



INNOVATIONS IN HOME CARE – GENERATING NEW SOLUTIONS THROUGH PUBLIC DRIVEN INITIATIVES

JOINT THEMATIC STUDY OF THE HOCARE PROJECT



European Union
European Regional
Development Fund

Aim and target group of this Joint Thematic Study

This Joint Thematic Study – INNOVATIONS IN HOME CARE – GENERATING NEW SOLUTIONS THROUGH PUBLIC DRIVEN INITIATIVES - describes, summarises, identifies and analyses transferable knowledge gathered within the HoCare project relevant to one of its sub-objectives. This Study therefore looks at creation and support of new innovations in Home Care specifically from the angle of this Study topic. Other 2 Joint Thematic Studies have been developed and published – with focus on addressing unmet needs identified by formal and informal healthcare providers and faster delivery of innovations via quadruple-helix cooperation – and for these please read through the other 2 separate Studies.

This Study includes the following key transferable information:

- 1) description of current situations in project partners' countries (Cyprus, Slovenia, Bulgaria, Lithuania, Hungary, Portugal-Madeira, the Czech Republic and Romania) regarding
 - public organizations as PPI, PcP or other innovative projects' initiators
 - support of such programmes / initiatives from Operational Programme
- 2) summary of common problems and challenges in generating new innovations from public bodies
- 3) identification and analysis of selected good practices of financed projects and of Operational programme strategic focus or management practices gathered through the HoCare project's exchange of experience process

This Study is developed primarily for stakeholders outside of the HoCare project partnership - Managing authorities of Operational Programmes supporting Research & Innovations, international, national and regional stakeholders influencing Operational Programmes, or institutions involved or interested in getting finance for their research and innovation projects in home care).

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1. INTRODUCTION TO HOCARE PROJECT

HoCare project (Interreg Europe, PGI01388, <https://www.interregeurope.eu/hocare/>) tackles the challenge of ageing population and the related opportunity for new potential innovations in home care. It's overall objective is to boost generation of innovative Home Care solutions in regional innovation chains by strengthening of cooperation of actors in regional innovation ecosystems using Quadruple-helix approach.

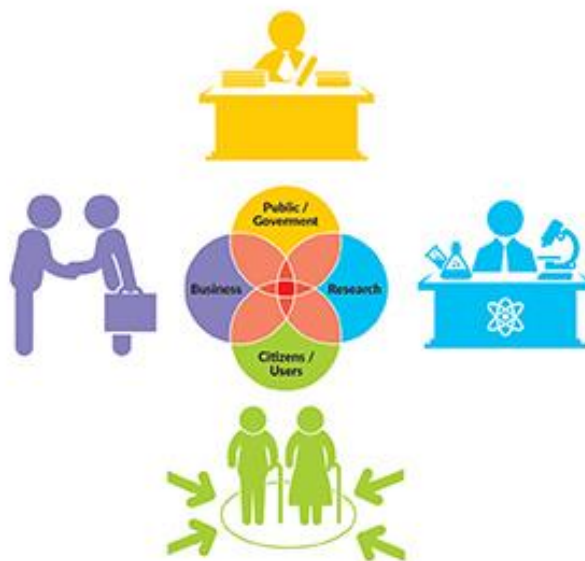


Figure 1 - Quadruple-helix cooperation model involving 4 helixes:
Business, Research, Public/Government, and Citizens/Users

Quadruple-helix is an innovation cooperation model in which “users (citizens), businesses (industry), research actors (academia) and public authorities (government) cooperate in order to produce innovations. They work together to co-create the future and drive structural changes far beyond the scope of what any one organization or person could do alone.” Compared to triple-helix model, this model “encompasses also user-oriented innovation models to take full advantage of ideas' cross-fertilisation leading to experimentation and prototyping in real world setting.”¹

Whereas traditional triple-helix actors – businesses, research and public/government actors - and their mutual cooperation inside of the innovation ecosystem is already built-in and supported in most of the countries and regions, inclusion of Citizen/User helix actors (formal and informal healthcare providers) – as home care solutions up-takers – or more active role of the Public/Government helix bodies during the innovation process is needed.

HoCare project has run extensive international exchange of experience process to reach various levels of improvements - both strategical level improvements (by governance improvement of

¹ European Commission, Digital Single Market, Open Innovation 2.0, <https://ec.europa.eu/digital-single-market/en/policies/open-innovation>

relevant Operational Programmes supporting R&I – their strategic focus and management practices) as well as practical level improvements (by support of transfer of high quality projects financed through these Operational Programmes) supporting high quality projects, instruments' efficiency and partially also wider usage of available instruments in partner countries.

HoCare had three thematic sub-objectives related to the natural generation of innovation for Home Care in regional innovation chains.

1. The first sub-objective focused on generation of innovation through addressing unmet needs identified by formal carers (i.e. hospitals, social houses, elderly houses) and informal carers (i.e. family members) – the topic of another separate Study
2. The second sub-objective focused on generation of innovation through public driven innovation processes – the topic of this Study
3. The third sub-objective focused on bringing innovative Home Care solutions quicker to the market by using quadruple-helix approach – the topic of another separate Study

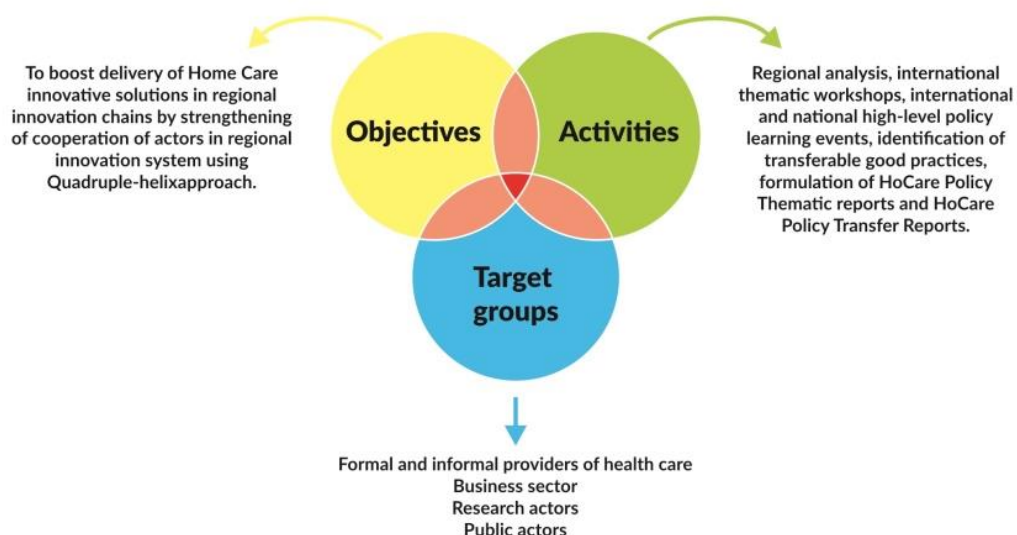


Figure 2 - Objectives, target groups and activities of HoCare project

Transferable knowledge cited in this Study was created by sequence of multiple activities: (1) detailed mapping of regional situations in Research & Innovations in Home Care and Quadruple-helix cooperation in R&I carried out in all project partners' countries, (2) three International Thematic workshops held in Madeira, Budapest and Ljubljana/Litja (each for one sub-objective of the project), (3) numerous national/regional meetings with Managing Authorities of territorial Operational Programme supporting R&I and regional Stakeholders, and (4) numerous physical and virtual meetings among project partners.

2. INTRODUCTION TO THE TOPIC OF THIS JOINT THEMATIC STUDY – INNOVATIONS IN HOME CARE – GENERATING NEW SOLUTIONS THROUGH PUBLIC DRIVEN INITIATIVES

This Study focuses on transferable knowledge gathered for the 2nd sub-objective of the project – “Innovations in home care – generating new solutions through Public Driven initiatives”. When looking at the quadruple-helix cooperation model, it focuses mainly on the 3rd helix (Public/Government) of quadruple-helix cooperation model typically including mainly governmental or regional/local public bodies engaged relevant for home care. Despite these are usually responsible for policy design, financing and management related to the topic, public organizations could also be themselves the main initiators for new projects in R&I aside of their strategic or funding role.

Public actors at various levels act differently within the quadruple helix. Ministries as highest national public body together with regional public bodies are usually responsible for policy design and managing of the operational and other supporting programmes. However they could also lead and initiate potentially strategic R&I projects. Municipalities, state hospitals and other smaller scale public bodies act primarily as driving force for initiation and managing of innovative projects or just being public partner in innovative project with other partners from quadruple helix. As we talk about public driven initiatives, we include for instance the following types of organizations:

- (1) Ministries and other state organizations
- (2) Regional public authorities
- (3) Local municipalities
- (4) State of regional or local hospitals and other service providers

There are several ways how public institutions can drive R&I initiatives in home care, including:

- A) Public Procurement of Innovations (PPI)
- B) Pre-commercial procurement (PcP)
- C) Standard R&I projects initiators

Firstly, public organizations can request/order innovative solutions as purchasers through innovation approaches such as public procurement of innovations (PPI)² or pre-commercial procurement (PCP)³.

Public procurement of innovations (PPI) is considered an approach to innovation that promotes procurement where contracting authorities act as launch customers (also called early adopters or first buyers) of innovative goods, works or services which are near to the market or already available on small-scale commercial basis, including solutions based on existing technologies used in an innovative way. As a consequence, the R&D phase falls completely outside of the scope of a PPI

² The objective of PPI actions is to buy existing innovations which have not yet reached full commercialisation but that do not need new R&D activities.

³ PCP can be used when there are no near-to-the-market solutions yet and new research and development is needed.

(marking the difference both with the PCP, which mainly focuses on purchasing R&D services, and the Innovation Partnership, which includes the R&D phase as an essential part of the procedure). In practice, PPI public procurers announce in advance their intention to buy a significant volume of innovative solutions, in order to trigger industry to bring to the market solutions with desired quality/price ratios within a specific period. As such, PPI provides an early "reality-check" of concrete specific public purchasing needs against feasible solutions to public procurers, while suppliers can better anticipate demand for new solutions and shorten time-to-market.

Pre-commercial procurement (PCP) is designed to steer the development of innovative solutions towards concrete public sector needs, particularly through the purchase of R&D services aimed at the development of totally new solutions and prototypes. PCP has as its fundamental scope the purchase of R&D services from an economic operator by one or more contracting authorities with the purpose of solving socio-economic challenges of public interest for which there is no off-the-shelf solution through the development of new technologies and without any commitment to engage in a follow-up PPI. In practice, a PCP starts with the identification of the needs collected by the contracting authority which then opens a call for tender inviting economic operators to compete for the awarding of a PCP framework contract. Subsequently, the contracting authority evaluates responses and may award one or several contracts to different suppliers, which will start to design and explore the feasibility of their projects. At the end of this phase, a cohort of selected suppliers participates to a mini-competition to enter the next stage, in which prototypes are developed. At the end of this second phase, another mini-competition between a restricted number of participants leads to the last stage, where each winning supplier produces small volumes of products or services.

Both PPI and PcP can be therefore well functioning public driven initiatives also for boosting new innovations in home care segment.

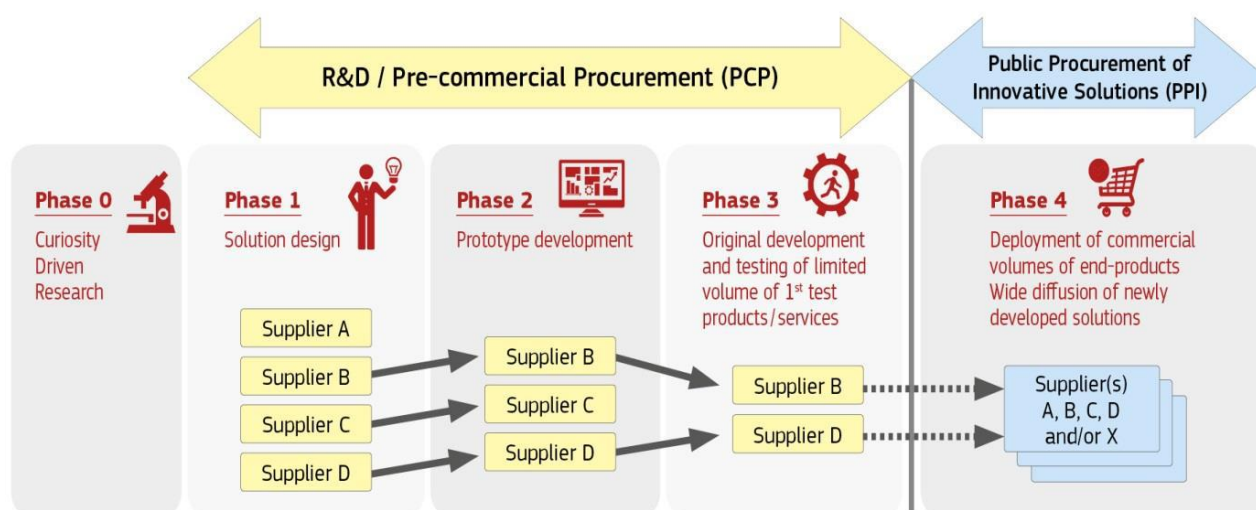


Figure 3 - Main mechanisms of public procurement Source: EAFIP website

Secondly, in addition to PPI or PcP, public organizations could be also the primary project idea initiators involving other organizations from various helixes (e.g. universities, research, SMEs, associations, hospitals, etc.) into a standard R&I cooperation project to deliver new innovative product(s) or service(s).

The public sector has defined specific goals, purposes, institutional cultures, chains for implementation and responsibilities and a strong degree of formal procedures that provide different conditions for innovation management. To promote the innovative capacity and create an innovation culture in the public sector one needs however political as well as administrative support. Essential for successful innovative projects is effort and support from public sector employees.

Arguably, home care services have some characteristics that distinguish them from other public services. The targets of innovation in home care services are usually defined as the structures, the technologies, the patients' families, the caring personnel, the service provided to the elderly and the institutional environment.

There is a strong trend towards deinstitutionalization, to move chronic patients out of mental and other health/social care institutions and offer physical and virtual home and/or integrated treatment and other innovative forms of care. This leads towards integrated care and deinstitutionalization. This process is determined by the aging society and unsustainable system to finance long term inpatient chronic care. Cost of homecare is lower combined with significantly higher patient comfort due to the fact that patient is in the environment to which is accustomed. This opens new markets as well offering new unmet needs and good possibilities for inventors, innovators, manufacturers and suppliers of medical devices and health (related) products and services which could be physical and virtual too. Public sector has to support home care solutions, services and products since the real purchasing power of the individuals receiving the service is limited.

3. DESCRIPTION OF CURRENT SITUATIONS IN PARTICIPATING COUNTRIES

Level of participation of public organizations as PPI, PcP or other innovative projects initiators and support of these initiatives from the Operational Programmes, policies and strategies is varied across different countries. The following pages describe situation in each of the countries in regards to the following 2 key issues:

- 1) PUBLIC ORGANIZATIONS AS PPI, PCP OR OTHER INNOVATIVE PROJECTS INITIATORS
 - How much active are public organizations in terms of initiating R&I projects from their side?
 - Which types of public organizations are involved mostly?
 - What type of R&I projects are being undertaken mostly?
 - Are there any examples of PPI or PCP initiatives in the country?

2) SUPPORT OF SUCH PROGRAMMES / INITIATIVES FROM OPERATIONAL PROGRAMME

- Are there any policies, strategies and intervention programmes supporting PPI, PcP, or public led R&I projects?
- What is the experience of Managing Authority with these?
- What are the next plans in terms of Operation Programme support for these?

3.1 Cyprus

In Cyprus, public organizations initiate R&I projects mainly through the Structural Funds. In general, public institutions define their needs and draft their strategic documents for operations. Their activities mainly deal with short-term targets that are set for catching up with the broader indicators and targets' set. In this framework, the public sector rarely seeks innovative solutions as a purchaser. It rather works towards creating the conditions for other helixes to put forward activities aiming at the production of innovative tools or services.

INNOVATION ECOSYSTEM – PUBLIC ORGANIZATIONS AS PPI, PCP AND OTHER INNOVATIVE PROJECTS INITIATORS

- How much active are public organizations in terms of initiating R&I projects from their side?
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Public institutions, usually, apply the quadruple helix approach in their process of needs definition and analysis for setting up their strategic planning and action plans of operation. In their daily work, they are mainly based on their own resources (budget, human resource, facilities). As a general comment, they are open to proposals for cooperation with any actor(s) coming from the other three helixes for development of different projects, however, for doing so, they need to follow an unattractive and long-lasting bureaucratic procedure, that most of the times leads to long delays and danger (for the organizations from other helixes willing to cooperate) to abandon the efforts.

