eHealth projects

Research and Innovation in the field of ICT for Health and Wellbeing: an overview

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INTRODUCTION

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Introduction

Improving health care through ICT:
Our research and innovation turns the future of care into the present.

What have the best brains of Europe come up with to improve health care with the help of Information and Communication Technology (ICT)? This document offers an overview of the most current (ongoing or recently finished) European funded projects in the field of ICT for health and wellbeing ('eHealth').

The projects listed here have been divided in three types: research projects, innovation projects and projects related to interoperability - meaning the ability of systems and organizations to work together ('inter-operate').

Some of the projects overlap this division; they belong for example to both "Interoperability" and "Innovation". But they have been listed in the category which characterizes them the most. The same goes for projects that overlap the subchapters of this document.

At the end of this document you will find an overview of the funding programs used to give these projects the financial support they needed to become reality.

For more detailed info on each project, please visit the project website mentioned in this document or visit cordis.europa.eu. To be further informed on exciting results of the projects, new projects and other eHealth news, please subscribe to the newsletter "eHealth in Focus": bit.ly/eHealthinFocus.

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1. Research

1.1. Projects related to mental health, psychiatric and developmental disorders

Help4Mood

Computerised support for people with depression by monitoring their mood and physical activity at home. More info: help4mood.info

Duration: 2011-2013

ICT4DEPRESSION

This project (www.ICT4DEPRESSION.eu) wants to improve patient outcomes and increase access to anti-depression treatment. Therefore, the project researchers developed devices for monitoring activities and bio signals in a non-intrusive and continuous way; treatments for depression and automatic assessment of the patient using their mobile phone and web-based communication; computational methods for reasoning about the state of patients, progress of therapies, and the risk of relapse.

Duration: 2010-2013

Interstress

Equipped with biosensors this mobile system assesses and treats a condition that most citizens experience in modern society: psychological stress. It conducts 'e-therapy' that bridges virtual and physical reality into one seamless reality: interreality. Like this, people are able to detect and manage their stress in every circumstance thanks to continuous feedback on his parameters and provision of warnings.

In 2012 the project won the UN-based World Summit Award Mobile for the best mobile health application. More info: interstress.eu

Duration: 2010-2013

MONARCA

MONitoring, treAtment and pRediCtion of bipolAr Disorder Episodes - MONARCA (www.monarca-project.eu) develops and validates solutions for multi-parametric, long term monitoring of behavioural and physiological information relevant to bipolar disorder. It combines those solutions with an appropriate platform and a set of services into an innovative system for management, treatment, and self-treatment of the disease.

Duration: 2010-2013

PSYCHE

A personal, cost-effective, multi-parametric monitoring system for patients diagnosed with bipolar disorder. Management, treatment and prevention of depressive and manic episodes. More info: www.psyche-project.org

Duration: 2010-2013

MICHELANGELO

A wearable EEG solution and eye-tracking device to identify the stimuli that cause significant responses in the autistic child; signal processing algorithms enabling accurate characterization of brainwave anomalies and connectivity between different brain regions. More info: www.michelangelo-project.eu

Duration: 2011-2014

OPTIMI

"Online Predictive Tools for Intervention in Mental Illness": A diagnostic tool for pharmacological and CBT based preventative and intervening treatments. More info: www.optimiproject.eu

Duration: 2010-2012

1.2. Projects related to epilepsy

ARMOR

The ARMOR project (www.armor-project.eu) tackles the most common brain disorder, epilepsy, which affects 1-2% of the population, especially children and adolescents. What can ICT do for such a common, serious and still incurable disease?

The project uses sophisticated technologies to provide healthcare specialists with a framework, so they can monitor and analyse epilepsy-relevant multi-parametric data. The specificity of each patient and the need for constant adjustment of the treatments will be addressed through a personal health system (PHS), which allows for flexible monitoring and efficient diagnosis management.

The project combines clinical and basic neuroscience research with advanced data analysis, medical management tools and telecommunication to develop novel applications for the management of epilepsy.

It will deliver a non-intrusive personal health system (PHS) for monitoring and early diagnosis of people with epilepsy and will support healthcare professionals by providing an accurate analysis.

