

Report on EC Concertation Meeting on EU funded ICT projects (FP7, AAL, CIP) on fall detection/prevention for elderly persons

2 April 2012

Projects

Participants: 16 projects invited from FP7, AAL, CIP funding schemes. All have ICT related fall detection/prevention elements as part of the scope of their respective projects. Some have it as the main target, for others it part of a wider set of objectives. Some projects have recently finalised, others are currently underway. Details on all projects can be found online: <http://ec.europa.eu/digital-agenda/news-redirect/8504>

Background

The aim of the meeting was to ensure knowledge transfer among above mentioned projects, exchange of lessons learned and preparation of further collaboration or new actions in the domain. Given the relative and increasing importance and attention for falls prevention and detection and the role of innovation in it, especially in light of the European Innovation Partnership on Active and Healthy Ageing, this and future efforts are aimed at increasing the critical-mass and complementarities so as to increase the chances of impact for individual projects and the field overall.

This initial meeting was especially focused on five recently launched CIP and FP7 ICT projects having fall detection and/or prevention solutions for elderly persons as a focus (Wiisel, Farseeing, iStoppFalls, Fate, I Don't Fall). The objectives of this workshop were to encourage exchange of information to assist these new projects. These projects can learn from other previous project to be as efficient as possible (search for communalities, lessons to be learned etc..). It would help to find synergies and possible common indicators to facilitate collaborations to tackle issues that cover end-user requirements, validation and impact.

The meeting

Time & Venue: Avenue de Beaulieu 33, room BU33 0/54, Brussels, 2 April 2012. The full program is in Annex I.

Participants: The meeting was very well attended with three official representatives for most of the projects (coordinator; validation expert and end-user specialist). The participants were welcomed by Bart Neerscholten on behalf of the European Commission. It was emphasized that this is an open enterprise and if there are other projects around this topic they should be identified and would be welcome to join. The workshop was attended by a total of 30 people and saw participants from across Europe, who represented running/recently finalised FP7, AAL and CIP projects. For the list of participants see Annex II.

Agenda items: After welcoming the group, Bart Neerscholten explained the main purpose of the day. The participants were encouraged to get into contact with each other, leading to exchanges and mutual assistance. The aim in the end is, among others, to come to a similar set of minimum indicators / common data collection and to be more efficient as a group of projects (on any topic or issue) compared to an individual project on its own. This is the interest of the EU: How to bring together groups to achieve goals that cannot be reached individually. This workshop took place the day before the EIP AHA event of April 3rd where ageing and innovation themes were central. The work of this group will be integrated into the EIP AHA work.

The content of the present day workshop has been structured in the following topics:

- Topic 1: New Project Goals, Approaches and Solutions: Presentation of different settings, objectives, technology and solutions of 5 newly launched FP7 & CIP projects in the field of fall prevention & detection
- Topic 2: End-User Requirements and Acceptance: Lessons learned from ongoing and finalized projects
- Topic 3: Ensuring Project Impacts: Exchange on validation methodologies and output/outcome/impact indicators to increase chances of impact

• **Topic 1: New Project Goals, Approaches and Solutions:**

Presentation of different settings, objectives, technology and solutions of 5 newly launched FP7 & CIP projects in the field of fall prevention & detection

Presentation of main project information of the following projects:

- Wiisel *Fanny Breuil*
- Farseeing *Lorenzo Chiari*
- iStoppFalls *Rainer Wieching*
- Fate *Joan Cabestany*
- I Don't Fall *Carmela Occhipinti*

The first presentation was from (Wiisel): Fanny Breuil

The project concerns a system to reduce risk of falling and to reduce fear of falling. Present also is Jeff Hausdorff and A. Rodriguez. In total: 3 clinical, 3 research partners, 2 industry partners.

Basis of the project is the construction of insoles that detect changes in gait in elderly at risk. There is subsequently a stage of pattern recognition. Population with high risk of falling (1 fall in last year) is at the heart of the project but the aim is to extend to wider population. The insole contains accelerometers and pressure sensors. Wireless transmission will send the information to a station that will analyze the data (such as from the long-lie syndrome). It is technology driven and therefore validation is mostly on the technical side. Thanks to a wireless system built into the insole, the data captured by the movement of the foot are forwarded to a mobile device or computer. A pilot will be performed at 3 sites, followed by validation trials (including measurements in terms of gait analysis etc). The system is expected to detect changes in gait and balance in daily elderly environment in order to prevent the risk of falls. In a second stage the focus is on the impact of the system (fall detection, decrease in falls, more independent living, less fear of falling). Impact indicators are currently reconsidered (the project started November 2011 and now the project is in month 5).

