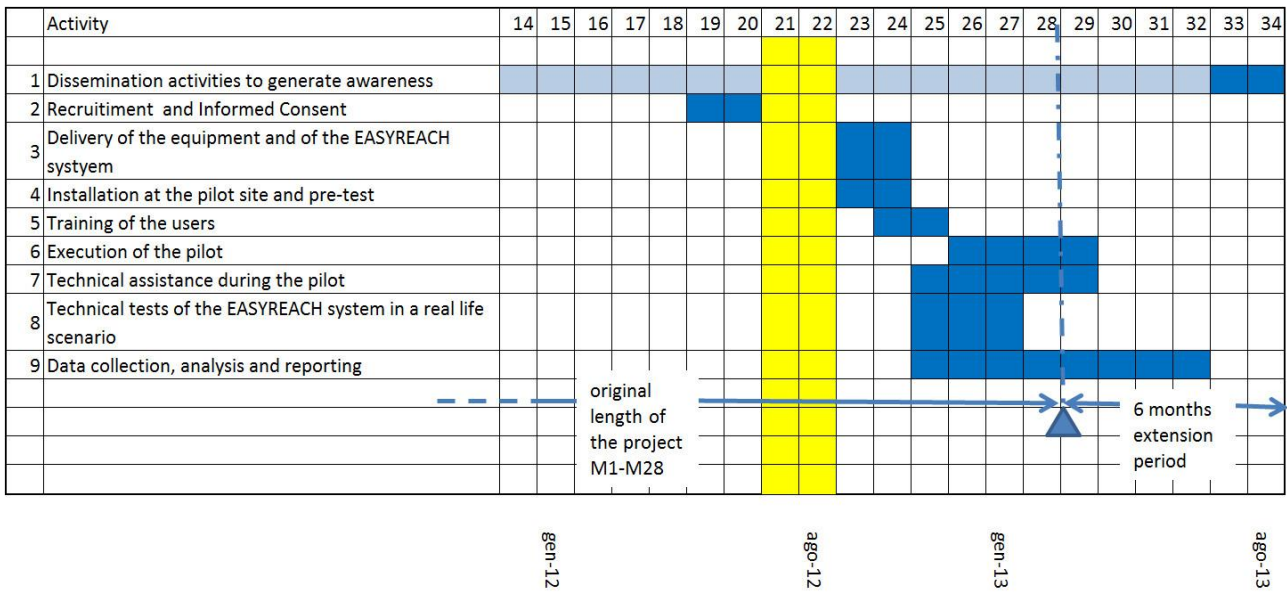A preliminary timing is shown in figure 6.

	Activity	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
1	Dissemination activities to generate awareness																					
2	Recruitiment and Informed Consent																					
3	Delivery of the equipment and of the EASYREACH systyem																					
4	Installation at the pilot site and pre-test																					
5	Training of the users																					
6	Execution of the pilot																					
7	Technical assistance during the pilot																					
8	Technical tests of the EASYREACH system in a real life scenario																					
9	Data collection, analysis and reporting																					

original length of the project M1-M28

6 months extension period

gen-12 ago-12 gen-13 ago-13

Figure 6. Timing of the pilot in Germany

3. CONSOLIDATION OF THE RESULTS

Coordination of pilot studies in Italy (Roma and Milano) and Germany started during the planning phase and will end with a consolidation effort at the end of the project.
Time schedules were adjusted in order to maximize results, minimize hardware requirements and ensure a constant flow of information among the three field researches.
Final consolidation will harmonize results and provide a common basis for evaluation according to the objectives of the project.

The pilot studies will constantly monitor key issues in the EasyReach system and in the final phase a full evaluation will be provided according to the following project characteristics:

- the cost will be affordable by most people that can afford a TV, this will open the results of the project to a huge potential market;
- the system will be extremely easy to use and will stimulate and challenge the user;
- the proactive behaviour of the system will make it interesting and stimulating even for depressed subjects.

Moreover, we will analyze the improvement of the quality of life of home-bound users by:

- preserving existing relationships;
- boosting self-esteem of users;
- helping users in performing common activities.