Duration: 2011-2014

EPILEPSIAE

This project has done a lot of research to make prediction of epileptic seizures possible and is trying to bring a small transportable warning device for epilepsy patients on the market. Read this blog post "Giving hope to millions of epileptic people" by Professor António Dourado, project coordinator.

Duration: 2008-2011

1.3. Projects related to neurological disorders like Parkinson's and Alzheimer's disease

CuPiD

ICT-enabled solution for the rehabilitation of patients with Parkinson's disease. The system is based on wearable sensors, real-time biofeedback, virtual reality, restitution interfaces and a telemedicine infrastructure for remote monitoring and supervision by a clinician. More info: www.cupid-project.eu

Duration: 2011-2014

NeuroTREMOR

NeuroTREMOR (www.car.upm-csic.es/bioingenieria/neurotremor) aims at technically, functionally and clinically validating a novel system for understanding tremors, giving support to diagnosis, and remotely managing tremors.

Duration: 2012-2015

REMPARK

Goal is 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 will be tested on 60 patients in real life. More info: www.rempark.eu

Duration: 2011-2015

SENSE-PARK

An empowering information system for use at home by Parkinson patients. The system informs the users about motor and non-motor functioning in daily life activities and provides them with tools to monitor patterns in their condition. More info: www.sense-park.eu

Duration: 2011-2014

VERVE

The VERVE project (www.verveconsortium.eu) aims to improve the quality of life for disadvantaged groups including older people and those with neurological disorders. The project includes virtual reality environments (tailored to the individual), 3D web graphics, and serious games.

VERVE's efforts will focus on three situations, each targeting a different group of participants: fear of falling and Parkinson's disease; apathy related to cognitive decline and behavioural disturbances, in particular due to Alzheimer's Disease; and other emotional disturbances linked to anxiety. Although focusing on these areas initially, it is expected that the results of the research will be applicable to a much wider range of potentially disadvantaged individuals.

The international project is coordinated by Trinity College Dublin and includes collaborative partners in healthcare and academia in France, UK, Italy, Spain and Germany.

Duration: 2011-2014

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…). More info: www.demcare.eu

Duration: 2011-2015

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

Duration: 2013-2017

1.4. Projects related to stroke and brain injury

CONTRAST

Contrast (www.contrast-project.eu) deals with rehabilitation after stroke. The project is developing easy-to-use auto-adaptive human-machine interfaces (HCI) which can be used in the clinic and at the patients' home. Training modules for cognitive enhancement will be tailored to the individual patient and remote data processing and support systems will allow for continuous monitoring of health parameters to evaluate individual progress and for shared patient-expert decision making.

The project experts will also develop, test, and upgrade brain-neural-computer interface (BNCI) based neurofeedback tools, based on findings that increase power in specific EEG frequency bands which can improve long-term cognitive performance.

Duration: 2011-2014

CogWatch

A system for continuous cognitive rehabilitation at home for patients with Apraxia and Action Disorganisation Syndrom after stroke, by exploiting intelligent tools and objects, portable and wearable devices and ambient systems. More info: www.cogwatch.eu

Duration: 2011-2014

INTERACTION

An unobtrusive and modular system for monitoring daily life activities and for training of upper and lower extremity motor function after stroke. More info: www.interaction4stroke.eu

Duration: 2011-2014

SCRIPT

Support for rehabilitation at home (after a stroke) with a system involving robotic devices. More info: scriptproject.eu

Duration: 2011-2014

StrokeBack

Remote rehabilitation after stroke via telemedicine. More info: www.strokeback.eu

Duration: 2011-2014

TBIcare

Traumatic brain injury (TBI) is the most common cause of permanent disability in people under the age of 40. Recent statistics show a steep increase in the incidence of TBIs, with an increase of 21% over the last years – threefold greater than the rate of increase in population. Yearly cost from TBI in Europe exceeds 100 billion euros.

The TBIcare project (mainly based in Finland, but also in the UK) aims to improve TBI diagnostics and treatment decisions for every individual patient with a software solution. Part of this tool are:

1) a methodology for finding efficient combinations of multi-modal biomarkers used in statistical models to objectively diagnose and assess a TBI patient,

2) a simulation model for objectively predicting outcome of the planned treatment of a TBI patient.

