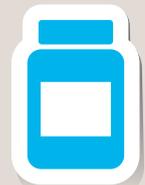




# EU-funded Research & Innovation

## in the field of ICT for Health, Wellbeing & Ageing:

an overview



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# Introduction

*Better health, wellbeing and ageing through ICT:  
Our research and innovation turns the future of health and care into the present.*

What have the best brains of Europe come up with to improve health, wellbeing and ageing with the help of Information and Communication Technology (ICT)? This report offers an overview of the most current (on-going or recently finished) European funded projects in this field.

The research and innovation projects listed here have been divided in the following types:

- Managing your health and care projects: These projects help patients and healthcare professionals to manage a certain condition. Or they preventively help people to stay healthy. This chapter includes international eHealth and mHealth projects that are active in Africa;
- Projects that innovate the health and care system and the way it works. This includes projects which are related to interoperability - meaning the ability of systems and organizations to work together ('inter-operate'). It also includes projects implemented through innovation procurement;
- ICT solutions supporting active and healthy ageing; a special chapter is dedicated to projects funded through the Active and Assisted Living Programme;
- Projects funded by the SME Instrument, accelerating market introduction of ICT solutions for Health, Well-being and Ageing Well.

At the end of this report you will find an overview of the programs used to fund these projects in order to enable them.

For more detailed information on each project, please visit the project website mentioned herein or visit [cordis.europa.eu](http://cordis.europa.eu). And for a selection of finished projects with successful results, please visit [bit.ly/fromLab2Market](http://bit.ly/fromLab2Market).

To be further informed on exciting results of these projects, new projects and other eHealth news, you can subscribe to the newsletter *eHealth, Wellbeing & Ageing*: [bit.ly/newsletterEUeHealth\\_Ageing](http://bit.ly/newsletterEUeHealth_Ageing).

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# 1. MANAGING YOUR HEALTH & CARE

## 1.1 Projects related to mental health

### NEVERMIND



NEVERMIND sets out to empower people who suffer from symptoms of **depression** related to a serious somatic disease.

The envisaged system works via a smartphone and a lightweight sensitized shirt. It predicts the severity and onset of depressive symptoms by collecting and processing physiological data, body movement, speech, and the recurrence of social interactions.

The data will trigger a response encouraging the patient to conduct or alter activities or lifestyle to reduce the occurrence and severity of depressive symptoms.

The final aim is to bring this system to the market, giving people the tools to control their depression and unburden their minds.

[www.nevermindproject.eu](http://www.nevermindproject.eu)

*Duration: 2016-2019*

### NYMPHA-MD

NYMPHA-MD (Next Generation Mobile Platform for Health in Mental Disorders) is implementing a Pre-Commercial Procurement (PCP) of mHealth services for supporting physicians and patients in the treatment of **bipolar disorder**. Continuous patient monitoring will dynamically support illness management and potentially identify early deviations in mood and attitudes suggesting the onset of a crisis.



[www.nympha-md-project.eu](http://www.nympha-md-project.eu)

*Duration: 2014-2017*

### MASTERMIND



MASTERMIND offers e-services for better management of **depression**:

1. Guided, computerised Cognitive Behavioural Therapy (cCBT) for depression treatment;
2. Collaborative care for depression facilitated by video conference.

[mastermind-project.eu](http://mastermind-project.eu)

*Duration: 2014-2017*

### m-RESIST

With a €4 Million budget, the m-RESIST Project (Mobile Therapeutic Attention for Patients with **Treatment Resistant Schizophrenia**) aims to develop a therapeutic program that draws on the support of mobile devices and actively involves patients with treatment-resistant schizophrenia. This will make them capable of self-managing their illness, as well as support their carers.



[www.mresist.eu](http://www.mresist.eu)

*Duration: 2015-2018*

## STARS

This consortium of healthcare **procurers** challenges the industry to develop smart solutions for tailored avoidance and/or reduction of healthcare related **stress**, beginning as early as in the preclinical phase, proceeding during their hospitalisation until the end of the aftercare period. As a result it can be expected that recovery time will be shortened, harmful side-effects of sedating drugs will be prevented and costs will be reduced.

Technical challenges to overcome for suppliers relate to vital signs measuring, wireless real-time transfer of large data amounts and big data analysis and decision making.

*Duration: 2017-2020*

## 1.2 Projects related to pain

### RELIEF

With a budget of nearly € 2 million, the Horizon 2020 RELIEF project is using pre-commercial procurement to help improve **chronic pain** relief through innovative ICT self-management solutions.



In its first phase, the RELIEF experts will conduct a pre-study or 'solution exploration' where several different solutions are explored.

A second phase will include prototype development of the solutions that are judged most promising. This will be followed by the development of a small test-batch of some of the remaining solutions. Eventually one or few of the remaining solutions will be selected for commercial roll-out.

[relief-chronicpain.eu](http://relief-chronicpain.eu)

*Duration: 2016-2019*

### SELFBACK



A decision support system for self-management of **low back pain**.

The core component in the self-management of non-specific low back pain is physical activity and strength/stretching exercises. However, adherence to this is challenging due to lack of feedback and reinforcement. The SELFBACK project will develop a decision support system that, through a smartphone app, will assist the patient in deciding and reinforcing the appropriate actions to manage own LBP after consulting a health care professional in primary care.

The advice will be tailored to each patient based on the symptom state, symptom progression, the patients goal-setting, and a range of patient characteristics including information from a physical activity-detecting wristband worn by the patient.

[www.selfback.eu](http://www.selfback.eu)

*Duration: 2016-2020*

## 1.3 Projects related to neurological disorders like dementia, Parkinson's and Alzheimer's disease

### CAREGIVERSPRO-MMD



The project is building an **mHealth app** that is specifically targeted to caregivers and patients with mild to moderate **dementia**. The result will be a tool integrating a broader diagnostic approach, incorporating the live-in family caregiver-patient dyad and considering this dyad as the unit of care.

CAREGIVERSPRO-MMD will provide value-added services based on social networks, tailored interventions, clinical strategies and gamification for improving quality of life for dementia's patients and caregivers that allow them to live in the community for as long as possible.

[caregiversprommd-project.eu](http://caregiversprommd-project.eu)

*Duration: 2016-2018*

### Dem@Care

Development of a complete system providing personal health services to people with **dementia**, as well as medical professionals and caregivers by using a multitude of sensors (context-awareness, lifestyle monitoring, health parameters...).



[www.demcare.eu](http://www.demcare.eu)

*Duration: 2011-2015*

### I-Prognosis



This project is developing new detection methods and interventions for **Parkinson's disease**. From smartphones and fitness bands to smart connected everyday devices (Internet of Things) and serious games, i-PROGNOSIS will employ the latest technology.

For an early detection of the disease, the researchers have developed an app for data collecting. Using the app contributes to a large-scale study that permits to develop algorithms able to detect Parkinson's related behavioural changes. Eventually, the i-Prognosis project will develop a tool for your mobile phone that screens for Parkinson's in daily life and leads to an early diagnosis with the help of your doctor.

[i-prognosis.ee.auth.gr](http://i-prognosis.ee.auth.gr)

*Duration: 2016-2020*

### NeuroTREMOR

NeuroTREMOR ([www.g-nec.com/project\\_Neurotremor.html](http://www.g-nec.com/project_Neurotremor.html)) developed a novel system for understanding **tremors**. The solution provides support for diagnosis, research and for managing tremors.

*Duration: 2012-2015*

### NoTremor

NoTremor worked to create new tools to predict how **Parkinson's disease** (PD) develops. The project developed patient specific virtual, physiological and computational neuromuscular models of the coupled brain and neuromuscular systems.

[notremor.eu](http://notremor.eu)

*Duration: 2014-2016*



## PD\_manager



This project ([www.parkinson-manager.eu](http://www.parkinson-manager.eu)) will allow people with **Parkinson's Disease** to be followed by a multidisciplinary team, with the use of easy and accessible technologies: A smart watch, an insole to measure gait and balance, an electronic pillbox and a set of applications for smartphone and/or tablet.

With these tools and the support of a powerful server and online data collection system, it will be possible to provide each patient the specific therapeutic changes necessary to ensure the best treatment and develop a rehabilitation focused home-care system that will improve the quality of life and reduce the risk of complications including falls.

*Duration: 2015-2018*

## PredictND

The research project PredictND is taking an important step towards better prediction, diagnostics and management of **memory disorders** such as Alzheimer's. This project aims to predict these disorders even before the symptoms start. The PredictND project is a VPH-project, so it will use biomedical computer models to simulate the human brain.



On top of that, clinicians experience an overload of information: They need to combine information from multiple tests and biomarkers for finding the correct reason and name for the disease. PredictND will provide tools that help clinicians to form a holistic view of the patient by combining information from several sources, such as clinical tests, imaging and blood samples, and by comparing these measurements to previously diagnosed cases available in hospital databases.

[www.predictnd.eu](http://www.predictnd.eu)

*Duration: 2014-2018*

## REMPARK



Goal was to develop a Personal Health System for the management of **Parkinson's disease** (PFD) patients at two levels: wearable monitoring system able to identify in real time the motor status of the PFD patients; intelligent analysis of data provided by the first level, supported with the disease management system. The tool was tested on 60 patients in real life.

[www.rempark.eu](http://www.rempark.eu)

*Duration: 2011-2015*

## VPH-DARE@IT

A clinical decision support platform for early differential diagnosis of **dementias** and their evolution. This is being based on models of the ageing brain and taking into account biochemical, metabolic and biomechanical brain substrate, as well as for genetic, clinical, demographic and lifestyle determinants.



The VPH-DARE@IT project covers part of the "Virtual Physiological Human" (VPH), which deals with biomedical modelling and simulation of the human body.

[www.vph-dare.eu](http://www.vph-dare.eu)

*Duration: 2013-2017*

## 1.4 Projects related to stroke

### MAGIC

This project, entitled 'Mobile Assistance for Groups and Individuals in the Community' (MAGIC), aims to discover innovative approaches to post-stroke care with a view to improving the independence of stroke survivors. It will use Pre-Commercial Procurement to engage industry providers who will be required to compete through several phases of solution development and testing.



[magic-pcp.eu](http://magic-pcp.eu)

*Duration: 2016-2020*

### STARR



You suffered a stroke and you want to avoid getting a second one? The 'Decision SupportT and self-mAnagement system for stRoke survivoRs' (STARR) project aims to enable the self-management of stroke risk factors.

Based on existing computational predictive models of stroke risk, the project will develop a modular, affordable, and easy-to-use system, which will inform stroke survivors about the relation between their daily activities (e.g. medication intake, physical and cognitive exercises, diet, social contacts) and the risk of having a secondary stroke.

This will better prevent and reduce the number of secondary stroke events, and will also increase patients' participation in medical decision-making.

[www.rt-rk.uns.ac.rs/www.starrproject.eu/index.html](http://www.rt-rk.uns.ac.rs/www.starrproject.eu/index.html)

*Duration: 2016-2019*

## 1.5 Projects related to the lungs

### AirPROM

This project developed and validated tools to create patient specific **airway models** to predict both disease progression and response to treatment.

Using these eHealth tools, the project helped developing a breakthrough **pill against asthma**. The research and the development of the pill went much faster and more efficient than normal, they estimated that they saved about 20 years.

The AirPROM project covers part of the "Virtual Physiological Human" (VPH), which deals with biomedical modelling and simulation of the human body.



[airprom.eu](http://airprom.eu)

*Duration: 2011-2016*

### myAirCoach



myAirCoach ([www.myaircoach.eu](http://www.myaircoach.eu)) is creating a user-friendly tool for **asthmatic patients** to monitor and self-control their disease. This tool, a holistic mHealth personalised asthma monitoring system, will increase the patients' awareness of their clinical state and effectiveness of medical treatment.

This will be achieved through a multi-disciplinary approach aiming at the development of an ergonomic, compact and efficient sensor-based inhaler that will be in continuous communication with a mobile device. This sensing infrastructure will have the capability of automated monitoring of several clinical, behavioural and environmental factors in realistic conditions.

*Duration: 2015-2018*

## MyCyFAPP

The MyCyFAPP project will help **Cystic Fibrosis** patients and caregivers to manage the disease with an innovative app.

Cystic fibrosis (CF) is a genetic disease, causing severe damage to the lungs and the digestive system. The affected people suffer from insufficient activity of their pancreas, often resulting in maldigestion and malabsorption, thus leading to malnutrition and growth disturbances. In Europe, about 4% of the population carry the genetic mutation, and ca. 0.3% of the European population suffer from this severe illness, which cannot be cured.



An individualized therapy with enzyme replacement could relieve many of the life-shortening side effects of CF. Within the MyCyFAPP project, such a therapy will be realized in terms of an innovative information and communication technology (ICT) tool, i.e. an app and a software program. This will encourage the patient's adherence to the treatment and the best outcome of nutritional intervention, especially important for young patients.

[www.mycyfapp.eu](http://www.mycyfapp.eu)

*Duration: 2015-2019*

## WELCOME



To help **COPD** patients with comorbidities and to reduce the burden on our health systems, the FP7 WELCOME project aims to create innovative solutions such as an integrated care management tool and a monitoring vest.

Great attention will be paid to the small-scale validation of the project and its impact on healthcare in five countries (Greece, UK, Ireland, Germany and the Netherlands).

