OLDES – OLDER PEOPLE´S E-SERVICES AT HOME

GOOD PRACTICE - PROJECT

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Contents

Introduction to the Good Practice (GP):

The number of older people in the EU is strongly increasing and the related burden in terms of public expense is getting higher and higher. Today more and more older people are living alone; in many cases those people are not supported by a "social/family network" capable of assisting them and in many other cases they hardly can afford private carers.

Problem:

1. The number of elderly people is increasing significantly and rapidly in all EU countries, creating substantial problems in terms of resources needed for assisting them
2. Lots of seniors are immobile and are socially excluded
3. Social/family networks not available always to support them and private carers hardly affordable

Solution:

- Definition of the needs of elderly people and their families with the possibility of direct interaction with health care services - creating dialog among all the future stakeholders of the platform to help them participate in its construction. Dynamic focused group sessions elicited the needs of all stakeholders
- Design and development of a very low cost and easy to use entertainment and health care (tele-accompany and tele-care) platform in terms of technologies, services, organisational models and user interfaces - user entertainment services, through easy-to-access thematic channels and special discussion groups supported by animators, as well as health care services based on established Internet and tele-care communication standards, including wireless environment and medical sensors linked to health care providers.
- Testing of OLDES application in Bologna and Prague
- Results Communication and dissemination activity; further exploitation

Impact:

- 100 patients from 2 countries took part in the 1-year pilot of the OLDES platform
- New project proposal (SPES) was initiated to transfer the approach and results achieved in the implementation of the OLDES platform into 4 new geographical contexts (Ferrara, Vienna, Brno and Kosice), focusing on new target diseases (respectively dementia, handicapped people, respiratory problems and social exclusion)

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1. Relevancy of the GP project

The “Relevancy of the GP project” section provides quick check and definition of its relevancy in regards to HoCare project objectives.

Good practice of quadruple-helix cooperation in R&I?	Yes, this GP project includes good practices of quadruple-helix cooperation in R&I
Good practice of delivery of Home Care R&I?	Yes, this GP project includes good practices of delivery of Home Care R&I.
If not in Home Care R&I, description and proof of its potential for transferability to delivery of Home Care R&I	N/A
Generation of innovation in home care through answering unmet needs identified by formal or informal healthcare providers?	Yes, this GP project includes good practices of innovation through answering unmet needs.
Generation of innovation in home care through public driven innovation?	Yes, this GP project includes good practices of public driven innovation.
Generation of innovation in home care via quadruple-helix cooperation for quicker delivery to the market?	Yes, this GP project includes good practices of innovation via cooperation for quicker delivery to the market.

2. Quick overview of the GP project

The “Quick overview of the GP project” section provides initial overview of the good practice project (GP project) and enables readers to see if this GP project idea is relevant for possible transfer to their organization potential innovation activities.

Name of the GP project	OLDES - OLDER PEOPLE’S E-SERVICES AT HOME
Region of origin of GP project	Czech Republic
5 keywords that best describe the content of the GP project	entertainment and health care platform, medical sensors, tele-assistance, clinical monitoring
Relevant **Operational Programme name through which the GP project has been funded**	STREP - Specific Targeted Research Project (EU)
Relevant **support programme / intervention area name** of the GP project **through which it was funded**	IST-2005-2.6.2 - Ambient Assisted Living (AAL) in the Ageing Society
Single or multiple	multiple recipients

