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[1] R = Report, P = Prototype, D = Demonstrator, O = Other
[2] PU = Public, PP = Restricted to other programme participants (including the Commission Services), RE= Restricted to a group specified by the consortium (including the Commission Services), CO = Confidential, only for members of the consortium (including the Commission Services)

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Glossary

AAL	Ambient Assisted Living
A&E	Accident & Emergency
CSF	Critical Success Factor
EC	European Commission
EU	European Union
FP	Framework Programmes
FP7	Seventh Framework Programme
GP	General Practitioner
ICT	Information and Communications Technology
IPR	Intellectual Property Rights
IT	Information Technology
NHS	National Health Service
NIC	National Innovation Centre
PCP	Pre-Commercial Procurement
PPI	Public Procurement for Innovation
R&D	Research and Development
R&I	Research and Innovation
R&D&I	Research, Development and Innovation
SF	Success Factor
UK	United Kingdom

1. Introduction

E-NO FALLS is a thematic network aiming to ensure the widest future replication and co-deployment of innovative ICT solutions in the area of fall prevention, intervention and safety. E-NO FALLS brings together knowledge, experiences and best practices acquired at European and international level, with the objective of creating the necessary conditions and consensus on action plans, standards and specifications in view.

Following the project's objectives, E-NO FALLS Work Package 3 (WP3) focuses on exploring the potential of pre-commercial procurement (**PCP**) **as a driver to contribute to the deployment of innovative ICT fall prevention and intervention solutions**.

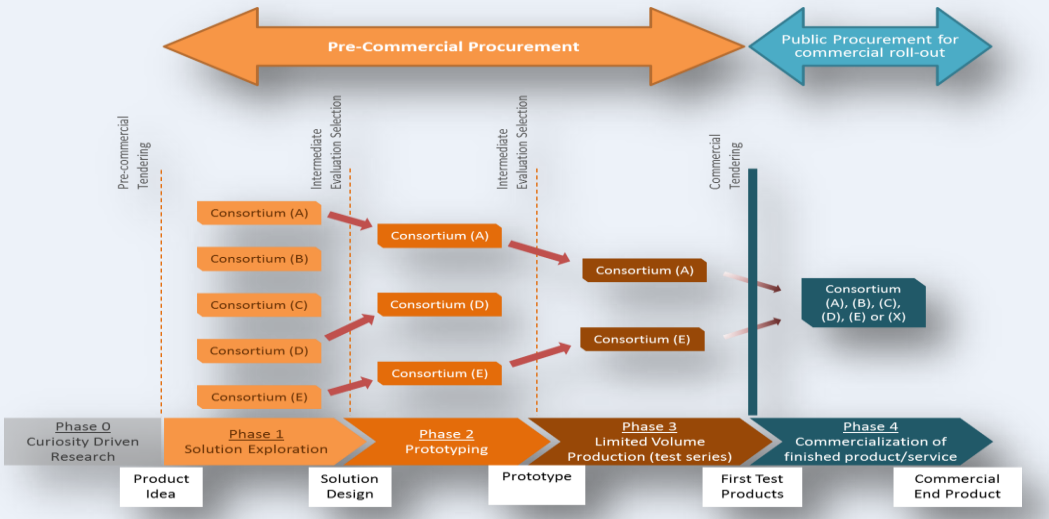

Figure 1. Innovation Procurement Process

As part of the procurement process, PCP concentrates on the R&D phase before commercialization of solutions, following the path from the conception of the idea to the development of limited volume production of two (or more) different prototypes. Thus, PCP covers activities such as solution exploration, design, prototyping up to the original development of a limited volume of first technologies or services in the form of test series. The purchase of the final commercial solution (product or service) is beyond the scope of the PCP process.

The PCP process is usually conducted in three phases:

- Phase 1: Design (supplier engagement) for the specified use cases
- Phase 2: Prototype (supplier engagement) for the selected functional specifications
- Phase 3: Small-Batch Production (limited volume of technologies/services) and Evaluation (supplier engagement) envisaging future commercial business plans.

E- NO FALLS WP3 identifies good practices done and analyses what success factors should be taken into account when launching procurement processes to boost ICT products and services for fall prevention and intervention. The aim is to increase awareness among all stakeholders involved in the "*ICT for Falls*" ecosystem and that therefore could potentially launch or participate in a PCP process to create step-change innovations in this field.

1.1 Deliverable Objectives

This document aims to identify Success Factors to be taken into account for those who want to launch a Pre-commercial Procurement process for ICT-based fall prevention and intervention solutions. Task 3.2 was intended to be carried out in two phases that will result in two deliverables:

- **D3.2.1: That is the current document, draws a methodology to identify success factors, analyses the cases identified in D3.1 "Inventory of good practices in a White Paper"** [1]**, and enquires some partners inside the E-NO FALLS consortium in relation to their projects in ICT for fall prevention, resulting in a first selection of success factors.**
- D3.2.2: According to the methodology drawn in D3.2.1, this new release of the document will expand the sources of knowledge to identify new good practices. Also a broadly group of stakeholders will be enquired in relation to their projects in ICT for fall prevention and their experience in participation in procurement processes. All the obtained information will be analysed in order to get a final inventory of success factors to be taken into account in a procurement process for ICT-based fall prevention and intervention solutions.

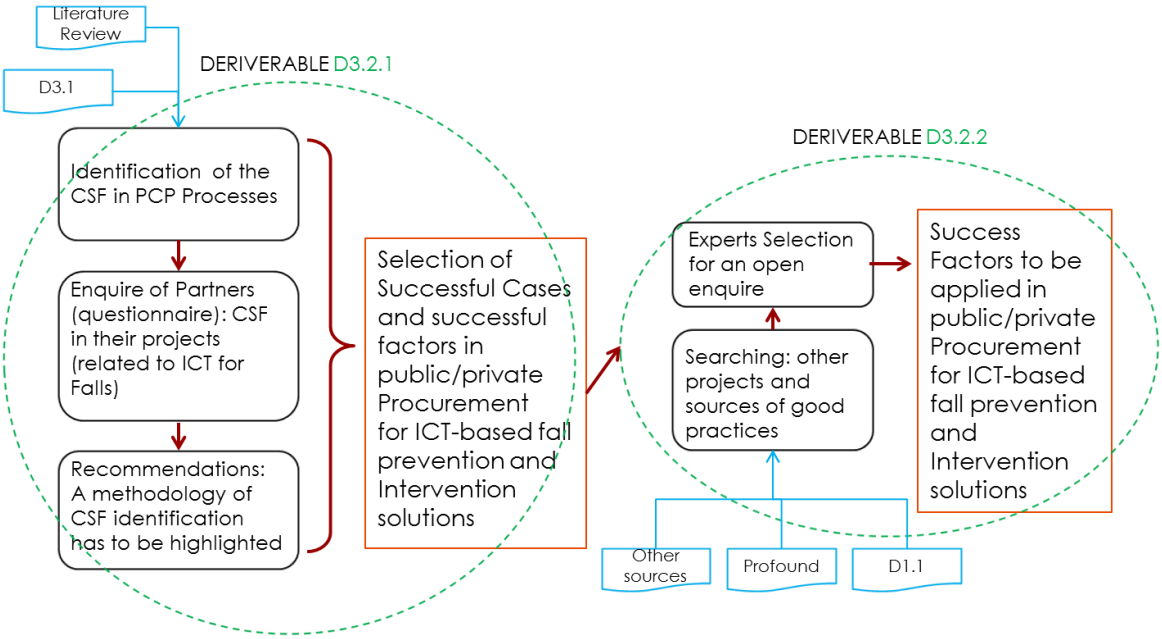

Figure 2. Task 3.2 will be carried out in two phases that will result in deliverables D3.2.1 and D3.2.2

1.2 Summary

This document is based on the identification and a revised analysis of the current best practices, studies, projects and successful cases in applying Pre-Commercial Procurement (PCP) in Europe by the E-NO FALLS project partners. The final aim is to obtain a list of success factors to be considered for those who want use PCP to develop ICT solutions for fall prevention and intervention.

This is a preliminary version based on a first source of information that is D3.1 from where a first list of cases had been analysed and a first list of stakeholders have been obtained. Added to this, a literature review complete the cases analysed in D3.1 in order to better identify success factors in the PCP process. A first round of questionnaires have been conducted and analysed and a first approach to the conclusions has been done. All this information will be expanded and new conclusions and a final approach to the success factors will be done in the final version of the document.

2. Basic Concepts

2.1 Definition of Critical Success Factors

The idea of Critical Success Factors (CSFs) was initially developed in the 1960s by D. Ronald Daniel. The concept was refined and popularised some time later by John F. Rockart [2], at MIT's Sloan School of Management. Rockart defined CSFs as: "*The limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organisation. They are the few key areas where things must go right for the business to flourish. If results in these areas are not adequate, the organisation's efforts for the period will be less than desired*". Many businesses have used CSFs extensively to aid in the implementation of their wider strategies and in specific projects. CSFs are the core aspects that must be performed well if a project(s) are to achieve their mission, objectives or goals. By identifying Critical Success Factors, a reference point to help measure success can be identified. As such CSFs clearly illustrate what are the key most important elements for success.

From a project management point of view, it is commonly known that the establishment of objectives is an essential requirement for the success experience. If the definition of the objectives is not possible, the risk points must be detected. The organizations have to develop an assessment plan where these tender points have to be evaluated, in such a way that an updated definition of the project is strategically reached. Project definition has to involve:

- Field of the activity
- Product or service requirements (specifications)
- Activities and resources needed

According to J. F. Rockart [3], C.S.F identification must include the following steps:

- First, a limited number of key areas ensuring the success of the activity must be defined
- Creating an list of objectives
- Checking and selection of the more relevant objectives
- Identifying the S.F.
- Removing the less relevant S.F
- Identifying the actors, the included processes and all the involved components
- Resources assignment

2.2 Methodology to identify Critical Success Factors

Critical Success Factors correlate strongly with the mission and strategic goals **of a business or project**. The mission and goals focus on the aims and what is to be achieved, **CFSs focus on the most important areas and get to the very core of both what is to be achieved and how it will be achieved** (Figure 3).

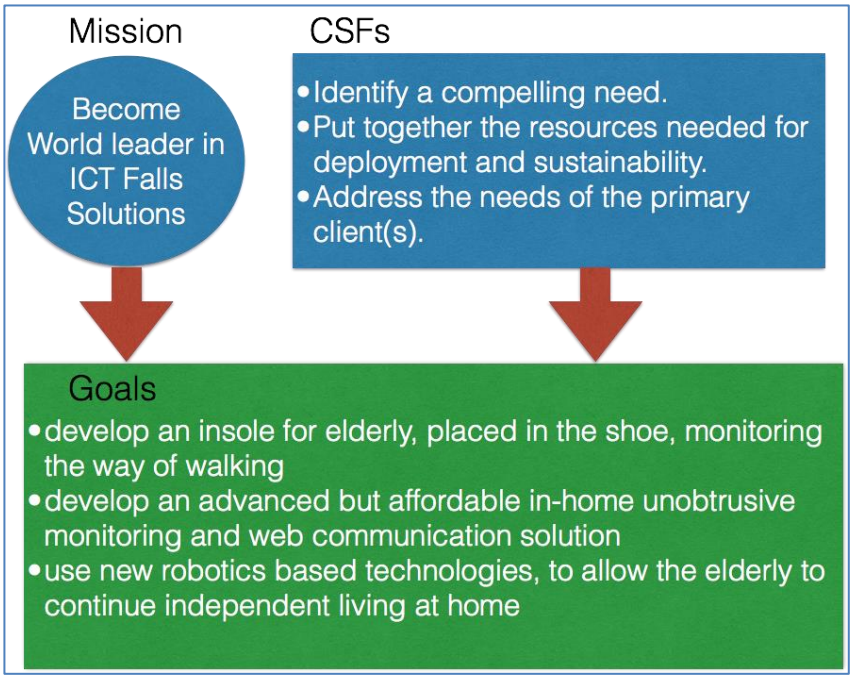

Figure 3. Example of CSFs, Mission and Goals for ICT Falls Solutions

The methodological approach will be a stepwise iterative process:

Step 1.0 High Level (wide comprehensive search) inspection based on available public literature on identified PCP.

Step 1.1 Establish what are the stated key objectives and goals of identified PCPs in ICT health solutions.

Step 1.2 For each key objective identify what factor(s) is essential to achieve the objective.

Step 1.3 Analyse potential CSF and identify essential elements required for success.

Step 2.0 Deep Level or detailed inspection based on direct interaction with actors (key stakeholders) in identified PCPs. The data collected will be based on questionnaires designed to extract the value and power of actor identified CSFs

Step 2.1 Validation of identified success factors, applied to predefined contexts;

The validation process will be carried out on two different contexts:

Context of the project E-NO FALLS

Broader context: stakeholders of different projects involving application of PCP in ICT health-solutions

Step 2.2 Questionnaire analysis. Identify the different success factors that must be considered in pre-commercial procurement start-up.

Step 3.0 Conclusions. Detailed explanation of identified critical success.