[www.welcome-project.eu](http://www.welcome-project.eu)

*Duration: 2013-2017*

# 1.6 Projects related to cardiovascular disorders

## CARDIOPROOF

Previous 'Virtual Physiological Human' (VPH) efforts, such as Health-e-Child, Sim-e-Child and EUHeart, developed some very powerful tools for **computer-based modelling of various cardiovascular diseases**, improving early diagnosis and for predicting disease behaviour and evolution as well as treatment outcomes.



Cardioproof worked on further developing, testing and thereby proving the effectiveness of these tools.

One of the new tools for example has enabled **virtual stenting**: By examining a computer model of an aortic artery and of the stents, the interventional cardiologist, before actually placing the stents, can see what the consequences of his actions would be. This makes the treatment much safer and more accurate.

Another computational **pressure mapping tool** makes it possible to avoid invasive (and risky) catheterisation for pressure detection.

Both these modelling tools have shown excellent outcomes in terms of reliability and clinical relevance as well as in terms of applicability to routine clinical practice.

Furthermore, Cardioproof provided clear evidence of how VPH technologies have the potential to **reduce costs of care**. The London School of Economics, one of the project partners, has quantified that thanks to this new technology we could reduce up to 15% per-patient in hospital expenditure. And a significant reduction in time can be achieved by deploying a web-based solution for the multi-disciplinary workflow of treatment planning for coarctation of the aorta.

[www.cardioproof.eu](http://www.cardioproof.eu)

*Duration: 2013-2016*

## CARRE



To help patients manage their **chronic heart and kidney disease**, CARRE developed personalised alerting, planning and educational services. This empowers patients and enables both professionals and patients to make shared informed decisions on the disease.

The CARRE consortium consisted of 6 partners from 4 countries (Greece, United Kingdom, Lithuania and Poland) and was coordinated by the Democritus University of Thrace in Alexandroupoli, Greece.

[www.carre-project.eu](http://www.carre-project.eu)

*Duration: 2013 -2016*

## Do CHANGE

According to research, 90% of people who are advised to **change their lifestyle** after a serious medical event such as a heart attack, fail to do so. To help them, experts from the UK, Belgium, the Netherlands, Spain and a hospital in Taiwan will link inputs from medical devices, nutritional sensors, doctors and consultants, thus creating a new health ecosystem that puts the user at the centre.



Participating patients will monitor their condition and what they eat at home with the new devices that feed into the 'Do Change' system. This will inform the kind of lifestyle changes required, which in turn will help to shape a personalised programme in near real-time.

The patient will receive 'Do's' designed by the project's psychologists to encourage him or her to make the changes the cardiology team suggests they need to make for their long-term health.

[www.do-change.eu](http://www.do-change.eu)

*Duration: 2015-2018*

## EurValve



EurValve

EurValve looks at **Valvular Heart Disease**. By combining multiple complex modelling components developed in recent EU-funded research projects, the project is developing a comprehensive, clinically-compliant decision-support system to meet this challenge, by quantifying individualised disease severity and patient impairment, predicting disease progression, ranking the effectiveness of alternative candidate procedures, and optimising the patient-specific intervention plan.

This algorithmically-driven process will dramatically improve outcomes and consistency across Europe in this fast-growing patient group, maximising individual, societal and economic outcomes.

[www.eurvalve.eu](http://www.eurvalve.eu)

*Duration: 2016-2019*

## HEARTEN

The HEARTEN project wants to prevent **Heart Failure (HF)**. The project researchers are developing biosensors that detect and quantify novel breath and saliva HF biomarkers that can reflect the health status of the patient and also identify whether the patient adheres to the administered drugs. A new platform will send smartphone alerts to HF patients every time they find themselves in a critical situation.



[www.hearten.eu](http://www.hearten.eu)

*Duration: 2015-2018*

## HeartMan



HeartMan is designing a personal health system to help patients with **Congestive Heart Failure** to manage their condition. The system will involve medication management, monitoring of fluid intake and weight, exercise and lifestyle changes. The system will also feature mindfulness exercises, methods to

understand the patients' physical and psychological state, and standard-based data management for wide interoperability.

[heartman-project.eu](http://heartman-project.eu)

*Duration: 2016-2018*

## PATHway



PATHway is working on a novel approach to **cardiac rehabilitation**. The PATHway experts are developing an individualized programme including an internet-enabled, sensor-based home exercise platform that manages exercise or other physical activity, smoking, diet, stress management, alcohol use etc. This enables patients to both better understand and deal with their own condition and to lead a healthier lifestyle.

The system will allow remote participation in specially designed exercise programs at any time, either individual or together with a small number of patients, from the comfort of their own living room.

[www.pathway2health.eu](http://www.pathway2health.eu)

*Duration: 2015-2018*

## SMARTool

This project aims at **predicting coronary artery disease** through simulation modelling. It will support clinicians in early diagnosis, prevention and treatment of heart disease.



The project experts are developing computer models that, based on non-invasive diagnostic imaging techniques, simulate the formation and growth over time of coronary plaques (fatty deposits responsible for the narrowing of the coronary arteries at the base of atherosclerosis). A software platform based on cloud computing technology will integrate all clinical data of the individual patient including genetic factors, medical history, risk factors and environmental factors.

Using these solutions, clinicians will be able to predict the individual evolution of heart disease, diagnose it early and assess any future risks.

[www.smartool.eu](http://www.smartool.eu)

*Duration: 2016-2019*

## UNWIRED Health

UNWIRED Health dealt with mHealth procurement for the transformation of healthcare services.



In this case, the Pre-Commercial Procurement (PCP) focused on an **app** offering services to coach patients with **heart failures** enabling education, motivation, remote monitoring and other functionalities, integrating and coordinating care provided by a hospital and the primary care physician.

The app was to be innovative, integrated in the regional public health systems and to be prescribed by GPs.

The consortium consisted of three procurers introducing the innovation in Catalonia, Scotland and Southern Denmark and three vendor independent non-profit associations that acted as catalyst to foster the development of open platforms and interoperable solutions.

[www.unwiredhealth.eu](http://www.unwiredhealth.eu)

*Duration: 2014-2016*

## VP2HF

**Heart failure** (HF) is one of the major health issues in Europe affecting 6 million patients and growing substantially. Existing therapies are ineffective in up to 50% of the treated patients and involve significant morbidity and substantial cost.



The primary aim of VP2HF was to bring together image and data processing tools with statistical and integrated biophysical models mainly developed in previous VPH projects, into a single clinical workflow to improve therapy selection and treatment optimisation in HF. The tools were tested and validated in 200 patients (including 50 historical datasets) across 3 clinical sites in Europe.

[vp2hf.eu](http://vp2hf.eu)

*Duration: 2013-2016*

## 1.7 Projects related to diabetes

### MISSION-T2D

This project developed a patient-specific model for the simulation and prediction of metabolic and inflammatory processes in the onset and progress of **type 2 diabetes** (T2DM); A diagnostic tool estimates the risk of developing T2DM and predicts its progression in response to possible therapies.



This tool became part of an anti-diabetes app called Vitadock+ and is available for downloading in your app store.

[www.mission-t2d.eu](http://www.mission-t2d.eu)

*Duration: 2013-2016*

### MOSAIC



You can now calculate your risk of developing **type 2 diabetes** online thanks to this project. Its experts developed mathematical models and algorithms that enhance the current tools and standards for the diagnosis of metabolic disorders T2DM, IGT, IFG and GDM. This improves the characterisation of patients suffering from those disorders and helps evaluating the risk of developing T2DM and GDM and their related complications.

[www.mosaicproject.eu](http://www.mosaicproject.eu)

*Duration: 2013-2016*

### PAL

PAL is devoted to developing a Personal Assistant for healthy Lifestyle (PAL) for **type 1 diabetes** patients aged 7-14.



The personalised assistant (PA) will assist children, health professionals and parents to advance the self-management of the **diabetic child**, so that an adequate level is established before adolescence. Severe episodes and complications can be prevented by performing self-management. For example, the monitoring carbohydrate intake, physical activity, and blood glucose, recognizing symptoms of hypoglycemia and hyperglycemia, and injecting insulin, can help regulate glucose levels and help minimizing the impact of the illness on the patient's health.

[www.pal4u.eu](http://www.pal4u.eu)

*Duration: 2015-2019*

## PEPPER



A predictive **diabetes self-management system** - that's the aim of PEPPER. This project is developing a personalised decision support system for **type 1 diabetes** management that will make predictions based on real-time data in order to empower individuals.

[www.pepper.eu.com](http://www.pepper.eu.com)

*Duration: 2016-2019*

## POWER2DM

The main objective of POWER2DM is to develop and validate a personalised **self-management** support system for **type 1 and type 2 diabetes** patients. It combines and integrates:



- A decision support system based on leading European predictive personalised models for diabetes interlinked with predictive computer models;
- Automated e-coaching functionalities based on Behavioural Change Theories, and;
- Real-time Personal Data processing and interpretation.

By using this system the participation of the patient in the care process will increase, resulting in better self-control and management of the disease. This will lead to better glucose management, thereby preventing severe episodes and long-term complications.

[www.power2dm.eu](http://www.power2dm.eu)

*Duration: 2016-2019*

## ProEmpower



With a budget of €3 Million, ProEmpower will procure a management solution to support patients with **Diabetes Mellitus type 2**. The procurement will jointly take place in four countries: Turkey, Italy, Portugal and Spain.

Proposed solutions should provide continuous diabetes management to 12 million patients, consider all aspects of care and go beyond the state of the art.

The instrument to jointly purchase the technology is Pre-commercial Procurement (PCP). This type of public procurement is used when there are no near-to-the-market solutions yet and new R&D is needed. PCP can then compare the pros and cons of alternative competing solution approaches.

[proempower-pcp.eu](http://proempower-pcp.eu)

*Duration: 2016-2020*

## 1.8 Projects related to cancer

### BD2Decide



**Big Data** and models for personalised **Head and Neck Cancer** Decision support.

The BD2Decide Integrated Decision Support System links population-specific epidemiology and behavioural data, patient-specific genomic, pathology, clinical and imaging data with big data techniques, multi-scale prognostic models. Advanced graphical visualization tools are developed for prognostic data disclosure and patient co-participation to the selected treatment.

BD2Decide will improve the clinical decision process, uncover new patient-specific patterns that can improve care, and create a virtuous circle of learning. A multi-centric clinical study with over 1,000 patients will be used to validate the system.

[www.bd2decide.eu](http://www.bd2decide.eu)

*Duration: 2016-2019*

### CHIC

Computational Horizons In Cancer (CHIC): Developing Meta- and Hyper-Multiscale Models and Repositories for **In Silico Oncology**.

The CHIC project covers part of the "Virtual Physiological Human" (VPH), which deals with biomedical modelling and simulation of the human body.



[chic-vph.eu](http://chic-vph.eu)

*Duration: 2013-2017*

### ClinicIMPPACT



This project aims to bring the existing radio frequency ablation (RFA) model for **liver cancer** treatment (developed by its predecessor, the IMPPACT project) into clinical practice.

The project experts are working on an integrated, accurate tool for predicting RFA-induced lesions in liver tissue.

[www.clinicimppact.eu](http://www.clinicimppact.eu)

*Duration: 2014-2017*

### DESIREE

eHealth system for support in diagnosis and treatment of **breast cancer**. The DESIREE project is working on a decision support system that predicts the evolution of breast cancer case by case. A web-based collaborative system will bring together all available information of breast cancer cases, will provide a more customised and holistic view of the patient, will obtain new evidence (based on accumulated and collaborative experiences), and will provide agile, intuitive and visual tools for clinical decision support.



If successful, it will be used in Breast Units to apply specific therapies for each patient depending on the diagnosis.

[www.desiree-project.eu](http://www.desiree-project.eu)

*Duration: 2016-2019*

## DR THERAPAT

This project created a Digital Radiation Therapy Patient platform. This **platform** integrates available knowledge on tumour imaging, image analysis and interpretation, radiobiological models and radiation therapy planning into a coherent, reusable, multi-scale digital representation.



[drtherapat.eu](http://drtherapat.eu)

*Duration: 2013-2016*

## GoSmart



GoSmart has built a generic, open-source software, simulation environment for the planning of image guided percutaneous minimally invasive **cancer treatment (MICT)**.

The environment allows the interventional radiologist to select the optimal type of MICT by simulating the personalised result of the different treatments and medical protocols in patient specific conditions.

[www.gosmart-project.eu](http://www.gosmart-project.eu)

*Duration: 2013-2016*

## iManageCancer

How can you manage your own care in an intelligent, informative and fun way? The iManageCancer project is finding out how mobile healthcare (**mHealth**) and **serious games** help people with chronic illnesses and in particular **cancer**.

The iManageCancer project will provide a cancer disease self-management platform designed according to the specific needs of patients and focusing on their wellbeing. Eight partners from five European countries are helping those with chronic illnesses manage their health in a new way, all from their smartphone.



[imanagecancer.eu](http://imanagecancer.eu)

*Duration: 2015-2018*

## OraMod



This project dealt with **oral cavity cancer**. To improve early prediction of reoccurrence of this disease, OraMod intended to develop and translate innovative methods, tools, virtual models and predictive markers for risk of reoccurrence from the lab into the clinic and into the usual care delivery practice.

OraMod covered part of the "Virtual Physiological Human" (VPH) aimed at personalised healthcare and disease prevention.