The second presentation was from (Farseeing): Lorenzo Chiari

Aim of this project is the construction of a fall repository construction. A total of 11 partners is involved, mixing clinical, research and industry. Real falls data will be collected with the aim of using this data to prevent falls in the future. Behavioural and physiological data will be collected using Smartphones, wearable and environmental sensors. The database will facilitate collection, analysis and processing of data related to falls, daily activity and physiological factors. At a given stage the project will converge with an existing epidemiological study (in-chiari). Target group is high-risk but expanded with high functioning group (in Tuscany). Based on the knowledge gained the hope is to build a realistic risk-profile (for the broad group of high and low risk elderly) to be used for elderly subjects. Success indicators are already included but the project is open to suggestions. The project started January 2012.

The third presentation was from (iStoppFalls): Rainer Wieching

Main focus of this project is on fall prevention. Participants include 7 universities, Philips, external experts (S. Lord). Main group of subjects : normal risk group (not high risk). Central is the use of an inertial sensor system which can be worn as a necklace. A "Senior Mobility Monitor" (SMM) will be used to continuously monitor mobility in daily life. The project will deliver a system that is highly accessible. Aim is reduction of falls. Long-term goal: motivate people to exercise at home. Included are the KINECT system and a necklace (Philips). Information is gathered by a server, to extract risk-factors over time. This will be done by monitoring potential fall risk indicators. It also assists exercising by gives feedback to the training system to tailor exercises. Testing is on 180 people in 3 countries along with a group in Australia. Indicators: quality of life, functional measure, fear of falling. Started October 2011
Question Jacques Duysens: contribution from Australia (estimated at 650.000e).

The fourth presentation was from (Fate): Joan Cabestany.

This is a CIP project around fall detector for elder. It has just started one month ago. Partners: coordinator is from Spain, assisted by experts from various fields (technical, telecare, medical partners). Independently living elderly are the main target. The goal is the identification of, the contribution to the reduction of the fear of falling and the prevention of the long lie syndrome. Three countries with 3 different systems are compared, while testing 175 users

(50, 50, 75). Automatic detection in call-center is an essential part. It is based on a home-based system with waist-attached detector (accelerometer). A specific detection algorithm is used and data are transmitted through ZigBee connections to a server. Then this can be used to control an i-walker (an intelligent walker designed to minimize the risk of falls of those elders with greatest gait difficulties) for example. The project started March 2012.

The fifth presentation was from (I Don't Fall): Carmela Occhipinti

Coordinator: Italy. CIP project started yesterday, with 15 partners (2 academic, industrial and 8 pilot partners). The pilots will be done on 500 users: elderly, secondary fallers, patients (Osteoporosis, Alzheimer), at home or in institutions. The goal is to tailor ICT fall management solutions to these specific end-user groups. Secondary aim: create platform to create new knowledge (medical knowledge base), reduce fear of falls etc. . Based on this platform the project will pilot and test the falls solution across different countries, cultures, age groups and fall risk factors with over 500 elderly users/ patients. In addition a number of tools will be used such as i-walker10, cognitive training etc. For the detection is used: wearable sensors, connected to call center. Expectation: convergence especially with FATE. Started April 2012

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• Topic 2: End-User Requirements and Acceptance: Lessons learned from ongoing and finalized projects

Overview on relevant user requirements & results (focus on primary/secondary end-users)

Short presentations by ongoing/finalized projects (1. Smiling - Fiorella Marcellini, 2. Giraff+ - Andrea Orlandini 3. Softcare - Albert Rodríguez)

2.1 Smiling - Fiorella Marcellini

The project is finished (2008-2011) and was briefly described (SMILING: Self Mobility Improvement in the eLderly by counteractING falls (FP7-ICT)). The SMILING system is a training device aimed at the prevention of falls in elderly people. The idea is that perturbation of walking would help users acquire improved ability to cope with the challenges encountered in daily living that constitute some of the main causes of falls in the elderly population. The SMILING system consists of four main modules: i) a motorized pair of shoes, ii) a user friendly portable control unit, iii) a set of PC based algorithms for ad hoc perturbation generation, iv) a complete facility for walking assessment. The project was completed September 2011.

Lessons learned: Importance to ask end-users what they want: in all phases of the project. For the user acceptance: it is required to check whether the intervention does not affect their quality of life; in Israel the test group was very old (>80y). Involvement of the clinicians was considered extremely important to ensure good cooperation with the end-users.