Step 1 - Objectives

Step 1 starts with wide trawl creating a platform for deeper investigation and identification of suitable PCPs. Having identified appropriate PCP in the ICT Health sector it will be essential to extract key factors. These key factors should become apparent as recommendations and/or good practices identified by the PCP group that have lead to them being successful. Thereafter the establishing of success factors will be based on how well candidate factors match with the demands and/or planned requirements of the PCP.

Step 2 - Objectives

Step 2 requires gaining a deeper understanding of the identified CSF and the stakeholders involved. These CRFs will be validated by generation of questioners. The questioners will be applied with in E-NO FALLS family and in the wider context of identified PCP from Step 1. The data generated from these questioners will be analysed to measure the validity of the CSF selection based on Step1 and to compare between CSF. At the end of Step 2 key CSF should be identified and validated based on the data analysis. If no CSFs are clearly identified, then the process will iterate again to look for other factor that may have appeared in the literature but did not highlight in the questioner data. Additional it is possible that additional factor may fall out of the questioner data that were not previously considered.

Step 3 - Objectives

Step 3 will synthesize the CSFs generated by Step 1 and Step 2 and present the rational for there selection based on the methodology employed.

All the steps previously mentioned can be visualised in the diagram shows in Figure 4:

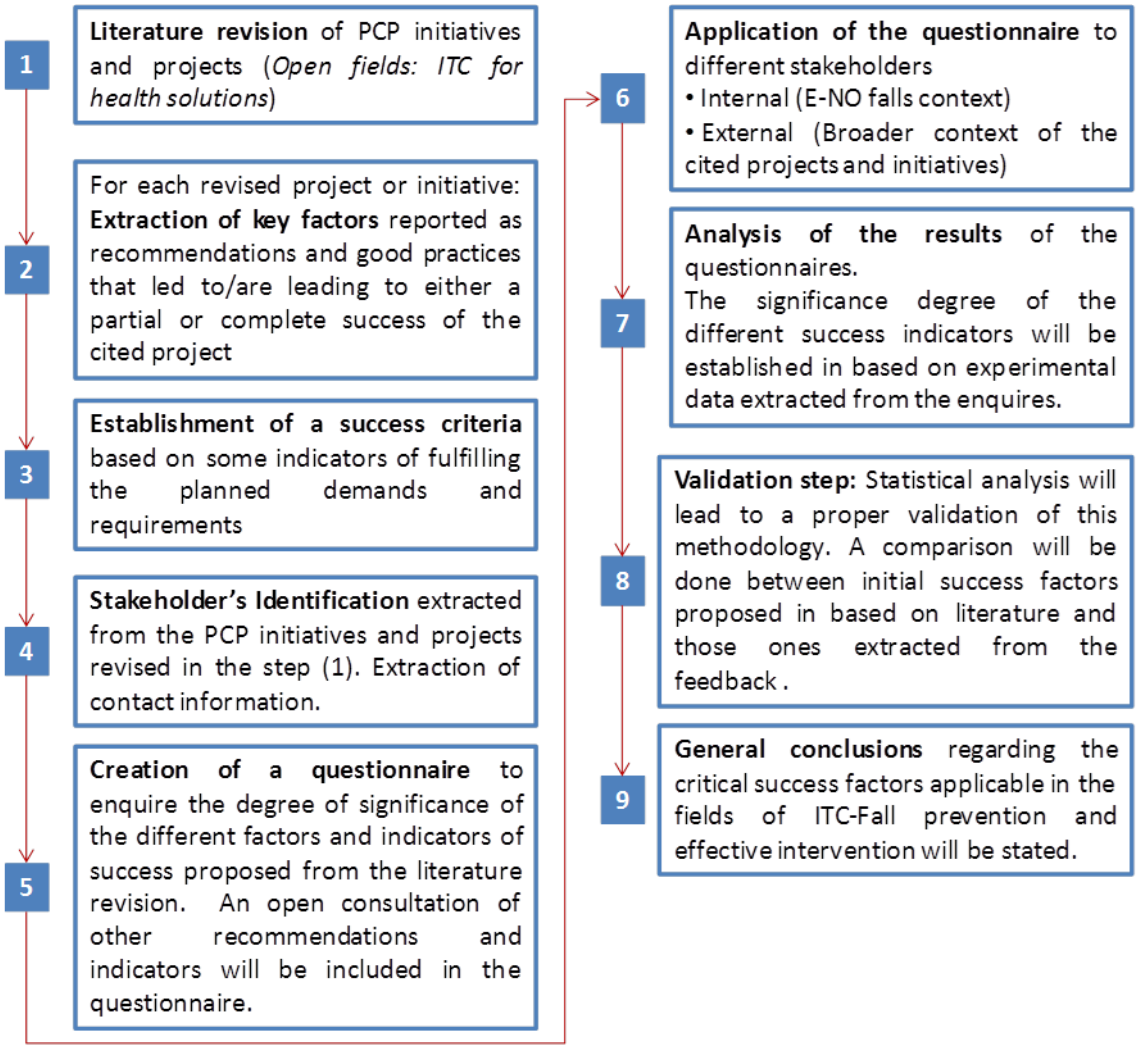

Figure 4. Methodological approach to find and validate critical success factors strengthening the PCP process

3. Critical Success Factors in Pre-Commercial Procurement Processes

This chapter intends to present the vision of the Consortium regarding the critical success factors in Pre-Commercial Procurement Processes, based on a compelling analysis of a set of representative projects/cases of the eHealth and ICT-fall prevention and correct intervention domains.

The Pre-Commercial Procurement (PCP) process represents an instrument for innovation, technological challenges and increased performance and competitiveness. The Pre-Commercial Procurement procedure is basically an "approach to procuring R&D services" [4] and innovative solutions for the specific needs of purchasers.

The Pre-Commercial Procurement procedure represents a specific approach that involves the innovation potential and addres both, the research push and the market demand.

As presented in the deliverable D3.1- "Inventory of good practices in a White Paper", the Pre-Commercial Procurement enables the commisioning of Research and Development (R&D) services, under a staged competitive process, to allow the development of innovative solutions that meet the needs of a Contracting Authority.

PCP represents a strategic instrument for renewal and a viable alternative for other innovation processes in the public sector. In this context, the Pre-Commercial Procurement enables public authorities to get new technologically innovative solutions that can address their specific needs.

Considering the mentioned aspects, identifying the critical success factors in applying the Pre-Commercial Procurement (PCP) it becomes very significant for the strategy who must be pursued during the PCP implementation. The identification of the critical success factors in PCP projects it is connected with the identification of the best practice examples and guidelines of implementing the PCP procedure.

In this context, the Consortium developed the deliverable D3.1 - "Inventory of good practices in a White Paper", the main goal of this document being represented by the research of the potential of PCP to contribute to the deployment of innovative Information and Communication Technology (ICT) solutions for elderly people, based on fall prevention and effective intervention.

The deliverable D3.1 - "Inventory of good practices in a White Paper" of the E-NO FALLS project represents a literature review, based in the existing documents about PCP best practices, and seeks to discover the best practices for the implementation of PCP in the EU.

The deliverable D3.1 - "Inventory of good practices in a White Paper" of the E-NO FALLS project is based on the analysis of multiple thematic eHealth projects, cases, studies and of the current and best practices in applying PCP procedure in Europe, in various projects. In order to identify the particular success factors in Pre-Commercial Procurement Processes applied into thematic areas of e-Health, the E-NO FALLS project considered specific information and data provided by major programmes, studies, projects and EU significant workshops: AAL – Ambient Assisted Living Joint Programme, ProeHealth, PreCo, AgeingWell (Network for the Market Uptake of ICT for Ageing Well), etc.

In this context, some important studies/projects were analysed, identified and revised making a deeper insight into the specific approaches, the experienced issues, the critical factors of success and best practices of the PCP implementation into thematic fields of e-Health.

The particular list of the common features of successful cases identified into E-NO FALLS project, specified in the deliverable D3.1- "Inventory of good practices in a White Paper", is the following:

1. PCP tenders are usually carried out by regional or municipal Innovation Agencies;

2. Procuring Authorities establish an open dialog presenting the challenge and asking industry to find the best alternatives;

3. Procuring Authorities present detailed specifications, including information about the "use case" or how such a product would be used. This information is highly valuable to suppliers and communicates to the developer of the future product who the user is, how it is likely to be used and the performance required;

4. One single framework contract covering all the PCP phases in which the distribution of rights and obligations of the parties is published upfront in the tender documents and which does not involve contract renegotiations on rights and obligations taking place after the choice of participating organizations;

5. Ownership rights of IPRs (Intellectual Property Rights) generated by a company during the PCP contract are assigned to that company. The public purchaser is assigned a free license to use the R&D results for internal use as well as the right to license or require participating companies to license IPRs (Intellectual Property Rights) to third parties under fair and reasonable market conditions;

6. Agreed return of benefits (e.g. royalties) to the Contracting Authority;

7. The metrics the supplier will provide as part of their evaluation of the technology;

8. Risk-benefit sharing between procurers and suppliers in PCP also means that procurers obtain a lower cost (and less risk) deal compared to exclusive development contracts.

As presented in the deliverable D3.1 – "Inventory of good practices in a White Paper" of the E-NO FALLS project, a number of reports and studies focused on the analysis of current best practices in applying PCP in Europe can be found on the public literature. The compelling analysis of some of these reports relieved that a bigger sample of health related European PCP projects can be achieved by introducing initiatives not strictly defined as PCP, but which share their main structure with this procurement tool.

In addition, it can be stated from these raports and studies that the main barriers of using PCP in Europe have been widely identified. These barriers can be summarised to primarily account for lack of awareness and competence in applying PCP, as well as the lack of incentives to follow on new, difficult and labour consuming activities.

A good example of this kind of projects is the PreCo project which analysed the European PCP actions in order to better understand the overall PCP picture in Europe, and directs the recommendations on areas with the most urgent needs for development and support. The analysis of PCP presented in PreCo highlighted the fact that PCP is a highly potential instrument, but still in an emerging stage in Europe. In addition, the study highlights that countries that are active in public sector development and innovation in general, are also interestingly in the forefront in the use of PCP. The main PCP involved countries are also active in sharing best practices, and participating in European PCP projects and other related events and initiatives. This lends support to participation in cross-country collaboration advances the level of national performance. And last but not least, the PreCo analysis emphasized the requirement to adapt PCPs to local context and culture.

The study' report PreCo (Policy Recommendations for advancing Pre-Commercial Procurement in Europe) presents a list of critical success factors, based on a detailed analysis of a set of representative projects/cases in the fields of eHealth and eEnergy. As mentioned in the study, the following list of significant success factors constitutes a "practical guidelines for preparation phase for a PCP framework or even for practical cases":

- Select Application Context
- Ensure Political Support
- Develop required competencies
- Create innovation friendly environment
- Create incentives for the supply and demand side
- Involve Users.

The identified significant success factors for Pre-Commercial Procurement cases presented in the deliverable D3.1 - "Inventory of good practices in a White Paper" of the E-NO FALLS project fall naturally into the above described list.

There are some calls that although not being strictly PCP on the healthcare sector, their phases and scope resemble so much R&D procurement that can be considered a kind of PCP call, with the main difference that there is only one supplier in all the phases. This is the case of some FPs (Framework Programme s) topics, in particular in the Health and ICT calls, as well as the AAL JP - Ambient Assisted Living Joint Programme. For this reason, some of these particular cases have been included in the success case section. The case of AAL JP is particularly similar to PCP in the field of healthcare for elderly people, as it is an initiative focused on the development of innovative ICT solutions in order to address Europe's demographic challenges of population ageing.

The AAL JP projects include a part of R&D and focus on the highlighted areas of each call, as well as perform pilot test on "real conditions" to assess the value of the outcomes and produce exploitable results. AAL JP launches periodic calls, which standard phases (solution exploration, prototyping and original development of a limited volume of first product/service in the form of a test series) fits completely the PCP phases and concept. Even more, as each call is open and just some general directives are provided, different consortiums can suggest alternative approaches for the same topic and there are different providers competing to create alternative solutions to the same problem.

According to the definition of the Pre-Commercial Procurement approach, some European initiatives must be mentioned:

- ProeHealth Enhancing Procurement (EMPIRICA) – Study on enhancing procurement of ICT solutions for healthcare.
- SILVER - Supporting Independent Living for the Elderly through Robotics –addresses the identification of new technologies and services to address the challenge of supporting the Independent living of the Elderly through Robotics.
- PreCo - Enhancing innovation in pre-commercial public purchasing process - The overall objective of PreCo is to support public authorities in undertaking PCP actions which stimulate innovation by engaging the suppliers in the market as well as the end-users (Living Labs). For this purpose, PreCo brings together a thematic network for the development and adaptation of European wide models, frameworks and policy recommendations in the domains of eHealth and eEnergy.
- AgeingWell - Network for the Market Uptake of ICT for Ageing Well.
- SMART 0109 SC08 (SMART -0109 Specific Contract 08) - eHealth procurers workshop report – Procurement of eHealth solutions Workshop, October 7, 2010.
- Overview of the European strategy in ICT for Ageing Well, October 2010.
- Tomorrow in sight: From Design to Delivery – The 4th AAL Forum 2012 Proceedings, Eindhoven, the Netherlands, 24-27 September 2012.