TBIcare covers part of the "Virtual Physiological Human" (VPH), which deals with biomedical modelling and simulation of the human body. More info: www.tbicare.eu

Duration: 2011-2014

1.5. Projects related to the lungs and/or kidneys

AirPROM

Creation of a validated airway model to predict disease progression and response to treatment. Also provided is a platform to translate these patient-specific tools, so as to pave the way to improved, personalised management of airway diseases.

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

Duration: 2011-2016

CHRONIOUS

An open, ubiquitous and adaptive chronic disease management platform for COPD (Chronic Obstructive Pulmonary Disease) and renal insufficiency. More info: www.chronious.eu

Duration: 2008-2012

NEPHRON+

NEPHRON+ (www.nephronplus.eu) aims at a next generation, integrated solution for personalized treatment and management of chronically ill, end-stage renal patients.

Duration: 2010-2014

Synergy-COPD

The Synergy-COPD project (www.synergy-copd.eu) aims to study the underlying mechanisms of Chronic Obstructive Pulmonary Disease (COPD) and seeks to produce a complete computer model of the mechanisms of COPD.

Synergy-COPD covers part of the "Virtual Physiological Human" (VPH), which deals with biomedical modelling and simulation of the human body.

Duration: 2011-2014

1.6. Projects related to cardiovascular disorders

ARTreat

ARTreat (www.artreat.org) targets at providing a patient-specific computational model of the cardiovascular system applied in a real-case simulator training and in two decision support tools to assist clinical cardiologists into providing personalized treatment selection and real-time, on- the-fly advice during invasive interventions. With the help of 20 European partners, the project experts created a 3D image reconstruction of the arteries and modelling of blood flow and plaque. Interview with the project coordinator: ec.europa.eu/digital-agenda

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

Duration: 2008-2013

Bravehealth

Patient centric approach for an integrated, adaptive, context aware remote diagnosis and management of cardiovascular diseases. More info: fastuk.org/research

Duration 2010-2014

euHeart

euHeart (www.euheart.eu) uses clinical data from various sources, such as medical imaging, measurements of blood flow, blood pressure and electrocardiography. Computer models integrate behaviour of the heart and aorta at molecular, cellular, tissue and organ level. These models also 'know' how cardiovascular diseases disturb the correct functioning of the heart at these levels.

The euHeart project covers part of the "Virtual Physiological Human" (VPH), which deals with biomedical modelling and simulation of the human body. It uses computer models of the diseased heart to select and personalise the most effective treatment for heart failure and heart rhythm disorders, but also coronary artery, and diseases of the aorta and valves. Doctors can use the simulation tools to predict the outcome of different types of therapy. The project was concluded in 2012, and is expected to be not only beneficial to patients, who get personalised and safe care, but also to society, thanks to lower medical costs for the associated therapies.

Duration: 2008-2012

HeartCycle

Telemonitoring system for heart patients, rehabilitation. More info: http://www.heartcycle.eu/

Duration: 2008-2013

iCARDEA

An Intelligent Platform for Personalized Remote Monitoring of the Cardiac Patients with Electronic Implant Devices. More info: www.srdc.com.tr/projects/icardea

Duration: 2010-2013

RT3S

RT3S (www.rt3s.eu) deals with vascular surgery. The project will develop a patient-specific, probabilistic model for peripheral stent fatigue-fracture, integrated in a real-time, computer-aided surgery planning application. RT3S will provide advice on fracture-risk and help to both trainee vascular surgeons and engineers in medical device companies.

Duration: 2011-2013

SCATh

SCATh (www.scath.net) improves patient safety during vascular surgery by contributing to less invasive surgical procedures. Article: "Researchers make cardiovascular system more visible and surgery safer"

Duration: 2010-2013

SensorART

Innovative telemedicine services supporting patients with chronic heart failure and healthcare professionals, allowing patients to be treated at home without renouncing to accessing high medical expertise. More info: www.sensorart.eu

Duration: 2010-2014

THROMBUS

Rupture risk of intracranial aneurysms (IA) has been studied at length. However, very little is known about the healing mechanism, namely the formation of a clot inside the cavity after insertion of a stent. The multiscale interaction between biological and hemodynamic processes is the central ingredient of this proposal.