2.2 Giraff+ - Andrea Orlandini

Started in January 2012. Giraff+ (Combing social interaction and long term monitoring for promoting independent living (FP7-ICT)) is developing a system consisting of a network of home sensors that measure e.g. blood pressure or temperature, or detect e.g. whether somebody occupies a chair, falls down or moves inside a room. The data from these sensors are interpreted by an intelligent system in terms of activities, e.g. the person is going to bed, and health and wellbeing, e.g. the person is tired or well rested. These activities can then trigger alarms or reminders to the person or his/her caregivers, or be analysed over time by a health professional. There is also assistance from a robot, the Giraff, which can be moved around in the home by somebody connected to it over internet, e.g. a caregiver. The Giraff is a mobile communication platform, equipped with video camera and display, and microphone and speakers, and it helps the user to maintain his/her social contacts.

Lessons learned: First it is good to make a literature study. The aspects identified in the search were: ADL activities, body functions, environmental factors, personal factors. Then 10 focus groups were formed in Italy, Spain and Sweden with involvement of elderly, caregivers and former (informal) care-givers.

Initial findings: healthy people do not like to be monitored: why? Mostly because they feel “normal”, not needing monitoring. Partly because of privacy considerations. There were clear differences between countries (Sweden in particular differed in many aspects from the countries of South Europe in the consortium).

Formal caregivers: their concern is that the system will be “replacing us”? Solution: if the user sees that “it is helping” then the system is more acceptable. The caregivers then see it as an assistive device rather than as competition.

2.3 Software - Albert Rodríguez: AAL project Nov 2009 (end Nov 2012)

This project SOFTCARE aims to develop a home monitoring system including the following features:

- Fall detection indoors and outdoors.
- Behaviour pattern recognition based on activity and location information.
- Risk situations detection based on expert knowledge.

It started November 2009 with a small consortium: 5 partners. Central aspects include a bracelet and 3-D accelerometers, linked to server (ZigBee network).

Lessons learned:

There is a big difference in requirements for the various groups (carers, resellers, developers, end user)

-Reseller focus: efficiency of the system (different focus of end-users)

Also: they need to know the cost of maintenance

-Problem of the carer: documentation needed

-Enduser: comfort, what can be accepted

-Developer: what we can do; identified requirements by industry should be obtained but watch out: there may be too many!

Example:

-use of GPS: several limitations (how far does it reach to send an alarm to the call-center?)

-bracelets: was first choice here (instead of hip/belt device); secondary users: use at night or in shower: can be kept on under all circumstances (important)

-activity recognition part: perhaps one should focus more on level of activity instead of precise type of activity;

Summary:

-sensors to be worn everywhere

-allow voice for communication between end user and carer

-false positives are the main problem

-best to work with companies that already are on the market

DEBATE:

- there is a very big difference in amount spent in various projects on the “End-User Requirements and Acceptance”.

- problem seems to be that every project tries to reinventing the wheel. Hence it is important to identify sources on which one could rely

- technology-driven projects have the danger that they are not bottom up

- it would help to have reference material about the level of acceptance of ICT by the elderly (sources about “ICT and aging” compatibility). It was concluded that this usability of ICT issue is difficult since it is a dynamic element:

increasingly the old people are getting used to technology

-which users are most important? It seems to several participants that primary users do not have not much requirements but secondary have a lot

-important is the element of intrusion in the house: installation should have limits in the time needed to intrude in the private homes of elderly.

-top down approach is common in most projects! Not bottom up: hence there is a need to first know what end-users want

-be very careful how the interviews are done: (for example: do you like to be monitored? No; however if indication of privacy protection then more acceptable); interviewers should be experienced (not just students); otherwise not appropriate conclusions

-with respect to the installation of systems in the private homes: there will be some extra social contact which can influence the data (elderly being happy because social contact but not because of the new system)

-if there is added value then special attention is needed to underline this aspect

• 3rd topic: Ensuring Project Impacts: Exchange on validation methodologies and output/outcome/impact indicators to increase chances of impact

The recently started projects are currently defining these elements. So now is the time to bring the efforts together and to see if there are matters that can be shared, exchanged, learned from each other and if there is a possibility to reach a certain level of commonality in approach and type of indicators being used in the validation and evaluation phases of the different projects. This discussion is also important in light of the EIP on Active and Healthy Ageing developments where a common monitoring framework is being established and also as part of the falls prevention cluster a lot of data will have to be collected and monitored.