3.1 Success Criteria

Due to the lack of ended PCP application not only in ICT-fall prevention and correct intervention but also in general health solution, the consortium of E-NO FALLS reached an agreement for the selection of success cases in base on the level of accomplishment of the reached objectives and stakeholder's satisfaction. The selection criteria consist in the assessment of the following aspects:

- The solution development satisfied one or more stages of the PCP process and there are evidences of these stages correctly fulfil the demands of the procurer
- The first stage of the PCP process achieved a good number of tenders
- The reported progress of the projects shown a high level of satisfaction according to the planning (timing and resources)
- The developed solution arrived to the market
- The developed solution fulfilled the required specifications
- The developed solution have been either implemented or commercialised with a good acceptation of users.

3.2 Successful cases of Pre-Commercial Public Procurement application

According to the European Commission Directorate General for Communication Networks (DG Connect), a budget of 130-140M€ will be assigned in support of PCP/PPI in Europe for the period 2014-2015, this being included in the Horizon 2020 program [5]. In particular, the Health Societal Challenge Work Program (PHC-27), corresponding to self-management of health and disease and empowerment supported by ICT, has an assigned budget of 15 M€ for calls for PCP co funded actions. In addition, a budget of 7.5 M€ will be destined to PCP actions within the field of the ICT-based solutions for the healthcare sector. Thus, a general budget of about 23 M€ intends to strengthen PCP application for ICT-based health solutions in Europe and in the period 2014-2015.

In this scenario, different projects funded under EU programs where the application of PCP is mandatory for the acquisition of R&D services have been recently started and are expected to be co-financed by the European Commission. It is probably too early to make an assessment of the effectiveness of these projects, but a brief insight into those cases closer to ICT-based fall solutions for elderly people could be worth it for the development of the E-NO FALLS project. Thus, a description of currently active PCP programs will be shown as a part of this section. In addition, some other examples, involving the field of Electronic Health Record (EHR) and where the successful application of public procurement in an innovative way was demonstrated, will be also briefly described in this section. Finally, on the basis of the success cases of PCP application previously presented in this project (D3.1), a summary of key aspects favouring the success will be also presented.

Regarding the projects included into the PCP programs under funding of the EU, different cases were revised in order to obtain information about key aspects pointing out to the success of the projects. These projects are currently in different phases of implementation. A descriptive summary will be presented in the following paragraphs. Although not strictly PCP projects, some completed projects that have some features in common with the PCP strategy were also analysed. A selection of success cases associated to these projects will be also presented in the following paragraphs.

3.2.1 SILVER (Supporting Independent LiVing for the Elderly through Robotics)

This project is supported by the European commission under the seventh framework program (FP7). Its development aims to search new technologies for assisting elderly people. For this purpose, the project is currently employing a PCP strategy in order to procure innovation and R&D in a more strategic way. The project was separated in different phases according to the paradigm of the PCP process. The first stage of the process has finished and the results have been already published. The seven offers obtained in this first phase of the process could be understood as a very successful result of the "call for tenderers" stage.

The breaking down of the PCP process into different phases such as (1) solution design, (2) prototype development and (3) pre-commercial small scale product/service development gives the opportunity to assess the project from the very beginning of development. The detailed description of these phases and each one of their activities and actors (call for tenders, contracting authorities, time schedules, budget and number of companies to be selected as a tender in each phase) is essential for the complete understanding of the procurement process.

In particular, at the end of the first phase of the SILVER project, a satisfactory completion time and quality of the work as well as the technical and commercial feasibility of the solutions was reported. Here, the role of the very detailed specifications described in the deliverable D3.1 of the SILVER project must be highlighted [6]. This deliverable presents all the documentation required to accomplish the first phase of the PCP process while presenting additional information for the remaining phases. Another important aspect leading to the successful accomplishment of this first step of the PCP was the very concrete list of Activities of Daily Living (ADL) and the specific requirements of the solutions to be procured. This list of ADL was developed from an exhaustive enquiring with different stakeholders who were inquired about the market needs. A more defined list of solution requirements was found as a result of this market consultation [7]. Finally, phase 2 tenders were evaluated by a decision panel and three tenders were awarded with contracts. The success of this second phase will depend on the testing process of the developed prototypes.

In summary, key aspects leading to the success of the PCP application can be identified from the previous description:

- Market consultation to define the solution requirements.
- Clear specifications of the requirements according to a list of ADLs.
- Planning of both resources and timings according to the different phases of the PCP process.
- Detailed documentation guidelines to be employed for the different stakeholders and tenderers, so that the information was provided by all parties involved in an organized and understandable manner.

3.2.2 THALEA (Telemonitoring and Telemedicine for Hospitals Assisted by ICT for Life saving co morbid patients in Europe As part of a Patient personalized care program of the EU)

THALEA project aims to solve an already identified need concerning the data control of Intensive Care Unit (ICU) patients. In this sense, the project remarks the significant lack of interoperability and standardization between different patient data management systems. The solution should consist in the development of an innovative prototype ICT-tool, which will permit data monitoring and integration of a large number of ICU-patients.

As in the previous case, a PCP process will be implemented according to different phases of development. This strategic approach intends to promote competitiveness and the emerging of more innovative and, as a consequence better solutions. The first phase of THALEA is expected to start around the end of July 2014 and it is expected to last only six months. The duration of each stage and its corresponding budget is already programmed. The different specifications of the required solution can be found in the website of the project.

THALEA is currently doing dissemination activities in order to attract companies to participate in the upcoming PCP challenge. The consortium organization and the management structure is very clear from the public information. Nevertheless, no information about the companies participating in the first stage process has been reported up to now. Thus, no evidences of success of this first stage can be found from the public documentation. Nevertheless, some aspects, deduced from the project website, could be understood as potential promoters of success of the project. These aspects are:

- The planning of a market consultation. This will permit the consortium to get a detailed insight into the market, the state of the art and the future development of telemonitoring and telemedicine systems in order to prepare an adequate procurement proposal with a right scope.
- Information sharing is a remarked recommendation since it will make clearer not only the global scope but also the specific needs to be satisfied by the PCP process.
- Objectives of the project can be figured out from the public documentation.
- Initial specifications of the solution have been thoroughly set up thanks to the high expertise level of the consortium members.

3.2.3 DECIPHER (Distributed European Community Individual Patient Healthcare Electronic Record)

This project, which received funds from the European FP7 program, is a cross-border initiative to procure a solution addressing the management of patients with chronic long term conditions. By means of the PCP process, the consortium wants to find an innovative application enabling secure cross border access to existing patient health care portals. The consortium is integrated by different research institutions, public development and healthcare organizations, which is very convenient for the statement of the solution requirements.

As in the previous cases, a market consultation has been also programmed in the DECIPHER project. This consultation is a global cross border process based on interviews and exchanging of experiences. From this consultation, specific requirements based on the needs coming not only from the procurer organizations, but also from clinicians and end users of the system will be properly discovered.

Furthermore, companies interested in the participation as tenders will be openly called. Information coming from these companies is also published, which promotes competitiveness and transparency in all the negotiations from the very beginning of the PCP process. Although this project is currently in an early stage of development, some key aspects that may eventually lead to the success of this PCP process can be derived from the available information:

- Market consultation allowing the request of real and feasible specifications of the solution to be developed.
- Information of the different competitors from the beginning of the PCP process is of public domain.
- Reports of patient experiences showing the need of sharing the health record across Europe was publicly disseminated, thus permitting a higher awareness of the request.
- End users of the solution are involved in the development form the first stage of the process.

3.2.4 INSPIRE – International Network Supporting Procurement of Innovation via Resources and Education

This project, financed by the European FP7 program, aims to create practical impact on the use of the Pre-Commercial Procurement (PCP) instrument and to strengthen forward looking procurement strategies in the specific domains of eHealth Active Ageing and Independent Living [8].

Two of the most important activities of the project are the elaboration of ready-to-use and state-of the-art model, template and tender documentation to conduct the PCP and the Gap analysis and recommendations regarding the PCP implementation.

INSPIRE will use online materials and face-to-face regional workshops, like ways and means to facilitate collaboration and sharing of ideas for those with prospective procurement strategies and on-going or planned European PCP/PPI projects.

The INSPIRE project is currently in an early stage of development, but some key aspects that may eventually lead to the success of this PCP action can be derived from the available information on the project website, as follows:

In terms of results, the project aims at:

- Creating a health sector-specific network of Contracting Authorities to foster demand for innovation.
- Disseminating analytical evidence on innovation procurement practices from European projects.
- Facilitating the introduction of new technologies and ICT-based services in the healthcare delivery system, through evidence based service - and business model thinking.
- Linking innovation procurement and venture capital activities in order to complete the innovation chain and secure also the Business case.

3.2.5 READi (Regional Digital Agendas for Healthcare) for Health – Developing and promoting eHealth innovation

The project, financed by the European FP7 – REGIONS programme, will support four European regional clusters to facilitate faster uptake of their eHealth innovations [9].

As presented on the project website, the project will deliver a Joint Action Plan to promote the eHealth ecosystems in Murcia (ES), Skane (SE), Oulu (FI) and Midi-Pyrenees (FR).

Each region will contribute with specialized and complementary expertise in the respective scientific and technological topics related to the EU Digital Agenda.

The most important areas of interest of READi include clinical data exchange, cloud computing and mobile security while promoting Pre-Commercial Procurement and facilitating internationalization of eHealth companies.

From the available information, it follows that READi for Health clusters will join forces to prepare and specialize their regions for quick uptake of eHealth innovation, validation under real-world conditions and cost-benefit assessment. For this goal become reality, new Public Private Partnerships and specific purchasing mechanisms like Pre-Commercial Procurement will be used.

The READi project is currently in an early stage of development (started on 28th of September 2013 and ends at 30 September 2016), but some key aspects that may eventually lead to the success of this PCP action can be derived from the available information on the project website.
In this context, the READi project aims to develop and promote eHealth innovation in the cluster regions within the following focus areas:

- Semantic interoperability and Standards
- Cloud Computing
- Secure information access
- Internationalization
- Pre-commercial procurement

READi for Health aims to strengthen the research potential of four leading eHealth regions (Murcia, Skane, Oulu and Midi-Pyrenees) by supporting their triple helix clusters to become world-class players in domains related to the EU Digital Agenda for the Healthcare market.

3.2.6 UNWIRED Health

The EU financed project UNWIRED Health aims to redesign health care delivery, introducing the mobile care path for consumers [10].

As presented on the project website, the UNWIRED Health project will deploy Pre-commercial Procurement (PCP) to create step-change innovations in mobile patient ICTs in order to empower patients enabling patient-centric care, using mobile devices and converging interoperable platforms.

The consortium, having as coordinator the Foundation TicSalut, consists of three major procurers introducing the innovation into their territories, Catalonia, Scotland and Southern

Denmark and three vendor independent non-profit associations gathering a significant broad range of organizations and enterprises.

As in the previous presented cases, a PCP process will be implemented according to different phases of development.

The major objectives of the UNWIRED Health project are:

- to establish an agreed PCP process across Europe
- to use the developed PCP process to run a call for tenders for the development of mobile eHealth services.

The UNWIRED Health project is currently ongoing, but some key successful aspects of this PCP action can be derived from the available information on the project website. The UNWIRED Health project aims to develop and promote eHealth innovative services, including:

- Application to improve vaccination coverage and adherence.
- Application to coach patients with heart failures enabling education, motivation, remote monitoring and other functionalities, integrating and coordinating care provided by a hospital and the primary care physician.

Both of these applications will be innovative, fully integrated with the applications of the regional public health systems and fully accessible for the GPs. These services will be implemented in IT open platform infrastructures that will make the applications platform-agnostic, suitable to any smartphone and to any participating operator. This approach will demand the collaboration of operators and software integrators within the bidding procedures.

Although not strictly PCP projects, some completed projects that have some features in common with the PCP strategy were also analysed.

A selection of five success cases will be presented in the following paragraphs. These cases involve the development of either an innovative electronic health record (EHR) system, an information sharing tool included in the EHR or specific e-Health solutions, produced by concrete needs and implemented in the patient benefit.

3.2.7 Uppsala County Electronic Health Record System (EHR)

Among those cases where a public procurement process with similarities with PCP strategies has been successfully applied, the Uppsala EHR can be accounted as a good example. The council of the city decided to procure the electronic health record system to aid patient administration. The procurement process was separated in three stages in a similar way to the procedure proposed in PCP. In the first stage, the system was focused on a user reference group consisting of 50 potential users. All these users were consulted for describing the requirements of the system. Then, an open call for proposals was published. Six tenderers answered the call and the reference group was in charge of selecting half of the competitors according to criteria related to use of the system. Subsequently, a second round of selection was implemented and only two competitors arrived to the development of setup test sites. Finally, the company that proposed the more innovative solution, while matching the specified requirements, was the winner of the procurement process.