recipients of the GP project?	
Type of lead recipient and its role (SME, LME, research centre, innovation centre, network/association, university/school, municipality, other public body, other (specify)	Public authority (national agency for new technologies, energy and the environment) with 12 research centres in the country – administrative, technical and financial management and contacts with EU Role of the lead recipient is to assist SME's in adopting innovative technology.
Types of participating partners and their roles (list all participating partner types. E.g.: hospital, social house, senior house, patient association, networks, SMEs, LMEs, research actors, business supporting organizations, public institutions/regulators, other (specify)	Municipality (town) – communication, coordination of pilots Businesses - 3x (public partnership owned company + private company) – platform design, exploitation of project, preparation and execution of pilot, provision of low cost PCs, development of behaviour alarm software Universities - 4x – developing algorithms, providing devices and sensors for testing, system requirements, user engagement, design of platform architecture and system, development of graphical user interface, pilot realization Local health authority at town level – platform evaluation, validation and test, preparation and execution of pilot Applied research centre in ICT – software development, design and development of communication system between sensors and PC, developing core client-server applications
Summary of the good practice	The OLDES project offered new technological solutions to improve the quality of life of older people. It aimed at developing a very low cost and easy to use entertainment and health care platform designed to ease the life of older people in their homes. In order to achieve this, new concepts developed in Information Technologies were integrated and adapted. The developed platform was based on a PC corresponding to Negroponte's paradigm of a 100 device, giving the guarantee of an affordable system. OLDES project provided: user entertainment services, through easy-to-access thematic channels and special interest forums supported by animators; and health care facilities based on established Internet and tele-care communication standards. The system included wireless ambient and medical sensors linked via a contact centre to social services and health care providers. Project also covered the definition, implementation and evaluation of a Knowledge Management (KM) program, an advanced user profiling system enhancing the communication between all the stakeholders of the system. The system was tested at two different locations: Italy over a group of 100 elderly (including 10 suffering with cardio disease) and the Czech Republic over a group of 10 diabetic patients. OLDES puts older people at the centre and made their needs the main priority in all developments. This was achieved through the use of modelling and animation tools to create scenarios designed to elicit responses from older people, their carers, and service providers. Animation and simulation helped to ensure that developments were, at all stages, grounded in the realities of social and health care, the cultures and economies of the specific pilot contexts, and as wide a range as possible of other European public service contexts. To maximise the flexibility and exploitability of its products, technical outputs were packaged appropriately into highly configurable service components. **Quadruple-helix cooperation roles:** - University/municipal hospitals – piloting sites, supply of patients for prototyping and usability testing

	- SMEs – platform design, software, exploitation - Research – sensors, devices, system requirements and architecture, graphical intereface - Public institutions – Pilot, evaluation **Home care relevancy** The project is in similar field and similar target audience (home care).

3. Transferability

The "Transferability" section provides more detailed review of strengths and weaknesses of this GP project including description of necessary basic conditions for region and leading organization to potentially transfer it. At the end of the section, the key threats in the successful transfer open up possibility to focus on specific relevant issues important for the successful transfer.

Strengths and weaknesses of the project

What are the GP project strengths? Why it was funded?	Usable for patients, cooperation with client organization very good as they were part of the project
What are the **key weaknesses of the GP project**?	Technology problematic – sometimes not functioned, training of people needed to use it, reaching sustainability over the potential

Basic conditions for successful transfer

Why is this GP project transferable? – innovation, impact, financial, legal, and timeframe aspects	Project is easily transferable to the other regions since the technological part of the project is relatively consistent a complete. So the design of OLDES platform and tools can be transferred. The only issue is to find partners willing to participate in operate in customization and operation of OLDES platform in target region. OLDES platform and tools are unable to function without proper maintenance because the target group (elderly people) are not able to set and maintain the device by themselves. Formal carers have to participate at OLDES platform as well since they are responsible for providing services to target group.
What are the **basic conditions the region needs to have** to be successful in transferring this good practise?	Long term plan (sustainability), must have local champion
What are the **basic conditions the leading recipient from the region needs to have** to be successful in transferring this good practice?	It is important that leading recipient is able to find enough key partners for operating OLDES platform in region. Operation of platform is based at participation of elderly people as target group, informal and formal carers and service providers. At the same time there has to be someone securing the maintenance and operation of OLDES platform and devices itself at technical level.

Key threats in GP project transfer

What are the **key potential threats for the GP project transfer?**	Most significant risk during the project was lack of financial resources for operating the OLDES platform due to political changes in the municipality where pilots take place. OLDES platform needs support from the public authorities at the local level.

4. Description of the GP project

The “Description of the GP project” section provides more detailed information on the Good Practice project (GP project) and enables readers to get further detailed inspiration and easy ready-to-use information for possible innovation transfer to other project applications. This includes: tackled problem, time length of the GP project, objectives, phases, activities and deliverables of the GP project, its main innovation and target group.