Part A: Validation Methodologies

- Presentation and analysis of planned/chosen validation methodologies of new FP7 & CIP projects (Wiisel, Farseeing, iStoppFalls, Fate, I Don't Fall), *Alejandro Rodriguez (FATE) and Roberta Annicchiarico (I Don't Fall)*

Presentation: from 2 geriatricians:

1. Alejandro Rodriguez (WIISEL)

First the FATE project was presented. Pilot tests (total duration: 18 months) in three parallel pilots (Spain, Ireland, Italy). Two rounds of 6 months duration each. Recruitment of 175 participants: 50 participants in Ireland (living at home), 50 participants in Italy (living at home). In Spain the number will be 75 (50 living in residence houses and 25 living at home).

Main issues:

Participants selection procedure is defined in the DoW. It will be used in a quasi-experimental “before-after” crossover design. Reasons for the pilots’ location are well established:

1. The results reflect the reality

Advice: avoid some unwanted effects:

- placebo effects seldomly considered
- Hawthome effect: to be selected for a given groups; to avoid this: have a control group (with same questionnaires etc..)
- blind the observers

- 2 Repeatability is important (hence not only laboratory testing)

Next a comparison was made between the 5 projects (Aspects table):

- reliability
- validity/accuracy ie fall detection
- efficacy/effectiveness: number of falls: this is difficult in projects that focus on technical development
- safety: cfr Wiisel (gait/posture); fateL electrical security
- usablility (effectiveness): acceptability
- (cost) efficiency
- market/operational: is there a market for the service ; cfr FATE: 3 business models compared

The design of the projects differs, e.g.

- RCT design: 2 groups (iStoppFalls, I don't fall), one intervention, one controls (with some alternative technique to avoid PLACEBO)
- FATE: Cross-over design, advantage because sample size can be reduced

2 Roberta Annicchiario (I Don't Fall)

Inclusion criteria were compared (table):- Farseeing - Wiisel - I Don't Fall - iStoppFalls - Fate

Proposals compared for criteria: age, previous falls, risks of falls (Tinetti 86), cognition (MMSE)

Outcomes were presented for the 5 projects (table) and suggestions for measures included:

1-mobility measures

-use of fall diary

-risks of falls, balance

2-Cognition (questions)

3-Quality of Life (questions)

Suggested tests of these measures:

-Tinetti test was explained for various parts such as gait and balance

-MMSE: cognition (memory, orientation, language etc)

The presentation ended with an image from the field of Neuroimaging: (Koo et al. 2012) demonstrating the link between white matter changes and MMSE and Tinetti

- Discussion:

-Jean-Eric Lundy: important measure to take into account is "death after 6 month" as an added criterion

-Chris Todd: 4 remarks

1 difference: efficacy: in academic settings, ideal circumstances

and effectiveness: in pragmatic trials: what works in the real World? Large RCT is not always advisable.

2 cross-over ideal? Here not easy to have a wash-out; minimum of 1 month

3 outcome measures: standardize? Profane has already done some work in this field (see papers)

4 fear of falling: better tests possible (Todd has developed one)

- Jacques Duysens emphasized the need in some projects to compare with other existing systems/solutions

Part B: Lessons Learned

Presentation of results from ongoing and finalized projects (focus on impact evaluation/validation and related matters)

1.Smiling : Christophe J Büla

Example of validation: cross-over design to test the "smiling" shoe.

-1st lesson learned: you can have a problem with too early start of validation trial; there was a recruitment of 2 groups (one with the smiling shoe and one with shoes of similar weight but without the smiling mechanism; as suggested by one of the reviewers); but the testing was started in site (Israel) where there was no technical partner; hence problems with large drop out, also very old population (frail dropped out). Fortunately there was less dropout overtime, as people grew more confident.

-Another lesson: the choice of outcome measure is very important. In this case it was gait speed preference. This yielded no significant difference; similarly for speed variability: no effect; symbolic entropy improved during the trail but no specific effect of the smiling shoe; overall no effect. Question is whether a more appropriate measure (for

example) could have yielded better results. However, some success was obtained when the choice was made to test whether there was a difference between 2 groups in fall efficacy test. Fearful group: no effect. Confident group: yes there was an effect of speed. For the test of safety: monitoring of falls with the training: 1 fall in Israel. What was learned: the system proved to be an effective training method, yielding improved endurance. However, there was no effect of smiling shoe. Confident people: most effect

Population size was not reached (hence risk of type 2 error). In conclusion, the following items are advised:

- 1 Short period of training: exposure needs to be prolonged (at least 3 months)
- 2 Need for a working prototype when starting testing
- 3 Choice of parameter important: gait speed not very specific

2. CARE project - Ahmed Nabil Belbachir

From CARE - Safe Private Homes for Elderly Persons (AAL, project started July 2009), it was learned that it is necessary to check how much elderly people are willing to spend for the technology offered (in this case a *passive monitoring system* for fall detection with neuromorphic vision sensors). System should not be more expensive than 500 euro. Another important advice: start informed consent as early as possible (since it can take several months).