Following this process, the public institutions define their needs and draft their strategic documents for operations. Their activities mainly deal with short-term targets that are set for catching up with the broader indicators and targets set. In this framework, the public sector rarely seeks innovative solutions as a purchaser; it rather works towards creating the conditions for other helixes to put forward activities aiming at the production of innovative tools or services. One of the limited examples, where a project idea or initiative has been initiated directly by a public institution involving other organizations into the development and implementation of cooperation project to deliver new innovative product(s) or service(s) – therefore the public institution is the main driving force at the beginning of this process, is implementation of the project “TELEHIPPOCRATES” for which more information is provided below, at section 5.

Therefore, there are not any examples available where public organizations directly request or order innovative solutions as purchasers. The only relevant cases are some funding mechanisms established that support the creation of innovation on home care based on the existing public governmental strategic documents. These initiatives are led by public organizations that are part of

the central government, such as the Directorate General for European Programs, Coordination and Development (DG EPCD)⁴ and the Research Promotion Foundation⁵.

In relation to the governance of the above mentioned funding schemes, the Directorate General for European Programmes, Coordination and Development following the Council of Ministers Decision No. 75141, dated 24 May 2013, is responsible for managing issues related to:

(a) the European Funds and Programmes, such as the European Investment and Structural Funds, the EU Competitive Programmes and the grants provided by the countries of the European Economic Area and Switzerland.

(b) development and horizontal issues, such as Research, Technological Development and Innovation, Lifelong Learning, Corporate Social Responsibility and the "Europe 2020" Strategy.

The DG EPCD has the overall responsibility for the programming, management and utilization of funds allocated under the Programming Period 2014 - 2020 (in its role as the Managing Authority of the Structural Funds and the Cohesion Fund in Cyprus). For the monitoring of the implementation of the Programmes 'Competitiveness and Sustainable Development' and 'Employment, Human Resources and Social Cohesion' one Single Monitoring Committee was established by a Council of Ministers Decision (no. 78.483, date 11/3/2015) and according to the provisions of the Common Provisions Regulation (EU) no. 1303/2013.

The Committee is composed by representatives of the competent authorities, the intermediate bodies, the local authorities, the economic and social partners and the non-governmental organisations. Moreover, representatives from European Commission and the European Investment Bank will participate with consultative role. The composition, the duties and the functional procedures of the Committee are set out in the internal Rules of Procedures. The decisions of the Committee can be taken either through a meeting or following a written procedure, according to the provisions of the internal rules of procedures.

The practices of PPI or PCP are still underdeveloped in Cyprus and there is no legal framework to cover this sector. For example, Cyprus is ranked among the EU member states that remain at the 'Awareness Raising and Exploring Possibilities' stage concerning the PCP implementation progress⁶.

KEY CHALLENGES:

1. UNDEVELOPED PPI/PCP PRACTICES
2. NO LEGAL FRAMEWORK FOR PPI/PCP
3. UNATTRACTIVE AND LONG-LASTING BUREAUCRATIC PROCEDURES

⁴ <http://www.dgepcd.gov.cy>

⁵ <http://www.research.org.cy>

⁶ European Commission (2016), Introduction to Innovation Procurement, DG CNECT Innovation Unit (F2), available at: http://ec.europa.eu/information_society/newsroom/image/document/2015-50/introduction_to_innovation_procurement_12528.pdf

SUPPORT FROM OPERATIONAL PROGRAMME - SUPPORT OF PUBLIC DRIVEN INNOVATION PROGRAMMES / INITIATIVES FROM OPERATIONAL PROGRAMME

- Are there any policies, strategies and intervention programmes supporting PPI, PcP, or public led R&I projects?
- What is the experience of Managing Authority with these?
- What are the next plans in terms of Operation Programme support for these?

The Operational Programme (OP) facilitating projects in this field is named "Competitiveness and Sustainable Development" 2014-2020. Within the framework of this OP, interventions are planned to contribute in the enhancement of economy's competitiveness through investment in the sectors of Research and Innovation and Information and Communication Technologies and SMEs support. Interventions are also planned in the sectors of Environment, Energy and Transport, as well as for promoting integrated sustainable urban development in deprived areas. Priority Investment 2c: "Enhancing ICT applications for e-government, e-learning, e-inclusion, e-culture and e-health", targets specifically to increase the number and quality of services of the public sector (including Local Authorities), provided electronically to the businesses and citizens, a sector in which the country is lagging behind, despite the progress recorded in recent years. Interventions under the specific objective will also contribute to the modernization of public administration and internal processes through the use of ICT and the development of electronic services in areas such as health and education.

More specifically, based on a 'top-down' need's definition approach, the following funding mechanisms promoted by the central government support and facilitate the production of innovative services and products in the sector of home care, covering geographically the whole of Cyprus:

a) In "OP Competitiveness and Sustainable Development", the Priority Investment 2c - "Enhancing ICT applications for e-government, e-learning, e-inclusion, e-culture and e-health" targets the development of projects producing innovative e-health services. The objective of this Priority Investment is to increase the number and quality of services of the public sector (including Local Authorities), provided electronically to the businesses and citizens, a sector in which the country is lagging behind, despite the progress recorded in recent years. Interventions under the specific funding scheme will also contribute to the modernization of public administration and internal processes through the use of ICT and the development of electronic services in areas such as health and education. The total amount of funding available through this initiative is €76.941.177. The intervention area's recipients are Public Services and Organizations of the Republic, Local Authorities and the public (end recipient). The Program "OP Competitiveness and Sustainable Development" is managed by the Directorate General for European Programmes, Coordination and Development.

b) In "OP Competitiveness and Sustainable Development", Priority Axis - "Enhancing Economic Competitiveness", the Priority Investment 1: "Strengthening Research, Technological Development and Innovation" targets the development of projects producing innovative e-health services, products and tools. The Funding Scheme aims to support and strengthen existing and newly created companies investing in research and innovation for the development of competitive innovative products and services to release in the market and / or innovative processes and procedures in their production procedure. The total amount of funding available through this initiative is €18.000.000. The intervention area's recipients are Private Businesses or Partnerships between Private Businesses.

The Program “OP Competitiveness and Sustainable Development” is managed by the Directorate General for European Programmes, Coordination and Development.

c) The Program “RESTART 2016-2020”, managed by the Research Promotion Foundation of Cyprus, includes the Pillar II - “Sustainable RTDI System”, Initiative 5 “Social Innovation”. This initiative aims at boosting research in all sectors (including health and home care) for the support of Research, Technological Development and Innovation in Cyprus through active and decisive involvement of the social target group, so that the concept / product / service / technology / model / strategy resulting from the project, is fully aligned to the group’s real needs. The initiative supports the creation of new roles and relationships between organizations, in order to address a specific social problem (e.g. poverty, health care, population ageing, climate change, energy security, etc) through formation of Consortia, facilitation of technical knowhow in developing new instruments and capacities while enabling direct access and acceptance of the solution by the targeted social group. Projects to be implemented in the framework of Initiative 5 must necessarily include experimental development activities. They may also include industrial research activities. The budget available is €1.500.000 and eligible beneficiaries are mainly research organizations, enterprises but also other organizations.

The Managing Authorities’ role in regards to the implementation of the Operational Program is mainly the management and monitoring of the Program’s development throughout each programming period. It coordinates the intermediary bodies (mainly Ministries according to the thematic of each Priority Axis or Thematic Objectives) towards publishing and managing the respective Calls for Proposals, as well as approving and monitoring the implementation of projects respectively.

The Operational Program has been already reviewed and amended twice (2015⁷ and 2017⁸) until now. The Managing Authority is continuously working towards improving the Operational Program, including the policy instruments mentioned above which focus on the development and implementation of cooperation project to deliver new innovative product(s) or service(s). This process is ongoing and amendments are adjusted according to developments on national/local conditions.

KEY CHALLENGES:

1. LIMITED POLICY INSTRUMENTS SUPPORTING THIS PROCESS
2. SOME POLICY INSTRUMENTS AIM AT SPECIFIC TARGET GROUPS WITHOUT ENOUGH SPACE FOR COOPERATION BETWEEN DIFFERENT HELIXES:

3.2 Slovenia

In Slovenia in general, public bodies are not very innovative in terms of designing, developing and implementing new services and products as well as introducing innovative purchasing practices (PPI, PcP). Their activities mainly focus on short-term targets and compliance with the broader EU indicators. Pre-commercial procurement and public procurement of innovations are not popular

⁷ www.structuralfunds.org.cy/uploadfiles/1%CE%B7 %CE%A4%CF%81%CE%BF%CF%80%CE%BF%CF%80%CE%BF%CE%AF%CE%B7%CF%83%CE%B7.zip

⁸ <http://www.structuralfunds.org.cy/uploadfiles/Amended%20OP%20ERDF-CF approved 25Apr17.pdf>

among public authorities since they lack competences, methodology and tools. Some initiatives have started (not in healthcare sector), but they are at the initial stage.

INNOVATION ECOSYSTEM – PUBLIC ORGANIZATIONS AS PPI, PCP AND OTHER INNOVATIVE PROJECTS INITIATORS

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- Which types of public organizations are involved mostly?
- What type of R&I projects are being undertaken mostly?
- Are there any examples of PPI or PCP initiatives in the country?

Public organizations are not very active at initiating R&I projects. Their ideas mainly develop together with business or research helix. Lately we can detect also full quadruple helix cooperation at the idea creation, which is upgraded to some R&I project application.

Universities, hospitals, elderly care centres and some NGOs have been mostly involved in R&I projects. They delivered gradual system innovations and new models for care. In minor cases projects contained technical innovation.

There are some practices where public organization request solution, which is not yet a commercial product or solution. Mainly solutions have been relatively small and not complex. Decision makers have lack of knowledge and on the other side, they are constantly under the pressure of cost cutting and optimization. Therefore, the environment is not very friendly for working on innovations and risk taking. Consequently, innovation process in public sector is much longer. New is always risky and public sector does not reward risk-taking. Anyhow, innovations/changes in home care system are needed soon, since demographic problem is in Slovenia as in the rest of Europe challenge number one in the next decades.

There are some cases in Slovenia, where public institution has initiated process of a product/service development. It has prepared a product requirements/features by internal/external experts based on existing problems in a community. Then it launched an invitation to participation for product development to the list of the qualified companies and select the best candidate. Public institution usually take above describe scenario when they have an R&D cofounded project approved and within project they have opportunity to order such a development at 3rd party. Such cases are extremely rare and of small values – from couple thousand euro to couple ten thousand euro and are not significant compared to the national R&D expenditure.

Slovenia has implemented EU directives on PPI and PCP into its legislation framework (public procurement law 3). It has also participated in a couple of EU funded projects (PPI2Innovate, Progr-EAST...) where the main outcomes were methodology of preparing a call, awareness building and dissemination. In PPI2Innovate project is one of the core segment smart health, where they aim to prepare tools and launch pilot action in preparing PPI/PCP.

KEY CHALLENGES:

- 1) SUCCESSFUL IMPLEMENTATION OF PPI/PcP BASED CALLS NEEDED
- 2) MISSING KNOWLEDGE AND EXPERIENCE TRANSFER TO PUBLIC INSTITUTIONS ON HOW TO SUCCESSFULLY USE PPI/PcP
- 3) NEED FOR ENHANCING QUADRUPLE-HELIX COOPERATION BETWEEN ALL STAKEHOLDERS IN THE STAGE OF IDEA GENERATION AND APPLICATION PREPARATION

SUPPORT FROM OPERATIONAL PROGRAMME - SUPPORT OF PUBLIC DRIVEN INNOVATION PROGRAMMES / INITIATIVES FROM OPERATIONAL PROGRAMME

- Are there any policies, strategies and intervention programmes supporting PPI, PcP, or public led R&I projects?
- What is the experience of Managing Authority with these?
- What are the next plans in terms of Operation Programme support for these?

Procurement of innovation has not come on agenda yet. Operational program has opened door for public driven innovation to be placed in project ideas and initiatives that are initiated directly by public institutions (e.g. government, region, town, public hospital, etc.). Some of these ideas are predefined by the Government and carried out by public institutions. Other initiatives are involving other organizations by calls for proposals and executed by the approved projects.

Managing authority is aware, that key stakeholders are missing knowledge, experience and tools to start PPI and PCP. Through some research projects, they have started to prepare tools, share good practices and found some knowledge centres. E-care and E-health is a complex domain, so most probably they will start using innovative purchasing technics in more defined and less complex domains. There are no indications that Operational Programme will decrease the implementation and use of innovative purchasing technics for innovation purchasing.

KEY CHALLENGES:

- 1) NEED FOR FINANCIAL SCHEME FOR KNOWLEDGE TRANSFER TO PUBLIC INSTITUTIONS TO GET SUFFICIENT EXPERIENCE ON SETTING PPI AND PcP
- 2) ADDITIONAL SUPPORT AND PRIORITY ON LAUNCHING PPI/PcP CALLS FOR INNOVATION BASED REQUIREMENT

3.3 Bulgaria

In Bulgaria the innovative procurement through public driven initiatives is at a very early stage. The last amendment of the main legal instrument regulating the public procurement for spending public funds has been finalized by 15 April 2016. So PPI is the only one totally new procurement procedure and as such remains not well known and largely accepted amongst public procurers, leaving place for doubts and uneasiness about how to implement it. There is a strong will for enlarging the use of innovations in all sectors of economic and public life in Bulgaria but on the other hand the level of preparedness for applying the PPI is extremely low and dependable on the use of external experts by the public procurers which is nor affordable for some neither acceptable for others. There is an urgent necessity to encourage the competent use of PPI for the so needed deployment of innovative solutions of the current problems and issues in home care sector in Bulgaria.

INNOVATION ECOSYSTEM – PUBLIC ORGANIZATIONS AS PPI, PCP AND OTHER INNOVATIVE PROJECTS INITIATORS

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The PPI remains largely unused by the public procurers and is very sketchily known by them. The research made for HOCARE amongst home care sector public procurers did not revealed a single procedure held applying the new law amendment. Where PPI good practices have been found they have been laid on another type of procurement and done before the amendment of the law that has made the use of PPI made possible.

The public procurement contracts make up a significant share of the BG market, accounting for about 9% (6-15% through the last 5 years) of its gross domestic product (GDP) while 19% in EU as a whole. There are whole industry sectors in Bulgaria depending on public procurement – nearly half of the turnover of companies in the construction business comes from public procurers. This kind of dependence is explained by the important role the EU funds are playing in BG economy. The public procurers prefer massively to invest the public resources they operate with in mainly tangible and publicly visible outputs as construction and rehabilitation of roads and public buildings.

On the other hand, the second sector that attracts public funds in Bulgaria is "Mechanical and technological equipment", subsector "Medical equipment, pharmaceuticals and personal care products". Both economic sectors are absorbing between 60 and 70% during the last five years. Whereas in construction innovations are not sought, the second sector is fruitful with innovations and needs them drastically, but the public procurers are not applying PPI because they are not aware how to apply it.

Unfortunately, the limited public funding for projects in the field of information technology and education shows that state-owned and municipality-owned enterprises and institutions – amongst which hospitals - still do not make the development of long-term competitiveness a strategic objective depending on innovations and are not interested in funding innovations. Instead, it relies on "visible to all" large infrastructure projects such as facilities and equipment.

There are only very few PPI and PCP initiatives in Bulgaria and they are all initiated by clinics, hospitals and research centres and the common between them is that they happened as a result of a co-creation partnership between quadruple-helix representatives that has been initiated mainly by the business side. In few hospitals the management, clinicians, IT specialists, researchers, end-users and procurement personnel co-created innovative services like GAMMA M-DOCTOR – an application for clinicians that refers also the home care, and CHECK POINT CARDIO – a cardio telemedicine service.

There are few more other innovative initiatives like DIABETES M, DIVA, etc. that combine the efforts of the leading ICT developers in Bulgaria and mainly hospitals. There is no available information for a specific successful sustainable public driven innovation especially developed for home care as a public driven innovation so far in Bulgaria. Only new projects are being initiated now.