The expected results: 1. A reliable validated numerical model of the intraaneurysmal thrombosis mechanisms based on biological experiments, 2. providing a virtual tool for clinicians to help in choosing the optimal stents based on relevant criteria issued from image processing and numerical simulation, 3.

providing stent manufacturers with strategies for optimal stent design, 4. providing clinicians and scientists with an interactive end-user tool coupled to a medical collaborative tool, allowing efficient exchange of information.

THROMBUS (www.thrombus-vph.eu) covers part of the "Virtual Physiological Human" (VPH), which deals with biomedical modelling and simulation of the human body.

Duration: 2011-2014

1.7. Projects related to diabetes

AP@home

The main goal of AP@home (www.apathome.eu) is to improve treatment of patients with diabetes at home. The researchers will build and evaluate an artificial pancreas (AP).

Duration: 2010-2014

Commodity12

COMMODITY12 (www.commodity12.eu) will build a platform for continuous monitoring of diabetes. The project will focus on the interaction between diabetes and cardiovascular diseases.

Duration: 2011-2014

EMPOWER

EMPOWER (www.empower-fp7.eu) supports the self-management of diabetes patients through a modular and standards-based Patient Empowerment Framework. It helps sufferers of diabetes with observing daily patterns of living and with managing personalised action plans.

Duration: 2012-2015

METABO

"Controlling Chronic Diseases related to Metabolic Disorders" - METABO focuses on the improvement of diabetes disease management by providing patients and medical doctors with a technological platform to help them handle and analyse all information related to diabetes treatment, integrating it with patients´ lifestyle data. More info: www.metabo-eu.org

Duration: 2008-2012

MISSION-T2D

A patient-specific model for the simulation and prediction of metabolic and inflammatory processes in the onset and progress of the Type 2 Diabetes (T2D); A diagnostic tool to estimate the risk of developing T2D and to predict its progression in response to possible therapies. More info: www.iac.rm.cnr.it

Duration: 2013-2016

MOSAIC

Development of mathematical models and algorithms that can enhance the current tools and standards for the diagnosis of T2DM, IGT, IFG and GDM; That can improve the characterization of patients suffering from those metabolic disorders and that can help evaluating the risk of developing T2DM and GDM and their related complications. More info: www.mosaicproject.eu

Duration: 2013-2016

REACTION

The REACTION project (www.reaction-project.eu) will develop an integrated approach to improve long term management of diabetes. Continuous blood glucose monitoring, clinical monitoring and intervention strategies, monitoring and predicting related disease indicators, complement on education on life style and, ultimately, automated closed-loop delivery of insulin will be automated.

Duration: 2010-2014

1.8. Projects related to cancer

CHIC

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

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

Duration: 2013-2017

DR THERAPAT

DR THERAPAT's aim is to create the Digital Radiation Therapy Patient platform. This platform will integrate available knowledge on tumour imaging, image analysis and interpretation, radiobiological models and radiation therapy planning into a coherent, reusable, multi-scale digital representation. More info: drtherapat.eu

Duration: 2013-2016

FUSIMO

Treating tumours with ultrasound. Goal is to develop a multi-level model for moving abdominal organs for use with FUS and Magnetic resonance-guided focused ultrasound surgery. More info: www.fusimo.eu

Duration: 2011-2013

GoSmart

Minimally Invasive Cancer Treatment. More info: www.gosmart-project.eu

Duration: 2013-2016

INTEGRATE

Cancer research, data sharing. More info: http://www.fp7-integrate.eu/index.php/project

Duration: 2011-2014

TUMOR

Implementing a EU cancer model/data repository, and developing/providing specific tools and methods for the collection, curation, validation and customization of existing cancer models both in the EU and the US.