3. Amacs project - Bart Vanrumste

The project, started October 2010, was demonstrated based on a few recent videorecordings of simulated and real falls. These were based on an *automatic detection* system to *detect changes in the behavior*, i.e. changes in these ADL patterns. These changes include both acute and gradual changes. In the video it could be seen that the system worked well but there were complications with real fall detection (for example, not only the falling subject was detected but also the accompanying movements of the bed linen). One lesson learned thus was that one should not too easily extrapolate from controlled laboratory settings to real life environments (in this case crowded small bedrooms).

Part C: Output/Outcome/Impact Indicators

Presentation, analysis and discussion of relevant indicators of success (5 new FP7 & CIP projects).

Introduction and analysis by **Farseeing, Wiebren Zijlstra & iStoppfalls, Sabine Eichberg**

Needs for EU (including good health status, improved quality of life etc..) are common, yet there are important differences between FP 7 vs CIP projects:

-FP7 project: larger focus/risk on technology (Farseeing, Wiisel, iStoppFalls). Expected:

- improved competitiveness of EU industry
- leader in ICT and aging: EU
- proven concept for early detection of falls

-CIP: more in care systems. Expected:

- prolonging independent living
- improved quality of life
- facilitating wide use of ICT

Identified shared targets to be evaluated: Economic aspects, User acceptance, Independent living and Quality of life

A distinction is needed between:

- 1-project specific impact indicators
- 2-common impact indicators

1-project specific impact indicators

FP7 nr 1: Farseeing: open fall database; user acceptance (wearable sensors); compliance to monitoring

FP7 nr 2: iStoppFalls

FP7 nr 3: Wiisel

CIP nr 1: iDontFall: reduction of health costs; user acceptance; reducing rate and risks of falls

CIP nr 2: FATE reduction of health costs; ie reduction in long-lie (plus calculation how much every long lie costs)

2-common impact indicators: for example the economic impacts:

- development of prototypes:
- reduction of health costs:

Discussion:

- Many elements mentioned do not really qualify as indicators since they cannot be measured.
- Bart Neerschoten: there seems some confusion between outcomes and impact (usually an expected entity which is an extrapolation). How do you measure such expectations?

In the final part of the meeting the participants were divided into 2 groups, to discuss lessons learned on 3 topics, and to discuss what could be done in a next step. This resulted in the following notions:

Group 1

User requirements

- categories need to be better defined: what are elderly > 65?
- questions asked: what exactly? Number of project look at roadmaps (what are the needs of elderly people)
- ethical considerations: national considerations should be made first (letter of approval can take long)
- top down or bottom up: mostly technology driven thus mostly top down: not ideal

Validation:

- how to sustain adherence over time: how to motivate the subjects
- adoption is easier if the “solution” is shown to be useful
- duration of validation period: pilot of 6 months sufficient? Not really.
- requirements should be given by priority to trace the success of the study

Indicators:

- how to be sure that costs are reduced
- standards: new if possible, otherwise common to all projects
- define set of instruments in terms of bench-markers: instrument should be appropriate for the population concerned

Future topics:

- involve stakeholders more efficiently
- involve fewer engineers
- fund user requirements projects (to facilitate bottom up)
- more space for user requirements: very important to know the expectations of the users
- more specific calls in terms of large groups (dementia, low income, age > 65)
- make meetings of experts (for example in revalidation) with members of the various projects

Group 2:

End users:

- softcare diagram was very informative; all the “carers” should be involved (informal carers and HealthCare professionals)
- user testing at appropriate time and place (Smiling)

Validation:

- do not rush into trial before the prototype is ready
- show improvement over existing systems
- use validated outcomes
- agree on quality datasets
- meet after the pilot period to learn from each other: for example meet at 29/30 June in Trondheim for a workshop on relevant issues

Impact Indicators:

- Differences between CIP and FP7 were well-presented
- use CIP to break the ice, then follow with an FP7
- Costs: use similar simulation of costs (for example to calculate economic impact). Often participants are asked to provide the evidence that the new product can lead to savings in the healthcare system but these differ in various countries and this makes comparison difficult. Hence the need to have some “average European” type tables on these features.