KEY CHALLENGES:

- 1) ENHANCING SUBSTANTIALLY THE PREPAREDNESS OF THE PUBLIC PROCURERS TO ATTRACT AND IMPLEMENT INNOVATIONS THROUGH PPI
- 2) SUPPORTING THE REGIONAL QUADRUPLE-HELIX NETWORKS TO INITIATE AND SUPPORT THE CO-CREATION OF INNOVATIONS TO HELP INCREASE THE CAPACITY OF PUBLIC BODIES FOR PPI
- 3) INTENSIFYING THE COMMUNICATION TO SUPPLIERS OF INNOVATIVE PRODUCTS AND SERVICES THAT THERE IS A DEMAND FOR PROCURING INNOVATIONS IN HOME CARE AND A LEGALLY BOUND MECHANISM FOR IMPLEMENTING IT (PPI&PCP)
- 4) SUPPORTING THE EXIT FROM THE BUYER-SUPPLIER PARADOX IN HOME CARE THROUGH THE QUADRUPLE-HELIX COOPERATION – THE CONFLICT “IF THERE IS A DEMAND, THERE WILL BE A SUPPLY” VERSUS “IF THERE IS AN AFFORDABLE SOLUTION, WE WILL BUY IT”, WHEN THE BUYER CAN NOT BUY A PRODUCT/SERVICE THAT STILL DOES NOT EXISTS – THE CUSTOMERS SHOULD CO-CREATE THE INNOVATION SPECIFICATIONS TOGETHER WITH THE SUPPLIERS OF INNOVATIONS TOGETHER WITH THE END-USERS

SUPPORT FROM OPERATIONAL PROGRAMME - SUPPORT OF PUBLIC DRIVEN INNOVATION PROGRAMMES / INITIATIVES FROM OPERATIONAL PROGRAMME

- Are there any policies, strategies and intervention programmes supporting PPI, PcP, or public led R&I projects?
- What is the experience of Managing Authority with these?
- What are the next plans in terms of Operation Programme support for these?

There are no strategic documents in Bulgaria that structure, channel, promote or enhance the application of PPI and PcP projects. There are several strategies and intervention programmes that support only public led R&I projects, enlisted below. They are oriented mainly towards the universities and research organisations There are several interventions but most of them are still in preparation or under evaluation so for the moment there are no important public led R&I projects implemented in the field of home care.

Bulgaria has an approved “E-health national strategy” since 2014 but the main measures within it are still not implemented. The Bulgarian “Long-term care strategy” until 2020 does not foresee any specific measures for enhancing public driven innovations in the home care sector. Bulgaria is amongst the countries in which the Digitisation strategy is still not approved. There are no specific measures for programmes supporting PPI or PcP. Only 0.1% of the Structural Funds available in this programming period for Bulgaria can be used to support research, in the construction of scientific infrastructure and research centers. The „National research & development strategy 2020“ does not provide measures for supporting PPI or PCP. Only 3% of all Structural Funds in Bulgaria are earmarked to support innovation, while the EU average is over 30%. The Bulgarian Law for the innovations is still not finalised and approved. Bulgarian Operational programme for innovations and competitiveness is complying the programming with the Bulgarian RIS3 and with the „National

strategy for small and medium enterprises“ and none of them refers to the PPI and/or PCP so no interventions are planned for the moment.

The Managing authority does not have experience with applying PPI and PCP until now. Even discussions towards their possible deployment are not held publicly. Only few projects are dealing with the opportunities PPI and PCP represent as powerful trigger for innovations in Bulgarian economy

KEY CHALLENGES:

- 1) REVIEWING ALL RELEVANT STRATEGIC DOCUMENTS RELATED TO THE PUBLIC DRIVEN INNOVATIONS
- 2) CONSIDERING ALL BARRIERS AND OPPORTUNITIES RELATED TO THE DEPLOYMENT OF PUBLIC DRIVEN INNOVATIONS IN HOME CARE
- 3) RESHAPING THE PLANNED INTERVENTIONS IN FUTURE CALLS TO ENABLE THE WIDER ADOPTION OF INNOVATION PROCUREMENT AS A MECHANISM TO DRIVE MARKETS FOR HOME CARE INNOVATION.
- 4) MASSIVELY PROMOTING PPI, PCP AND PUBLIC LED R&D PROJECTS AS A POWERFULL TRIGGER FOR INNOVATIONS IN HOME CARE SECTOR IN BULGARIA
- 5) SUPPORTING ALL HELIXES OF THE QUADRUPLE-HELIX IN HOME CARE TO UNDERSTAND AND APPLY PPI AND PCP USING THE LEADING BULGARIAN ICT INDUSTRY AS AN ENGINE

3.4 Lithuania

In Lithuania, one of the main challenges for its innovation system is insufficient use of available innovative measures. A way to foster innovations in a public sector and to encourage private sector is to stimulate the demand of innovative solutions through the Public Procurement.

INNOVATION ECOSYSTEM – PUBLIC ORGANIZATIONS AS PPI, PCP AND OTHER INNOVATIVE PROJECTS INITIATORS

- How much active are public organizations in terms of initiating R&I projects from their side?
- Which types of public organizations are involved mostly?
- What type of R&I projects are being undertaken mostly?
- Are there any examples of PPI or PCP initiatives in the country?

Pre-commercial procurement (PCP) as well as public procurement of innovations (PPI) are recently introduced into Lithuanian Public procurement system, but these procedures are not popular among contracting authorities due to some reasons: lack of competencies, lack of guidance and methodology how to use it. Some initiatives are started, but they are on very initial stage and no one is from the health care sector, so it is too early to speak about the inputs or their efficiency. Lithuanian legal acts allow implementing very broad range of projects if they meet two main conditions: firstly, projects are innovative and, secondly, they correspond to Lithuanian Smart Specialization Strategy.

It is expected that these measures will become more used and popular within few years., e.g. municipalities having more that 50 % of their functions related to home care services providing, could become one of the major applicants for this public procurement awards.

The demand on innovative solutions is not high among public institutions because of their traditional orientation into creating more new working places in the organization and not to implementation any new innovative solutions as it could cause reduction of working places. They are too concentrated on daily routine and not looking forward, e.g. they are used to take re-active solutions.

Municipalities and hospitals are most active in innovation ecosystem as projects initiators as they have more autonomy comparing with other public organizations which are more dependent on various factors and their stakeholders and in this way do not have much autonomy to initiate projects on their own or without the decision from the “above”.

KEY CHALLENGES:

1. PRE-COMMERCIAL PROCUREMENTS (PCP) AS A SUPPORT PROGRAMME IS USED TO STIMULATE THE DEMAND FOR INNOVATIONS BY MOTIVATING STATE INSTITUTIONS TO PURCHASE R&I SERVICES DURING WHICH INNOVATIVE PRODUCTS MEANT FOR RELEVANT SOCIOECONOMIC PROBLEM SOLUTIONS ARE DEVELOPED. WHILE DEVELOPING INNOVATIVE TECHNOLOGIES AND PROCESSES, DEVELOPMENT IS ALSO ATTEMPTED IN TWO OTHER SMART-SPECIALIZATION DIRECTIONS THAT ARE RELATED TO HOME CARE: INVOLVED AND CREATIVE SOCIETY; HEALTH AND BIO-TECHNOLOGY.

SUPPORT FROM OPERATIONAL PROGRAMME - SUPPORT OF PUBLIC DRIVEN INNOVATION PROGRAMMES / INITIATIVES FROM OPERATIONAL PROGRAMME

- Are there any policies, strategies and intervention programmes supporting PPI, PcP, or public led R&I projects?
- What is the experience of Managing Authority with these?
- What are the next plans in terms of Operation Programme support for these?

An intervention programme supporting PPI, PCP has started in 2017 so it is too early to talk about the experience of Managing Authorities. 15 pilot projects have started and are running now, but it is too early to talk about the outputs.

As the next steps in terms of Operational Programme support for these it is foreseen to adopt legal acts accordingly to the results of pilot projects and then to launch next calls for PPI and PcP. If these projects would turn out to be very popular- the finance would be allocated accordingly.

KEY CHALLENGES:

1. THE CURRENT FINANCING INSTRUMENTS ORIENTATED TO HOME CARE SEGMENT IS SPLIT BETWEEN TWO MINISTRIES: MINISTRY OF SOCIAL AFFAIRS AND LABOR AND MINISTRY OF HEALTH CARE. INNOVATION AND SUPPORT TO BUSINESS COMPANIES WILLING TO CREATE HOME CARE SOLUTIONS ARE UNDER THE MINISTRY OF ECONOMY. THIS AUTOMATICALLY ENHANCES THE RISK OF CONFLICT BETWEEN INSTITUTIONS WHILE SHARING SPECIFIC RESPONSIBILITIES AND FINANCING CONTRIBUTIONS.
2. THE HOME CARE AREA IN LITHUANIA IS NOT A PRIORITY - STATE INTERVENTION IN THIS AREA USUALLY LIMITED TO SOCIAL SUPPORT. AT THE SAME TIME GOVERNMENT WANTS TO DECENTRALIZE THE SOCIAL SERVICE SYSTEM AND TRANSFER PROVISION OF SOME SERVICES TO NGOs AND SOCIAL ENTERPRISES. THAT OPENS A NEW WINDOW OF OPPORTUNITY.
3. HOME CARE SERVICE PROVIDERS SAY, THAT A LOT OF THE DECISIONS ARE FORMALLY TAKEN AT THE LEVEL OF MUNICIPALITIES, BUT THEY HAVE LITTLE INFLUENCE ON DESIGN OF

OPERATIONAL PROGRAMME AND TOO LITTLE RESOURCES TO INITIATE THEIR OWN REGIONAL PROGRAMMES.

3.5 Hungary

Hungary has accelerated the deinstitutionalization process and launching/continuing various integrated care programmes in the social and health care system since 2014. The basis of this process were laid down even the Human Resources Development OP (HRDOP 2014-20), and there are actions and projects in this OP to shift care from hospitals and social houses to assisted living, home, remote/tele and integrated services.

On one hand these actions and projects leave no or minimal space for private and business innovation. Therefore, procurement of innovation has not come on agenda yet. The conditions defined by the OP do not prefer PPI/PCP.

On the other hand, however, the OP has opened the way to public driven innovation appearing in project ideas and initiatives that are initiated directly by public institutions (e.g. government, region, town, public hospital, etc.). Some of these ideas are predefined by the Government and carried out by public institutions. Other initiatives are involving other organizations by calls for proposals and executed by the approved projects. The management of these centrally predefined or selected and approved projects is not interested and/or encouraged to procure innovation. However, in accordance with the preconditions and requirements of project selection, the grant agreement contains conditions to implement the innovative solutions prescribed in the feasibility study and/or establishment document of the project proposal. Unfortunately innovation in these cases is limited to new/renewed care and treatment solutions based on existing technical equipment and do not foster further innovation to explore the emerging possibilities in the technological development. In addition these cases do not or rarely build on cooperation with other stakeholders (patients and other end users, industry, HEIs and research organizations). Good practices, however, can be found among centrally initiated and implemented projects and programmes launched in the previous programming period (e.g. the META and MENTA projects financed by the Social Renewal OP /SROP 2007-13 or the VHC pilot project in the Prevention Focused Primary Care Modell Programme co-financed by the Swiss Contribution Fund).

INNOVATION ECOSYSTEM – PUBLIC ORGANIZATIONS AS PPI, PCP AND OTHER INNOVATIVE PROJECTS INITIATORS

- How much active are public organizations in terms of initiating R&I projects from their side?
- Which types of public organizations are involved mostly?
- What type of R&I projects are being undertaken mostly?
- Are there any examples of PPI or PCP initiatives in the country?

Public organizations were hardly interested in initiating R&I cooperation and/or procuring innovation services up to now. However, they prepared several projects that contained innovative solutions, and these solutions were executed during project implementation. In a few cases public organizations initiated R&I cooperation to deliver new care models for instance.

Public driven innovation in Hungary appears mainly in project ideas or initiatives that have been initiated directly by a public institution. The “drive” based on public procurement of innovations (PPI) or pre-commercial procurement (PCP) is hardly detectable despite the harmonization of the national public procurement law to the EU regulations was carried out in the end of 2015. The reasons of this situation can be summarized in 3 main issues: (1) Procurers (public side), bidders (business side) and Public Procurement Authority (authority side) lack knowledge and experience in these procedures and would need transitional period, time, funding and pilots for training and preparation for general utilization; (2) National, regional and local development and reorganizational programmes which generate considerable public procurement activities are mostly financed by EU co-funding through operational programmes. Thus major and bigger projects implementing them have been prepared for years. Any change in the procurement scheme may lead to delays, therefore, the project management and the managing authorities (and their intermediate bodies) are interested in avoiding them. (A change for PPI and PCP would need extra days not only for preparing a new tender, but for carrying out additional activities in looking for unmet needs and solutions that can be translated to the specification of the final products and services subject to the procurement delivering the planned development and/or reorganization.) The management of middle or smaller projects – where the preparation of the procurement and implementation generally needs shorter time – might be the target stakeholder group to prepare and implement PPI/PCP activities, however, they are pressed at/by policy level to deliver predefined and detailed outcomes in a short term. In addition project management is strongly interested in avoiding any risk leading to irregularity and losing funding. Therefore, any type of public procurement procedure that is unknown is neglected automatically. (3) Most operational programmes generally leave less space for innovation carried out by the business sector. Especially social OPs contain predefined actions, solutions and outcomes and/or build on calls for projects where procurement is less important (or in other cases predefined projects which are subject to the reasons introduced at point’2). The above general situation is well demonstrated by the home care sector!

Central public health and social institutions have been initiated, prepared and implemented some projects based on innovative solutions and/or projects containing activities of cooperation with business and/or HEIs and research to deliver innovative or new care models. The ministry responsible for health and social affairs prepared and implemented programmes for predefined/preselected projects and calls for projects which delivered certain innovation.

The programmes and projects implemented so far delivered mainly system innovations and new models for care. In minor cases these projects initiated or contained technical innovation too (mostly, but not only, in e-health).

No information about finished, completed and successful PPI or PCP initiatives.

KEY CHALLENGES:

1. LACK OF KNOWLEDGE AND EXPERIENCE IN RELEVANT PROCEDURES AND NEED FOR TRANSITIONAL PERIOD, TIME, FUNDING AND PILOTS FOR TRAINING AND PREPARATION FOR GENERAL UTILIZATION;
2. PREPARED AND SELECTED PROJECTS READY TO BE IMPLEMENTED BY EU CO-FUNDING SHOULD BE REDESIGNED, BUT THERE ARE TOO MANY RISKS AND NO TIME TO DO SO;

3. MINOR SPACE FOR INNOVATION CARRIED OUT BY THE BUSINESS SECTOR IN THE OPS, ESPECIALLY IN SOCIAL OPS.

SUPPORT FROM OPERATIONAL PROGRAMME - SUPPORT OF PUBLIC DRIVEN INNOVATION PROGRAMMES / INITIATIVES FROM OPERATIONAL PROGRAMME

- Are there any policies, strategies and intervention programmes supporting PPI, PcP, or public led R&I projects?
- What is the experience of Managing Authority with these?
- What are the next plans in terms of Operation Programme support for these?

RIS3 and relevant policies for industrial and/or territorial development theoretically welcome PPI, PcP, or public led R&I projects. Despite these documents foster authorities to prepare and implement supporting actions, first calls for grants have not been designed and opened yet.

It must be also underlined that business innovation in Hungary is fostered by the Economic Development and Innovation Operational Programme (EDIOP 2014-20). This OP encourages clustering and innovation partnership/cooperation among various enterprises and/or enterprises and other stakeholders on the research/HEI (and in some cases public) side. Public driven innovation may appear in projects initiated and coordinated by public universities or research institutions. These projects, however, mostly deliver outcomes and results at TRL 1-5 (mainly basic research). Hospitals and other professional care providers are practically excluded from the initiator and coordinator roles, and get functions in the different stages of clinical research/approval.

It must be also emphasized that the accelerated deinstitutionalization process and launching/continuing various integrated care programmes in the social and health care system (combined with the national e-health system connecting care/health data recorded at primary, inpatient and outpatient care and e-prescription system from November 2017) open and develop a new market for innovative medical, telehealth, remote care, mobile care and auxiliary products and services (and for the “big data industry”). Despite the market is still emerging and growing, there is a tangible need for new equipment and services. Despite the purchasing power has to be increased in general and geographically levelled off, there is already a sound demand ready to pay or co-pay for the innovative services. In addition public and private insurance system is interested to go on shifting care services from the more expensive inpatient care to other – more efficient – services.

No PPI/PCP projects, no experience.