Description of the tackled problem

What was the **problem / challenge tackled** by the project?	The OLDES project will offer new technological solutions to improve the quality of life of older people. OLDES aims at developing a very low cost and easy to use entertainment and health care platform designed to ease the life of older people in their homes. Problem tackled by the project is in the effective ICT communication device which is affordable and easy to use.
What were the **reasons for the problem?**	Home health care service allows older persons to live as much as possible in their own ambient, with the members of the family, when clinical state and family consent that. It is addressed to not self-sufficient patients suffering with chronic diseases, to children with chronic diseases, to people suffering from serious handicap. It’s integrated into the health network including hospital and territorial services to guarantee the continuity of the cure. The service is assured by a team of various operators: doctors, nurses, social workers, that collaborate with the general practitioner. Sometimes it involves voluntary associations. Home health care service is carried out according to a personalized treatment plan, based on the assessment of the functional state of the patient and care problems oriented. Over three-quarters of the patients that utilize the home health care service is over 75 years old. It is essential to provide platform for communication and cooperation of all stakeholders.

Time length of the GP project

What was the **time length** of the GP project in months?	36 months

Objectives of the GP project

Describe the **overall and specific objectives** of the GP project	The objectives can be detailed as follow: - Develop a cost optimised solution: the technical choices will be driven by their cost-effectiveness. This point is discussed below (relevance to IST priority). - Adapted user interface giving access to up-to-date communication means in a transparent way. - Definition of the profile of an elderly people, so that elderly people, relative, care taker and doctors can interact in a efficient way. Not only the parameters have to be defined, but privacy and security have to be handled in a proper way. - Development of algorithms to analyse data coming from home equipment and elderly interaction with the contact centre and/or animators. - Development of a centralized system for providing information to the different stakeholders in role based modality. - Definition of a standardised procedure for tele-care interaction, with an identified role for each stakeholder. This includes the aspects of an efficient remote animation of the forums, the systematic identification of problems given the behaviour and/or the results of the measurements. The proper handling of

	the profile to set-up the best possible communities of people. - Development of a Result Evaluation program to identify, define and evaluate the “Action Metrics” and the “Results Metrics” to (1) stimulate results-producing actions and behaviours; and (2) objectively measure the business and financial impact of the OLDES initiative.

Phases, activities and deliverables

List all **main phases** of the GP project including their time length	Project Co-ordination – 36 months Usage and Provision Models, Systems Requirements and User Engagement – 6 months OLDES platform design 16 months OLDES platform development 31 months Validation and test 11 months OLDES application: pilots execution 19 months Dissemination 36 months Exploitation and evaluation 20 months
List and describe all **main activities** that were implemented by the GP project	T1.1 –User needs T1.2 – Basic scenarios and system requirements. T1.3 Measurement of success T1.4 Data protection, IT security and privacy T2.1 – Definition of the basic technological infrastructure T2.2 – GUI design: man-machine interaction study and UI interface T2.3 – Algorithms development T2.4 - Processes and rules design T2.5 – Definition of the Network Infrastructure T2.6 – HW selection and definition T2.7 – Requirements refinement T3.1 – SW development T3.2 – Modules development T3.3 –Interface development and Platform integration (Prototype α). T3.4 – Network infrastructure implementation T3.5 –Platform refinement (Prototype β). T4.1- Test preparation and setup T4.1 – Prototype α validation & test T4.2 – Prototype β validation & test T5.1 –Pilots preparation T5.2 –Pilots execution T6.1– Dissemination plan, material and channels T6.2– Dissemination events. T7.1 –Exploitation plans T7.2 - Market analysis of applied systems T7.3 – Exploitation agreement T7.4 –Usability- User acceptance evaluation
List all **main deliverables** of the GP project	D01 Quality Assurance Plan D02 Usage Models D03 Scenarios and system requirements D04 OLDES Results Programme D05 OLDES basic technological infrastructure D06 Dissemination plans D07 OLDES policies on Data protection, IT security and privacy D08 OLDES design: GUI, Process and rules, Algorithm D09 Network infrastructure and selected HW D10 1ST Report on dissemination activities D11 OLDES Prototype Alfa and Network implementation D12 Validation & test of Prototype α D13 Requirements refinement