Results will include evaluation of the following EasyReach features:

- accessibility and usability, achieved through the ease of use and the intuitive, "familiar" human-computer interface proposed by EasyReach.
- adaptability over time, i.e. matching the solution to the declining capacities of the older adults;
- suitable interaction approaches allowing a comfortable use also to people with some kind of impairments;
- adaptation to the specific characteristics and needs of the user;
- acceptability achieved through the offer of reliable solutions focused on real, recognized benefits;
- personalization and full understanding of the uniqueness of each user i.e. attention devoted to the specificity of each user (habits, interests and preferences, physical and cognitive status).

At the end of the activity, a validation Report and a set of Guidelines for further developments will be issued. The evaluation document will be one of the inputs to the process of identifying the steps to market.

4. OVERALL PLAN (TIMING SCHEDULE)

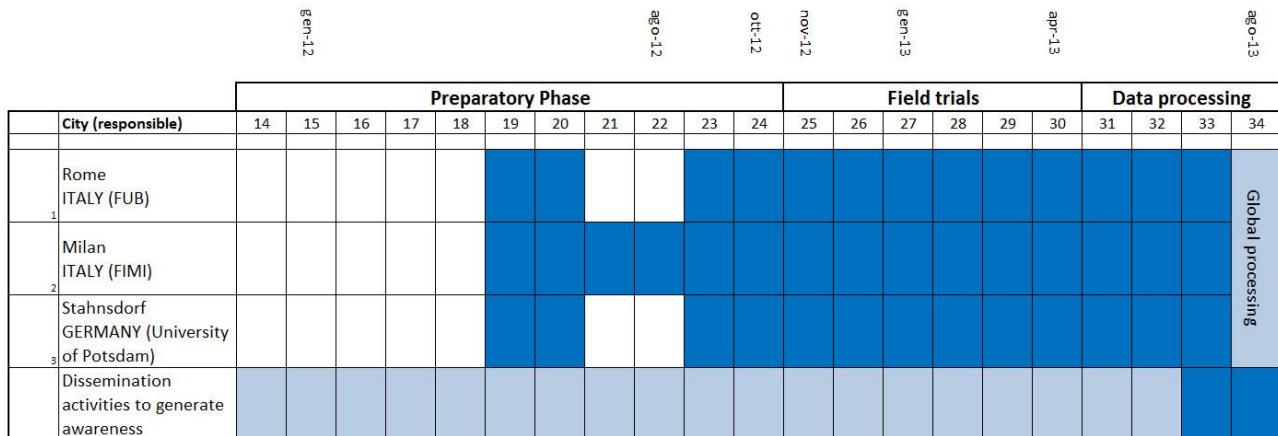In figure 7 the overall plan of the three pilots is summarized.

City (responsible)		Preparatory Phase										Field trials						Data processing			
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
Rome ITALY (FUB)						■	■			■	■	■	■	■	■	■	■	■	■	■	
Milan ITALY (FIMI)						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	Global processing
Stahnsdorf GERMANY (University of Potsdam)						■	■			■	■	■	■	■	■	■	■	■	■	■	
Dissemination activities to generate awareness																					

Column month labels: gen-12, ago-12, ott-12, nov-12, gen-13, apr-13, ago-13

Figure 7. Overall pilots timing

The period until October 2012 will be devoted to the preparatory phase of the pilots, to the establishment and the formalization of contacts with user organizations.

The field trials in the different pilots will be realized in the period from November 2012 to April 2012.

At the end of the project each pilot will process collected data separately and will produce an evaluation report. After that a global data processing phase is foreseen to produce a final validation report.

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ANNEX 1 – ETHICAL ISSUES

A1.1 General

Core ethical issues within EasyReach are related to:
- Privacy protection and confidentiality.
- Informed consent.
- Incidental findings.
- Transparency of the collected data management by the final system and during its Pilots.
- Risk assessment (Insurance).
- Delegation of control .

Potential EasyReach ethical and social risks, together with the proposed solution for managing them, are described in the table below.