Considering the level of commitment in the OP first possible actions to support PPI and PCP might be designed to utilize the Performance Reserve of the priority axes. These resources are currently blocked, but can be made available following a performance review planned in 2019, upon the meeting or exceeding of certain requirements. The Ministry for National Economy expressed to be open to receive project partners’ proposals to this end.

KEY CHALLENGES:

POSSIBLE IMPROVEMENTS IN THE OPERATIONAL PROGRAMMES REGARDING THEIR SUPPORT FOR PUBLIC DRIVEN INNOVATION HAVE NOT BEEN IMPLEMENTED YET:

1. FINANCING/PREFINANCING PREPARATION OF PPI/PCP PROJECTS AND INNOVATION PROCUREMENT PROCEDURES (NOT ONLY PREPARATION OF THE APPLICATION, BUT THE PROJECT ITSELF WHAT HAS SIGNIFICANT IMPACT ON UNDERTAKING IN PCP/PPI PROJECTS AND OTHER PUBLIC DRIVEN INNOVATION PROJECTS;
2. SUPPORT TO BIDDERS (POSSIBLE VENDORS) WHO WOULD BE INTERESTED TO SUBMIT A PROPOSAL ON AN INNOVATION PROCUREMENT TENDER CALL, BUT HAVE NO EXPERIENCE AND KNOWLEDGE ABOUT SUCH PROCEDURES AND PROCESSES;
3. OFFER SPECIFIC SUPPORT TO ICT/IOT/AI SMEs WHO ARE READY TO DELIVER INNOVATIVE SOLUTIONS WHICH ARE COMPATIBLE TO LOCAL, REGIONAL, NATIONAL AND EUROPEAN E-HEALTH SYSTEMS CONNECTING VARIOUS CARE PROVIDERS AND PATIENTS AND OTHER STAKEHOLDERS.

3.6 Madeira (Portugal)

In Madeira, we have seen a changing path in which the health care has been step aside from the family sphere and is part of an institutionalized public care. A combination of offer and demand determines the size of the health care sector. Health care today in Madeira is mostly limited to a national market; however it is likely that this will change slightly in the future. Madeira has the possibility of attracting patients for treatments. In addition, the EU directive on services in the internal market creates a single market for services and hence eases cross border trade with services allowing e-health to foster with no barriers only ICT and innovation technology.

INNOVATION ECOSYSTEM – PUBLIC ORGANIZATIONS AS PPI, PCP AND OTHER INNOVATIVE PROJECTS INITIATORS

- How much active are public organizations in terms of initiating R&I projects from their side?
- Which types of public organizations are involved mostly?
- What type of R&I projects are being undertaken mostly?
- Are there any examples of PPI or PCP initiatives in the country?

Portugal is a moderate country among innovation. There is a high level of bureaucracy and technocracy that enables a better development of fast innovation. According to OECD "Survey on Strategic procurement for innovation 2015, in Public Procurement for innovation: Good practices and strategies, Annex C, OECD Publishing, Paris" Portugal does not have a specific strategic framework for procurement for innovation or a stand alone procurement for innovation action plan. Nevertheless, the general legal system in Portugal supports procurement for innovation and specifies the scope for procurement for innovation policy. Public contracts Code (2008)".

According to Mr. Gerald Cultot – EC – DG Connect – Unit H3 – eHealth, Well-being and Ageing "Interoperability of ICT-enabled solutions and of data exchange is the precondition for better coordination and integration across the entire chain of healthcare delivery and health data exchange, while unlocking the EU eHealth single market", however according to EC there is a need for public sector efficiency and therefore a need for health care efficiency in which we will only overcome these important challenges with a public sector transformation. Here it is stated that this transformation exists with a special role on PPI since Public procurement/demand driven innovation can open markets for the healthcare industry, creating growth & jobs in Europe.

In Madeira as in most Portuguese authorities a high level of bureaucracy and high level monitoring requirements for public procurement laws enables the efficiency of processes needed for innovation to appear inside public organizations. This lack of conditions for innovation enables a future important step that is nowadays occurring in some leading EU innovators countries namely PPI and PCP at a national level but also at a transnational level as seen in:

- FP7 PCP projects – Thalea (Tele-detection/care of ICU patients); SILVER (Robotics ageing well); DECIPHER (Services mobile health data); NYMPHA-MD (Mental care for bipolar disorders); UNWIRED-HEALTH (Mobile care for vaccination & heart failure); ANTISUPERBUGS (Detection of superbugs)
- CIP PPI projects – HAPPI (Healthy Ageing); ECOQUIP & LCB-HEALTHCARE (Low carbon healthcare); STOP AND GO (Telecare for elderly with multiple conditions)
- H2020 2015 PCP projects – MAGIC (Post stroke recovery); EMPATTICS (Chronic disease self-management); RELIEF (Pain self-management)
- H2020 2016 PCP projects – Nightingale (Telemonitoring); Live-Incite (Perioperative process); Stars (Stress Management) and ProEmpower (Diabetes self-management)
- For 2017 H2020 there is 3 projects for approval under PPI call of proposals PM19 - Uptake of standards for the exchange of digitalised healthcare records

However, international studies position the Portuguese health system among the most efficient and with the best results concerning quality, consumer satisfaction and cost-efficiency performance, improving its performance in the last years, even during the recent financial global crises.

According to the OECD report on Health Care Quality in Portugal OECD (2015) Portugal has implemented a comprehensive set of structural reforms to work towards fiscal sustainability, improved efficiency and better quality in the health care system”, “recent primary care reforms have been successful in improving accessibility, efficiency, quality and continuity of care, as well as increasing the satisfaction of both professionals and citizens.”

This set of “ambitious reforms” range from the development of “internationally innovative new service and payment models”, the adoption of innovative approaches to integrated health and social services, and also the implementation of “sophisticated monitoring capabilities” for quality control and also the promotion of TIC to increase efficiency and simplify procedures, for instance with the implementation of the Electronic Prescription System.

In the Euro Health Consumer Index 2016 (which compares the performance of national health systems among 35 European Countries) Portugal is in the 14th position of the ranking, with 763 points (20th position in 2015), becoming for the first time better positioned than the United Kingdom (15th) and Spain (18th).

The study also provides for the first time a ranking of cost-efficiency where the National Health System positions in 10th place.

KEY CHALLENGES:

1. ECOSYSTEM – THERE CAN BE AN IMPROVEMENT IN THE NETWORKING WITH COMPANIES, CITIZENS AND OTHER HELIXES TO SUPPORT INVOLMENT AND CONNECTION FOR PROJECTS DEVELOPMENT AND SUBMISSION.
2. MISSING SPECIFIC STRATEGIC FRAMEWORK FOR PROCUREMENT FOR INNOVATION OR A STAND

ALONE PROCUREMENT FOR INNOVATION ACTION PLAN.

SUPPORT FROM OPERATIONAL PROGRAMME - SUPPORT OF PUBLIC DRIVEN INNOVATION PROGRAMMES / INITIATIVES FROM OPERATIONAL PROGRAMME

- Are there any policies, strategies and intervention programmes supporting PPI, PcP, or public led R&I projects?
- What is the experience of Managing Authority with these?
- What are the next plans in terms of Operation Programme support for these?

Most of the PPI and PCP refer to R&D, scientific research and development in which Madeira doesn't have public organizations (NUT1, NUT2 and NUT3) as public procurement acquiring organizations of innovations and R&D. However, innovation in public procurement also takes into account other aspects such as innovation in the design and delivery of goods and services in which Madeira has examples such as: Regional network integrated home care in Madeira, namely by empowering the telehealth/telemedicine of the region throughout 4 projects

- Dignity in health at home
- Continued care
- Wound home care
- To know to better act

PREA – Regional plan for active aging 2016-2019 namely by adequate social protection measures and existing services, guiding them to promote the autonomy, independence and dignity of the lives of the elderly. Enabling conditions for the participation of the elderly as social actors should be created through access to training and personal development, while simultaneously contributing to the resolution of the problems of increasing social exclusion to which the elderly are subject. This example as 3H namely: Public Entities: Social Security Institute of Madeira, IP-RAM, Regional Civil Protection Service, IP-RAM, Regional Secretariat of Education, Regional Health Secretariat (through the Institute of Health Administration, IP-RAM), Security Police Public. Civil society / Citizens: Elderly people attending and not attending social responses, Active population, Volunteers, Children and Youth. 3rd Sector: 7 Private Institutions of Social Solidarity and 4 Holy houses of mercy.

In Madeira health sector mainly due to the willingness of the Social Security Institute of Madeira, IP-RAM, Regional Civil Protection Service, IP-RAM, Regional Secretariat of Education, Regional Health Secretariat (through the Institute of Health Administration, IP-RAM) there are various examples of such initiatives in which we can define for example the regional integrated network for home care with its 4 projects initiatives.

As another example we can say PREA – Regional plan for active aging 2016-2019 defining a model for adequate social protection measures and existing services.

KEY CHALLENGES:

1. REPROGRAMMING THE OP MADEIRA14-20 AXIS 8 FROM SOCIAL SECURITY TO INCLUDE OTHER BENEFICIARIES FROM QUADRUPLE HELIX (EXAMPLE JOINT ACTION PROPOSALS) – INTEGRATED PROJECTS.
2. LACK OF CLEAR FUNDING AND ADEQUATE FUNDING SCHEME TO SUPPORT QUADRUPLE-HELIX COOPERATION.

3. LACK OF RESOURCES - MORE FUNDS NEEDED.

4. SPECIFICITY OF THE AREA IN QUESTION "HOME CARE" - IS NOT A AXIS OF OP

3.7 Czech Republic

In the Czech Republic, there are several problems regarding the innovative procurement through public driven initiatives. At the state level the problem is in mutual cooperation of various ministries and other public bodies. Mainly they are focused at their own agenda and they are not seeking joint projects. Another problem or challenge is in the innovative public procurement itself since the process of procurement poses a great risk. Public procurers are not willing to take risks and participate in innovative procurement projects since they are not forced to.

INNOVATION ECOSYSTEM – PUBLIC ORGANIZATIONS AS PPI, PCP AND OTHER INNOVATIVE PROJECTS INITIATORS

- How much active are public organizations in terms of initiating R&I projects from their side?
- Which types of public organizations are involved mostly?
- What type of R&I projects are being undertaken mostly?
- Are there any examples of PPI or PCP initiatives in the country?

The national and regional level public bodies' interest and will to use and implement PPI/PCP initiatives is very small with only limited number of interested actors, and the need for more good examples and inspirations need to be delivered aside of changed internal processes. Currently, there is a PPI2Innovate project (<http://www.interreg-central.eu/Content.Node/PPI2Innovate.html>) being implemented in the Czech Republic that aims to build 3 customised PPI process leading tools (for health, energy and ICT segment), carry out pilot actions and set up regional competence centres and action plans for implementation of the needed exemplary projects in each region.

The initiatives and opportunities therefore lie also greatly with the big public hospitals active in research and innovations and also with regions and municipalities and their community planning, who are able to do more than the state from their side. If municipalities and regions are present in associations or have their own innovation or science-technological parks, they will be able to be direct beneficiaries of OPPIK and they can also more easily push their own public led initiatives. Currently, top 5 metropolitan areas can support segment preference for home care within their integrated territorial investment (ITI) strategies and give priority and initiate home care projects in specific ITI reserved funds in opened calls of OPPIK.

On the regional level, however, Jihlava hospital run a PPI initiative with an international company delivering an e-registration service for patients. The most innovative and already approved by practice solution was suggested from technological experts from Vysocina IT Department, and on the demand expressed by Jihlava hospital, letter was sent to the pre-selected partner expressing the interest to cooperate on a pilot project: e-Registration Systems in the network of regional hospitals. The e-Registration System would enable advanced and friendly internet registration and voice registration functions to the citizens improving the current registration service provided by the hospital. The delegation of pre-selected partner has visited the region and after negotiations has submitted an official agreement for formal approval by the Region. The implementation of the system began in April 2010, testing was lasting till autumn 2010, and from spring 2011 the system is

fully operational. This case is therefore a successful example of preparation, implementation and pilot operation of e-health services in regional hospital network.

One of the good examples of public driven initiated projects is the Innovation4Welfare project (<http://www.innovation4welfare.eu/108/home.html>) where 6 regions / regional research or regionally led business supporting actors from different parts of Europe joined together to exchange good practices and initiate calls for implementing and testing new innovative products or service to identified common problems and challenges including home care and smart homes. Within the project, 7 international so-called mini-projects have been also funded, some of them delivering really innovative home care solutions.

KEY CHALLENGES:

1. MISSING GOOD EXAMPLES OF PPI/PCP INITIATIVES.
2. INVOLVEMENT OF THE BIG PUBLIC HOSPITALS, MUNICIPALITIES AND REGIONS IN MANAGING THEIR OWN INNOVATIVE INITIATIVES.

SUPPORT FROM OPERATIONAL PROGRAMME - SUPPORT OF PUBLIC DRIVEN INNOVATION PROGRAMMES / INITIATIVES FROM OPERATIONAL PROGRAMME

- Are there any policies, strategies and intervention programmes supporting PPI, PcP, or public led R&I projects?
- What is the experience of Managing Authority with these?
- What are the next plans in terms of Operation Programme support for these?

Various national PcP/PPI initiatives on the level of different ministries have been tested in last years in the Czech Republic through the previous Beta programme of the Technology Agency of the Czech Republic (all being not in healthcare), but their results have been unsatisfactory in terms of boosting new innovations. The Ministry of Industry and Trade, as the Managing Authority of OPPIK, has not progressed therefore in terms of preparation of planned intervention programme called Pre-commercial public procurement (PcP), originally planned to be opened in OPPIK. The reasons for that were lack of trust in the concept, missing good examples of PPI/PcP initiatives and other priorities of the programme.

The new Beta2 programme opened in March 2016 by the Technology Agency of the Czech Republic supporting applied research and innovation to meet the needs of government authorities – mainly ministries, especially the needs of those institutions that are not providers of support for research, development and innovation, will hopefully provide better general examples of PPI/PcP.

KEY CHALLENGES:

1. LACK OF TRUST IN THE PPI OR PCP CONCEPT.
2. WEAK MUTUAL COOPERATION OF MINISTRIES E.G. MINISTRY OF HEALTH, MINISTRY OF SOCIAL AFFAIRS WITH MINISTRY OF INDUSTRY AND TRADE NEEDS TO BE IMPROVED FOR PUBLIC LED INITIATIVES IN HOME CARE SEGMENT.
3. HIGH RISK ASSOCIATED WITH THE PROCESS OF PUBLIC PROCUREMENT ITSELF.

3.8 Romania

Despite the fact that in Romania there are annually presented to the national and international Innovations forums hundreds of innovations most of them receiving awards and that it is functioning the National agency for public procurement (<http://anap.gov.ro/web/>) under the Ministry of Finance based on a Strategy for public procurement, a Law for public procurement (no.98/2016), an Electronic system for public procurement (SEAP), a functional institutional framework for public procurement and an Interministerial committee for public procurement, there is no evident interest in using PcP or PPI for innovative solution in health care or home care domain.

Innovative solutions in the above fields are registered at the State office for inventions and trademarks (<http://www.osim.ro/>) and made available to public directly by the owner to the potential valorisation actors or via networks in which triple helix or quadruple helix are active (inventors societies, platforms of the ministry of research).

The innovative solutions are mainly results of research projects funded by Ministry of research via National R&D&I Programme 2014-2020 (managed by Executive Agency (UEFISCDI)) and Operational Programme Competitiveness 2014-2020 (Managed by Intermediate Body (OIC) deployed by actors in the public and private research field covering a more or less precise priority topic.

INNOVATION ECOSYSTEM – PUBLIC ORGANIZATIONS AS PPI, PCP AND OTHER INNOVATIVE PROJECTS INITIATORS

- How much active are public organizations in terms of initiating R&I projects from their side?
- Which types of public organizations are involved mostly?
- What type of R&I projects are being undertaken mostly?
- Are there any examples of PPI or PCP initiatives in the country?

In Romania innovation ecosystem, innovative solutions can improve the quality of public services but collaboration between providers of such services and authorities on the one hand and public R & D institutions on the other continue is limited. The main public organization involved in innovative projects are: the national R&D&I institutes, centres of technological transfer, research teams of universities, Romanian Academy, Innovators associations, municipalities, counties councils, executive agency, Regional development agencies, philanthropic organizations, religious bodies.

Few public research organizations provide support services rhythmically to public policies in their areas of expertise. Quadruple helix model is unbalanced. The home care service is not considered as an innovative service but an area where innovative products and services used for the elders should be a must. At the same time, public service providers have shown little interest in stimulating and absorbing innovation. The Romanian Governmental Programme 2017-2020 http://www.cdep.ro/pdfs/guv201706/Program_de_Guvernare.pdf sustains innovation application by financial support for experimental models and partnership with business and users.