Some lessons learnt were reported: First, the risk taken by the council was rather high due to the immature character of the solution, so an adequate recommendation would be the sharing of risks between the different parties involved. In second place, as the solution was very innovative, the different tests and developments were done in real time while the users were still first testing the system so that any required modification could be implemented on the way. In addition, end users were involved from the very beginning the process, which led to a better understanding of the usability conditions of the system in the different steps of development. The commitment of the organizations leadership was also essential for the management since they motivate their staff to accept the new system implementation. Communication between users is also quite important due to the existing change resistance. Finally, a well-coordinated, experimented and strong team was a key element in the success of the procurement process according to the programmed plan.

Thus, different aspects contributing to the success of this case can be mentioned:

- The firm decision of the council to apply this innovative procurement process.
- The breaking down of the procurement in different stages which allows the assessment of the solution progress.
- The implementation of a pilot at two clinics with different needs was a strategic way to demonstrate the usability of the solution. Once the success of the pilot was proved the winner was contracted for county-wide roll out.
- The involvement of users from the first stages of implementation of the solution.
- The Uppsala case benefitted also from a strong organizational team.

3.2.8 Northern Norway Electronic Health Record System (EHR)

In 2009 the Northern Norway Regional Health Authority carried out a major procurement of an EHR system for information sharing and improved interaction between hospitals in the region. A clear description of needs and tool requirements was achieved by means of the formation of, not only a reference committee to steer the procurement process, but also specific working groups integrated by highly qualified stakeholders. The Health Authority intended to promote the competition between different tenderers. An innovative type of public procurement process, based on different phases of assessment, was successfully implemented.

The first stage of the procurement was widely published in order to obtain the highest number of companies interested in giving the solution. The assessment and negotiation phases were then implemented and the number of candidates was reduced. Explicit selection criteria were applied in all the negotiation process as well as for the selection of the winner company. Some lessons learnt have been reported: ensuring quality in the EHR system was the critical motivation for the authority investment. Clear goals in the long term were remarked during all the phases of the procurement in order to maintain motivation and user acceptance. Some aspects driving to the success of this case could be the following:

- The use of a representative steering board and working groups with experiences in different fields such as: definition of user specifications, managing change culture and analysis user requirements.
- Careful revision of previously completed procurements.
- Employment of consultants with experience in complex procurement and IT implementation projects.
- Careful allocation of resources.
- Open dialogue between tenderers can drive the procurement to a more rewarding solution.

3.2.9 TreC (Italian for three Cs, stands for Cartella Clinica Del Cittadino)

This case was based on a procurement of a Personal Health Record System (PHR) where the requirements were defined from the assessment of the already implemented health record system. The management of the project was carried out by a steering committee with the support of a board of clinical stakeholders.

The autonomous province of Tentro was acting as a procurer and the management was in charge of the Bruno Kessler Foundation (FBK). A set of requirements was drawn up and five companies were selected from the province data base of local companies and invited to present their solution.

Although the procurement process applied in this case differs in some aspects from the PCP process, the TreC project developed an interesting approach to procure, which consists in the foundation of a research group responsible for the development of a basic level prototype. Once this prototype was carried out, a feasible solution industry was contracted for full development. In addition, although the different competitors for the development of the solution were not called by means of an open consultation, competitiveness was also favoured in this case since five companies were selected to present the tenders.

Some key aspects in the development of this case can be mentioned:

- Strong project management was a key factor that strengthened the TreC case study.
- The use of a steering group and the active involvement of end users in several phases of the procurement process ensured the usability of the developed system.
- The use of an adequate guiding documentation helped to achieve harmonic relationships between the different actors involved in the process.
- The opinion of clinicians regarding the use of technology in healthcare was constantly taken into account.

3.2.10 Stabilizing splints for fractured neck of femur – UK NHS/NIC

This project was based on a significant need of treating the patient with Fractured Neck of Femur (FNoF).

From the available information about the project results that in 2009, representatives of front-line staff and end users from the English, Welsh and Scottish Ambulance Service identified a number of important clinical needs within the service, one of those needs being for the splint to immobilise a Fractured Neck of Femur (FNoF) [11].

FNoF is a common injury encountered by Paramedics that affects mainly the elderly and is often the result of a fall. The NHS treats over 70,000 patients with FNoF annually. Patients experience considerable discomfort and require rapid intervention to stabilise the fracture to reduce blood loss and pain. Fractured joints are typically stabilised by a splint, but existing splints were too complicated, difficult to fit quickly and often fail to immobilise the hip joint successfully [12].

Working closely with Paramedics (UK National Ambulance Services) and Orthopaedic specialists the NIC (National Innovation Centre) identified a number of unmet clinical needs relating to the current care and transportation of FNoF patients. In particular, existing splinting devices and methods fail to stabilise the hip fully resulting in increased pain and blood loss. (Focus on Fractured Neck of Femur, NHS Institute for Innovation and Improvement, 2006).

The unmet clinical need was "translated" into: "Wouldn't It Be Great If…. we had an easy to use/re-use mechanism for moving patients with a fractured neck of femur which would self-regulate/stabilise whilst the patient was in transit and help protect the patient from further injury to an already painful complaint."

As presented on the NIC (NHS) website, "following on from the identification of the unmet clinical needs a new splint has been developed through collaboration between Professor W Angus Wallace (Professor of Orthopaedic & Accident Surgery, Queens Medical Centre, Nottingham), Mr Andy Hayles (Paramedic West Midlands Ambulance Service) and a design company (Canard Design)."

The NIC provided funding support to develop the solution (design, prototyping and implementation) to a working prototype which is now undergoing a clinical trial.

The new device is capable to stabilise the fracture by means of an articulated splint which allows the responding Paramedic to immobilise the limb there reducing pain and blood loss. The major benefit of this project is that unlike other splinting devices, the designed new device supports the patient through A&E, X-Ray and into Theatre.

Some aspects driving to the success of this case could be the following:

- Features of the innovation (R&D&I specific activities)
- Identifying the business opportunities
- Identifying the research requirements
- Identifying the appropriate enablers (of these, the priorities included "independent device development partners, […] and funding")
- The major patient benefits.

Regarding the patient major benefits, the new device intends:

- To reduce pain and the subsequent use of analgesics (e.g. Morphine) which can have lasting impact on the patient's recovery
- To reduce blood loss and subsequent increased risk of mortality
- To provide Paramedics with a device which is quick to fit therefore speeding up the patents delivery to A&E.

Although the procurement process applied in this case differs in some aspects from the PCP process, the project developed an interesting procurement approach, successfully conducted by NIC, which consists in the foundation of a research, development and innovation group, responsible for the development of a specific prototype.

As presented in the PreCo study, in developing the opportunity, some lessons learnt have been reported "a key element in the NIC's process was to encourage open collaboration and spread the work to the most appropriate party. As a result, one of the design houses that had won the contract successfully joined forces with a further external designer. The entire project was managed as an integrated programme of work, using on-line toolsets to share ideas and report on progress. The project work plan was split up into deliverables and underpinned by a strong governance structure. In some cases, additional resources, such as workshops, were supplied by the NIC."

3.2.11 The case of radiotherapy appliances – Bolzano Province, Italy

This case is presented in the PreCo final report as "one of the first Italian examples of a true pre-commercial procurement call for tender to be set up, the PCP call can be downloaded from the Bolzano Province official website www.bandi-altoadige.it along with all the relevant documents, forms and guidelines for participation [13]."

From the available information, this call for tender, accessible both in Italian and German, has been set up according with the specific point of view of the local administrators and shared with the DG Information Society and Media of the European Commission.

This project was conducted, according to a customized PCP scheme, by the Bolzano Province Councillorship for Innovation, in order to accede to a specific clinical demand from the Public Health Unit of Bolzano – Oncologic and Pharmaceutical Units.

Being interested in applying the Pre-Commercial Procurement and willing to promote the implementation of COM (2007) 799 "Pre-commercial Procurement: Driving innovation to ensure sustainable high quality public services in Europe", the Bolzano Province Councillorship for Innovation set up a pilot project between a private firm to be selected through a specific call and the Public Health Unit of Bolzano (Comprensorio Sanitario di Bolzano).

In this context, the Bolzano Province Councillorship for Innovation ("Assesorato all'Innovazione") has analyzed the specific needs of the province in the healthcare field, afterward has carried out a research programme on local specific needs and, amongst all the proposals that have been submitted, a particular one called "Closed Loop": Advanced automation and management of the clinical risk and trials in Medical Oncological therapy has been selected by the Public Health Unit of Bolzano.

The major players of this PCP Project were the Bolzano Province Councillorship for Innovation ("Assesorato all'Innovazione"), the Public Health Unit of Bolzano – Oncologic and Pharmaceutical Units and the chosen private company through a specific call for proposal.

Like the other presented cases, although the applied procurement process in this case differs in some aspects from the PCP procedure, the project implemented a customized PCP approach, successfully conducted by the the Bolzano Province Councillorship for Innovation, which consists in the foundation of a research group, responsible for the development of a specific clinical prototype. In this specific case, the prototype will be tested by the Bolzano Hospital together with the selected private company/ies, in order to get directly to the definition of the prototype itself.

As presented in the PreCo study, in developing the opportunity, some lessons learnt have been reported and could be aspects driving to the success of this case:

- Time reduction between definition and needs of the performer on one side, and setting up of the prototype on the other side.
- Less bureaucracy in project proposal evaluation.
- More added value given to public buyer's skills, as these ones will be used in all project planning and prototype set up phases.
- The major patient benefits, by applying the innovative clinical results.

3.2.12 Success cases presented in the deliverable D3.1 of the E-NO FALLS Project

In this part of the project, a revision of the cases presented in the deliverable D3.1 is convenient in order to identify those aspects directly affecting the success of the PCP process and the project itself. Thus, according to our analysis, the most relevant aspect for each one of the presented case will be remarked:

- Strategic process for need and requirement establishment (**Case: Ramboll- Denmak**)
- Boosting of competitiveness between different suppliers (**Case: Sundhed.dk-Danmark**)
- Increasing of demand for better services and products leading to environments favouring the innovation and competitiveness (**Case: US computing procurement**)
- Open dialogue from the beginning of the negotiation so that a better understanding of the product, service or project specifications is achieved (**Case: The hospital bed of the future, Denmark**)
- Participation of very qualified and experienced enterprises (strong champion) in the process (**Case: The hospital bed of the future, Denmark**)
- Mid-Term evaluation process is recommended in all the steps of the innovation cycle (**Case: The patient briefcase**)
- Implementation of strategic actions to achieve a good adaptation of the end users, which favors low costs by providing more private investments in innovation solutions (Case: HealthLAb)
- Adequate identification of needs and specifications (**Case: FallWatch Project**)
- Clear definition of product specifications (Case: Confidence**)**

3.3 Stakeholder Identification

There are two main selection criteria to be considered for select stakeholders in order to obtain relevant information that will help to identify success factors related to the Procurement Process for ICT for fall prevention: (1) Those who have participated in some Public-Private Procurement Process of ICT for Health solutions; (2) those that, although they did not participate in any Public-Private Procurement Process, are involved in the development, deployment or commercialisation of ICT solutions for fall prevention and (3) other that have participated in projects or initiatives with a generic approach that could be applied in the ICT solutions for the Health sector Public-Private Procurement Process (an example of this is PROGR-EAST).

In accordance to the Methodology defined for the Task 3.2 as it is described in section “1.1 Deliverable Objectives”, this first version of the document identifies a first list of stakeholders gathered from the success cases identified in D3.1 – “Inventory of good practices in a White Paper” [1] ad from a first literature review. This first list will be reviewed and enlarged with new sources of information in the final version of this document that is D3.2.2.