[oramod.eu](http://oramod.eu)

*Duration: 2013-2016*

## PICTURE

PICTURE, also part of the VPH, has created an ICT tool for modelling and predicting the outcome of **breast surgery** after breast cancer diagnosis.



[www.vph-picture.eu](http://www.vph-picture.eu)

*Duration: 2013-2016*

## TRANS-FUSIMO



Removing a tumour without a scalpel or x-rays? This is possible thanks to a certain type of ultrasound: Strong, concentrated ultrasonic waves are directed at the patient's body in such a way that they heat and kill individual cancer cells. The follow-up of FUSIMO: The new Trans-Fusimo project will use the ultrasound technique for treating

cancer in moving organs, especially the **liver**.

The first step is to obtain 3D images from magnetic resonance tomography (MRT) that show the inside of the patient's abdomen and simultaneously register the respiratory movements. Based on this data, experts can perform computer simulations of ultrasound treatment on the liver.

[www.trans-fusimo.eu](http://www.trans-fusimo.eu)

*Duration: 2014-2018*

## VPH-PRISM

This project has developed a multidisciplinary model of the breast to improve the treatment of **breast cancer**. This model gives insight in environment-tissue interactions and can serve as a basis for quantitative drug efficacy assessment, surgery planning and treatment outcome prediction at both early and advanced stages of breast cancer.



The VPH-PRISM project ([www.vph-prism.eu](http://www.vph-prism.eu)) covered part of the "Virtual Physiological Human" (VPH), which deals with biomedical modelling and simulation of the human body.

*Duration: 2013-2016*

# 1.9 Projects related to paediatrics

## BigO



By using **big data**, the BigO project aims to redefine the way policy strategies targeting **childhood obesity** prevalence are designed and deployed in European societies.

More than 25.000 obese children and adolescents will be reached out to as sources for community data, provided by mobile and wearable electronics.

Comprehensive models of the obesity prevalence dependence matrix will be created, allowing, for the first time the data-driven effectiveness predictions about specific policies on a community and the real-time monitoring of the population response, supported by powerful real-time data visualisations. In short, BigO will provide an innovative new suite, allowing the Public Health Authorities to evaluate their communities based on their obesity prevalence risk and to take local action, based on objective evidence.

[bigoprogram.eu](http://bigoprogram.eu)

*Duration: 2016-2020*

## Digi-NewB

This project wants to reduce mortality and morbidity of hospitalised new-borns through a new class of monitoring and a new decision support system (DSS).



The DSS will assist the clinician in his decision-making through non-invasive monitoring of sepsis risk and of cardio-respiratory and neurobehavioral maturations. The monitoring will result in i) a decrease in sepsis related death and morbidity through early and personalised prescription of antibiotics, ii) a decrease in the risks of severe cardio-respiratory events and inadequate prolongation of hospitalization iii) a decrease in health costs.

[www.digi-newb.eu](http://www.digi-newb.eu)

*Duration: 2016-2020*

## MD Paedigree



Worldwide advanced **paediatric digital repository**. In the fight against childhood obesity and other child diseases, this medical research project uses mathematical models, the cloud and big data to improve the treatment of children.

Article: ["EU awards 12 million euros to supercompute a healthier future for Europe's children"](#)

[www.md-paedigree.eu](http://www.md-paedigree.eu)

Duration: 2013-2017

## 1.10 Projects related to anesthesia

### RASimAs

A better outlook for those about to undergo surgery or have a child: The RASimAs project worked on a virtual reality simulator for doctors performing regional **anesthesia**. This tool supports prediction and avoidance of possible complications during regional anesthesia providing a precise anatomy of every single patient.



[www.rasimas.eu](http://www.rasimas.eu)

Duration: 2013-2016

## 1.11 Projects related to sight and hearing

### EMBalance



**Balance** disorders (e.g. vertigo, Ménière's Disease, migraine-related dizziness etc.) affect more than a third of the EU population at some point in their lives and falls are the most common cause of accidental death in those aged 75+. However, diagnosis of balance disorders is rarely

straightforward and can often take months, or even years.

EMBalance has been developing a new, online Decision Support System that will aid clinical decision-making in the evaluation and management of balance disorders. General Practitioners and other doctors will be equipped with this system to help diagnose and treat dizzy patients.

[www.embalance.eu](http://www.embalance.eu)

Duration: 2013-2016

### EVOTION

**Hearing loss** prevention, protection from noise, early diagnosis, long-term treatment and rehabilitation, detection and prevention of cognitive decline, and socioeconomic inclusion of patients with hearing loss. All of this calls for appropriate management and public health policies.



Through the use of **big data**, the EVOTION platform will help health care professionals and health policy makers to identify, simulate, select and monitor the effectiveness of current and new hearing loss interventions.

[h2020evotion.eu](http://h2020evotion.eu)

Duration: 2016-2019

## PRO4VIP



PRO4VIP was a European Pre-Commercial Public Procurement (PCP) and Innovative Public Procurement (IPP) project that is part of the European Vision 2020 strategy to combat **preventable blindness**, especially due to old age.

This project:

- Created and consolidated a pan-European network of procurers;
- Defined a common innovation procurement roadmap both in the short term and in the long term;
- Defined cross-border and joint public procurement of innovation procedure(s) that best meet(s) PRO4VIP procuring authorities' needs (that could be either a PCP or a PPI or both) and that in line with Vision 2020 would either support the early detection and treatment of functional low vision conditions or would support the provision for low vision services.

[www.pro4vip.eu](http://www.pro4vip.eu)

*Duration: 2015-2016*

## SIFEM

This project helped research on **hearing** impairment and loss as well as **ear surgery** by improving personalised 3D ear visualisation. The SIFEM project also covered part of the "Virtual Physiological Human" (VPH), which deals with biomedical modelling and simulation of the human body.



[www.sifem-project.eu](http://www.sifem-project.eu)

*Duration: 2013-2016*

## Sound of Vision



The Sound of Vision project aims to create and convey an auditory representation of the surrounding environment to assist **blind or visually impaired** people. This representation will be created, updated and delivered in real time without any a-priori knowledge of the environment – indoor/outdoor – and without the need for predefined sensors located in the surroundings.

A high quality user experience is essential; the system uses brain computer interfaces for behaviour understanding, in order to avoid overwhelming the user with information.

[soundofvision.net](http://soundofvision.net)

*Duration: 2015-2017*

## 1.12 Projects related to sexual health & incontinence

### EmERGE



EmERGE is developing an **mHealth** platform to enable self-management of **HIV** in patients with stable disease.

The platform will provide users with web based and mobile device applications which interface securely with relevant medical data and facilitate remote access to key healthcare providers. EATG, the European HIV patient organisation, is involved and will interact with representative patients and clinicians from 5 EU countries. The platform and interfaces will be validated in a large study of 3900 patients. Guidelines and policy briefs will be produced to prove the benefits and disseminate the lessons learned to support the uptake of mHealth for self-management of chronic diseases.

[www.emergeproject.eu](http://www.emergeproject.eu)

*Duration: 2015-2020*

### PAEON

PAEON ([paen.di.uniroma1.it](http://paen.di.uniroma1.it)) dealt with **infertility**. It developed patient-specific models of the menstrual cycle and external influences. This helps to predict the outcome of a treatment on patients with infertility related disorders such as Polycystic Ovarian Syndrome, hyperprolactinemia or endometriosis.



The PAEON project covered part of the "Virtual Physiological Human" (VPH), which deals with biomedical modelling and simulation of the human body.

*Duration: 2013-2016*

### WOMEN-UP



WOMEN-UP is working on delivering a holistic and cost effective solution for the self-management of **urinary incontinence**. A home treatment including pelvic floor muscle training is being tested, allowing for self-management of urinary incontinence via a decision support system combined with remote medical supervision.

Recent studies show that about 56 million European citizens are affected by urinary incontinence. The WOMEN-UP project has the main objective of improving the quality of life of patients affected by this disease, which represents a serious impairment to their professional and personal lives.

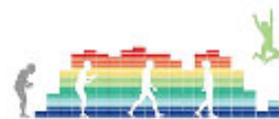
[www.women-up.eu](http://www.women-up.eu)

*Duration: 2015-2018*

## 1.13 Projects related to personal health in general, preventive healthcare, mobile health

### BeatHealth

Better at sports while listening to music? BeatHealth wanted to exploit this link between music and movement for boosting individual performance and **enhancing health and wellness**. It aimed to create an intelligent portable tool and IT network for rhythmical stimulation adapted to the individual's skills.



The beneficial effects of BeatHealth were evaluated both in patients with **movement disorders** (i.e., Parkinson's disease), and in healthy citizens of various ages with moderate physical activity.

[www.euromov.eu/beathealth](http://www.euromov.eu/beathealth)

*Duration: 2013-2016*

### DAPHNE



With DAPHNE, researchers and businesses joined forces to help people **manage their weight** and increase physical exercise using emerging technologies and information systems.

The project used a new generation of sensors to detect how much energy a person expends - including how much time they have been sitting still, walking, standing, doing housework, etc - and can monitor their overall fitness.

[www.daphne-fp7.eu](http://www.daphne-fp7.eu)

*Duration: 2013-2016*

### LIVE INCITE

This consortium of healthcare procurers challenges the industry to develop smart ICT solutions that enable **lifestyle** interventions in the **perioperative process**. The target is new innovative eHealth solutions that can influence patients in a personalised way to take the necessary actions both prior and after **surgery** in their lifestyle to optimise the healthcare outcome.



[www.karolinska.se/en/live-incite](http://www.karolinska.se/en/live-incite)

*Duration: 2016-2019*

### MyHealth Avatar



Digital representation of a patient's **health status**. The research project launched an app and an online platform that collects, and gives access to, your digital long-term health-status information.

This takes on the form of a life-long health companion ('avatar'). MyHealthAvatar also predicts your risk for stroke, diabetes, cardiovascular disease and hypertension.

[www.myhealthavatar.eu](http://www.myhealthavatar.eu)

*Duration: 2013-2016*

## NoHoW

Helping people to lose weight has been very much examined. The NoHoW project however focusses on keeping the weight off in the long term. By collecting evidence about what works and what doesn't, the NoHoW researchers are developing a **weight loss maintenance** programme including toolkit.



The toolkit includes mobile apps, web-based tools and innovations such as smart scales and activity trackers that give feedback to participants based on personalised prediction models of what is most effective for them. Participants in Denmark, Portugal and the UK will test the programme.

[nohow.eu](http://nohow.eu)

*Duration: 2015-2020*

## PEGASO Fit for Future



Promoting **healthy lifestyles and food awareness** among teenagers through games and technology.

Knowing how to stay healthy is not enough to motivate individuals to adopt healthy lifestyles. PEGASO targets teenagers through approaches they are familiar with. Gaming strategies, leveraging social networks and communities of interest, integrated in a participatory design methodology can make the difference.

[www.pegasof4f.eu](http://www.pegasof4f.eu)

*Duration: 2013-2017*

## PRECIOUS

To maintain a **healthy lifestyle**, PRECIOUS aimed to improve motivation using a combination of motivational interview and gamification principles, as well as creating a personalised system that adapts to the users' goals and preferences. The system measures food intake, physical activity, stress levels and sleep patterns.



[www.thepreciousproject.eu](http://www.thepreciousproject.eu)

*Duration: 2013-2016*

## SEMEOTICONS



The central idea of SEMEOTICONS was to exploit the **face** as a major indicator of individual's **well-being** by tracing traits of physical and expressive status.

To map and assess these face signs, SEMEOTICONS has designed and constructed a multi-sensory system integrated into a hardware platform having the exterior aspect of a mirror: the so-called 'Wize Mirror'. This should easily fit into users' home or other sites of their daily life.

[www.semeoticons.eu](http://www.semeoticons.eu)

*Duration: 2013-2016*

## SPLENDID

This project developed hi-tech sensors aiming to **prevent obesity**. By measuring food intake and activity the system can assess obesity risks. In the fight against obesity, SPLENDID also developed special programs for guiding both school children and adults.



[splendid-program.eu](http://splendid-program.eu)

*Duration: 2013-2016*

## 1.14. International projects active in Africa

### DMC-MALVEC



This European project wants to improve the control of **malaria**, a disease that yearly causes more than 500,000 deaths in sub-Saharan Africa. They will do this by automating the monitoring of mosquito vector populations – this monitoring is a prerequisite for effective insecticide interventions, currently the best way to prevent malaria.

The system, a platform called LabDisk, will monitor the mosquito species ID, the infection status of the mosquitoes and their insecticide resistance. A smart database called Disease Data Management System (DDMS) will collate and analyse malaria data. Third, serious gaming technology called GAME will communicate and teach operational end users the importance and use of data output.

[www.dmc-malvec.eu](http://www.dmc-malvec.eu)

*Duration: 2016-2020*

### mHealth4Afrika

mHealth4Afrika addresses the quality of **maternal and newborn healthcare delivery** in Southern Africa (Malawi, South Africa), East Africa (Kenya) and Horn of Africa (Ethiopia). The project will research and evaluate the impact of co-designing an open source, multilingual mHealth platform on this topic.

Research and innovation actors from three European and four African countries aim to engage with local end-user communities (i.e. representatives of parents and local community leaders, Ministry of Health, healthcare professionals and volunteers, health oriented NGOs).