Table A1.1: Ethical and Social Risk Management

Ethical and Social Risks	Description	Ethical and Social Risk Management
Loss of Privacy Control	• Storage and process of personal data, confidentiality; • Physiological measurements & Physiological profile.	• Anonymisation, • access only by a few number (three) of authorised persons.
Data Security	• Difficulty in ensuring the security of shared personal health data.	• Highest possible data security standards; data stored in only one central database.
Accessibility	• Third parties interest in access to electronically recorded and stored personal data.	• Data protection. • Limited storage of medical record; data without details. • Access to medical data strictly denied to any other than the authorised key persons.
Transparency	Lack of transparency concerning: • the analysis of personal data and the respective outcome.	• Informed consent (given in a clear and comprehensive language) • transparency (including openness about uncertainties and knowledge gaps) is essential for public trust in new technologies
Incidental Findings	• Emotional state of the user. • User loosing autonomy.	• All these aspects will be carefully monitored during the execution of the pilot.
New technologies	EasyReach Remote Control; EasyReach "social network" service	• Use of new devices /services during the pilots will be conducted under supervision.

A1.2 Informed consent

The Informed consent is designed to ensure that a participant will be fully informed about the research in which he/she is going to participate. It originates from the legal and ethical right the

participant has to direct what happens to his/her body and personal data and from the ethical duty of the investigator to involve the participant in research. Seeking the consent of an individual to participate in research reflects the right of an individual to self-determination and also his/her fundamental right to be free from (bodily) interference, whether physical or psychological, and to protect his / her personal data. These are ethical principles recognised by Law as legal rights.

A distinction between three informed consent elements is possible: the information given, the capacity to understand it and the voluntariness of any decision taken.

Respect for persons requires that participants be given the opportunity to choose what shall or shall not happen to them. This opportunity is provided, when adequate standards for informed consent are satisfied.

The written information as well as the sought informed consent corresponds to information gathered from the revised version of the Helsinki Declaration of 1964, as lastly amended in Tokyo, 2004, and the Convention of the Council of Europe on Human Rights and Biomedicine (1997).

The informed consent information will be in very simple language and a lot of time will be given to the people to reflect his/her decision of giving or withholding consent.

A1.2.1 Basic elements of the informed consent

All investigators within EasyReach will seek the informed consent of the user, only under circumstances that provide the prospective participant sufficient opportunity to consider whether or not to participate and that minimize the possibility of coercion or undue influence. The information that is given to the participant will be in a language understandable to the participant.

No informed consent, whether oral or written, may include any exculpatory language through which the participant is made to waive or appear to waive any of the participant's legal rights, or releases or appears to release the investigator, the sponsor, the institution or its agents from liability for negligence.

In seeking informed consent, the following information shall be provided to each participant:

1. Purpose of the research, expected duration of the pilot and related procedures;
2. Explanations on confidentiality of all personal data and explanations on the protection of privacy;
3. Possible risks, discomfort, adverse effects and side effects (if any) related to the participation to the pilot;
4. Full description of benefits to the participant or to third parties (if any) which may reasonably be expected from the proposed solutions;
5. Participant's right to decline to participate and the right to withdraw from the research at any time, even after the pilot has begun. Explanation of foreseeable consequences of declining or withdrawing consent (if any).
6. Contact details for further questions the participant might have about the project and the pilot and/or his/her individual rights as a volunteering participant.

In addition:

    a. In case of the existence of possible side effects, appropriate insurance or indemnity to cover the participant in trial should be provided;

    b. A table of certified devices and/or software as well as the prototypes not yet certified that shall be used by the user underlying the potential risks and legal binds that may be in effect should be also provided.

When appropriate, one or more of the following elements of information shall also be provided to each participant:

1. a statement that the particular procedure may involve risks to the participant which are currently unforeseeable (the case being very unlikely within EasyReach);

2. anticipated circumstances under which the participant's participation may be terminated by the investigator without regard to the participant's consent;

3. the consequences of a participant's decision to withdraw from the research and procedures for orderly termination of participation by the participant;

4. a statement that significant new findings developed during the course of the research which may relate to the participant's willingness to continue participation will be provided to the participant; and

5. the approximate number of participants involved in the study.

A1.3 Guidelines for compiling the informed consent form

The following notes may help investigators how to provide information to prospective participants and therefore obtain consent:

- Informed consent is a ***process***, not just a form. Information should be presented to enable persons to voluntarily decide whether or not to participate in EasyReach research.