After an initial screening of the good practices, done according to the initial criteria described above (1, 2 and 3), we obtained a first list of stakeholders:

Identified Stakeholders	Project or PCP Action
Project support organisations: • **(Coordinator) Technology strategy Board** • **Forum Virium Helsinki** • **Aalto University, School of Economics** • **VINNOVA** • **Netherlands Enterprise Agency** • **Brainport Development NV** **Procurers:** • **City of Eindhoven** • **City of Odense** • **City of Oulu** • **City of Stockport** • **City of Vantaa** • **City of Västerås** • **Region of Southern Denmark** **Solution providers:** • **Assistobot B.V.** • **Alten Nederland B.V.** • **Bioservo Technologies AB** • **Robosoft** • **Bestic AB** • **Marsi Bionics S.L** • **Lerovits B.V.**	SILVER (PCP) – Supporting Independent Living for the Elderly through Robotics –addresses the identification of new technologies and services to address the challenge of supporting the Independent living of the Elderly through Robotics. http://www.silverpcp.eu/
Project support organisations: • **(Coordinator) The Agència d'Informació, Avaluació i Qualitat en Salut (AIAQS)** • **Ancitel Toscana** • **Barcelona Digital Technology Centre (BDIGITAL)** • **VTT Technical Research Centre** **Procurers:** • **ESTAV Centro (Italy)** • **TicSalut (Spain)** • **CMFT/TRUSTECH (UK)** **Solution Providers:** **Not yet identified**	DECIPHER – Distributed European Community Individual Patient Healthcare Electronic Record – addresses step-change innovations in mobile patient ICTs using electronic patient records as the key enabling technology. http://www.decipherpcp.eu/
Coordinator: • **Culminatum innovation OY LTD** **Partners:** • **Fundacion Comunidad Valenciana- Region Europea** • **Copenhagen Living Lab Aps**	PRECO – Enhancing innovation in pre-commercial public purchasing process - The overall objective of PreCo is to support public authorities in undertaking PCP actions which stimulate innovation by engaging the suppliers in the market as well as the end-users (Living Labs). For this purpose, PreCo brings together a thematic network for the development and adaptation of

• **Aalto-Korkeakoulusaatio** • **Stichting Amsterdamse Innovatie Motor** • **Alfamicro-Sistemas De Computadores, Lda** • **Unione Regionale Delle Camere Di Commercio Industria** • **Artigianato E Agricoltura Del Veneto** • **Syddansk Universitet** • **Agentura Pro Evropske Projekty&Management Sdruzeni** • **Vysocina Kraj**	European wide models, frameworks and policy recommendations in the domains of eHealth and eEnergy. http://preco.share2solve.org/main/
Coordinator: • **INNOVA S.p.A** **Partners:** • **BIC Bratislava Ltd** • **Theodore Puskas Foundation** • **University of Ljubljana**	PROGR-EAST - Innovative PROcurement techniques to support the GRowth of competitiveness for public services in EASTern Europe - The aim is to introduce innovative PCP strategies to public authorities, universities and industrial stakeholders, and transfer successful experiences implemented in other European and external regions to implement innovative public services. In particular the project is focused on PCP for eGovernment, and for other innovative on line services for citizens and business. http://www.progreast.eu/
East of England Development Agency, UK. **Technology Strategy Board**	In May 2009 the East of England Development Agency together with the UK National Health Services East of England and the UK Technology Strategy Board launched a PCP for a solution which will help to meet current health priorities in the region. Up to £100,000 (approximately 117,000 €) was awarded for winning tenders during the first phase, successful completion of phase one would guarantee continued financial support during phase two. The aim is to provide procurement opportunities for innovative health care businesses and bring the benefits of new innovations and technologies to patients.

Procuring Partnes: • **(Coordinator) TicSalut Foundation** • **HS 24 (Scotland)** • **Region SYDDANMARK** **Industrial Partners:** • **Continua Health Alliance** • **Integrating Healthcare Enterprise Europe** • **GSM Conference Services Ltd.** • **The Agència d'Informació, Avaluació i Qualitat en Salut (AIAQS)** **Solution Providers:** **Not yet identified**	UNWIRED HEALTH - UNWIRED Health will redesign health care delivery, introducing a mobile care path for consumers. The project will deploy Pre-commercial Procurement (PCP) to create step-change innovations in mobile patient ICTs in order to empower patients enabling patient-centric care, using mobile devices and converging interoperable platforms. No current or future market solution exists as it would require cooperation of health administrations and providers across multiple nations. The consortium consists of three procurers introducing the innovation into their territories, Catalonia, Scotland and Southern Denmark and three vendor independent non-profit associations gathering a significant broad range of organizations and enterprises.
NHS National Innovation Centre (NIC)	NIC (National Innovation Center) of the NHS (National Health Service) applies an integrated approach to procurement of innovation combining PCPs to get solutions developed for mid-to-long term innovation procurement need.
Ramboll Informatics A/S (Denmark)	CARE Social Management System, Supplied by Ramboll Informatics A/S, Denmark. Ramboll Informatics A/S is a Danish-based IT supplier and IT systems developer. Tasked to develop a service management system for a Danish municipality, R&D project started in 1995. User panels were created based on different areas of expertise with the areas of public services for special populations including elderly and disabled people, focusing on, supplementary materials, Senior citizen care, Medical care, Administration and IT-systems.
• **The Danish Regions** • **Danish Ministry of Health** • **Local Government Denmark**	Sundhed.dk - The Danish eHealth portal Development of a public eHealth portal, Sundhed.dk, highlighting a process of incremental innovation in Denmark in 2002. The project is designed to bring together all communication between patients and the public health services acting as a powerful platform for the stakeholders in the public health sector.
Midtlab (Denmark)	The hospital bed of the future: Denmark This project is a pre-commercial project intended to lead to an innovative bed set in the Danish Region of Midtjylland. Midtlab, an internal innovation-hub in the Region Midtjylland, got involved to facilitate the project with the objective to contribute to innovation in the public sector and motivate social entrepreneurship.
Medisat	The patient Briefcase

	The Patient Briefcase is a communication device that allows communication between the patient and hospital staff. It is developed for patients suffering from Chronic Obstructive Pulmonary Disease (COPD).
Partners: • **AMSTA** • **VU – University amsterdam** • **Waag Society** • **Amsterdam University of Applied Sciences (AUAS/HvA)** • **AIM**	HealthLab: Tsaar Peter This case describes the procurement and implementation of new technologies that enable elderly people to be independent for longer. For this procurement a Living Lab setting is being used to allow for adaptation of new technologies to be realized.
Vigilio S.A.	Fallwatch As a result of the work of EU-funded research project, called FallWatch, a device has been created in 2012 (the project started in 2009) to miniaturize a wearable fall detection system for the elderly. The first solution was developed at first instance by Vigilio S.A. in close cooperation with Professor Norbert Noury, of University Joseph Fourier (Grenoble) under the brand Vigi'Fall®, but the need for a more comfortable and robust solution made these entrepreneurs to look for suitable funding to create a really competitive product.

Note: Next steps to be done before to complete D3.2.2

In the final version of this document, that is 3.2.2, we aim to complete this first stakeholders' list by exploring other projects an initiatives as:

- *INSPIRE (at this time is under negotiation)*
- *THALEA, a PCP Project in the area of Intensive care*
- *The CONFIDENCE project has developed a care system that is able to reconstruct a person's posture and detect abnormal situations, such as falls or loss of consciousness. The system raises an alarm if an abnormal situation is detected*
- *SOFTCARE platform was developed for monitoring senior citizens, including fall detection, and was based on the Zigbee communication system. http://www.aal-europe.eu/projects/softcare/*
- *United4Health which deploys and evaluates Tele-health services for long-term conditions (CHF, COPD, diabetes) at large scale and across Europe*
- *eSens (Electronic Simple European Networked Services), a large scale pilot to develop an infrastructure for interoperable public services in Europe*
- *European Innovation Partnership for Active and Health Ageing especially action group B3 on chronic diseases*
- *Thematic Network ANTILOPE that promotes eHealth interoperability in Europe (2013-2015)*
- *Thematic Network MOMENTUM that promotes telemedicine deployment in Europe*
- *Thematic Network ENGAGED to promote Ageing well solutions in Europe*
- *Thematic networks PALANTE and SUSTAINS that promote online access to EHRs*

- *Contact telecom companies that are providing eHealth services as Orange, Telefonica/O2, Vodafone*
- *and finally, other projects and initiatives.*

According to the recommendations made by the European Commission [14] resulting from the first period revision of E-NOFALLS (in its page 7), stakeholders' classification is aligned with those used by ProFouND [15]:

1. EU level professional bodies in Medicine
2. EU level professional bodies in Care, ergo-therapy and social work
3. EU level professional bodies in Public health/ Health education
4. EU level bodies of relevant User groups
5. EU level Commercial, industrial and standardisation bodies
6. EU level Public administrations

The stakeholders list has been grouped by country.

Summary stakeholder list

Entity	Contact data	Website	Country	Category	Project or Initiative
Agentura Pro Evropske Projekty&Management Sdruzeni	Dr. Irina Zálišová Praze 7, Jankovcova 53 E-mail: zalisova@epma.cz Tel.: +420 234 602 268	http://www.epma.cz/	Czech Republic	Commercial, industrial and standardisation bodies	PreCo
Vysocina Kraj	Vysocina Region Žižkova 57 587 33 Jihlava E-mail: posta@kr-vysocina.cz Tel.: +420 564 602 111, +420 564 602 100	http://www.kr-vysocina.cz/	Czech Republic	Public administrations	PreCo
City of Odense	Rene Lorenz Head of Programme Office E-mail: rlo@odense.dk Tel.: +45 2126 7908	http://www.odense.dk/cfv	Denmark	Public administrations	SILVER (PCP)
Copenhagen Living Lab Aps	Lisa Lin Halskov Copenhagen Living Lab Torveporten 2 DK-2500 Valby E-mail: lisa@copenhagenlivinglab.com Tel.:+45 20 23 22 05	http://www. copenhagenlivinglab.com	Denmark	Commercial, industrial and standardisation bodies	PreCo
Danish Ministry of Health	Slotsholmsgade 10-12 1216 København K E-mail: im@im.dk Tel: +45 72 26 90 00	http://www.im.dk	Denmark	Public administrations	Sundhed.dk: The Danish eHealth Portal
Local Government Denmark	Weidekampsgade 10 2300 København S Tel: +45 33 70 33 70 E-mail: kl@kl.dk	http://www.kl.dk	Denmark	Public administrations	Sundhed.dk: The Danish eHealth Portal

Entity	Contact data	Website	Country	Category	Project or Initiative
Medisat	Rugaardsvej 55, DK-5000 Odense C Tel.: +45 70 21 60 70 E-mail: info@medisat.dk	http://www.medisat.dk/	Denmark	Commercial, industrial and standardisation bodies	Patient Briefcase
Midtlab (Denmark)	Olof Palmes Allé 36 8200 Århus N E-mail: midtlab@midtlab.dk Tel.: + 45 7841 0840	http://www.midtlab.dk/in+english	Denmark	Public administrations	The hospital bed of the future
Region of Southern Denmark /OPI-Lab	Fie Illum Jenssen Project Coordinator Health Innovation Centre of Southern Denmark E-mail: fie.illum.jenssen@rsyd.dk Tel.: +45 3056 3339	http://www.regionsyddanmark.dk http://opilab.dk	Denmark	Public administrations	• SILVER (PCP) • UNWIRED HEALTH (PCP)
Syddansk Universitet	Copenhagen: Syddansk Universitet Øster Farimagsgade 5 A, 2. DK-1399 København K E-mail: sdu@sdu.dk Tel.: +45 3920 7777	http://www.sdu.dk/en/	Denmark	Professional bodies in Public health/ Health education	PreCo
The Danish Regions	Dampfærgevej 22 2100 København Ø E-mail: regioner@regioner.dk Tel: +45 35 29 81 00	http://www.regioner.dk	Denmark	Public administrations	Sundhed.dk: The Danish eHealth Portal
Aalto University, School of Economics	Petra Turkama Director E-mail: petra.turkama@aalto.fi Tel.: +358 40 3538 369	http://ckir.aalto.fi/en/	Finland	professional bodies in Public health/ Health education	SILVER (PCP) PreCo

Entity	Contact data	Website	Country	Category	Project or Initiative
City of Oulu	Anna Haverinen Director for Elderly service E-mail: anna.haverinen@ouka.fi Tel.: +358 44 703 4018	http://www.ouka.fi/	Finland	Public administrations	SILVER (PCP)
City of Vantaa	Satu Siikander Administration Manager E-mail: satu.siikander@vantaa.fi Tel.: +358 40 534 6962	http://www.vantaa.fi/	Finland	Public administrations	SILVER (PCP)
Culminatum innovation OY LTD	Culminatum Innovation Oy Ltd c/o Uudenmaan liitto Esterinportti 2 B 00240 Helsinki E-mail: culminatum@culminatum.fi Tel.: n/a	http://www.culminatum.fi/	Finland	Commercial, industrial and standardisation bodies	PreCo
Forum Virium Helsinki	Sari Luostarinen Project Manager, Specialist Innovative Public Procurement sari.luostarinen@forumvirium.fi +358 40 560 3326	http://www.forumvirium.fi/en	Finland	bodies of relevant User groups	SILVER (PCP)
VTT Technical Research Centre	VTT TECHNICAL RESEARCH CENTRE OF FINLAND P.O. Box 1000, FI-02044 VTT, Finland E-mail: info@vtt.fi Tel.: +358 20 722 7070	http://vtt.fi/	Finland	Commercial, industrial and standardisation bodies	DECIPHER (PCP)
Robosoft	45 Allée Théodore Monod, Technopole d'Izarbel, F-64210 Bidart Tel.: +33-559 415 360 E-mail: info@robosoft.com	http://www.robosoft.com/	France	Commercial, industrial and standardisation bodies	SILVER (PCP)