Future topics:

- share agenda of projects
- dissemination and sharing of output
- use existing thematic networks
- develop exploitation guidelines (advice on approaches)
- share experiences (both positive and negative); e.g. SMILING

Final notes by Jacques Duysens, rapporteur: Summary and recommendations:

-From the new projects it is clear that there is a lot of promising research started. In general it is recognized that often validation is a major issue however and to prevent that this becomes a bottle neck it was very useful to consider how the different projects tackle this issue. It is very encouraging to see that validation is taken seriously in these 5 projects and that 3 of the 5 even included a full RCT for their validation. There was an interesting discussion on whether cross-over designs are to be preferred.

-It is recognized however that it is not feasible to have an RCT in all projects because some of the projects are very much into the development of a technique or system, leaving only limited time for a full scale evaluation. In these projects the clinical evaluation is more restricted but it is encouraging that even under these conditions there is more and more a tendency to use so-called “hard” measures such as measurements of gait and posture. During the meetings it was emphasized that it is dangerous to rely too much on interviews since the answers are very strongly biased by the way the question is formulated.

-Lessons learned also included that one can learn from each other with respect to the tests to be used for inclusion (MMSE, Tinetti).

-From the previous projects, such as Smiling, it was learned that it is important to have user feedback at all stages of the project. Others emphasized that such feedback should not only come from the elderly subjects tested but also should include feedback from direct and indirect caregivers and from industry. One interesting point of discussion is that the feedback is always collected after the start of the project so that projects always have this “top-down”, usually technology-driven, aspect and that there is a need to have feedback from bottom up (what would the elderly want to improve their life?). Interestingly, the Wiisel coordinator pointed out that in their case the idea for the insole actually came from interviews of end-users that emphasized the need to develop an unobtrusive device that was already part of what they normally are wearing.

-From previous projects it was learned that special attention should be paid to the age of the subjects as it became clear from previous projects, such as Smiling, that failures can be avoided by not extending the age limit too far (i.e >80) since this very old groups may prove to differ substantially from the younger ones. A realistic estimate of what is possible for a given age group is important. In addition, from this project it was learned that it is dangerous to start testing before the prototypes are fully developed. Finally from Smiling it was also learned that it is very important to measure the appropriate outcome measures (for example, the use of preferred speed is a rather non-specific measure).

-From CARE (Safe Private Homes for Elderly Persons (AAL)), it was learned that it is necessary to check how much elderly people are willing to spend for the technology offered and to start informed consent as early as possible.

-In the projects based on falls monitoring one of the main issues is false positives. There was some discussion whether false positives should not be allowed to some extent since they at least warn the subjects that the system works.

-With respect to impact it is clear that the projects discussed made an effort to provide text which indicates that they are willing to work towards this goal. It is argued that there is a need for more concrete indicators but in most projects this is difficult to achieve, especially in the early phases of the projects when it is difficult to predict impact on society and economy.

Jacques Duyssens, 2012

Appendix 1: Agenda

09:30-09:45 **Welcome & Introduction**

- Agenda & Aims of the Meeting
- Information about the European Innovation Partnership on Active & Healthy Ageing

Bart Neerscholten, Research Programme Officer, DG INFSO, ICT for Inclusion

09:45-10:30 **New Project Goals, Approaches and Solutions: Presentation of different settings, objectives, technology and solutions of 5 newly launched FP7 & CIP projects in the field of fall prevention & detection**

Presentation of main project information (max. 5 slides per project)

- Wiisel *Fanny Breuil*
- Farseeing *Lorenzo Chiari*
- iStoppFalls *Rainer Wieching*
- Fate *Joan Cabestany*
- I Don't Fall *Carmela Occhipinti*

10:30-11:30 **End-User Requirements and Acceptance: Lessons learned from ongoing and finalized projects**

Overview on relevant user requirements & results
(focus on primary/secondary end-users)

- Short presentations by ongoing/finalized projects:
 1. *Smiling* - *Fiorella Marcellini*
 2. *Giraff+* - *Andrea Orlandini*
 3. *Softcare* - *Albert Rodríguez*
- Debate

11:30-12:00 **Coffee Break**

12:00-13:00 **Ensuring Project Impacts: Exchange on validation methodologies and output/outcome/impact indicators to increase chances of impact**

The recently started projects are currently defining these elements. So now is the time to bring the efforts together and to see if there are matters that can be shared, exchanged, learned from each other and if there is a possibility to reach a certain level of commonality in approach and type of indicators being used in the validation and evaluation phases of the different projects. This discussion is also important in light of the EIP on Active and Healthy Ageing developments.