The consortium will integrate and adapt:

- Multilingual electronic health records to store patient history, associated tests and test results;
- Sensors to capture the results of a range of standardised tests for expectant and lactating mothers, unborn babies and infants;
- Analytical and visualisation tools to facilitate the interpretation and monitoring of the patient results; and
- Multi-lingual and multimodal mobile interfaces leveraging visualisation and speech synthesis to address literacy deficits and digitise data gathering through electronic forms.

By focusing on accessibility, usability and integrated training, this will facilitate urban, rural and deep rural healthcare workers to adopt and use a comprehensive system that integrates quality community based healthcare delivery with telemedicine. The expected outcome is a multi-region proof of concept that can make a significant contribution in accelerating exploitation of mHealth across Africa.

[www.mhealth4afrika.eu](http://www.mhealth4afrika.eu)

*Duration: 2015-2018*



## 2. INNOVATING HEALTHCARE AND THE WAY IT WORKS

### 2.1. Knowledge sharing for professionals, big data

Some of the projects below focus on helping SMEs, others focus on health professionals, health procurers or policy makers. The policy related projects are analysing Big Data generated from a plurality of sources. This offers possibilities for new insights, for understanding human systems at a systemic level to develop personalised medicine, prevent diseases and support healthy life.

#### CrowdHEALTH



Today's rich digital information environment is characterised by a multitude of data sources providing health related information. CrowdHEALTH will introduce a new paradigm of Holistic Health Records (HHRs) that include all health determinants.

CrowdHEALTH will deliver a secure integrated ICT platform that seamlessly integrates **big data** technologies across the complete data path, providing of Data as a Service (DaaS) to **health ecosystem stakeholders**.

The project will also develop policy modelling techniques to facilitate the inclusion of Key Performance Indicators (KPIs) in policies and the correlation of these KPIs both with all health determinants captured in HHRs and with information from other domains towards a 'health in all policies' approach. The data will be collected and validated through 5 pilots addressing different environments (care centers, social networks, public environments, living labs, diseases monitoring).

[www.crowdhealth.eu](http://www.crowdhealth.eu)

*Duration: 2017-2020*

#### eHealth HUB

During its three years, this project will involve over 700 SMEs and start-ups in its activities, organising trainings, pitching sessions etc. They will bring together European and international healthcare organisations, investors and other stakeholders.



Through its support to eHealth SMEs, the ambition of the eHealth HUB project is not only to increase the number of useful eHealth solutions available on the market, they also aim to optimise efficiency and effectiveness of healthcare provision, personalised medicine and consumer health across Europe.

The eHealth HUB team includes European innovation specialists, legal and regulatory experts and eHealth support organisations.

[www.ehealth-hub.eu](http://www.ehealth-hub.eu)

*Duration: 2016-2019*

#### ENS4Care



ENS4Care has developed five guidelines for European **nurses and social workers** on how to use eHealth for promoting a healthy lifestyle and prevention, clinical practice, skills development for advanced roles, integrated care and nurse ePrescribing.

[www.ens4care.eu](http://www.ens4care.eu)

*Duration: 2013-2015*

## EPP-eHealth

EPP-eHealth project aims to transform the market for eHealth solutions through dialogue and innovation procurement. The project will create a network of **procuring organisations** that understand the opportunities that eHealth can offer and have competence in innovation procurement and the capacity to pioneer new approaches to collaborative procurement.

As well as stimulating demand for eHealth goods and services and creating a robust framework for practical procurement (public procurement of innovation and pre-commercial procurement), it also serves as a leading procurers group for the wider population of some 15,000 hospitals in Europe.

[innovationhospitals.com](http://innovationhospitals.com)

*Duration: 2015-2017*



## EU\*US eHealth Work



This project is mapping the need, supply and demand for workforce skills and competences, utilising these results to further develop IT skills and training programmes for the **healthcare workforce**.

The project will provide an interactive web platform in which end-users, educators, governments and industry can exchange information, provide and locate opportunities for training, skills development and employment opportunities. This will increase knowledge related to eHealth, health information technology, and health informatics disciplines.

[www.ehealthwork.eu](http://www.ehealthwork.eu)

*Duration: 2016-2018*

## IASIS

Integration and analysis of heterogeneous **big data** for precision medicine and suggested treatments for different types of patients.

IASIS is turning the wave of data heading our way into actionable knowledge for decision makers. This is achieved by integrating data from disparate sources, including genomics, EHRs and bibliography, and applying advanced analytics methods to discover useful patterns.



This information can be used to provide better care, reduce errors and create more confidence in sharing data, thus providing more insights and opportunities. Data resources for two different disease categories will be explored, dementia and lung cancer.

*Duration: 2017-2020*

## INSPIRE

An EU-network that brought together experts and procurers interested in developing and implementing innovative procurements in the eHealth, Active Aging and Independent Living areas.

[www.nhg.fi](http://www.nhg.fi)

*Duration: 2013 – 2015*

## MAFEIP



MAFEIP

The **online MAFEIP tool** estimates the **health and economic outcomes** of your social and technological innovations in the health and care sector relative to current care. Examples of innovative interventions include new care pathways, devices, surgical techniques and organisational models.

This supports **evidence-based decision-making** for all institutions and users in the health and care sector. Those interested can join the MAFEIP user community and collaborate with others in assessing innovative interventions in the health and care domain through the MAFEIP methodology.

The project also offers training and personalised support. Training and supporting materials include a user's guide manual, informative videos and introductory presentations. All these materials are available in the support section of the website: [mafeip.eu](http://mafeip.eu).

*Duration: 2017-2018<sup>1</sup>*

## mHealth Hub

The EU mHealth Hub will collect and share national experiences of working with mobile health (mHealth) and help Member States introduce mHealth programmes.

The project, managed by the World Health Organisation (WHO) and the International Telecommunication Union (ITU), aims to collect best practices on the use of mHealth in Europe in order to gather evidence for the integration of mHealth in European healthcare systems.

[www.itu.int/en/ITU-D/ICT-Applications/eHEALTH/Be\\_healthy/Pages/The-EU-mHealth-Hub-Project.aspx](http://www.itu.int/en/ITU-D/ICT-Applications/eHEALTH/Be_healthy/Pages/The-EU-mHealth-Hub-Project.aspx)

*Duration: 2017-2021*

## p-Medicine

p-Medicine worked on an **infrastructure** that facilitates the translation from current practice to **personalized medicine**.

The project developed a 'data warehouse' and a workbench with a tools repository. Heterogeneous pseudonymised/anonymised data from different origins are stored in this data warehouse for further use by the scientific community.

[www.p-medicine.eu](http://www.p-medicine.eu)

*Duration: 2011-2015*



## PULSE



Working within five global **cities**, PULSE (Participatory Urban Living for Sustainable Environments) will harvest data to enable evidence-driven and timely management of **public health**.

The clinical focus of the project will be respiratory diseases (asthma) and metabolic diseases (Type 2 Diabetes) in adult populations.

The project will culminate in establishing Public Health Observatories in the five cities. These observatories will serve as linked hubs that utilise knowledge-driven processes and **big data** to shape intersectoral public policy and service provision, support citizen health, and encourage entrepreneurship in the fields of data science and mobile health.

[www.pulseproject.info](http://www.pulseproject.info)

*Duration: 2016-2019*

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<sup>1</sup> The tool will stay available until further notice.

## 2.2. Contact with the hospital through ICT - telemedicine

**Telemedicine – the interaction between doctors and patients or among health professionals through electronic media – can help citizens receive personalised care, regardless of their location. This is especially helpful for patients suffering from chronic illnesses who have to see a doctor regularly.**

### ELECTOR

'Changing the future care of **arthritis** patients' – This project is developing a small, mobile blood testing device for home use, so arthritis patients won't lose time and energy travelling to and from the clinic.



The ELECTOR platform encompasses web-based software for communication and data transfer in combination with miniaturised biochemistry devices using blood retrieved by finger pricking for measuring C-reactive protein (CRP), the liver biomarker alanine aminotransferase (ALT), granulocytes and haemoglobin at home.

Results are then transmitted to the rheumatology clinic ready for the appointment with your doctor or healthcare professional via a secure video or audio link.

The adaptive and flexible nature of this solution will change the provision of healthcare and may be disseminated to monitor a variety of chronic diseases.

[www.elector.eu](http://www.elector.eu)

*Duration: 2015-2018*

### MOMENTUM



Toolkit and guidelines on **how to deploy telemedicine** in your region or organisation as a daily practice and how to make it sustainable.

[www.telemedicine-momentum.eu](http://www.telemedicine-momentum.eu)

*Duration: 2012-2015*

### NIGHTINGALE

The Nightingale healthcare procurers will launch a call for tender for the development of a robust **monitoring and communication system** which connects patients and carers.

The system should provide an early warning of acute deterioration of patients' health condition in and out of hospital, and learn and adapt to different individuals in different situations. An approach based on wearable sensors, self-learning adaptive algorithms and big data analysis will be used.



[www.nightingale-h2020.eu](http://www.nightingale-h2020.eu)

*Duration: 2016-2020*

### REWIRE



REWIRE developed, integrated and field tested an innovative **virtual reality based rehabilitation platform**, which allows patients, discharged from the hospital, to continue intensive rehabilitation at home under remote monitoring by the hospital itself.

[www.rewire-project.eu](http://www.rewire-project.eu)

*Duration: 2011-2014*

## THALEA & THALEA II

Through the THALEA project, five hospitals from Germany, Netherlands, Spain, Belgium and Finland will initiate a joint Pre-Commercial Procurement (PCP) focusing on getting a highly interoperable **telemedicine and telemonitoring platform** (a central 'monitoring cockpit') for improving the care of acutely live-threatened patients at **intensive care units**.



[www.thalea-pcp.eu](http://www.thalea-pcp.eu)

*Duration: 2013 -2019*

## United4Health



Through 14 large scale telemedicine pilots in Europe, this project has sought to deliver **telemedicine** and personal health services to the many people suffering from **Chronic Obstructive Pulmonary Diseases (COPD), diabetes and cardiovascular diseases**.

The large scale real-life pilots validated and evaluated these services. A report about how the deployment sites embedded telehealth technology into their care pathways and what the results were, has been published. The project experts also give policy recommendations.

[www.united4health.eu](http://www.united4health.eu)

*Duration: 2013-2016*

## 2.3. Digital health literacy & patient empowerment

### EMPATTICS

EMpowering PATients for a BeTTer Information and improvement of the Communication Systems

This Pre Commercial Procurement project will research and define how health and care professionals and patients **use ICT technologies** to plan interventions with patients and to monitor the progression of their physical and mental state.



It will investigate and document the requirements for Decision Support Tools that can be created, deployed and embedded into the daily routines of patients and health and care professionals to deliver quality standardised care across a large population of chronic and elderly patients.

[empattics.eu](http://empattics.eu)

*Duration: 2016-2019*

### IC-HEALTH



This project is working on a series of Massive Open Online Courses (MOOCs) to help improve the **digital health literacy** of European citizens. The project experts will also test the MOOCs and assess their impact on health literacy, digital health literacy and on health self-management.

Goal is to advance the understanding of digital health literacy and of how it can be used to improve health outcomes. Countries involved in the pilot are Spain, Italy, Belgium, United Kingdom, Netherlands, Sweden, Germany and Denmark.

[ichealth.eu](http://ichealth.eu)

*Duration: 2016-2018*

## 2.4. eHealth interoperability and cross-border healthcare

### ASSESS CT



To contribute to better semantic interoperability of eHealth services in Europe, ASSES CT investigated the fitness of the international clinical terminology 'SNOMED CT' as a potential standard for EU-wide eHealth deployment.

The project experts analysed concrete reasons for adoption/non adoption of SNOMED CT, lessons learned, success factors, type and purpose of use, multilingualism, cultural differences, strengths and weaknesses. They investigated the impact of SNOMED CT adoption from a socio-economic viewpoint, encompassing management, business, organisational, and governance aspects.

[www.assess-ct.eu](http://www.assess-ct.eu)

*Duration: 2015-2016*

### DECIPHER PCP

DECIPHER PCP dealt with mHealth procurement. This process resulted in a mobile solution which enables secure **cross-border access to existing patient healthcare portals**.



[www.decipherpcp.eu](http://www.decipherpcp.eu)

*Duration: 2012-2016*

### eStandards



eStandards is advancing **eHealth interoperability and global alignment of standards**. The project experts are joining up with stakeholders all over Europe and globally to build consensus on eHealth standards, accelerate knowledge-sharing, and promote wide adoption of standards.

The proposal's ambition is to strengthen Europe's voice and impact, while reinforcing the bridges across the Atlantic and among Member States.

An eStandards Roadmap and associated evidence base, a white paper on the need for formal standards, and two guidelines addressing how to work with: (a) clinical content in profiles and (b) competing standards in large-scale eHealth deployment, will be pragmatic steps toward alignment and convergence.

[www.estandards-project.eu](http://www.estandards-project.eu)

*Duration: 2015-2017*

### EURO-CAS

Between 2016 and 2018, the EURO-CAS project develops a sustainable 'Conformity Assessment Scheme' (CAS) for Europe, which will promote the adoption and take-up of **interoperability testing of eHealth solutions** against identified eHealth standards and profiles defined in the [refined eHealth European Interoperability Framework](#).



The project is led by IHE-Europe (BE) and coordinated by EIBIR (AT), and joined by fourteen national and regional government bodies, competence centres, and associations.