Entity	Contact data	Website	Country	Category	Project or Initiative
VIGILIO S.A.	Immeuble Le Magellan 7 rue Montespan 91024 Evry Cedex E-mail: n/a Tel. : + 33(0)1 69 47 60 30	http://www.vigilio.fr/	France	Commercial, industrial and standardisation bodies	Vigi'Fall
Theodore Puskas Foundation	Mr. Laszlo Gergely Director of business development Address: 22 Munkacsy Street, Budapest, 1063, Hungary E-mail: n/a Tel.: +36-1-302-2030	n/a	Hungary	Public administrations	PROGR-EAST
Ancitel Toscana	ANCINNOVAZIONE SRL viale Giovine Italia 17 50121 Firenze E-mail: info@ancinnovazione.it Tel.: 0552477996	http://www.ancinnovazione.it/	Italy	Commercial, industrial and standardisation bodies	DECIPHER (PCP)
ESTAV Centro	Via di San Salvi 12 - Palazzina n. 14 (50135) FIRENZE E-mail: direzione@estav-centro.toscana.it Tel.: 055/6937453 - 055/6937328	http://www.estav-centro.toscana.it/	Italy	Public administrations	DECIPHER (PCP)
INNOVA Sp.A	Antonella Vulcano Via della Scrofa, 117 00186 Rome Italy E-mail: a.vulcano@innova-eu.net Phone: +39 06 68803 253	http://innova-eu.net	Italy	Commercial, industrial and standardisation bodies	PROGR-EAST
Unione Regionale Delle Camere Di Commercio Industria Artigianato E Agricoltura Del Veneto	arco Scientifico Tecnologico - Vega Via delle Industrie 19/D Edificio Lybra I - 30175 Venezia – Marghera E-mail unione@ven.camcom.it Tel. +39 041 0999311	http://www.ven.camcom.it/	Italy	Commercial, industrial and standardisation bodies	PreCo

Entity	Contact data	Website	Country	Category	Project or Initiative
Alfamicro-Sistemas De Computadores, Lda	Alameda da Guia, 192A 2750-168 Cascais Email: mail@alfamicro.pt Tel.: +351 214 866 784	http:// http://www.alfamicro.pt/	Portugal	Commercial, industrial and standardisation bodies	PreCo
BIC Bratislava Ltd	Zochova 5 81103 Bratislava E-mail: n/a Tel: +421 2 5441 7515	http://bic.sk/	Slovakia	Commercial, industrial and standardisation bodies	PROGR-EAST
University of Ljubljana	Univerza v Ljubljani Kongresni trg 12 1000 Ljubljana E-mail: rektorat@uni-lj.si tel.: 01 241 85 00	http://www.uni-lj.si/eng/	Slovenia	Professional bodies in Public health/ Health education	PROGR-EAST
Barcelona Digital Technology Centre (BDIGITAL)	Roc Boronat Street, 117 5th Floor - Barcelona Growth Centre Building E-mail: info@bdigital.org Tel.: (+34) 93 553 45 40	http://www.bdigital.org/	Spain	Commercial, industrial and standardisation bodies	DECIPHER (PCP)
Fundacion Comunidad Valenciana- Region Europea	C/ En Bou, 11 46001 Valencia, ESPAÑA E-Mail: info@delcomval.be Tel: +34 96 313 10 78	http://www.ue.gva.es/	Spain	Public administrations	PreCo
Marsi Bionics S.L	Ctra. Campo Real Km 0,2 La Poveda 28500 Arganda del Rey – Madrid Tel.: n/a E-mail: n/a	http://www.marsibionics.com/	Spain	Commercial, industrial and standardisation bodies	SILVER (PCP)
The Agència d'Informació, Avaluació i Qualitat en Salut (AIAQS)	Rossana Alessandrello Email: ralessandrello@gencat.cat Tel.: +34 935513943	http://aquas.gencat.cat	Spain	Professional bodies in Public health/ Health education	• DECIPHER (PCP) • UNWIRED HEALTH (PCP)

Entity	Contact data	Website	Country	Category	Project or Initiative
TicSalut Foundation	Ignasi Garcia-Milà Parc TecnoCampus Mataró-Maresme Avinguda Ernest Lluch, 32 Torre TCM 3, planta 6 08302 Mataró (Barcelona) E-mail: igarciamila@ticsalut.cat Tel.: +34 93 553 26 42	http://www.ticsalut.cat	Spain	Professional bodies in Public health/ Health education	• DECIPHER (PCP) • UNWIRED HEALTH (PCP)
Bestic AB	c/o Business Hub, Årstaängsvägen 21 C SE-117 43 Stockholm Tel: +46 (0)733 - 93 00 07 E-mail: catharina.borgenstierna@bestic.se	http://www.besticinc.com/	Sweden	Commercial, industrial and standardisation bodies	SILVER (PCP)
Bioservo Technologies AB	Bioservo Technologies AB Isafjordsgatan 39B 164 40 Kista Tel.: +46 (0)8-21 17 10 E-mail: info@bioservo.com	http://bioservo.com/	Sweden	Commercial, industrial and standardisation bodies	SILVER (PCP)
City of Västerås	Mats Rundkvist Project Manager E-mail: mats.rundkvist@vasteras.se Tel.: +46 21 390185	http://www.vasteras.se	Sweden	Public administrations	SILVER (PCP)
VINNOVA	Nina Widmark Director E-mail: nina.widmark@vinnova.se Tel.: +46 8 473 3052	http://www.vinnova.se/en/	Sweden	Public administrations	SILVER (PCP)
AIM	Gevart van Doernestraat 34 · 5751 ML Deurne Tel.: + 31 493 351867 E-mail: info@aim-ned.nl	http://www.aim-ned.nl/	The Netherlands	Commercial, industrial and standardisation bodies	HealthLab: Tsaar Peter

Entity	Contact data	Website	Country	Category	Project or Initiative
Alten Nederland B.V.	Beukenlaan 44 5651 CD Eindhoven Tel.: 040 - 256 3080 E-mail: info@alten.nl	http://www.alten.nl/	The Netherlands	Commercial, industrial and standardisation bodies	SILVER (PCP)
AMSTA	Dr. Sarphatihuis Roetersstraat 2 1018 WC Amsterdam E-mail: info@amsta.nl Tel.: 020 554 04 04	http://www.amsta.nl/	The Netherlands	Professional bodies in Care, ergo-therapy and social work	HealthLab: Tsaar Peter
Amsterdam University of Applied Sciences (AUAS/HvA)	Wibautstraat 2-4 1091 GM Amsterdam E-mail: n/a Tel.: +31 20 599 5422	http://www.international.hva.nl/	The Netherlands	Professional bodies in Public health/ Health education	HealthLab: Tsaar Peter
Assistobot B.V.	L.J. Zielstraweg 2 9714 GX Groningen Tel.: 085-2019691 E-mail: info@assistobot.com	http://www.assistobot.com/	The Netherlands	Commercial, industrial and standardisation bodies	SILVER (PCP)
Brainport Development NV	Anne Landstra Project Manager - Health & Technology E-mail: a.landstra@brainportdevelopment.nl Tel.: + 31 651 185 243	http://www.brainportdevelopment.nl/	The Netherlands	Public administrations	SILVER (PCP)
City of Eindhoven	Janine Cosijn Public Health Officer j.cosijn@eindhoven.nl +31 40 2382782	http://www.eindhoven.nl/	The Netherlands	Public administrations	SILVER (PCP)
Netherlands Enterprise Agency	Carla Dekker Team PCP/PPI E-mail: carla.dekker@rvo.nl Tel.: +31 88 602 5365	http://english.rvo.nl/	The Netherlands	Public administrations	SILVER (PCP)

Entity	Contact data	Website	Country	Category	Project or Initiative
Stichting Amsterdamse Innovatie Motor	De Ruyterkade 5, 1013 AA Amsterdam E-mail: n/a Tel.: +31 20 524 1120	http://www.aimsterdam.nl	The Netherlands	Commercial, industrial and standardisation bodies	PreCo
VU – University amsterdam	Main building VU University Amsterdam De Boelelaan 1105 1081 HV Amsterdam T +31 20 59 89898 E-mai: n/a	http://www.vu.nl/	The Netherlands	Professional bodies in Public health/ Health education	HealthLab: Tsaar Peter
Waag Society, institute for art, science and technology	Sint Antoniesbreestraat 69 1011 HB Amsterdam E-mail: E society@waag.org Tel.: +31 (0)20-5579898	http://waag.org/	The Netherlands	Commercial, industrial and standardisation bodies	HealthLab: Tsaar Peter
City of Stockport	Andy Bleaden Funding and Programmes Manager Stockport Council E-mail: n/a Tel.: 07946 481 674	http://www.stockport.gov.uk/	United Kingdom	Public administrations	SILVER (PCP)
CMFT/TRUSTECH	TRUSTECH The Innovation Unit 1st Floor Postgraduate Centre Manchester Royal Infirmary Oxford Road Manchester M13 9WL E-mail: innovations@trustech.org.uk Tel.: 0161 276 5764	http://www.trustech.org.uk/	United Kingdom	Professional bodies in Public health/ Health education	DECIPHER (PCP)

Entity	Contact data	Website	Country	Category	Project or Initiative
East of England Development Agency, UK. Technology Strategy Board	The Technology Strategy Board North Star House North Star Avenue Swindon SN2 1UE E-mail: support@innovateuk.org Tel.:0300 321 4357	https://www.innovateuk.org/	United Kingdom	Public administrations	The Technology Strategy Board: driving Innovation
NHS National Innovation Centre (NIC)	i-House University of Warwick Science Park Millburn Hill Road COVENTRY CV4 7HS E-mail: n/a Tel.: n/a	http://www.nic.nhs.uk/	United Kingdom	Public administrations	--
Technology Strategy Board	Stephen Browning Head of SBRI and Smart E-mail: Stephen.Browning@tsb.gov.uk Tel.: +44 1793 442700	http://www.innovateuk.org/	United Kingdom	Public administrations	SILVER (PCP)

Table 1. Summary of stakeholder list

4. Definition of PCP Interview Framework

4.1 Interview Methodology

The main objective of the questionnaire is to identify the critical factors of success and best practices when applying PCP in ICT projects/applications in the area of fall prevention, intervention and safety and is directed to projects we have considered a successful PCP project.
After identifying some of the successful cases applying a PCP in ICT for health solutions that could be applied in the ICT for fall prevention and effective intervention solutions, we search for he partners involved in these successful projects. The methodology adopted to interview the participants was based on a questionnaire because it is a practical way to address a large number of partners. The partners were contacted and invited to fill an online questionnaire and, in order to increase its outreach and accessibility, it was also distributed by email.

4.2 Framework of PCP Interviews

The questionnaire is divided into two main categories: questions about project details (name, objectives, etc.) and questions about the successful factors, as shown above.

Questionnaire

This questionnaire is being done as part of a European wide study concerning ICT-solutions for fall detection, prevention and effective intervention for older people.
The purpose of this questionnaire is to identify the critical factors of success and best practices when applying PCP in ICT projects/applications in the area of fall prevention, intervention and safety and is directed to projects we have considered a successful PCP project.
If you:

a) have participated in some Public-Private Procurement Process of ICT for Health solutions, and/or

b) are involved in the development, deployment or commercialization of ICT solutions for fall prevention, and/or

c) have participated in projects or initiatives with a generic approach that could be applied in the ICT solutions for the Health sector Public-Private Procurement Process

we invite you to fill the questionnaire. In the case of having no PCP experience, please direct your answers to any ICT fall-solution projects in which you have participated and considered some parts successful.

1. **Project details**

1.1. What is the name of the project?

1.2. What is the main objective of the project?

1.3. Why do you consider either the ended project or the ended stages of the project were a success?

1.4. The product reached the market? If not, could you explain why?

2. **Success factors**

2.1. From the following list of actions, please tick the ones you took into account when applying your PCP project.

Tick the answers with a X.

	Investigate and address the market needs
	Well-prepared business case with clear specifications of the requirements
	Keep a close dialogue between the procurer and the supplier
	Agreement on the ownership of Intellectual Property Rights (IPR)
	Risk/benefit handling strategy
	A capable and involved procurer with sufficient knowledge of the subject field
	Incentives from public entities

2.1. From the above list, what actions do you deems crucial to the success of a project. Please, mention the actions and explain why.

2.2. Do you know other success factors that are not referred in the above list? If yes, please mention them and explain its influence in the project.