The R&D&I Romanian Strategy 2014-2020 <https://www.edu.ro/sncdi2014-2020> supports the development of collaborations and public-public, public-private partnerships through implementing instruments (in particular the National Plan for Research, Development and Innovation 2014-2020 and the Operational Program Competitiveness - Priority Axis 1 Research, Technological Development and Innovation for Business Support and Competitiveness) by:

- Increasing the capacity of the public sector to make an assessment of the need for innovation (mapping the demand to current RDI efforts, scanning technological options and assessing technologies).
- Thematic research at the initiative of the researchers, supported by the public institutions directly interested in the results.
- Projects to support public procurement of innovative products and services ("topdown").
- Pre-commercial procurement and monitoring tool for new and emerging technologies.
- Establishing a national target for the share of public procurement of innovative products and services, in the total public procurement.
- Pilot program to support social innovation.

Public Research & Development organizations involve themselves actively in R&I projects generated by the competitions under National Plan for Research & Development & Innovation 2015-2020 (administrated by the UEFISCDI unit subordinated to Ministry of Education) <https://uefiscdi.ro/programe-pncdi-iii-coordonate-de-uefiscdi>, in Operational Programme "Competitiveness" (2014-2020) (administrated by the Intermediate Body Research subordinated to Ministry of Research <http://newpoc.research.ro/> and Ministry for Regional Development, Public Administration and European Funds), sectoral research programmes of ministries, institutional research programme (administrated by Ministry of Research).

Majority of these programmes offers the possibility to innovate and valorise the research results and innovation pending on the each programme peculiarities. The health topic is a priority however the homecare considered generally under the health topic is rarely addressed. Even if Romania is a modest innovator, at system level R&D&I sector generates some important technological solutions and innovations that are not commercially exploited. The costs of innovation IPR protection are high for inventors. The current R&D structures are in need of bridging the gap between research & research innovative results and valorisation and commercialization.

The public procurement in Romania is based on public procurement law and on the Strategy for public procurement, being organised and monitored by the National Agency for Public procurement <http://anap.gov.ro/web/strategia-nationala-in-domeniul-achizitiilor-publice/>. It is implemented via the electronic system for public procurement SEAP operated by the Agency for Digital Agenda <https://www.e-licitatie.ro/Public/Common/Content.aspx?f=PublicHomePage>. The last competition of projects, in 2017, funded by OP Competitiveness 2014-2020 concluded into 189 approved projects among which one is Dispatching and Management Center for Optimizing Home Care Integrated Services 2016-2019. The project aims to create multiple partnerships for knowledge transfer in order to develop the ICT support necessary for the implementation of multiple Dispatching and Management Centres for optimizing home care integrated services - CDMS, as a support for offering medical and social services at home. This project contains innovation and it is also an exemple of PPI (public procurement for innovation) as the innovative solution is procured by the IB Research and made available within stakeholders in the field of homecare interested in services monitoring.

There is a small interest in applying the PcP or PPI for a project innovative results, due to the complexity of procedures involved, insufficient staff with expertise in the field of public procurement for innovation or pre-commercial procurement and the risk high potentiality.

KEY CHALLENGES:

1. THE IMPORTANCE OF PUBLIC PROCUREMENT FOR INNOVATIVE SOLUTION IN HOME CARE IS INSUFFICIENTLY PROMOTED BY PUBLIC SECTOR ACTORS.
2. THE QUADRUPLE HELIX MODEL IS INSUFFICIENTLY USED AS ITS REPRESENTATIVES ARE WEEKLY INTERACTING AND THE RESEARCH/INNOVATION RESULTS OFFER IS LIMITED BY THE LACK OF TRANSPARENCY OF PUBLICLY AVAILABLE RESEARCH RESULTS.
3. THE PCP FOR INNOVATIVE SOLUTIONS IN HOME CARE ARE INSUFFICIENTLY COMMUNICATED TO INTERESTED PARTIES SO THAT MANY OF THEM ARE LOST OR FORGOTTEN.

SUPPORT FROM OPERATIONAL PROGRAMME - SUPPORT OF PUBLIC DRIVEN INNOVATION PROGRAMMES / INITIATIVES FROM OPERATIONAL PROGRAMME

- Are there any policies, strategies and intervention programmes supporting PPI, Pcp, or public led R&I projects?
- What is the experience of Managing Authority with these?
- What are the next plans in terms of Operation Programme support for these?

Operational Programme Competitiveness under Axis 1 has section from A to G under each there is a type of project. Section G offer possibility to build a Partnership for Transfer Knowledge. There are no special programme under the Operational programme dedicated to PPI or PCP for home care. The Managing authority does not have a separate call for PiP/PcP projects.

The R&D&I strategy objective for Increasing the competitiveness of the Romanian economy through innovation. The objective is to support the performance of economic operators on global value chains. The strategy supports the transition from cost-based competitiveness to innovation-based competitiveness. This implies developing firms' ability to absorb state-of-the-art technology, adapt these technologies to the needs of the markets they serve, and develop technologies or services that enable them to progress on value chains. Intermediate body has managed already several rounds al calls for projects under OPC. It is expected that the Managing Authority, Intermediate body will consider the importance of simplifying the work of applicants during the project life.

KEY CHALLENGES:

1. THE OP AND ITS PROCEDURES ARE VERY DIFFICULT AND INCREASE SYSTEM COMPLEXITY, THE COMPLICATED PROCEDURES FOR PROPOSAL DESIGN PHASE, THE EVALUATION PROCEDURE, THE BUREAUCRACY IN MONITORING AND REPORTING DISCOURAGE MANY INTERESTED PARTICIPANTS,
2. NO SPECIFIC INTEREST IN HOME CARE DESPITE OF THE BIG NUMBER OF POTENTIAL USERS OF INNOVATION IN HOMECARE.

4. COMMON PROBLEMS AND CHALLENGES

Based on the above description of current situations in each country of the HoCare project, the common problems and challenges regarding the generation of innovation in home care through public driven initiatives can be seen in the following list – divided per innovation ecosystem and support from Operational programmes.

4.1 COMMON CHALLENGES / PROBLEMS IN INNOVATION ECOSYSTEM:

➤ **LACK OF KNOWLEDGE, EXPERIENCES AND GOOD PRACTICES OF PPI OR PCP**

- Lack of knowledge and experience in relevant procedures.
- Missing good examples of PPI/PcP initiatives.
- Need of enhancing substantially the preparedness of the public procurers to attract and implement innovations through PPI.
- Need of Knowledge and experience transfer to public institution on how to successfully use PPI and PCP
- Insufficient legal framework in some countries
- Unattractive and long-lasting bureaucratic procedures.
- Need for successful implementation of PPI and PCP based calls.
- Missing strategic framework
- promotion for public led initiatives is missing

➤ **WEAK MUTUAL COOPERATION OF MAJOR PUBLIC ACTORS**

- Lack of support for regional quadruple-helix networks to initiate and support the co-creation of innovations to help increase the capacity of public bodies for PPI.
- Involvement of the big public hospitals, municipalities and regions in managing their own innovative initiatives.
- Public service providers show little interest in stimulating and absorbing innovation.

➤ **LOW COOPERATION AND COMMUNICATION BETWEEN DIFFERENT ACTORS IN HOME CARE**

- Enhance Quadruple-helix cooperation between all stakeholders in the stage of idea generation and application preparation.
- Ecosystem – there can be an improvement in the networking with companies, citizens and other helixes to support involvement and connection for projects development and submission.
- Intensifying communication to suppliers of innovative products and services that there is a demand for procuring innovations in home care and a legally bound mechanism for implementing it (PPI&PCP)

4.2 COMMON CHALLENGES / PROBLEMS IN SUPPORT FROM OPERATIONAL PROGRAMMES:

➤ LIMITED POSSIBILITIES FOR FUNDED COOPERATION OF ALL QUADRUPLE-HELIX ACTORS

- Lack of clear funding and adequate funding scheme to support quadruple-helix cooperation
- Home care service providers say, that a lot of the decisions are formally taken at the level of municipalities, but they have little influence on design of operational programme and too little resources to initiate their own regional programmes.
- Some policy instruments aim at specific target groups without enough space for cooperation between different helixes.
- Quadruple helix model is unbalanced.

➤ LACK OF OPTIMAL OPERATIONAL PROGRAMMES AND RELEVANT SUPPORT FOR PUBLIC LED INITIATIVES

- limited policy instruments to support public led initiatives
- Lack of trust in the PPI or PcP concept.
- missing financial scheme for knowledge transfer to public institutions to get sufficient experience on setting PPI and PCP.
- Additional support and priority on launching PPI and PCP calls for innovation based needed
- Lack of financing/prefinancing preparation of PPI/PCP projects and innovation procurement procedures (not only preparation of the application, but the project itself what has significant impact on undertaking in PCP/PPI projects and other public driven innovation projects.
- Reshaping the planned interventions in future calls to enable the wider adoption of innovation procurement as a mechanism to drive markets for home care innovation.
- Missing support to bidders (possible vendors) who would be interested to submit a proposal on an innovation procurement tender call, but have no experience and knowledge about such procedures and processes.
- Lack of specific support to ICT SMEs who are ready to deliver innovative solutions which are compatible to local, regional, national and European e-health systems connecting various care providers and patients and other stakeholders.
- home care not a specific priority within OPs

➤ FRAGMENTED COOPERATION BETWEEN MAIN RESPONSIBLE MINISTRIES

- Cooperation between various responsible ministries is very fragmented.

5. IDENTIFIED GOOD PRACTICES OF INNOVATION CREATION THROUGH PUBLIC DRIVEN INITIATIVES

Unfortunately, there are not many good practices on the strategic focus or management level of the Operational Programmes relevant for the topic of this Study that could be available proved for success from the countries of the HoCare project. The following selected good practices in generation of innovation in home care through public driven initiatives are mostly project based and include mainly national strategical projects and general R&I public driven projects including various public authorities in leading and initiating positions. These have been identified during the HoCare project and provide significant overview and inspiration for both Managing Authorities and territorial stakeholders in regards to types of projects, activities, participants and topics, influencing their potential strategies for opening higher support for creation of innovations in home care. Some of these, despite not being specifically described as such, involve good examples of PPI and PcP processes.

The following good practices show very wide array of inspiration for transfer, starting from national level strategic projects initiated or supported from the ministries or related public authorities (5.1, 5.2, 5.3 and 5.4), through strategic focus and management practices of Operational Programme (5.5 and 5.6), to projects initiated by big public hospitals including cooperation of other stakeholders (5.7, 5.8 and 5.9), local hospital pilot projects transferred to regional ageing programmes (5.10), municipality initiatives (5.11) and example of international idea transfer led by local public development centre (5.12).

GOOD PRACTICE SHORTCUT	GOOD PRACTISE OF ...
Meta (5.1)	Good practice of project developing personal health planning methodology and an APP (as a telecare/homecare tool for personal health planning) that was implemented and led by the national public authority responsible for health system and patient pathway planning development after having been predefined previously by the Government itself.
Menta (5.2)	Good practice for complex m-health planning application and platform being developed in cooperation with various stakeholders by the national healthcare service institution based on predefinition by the government itself
Virtual health centre (5.3)	Good practice of government initiative leading innovation in public health management system targeting general practitioners clusters and primary care in general via development of e-health and tele-health solution
Growth of the quality of medical services in rural areas using a telemedicine informatic system (5.4)	Good practice for strategical project of telemedicine solutions to remote areas supported directly by Ministry of Health via Operational Programmes

Bonification of projects' evaluation targeting societal challenges including Health, Demographic changes and Well-being (5.5)	Good practise of management of Operational Programme that gives direct support in evaluation procedure to projects targeting health related challenges
Evaluation bonus for addressing horizontal priority "Health for all" (5.6)	Good practise of strategic focus of Operational Programme that supports initiatives in specific industry segments that are cross-sectorial – in this example health - by giving them direct support in evaluation procedure.
Tele-hippocrates (5.7)	Good practice of project involving large cooperation of various actors being initiated by the big public hospital that is also the owner of the innovative product and service
Gamma M-doctor (5.8)	Good practice of public university hospital leading creation and financing e-health innovative solution in cooperation with IT and telecom companies
Check Point Cardio (5.9)	Good practice of a telemedicine monitoring innovation project initiated by public hospital involving other organizations
Multisensory gymnasium (5.10)	Good practice of a project initiated by a local public hospital, implemented by residential day care centre and further supported as strategical initiative through cooperation of Regional Social Security Institute via Regional Plan for active ageing
Beacons (5.11)	Good practice of project initiated by local municipality based on needs of their specific group of inhabitants, including municipality company to develop and test new solution in local transport services' accessibility
"SPERO" – social communication platform for seniors (5.12)	Good practise of social communication platform idea customization and transfer by local public development centre in cooperation with other necessary actors (SME, international mentor, local public authorities)

These good practices enable to target and reduce mainly the following identified challenges as they might provide inspiration for potential transfer to other territories or segments of home care:

- **WEAK MUTUAL COOPERATION OF MAJOR PUBLIC ACTORS**
- **LOW COOPERATION AND COMMUNICATION BETWEEN DIFFERENT ACTORS IN HOME CARE**
- **LIMITED POSSIBILITIES FOR FUNDED COOPERATION OF ALL QUADRUPLE-HELIX ACTORS**
- **LACK OF OPTIMAL OPERATIONAL PROGRAMES AND RELEVANT SUPPORT FOR PUBLIC LED INITIATIVES**
- **FRAGMENTED COOPERATION BETWEEN MAIN RESPONSIBLE MINISTRIES**

5.1 META

Category	Project
Country of origin	Hungary
Keywords	Cooperation with affected stakeholders incl. end-users; Personal health planning and management; Telecare; eHealth; Mobile health
Participants	National Healthcare Services Center (ÁEEK), universities
Reasons for selection for the Study	Good practice of project developing personal health planning methodology and an APP (as a telecare/homecare tool for personal health planning) that was implemented and led by the national public authority responsible for health system and patient pathway planning development after having been predefined previously by the Government itself.

Introduction:

Development of a personal health planning methodology and an APP (as a telecare/homecare tool for personal health planning). Good practice for public driven innovation and cooperation with end users (patients and professionals) and other stakeholders. The project was a part of the programme for improving organizational efficiency in healthcare system and establishing territorial cooperation. The whole programme (including META project) was co-financed by the EU Structural Funds through the Social Renewal Operational Programme 2007-2013 (project code: TÁMOP-6.2.5.B-13/1-2014-0001).

Problem:

In general:

- Bad opinion about healthcare system
- Low patients' cooperation (adherence) level
- Lack of knowledge about proved, evidence based, qualified and approved healthcare devices and use.

Requirement the APP needed to meet:

- Intact with professional requirements
- Easy to use, clear and logical for everyone
- Eligible follow-up
- Trackable
- Provides clear advices and assigns the patient to healthcare professional if needed
- Creates individual health plan which makes the application unique

Solution:

Development of the unified personal health planning approach and methodology. The most important tool of the development is META, the Hungarian Health Planning mobile health Application. Patients and health care professionals were involved during the innovation to define requirements for easy every-day use. More than 25.000 registered users are in the Health Planning Application (META-APP) with the aim to change their attitude and health style. Pilot of the pharmacy - Making health plan by 60 pharmacist candidates. It is prepared to connect with other platforms and

APPs of the National eHealth System in order to enable integration of personal and professional devices and access of care and cure professionals.

Figure 4 – The Hungarian health planning application

Main phases of the project

- Recruitment of project staff (management & developers)
- Development of methodology of increasing adherence
- Training of medical and nursing staff and other health professionals
- User specific requirements
- System design and specifications of the Health Planning Application (META-APP)
- Development of META-APP
- Testing and Evaluation
- Dissemination of results

Public body role in creation of this innovation

The project proposal was prepared and submitted by and the project implementation was led by the public authority responsible for health system and patient pathway planning development after having been predefined by the Government.

The project was a part of the programme for improving organizational efficiency in healthcare system and establishing territorial cooperation. The whole programme (including META project) was co-financed by the EU Structural Funds through the Social Renewal Operational Programme 2007-2013 (project code: TÁMOP-6.2.5.B-13/1-2014-0001). The public body involved representatives of end-users (patients, physicians and pharmacists) in meeting milestones of the project, and set up a 'Social Consultative Committee (SCC)' to get assistance for the preparation and implementation of the programme and META project too. SCC shared the knowledge and view of stakeholders representing affected business and research sectors. The Personal Health Planning portal (<https://egterv.aEEK.hu/>) was co-financed by the Norwegian Fund as well (through the HU12-0001-PP3-2016 project for methodological, structural and capacity development for assisting actions for improving mental health conditions of the population).