[www.euro-cas.eu](http://www.euro-cas.eu)

*Duration: 2016-2018*

## MIDAS

Information is everywhere. But when it comes to healthcare, unless we can bring the information together and analyse it, we won't get the most from it. That's where MIDAS (Meaningful Integration of Data, Analytics and Services) hopes to make its mark.



This project will investigate connecting patient data from European health authorities with individual data collected from apps, sensors and social media. Complying with the highest standards of data protection and ethics, the data will be analysed on the pioneering MIDAS platform, which provides a tool for **policy makers** to benchmark, simulate and forecast outcomes of healthcare policy decisions.

Challenges which will be addressed include ageing population, obesity and mental health. This research should dramatically enhance the effectiveness of healthcare policies in these fields.

[www.midasproject.eu](http://www.midasproject.eu)

*Duration: 2016-2020*

## openMedicine



Goal of the project: Safer and better cross-border (and also national level) healthcare through interoperable **ePrescriptions**.

The project experts are developing concrete solutions to communicate medicines in cross-border settings. Whereas the epSOS project basically solved the electronic 'communication' or message transfer problem, it encountered a serious 'delivery' problem: No common data models, standards and a lack of common vocabulary – issues to be solved by openMedicine.

[www.open-medicine.eu](http://www.open-medicine.eu)

*Duration: 2015-2017*

## Trillium Bridge II

What if you, while visiting another country, need urgent medical help and the doctor doesn't know your medical history? After its predecessor Trillium Bridge I, this project further advances global Electronic Health Record (EHR) interoperability. Activities surrounding the **International Patient Summary** (IPS) standards can nurture digital health innovation, lower trade barriers and advance patient safety, bridging the gap between strategic intent and capability for action.



[www.trilliumbridge.eu](http://www.trilliumbridge.eu)

*Duration: 2017-2019*

## VALUeHEALTH



VALUeHEALTH establishes how **eHealth interoperability** can create and deliver value for all citizens, for a sustainable market in scaling up cross-border services.

This project is a Coordination and Support Action. It develops an evidence-based business plan for eHealth interoperability, beginning with financial support by the Connected Europe Facility (CEF) programme to member states, and then sustainable revenue streams for developing and operating self-funding priority pan-European eHealth Services beyond 2020.

[www.valuehealth.eu](http://www.valuehealth.eu)

*Duration: 2015-2017*

## 2.5. Projects related to clinical research

### Avicenna



**Clinical trials** to test new drugs, devices or treatments are not only expensive, they are also risky for the test subjects; animals or humans. Solution: Perform the tests using high-quality and reliable computer simulations. Avicenna, part of the VPH community, created a roadmap to make this possible and to transform the entire biomedical industry.

Now the project has ended, the Avicenna Alliance is continuing the work: They are bringing all relevant stakeholders such as the biomedical industry, health researchers and policy makers together and they are promoting in silico medicine (predictive computer modelling).

[avicenna-isct.org](http://avicenna-isct.org)

*Duration: 2013-2016*

### EURECA

The EURECA project allowed faster eligible patient identification and enrolment in **clinical trials**, providing access to the large amounts of patient data and enabling long term follow up of patients. This avoids the current need for multiple data entry in the various clinical care, faster transfer of new research findings and guidelines to the clinical setting.



[eurecaproject.eu](http://eurecaproject.eu)

*Duration: 2012-2015*

### Linked2Safety



Linked2Safety provided a **secure medical information space** for semantically interconnecting anonymous EHRs to advance clinical practice, to accelerate medical research, to improve the quality of healthcare, and to enhance patients' safety.

[www.linked2safety-project.eu](http://www.linked2safety-project.eu)

*Duration: 2011-2014*

### Salus

The Salus project provided a standard-based interoperability framework of electronic health records that enables the execution of **drug safety studies** after the drugs have come out on the market.



[www.salusproject.eu](http://www.salusproject.eu)

*Duration: 2012-2015*

### SemanticHealthNet



The purpose of this project was designing a semantic interoperability infrastructure of clinical and biomedical knowledge (a so called Network of excellence in semantic interoperability) and a roadmap for governments and other stakeholders. They wanted to help ensure that EHR systems are optimised for patient care, public health and clinical research across

healthcare systems and institutions.

[www.semantichhealthnet.eu](http://www.semantichhealthnet.eu)

*Duration: 2011-2014*

## **TRANSFoRm**

TRANSFoRm developed a "**rapid learning healthcare system**" driven by advanced computational infrastructure that can improve both patient safety and the conduct and volume of clinical research in Europe.

[www.transformproject.eu](http://www.transformproject.eu)

*Duration: 2010-2015*

The logo for TRANSFoRm, featuring the word "TRANSFoRm" in a bold, sans-serif font. The letters "TRANSFo" are in blue, and "Rm" is in red. A thin red horizontal line is positioned directly beneath the text.

## 3. ICT FOR ACTIVE AND HEALTHY AGEING

### 3.1. Robotics for Ageing Well

#### ACANTO

The goal of ACANTO (Cyberphysical social NeTwork using **robot friends**) is to spur older adults into a sustainable and regular level of physical **exercise** under the guidance and supervision of their carers.

The key elements of ACANTO are

- a robotic friend (the FriWalk) that supports the user in the execution of daily activities that require physical exercise;
- an intelligent system that recommends activities which are compelling and rewarding for the senior user.



The FriWalk takes the form of a standard walking assistant, but it is in fact an intelligent robot that is able to localise itself, to sense the surrounding environment, to plan a course of action that suits the user needs and to guide the user along safe routes. The FriWalk is also a personal trainer that can support the user in the execution of a training programme, monitor the motion of the user in search of muscular or gait problems and report them into the user profile.

[www.ict-acanto.eu](http://www.ict-acanto.eu)

*Duration: 2015-2018*

#### ACCRA



The mission of ACCRA is to develop advanced **robotics** based solutions for extending active and healthy ageing in daily life by defining, developing and demonstrating an agile **co-creation development process**.

To this end, a four-step methodology (study, co-creation, experimentation, sustainability analysis) will be defined and applied in three applications (support for walking, housework, conversation rehabilitation) and assessed in France, Italy, the Netherlands and Japan. The three applications will be based on a FIWARE platform integrating a number of enablers including features of the universAAL project and supporting two robotics solutions, Astro (Robot) and Buddy (Robot companion).

The MAST impact assessment framework will be used integrating the following dimensions: user perceptions, user outcomes, ELSI, economic aspects, technical aspects, organisational aspects. ACCRA is a joint European-Japanese initiative including a multidisciplinary team of 6 European partners and 3 Japanese partners.

[www.accra-project.org](http://www.accra-project.org)

*Duration: 2016-2019*

#### CARESSES

Culture Aware Robots and Environmental Sensor Systems for Elderly Support

The need for cultural competence has been deeply investigated in the nursing literature. However, it has so far been neglected in Robotics.

Not anymore: the EU-Japan co-funded CARESSES project aims to build care robots that are able to autonomously re-configure their way of acting and speaking, to match the **culture, customs and etiquette** of the person they are assisting.



[www.caressesrobot.org](http://www.caressesrobot.org)

*Duration: 2017-2020*

## ENRICHME

ENRICHME tackles the progressive decline of cognitive capacity in the ageing population. An **integrated platform for Ambient Assisted Living** (AAL) and a **mobile service robot** for long-term monitoring and interaction will help the elderly to remain independent and active for longer.



The system will enable caregivers and medical staff to identify evolving trends of cognitive impairments and to detect immediate emergencies. ENRICHME will use new qualitative models for rich yet compact representations of daily life activities.

[www.enrichme.eu](http://www.enrichme.eu)

*Duration: 2015-2018*

## GrowMeUp



The main goal of this project is to provide an affordable **robot that is able to learn** from older people's routines and habits, therefore enhancing and adapting its functionality to dynamically compensate the deteriorating cognitive ability of individuals, while simultaneously ensuring a consistent service provision and quality of life throughout the aging process.

Moreover, **cloud-computing technologies** are explored and developed so as to allow different robots to share information between each other, where each unit will be able to capitalise from a collective knowledge base of service information.

[www.growmeup.eu](http://www.growmeup.eu)

*Duration: 2015-2017*

## I-SUPPORT

I-SUPPORT (ICT-Supported Bath Robots) aims to develop a **robotic shower system** to assist frail persons with the movements associated with showering. The proposed system will be equipped with three service robotic devices:



- A motorized shower chair dedicated to the provision of the stand-to-sit and sit-to-stand functionality.
- A robotic shower hose dedicated to the provision of pouring water, soaping, etc.
- A robotic washer/wiper dedicated to the provision of scrubbing, wiping and drying.

The robotic shower hose will make it easier to wash difficult-to-reach parts such as the back or the feet. It will be made of soft materials and its design will resemble that of a conventional shower hose.

The system will move either semi-autonomously (partially controlled by the computer and partially by the person) or will be tele-manipulated using a device very much similar to a TV remote control.

[www.i-support-project.eu](http://www.i-support-project.eu)

*Duration: 2015-2018*

## MARIO



During the three years of the project, three pilot studies of **robots interacting with people with dementia** are undertaken:

- In the West of Ireland, organised by NUI Galway's School of Nursing and Midwifery;
- In Stockport, UK, organised by the city's healthcare managers;
- In Italy, organised by the leading research hospital Casa Sollievo della Sofferenza.

The technology at the heart of MARIO is the robot Kompai, designed and developed by a consortium partner, the French company Robosoft. Other partners in the consortium are providing technological expertise in the areas of robotic applications and semantic computing.

[www.mario-project.eu](http://www.mario-project.eu)

*Duration: 2015-2018*

## RADIO

The RADIO consortium is pursuing a novel approach to **acceptance and unobtrusiveness** of technology in active and healthy ageing, and for integrating robots and smart home sensors/Internet of Things.

The project's research has four main dimensions: User acceptance; integrated and power-aware data collection/transmission/processing; user interfaces and architecture.



The sensors for health monitoring take the form of an integrated smart home/assistant robot system. This way the attention lies on the functionality of the sensors rather than on the sensors themselves. In this manner, sensors do not need to be discrete and distant or masked and cumbersome to install; they do however need to be perceived as a natural component of the smart home/assistant robot functionalities.

[www.radio-project.eu](http://www.radio-project.eu)

*Duration: 2015-2018*

## RAMCIP



Robotic Assistant for Mild Cognitive Impairment (MCI) patients at home.

The RAMCIP project is working towards future service robots for assisted living environments that can provide safe, proactive and discreet assistance in daily life, ranging from food preparation, eating and dressing activities, through to managing the home and keeping it secure.

The robot should help users to maintain a positive outlook and also to exercise their cognitive and physical skills, embedding exercise in their daily behaviour. Key research strands are:

- Cognitive functions, allowing the robot to decide when and how to assist, acting autonomously or in cooperation with the user;
- Communication interfaces, with a strong emphasis on empathic communication and augmented reality displays;
- Advanced, dextrous and safe robotic manipulation capabilities, for the first time applied in service robots for assisted living environments, enabling grasping and manipulation of a wide variety of home objects, as well as safe physical human-robot interaction.

[www.ramcip-project.eu](http://www.ramcip-project.eu)

*Duration: 2015-2017*

## ROBOT-ERA

Research on implementation and integration of **advanced robotic systems** and **intelligent environments** in real scenarios for the ageing population.

Robot-Era implemented and demonstrated the general **feasibility**, scientific/technical **effectiveness** and social/legal **plausibility** and **acceptability** of advanced robotic services, integrated in intelligent environments. The project experts developed domestic, condominium and even outdoor robotic platforms.



[www.robot-era.eu](http://www.robot-era.eu)

*Duration: 2012-2015*

## SILVER



The SILVER procurers searched for new robotics based technologies to help older people living independently at home even if they have physical or cognitive disabilities.

After a Pre-Commercial Procurement (PCP) process, the outcome is the LEA robot developed by Robot Care Systems. This **mobile personal assistant in the shape of a walker** can help with daily routines and housekeeping.

It also stimulates the elderly to stay active and can act as a personal trainer - or even as a dancing partner. Because of these functionalities, LEA can be used also for rehabilitation. Furthermore, in Phase 3, cognitive software will be added in order to enable LEA to remember and recognize objects, faces and places, for example.

[www.silverpcp.eu](http://www.silverpcp.eu)

*Duration: 2012-2016*

## 3.2. Innovative solutions for independent living

### ACTIVAGE

ACTIVAGE aims to prolong and support independent living of older adults in their living environments and responding to real needs of caregivers, service providers and public authorities. The project is deploying innovative and user-led large-scale pilots across nine sites in seven European countries based on **Internet of Things** (IoT) technologies.



This way, ACTIVAGE will build the first European interoperable and open IoT ecosystem, reusing and scaling up underlying open and proprietary IoT platforms, technologies and standards, that will enable the deployment and operation at large scale of Active & Healthy Ageing IoT based solutions and services.

[www.activageproject.eu](http://www.activageproject.eu)

*Duration: 2017-2020*

### ALFRED



ALFRED developed a mobile, personalised **assistant for your smartphone** that helps elderly people stay independent, coordinate with their carers and foster their social contacts.

The ALFRED app is based on advanced technology such as speech interaction, so you can give voice commands instead of having to type. Overall, the smart phone assistant is meant to be very easy to use and provides context-sensitive services related to social inclusion, care, physical exercise and cognitive games.