Part A: Validation Methodologies

- Presentation and analysis of planned/choosen validation methodologies of new FP7 & CIP projects (Wiisel, Farseeing, iStoppFalls, Fate, I Don't Fall), *Alejandro Rodriguez (FATE)* and *Roberta Annicchiarico (I Don't Fall)*

- Discussion

13:00-14:00 *Lunch*

14:00-14:30 **Part B: Lessons Learned**

Presentation of results from ongoing and finalized projects (focus on impact evaluation/validation and related matters)

- 1. *Smiling* - *Christophe J Büla*
- 2. *Care* – *Nabil Belbachir*
- 3. *Amacs* - *Bart Vanrumste*
- Discussion

14:30-16:00 **Part C: Output/Outcome/Impact Indicators**

Presentation, analysis and discussion of relevant indicators of success (5 new FP7 & CIP projects)

- Introduction and analysis by Farseeing, *Wiebren Zijlstra & iStoppfalls, Sabine Eichberg*
- Discussion

16:00-16:15 *Coffee Break*

16:15-17:00 **Summary & Conclusions**

Joint discussion on meeting outcomes & next steps

- Rapport to plenum, *Jaak Duysens*, rapporteur
- Actions tbd, next steps (All)
- Outlook on future topics (All)
- Summary & Conclusions, *Bart Neerscholten*

Appendix 2: Participants

Project	Participant's name
WIISEL	Fanny Breuil
	Alejandro Rodriguez
	Meritxell Garcia-Milà
	Jeff Hausdorff
FARSEEING	Lorenzo Chiari
	Chris Todd
	Wiebren Zijlstra
iSTOPPFALLS	Rainer Wieching
	Sabine Eichberg
	Heribert Baldus
USEFIL	Papadopoulos Homer
GIRAFF+	Andrea Orlandini
SMILING	Fiorella Marcellini
	Christophe J Büla
SOFTCARE	Albert Rodriguez
	Georg Aumayr
CARE	Belbachir A. Nabil
ROSETTA	Johan van de Leeuw
	Paul Pelsmaker
FATE	Joan Cabestany
	Andreu Catala
I DON'T FALL	Carmela Occhipinti
	Matteo Melideo
	Roberta Annicchiarico
	Ulises Cortés

CAALYX MV	Klaus Schaefers
FALLWATCH	Jean-Eric Lundy
AMACS	Bart Vanrumste
Rapporteur	Jaak Duysens

Appendix 3: websites of projects:

<http://www.wiisel.eu/>

<http://www.istoppfalls.eu/>

<http://www.usefil.eu/>

<http://www.softcare-project.eu/>

<http://care-aal.eu/>

<http://www.aal-rosetta.eu>

<http://www.caalyx-mv.eu/project>

<http://www.fallwatch-project.eu/>

<http://www.amacs-project.eu/>

<http://www.idontfall.eu/>

<http://fate.upc.edu/>

<http://farseeingresearch.eu>

<http://www.giraffplus.eu>

www.smilingproject.eu/

Appendix 4: standardisation of outcome measurement and design in falls research.

Lamb SE, Jorstad EC, Hauer K, Becker C on behalf of Prevention of Falls Network Europe and Outcomes Consensus Group. Development of a common outcome data set for fall injury prevention trials: The Prevention of Falls Network Europe consensus. *J Am Geriatr Soc.* 2005; 53(9):1618-22.

Hauer K, Lamb SE, Jorstad EC, Todd C, Becker C (on behalf of the ProFaNE Group). Systematic review of definitions and methods of measuring falls in randomized controlled fall prevention trials. *Age and Ageing.* 2006; 35(5): 5–10.

Lamb SE, Becker C, Gillespie LD, Smith JL, Finnegan S, Potter R, Pfeiffer K, Reporting of complex interventions in clinical trials: development of a taxonomy to classify and describe fall-prevention interventions. *Trials* 2011, **12**:1 doi:10.1186/1745-6215-12-1

Schwenk, M. Lauenrother, A. Stock, C. Moreno, R. Oster, P. McHugh G, Todd, C. Hauer, H. Definitions and methods of measuring and reporting on injurious falls in randomised controlled fall prevention trials: a systematic review *BMC Medical Research Methodology.*(2012 in press)

One outcome measure which has become the widest used measure of fear of falling/falls efficacy is the FES-I <http://www.profane.eu.org/fesi.html> available in some 20 languages. Some of the basic papers are listed below. A fuller set can be made available to interested parties.