This transatlantic collaboration (sharing models and exchanging related expertise as well as jointly developing the necessary interfaces and tools) helps to optimize cancer treatment. More info: tumor-project.eu

Duration: 2010-2013

VPH-PRISM

Goal: A multidisciplinary model of the breast to improve the treatment of breast cancer. This model will give insight in environment-tissue interactions and will be the 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) covers 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

Caretoy

A baby gym with mechatronic toys for infants to rehabilitate after a stroke or in case of other neurological conditions, the tool includes a smart system of telemonitoring. More info: www.caretoy.eu

Duration: 2011-2014

MD Paedigree

Worldwide advanced paediatric digital repository. In the fight against childhood obesity and other child diseases, this medical research project uses mathematical models to improve the treatment of children. Article: "EU awards 12 million euros to supercompute a healthier future for Europe's children" . Project website: bitem.hesge.ch

Duration: 2013-2017

MICHELANGELO

Wearable EEG solution and eye-tracking device to identify the stimuli that cause significant responses in the autistic child; signal processing algorithms enabling accurate characterization of brainwave anomalies and connectivity between different brain regions. More info: www.michelangelo-project.eu

Duration: 2011-2014

Sim-e-Child

Grid-enabled platform for large scale simulations in paediatric cardiology, providing a collaborative environment for constructing and validating multi-scale and personalized models of a growing heart and vessels. Article and project video: Digital simulation of a child's heart for surgery. More info: www.sim-e-child.org

Duration: 2010-2012

1.10. Projects related to rehabilitation in general

REWIRE

REWIRE (www.rewire-project.eu) develops, integrates and field tests 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.

Duration: 2011-2014

1.11. Projects related to specific body parts such as the liver, skeleton, ears, breasts and reproduction organs

d-LIVER

The d-LIVER project (www.d-liver.eu) focusses on patients having liver problems, such as chronic or acute liver failure. It uses ICT to address the clinical need for a bio-artificial liver (BAL) and it supports the remote monitoring of the patient's condition in his home environment through a system based on biosensors. d-LIVER will enable the patients to stay more independent whilst being under constant medical supervision.

The system is expected to save up to 250.000 lives annually worldwide, for example by preventing chronic liver failure and mortality of patients on the transplant waiting list.

Duration: 2011-2015

MXL

Joint replacement surgery is much more successful with the use of ICT and computational modelling. It also decreases the costs associated with subsequent joint revision surgeries and it improves the quality of life of patients following such procedures.

Article and video: "How ICT can improve joint replacement surgery". Project website: www.m-x-l.eu

Duration: 2010-2012

MySpine

Improving the treatment of lower back pain. Nowadays treatment and prognosis of spinal disc degeneration are still based on trial and error decisions from the surgeon, leading to numerous post treatment complications and eventual morbidity. MySpine is working on a rational engineering approach based on advanced ICT and predictive systems that are patient-specific.

The MySpine project (www.myspineproject.eu) covers part of the "Virtual Physiological Human" (VPH), which deals with biomedical modelling and simulation of the human body. Watch the video here.

Duration: 2011-2014

NMS Physiome

Development of predictive, personalised and integrative musculoskeletal medicine. The aim is to compose sub-models describing processes occurring at different temporal or dimensional scales, into one hyper-model that describes all systemic interactions across scales (body, organ, tissue, cell, and molecule). More info: www.nmsphysiome.eu

Duration: 2010-2013

PAEON

PAEON (paeon.di.uniroma1.it) deals with infertility. It develops patient-specific models of the menstrual cycle and external influences. It 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 covers part of the "Virtual Physiological Human" (VPH), which deals with biomedical modelling and simulation of the human body.

Duration: 2013-2016

PICTURE/PICASSO

PICTURE/PICASSO, also part of the VPH, is working on an ICT tool for modelling the outcome of women breast surgery. More info: www.vph-picture.eu

Duration: 2013-2016

SIFEM

This project helps research on hearing impairment and loss as well as ear surgery by improving personalised 3D ear visualisation. The SIFEM project (sifem.ubitech.eu) also covers part of the VPH.

Duration: 2013-2016

TLEMsafe

Improving safety and predictability of complex musculoskeletal surgery using a patient-specific navigation system.

Musculo-skeletal diseases and prosthetic revision operations are increasing rapidly with the aging population. Major surgical interventions are usually uncertain in outcome and have a high complication rate.

TLEMsafe aims to create a patient-specific surgical navigation system, based on innovative ICT tools, for training, pre-operative planning and execution of complex musculo-skeletal surgery. It aims to help the surgeon to safely reach the optimal functional result for the patient, and it will be a user-friendly training for surgeons.