- It is a fundamental mechanism to ***ensure respect for persons*** through provision of thoughtful consent for a voluntary act. The procedures used in obtaining informed consent are designed to educate the participant population in terms that they can understand. Therefore, informed consent language and its documentation (especially explanation of the study's purpose, duration, experimental procedures, alternatives, risks, and benefits) must be written in "layman's language" (i.e. understandable by the people being asked to participate). The written presentation of information is used to document the basis for consent and for the participants' future reference. The consent document will be revised when deficiencies are noted or when additional information will improve the consent process.
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- The investigator should be aware of the fact that the use of the first person (e.g., "I understand that ...") can be interpreted as suggestive, may be relied upon as a substitute for sufficient factual information, and can constitute coercive influence over a participant.

- Use of scientific jargon and legalese is not appropriate. The document is primarily thought of as a teaching tool, not as a legal instrument.

- *The overall experience* that will be encountered must be described.

- The participants will be informed of the reasonably foreseeable harms, discomforts, inconveniences and risks that are associated with the research activity and with the pilot. If additional risks are identified during the course of the research, the consent process and documentation will be revised to inform participants as they are re-contacted or newly contacted.

- **The benefits** that participants may reasonably expect to encounter will be described. There may be none other than a sense of helping the public at large. If payment is given to defray the incurred expense for participation, it must not be coercive in amount or method of distribution.

- The participants are told the extent to which their **personally identifiable private information** will be held in confidence. See also the chapters about data management, security and *privacy*.

- If **research-related injury** (i.e. physical, psychological, social, financial, or otherwise) is possible, that is more than minimal risk, an explanation will be given of whatever voluntary compensation and treatment will be provided (not expected to be the case within EasyReach)**.**

- **The legal rights of participants will not be waived in any way.** The participants should not be given the impression that they have agreed to and are without recourse to seek satisfaction beyond the institution's voluntarily chosen limits.

- **Details of contact persons** who are able to answer questions of participants about research, rights as a research participant, and research-related injuries will be provided.

A single person is not likely to be appropriate to answer questions in all areas. This is because of potential conflicts of interest or the appearance of such. Questions about the research are most often best answered by the investigator(s). However, questions about the rights of research participants or research-related injuries (where applicable) may best be answered by a person external to the project (e.g. in the case of the EasyReach pilot by the User Associations involved in the pilot). These questions can also be addressed to the investigator, an ombudsman, an ethics committee, or other informed administrative body. The informed consent document will contain contact information with local telephone numbers to answer questions in specified areas.

The participation is **voluntary** and the participant has the **right to withdraw at any time.** It is important to point out that no penalty or loss of benefits will occur as a result of either not participating or withdrawing at any time of the experiment.

A1.4 Informed consent concerning the use of private information

Within EasyReach, personal data - according to the definition of the OECD and the Directive 95/46/EC- will be recorded. The participant will be fully informed about:

- Research purpose (as stated in the chapters *basic elements of informed consent and guidelines for compiling the informed consent).*
- What kind of data will be recorded, stored and why?
- Will the data be transferred?
- Data ownership?
- Is the data connected to other information?
- Will the data possibly commercially exploited?
- Length of storage?
- Where data will be stored, - according to which national legislation?
- Who will access the data?
- Who will supervise the data protection?

A1.5 Participant groups and their consent

Whether a person has the capacity to understand the information depends on the ability to comprehend the nature and purpose of any course of action and the short and long-term risks and benefits of what is proposed.

In the context of EasyReach, we take into account that the Project targets older people who experience mild cognitive and physical impairments due to ageing. The following sub-divisions give some indication about the groups of elderly people that may be involved in the project:

- **'Young' Elderly:** ages 55-64, i.e. people who are healthy and, in most cases, can still lead busy and active lives, but who have just started to experience slight deteriorations in their quality of life due to ageing.
- **Elderly:** ages 65-74, i.e. people who are healthy, but are more likely to experience mild cognitive and physical problems due to ageing.
- '**Old' Elderly:** ages 75 and older, i.e. people who are very likely to experience cognitive and physical deteriorations due to ageing.

Informed Consent is crucial in all aspects of social research and particular attention will be given, when elderly are involved, that rights are protected and compliance is always freely entered into. Information that will affect the respondent's willingness to participate will always be provided in appropriate accessible formats and never be deliberately withheld. Potential participants will also not be overwhelmed with unnecessary information.