[alfred.eu](http://alfred.eu)

*Duration: 2013-2016*

### eWALL

eWALL is a screen-like solution that can be mounted on an existing wall. It enables a number of services that make life easier, taking into account cardiopulmonary conditions, muscle functions, declines in neuromuscular control of movements which cause higher risks of fall, declines in memory, the ability to orientate and coping with complex situations.

The project carried out multi-disciplinary research and validated the wall concept with clinical evidence. This included both technical-, user- and legal-evaluation, to measure the impact on the quality of life. The project also performed socio-economic



studies to deliver recommendations for the health sector resulting in mid- and long-term benefits for the sustainability of national health systems.

[ewallproject.eu](http://ewallproject.eu)

*Duration: 2013-2016*

### **Miraculous-Life**

This project designed, developed and evaluated an innovative user-centric technological solution - the 'Virtual Support Partner' – a digital persona attending to a senior's daily activities and safety needs, while the senior goes about his normal daily life.



A crucial asset of the Virtual Support Partner is its capacity for behavioural and emotional understanding: It is able to fuse facial expressions, intonation, gestures and other contextual information of the user's environment to provide empathic responses and services. As such, it can support daily activities, in a human-like way. This in turn stimulates and motivates older people to stay active.

[www.miraculous-life.eu](http://www.miraculous-life.eu)

*Duration: 2013-2016*

### **PhysioDom-HDIM**



PhysioDom–HDIM proposes an ICT platform that offers a new service: Home Dietary Intake Monitoring based on readings and monitoring of weight, lean/fat ratio and physical activity, complemented with an intervention structure and strategy – the Home Diet Coaching.

This enhances living conditions for senior citizens, as well as improving the efficiency and integration of health and social care systems.

The PhysioDom HDIM system was tested in a small French pilot, the Reseau Vercors Sante project, which trialled the system in 50 homes and engaged with 70 health and social care professionals. This two-year pilot delivered positive results and acceptance by its users. It now waits to be deployed on a larger scale that involves all of the players - from institutions to end-users at home.

[physiodom.viveris.fr](http://physiodom.viveris.fr)

*Duration: 2014-2016*

### **UNCAP**

This project is developing an open, scalable and privacy-savvy ICT infrastructure designed to help aging people live independently while maintaining and improving their lifestyle. Outcome: Real products that are available on the market.



[www.uncap.eu](http://www.uncap.eu)

*Duration: 2015-2017*

### 3.3. Innovating elderly care

#### DECI



The DECI project aims to design and demonstrate the value of feasible interventions on **business models in elderly care**, enabled by ICTs, to be scaled across National Healthcare Systems.

DECI will propose ways to strengthen traditional care organisation models through the support of digital tools targeted for elderly with Cognitive Impairments, based on innovative technologies, information sharing, data interoperability and replicable logics.

Four living lab pilots will assess feasibility, effectiveness and benefits within local healthcare systems and real-life environments in Israel, Italy, Spain and Sweden.

[deci-europe.eu](http://deci-europe.eu)

*Duration: 2015-2018*

#### ehcoBUTLER

A **global ecosystem** for the independent and healthy living of elder people with mild cognitive impairments.

The ehcoBUTLER project is testing an open ICT platform that enables elderly to simply integrate their leisure and care apps. The ehcoBUTLER platform also helps the

family, caregivers and social care systems to share information on activities, conditions and moods of those they care about. Finally it also provides a trusted ecosystem for apps providers.



ehcoBUTLER will demonstrate the socio-economic benefits from ICT pilot projects with real users, including how the platform can help translate promising results into scalable practice across Europe. To that end the ehcoBUTLER platform is tested in 7 countries on 8 pilot sites, with different business cases, assessing their returns of investment as well as social returns on investment, including profitability, health care cost reduction and increased independence and quality of life. Countries involved are Italy, France, Serbia, Israel, Greece, Spain and Netherlands.

[www.ehcobutler.eu](http://www.ehcobutler.eu)

*Duration: 2015-2017*

#### EMPATTICS



EMpowering PATients for a BeTTer Information and improvement of the Communication Systems

This Pre Commercial Procurement project will research and define how health and care professionals and patients **use ICT technologies** to plan interventions with patients and to monitor the progression of their physical and mental state.

It will investigate and document the requirements for Decision Support Tools that can be created, deployed and embedded into the daily routines of patients and health and care professionals to deliver quality standardised care across a large population of **chronic and elderly patients**.

[empattics.eu](http://empattics.eu)

*Duration: 2016-2019*

## IN LIFE



INdependent LIving support Functions for the Elderly

Building on existing knowledge and tested AAL technology/services IN LIFE will offer **19 different services**, which will be further optimised and adapted to the particular needs and wants of various elderly groups, including mild cognitive impairment (MCI), early dementia and cognitive impairment with co morbid conditions, plus formal and informal caregivers. These interoperable services will be integrated into an open, cloud- based, reference architecture to be tested in 6 Europe-wide pilots in Greece, Netherlands, Slovenia, Spain, Sweden, and UK, with over 1200 elderly with cognitive impairments, 600 formal and informal caregivers, and 60 other stakeholders.

Attention will be paid to issues concerning multilingual and multicultural environments. The project will establish and extensively test new business models for a new taxonomy of elderly with cognitive impairments, encompassing those that are clustered as “dependent”, “at risk”, “assisted” or “active” and formulating and accessing new business scenarios, such as the “user-centric”, “service provider-centric” and “data exploitation-centric” ones.

[www.inlife-project.eu](http://www.inlife-project.eu)

*Duration: 2015-2018*

## STOPandGO

The overarching strategy of STOPandGO (Sustainable Technology for Older People – Get Organised) has been to pilot an **innovative procurement process** to improve the lives of older citizens. Through Public Procurement of Innovative Solutions (PPI), the project produced and validated a standard 'European Specification Template' that was enacted in a coordinated manner in six localities.

STOPandGO showed that an innovative procurement process based on a service delivery approach prioritised clearly defined clinical and social outcomes.

The procurer teams are ready with appropriate patient groups in four countries, which make up more than 5,000 users. Relevant services and suppliers were invited to an open tender. The approach emphasised the importance of developing outcome-based service specifications with clear built in key performance indicators.

[stopandgoproject.eu](http://stopandgoproject.eu)

*Duration: 2014-2017*



## 3.4. Better connected through integrated care

### Beyond Silos

Learning from integrated eCare practice and promoting deployment in European regions.



By providing the ICT tools necessary to join up care pathways across organisations, in particular between social and health service providers, BeyondSilos enables delivery of **integrated care** to older Europeans to support them to live independently within the community.

The project gives common access to client data to cross-sectoral teams. BeyondSilos brings together pioneers from seven EU regions. It intends to provide pathway-based, ICT-supported, integrated care to >10.000 older citizens during the lifespan of the project.

[www.beyondsilos.eu](http://www.beyondsilos.eu)

*Duration: 2014-2017*

## C3-Cloud

C3-Cloud will establish an ICT infrastructure enabling a collaborative **care and cure cloud** to allow continuous coordination of care activities by a multidisciplinary care team and patients and informal care givers. A Personalised Care Plan Development Platform will allow, for the first time, collaborative creation and execution of personalised care plans for multi-morbid patients through systematic and semi-automatic reconciliation of clinical guidelines, with the help of Decision Support Modules for risk prediction and stratification, recommendation reconciliation, poly-pharmacy management and goal setting.



[c3-cloud.eu](http://c3-cloud.eu)

*Duration: 2016-2020*

## CAREWELL

Multi-level integration for patients with complex needs



CareWell will enable the delivery of **integrated healthcare to frail elderly patients** in a pilot setting through comprehensive multidisciplinary integrated care programmes where the role of ICTs can foster the coordination and patient centered delivery care.

Carewell will focus in particular complex, multi-morbid elderly patients, who the patients most in need of health and social care resources (35% the total cost of Health Care System) and more complex interventions due to their frailty and comorbidities (health and social care coordination, monitoring, self-management of the patient and informal care giver).

[carewell-project.eu](http://carewell-project.eu)

*Duration: 2014-2017*

## CONNECARE

Personalised Connected Care for Complex Chronic Patients

Seven out of ten hospital beds across Europe are occupied by people with chronic long term conditions. CONNECARE is developing a novel smart, adaptive integrated care system to streamline **chronic care management**. This will save European healthcare organisations huge sums whilst improving patient outcomes.



CONNECARE will provide decision support for the adaptive management of personalised clinical pathways and will deliver tools to monitor patients' activities and status, thus empowering them and providing them with recommendations to self-manage their condition.

To prove improvements in outcomes and efficiency, clinical trials will be held in three leading regions in integrated care uptake: Catalonia, Israel, and Groningen. Consortium members are active in the EIP AHA B3 Action Group. This way transfer of results to relevant stakeholders across Europe, beyond the stakeholders in CONNECARE, is guaranteed.

[www.connecare.eu](http://www.connecare.eu)

*Duration: 2016-2019*

## ICT4Life



ICT4Life is developing a solution for individuals with **early stage cognitive impairment living alone**. The system will give doctors and caregivers information about the users for taking the best medical or social actions, while extending their independence in a user friendly way. People with dementia, in general and, in particular, with Alzheimer at an early stage, and with Parkinson's, constitute the main target group ICT4Life is focussing its analysis on.

[www.ict4life.eu](http://www.ict4life.eu)

*Duration: 2016-2018*

## INCA



INCA is a **cloud-based integrated care platform** solution. The system puts the patient at the centre of a personalised network of stakeholders (social services, health providers, caregivers...), empowering them to communicate directly with their circle of care.

The INCA project proved that their solution reduces hospital admissions, improves the patient experience and overall achieves greater efficiency from health delivery systems and reduces costs. The platform is currently deployed in Spain, Cyprus, Latvia, UK and Croatia.

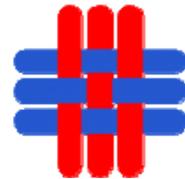
[www.in3ca.eu](http://www.in3ca.eu)

*Duration: 2014-2016*

## PICASO

The PICASO project is developing an ICT platform to support coordination of care plans for people diagnosed with **co-occurring chronic diseases**. The goal of this Europe-wide Continuum of Care service platform is to:

- Improve cooperation and exchange of knowledge between caregivers in health, rehabilitation and social care domains and actively include patients and their relatives;
- Bring about improvements in health outcomes, daily activities, and quality of life by personalising care management programmes to the patients' profiles and support adherence to care plans;
- Reinforce medical knowledge and create new care models for management and treatment of patients with multi-morbidity conditions;
- Allow more cost-effective care management through increased skills and collaboration of care professionals and more automated and efficient workflows, which leads to better health outcomes and less hospital admissions, and thus contributing to the sustainability of health and social care systems in Europe.



To demonstrate the platform and its wide applicability, the technologies will be trialled in two different national settings with two different patient groups, involving 60 patients.

[www.picaso-project.eu](http://www.picaso-project.eu)

*Duration: 2016-2019*

## POLYCARE



POLYCARE is developing and testing an integrated, patient-centred care model, supported by advanced ICT systems and services that allow the monitoring and care of **older chronic patients in acute phases** at home.

The system will form a collaborative, information sharing environment between health and social care services. A Decision Support System will provide alerts, recommendations and adverse effects due to the interaction of medicaments in the case of poly-medicated patients.

The POLYCARE researchers also empower the patients by providing them with devices and personalised apps for being involved in their self-health management and for interacting with medical and social care services.

[www.polycare-project.com](http://www.polycare-project.com) Video: [youtu.be/AVrvhCwSnBo](https://youtu.be/AVrvhCwSnBo)

*Duration: 2016-2018*

## ProACT

Through integrated technology ecosystems for patient centred care, this project targets Europe's 50 million **multimorbid patients** to proactively self-manage their diseases.



ProACT aims at providing and evaluating a cloud based open application programming interface to integrate a variety of new and existing technologies to advance home based integrated care.

The ProACT researchers are examining four models of care/support for effective, continued and coordinated patient-centric care/self-management. Trial sites (Ireland and Belgium) will use Living Lab facilities to ensure co-design (with persons aged 65 and over) of ProACT technologies, and implement proof of concept trials involving national health services, patients and their formal and informal care networks.

Clinical status information, therapies and activity tools will be deployed for chronic heart failure, diabetes and chronic obstructive pulmonary disease (COPD). Tools to support mild cognitive impairment and detect early onset dementia are included.

[proact2020.eu](http://proact2020.eu)

*Duration: 2016-2019*

## SmartCare



SmartCare defined a common set of standard functional specifications for an open ICT platform enabling the **delivery of integrated care** to older European citizens. A total of 24 regions and their key stakeholders are defining a comprehensive set of **integration building blocks** around the challenges of data-sharing, coordination and communication.

System integration will allow efficient cooperative care delivery and empower all older people in effective management of their health, and maintain their independence despite frailty. This in turn will support long term sustainability and upscaling of services.

[pilotsmartcare.eu](http://pilotsmartcare.eu)

*Duration: 2013-2016*

## 3.5. Frailty, early detection and intervention

### City4Age



City4Age is enabling Ambient Assisted Cities, or **Age-friendly Cities**, to help elderly people deal with mild cognitive impairment or frailty, so they can maintain their independence for longer.

A range of unobtrusive ICT tools and services is being developed to improve the early detection of risks related to cognitive impairments and frailty of elderly people, whether they are at home or on the move within the city.