More information at (available only in Hungarian):

- Presentation about the project:
<https://www.aEEK.hu/documents/20182/66277/10.%2BDr.%2BTorzsa%2BP%C3%A9ter.pdf/db83efab-0964-4a4b-94b9-fafc2112645d>
- Further information after registration: <https://egterv.aEEK.hu/>
- Project good practice in full details available at:
<https://www.interregeurope.eu/hocare/library/> - Good Practices folder

5.2 MENTA

Category	Project
Country of origin	Hungary
Keywords	Personal health planning and management; Telecare; eHealth; Mobile health, mobile Health ecosystem
Participants	National Healthcare Services Center (ÁEEK), Final beneficiaries, target groups, stakeholders: population, patients, health service providers (institutions and professionals), e-health and m-health solution providers (ICT and TECH firms), tele-health providers, universities and research organizations, other public authorities
Reasons for selection for the Study	Good practice for complex m-health planning application and platform being developed in cooperation with various stakeholders by the national healthcare service institution based on predefinition by the government itself

Introduction:

Main activities in the project: Development of a unique m-Health application and web platform combining patient health data fed by the patient with the EHR stored in national healthcare databases. Good practice for public driven innovation and cooperation with end users (patients and professionals) and other stakeholders. Registration and use of the APP and the platform are assisted by a contact center. The project was a part of the programme for development of methodology, curriculum, services, education and training of staff and patients to assist the implementation of the national e-health system. The whole programme (including MENTA project) was co-financed by the EU Structural Funds through the Social Renewal Operational Programme 2007-2013 (project code: TÁMOP-6.2.7.-13/1-2013-0001).

Problem:

Parallel to the aging of the population varying new forms of care service areas appear in the health system. In primary care, e.g., prevention, health promotion, automatic and continuous health monitoring have become more and more important. Improving health consciousness in public health appeared in the focus of the strategies, and there is a shift from inpatient care to outpatient and home care. Clinical treatments got shorter and the possibility of providing personalized medical solutions is growing. The whole process requires more and reliable information about health status and personal conditions such as tailored and assessable physical and online services. While there are plenty of various mobile, wearable and smart products, telehealth solutions and services, unfortunately people have insufficient information regarding their validity, safety and use. In

addition most health service providers and the majority of patients would welcome direct link to personal health records (PHR), patients' summaries and care histories. Further more people need reliable source of information about the different symptoms, diseases, medicines, drugs, treatment procedures, effectiveness and adverse reactions, and people need information about available care and treatment services and the location of the nearest providers too.

Solution:

The project's response to the challenge was based on research using online query filled by people representing the whole Hungarian population. The functions of the APP and the platform were defined according to the habits of the population (how people use internet and mobile equipment concerning their health). This research confirmed that there is a need for a reliable and validated central health information system that is available for the wide range of the population by mobile and online home tools.

Therefore, the public body responsible for development and maintenance of central (national) e-health system (GYEMSZI, since 2015 ÁEEK) developed a unique mHealth application combining patient health data fed by the patient with the EHR stored in national healthcare databases. The new system was named "MENTA" (Mobil EgészségNapló és Tájékoztató Alkalmazás - Medical eLog and Notifying Therapy Application). The development aimed to:

- a) be prevention-focused,
- b) strengthen public health consciousness and attitudes,
- c) improve self-awareness and adherence,
- d) create link to upload and access data stored in national healthcare system connecting patients with primary and hospital care,
- e) use personal health record (PHR) modules,
- f) assist accessibility to and of 3rd party telehealth ICT, TECH and service providers,
- g) contributes to the establishment of a new mHealth ecosystem,
- h) enable correct patient information and health status monitoring,
- i) provide information on nearest available public and private healthcare services (providers and professionals),
- j) create a space for public health campaigns,
- k) use its data for assessment of effectiveness and efficiency of prevention, health promotion and care,
- l) meet 21st century standards on high level data security, excellent UX design, self-learning system, and
- m) provide free availability.

Other technical and professional characteristics of the APP and the platform:

- Personal health records (PHR):
 - ... In-app patient register on medical history, current chronic diseases and treatments
 - ... PHR and EHR on the same interface after user identification
 - ... Health diaries monitoring weight, nutrition, fitness, blood pressure, blood glucose and respiratory function
 - ... General Practitioner consulting from home through the app
- Personal health plans:
 - ... Modules to achieve the main health goals step by step

- ... Input data based on health diaries
- ... Practical advice and continuous feedback
- ... Interactive communication
- ... Motivation through gamification
- Information Hub and Service Center:
 - ... Relevant patient information (Disease guide, Symptom checker, Drug database, information and finder)
 - ... Screening campaigns and patients' rights
 - ... Personalized news feeds
 - ... Search for health care providers or professionals (hospitals, outpatient services and special clinics, pharmacies, physicians, specialists, general practitioners for child and adult primary care)
- Telemedicine and 3rd party apps
 - ... Telemedicine modules for connectible devices
 - ... Direct link to specialists
 - ... Application Programming Interface (API) for 3rd party developers

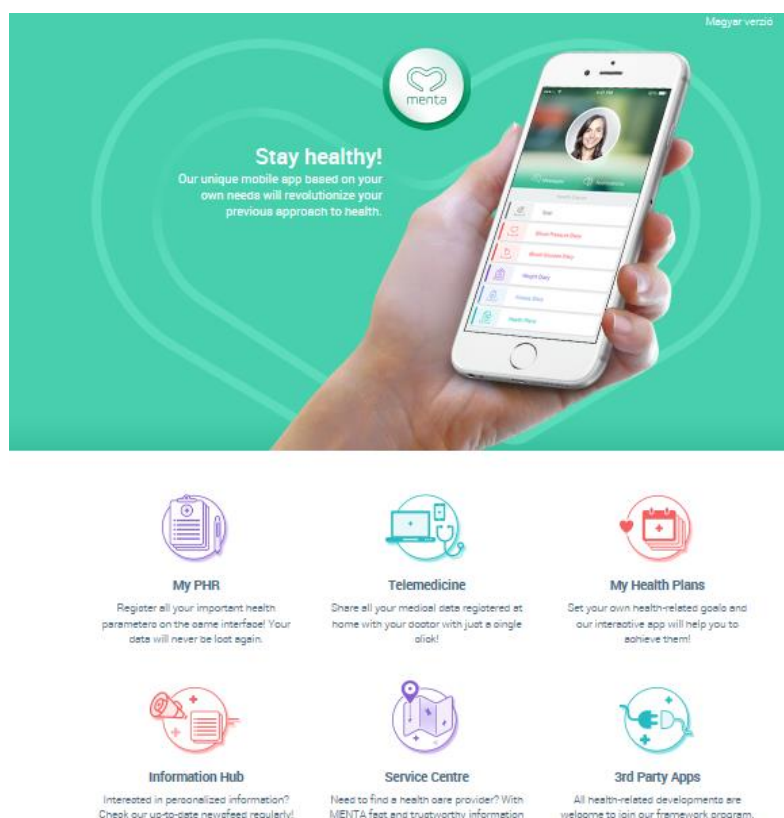


Figure 5 – MENTA's core functionality

Main phases of the project

- Research using online query filled by people representing the whole Hungarian population.
- In the first phases basic modules of MENTA were launched: it has been available to register basic health-related data, to use the emergency card and the personal health record (PHR) modules. You can monitor your calorie intake, physical activities, body weight, your blood

pressure and blood glucose levels. MENTA’s knowledge centre as well as its drug finder and pill reminder functions are also available.

- Within the second phase patient’s history, individual health plans and the support of different telemedical tools were delivered. You can share your personal data with your General Practitioner or specialist. Integration with other e-health projects and external health-related developments can be initiated.

Public body role in creation of this innovation

The project proposal was prepared and submitted by and the project implementation was led by the public authority responsible for health system and patient pathway planning development after having been predefined by the Government. The public body involved representatives of end-users (patients, physicians and pharmacists) in meeting milestones of the project. Stakeholders from the ICT sector, such as from HEI, were involved too.

More information at:

- Project website: <https://menta.aEEK.hu/>
- Information about the solution in English: <http://menta.gov.hu/en>
- Project good practice in full details available at: <https://www.interregeurope.eu/hocare/library/> - Good Practices folder

5.3 Virtual Health Centre

Category	Project
Country of origin	Hungary
Keywords	Personal health planning and management; Telecare; eHealth; Mobile health, mobile Health ecosystem, Public health, Disease prevention, Health promotion
Participants	National Healthcare Services Center (ÁEEK), universities, authorities responsible for primary care development and National Insurance Fund, associations of general practitioners and health visitors.
Reasons for selection for the Study	Good Practice of government initiative leading innovation in public health management system targeting general practitioners clusters and primary care in general via development of e-health and tele-health solution

Introduction:

Virtual Health Centre was developed in one of the work packages (WP3) of the “Public Health Focused Model Programme for Organizing Primary Care Services Backed by a Virtual Care Service Centre (2012-2017)” with the leadership of ÁEEK / NHSC and 8 partners (4 universities, 2 associations of care providers and the National Institute of Health Insurance Fund Management). The whole Model Programme (incl. VHC) was financed by: The Swiss Contribution Programme (85%) and Hungary (15%). The Model Programme aimed to strengthen health and social services emphasizing health needs of vulnerable groups such as children, the elderly and socially marginalized groups, primarily in geographic focus areas.

Main activities of the whole Modell Programme: Co-operations among Authorities, Research, Care providers, Business, Civil organizations and Patients for methodological development, trainings and

monitoring of general practitioners' clusters, e-health and tele-health development, pilot activities in North Hungary & North Great Plain regions (HU) and central coordination of General Practitioners' clusters, special programmes for Roma communities, research programmes, health policy analyses and recommendations. The Modell Programme has been executed in the most disadvantaged regions of Hungary; however it has been piloting innovative service solutions for the Hungarian primary care system in general as well.

Main activities of VHC: The Centre provides services for health- and disease management together with the persuasive platform for augmenting compliance. The VHC's main objective is to support the cooperation of general practitioners integrated in clusters together with some special healthcare professionals and staff. The VHC also supports the everyday work of a "normal" general practitioner.

Problem:

The whole Programme developed new procedures manuals for the cooperation among general practitioners' clusters (GPCs). The GPCs are based on the cooperation of general practitioners, public health coordinators, health professionals (dietitians, physiotherapists, health psychologist etc.) nurses, public health experts, health visitors, roma health mediators and assistant health mediators coordinated by the GPC coordinators and managed by the Virtual Care Service Centre. This cooperation among the staff and management functions of the Centre are unique service innovation. Therefore, there were no existing tested and proved workflow, business process management (BPM) or ICT solution available for the new scheme of the "Public Health Focused Model Programme for Organizing Primary Care Services".

Solution:

Patients and health care professionals, interested public bodies and universities were involved during the innovation to define requirements for the specification of the public procurement of the supplier who developed the new software solution. The staff of the GPCs and the managing Centre were also involved testing the developed milestones and final results of the innovation. In this way necessary and useful changes could be made during the development phase.

The whole Programme was created and implemented to bring prevention and primary care services to people who live far from care centers and clinics. The target group of the programme lived in underdeveloped micro regions in terms of socio-economic aspects and infrastructure, and where unemployment rate was high, and where the ratio of Roma population was high, and where people lived in risky health status. These people needed help to get involved in different personal and common preventive and public health activities, and the elderly needed home care services too. There was a general need for diminishing of geographic, social and economic isolation in healthcare.

There were needs for:

1. coaching in prevention and health promotion at the patients' side,
2. medical and home care services at the patients' side,
3. curriculum + training services to learn how to perform new coaching, medical and home care services at former and informer providers' side,
4. tested and proved workflow, business process management (BPM) and ICT solution available for the new scheme of the "Public Health Focused Model Programme for Organizing Primary Care Services" at the formal and informal providers' side,
5. evidence on the effectiveness and the efficiency of the new services at the payer side (National Insurance Fund).

VHC (as a part of the whole Programme) focused mainly on issue № 4.

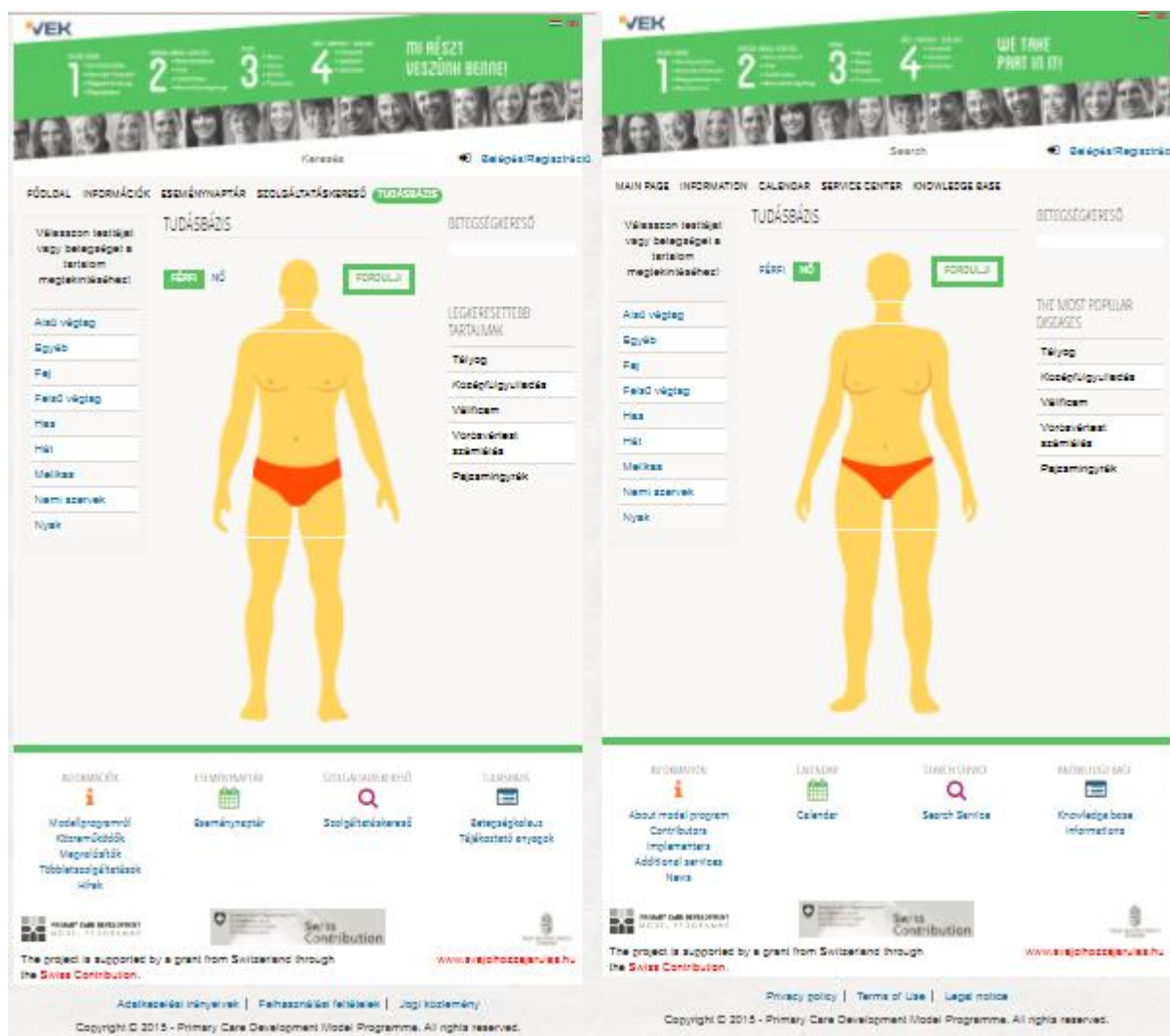


Figure 6 – Virtual Health Centre

Main phases of the project

- Elaboration of the procedures for the general practitioners and other involved professionals and staff taking part in a GP cluster and the Virtual Health Centre model.
- Collaboration Support Model for members of GP clusters, registering health status of the population (Requirement specification, Concept validation, System specification, Procurement, development and installation of hardware and software, Training)
- Integrated IT system – software - for general practitioners' activities and supporting the accepted model of Virtual Health Centre (Requirement specification, Concept validation, System specification, Procurement, development and installation of hardware and software, Training)
- Preparing requirements of a new accreditation programme for integration of 3rd party products and services to VHC, MENTA and other elements of the Central National e-Health System in order to widen mobile health ecosystem.