Yardley L, Todd C, Beyer N, Hauer K, Kempen G, Piot-Ziegler C. Development and initial validation of the Falls Efficacy Scale International (FES-I). *Age and Ageing.* 2005. 34 614-619.

Hauer K, Lamb S, Jorstad E, Todd CJ, Becker C (on behalf of the ProFaNE Group). Systematic review of definitions and methods of measuring in randomized controlled fall prevention trials. *Age and Ageing.* 2006. 35 5-10.

Dias N, Kempen GIJM, Todd CJ, Beyer N, Freiburger E, Piot-Ziegler C, Yardley L, Hauer K. Die Deutsche Version der Falls Efficacy Scale – International Version (FES-I). *Zeitschrift für Geriatrie und Gerontologie.* 2006. 39 297-300.

Kempen R, Todd CJ, van Haastregt J, Zijlstra R, Beyer N, Freiburger E, Hauer K, Piot-Ziegler C, Yardley L. Cross-Cultural validation of the Falls Efficacy Scale International (FES-I) in older people: Results from Germany, the Netherlands and the United Kingdom were satisfactory. *Disability & Rehabilitation.* 2007. 29(2) 155-162.

Kempen GIJM, Zijlstra GAR, van Haastregt JCM, Beyer N, Hauer K, Yardley L, Todd C. The Short FES-I: a shortened version of the Falls Efficacy Scale-International to assess fear of falling. *Age & Ageing.* 2008. 37(1) 45-50.

Hauer K, Tremmell AD, Ramroth H, Pfisterer M, Todd C, Oster P, Schuler M. Repressive coping in geriatric patients' reports - impact on fear of falling. *Zeitschrift für Geriatrie und Gerontologie.* 2009, 42(2): 137-144. DOI 10.1007/s00391-008-0552-9,.

Hauer K, Yardley L, Beyer, N, Kempen, G, Dias, N, Campbell, M, Becker, C, Todd, C. Validation of the Falls Efficacy Scale and Falls Efficacy Scale International in Geriatric Patients with and without Cognitive Impairment: Results of Self-Report and Interview-Based Questionnaires. *Gerontology,* 2009.39(2) 256-259. DOI: 10.1159/000236027

Helbostad JL, Taraldsen K, Granbo R et al. Validation of the Falls Efficacy Scale-International in fall-prone older persons. *Age and Ageing*. 2010, 39(2) 256-259. Doi: 10.1093/ageing/afp224.

Hauer, K.A. Kempen GIJM, M. Schwenk, M. Yardley, I. Beyer, N. Todd, C. Oster, P. Zijlstra, R. Validity and sensitivity-to-change of the Falls Efficacy Scales International to assess fear of falling in older adults with and without cognitive impairment. *Gerontology* 2011; 57(5) 462-472 DOI: 10.1159/000320054

Also there is a body of work on what older people want from interventions

Yardley L, Bishop FL, Beyer N, Hauer K, Kempen GIJM, Piot-Ziegler C, Todd C, Cuttelod T, Horne M, Rosell A. Older people's views of falls prevention interventions in Six European countries. *The Gerontologist*. 2006. 46(5) 650-660.

Yardley L, Donovan-Hall M, Francis K, Todd CJ. Older people's views of advice about falls prevention: A qualitative study. *Health Education Research*. 2006. 21(4) 508-517.

Yardley L, Donovan-Hall M, Francis K, Todd C. Attitudes and beliefs that predict older people's intention to undertake strength and balance training. *Journal of Gerontology: Psychological Sciences*. 2007. 62(2) 119-125.

Yardley L, Beyer N, Hauer K, McKee K, Ballinger C, Todd C. Recommendations for promoting the engagement of older people in activities to prevent falls. *Quality and Safety in Health Care*. 2007 16 230-234.

Yardley, L, Kirby, S, Ben-Shlomo, Y, Gilbert, R, Whitehead, S, Todd, C. How likely are older people to take up different falls prevention activities? *Preventive Medicine*. 2008. 47(5); 554-558. DOI: **10.1016/j.ypmed.2008.09.001**