The City4Age project will also facilitate the role of social and health services, as well as the role of family and caregivers. Pilots will take place in Madrid, Athens, Montpellier, Lecce, Birmingham and Singapore.

[city4age.lst.tfo.upm.es](http://city4age.lst.tfo.upm.es)

*Duration: 2015-2018*

### DOREMI

The DOREMI project focused on three main aspects related to **frailty** in older people:

- Unhealthy nutrition;
- Sedentariness;
- Cognitive decline.



These aspects are at the basis of the DOREMI environment: A **context-aware and smart system** able to learn and reason about the users, their intentions, preferences and aims. The system is able to provide feedback and propose solutions to improve their lifestyle. The specialist will be able to select and assign a personalised lifestyle protocol that will be associated to a set of game typologies (cognitive games, social games or exercise games).

At home, seniors will be able to select the game scenario which best corresponds to their personal preferences and habits. Subsequently, the system will follow a monitor-learn loop to understand how the senior evolves according to the compliance of the assigned protocol.

The effectiveness and impacts, on both users and on the healthcare system, has been positively tested in a set of pilots in Italy and UK, involving both elderly users and care providers.

[www.doremi-fp7.eu](http://www.doremi-fp7.eu)

*Duration: 2013-2016*

### Frailsafe



The goal of the FrailSafe project is ambitious: **delaying frailty** as much as possible by developing a set of measures, tools, and recommendations to reduce its onset. FrailSafe is working on state of the art information technologies such as a personalised '**Virtual Patient Model**' and a **virtual supermarket game**.

FrailSafe aims to:

- Better understand frailty and its relation to co-morbidities;
- To identify quantitative and qualitative measures of frailty through data mining;
- Use these data to predict short and long-term outcome and risk of frailty;
- To develop a platform for real-life sensing (physical, cognitive, psychological, social) and intervention (guidelines, real-time feedback, AR serious games);
- To provide a digital patient model of frailty sensitive to several dynamic parameters, including physiological, behavioural and contextual;

- Use this model as the key for developing and testing pharmaceutical and non-pharmaceutical interventions;
- Create 'prevent-frailty' evidence-based recommendations for the elderly;
- Strengthen the motor, cognitive, and other 'anti-frailty' activities through the delivery of personalised treatment programmes, monitoring alerts, guidance and education; and to achieve all with a safe, unobtrusive and acceptable system for the ageing population while reducing the cost of healthcare systems.

[www.frailsafe-project.eu](http://www.frailsafe-project.eu)

*Duration: 2016-2018*

## My-AHA

My-AHA (My Active and Healthy Aging) will **empower seniors to better manage their own health**, resulting in healthcare cost savings. my-AHA will use state-of-the-art analytical concepts to provide new ways of health monitoring and disease prevention through individualized profiling and personalised recommendations, feedback and support.



An ICT-based platform will detect defined risks in the **frailty** domains early and accurately via embedded sensors and data readily available in the daily living environment of older adults. When risk is detected, my-AHA will provide targeted ICT-based interventions with a scientific evidence base of efficacy. These interventions will follow an approach to motivate users to participate in exercise, cognitively stimulating games and social networking.

[www.activeageing.unito.it](http://www.activeageing.unito.it)

*Duration: 2016-2019*

## PERSSILAA



PERsonalised ICT Supported Service for Independent Living and Active Ageing

This project aimed at the development and validation of a new service model that **addresses frailty** in community dwelling for older adults.

PERSSILAA's main focus was to:

- Develop remote service modules for screening, monitoring and training;
- Enable a transition of our care services from fragmented reactive disease management to preventive personalised services, that are offered locally, supported by proactive caregivers and health professionals, which is integrated into existing healthcare services;
- Set up a technical service infrastructure to support these multiple services and users in an efficient, reliable and easy way which will entail gamification, interoperability and clinical decision support.

The validation was done in the Enschede region in the Netherlands and the Campania region in Italy.

[www.perssilaa.eu](http://www.perssilaa.eu)

*Duration: 2013-2016*

## PreventIT



PreventIT will develop and test an ICT based **mHealth** System (iPAS) for the consumer market that:

1. Enables **early identification of risk of age-related functional decline**;
2. Engenders **behavioural change** in seniors in order to adopt a healthy, active lifestyle.

The project will use an integrated system of a smartphone and smartwatch as frontend technology, and a protected cloud-based solution for handling personal data as backend technology.

The researchers will develop online instruments for risk-screening, complexity metrics, motivation for behavioural change, and a method for personalised exercise by phenotype, based on currently available big data sets.

[www.preventit.eu](http://www.preventit.eu)

*Duration: 2016-2018*

## REACH

This project is working to integrate personalised medically and ethically acceptable solutions **in, and around, buildings** (home, care homes, clinical environments). These solutions will allow an intelligent **prediction** (considering both personal medical history as well as real-time gathered data from a series of embedded sensors) about the health status of seniors.



Based on this forecast, the researchers want to develop suitable interventions (customised services and products for the living environment including physical activity, training, food and nutrition, mobility, motivation, etc.) to prevent a declining health status of the elderly and reduce Long Term Care admissions.

The ultimate goal is to allow European industry, including SMEs, to capitalise on the European high-tech-knowhow, to make Europe a market leader in prevention technologies, services and underlying healthcare ICT platforms, and at the same time encounter the ultimate cause of rising healthcare expenditures.

[reach2020.eu](http://reach2020.eu)

*Duration: 2016-2020*

## 3.6. Fall Prevention

### E-NO FALLS



European Network for Fall Prevention, Intervention & Security

This **thematic network** integrated and brought together knowledge, experiences and best practices acquired at European and international level in the area of fall prevention, intervention and safety, with the aim of coordinating ongoing activities and creating the necessary conditions and consensus on action plans, standards and specifications in view to ensure the widest future replication and co-deployment of innovative solutions (with special emphasis on ICT-based ones).

[www.e-nofalls.eu](http://www.e-nofalls.eu)

*Duration: 2013-2016*

### FARSEEING

**FALL Repository** for the design of Smart and sELf-adaptive Environments prolonging INdependent living

FARSEEING has been collecting data about real-life falls of older adults, in order to better understand the risk factors for falls. This database will, for the first time, enable researchers to study the nature of a fall based on enough objectively measured data.



In addition, FARSEEING researchers have studied how to encourage older adults to take-up and maintain use of keep fit technologies.

[farseeingresearch.eu](http://farseeingresearch.eu)

*Duration: 2012-2014*

### FATE



FATE validated an innovative ICT-based solution for the **detection of falls** in ageing people. A portable and easy-to-use fall detector runs a specific algorithm to accurately detect falls, thanks to a robust and reliable telecommunications layer (based on ZigBee and Bluetooth technologies) which can send alarms regardless of the user being inside or outside of the home.

The system can be complemented by e.g. a bed presence sensor and the i-Walker, an intelligent robotic walker. The system as a whole ensures the successful prevention and detection of falls in all circumstances. It has been tested and validated in pilot studies involving real living scenarios, in Spain, Italy and Ireland, in close collaboration with public authorities. The system is now commercially available via spin-off company SENSE4care.

[www.project-fate.eu](http://www.project-fate.eu)

*Duration: 2012-2015*

### I-DONT-FALL

Integrated prevention and Detection sOlutioNs Tailored to the population and Risk Factors associated with FALLS

The I-DONT-FALL **integrated platform** is flexibly configured to the needs of specific target groups and **risk factors** associated with fall incidents. End-users are offered tailored **fall technological solutions**, while medical experts and health professionals have access to a wide range of tools, enabling them to customize fall solutions to the end-users' needs.



The effectiveness of the solutions has been tested by over 500 elderly users/ patients across different countries, cultures, age groups and fall risk factors.

The project also elicited best practices for tailoring fall management solutions to specific risk factors, root causes and users' (fallers') needs.

[www.idontfall.eu](http://www.idontfall.eu)

*Duration: 2012-2015*

## **ProFouND**

Prevention of Falls Network for Dissemination - This network has been dedicated to the dissemination and implementation of **best practice in falls prevention** across Europe.



ProFouND aimed to influence policy and to increase awareness of falls and innovative prevention programmes, amongst health and social care authorities, the commercial sector, NGOs and the general public. Through this work ProFouND has facilitated communities of interest and disseminated the work of the network to target groups across the EU.

[profound.eu.com](http://profound.eu.com)

*Duration: 2013-2016*

## **WIISEL**



Wireless Insole for Independent and Safe Elderly Living - The WIISEL system is a non-invasive ambient device, designed to monitor gait parameters and assess fall risk in elderly wearing the WIISEL **sensing insoles**.

It continuously captures data related to human gait and balance from a user in his home as well as in any other locations he may go by foot.

WIISEL is made of 3 main components:

- One pair of instrumented insoles with embedded pressure and inertial sensors
- A smartphone (off the shelf)
- A back-end server with administrative web application and the Gait Analysis Tool software for analysing and presenting data to medical professionals.

[www.wiisel.eu](http://www.wiisel.eu)

*Duration: 2011-2015*

## 3.7. Knowledge sharing and standardisation related to ageing well

### J-Age II



How can we **collaborate and coordinate European R&D** better? By jointly writing our research programmes: 15 European countries plus Canada and Israel are driving a Joint Programming Initiative (JPI) called '*More Years, Better Lives - The Potential and Challenges of Demographic Change*'. This enhances coordination and collaboration between European and national research programmes related to demographic change.

The J-Age II project is supporting and fostering the overall management of the JPI, updating the strategic research agenda and supporting implementation through joint activities between member states.

Furthermore, the project is exchanging information with scientific and societal stakeholders, policy makers and research funders as well as performing an evaluation and monitoring exercise.

Ultimately, the project and the JPI seek to stimulate the alignment of relevant national programmes and EU initiatives, strengthen the base of multi-disciplinary and holistic ageing research in Europe and to provide scientific evidence for policy responses to demographic change.

[www.jp-demographic.eu](http://www.jp-demographic.eu)

*Duration: 2015-2018*

### MAFEIP

The **online MAFEIP tool** estimates the **health and economic outcomes** of your social and technological innovations in the health and care sector relative to current care. Examples of innovative interventions include new care pathways, devices, surgical techniques, organisational models, among others.



This supports **evidence-based decision-making** for all institutions and users in the health and care sector.

Those interested can join the MAFEIP user community and collaborate with others in assessing innovative interventions in the health and care domain through the MAFEIP methodology.

The project also offers specific training and personalised support. Training and supporting materials include a user's guide manual, informative videos and introductory presentations, among others. All these materials are available in the support section of the website.

[mafeip.eu](http://mafeip.eu)

*Duration: 2017-2018<sup>2</sup>*

### PROGRESSIVE



By establishing norms and requirements for technical systems, **standardisation** makes our lives safer, simpler, more comfortable and more efficient. Especially in the digital field, standards can ensure compatibility between products and provide better accessibility of goods and services.

The PROGRESSIVE project will provide a dynamic and sustainable framework for standards and standardisation around ICT for active and healthy ageing. It will establish

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<sup>2</sup> The tool will stay available until further notice.

parameters by which good practice in standards and the standardisation process can be identified. A platform to be developed will promote discussion and debate.

The work will lay the foundation for standards that will be increasingly fit for purpose – with potential benefits to all our lives.

[www.age-platform.eu/project/progressive](http://www.age-platform.eu/project/progressive)

*Duration: 2016-2018*

## ReAAL

The research community has spent a lot of resources developing personalised solutions covering the different perspectives of independent living, such as safety, mobility, reminders, home management, telehealth and telecare. These specific solutions have turned out hard to integrate or combine with other services. The Universaal and ReAAL projects promoted a more integrated approach, based on open standards, to **overcome this siloisation** of ICT-based services for ageing well.



ReAAL measured the return of investment of the pilot deployment of services to more than 5000 users across seven countries in Europe. The project also gathered the feedback from actors involved such as developers and service providers. This work contributed to the Action Group on Independent Living of the European Innovation Partnership on Active and Healthy Ageing (EIP AHA).

[www.cip-reaal.eu](http://www.cip-reaal.eu)

*Duration: 2013-2016*

## SEACW



Social Ecosystem for Anti-Aging, Capacitation and Wellbeing

SEACW has created a pilot **ecosystem** including tools on **awareness, information, training, e-literacy and training** on ICT for active and healthy aging. 'Action for Healthy Ageing' is the name of this first European ecosystem for promoting healthy, active aging using new technologies.

With the goal of being effective and dynamic, the SEACW ecosystem enabled users to find news, forums, videos, a social network, mobile applications, games that foment mental activity and even a training program for active, healthy ageing through the use of ICTs. The offer reached approximately 20,000 users.

[www.seacw.org](http://www.seacw.org)

*Duration: 2013-2015*

## SEED

Supporting the Recognition of the Silver Economy in Europe in the Digital Era.

SEED has launched the European-level **Silver Economy Awards** rewarding innovative solutions that demonstrate a significant impact on the quality of life of the ageing population. The new award scheme aims to mobilise a wide range of stakeholders across Europe. It is envisaged that the award scheme will be maintained under the auspice of the recently launched European Covenant on Demographic Change.