4.3 List of Interviewees

N° of Interviewees: 11
List of Contributing Partners: Cooperativa Sociale COOSS Marche (COOSS) Fundación Privada CETEMMSA (CET) Emergency Response Limited (ERL) Associação Fraunhofer Portugal Research (FHP) University of Limerick (UL) National University Of Ireland, Galway (NUIG) Siveco Romania Sa (SIV) Fondazione Santa Lucia (FSL) Charité - Universitätsmedizin Berlin (CHA) Foundation for Research and Technology - Hellas (FORTH) Fundació TicSalut (TICS)

4.4 Summary of the Interviews' Results

1. 1 Projects considered and named by interviewees	
e-CAALYX	***1.2 Main Objectives***
	Useable and safe AAL technologies for elderly people with chronic diseases; including fall sensor
	1.3 Success or not
	The results of the usability tests were presented at the IEEE EMBC Conference in San Diego 2012 with good feedback.
	1.4 Market Reached/Not reached
	No; at the end the project success was about know-how transfer and not reaching the market.
	The technological developments were not reliable and valid enough for market transfer
REACTION – Remote accessibility to diabetes management and therapy in operational healthcare networks	***1.2 Main Objectives***
	To develop an integrated ICT platform that supports improved long term management of diabetes based on wearable, continuous blood glucose monitoring sensors and automated closed-loop delivery of insulin. The project is not a PCP project and not directly involved in fall detection/prevention, but the final platform might be easily extended integrating the proper sensors in order to provide also this service.
	1.3 Success or not
	The outcomes (final "products") of the projects are in daily use in a large hospital in Austria and in a primary healthcare centre west of London.
	1.4 Market Reached/Not reached

	There is interest in the market since for one product it has be obtained the CE mark and interest has been manifested by hospitals in Denmark. For another product (patient portal) interest has been manifested by an SME in UK focused in delivering remote patient monitoring services (especially to elderly people). Even if the project is concluded, the process of reaching the market is on the way.
DECIPHER	***1.2 Main Objectives***
	The project aims to develop a mobile solution which enables secure cross-border access to existing patient healthcare portals
	1.3 Success or not
	The project has just launched the Phase 0 Call for Tenders. So no ended stages are so far accomplished.
	1.4 Market Reached/Not reached
	Not Applicable. No ended stages, and the project has not ended.
I-DONT-FALL Project full title: " Integrated prevention and Detection sOlutioNs Tailored to the population and Risk Factors associated with FALLs " Grant agreement no: 297225	***1.2 Main Objectives***
	The main goal of the I-DONT-FALL project is to deploy, pilot and evaluate a wide yet innovative range of highly personalized ICT-based solutions for fall detection and prevention management, which will be able to be flexibly configured to the needs of specific target groups and risk factors associated with fall incidents. The basic goal of the IDF system is to offer an integrated fall management solution: 1 – Fall Prevention services, 2 - Fall Detection services. Fall prevention is based on the training protocol on gait/balance and cognitive program trough the IDF platform (i-walker, fall sensors, SOCIABLE cognitive platform). Fall detection is based on the IDF system at home that trough a call center is able to send an alarm and an emergency ambulance in case of needs
	1.3 Success or not
	Because at this time (middle project) the level of acceptability and usability is good and it's seems that sensitivity and specificity are satisfactory

	1.4 Market Reached/Not reached
	The project is ongoing
The FATE project (" Fall Detector for the Elder " Grant agreement no: 297178)	***1.2 Main Objectives***
	The main objective is to test and validate a complete wearable ICT solution for persons at risk of falling that can guarantee their normal activity at home environment and related activities of daily living, improving their independence and self-confidence, by preventing and detecting falls. The FATE system will be able to detect falls both at home and outside. The system consists on a highly sensitive fall detector based in accelerometers running a specific detection algorithm, with sensitivity of 98.88% and specificity of near 100% in fall detection. This main element is complemented by a telecommunications layer based in wireless technologies, able to send alarms when the falls are produced both at home and outside home via 3G or GPRS protocol. Detected falls will be automatically communicated to relatives or health providers through the specific call centers. If the user is outside home, the mobile phone will also send the location through antenna triangulation. In persons suffering the biggest gait difficulties, the system will be also complemented by the i-Walker, an intelligent walker designed to minimize the risk of falls of those elders with greatest gait difficulties.
	1.3 Success or not
	Because at this time (middle project) the level of acceptability and usability is good and it's seems that sensitivity and specificity are satisfactory
	1.4 Market Reached/Not reached
	The project is ongoing
MEDiATE – Collaborative and interMEdiating solution for managing Daily Activities for the Elderly at home (AAL – Ambient Assisted Living)	***1.2 Main Objectives***
	The objective of the project is to design, build and experiment a multi-stakeholder communication and organizational solution, providing a rich and open service environment in support of the elderly's care-givers and more broadly of all functional needs taking place within their social environment that has to be facilitated and coordinated. The project MEDiATE aims to develop and implement a collaborative and intermediating solution including formal and informal carers for the Management of Daily Activities for The Elderly at home.
	1.3 Success or not
	The project is in progress (01/06/2013 – 31/05/2015). We consider that the ended stages of the project represent a success because of the innovative design of the web-based solution that will allow all care providers to connect over multiple types of devices and send messages to other individuals, share information with specific sub-groups of carers, and access information relevant to their role.
	1.4 Market Reached/Not reached

	N/A. Project in progress.
HEALTH EVERYDAY Mobile environment for healthcare services and health education for a better life of NMD' patients (EUREKA - EUROSTARS)	***1.2 Main Objectives***
	The project Health Everyday aims to design, develop and implement a mHealth platform which integrates biosensors, mobile devices, a software middleware and applications for the patients suffering by NMD (Nutritional and Metabolic Diseases). Health Everyday is a specific National Research&Development project and is coordinated by SIVECO, having as partner the Polytechnic University of Bucharest. The HEALTH EVERYDAY project aims to design and implement a mobile environment for healthcare services and health education for a better life, in the benefit of patients suffering by NMD. The goal of the proposed solution is represented by the prompt and quick analysis of the patient individual physiological data and the offer of a personalized answer, in real time, to the patient, using warnings and memento. HEALTH EVERYDAY will offer health care and information to any interested person, anytime and anywhere, in real time, assuring that way to the NMD'patients the possibility of prevention, diagnostic and care/treatment by remote (telemonitoring).
	1.3 Success or not
	The project is in progress (2012 – 2015). We consider that the ended stages of the project represent a success because of the completion of the innovative design of the intelligent mHealth solution that will allow healthcare services and health education for a better life of patients suffering by NMD, using mobile devices and biosensors, sharing information between the NMD' patients and the medical personnel and accessing relevant and accurate information.
	1.4 Market Reached/Not reached
	N/A. Project in progress.

WIISEL – Wireless Insole for Independent and Safe elderly Living (European funded project, ICT, 2011-2015)	***1.2 Main Objectives***
	The main goal of WIISEL is to develop a flexible research tool to collect and analyze gait data from real users and correlate parameters related with the risk of falls from the elderly population. This tool will consist of a combination of a flexible software platform together with wearable insole device collecting data related with gait.
	1.3 Success or not
	The project has not ended yet (still in development phase). The phases already closed so far are mainly related to technical developments and were closed successfully but with some complexities which involved contingency plans and small delays, inherent to research activities.
	1.4 Market Reached/Not reached
	Not yet because WIISEL is an R&D project, and as such its aim is to develop the system and make first trials to validate its feasibility. Therefore, it is not expected to reach the market neither in the frame of WIISEL, nor at medium term, since further improvements and tests will be needed after the project to get a marketable solution.
Fall Competence Center	***1.2 Main Objectives***
	The project aims to investigate in deep several aspects related to falls, namely automatic fall detection, fall risk analysis and strategies for fall prevention, developing solution based on smartphones. *The smartphone built-in inertial sensors are used to continuously assess the mobility of elderly users, as they perform their usual daily activities, and detect falls. This also allows to monitor fall risk factors pervasively over time, providing feedback on the risk of falling and allowing to timely implement strategies of fall prevention.*
	1.3 Success or not
	The first results of the project have been published in international conferences and some solution modules are being implemented in the context of a future commercial solution.
	1.4 Market Reached/Not reached
	The project did not reach the market as a product yet, this stage is under development.
MOSAIC – Enterprise Ireland funded project	***1.2 Main Objectives***
	Development of a fall sensor embedded in footwear

	1.3 Success or not
	This was a 1-year project that resulted in a working prototype that demonstrated reasonable promise for commercialization.
	1.4 Market Reached/Not reached
	No. No further funding was available to bring the product to a sufficiently high level. There was some interest from industry, but the prototype was deemed to be too far from a commercial product.

2.1 Actions took into account when applying PCP project	
Investigate and address the market needs	**9**
Well-prepared business case with clear specifications of the requirements	**1**
Keep a close dialogue between the procurer and the supplier	**3**
Agreement on the ownership of Intellectual Property Rights (IPR)	**6**
Risk/benefit handling strategy	**5**
A capable and involved procurer with sufficient knowledge of the subject field	**3**
Incentives from public entities	**3**

2.2 Crucial Actions
The proposed technical development should be part of the actually product portfolio and not a new one. The developer would be more interested in the results and marketable solutions. Also the later users has to be involved during the whole development process (requirements definition, usability tests etc.) and not at the end.
Without a clear agreement on the ownership of the IPR a real exploitation cannot be performed. The agreement should be set and signed among the involved partners before the starting of the design. The postponing of the agreement might create substantial difficulties in finding a satisfactory solutions for the involved partners.
It is especially relevant to fully identify needs, but needs that require some R&D not daily needs. As this is the area a PCP process has to cover. Find the appropriate balance between the technical complexity and the economical funds available to develop possible solutions at each of the phases. It is an important matter as this limits the type and size of organization that present proposals.
We believe that one of the most important action is a complete investigation on market needs because this can guarantee a good acceptation from users and then from market
· *Investigate and address the market needs – It is mandatory that the launched project address a significant market need (societal, governmental etc.)*
· *Keep a close dialogue between the procurer and the supplier – This approach is very important to identify data and information necessary for the supplier to meet the procurer' needs and establish a close communication between them.*
· *Risk/benefit handling strategy – It is mandatory to assess a distinct risk/benefit strategy during the progress of the PCP procedure. That means the public and private sector share the risks and benefits of the exploratory research which aims innovate public services from the first stage of pre-commercial product development till the stage when the product is ready for commercialization.*
· *A capable and involved procurer with sufficient knowledge of the subject field – This approach is very important for a successful PCP project because a capable and involved procurer in the project, with sufficient knowledge of the subject field shall easily identify how the proposed product meets their concrete needs.*
A well prepared business case is crucial to the success of the project.
The actions marked above are those more strongly taken into account at the proposal stage (before the start of the project): investigate market / research needs, clear specs of the requirements, risk-benefit analysis and involvement of an expert user. *During the project stage, all actions are crucial to the success of a project; a well-prepared business case, clear agreements on IPR and high involvement of future procurer as well as close dialogue with him in all phases are probably the key actions, in addition to the mentioned before, for a successful market uptake.*
Investigating the market needs and trends, identifying the benefits of using smartphones as pervasive and unobtrusive monitoring devices and the lack of smartphone-based fall-related tools directed to the end-user was crucial for the success of the project.

I would regard all of these (apart from the last one) crucial for bringing a product to market. They all deal with aspects of the market offering that are a necessary requirement of success.

2.3 Other Success Factors
Most technical solutions in medical areas (e.g for medical product approval), even for fall prevention, have to be tested for safety, validity, reliability. These tests has to be performed during clinical trials which are very expensive. The most European funding programmes did not include clinical trials with a large population (power of the trial). For a lot of developer clinical trials are too expensive, public bodies have to bring adequate incentives/funding schemes.
Europe projects with partners all over Europe need a very strict coordinator.
Legal procedures were to contract R&D using PCP formulas are not fully embedded in Public administration knowledge. Lots of effort had to be made to ensure the legal department fully understood and accepted the terms for the tender launch.
Availability of funds (either coming from public programme, e.g. national R&D programmes, Horizon 2020, FP7 etc, or coming from private investors (business angels, joint venture etc).

Taking into account end-users needs and feedback, using a user-centered development approach. Effective dissemination of the project results.
Communication links to end-users to convince the latter to buy the product. In this sense buy in (and if possible participation) of reputable partners from the health sciences is very advantageous. Early interaction with certification bodies and compliance with quality control systems for design, testing, trialing and manufacturing. Contacts with manufacturers / providers of similar products as a partner.

5. Analysis of the Results of the Interview Process

This section presents the main results obtained after the analysis of the gathered data. The questionnaire was distributed to the E-No Falls project partners, which constitute our sample. After the distribution, it was possible to collect a total of 10 responses, 2 partners from Academic/University, 4 from R&D Institutes and 2 partners from Industry, see Figure 5. Considering the small number of responses, it is not possible to characterize the universe with these responses due to the high error involved.

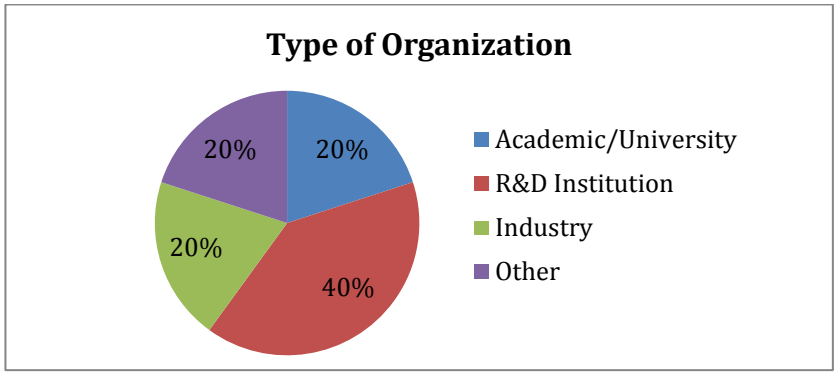

Figure 5. Type of organization participant in the study

A. Project details

Question: What is the main objective of the project?
60% of the answered questionnaires, Figure 6, identified the project in the scope of based technologies with potential to enhance the autonomy and quality of life of elderly people, through boosting detection and/or prevention of elderly falls. The mentioned projects explore wearable sensors and solutions based on smartphones capable of detect and /or monitor a fall and send an alarm when a fall is detected; and one of them intend to develop a tool capable of collect and analyze gait data from real users and correlate parameters related with the risk of fall. The remaining 40% are designed for service environment in support of the elderly‘s and elderly’s caregivers.