People who are unable or do have difficulties to walk and people who have medical problems affecting balance and stamina, with no further cognitive impairments, are generally able to give a valid consent, that is not different from the one of healthy and able bodied participants. For participants that have hearing problems, the informed consent has to be provided in a modality that they are able to understand, in this case not in auditory mode. There are groups of participants with which standard procedures used for informed consent are not appropriate. People that have

no limitations in cognitively understanding the trial and are able to give verbal consent (e.g. on audiocassettes to be reviewed), but might be unable to write, due to possible physical impairments, they cannot sign a written informed consent form that is used for documentation.

For those unable to read the consent form (partially sighted) an ordinary documentation of informed consent is also not appropriate. For these people the information will be provided in appropriate alternative media (e. g. large print, audio tape, Braille).

In the scenarios targeted in EasyReach participants have the competence to understand the informed consent information but in the unlikely case that they are unable to do so, no experiment will be conducted.

A1.6 EASYREACH privacy policy on collected data

Personal data on subjects will be used in strictly confidential terms and will be published as statistics (anonymously).

During the EasyReach Pilot tests:
1. Elderly participating in the trials will give their names, address, and contact phone, together with age, gender, nationality and, if any, functional problem type (not medical term of disability!), to a single person in each pilot site, to be stored in a protected local database (to contact them and arrange for the tests). The contact person will issue a single Test ID for each of them. This person will not participate in the evaluation and will not know how each user behaved.
2. The names, address and contact phone will be kept in the database only for the duration of the pilot. Such data will not be communicated to any other partner or even person in each pilot site. Once the test ends, they will be deleted.
3. Each month the anonymised data will be re-sorted randomly, to mix participants order.
4. Since personal data will be deleted, no follow-up studies with the same people will be feasible.

A1.7 Reimbursement Schemes

It will be decided by each of the Partners responsible for the EasyReach Pilots and on a local base if – after the conclusion of the pilot - to take back or to leave to the users participant to the pilots the equipment (in the specific case the TV set).

A1.8 Risk Management

Identified Categories of risk are the following ones:
- There will be no risk of physical damage within the experiments taken in EasyReach. Any equipment connected to a participant will be checked for personal safety. These tests will be performed for the complete configuration and not only for the individual equipment.
- Psychological consequences are carefully examined.
- Social inconveniences will be minimised (no additional stress for families, cost reimbursement for additional transportation costs, …).
- If private information is recorded, the participant will be informed according to the aspects mentioned in the informed consent template concerning privacy.
- The Security of the IT infrastructure and the Privacy related information concerning the risks is described in the corresponding chapters.
- In case any user might be endangered by inappropriate information, he/she shall be accompanied during the test (i.e. people with vision problems, for whom inaccurate info can lead them into the street) or be supported by a helpline and support personnel (i.e. wheelchair user that can't overcome an obstacle in a supposedly accessible route).

ANNEX 2. Federazione Nazionale Pensionati (FNP)

The FNP (National Federation of Pensioners) is the retired and elderly union of CISL (Confederazione Italiana Sindacati Lavoratori). The FNP members in Italy and in foreign countries are over 2.100.000. FNP, besides the protection of the union as regards contracts and disputes, both at national level and local institutions (City, Province, Region, healthcare and transport enterprise), makes available a wide network of services and the so called "social secretariat" in collaboration with Patronato Inas, with workers categories, territorial unions and the protection associations promoted by CISL. FNP is organised in Italy with more than 140 regional and territorial Federations. The regional and territorial FNP managers are 450, whereas about 10.000 officers and activists are engaged in the 2.950 operational FNP structures in order to guarantee a network of reference points in the service of local communities. The services available for the pensioners and FNP members are the free protection for Social Security and Health Care, Tax Assistance, Home Assistance, person oriented services, training courses, University of the Third Age, prevention and health, socially useful activities, culture and leisure. The FNP will cooperate with the European Federation of Retired and Older People member of the European Trade Union Confederation (ETUC). It was founded in 1993 by pensioners who wanted to carry on their trade union struggle for a fairer, more democratic, more civic-minded and inclusive society with young people and active workers. FERPA's 10 million-strong membership makes it the most representative pensioners union in Europe today. It coordinates its policy with that of the ETUC, especially on social security and social protection, with a particular focus on pensions, health care, and action against social exclusion and poverty, which affect more than 50 million of Europe's citizens, over 16 million of them older people, many of whom are older women living alone. FERPA works actively to shape European Union legislation and policies through direct lobbying of different European institutions.