	D14 Pilot case planning and preparation D15 OLDES Prototype Beta D16 2ndReport on dissemination activities D17 Validation & test of Prototype β D18 Pilot case results: Bologna and Prague D19 Cost benefit report and Exploitation agreement D20 Final OLDES product D21 3rd Report on dissemination activities D22 Final evaluation report D23 Public final report, assessment of the project results

Main innovation of the GP project

What was the **main innovation** of the GP project?	The main innovation in the OLDES proposal is that by using a low cost platform for delivering interactive services and monitoring: - The elderly maintain contact with the carer and each other via interactive services - The solution is low cost both in software and hardware terms because of the low cost PC and the ASP model. - It is easy to use for the elderly: you just turn on the device to access the interactive services provided by the carer. - The services can be personalised to the needs of the elderly. The animator knows the profiles and names of the people he is interacting with. - The server keeps the history of measurements from sensors for analysis and raising health related alarms. - Measurements are made at the client's location and monitored centrally at the call center. This allows the doctors to spend less time visiting patients who don't need it and provides better supervision of patients (each patient has a health agenda that is monitored by the call center). - The client technical infrastructure is very simple. The PC acts as a communication gateway and doesn't manage sensor data locally. - The carer can monitor more patients that before because of the monitoring assistance and the raising of alarms by the monitoring software. - The proposed platform supports a modular approach to services: services can evolve and be provided as needed without much work on the client side. It can be done centrally by the application service provider. - It promotes social life for the elderly by supplying them with interactive services. Some of the services will allow the isolated elderly to talk to each other. - The approach is sustainable because of the low cost of the proposed platform. It is easy to add new services and new sensors. - By monitoring patients you can avoid going to the hospital when it is not necessary. - The OLDES platform will make some of the most popular internet services available in an easy to use form for the elderly. - It supports mobility by allowing the elderly to be anywhere in their home and still interact with the contact centre thanks to the wireless communication. For example if the patient is sick he/she can still interact with the call center as long as the wireless communication is working.

Target group of the project

Who was the main **target group** of the GP project? (SME, LME, research organization, university, public institution, healthcare provider, business supporting	The final user of project product should be older people in their homes. Project connects - University/municipal hospitals – piloting sites, supply of patients for prototyping and usability testing - SMEs – platform design, software, exploitation - Research – sensors, devices, system requirements and architecture, graphical interface

organization, other (specify)	- Public institutions – Pilot, evaluation - With health providers, other service providers and support services.
Describe the main target group	Main target group is elderly people who will be able to use the most recent communication technologies to communicate between each other, with their relatives and care services. With such a system, the municipalities, healthcare service providers and other related service-providers are able to better know their target audiences and to offer them better services at lower costs.

5. Impact

The "Impact" section provides more detailed information on the effect of the GP project implementation and dissemination of major outputs.

Impact

What was the level of **geographical impact** of the GP project? (village, city, county, country, international, other (specify)	International
What were the final **impact indicators including their quantification**?	N/A

Describe the **changes resulted from the project** activities	The OLDES platform architecture is based on a centralised service-oriented infrastructure.
	The following functionalities are implemented:
	• Low Cost computer-based system. The elderly persons are provided with a low cost computer based system (the INK computer) which works as the access point for OLDES functionalities and services. The computer is connected to a classic television set which displays all the information provided by the platform through a simplified graphical user interface.
	• Adapted graphical user interface. The graphical user interface is especially designed to meet elderly person usability requirements. To select the options and access contents, elderly have an easy to use remote control.
	• Tele-health monitoring system. The elderly persons are provided with medical devices using Bluetooth technology. The INK computer installed in elderly person houses automatically collects the data measured by these devices and sends them to a central repository in a secured way.
	• Entertainment system. Through their INK computer, the elderly persons access entertainment services (tele-accompany):
	  ○ Audio/video content. The elderly persons are able to access audio and video content.
	  ○ Discussion groups. Using an adapted handset connected to the INK, the elderly persons are able to actively participate in discussion groups with an animator helping to create reactions and discussions.
	  ○ Voice over IP calls. The elderly persons can call easily their relatives (using a classic PC connected to the internet) and friends connected to OLDES system using their INK and their handset.
	• Automated Health Decision Support System: The data stored in the central repository are automatically analysed by two different intelligent tools. The first one is based on fuzzy logic and the second one is based on

	a Support Vector Machine. These tools may generate a warning or an alarm if an abnormal situation about health or social condition of the patient is detected. • Web portal: Prototype alpha integrates a web portal which provides interfaces for: ○ System administrators, ○ GPs and professionals, ○ Discussion groups animators, ○ Tele-accompany members.