Public body role in creation of this innovation

The whole programme was driven (initiated) by the ministry responsible for health and public universities. The project proposal was prepared and submitted by and the project implementation was led by the public authority responsible for health system and patient pathway planning development after having been predefined by the Government. Other partners from the public helix were authorities responsible for primary care development and National Insurance Fund. Research helix was represented by 4 medical universities. User helix was also represented in consortium by associations of formal care providers. The public body involved representatives of end-users (general practitioners, health visitors, public health professionals, specialty doctors and patients) in meeting milestones of the project. Patients and informal care providers were involved in co-creation activities during the implementation as voluntary partners. Business (ICT enterprises, telehealth and medtech vendors) were involved also in the implementation as subcontractors in the co-creation phase of BPM development and the preparation of technical requirements for procurement activities.

More information at:

- The model information: <http://vek.praxis.gov.hu/hu>
- About the model programme: <http://alapellatasimodell.hu/index.php/en/>
- Project good practice in full details available at:
<https://www.interregeurope.eu/hocare/library/> - Good Practices folder

5.4 Growth of the quality of medical services in rural areas using a telemedicine informatic system

Category	Project
Country of origin	Romania
Keywords	Telemedicine, Family doctor, Rural areas, Small towns, Elderly
Participants	Ministry of Health
Reasons for selection for the Study	Good practice for strategical project of telemedicine solutions to remote areas supported directly by Ministry of Health via Operational Programmes

Introduction:

This Good Practice sustains the achievement at the level of the family doctor - a better management of chronic health problems with major impact on the elderly, with the support of specialists through the telemedicine system.

Problem:

1. Specialized healthcare for patients who are isolated due to geographical conditions, degradation, age or disability.
2. Increased home care with medical services by reduction of hospitalization, emergency system requests, hospital admissions requests, hospitalization costs

Solution:

The sole solution to compensate these problems (at short term) is to use the telemedicine solution (especially in rural areas and small towns). Consequently, the project has implemented the solution involving in the project family doctors from the selected area (three counties from the south east, including the Danube Delta, three regional hospitals, and the IT services provided through an acquisition of the system having as beneficiary the Ministry of health (servers, network, software) and as administrator the Governmental Service for Telecommunication (in order to ensure the security of the data). For the family doctors, the project gives IT terminals (with video cameras), medical analyzers with internet connection, EKG-meters with internet connection. The regional hospitals own terminals and adequate interface for connection with the family doctors



Figure 7 – telemedicine solution

Main phases of the project

- Tender for services offer
- Platform Specifications
- Platform Development (including 3 iterations)
- Services / Content creation (in 2 iterations)
- Pilot Testing / Evaluation

Public body role in creation of this innovation

Management Authority and implementation Unit at the Ministry of health provided the framework for the project development in the Operational Programme 2007-2013 in Phase 1 and now in Phase 2 in the Operational Programme 2014-2020.

More information at:

- Basic information about the project: <https://www.formaremedicala.ro/sistem-informatic-de-telemedicina-pentru-mediul-rural/>

- More detailed information about the project: <http://stiridegalati.ro/telemedicina-in-comunele-galatene-echipamentele-sunt-distribuite-medicilor-de-familie/>
- Project good practice in full details available at: <https://www.interregeurope.eu/hocare/library/> - Good Practices folder

5.5 Bonification of projects' evaluation targeting societal challenges including Health, Demographic changes and Well-being

Category	Management of Operational Programme
Country of origin	Portugal
Keywords	Healthy aging, well-being; health, active
Participants	Managing Authority of Operational Programme OP COMPETE2020
Reasons for selection for the Study	Good practise of management of Operational Programme that gives direct support in evaluation procedure to projects targeting health related challenges

Introduction:

At Portugal 2020 Operational Programme COMPETE, in the criterium called Project Merit (MP), 4 specific areas for evaluation are defined, namely:

- Project Quality;
- Impact of the project on the competitiveness of the company;
- Contribution of the project to the economy;
- Contribution of the project to regional convergence.

At the sub level contribution of the project to the economy it takes into account its integration in the fields of intelligent specialization, its contribution to the remaining thematic areas of Portugal 2020 and the response to societal challenges, by an increase in this criteria:

- Majority: Contribution to Societal Challenges + 0,5 points:

For full information, the EU has identified seven priority challenges where investment in research and innovation can have a real impact for the benefit of citizens – Societal challenges:

1. Health, Demographic changes and Well-being
2. Food security, Sustainable agriculture and forestry, Marine and inland water research, and Bio economics
3. Safe, Non-polluting and Efficient Energy
4. Intelligent, Ecological and Integrated Transport
5. Climate Action, Environment, Resource Efficiency and Raw Materials
6. Europe in a Changing World - Inclusive, Innovative and Weighted Societies

7. Safe Societies - Defending the Freedom and Security of Europe and its Citizens

Societal challenges	Lines of action
1. Health, Demographic changes and Well-being	<p>1.1. High-quality, economically sustainable and innovative healthcare and care systems</p> <p>1.2. Understanding of health determinants (Nutrition, physical activity, gender, environment, socio-economic, occupational, climate related)</p> <p>1.3. Prevention, treatment, surveillance and management of diseases and disabilities (cardiovascular diseases, cancer, diabetes, rheumatic and musculoskeletal diseases, rare diseases, brain diseases, infectious diseases, poverty-related diseases, animal-borne diseases, epidemics)</p> <p>1.4. Health throughout life</p> <p>1.5. Active, autonomous and healthy aging</p>

Problem:

Sometimes SMART Specialization strategies (RIS3) and supported projects are not related with EU metrics of societal challenges. If they are, there needs to be specific bonus to value them even more among the others.

Solution:

Evaluation bonus for projects clearly targeting societal challenges will connect societal challenges with project metric of a specific proposal therefore value it more during evaluation procedure if this is related to one of the core EU societal challenges including health.



Figure 8 – COMPETE2020 and societal challenges target evaluation bonus

Main phases of the project

- Compatibility with EU metrics of societal challenges such as H2020
- Connect societal challenges with projects metric – criteria evaluation
- Project calls - OP Compete
 - Majority (criteria): setting up new evaluation bonus for Contribution to Societal Challenges + 0,5 points:

Public body role in creation of this innovation

Managing Authority of OP COMPETE2020 followed EU metrics for societal challenges and decided to give applicant projects evaluation bonus based on the logic of supporting those projects targeting most prominent challenges.

More information at:

- Website of the Operational Programme: <http://www.poci-compete2020.pt/>
- Website of Portugal 2020: <https://www.portugal2020.pt/Portal2020>
- Project good practice in full details available at: <https://www.interregeurope.eu/hocare/library/>
- Good Practices folder

5.6 Evaluation bonus for addressing horizontal priority “Health for all”

Category	Strategic focus of Operational Programme
Country of origin	Lithuania
Keywords	smart society, smart economy, smart governance
Participants	Managing authority of the Operational Programme
Reasons for	Good practise of strategic focus of Operational Programme that supports

selection for the Study	initiatives in specific industry segments that are cross-sectorial – in this example health - by giving them direct support in evaluation procedure.
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Introduction:

National Progress Programme for Lithuania identifies 3 horizontal priorities: “Culture”, “Regional Development” and “Health for All”. The horizontal priorities of the Program cover areas characterized by complex problems which cannot be solved by means of one or more sectoral measures. Horizontal priorities are set in order to achieve a major breakthrough by combining the areas of the thematic priorities.

Problem:

A priority "HEALTH FOR ALL" has an overall goal - to achieve good human health. This priority sets strategic direction to improve public health and to overcome disparities of public health. In order to create equal opportunities for strengthening health and well-being of individuals, families and communities, to prevent diseases, it is necessary to promote health strengthening in different social groups as well as illness prevention and to create health-friendly physical and social environment and the infrastructure and ensure sustainable, affordable and qualitative healthcare. Success factors to achieve goals of the "Health for All" priority:

- Active and sufficient involvement of other sectors;
- Coordinated actions of all sectors in order to meet the public health improvement criteria;
- Economic and social stable and sustainable development is essential for the health potential and maintenance of the population as well as social security and education guarantees, employment and sufficient income.

Solution:

This horizontal criterion was applied in the framework under the measure “Intellect. Joint scientific and business projects”. One of the selection criteria set in evaluation criteria was that the project should contribute to the implementation of the abovementioned criterion "Health for All". A higher rating is given to projects contributing to the above mentioned horizontal priority. If the project contributes to the implementation of the above mentioned measure - 5 points are awarded, otherwise 0 points are awarded.

Main phases of the project

The Program is planned in progress-oriented manner. Its preparation deadline is aligned with the programming period of the EU financial assistance; therefore, the Program is for the period 2014-2020. The priorities, goals and objectives of the Program were elaborated by 7 interinstitutional working groups which were set up under the decision of the EU structural assistance. These groups consist of representatives of the ministries of the Republic of Lithuania, implementing agencies, social, economic and regional partners. In order to implement the National Progress Program 2014-2020, The Interinstitutional Action Plan for this horizontal priority was approved on 26 March, 2014.

Public body role in creation of this innovation

In order to comply with the principle of partnership and to involve the various public representatives in Program preparation, a public discussion of the Program priorities was held in July 2012 where potential priorities and content of the Program were discussed. The Program has been prepared on

the basis of the results and conclusions of the public discussions and prepared by the Managing Authority of the Operational Programme.

More information at:

- Full text of the Horizontal priority programme: <https://www.etar.it/portal/it/legalAct/695afce0bbcc11e38766a859941f6073>

Project good practice in full details available at: <https://www.interregeurope.eu/hocare/library/> - Good Practices folder

5.7 Tele-Hippocrates: Unified telemedicine network of Greece and Cyprus, with integrated broadband satellite and land (wired) networks

Category	Project
Country of origin	Cyprus
Keywords	Mobile e-health, Broadband satellite, Consulting / support, Provisional care, Tele-rehabilitation
Participants	Chios General Hospital, university, general hospital, national research centre, municipality, national centre for scientific research
Reasons for selection for the Study	Good practice of project involving large cooperation of various actors being initiated by the big public hospital that is also the owner of the innovative product and service

Introduction:

The Telemedicine Network of Greece and Cyprus connects with integrated broadband Satellite and Land (wired) Networks, the General Hospital of Chios and the Nicosia General Hospital with health centers and rural surgery in remote areas in the Prefecture of Chios and in Cyprus. The network offers three main services in the field of health:

- Consulting/ support services of the Hospitals to the health centres and rural surgeries
- Provisional care and rehabilitation efforts for chronic patients in their base/ home (areas of Chios and Cyprus)
- Supporting services of the Hospitals to a mobile medical unit, i.e. ambulance, going to the patient's location.

Complementarily, the network is being able to support:

- High Speed Internet services.
- Sound and Visual services in streaming form. A two way communication services in real time that allows the implementation of tele-training (European Programme Emispher).

Problem:

High quality medical support to patients with chronic diseases and especially those with the need of mechanical ventilation. This target group needs continuous monitoring and treatment by multidisciplinary healthcare professionals. To achieve that the patient must either be hospitalized or admitted to a healthcare facility or visited at home by a multidisciplinary healthcare professional

team. Both options have several cons such as: High cost, patient isolation from family, psychological impact to the patient and limited monitoring. In contrast to the above solutions an alternative is to utilize state of the art communication technologies to deploy tele monitoring and tele consulting at home. The insular character of the Greek territory and the feeling of isolation, particularly in the mountainous and insular areas, led to the need for improvement of the services provided and especially of the services in the field of health, with the support of new technologies and tele-medicine.

Solution:

The objective of the project was the planning and the development of telemedicine services that will aim at the service of Region of North Aegean residents' needs, particularly with regards to situations of urgent medical care. These services constituted in the base of modern technologies of electronic health. Patients with chronic diseases rely on a ventilator, which provides them mechanical breathing support (one of the fundamental biological processes) and some functions, that are standard in other telemedicine infrastructures, differentiated in this case. The technical infrastructure was designed and was implemented in such a way that does not interfere with daily activities of these patients. Moreover, it ensured the correct use of infrastructure by the patient's attendant and/or his relatives.

Innovation elements:

- Designation of the e-services required through definition of needs by the use of quadruple helix method (organizations representing all helixes took part through open seminars, workshops and information events)
- Establish a communication channel between two major healthcare facilities in two different countries
- Knowledge transfer
- Patient continuous monitoring at home

The project was applied on national level covering the whole geographical area of the Republic of Cyprus. The service has been functional since 2009. 18 patients at home with mechanical ventilation are continuously monitored and supported. Nicosia's General Hospital has established a team of multidisciplinary healthcare professionals to support the service. Mechanical ventilators are under maintenance support and the cost of treatment and care is covered by Public sector. The new technology has officially been adopted by the Nicosia General Hospital and is still being offered as a solution within the general health services provided by the organization.

TELEHIPPOCRATES

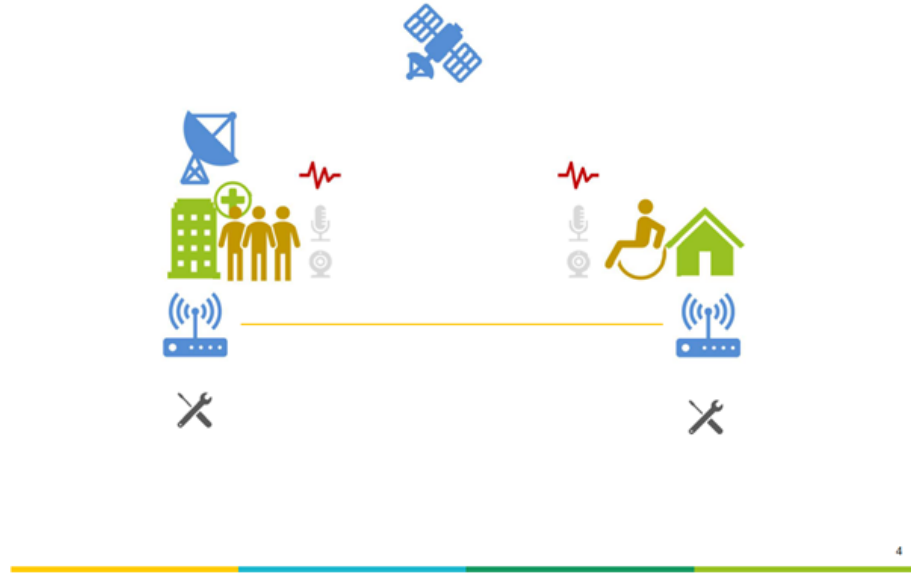


Figure 9 – Telehippocrates scheme

Main phases of the project

- User specific requirements
- System design and specifications
- Procurement and Development
- Testing and Evaluation

Main activities of the project included the following:

- Elaboration of a study on the implementation and the analytical presentation of the specifications and standards for the project.
- Procurement of equipment (telecommunications material, informational systems, etc) and construction of necessary infrastructures.
- Providing of Satellite - through EUTELSAT – and integrated broadband land (wired) infrastructure and services.
- Training of clinical personnel
- Cooperation for the development of tele-medicine applications among Hospitals, organizations that provide with health services and Medical Centres.
- Know-how exchange on the design, development and management of health centres with the use of new technologies
- Dissemination of results

Public body role in creation of this innovation

Intensive Care Unit of Nicosia General Hospital was one of the partners that had initiated the process and is the owner of the innovative practice.

More information at:

- Project good practice in full details available at:
<https://www.interregeurope.eu/hocare/library/> - Good Practices folder
- More information about this Good Practise on Interreg Europe Policy Learning Platform:
<https://www.interregeurope.eu/policylearning/good-practices/item/7/telehippocrates-unified-telemedicine-network-with-integrated-broadband-satellite-land-networks/>

5.8 Gamma M-doctor

Category	Project
Country of origin	Bulgaria
Keywords	e-health, telemedicine, mobile application
Participants	Hospital "St. Sofia" medical university, IT company, telecom company
Reasons for selection for the Study	Good practice of public university hospital leading creation and financing e-health innovative solution in cooperation with IT and telecom companies

Introduction:

Bulgaria has an approved e-health national strategy since 2014 but the main measures within it are still not implemented. There are few private initiatives for deploying innovative solutions through public driven innovation - public organizations, mainly university hospitals request or order innovative solutions to answer their specific needs. M-doctor is a project that has been started directly by a public institution (a public hospital) involving other organizations (Sofia medical university and Medical college of Sofia – for training midwives, research, and private SMEs) into a cooperation project to deliver a new innovative product – a mobile application, therefore public institution being the main driving force at start.