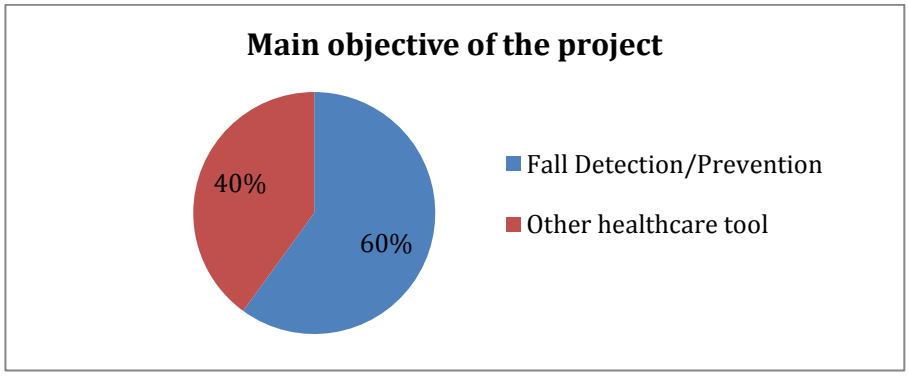

Figure 6. Main objective of the project

Question: Why do you consider either the ended project or the ended stages of the project were a success?

From the obtained questionnaires, the responders identified several reasons that indicate that a project has been well succeeded. In the table below are detailed the reasons indicated in the questionnaires and the number of responses.

		Number of responses
1.	**The results of the usability tests were presented at an internationally renowned conference with good feedback**	2
2.	**The phases already closed so far are mainly related to technical developments and were closed successfully according to evaluations from the EU commission in the planned deadlines**	1
3.	**The system is being used in a hospital and in a health care center**	1
4.	**The system has been complemented by secondary elements in order to ensure the success of the prevention and detection of falls in all circumstances**	1
5.	**The level of acceptability and usability is good and the sensitivity and specificity are satisfactory**	2
6.	**The innovative design to allow patients/healthcare providers to easily access and share information relevant to their role**	2
7.	**Some solution modules are being implemented in the context of a future commercial solution**	1
8.	**No specific reason**	1

Table 2. Reason to consider the project a success

Question: The product reached the market? If not, could you explain why?

There are only few PCP projects in Europe and many less reached a mature state. From all the presented projects, only one did already reached the market after being adapted according to the market needs; and two of them are on the way to reach the market since some interest has been manifested by hospitals, industry and SMEs. Although successful, some projects didn't have already reached the market because they are actually in a pre-mature stage to be marketable solution. Besides, sometimes the success of a project is not about reaching the market but know-how transfer. Figure 7 presents the percentage of projects in each stage.

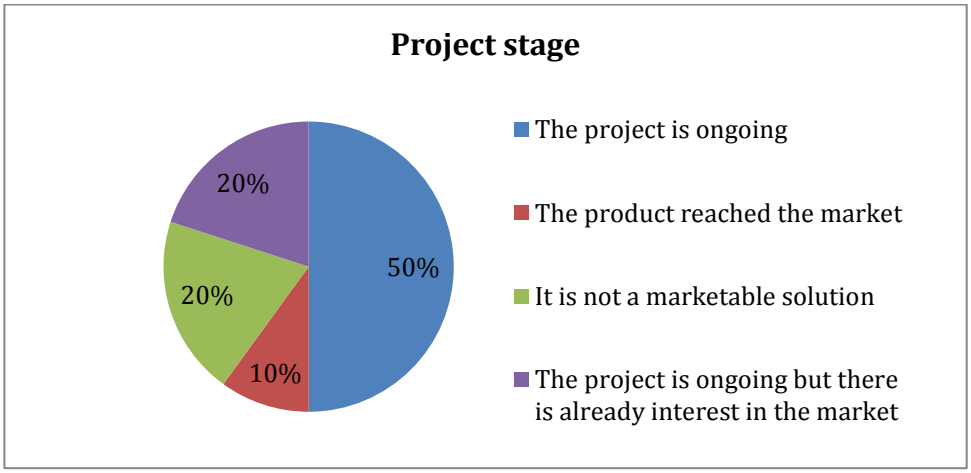

Figure 7. Project Stage

B. Project details

Question: From the following list of actions, please tick the ones you took into account when applying your PCP project.

From the listed actions, the one with greater concordance was the one referring to a prior analysis of market needs when applying a PCP project, with 9 positive responses. The second action most frequent is to have a well stablished strategy to share the risk/benefit, with 6 out of 10 answers. The number of positive answers for each action is presented in Figure 8.

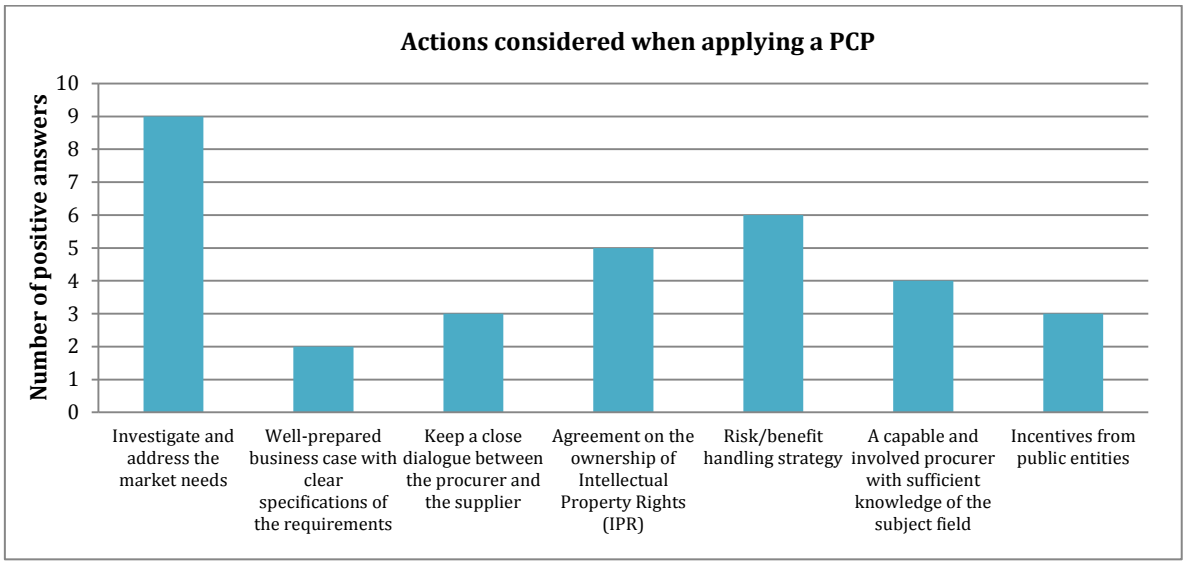

Figure 8. Number of positive answers for each action

Question: From the above list, what actions do you deems crucial to the success of a project. Please, mention the actions and explain why.

Among the mentioned list, partners referred the "investigation of the market needs" and the lack of products that satisfies that needs as being the most important factor when applying a PCP because this action can guarantee a good acceptation from users and then from market.

The agreement on the ownership of the Intellectual Property Rights (IPR) is also mentioned as being one of the most important factors and, in fact, it is one of the main acknowledged obstacles when using PCP. It should be set and signed among the involved partners before the starting of the development; otherwise it might create substantial difficulties in finding a satisfactory solution for the involved partners. Furthermore, one partner states that the ownership rights of IPRs generated by the companies during the PCP contract should be assigned to that company. Thus, a free license to use the R&D results (i.e., prototypes) should be assigned to the public purchaser.

Moreover, finding an appropriate balance between the technical complexity and the economical funds available to develop possible solutions at each of the phases it is also crucial as this limits the type and size of organization that present proposals.

Question: Do you know other success factors that are not referred in the above list? If yes, please mention them and explain its influence in the project.
The questionnaire allowed us to gather some other actions that may contribute to the success of a project, namely:

- The involvement of the end-users in all the project stages: a user-centered development approach. The end-users should to be involved during the whole development process (requirements definition, usability tests etc.) and not only at the end. To guarantee the acceptance of the product it is important to use a user-centered development approach which includes testing the prototype (for safety, validity and reliability) several times and take into account the users needs and feedback. However, the most European funding programmes did not include clinical trials to test the solution with end-users. So, it is important to enhance financial incentives and funding schemes for clinical trials in a large population.
- The availability of funds, either coming from public programme, e.g. national R&D programmes, Horizon 2020, FP7 etc, or coming from private investors (business angels, joint venture etc)
- The investment on effective methods for the dissemination of the project results;
- The investment on Public administration information and awareness on legal procedures to contract R&D using PCP formulas. Legal and regulatory issues are one of the main acknowledged obstacles on using PCP in Europe. PCP process is not integrated within the legal framework, particularly in the matter of process of tender review used to award public contracts.

6. Conclussions

6.1 Expectations & Recommendations

Recent years have seen a marked increase in cooperation between the public and private sectors for the development and operation of infrastructure for a wide range of economic activities. Such Public-Private Partnerships (PPP) arrangements were driven by limitations in public funds to cover investments needs but also by efforts to increase the quality and efficiency of public services. The Pre-commercial public-private procurement (PCP) is intended to be a driver to contribute to the deployment of innovative ICT fall prevention and intervention solutions. E_NO FALLS aims to increase awareness among all stakeholders involved in the "ICT for Falls" ecosystem and that therefore could potentially launch or participate in a PCP process to create step-change innovations in this field.

The preliminary survey here presented confirmed that PCPs have a long history in some Member States of the EU while being a more recent development in others. Most of the PCPs investigated within the E-NO FALLS Consortium are still running and benefits and limits can be only foreseen. Due to the PCP complexity, emerged from the survey in all its phases (design, implementation and management), requires a deeper investigation in order to identify elements of success, so the methodology, drafted in present WP3, have to be strictly applied but also it should be flexible enough in order to duly evaluate the potential of PCP.

Going outside the Consortium, a wide number of inputs from stakeholders is expected from the next surveys; meaningful information have to added to those precious inputs coming from E-NO FALLS Partners in order to widen the range of knowledge about PCP and in order to make E-NO FALLS Network a point of reference for all those interested in PCP.

The design and provision of Guidelines are expected to come in the future from E-NO FALLS; such a goal can be reached by the identification of pathways, procedures and practices in an EU-wide perspective, because there are knowledge, approaches, regulations and practices very different from a country to another.

A wide and rich basin of stakeholders, public and private, is expected to be involved for both the collection of information and the identification of success factors, as well as the creation of a Community of interest around the PCP in which E-NO FALLS can act as an Observatory in order to constantly monitor PCP experiences Eu-wide, and as an HUB for all those subjects interested in using PCPs for developing the market of ICT-based solutions for fall prevention and avoid the mistakes of the past.

The main Recommendations, so, emerging from the preliminary survey go mainly toward the provision of Guidelines about how to build and manage successful PCP; they should be devoted to all public and private stakeholders which can find there ideas, information but also roles and methods duly defined.

E-NO FALLS Consortium is also recommended to act as an HUB for the economic and scientific community: the Network should be open to all interested in PCP with the active role of proved of know-how, evaluator and observer of future PCP initiatives and projects.

From the methodological point of view recommendations deal with the tools to be used for further investigate the PCP: methods for the survey should be flexible and open in order to be able to collect all useful information about success factors, also from experiences not directly

connected to falls prevention but, in general dealing with PCP in “ICT for Health” or PCP for Assistive Technologies , with their success factors to be applied in the specific field of “Ict for Fall Prevention”.

6.2 Open issues

The preliminary survey carried out already provided significant results in terms of opportunities and limits of PCP for Fall Prevention. Particularly significant is the emphasis given by the interviewees to the involvement of final end-users in the design processes which represent a key factor for success which should be studied further. Based on the end-users requirements and needs, solutions have to be developed by specialized enterprises with public funds contributing to implement the tools, according to well defined procedures tailored around common objectives for the users, for the enterprises and for the public.

There are, anyway, open issues and further answers to be clarified and reached, as the role of the public institutions, which shall not be only the provider of funds but should also act to match the needs of the older citizens with the capabilities, the skills and the know-how of the industries, in order to duly exploit and make the best from the resources made available for PCP, in particular in times like these of financial difficulties.

PCP can provide positive impacts on end-users by the provision of tailored solutions, on the industries as it can be the engine of the market and its innovation, and also on the public authorities which can provide wellness and health to reply to the emerging social needs. But the procedures to reach that goals can be different from a country to another, can be complex and difficult, and so the role of E-NO FALLS as an Observatory of successful stories of PCP can be decisive and precious in the future.

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