[www.agefriendlyeurope.org/the-silver-economy-awards](http://www.agefriendlyeurope.org/the-silver-economy-awards)

*Duration: 2016-2018*

## 4. PROJECTS FUNDED BY THE SME INSTRUMENT

*The European Union supports Small and Medium Enterprises (SMEs) in the field of ICT for health and ageing well through the topic H2020-SMEInst-06-2016-2017: **Accelerating market introduction of ICT solutions for Health, Well-being and Ageing Well.***

*This challenge aims to help overcome the current gaps in exploitation of promising research results in the field and to stimulate increased availability and market uptake of relevant ICT products and services. This concerns both interoperable and secure eHealth solutions for consumers and institutional healthcare delivery building on standards and new ICT solutions and innovation ecosystems for ageing well building on open software platforms, in order to deliver new and more efficient care to European citizens and respond to new market opportunities for SMEs.*

### Glucobeam



Glucobeam®, developed by RSP Systems (a Danish SME), is a device for non-invasive glucose monitoring for people suffering from **Diabetes mellitus**, one of the largest health challenges faced by modern society, causing more than 5 million deaths yearly. By offering a pain-free, easy-to use non-invasive glucose monitoring solution, Glucobeam® has the potential to increase quality of life for diabetic patients worldwide, while reducing the overall costs of diabetic care.

[rspsystems.com/glucobeam](http://rspsystems.com/glucobeam)

*Duration: 2017-2019*

### INSULCLOCK



More than 25% of diabetics depend on insulin injections daily, and it is estimated that 2/3 of insulin volume is injected via injection pens. By automatically recording all critical information related to insulin in-taking for diabetes treatment and storing this data in a secure way, INSULCLOCK® helps diabetics and their caregivers in self-managing their disease.

[insulclock.com](http://insulclock.com)

*Duration: 2016-2018*

### MOWOOT

Up to 15% of the EU and USA population suffer from **chronic constipation**. MOWOOT is a medical device that gives you a massage like the one that physiotherapists administer to solve this problem.



It is an entirely safe device, developed in collaboration with the rehabilitation centre Institut Guttmann and certified by the European Union. A pilot study with chronically constipated patients has shown that the daily use of MOWOOT ameliorates idiopathic chronic constipation.

[www.mowoot.com](http://www.mowoot.com)

*Duration: 2017-2019*

### mPOWER: TiredofCancer app



To empower **cancer patients with fatigue**, oncology specialists and researchers have designed the TiredofCancer app. The application has proven efficacy in the clinic as well as in a web-based environment; it is easily accessible for any end user with a smartphone or tablet and ultimately it will be integrated into clinical practice to provide health and care professionals with guidelines to help tired patients.

The tool has been put on the market by the Dutch spin out Tired of Cancer BV.

[www.tiredofcancerapp.com](http://www.tiredofcancerapp.com)

*Duration: 2017-2019*

## OrmoSys

200,000,000 people in the EU currently suffer pain due to **improperly formed feet** and inadequate orthopedic support. This number is expected to rise sharply in the next years due to aging demographics and decreased physical activity.



Based on the knowledge acquired from extensive diagnosing and treating, the German SME OrmoSys offers a complete system for the diagnosis and treatment of foot and postural ailments. By combining a limited number of shapes and materials, it allows for 39,744 different insole types which precisely address the patients' problems.

[ormosys.de](http://ormosys.de)

*Duration: 2016-2018*

## PARK-IT 2.0

**PARK-IT** PARK-IT technology is designed for continuous monitoring of **Parkinson** motor symptoms in ambulatory conditions in a real environment, based on unique complex algorithms able to detect ON/OFF fluctuation. It provides quantitative insights to inform patients and their health professional about their PD status and evolution.

PARK-IT is supposed to reduce the costs related to PD by 30%, and improve the effectiveness of medication and the quality of life of PD.

[www.sense4care.com/park-it](http://www.sense4care.com/park-it)

*Duration: 2017-2019*

## PLATINUM

This project is developing, prototyping, validating and bringing to market a portable assay system for **prediabetes and diabetes diagnosis** and control, consisting of a disposable medical device equipped with a Lab-on-Chip (LoC) used for Point of Care or Self-Monitoring of protein biomarkers in biological fluids, like Glycated Hemoglobin (HbA1c).

The medical device relies on a unique technology for diagnosis via protein biomarkers analysis, comprising a separation and a labelling stage of target molecule to detect and quantify the amount of glycated Hemoglobin in a drop of blood. The project already received the EC's Seal of Excellence in 2015.

[www.dianax.eu/platinum-project](http://www.dianax.eu/platinum-project)

*Duration: 2016-2018*

## ScanZ

The ScanZ device is a digital **acne assessment tool** enabling acne diagnosis in a cost and time efficient way. The aim of the project is to make it clinically and commercially qualified for the market as a medically certified IP protected user-centred designed system to be sold to hospitals. This will both improve the quality of life for acne sufferers and working conditions for medical professionals.



[scanz.info](http://scanz.info)

*Duration: 2016-2018*

## SEIZSAFE



Globally, an estimated 2.4 million people are diagnosed with **epilepsy** each year. When patients suffer convulsions there is a risk for them of being injured or having a cardiac arrest. The problem worsens when seizures occur at night-time. SEIZSAFE is a patient-self-adaptive system for detection, recording and alert to caregivers of night-time seizures, linked to a private cloud platform for patient tracking and big data exploitation.

[www.seizsafe.com](http://www.seizsafe.com)

*Duration: 2016-2018*

## SmartECG

This tool for primary care physicians enables an automatic interpretation of electrocardiogram (ECG) analysis data from any monitoring device. A simple international telemedicine service platform can be used for requesting fast consultations from cardiologists.

The logo for SmartECG, with 'SMART' in black and 'ECG' in red.

This innovation helps to address the severe **cardiovascular diseases** (CVD) challenge - the most critical and expensive healthcare problem in EU with more than 2 million casualties and €200 billion cost each year. By 2020, the SmartECG platform will be used by more than 10 000 GPs and specialist physicians, serving approximately 800,000 patients annually.

[public.remotea.com/smartecg](http://public.remotea.com/smartecg)

*Duration: 2017-2019*

## SOMA



The SOMA project will demonstrate the Kelaa app: a non-obtrusive smartphone-based solution able to detect and manage **work-related stress** based on the analysis of speech and sleep patterns.

The solution prototype now includes a diagnostic module (smartphone sensors use to gather and analyse stress biomarkers), an interventional module (smartphone apps used to reduce stress levels) and a big data analytics module (anonymous data aggregation used to identify specific HR issues such as abnormal stress levels in specific departments).

In 2013, the costs of work-related depression in the EU-27 was estimated to be €617 Bn annually. The Kelaa app can contribute to cost reductions of 30% for healthcare providers and corporate while improving the wellbeing of employees.

[www.soma-analytics.com](http://www.soma-analytics.com)

*Duration: 2016-2018*

## Tech4Freedom 2.0

In 2010, there were 285 million **blind and visually impaired** people in the world - a 77% increase from 161 million in 2002, and that number is still rising.

The Tech4Freedom logo, with 'Tech' in blue, '4' in orange, and 'Freedom' in blue.

In line with the European Disability Strategy 2010-2020 and to provide a technological solution for the visually impaired to increase their level of security and independence, the Tech4Freedom team has been developing a kit of small, assistive devices controlled by a visually impaired-friendly mobile app. The T4F 2.0 Kit will make daily tasks easier for blind and visually impaired people.

[www.tech4freedom.net](http://www.tech4freedom.net)

*Duration: 2016-2018*

## 5. ACTIVE AND ASSISTED LIVING (AAL) PROGRAMME

*The AAL Programme is a funding activity that aims to create better living conditions for older adults with the help of technology, as well as to strengthen the international industrial opportunities in the area of information and communication technology (ICT).*

*It carries out its mandate through funding cross-national projects (at least three countries involved) that involve small and medium enterprises (SMEs), research bodies and end-user organisations (representing seniors).*

*AAL projects are financed by the European Commission and the 18 countries that constitute the partner states of this joint initiative: Austria, Belgium, Cyprus, Hungary, Ireland, Israel, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.*

More information: [www.aal-europe.eu/about/objectives](http://www.aal-europe.eu/about/objectives)

### The following projects won Call 2016, call challenge: Dementia

#### GREAT



Applying ambient lighting, sound and scents can support people with dementia and their caregivers in their daily activities and structure, and positively influence erratic behaviour (depression and agitation) of dementia sufferers.

The project aims to develop, implement and validate as well as commercialise an intelligent, modular, persuasive ambient system which prepares dementia patients for new or changing activities during the day and thereby assist the care recipients as well as the caregivers.

Participating countries: Austria, Italy and Switzerland.

[great.labs.fhv.at](http://great.labs.fhv.at)

Duration: 36 Months

#### MI-TALE

Memories are important for dementia patients; they influence how they act and feel nowadays. However, for people around them, it is often hard to explore what is really going on in their beloved one's mind.

MI-Tale is working on a digital and interactive game to recall and record memories. This tool contains existing material such as historical pictures and video's, but also allows the user to add own material. This way it helps to discover what the elderly person is thinking and feeling and it promotes conversation among generations. It also allows players to complete a personal life-story book.



Participating countries: Austria, Cyprus and the Netherlands.

[www.mi-tale.eu](http://www.mi-tale.eu)

Duration: 24 Months

#### MEDGUIDE



The European project MedGUIDE helps seniors with dementia with their medication adherence through smart pill boxes and social networking.

This innovative project aims to:

1. Provide insight in the actual needs of elders with dementia (based on input from the patient, the network of informal caregivers, and contextual data from IoT devices);
2. Provide insight in actual medication use, side effects and adherence;

3. Provide support for improving the care and medication adherence through direct reminders and personalised roadmaps leveraging the network of informal caregivers.

Participating countries: Cyprus, Norway, Romania, the Netherlands, Switzerland

[medguide-aal.eu](http://medguide-aal.eu)

*Duration: 30 Months*

## PETAL



The PETAL project is working on a platform able to increase seniors' autonomy and assist them in carrying out daily activities. In particular, it aims to support older adults affected by **mild dementia**. This will be achieved through an intelligent platform able to monitor users' behavior (movements, speech, and interactions) and support personalised control of lights and appliances in their environment.

Participating countries: Austria, Italy, Romania and Spain.

[www.aal-petal.eu](http://www.aal-petal.eu)

*Duration: 36 Months*

## PLAYTIME

This project develops an integrated 'theratainment' (therapy and entertainment) solution for care, rehab and diagnostics. PLAYTIME motivates in a playful manner to perform exercises which stimulate cognitive processes, physical activity and social inclusion. The objective is to motivate dementia users to enter a positive feedback cycle of periodic training with sensors that enable diagnostics on a daily basis and to receive recommendations on the basis of these data that propose more personalised and better-suited exercises for improved training.



Participating countries: Austria, Belgium, The Netherlands.

[www.aal-playtime.eu](http://www.aal-playtime.eu)

*Duration: 36 Months*

## SUCCESS



Through an interactive avatar, gamification, training and role play, SUCCESS (SUccessful Caregiver Communication and Everyday Situation Support in dementia care) supports both dementia patients and carers in their day-to-day lives.

The tool increases the users' knowledge about dementia and how to interact with someone suffering from this disease. SUCCESS also aims at creating meaningful activities for people with dementia in order to maintain a sense of purpose at their individual level of ability. Emotional support is provided as to help carers to keep a balance between care responsibilities and personal needs.

Participating countries: Austria, Canada, Cyprus, Norway, Romania

[www.success-aal.eu](http://www.success-aal.eu)

*Duration: 36 Months*

## TV-ASSISTDEM

In this project, an innovative patient support tool is being built to provide healthcare over a distance specifically targeted to patients with mild dementia that enables the interaction of voice, video, and health-related data using ordinary telephone lines connected to internet.

Participating countries: Italy, Romania, Spain, Switzerland.

[www.tvassistdem-aal.eu](http://www.tvassistdem-aal.eu)

*Duration: 36 Months*



## 6. FUNDING TOOLS

[Horizon 2020](#) is the current EU funding instrument of research and innovation. It entered into force in 2014 and will run until 2020.

This EU Framework Programme for Research and Innovation replaces the [7th Framework Programme](#) (FP7) 2007-2013 and [CIP ICT Policy Support programme](#) as a way of improving better coherence across different funding instruments. The final goal of Horizon 2020 is to add value to the entire innovation cycle, from research, to product development and market deployment.

Other funding sources are available through the [EU Structural Funds](#) and the [AAL Europe Programme](#).

Interested to propose a project? Visit the Horizon 2020 website for finding a call: [ec.europa.eu/programmes/horizon2020](http://ec.europa.eu/programmes/horizon2020)

# 7. INDEX

## Explanation of acronyms:

AAL	Active and Assisted Living (funded through the AAL Programme)
CIP	Competitiveness & Innovation Programme; funding tool of innovation projects (2007-2013)
CSA	Coordination and Support Action (funded through H2020)
EHR	Electronic Health Record
FP7	7 <sup>th</sup> Framework Programme; funding of research projects (2007-2013)
H2020	Horizon 2020 funding programme for research & innovation (2014-2020)
IA	Innovation Action (funded through H2020)
ICT	Information and Communication Technology
NETW	Project related to networking (funded through FP7)
PCP	Pre-Commercial Procurement
PGS	Personal Guidance System (funded through FP7)
PHS	Personal Health System (funded through FP7)
PPI	Public Procurement of Innovation
RIA	Research and Innovation Action (funded through H2020)
SME	Small and Medium sized enterprise (funded through the H2020 SME Instrument)
VPH	Virtual Physiological Human (in silico medicine, computational modelling)

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