Problem:

In the treatment of each patient it is needed to collect information about the history of the disease and the treatment. This requires to store in the hospital information system a huge amount of information - passport data, history and objective condition on admission, diagnosis, laboratory tests, imaging, treatment modality, etc. Most of this data are to be physically accessible from different doctors at different places, locations and timeframes. The huge amount of data slows the processes of treatment and decision making. During the treatment the doctors need to be provided with different kind of data which makes the processes time and other resources-consuming.

Solution:

Gamma mDoctor mobile application has been designed, deployed and implemented by a private company together with the University hospital, the researchers from the universities and including a telecom company. It enables the remote access to patient information not only within the hospital but also from any location. By Gamma mDoctor physicians can remotely monitor and manage the

treatment of patients and to take the necessary decisions about their treatment in a timely manner - a change in the therapeutic plan, appointment of additional tests, tracking the status of the patients. The application also enables to record a voice message to the electronic record of the patient, and the possibility to listen to the recorded messages in the hospital information system. Gamma mDoctor mobile application is installed on tablets. Through its medical staff of the hospital accesses information from the hospital information system through a secure 3G connection provided by VIVACOM, which ensures data security

Main phases of the project

- The University public hospital provided a detailed assignment and ordered the innovation deployment. The actual implementation within the hospital systems was performed by the hospital team. The project is privately financed by the Hospital from its own funds.
- The solution has been consulted with the university researchers
- A private SME, an ICT applications' developer has deployed the innovative solution and implemented it together with one of the Bulgarian telecoms
- The mobile application Gamma mDoctor is installed on tablets. Through it, the hospital's medical staff get access to information from the hospital information system through a secure 3G connection provided by a mobile operator that ensures data security.

Public body role in creation of this innovation

The hospital is among the leading e-health providers. The management co-created and further financed the innovation together with the software development company – a leading provider of technological solutions in e-health.

More information at:

- Website of the IT company: <https://www.gammaconsult.com>
- Project good practice in full details available at: <https://www.interregeurope.eu/hocare/library/> - Good Practices folder

5.9 Check Point Cardio

Category	Project
Country of origin	Bulgaria
Keywords	e-health, telemedicine, telemonitoring, mobile application
Participants	Check point cardio Medical Centre, Check point cardio group
Reasons for selection for the Study	Good practice of a telemedicine monitoring innovation project initiated by public hospital involving other organizations

Introduction:

During the recent decade, rapid advancements in healthcare services and low cost wireless communication have greatly assisted in coping with the problem of fewer medical facilities. The integration of mobile communications with wearable sensors has created the conditions for

facilitating the shift of healthcare services from clinic-centric to patient-centric – the telemedicine. In Bulgaria cardiac diseases are the most important in terms of loss of health and life. On the other hand, the internet penetration in Bulgaria is growing, over 60% of the population are online. 66% of users of internet possess a smartphone. 73% of them use internet every day. 96% of Bulgarian users benefit the fastest internet in the world (together with South Korea, Man Isle and Malta). Unfortunately the conditions do not automatically enhance the deployment of telemedicine services. Only sporadic singular projects are being implemented like the Check Cardio point project. This is a project that has been initiated directly by a public institution (a public hospital) involving other organizations (private hospitals, researchers, private SMEs, telecoms) into a cooperation project to deliver a new innovative product – a mobile application, therefore public institution being the main driving force at start.

Problem:

There are no initiatives for applying telemedicine in Bulgaria at a large scale. Cell sensor can monitor in real time cardiac patients at risk. For chronically ill patients and those at risk monitoring can be carried out continuously. The data they collect can serve as prevention of crisis situations and precise and thorough diagnosis and that the necessary treatment.

Solution:

General Practitioners in Bulgaria now have access to technology for remote real-time monitoring of patients with cardiovascular diseases. 24-hour monitoring of people with an increased risk of heart problems was possible thanks to an innovative device developed by Check Point Cardio, which it offers in partnership with one of the telecoms - VIVACOM. The solution supports reliable online connection with a specialized cardio center. The project is a private initiative started by a partnership between a hospital, a SME and researchers. Data is transmitted via GSM network VIVACOM to specialized telemedicine center where professionals, cardiologists monitor the patient's condition in real time. Based on the monitoring shall be made electronically record medical data that is sent to the General Practitioner. The system has one main and three supporting medical centers. 15 doctors and 40 nurses work with over 35,500 patient files. The analysis of data is performed automatically in the capacity to simultaneously monitor up to 3000 patients.



Figure 10 – Check Point Cardio

- The hospital, starting this project with Check Point Cardio, contributes to the timely diagnosis and treatment of one of the most common and life-threatening conditions.
- The system for online monitoring of the heart provides early diagnosis and adequate prevention nationwide. Using the innovative service Check Point Cardio, patients and their physician can rely on timely and accurate data to prevent the emergence of emergencies and subsequent complications.
- The device provides information to the physician ECG, pulse, respiration, blood pressure and location of patients, while at the same time is easy to use, compact and does not affect normal life.
- Thanks to the bundled services with VIVACOM the pack includes 5 remotes review within one month for the price of 65 lev and optimal cover 10 review of 120 lev . With unlimited package, patients can rely on reviews every day of the month, the price of an overview costs 10 lev. (1 lev = 0, 50 EUR)

Public body role in creation of this innovation

- This is a project that has been initiated directly by a public institution (a public hospital) involving other organizations into a cooperation project to deliver a new innovative product, therefore public institution being the main driving force at start.
- Public institutions were involved in the promotion of the service in campaigns

More information at:

- Website of the project: <http://checkpointcardio.com/>

- Project good practice in full details available at:
<https://www.interregeurope.eu/hocare/library/> - Good Practices folder

5.10 Multisensory gymnasium

Category	Project
Country of origin	Portugal – Madeira
Keywords	Aging, active aging, sensory stimulation, cognitive stimulation
Participants	residential structure and Day Center, regional social security institute
Reasons for selection for the Study	Good practice of a project initiated by a local public hospital, implemented by residential day care centre and further supported as strategical initiative through cooperation of Regional Social Security Institute via Regional Plan for active ageing.

Introduction:

The goal of all societies is to find a way to extend the lives of their citizens for as many years as possible, so those years should always be accompanied by stimuli, desires and projects that provide the elderly with the maintenance of an active lifestyle and with quality. According to a national study, carried out by the Union of Portuguese Misericórdias (União das Misericórdias Portuguesas), 90% of the elderly in their homes have cognitive alterations that suggest dementia, and within this group, 78% have a dementia (LUSA, April 06, 2016, Country). Faced with this reality, it is imperative to modify and adapt the services of homes in relation to dementia.

Lar da Bela Vista, with 263 users, is currently equipped with a "Multisensorial Gymnasium", a measure unprecedented in the Region that aims to exercise and stimulate the senses and the memory of its regulars. There, in Lar da Bela Vista, the elderly occupy part of their time in activities that aim at their cognitive and sensorial stimulation, in a wide space that was created specifically for this purpose.

One of the objectives of the regional active aging program is to improve work with the household population, in particular through the stimulation and development of the cognitive part. About 30% of the 265 users of Lar da Bela Vista present pathologies in dementia, which represents a complementary effort on the part of the technicians of the different intervention areas.

The "Ginásio da Memória" project, or multi-sensory gymnasium, is one of the projects of the Lar Bela Vista Sectorial Action Plan and the Plan of Activities of the Social Security Institute of Madeira for 2016, which resulted in a centralization of activities that already were developed to promote the active aging and biopsychosocial well-being of residents in the Home and given their relevance, was integrated into the Regional Plan for Active Aging 2016-2019 (PREA). The goal was to create a multipurpose space that promotes the development of new dynamics of multisensory stimulation.

Thus, four spaces were created, namely the "Brain Studio", composed of three ateliers: Cognitive Stimulation, Sensory Stimulation and (In) formation, the "Active School Studio", which includes three workshops: Recurrent Teaching, Languages and Multimedia Communication".

Problem:

According to the survey developed at the Bela Vista Hospital (Estabelecimento Bela Vista - EBV), the data indicated that about 37% of hospitalized patients are diagnosed with dementia syndrome and about 18% of those who are not diagnosed have dementia signs.

Solution:

Given the awareness of this reality and the need to promote strategies for active and successful aging, a group of EBV professionals dedicated themselves to the elaboration of a project called "Multisensorial Gymnasium". The objective of this was to create a polyvalent space that promotes the development of new dynamics of multisensory stimulation. The spaces were reorganized, adapting them to the new proposed intervention dynamics and the existing physical resources were optimized and created different workshops to stimulate the capacities of the clients in a multidimensional perspective. The target population is all EBV clients, who feel willing and able to participate in the proposed activities.

Since the beginning of this project, it was the intention of the interdisciplinary team to cover the largest number of residents, understanding that situations of greater dependence and / or presenting more severe dementia, will not be able to enjoy this space. The reality of this establishment translates into a universe of 265 residents in the home and 10 users from the day center, where about 180 of them would be able to participate in the Multisensory Gymnasium if so they wish.

The activities in the new spaces began in February of this year, and the "Multisensory Gymnasium" was attended by 108 participants, distributed by the following studios: "Studio for the Brain" - 74; "Active School Studio" - 19; And "Arts&Crafts Studio" - 15. The visitors of the "Welfare Studio" are identified by their own needs.

The University of Madeira proposed, as part of a partnership to be developed with EBV, the installation of a Living Laboratory, which would use an innovative technology that would allow users to "move" virtually in scenarios and activities of daily living on the outside (Such as harvesting, taking a stroll along the seafront, ...) but budgetary contingencies have not allowed it to materialize.



Figure 11 – Multisensory gymnasium

Main phases of the project

- creation of the work team
- training provided to the team work
- elaboration of the Plan of project activities
- Creation of the "Brain Studio", composed of 3 workshops: cognitive stimulation; sensory stimulation and (In)training;
- Creation of the "Studio Active School", which encompasses 3 Workshops: recurrent education; languages and informatics/Communication Media;
- Creation of the "ArteCria Studio", with two workshops: Plastic Expression; Lines and creations;
- Integration of "Studio of the Well-being;
- analysis of the results obtained during the first 4 months of operation taking into account 2 strands: level of participation (on the basis of attendance in activities) and level of satisfaction with these same activities (through the application of questionnaire).

Public body role in creation of this innovation

This project has been firstly developed by representatives of Bella Vista Hospital based on previous research. The implementation at Residential structure and Day centre has been initiated and the project has been also included into the Regional Plan for Active Ageing given their cooperation with Regional Social Security Institute.

More information at:

- About the project from regional press: [https://www.jm-madeira.pt/regiao/ver/1613/Lar da Bela Vista com projeto pioneiro para os utentes denominado](https://www.jm-madeira.pt/regiao/ver/1613/Lar_da_Bela_Vista_com_projeto_pioneiro_para_os_utentes_denominado)
- About the project from regional press: <http://www.tribunadamadeira.pt/2017/02/13/ginasio-da-memoria-apoia-265-idosos-do-bela-vista/>
- Project good practice in full details available at: <https://www.interregeurope.eu/hocare/library/>
- Good Practices folder

5.11 BEACONS

Category	Project
Country of origin	Lithuania
Keywords	smart city, smart buses, transport, disabled people
Participants	Kaunas city municipality, municipality company, disabled community
Reasons for selection for the Study	Good practice of project initiated by local municipality based on needs of their specific group of inhabitants, including municipality company to develop and test new solution in local transport services' accessibility

Introduction:

Kaunas city municipality conducted a research to identify problems in public transport sector for disabled people and through their municipality company UAB „Kauno autobusai“ had initiated the project “KVT Balsas” which created the product for the disabled and it was tested by involving the disabled community in the municipality.

Problem:

Visually impaired people have problem identifying the public transport.

Solution:

Municipality company UAB „Kauno autobusai“ have put “beacons” (active tags) on 50 buses in Kaunas and created free application for mobile phone which connects to those “beacons” by Bluetooth when the bus arrives. Application was tested with Kaunas community of disabled people and received positive feedback.



Figure 12 - Beacons

Main phases of the project

- 1) The research was conducted by Kaunas city municipality in order to identify problems in public transport sector for disabled people;
- 2) Municipality company UAB „Kauno autobusai“ had initiated the project “KVT Balsas” which created the product (mobile application) for the visually disabled;
- 3) The app was introduced at the end of 2016 and
- 4) App now available to download for free.

Public body role in creation of this innovation

700 visually impaired people in Kaunas municipality who belong to formal association “Lietuvos aklųjų ir silpnaregių sąjunga” had expressed their interest in this innovation and agreed to give a feedback. The app received a lot of positive feedback and media coverage. The market of potential users is much broader because old people, people with slight visual disorders can also benefit from the app.

More information at:

- Link to download the app: <http://kaunoautobusai.lt/paslaugos/kvt-balsas/>
- Project good practice in full details available at: <https://www.interregeurope.eu/hocare/library/> - Good Practices folder

5.12 Spero – social communication platform for seniors

Category	Project
Country of origin	Slovenia
Keywords	Social communication platform, Intergeneration communication, ICT, loneliness, elderly, new product development
Participants	Development center of the heart of Slovenia, health technologies alliance, SME, local stakeholders
Reasons for selection for the Study	Good practise of social communication platform idea customization and transfer by local public development centre in cooperation with other necessary actors (SME, international mentor, local public authorities)

Introduction:

Regional development hub (gov helix), international mentor (R&D helix), local SME (Business helix) and local stakeholders (citizen helix) joined efforts to develop innovative solution for enhancing intergeneration communication. The project was funded through Innovage project (Interreg IVC).

Problem:

Seniors living in their home face a great risk of being lonely. The risk is much higher when the extended family is not living in the same house. Usually they are linked to the local environment through church visits, doctor visits, grocery shop, newspapers and television. In the digital world they are very much cut off from digital media, which is more and more prevailing in the contemporary world. However seniors are not keen on digital, since it is too complicated or unknown for them. The question is how to bridge the digital communication gap for seniors living at home.

Solution:

The project develops an innovative social communication platform and end-user's device designed for seniors (extremely easy to use). Seniors can easily communicate to the local care centre, local senior centre, relatives, friends and everybody who joins the platform. They are able to read news, they can be immediately informed on the local events, sport activities, clubs' activities etc. It can be used also as a reminder. The end-user device is designed to have only five buttons and not 40 -50 like computers. It is connected to TV since it is senior's prime display in the house.



Figure 13 – Spero on TV

Main phases of the project

- needs assessment
- prepare the call to get the solution
- product design
- prototyping
- testing

Public body role in creation of this innovation

The role of public body (Development center of the heart of Slovenia – public local development centre, which is company working in public interest in the full ownership of the local community. Innovage project founded within Interreg IVC programme offered the opportunity to fund an innovative product. It found a good practice in UK and worked with R&D partner from UK, who actively worked on finding most proper solution for particular local community. When they had a brief product design they have published an invite to the R&D and Business actors and select one innovative SME (Business) to codesign and produce the prototype. The end users were involved from the design phase to final testing.

More information at:

- Brochure on the Innovage project including Spero information:
[http://www2.bth.se/hal/hal.nsf/bilagor/INNOVAGE%20rd%20newsletter_pdf/\\$file/INNOVAGE%20rd%20newsletter.pdf](http://www2.bth.se/hal/hal.nsf/bilagor/INNOVAGE%20rd%20newsletter_pdf/$file/INNOVAGE%20rd%20newsletter.pdf)
- Project good practice in full details available at:
<https://www.interregeurope.eu/hocare/library/> - Good Practices folder

6. REFERENCES AND LINKS TO ADDITIONAL INFORMATION

- HOCARE PROJECT ILLUSTRATION VIDEO (first part of the following video)
<https://www.youtube.com/watch?v=NWmFF63ua70>
- VIDEO FROM SECOND INTERNATIONAL THEMATIC WORKSHOP (RELEVANT FOR THIS STUDY):
<https://www.youtube.com/watch?v=KIdE3mWhP30>
- HOCARE PROJECT WEBSITE: <https://www.interregeurope.eu/hocare/>
- HOCARE PROJECT MAIN OUTPUTS AND DOCUMENTS:
<https://www.interregeurope.eu/hocare/library/>
- CONTACTS FOR MORE INFORMATION ON GOOD PRACTICES:
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AUTHORS – PARTNERS OF THE HOCARE PROJECT