Dissemination of outputs

Describe **dissemination activities** of the project outputs carried out during the GP project	OLDES Dissemination groups the activities aimed at widely informing about OLDES project and results, as a condition for their adoption and exploitation in different contexts. General goal (for any type of end user): to spread technological results and the level of satisfaction of user needs. Specific goals (for decision makers, caregivers, relatives in charge of supporting family members): to show how the technological system works and its advantages. In particular, an Interest Group is constituted to verify step by step, during all the life time of the project, the results achieved. IG components are first of all companies which present similarities with the Consortium industrial partners, and also consultants, technology transfer centres that can be interested in the OLDES project. A Web site is realised to inform on the project. Events are organised in accordance with the trials results; an advertising plan was developed. All partners are somehow engaged in dissemination activities.

6. Risks

The “Risks” section provides more detailed review of potential risks of this GP project implementation including their defined mitigation strategies to eliminate them.

Describe **risks involved** in implementing this GP project including their **mitigation strategies**	1 Non – Acceptance of the technologies - OLDES products rejected by potential users - Work with potential users from the start using scenarios story board simulations to identify those areas of the proposals which require early qualification and validation 2 Feeling of insufficiency of control over technologies – OLDES products rejected by potential users - Ensure well informed and creative participation by older people in the definition and shaping of the OLDES products 3 Feeling that technologies are too intrusive - OLDES products rejected by potential users - As above 4 Range of functions too extensive - OLDES products rejected by potential users - Progressively incorporate real elements of the developed products into scenarios for testing 5 Lack of fit with priorities of social services and health providers - OLDES products rejected by providers - Work with providers using scenarios and story board simulations 6 Failure to identify all relevant stakeholders - Resistance to OLDES products - Stakeholder mapping 7 Lack of engagement by one or more stakeholders (family carers, health services, social services, voluntary sector as service providers and advocates for older people, for-profit service providers, IT suppliers to health and social care - Rejection of OLDES products - Record and analyse stake holder responses and feedback into product development

7. Budget

The “Budget” section provides more detailed review of costs regarding the project implementation as well as operational sustainability after its end. In addition, if relevant, public tenders within the project and additional generated incomes by the project are showed and explained.

Budget

What was the **overall budget** of the project **in EUR**?	3.647.844 €
List relevant **budget lines of the project including their % share** from total budget	N/A

Additional income generated by the project

Did the project create any **additional income**?	no, the GP project did not generate additional income
If yes, specify **which type of income and what amount in EUR?**	

Public tender

Did the project include any **public tender**?	yes, the project included a public tender
If yes, specify **what kind of contract** (specific contract, general contract, other)	Specific contract
If yes, specify in **what amount** in EUR	40000 EUR
Describe the **public tender subject**	For the pilot run the municipality needs to provide participants in total with 200 OLDES computers. The contract was implemented in the framework of Italian legislation in force at that time.

Financial sustainability after GP project end

Was there an **operational financial sustainability plan** in the project **after its**	yes, the GP project included an operational financial sustainability plan

end?	
If yes, specify **where the operational funds** after project end **came from?**	Municipality performing the pilot run and subsequently using the OLDES project results was responsible for financing the operation of OLDES maintenance costs. Unfortunately due to changes after election the project was no longer supported.
If yes, specify the **amount of operational funds** in EUR	N/A

8. Other information

In this section, specific additional information about the GP project could be revealed.

Please describe **any other relevant information about this GP project** (if relevant)	http://www.oldes.eu/index.html

9. Information gathered by

The information about this good practise (GP) project has been gathered for the purpose of the HoCare project (Interreg Europe Programme) by the following organization:

Region	Czech Republic
Organization name(s) (+ in local language in brackets)	DEX Innovation Centre
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