More info: www.tlemsafe.eu.

Duration: 2010-2014

1.12. Projects related to gastroenterology

CD-MEDICS

Coeliac disease management, monitoring and diagnosis using biosensors and an integrated chip system. The project researchers also developed a free e-learning tool about the disease. More info: www.etseq.urv.es/cdmedics

Duration: 2008-2012

VIGOR++

This project aims to create a personalised gastrointestinal tract model, which facilitates accurate detection and grading of Crohn's disease. The benefits are early diagnosis, improved therapy planning and a better quality of life for patient.

The technology builds on multiscale information from patients, including laboratory, MRI, colonoscopy and microscopy (histopathology) data. A novel integration of existing models is employed to predict features on the molecular to cellular scale (microscopy/colonoscopy) from descriptive properties at the organ to patient scales (MRI/laboratory).

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

Duration: 2011-2014

1.13. Projects related to biomedical informatics

GRANATUM

The GRANATUM project (www.granatum.org) has developed a kind of "Facebook for biomedical researchers": an innovative social collaboration platform which connects biomedical researchers and provides access to information about cancer research and established pharmaceutical agents from 83 global data sources in an integrated, semantically interlinked manner. Sophisticated GRANATUM applications, all integrated in the GRANATUM Portal, facilitate a new collaborative and integrative approach in cancer chemoprevention research. Article: 'Biomedical Facebook': New web portal for drug discovery

Duration: 2011-2013

INBIOMEDvision

Promoting and monitoring biomedical informatics in Europe. More info: www.inbiomedvision.eu

Duration: 2011-2013

MSV

Interactive Visualisation of Multiscale Biomedical Data. Article: "Researchers take biomedical modelling a step further". More info: www.msv-project.eu

Duration: 2010-2012

1.14. Projects related to drugs and patient safety

EU-ADR

New drugs undergo extensive trials prior to authorisation. Once they are on the market, clinicians are responsible for recognising and reporting suspected side effects. However, a number of recent drug safety issues have shown that adverse side-effects may be detected too late, when millions of patients have already been exposed.

The EU-ADR project (www.eu-adr-project.com) exploited advanced ICT to develop new ways of using existing clinical and biomedical data sources to detect Adverse Drug Reactions (ADRs) as early as possible. The project used the anonymous electronic healthcare records of more than 30 million European citizens for their EU-ADR integrated platform. This platform has already been successfully used in other projects to assess the relationships between specific drugs classes and specific adverse events. It is at the heart of the EU-ADR Alliance, a European collaboration framework for running drug safety studies.

The Adverse Drug Response (ADR) system collects information on the use of a medicine in several European countries, as well as associated drug use and background rates of adverse drug events in the population. It then applies text mining, epidemiological and other computational techniques to assess and detect "signals".

Duration: 2008-2012

Ponte

Research into new drugs: The PONTE platform offers vital assistance to researchers across Europe throughout each stage of the process - from the moment a researcher generates an idea for a new drug, through to the selection of suitable volunteers for a trial. The project involved partners from seven EU member states (Italy, Belgium, Lithuania, Greece, Germany, UK and the Netherlands) and just came to an end with good results. The EU invested about 2,5 million euros in it.

A demo of the tools is available for testing through registration at the project website: www.ponte-project.eu.

Article. "PONTE makes research into new drugs easier and faster"

Duration: 2010-2013

preDICT

Computational technology for in silico assessment of the efficacy and safety of specific drugs. Part of the VPH-Community. More info: www.vph-predict.eu

Duration: 2008-2011

SAFROS

This project (www.safros.eu) focusses on patient safety in robotic surgery by defining safety metrics for surgical procedures and then developing methods that abide by safety requirements, formulated in terms of these metrics. Also training tools are included: Surgeons-to-be no longer have to practice on cadavers but can use "organ phantoms" instead. They may also practice with "virtual surgical simulators" and operating room monitoring systems. Article: "Robotic surgery made safer".

Duration: 2010-2013

TRANSFoRm

TRANSFoRm (www.transformproject.eu) aims to develop 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.

Duration of the project: 2010-2015

1.15. Projects related to personal health systems, preventive healthcare, chronic illnesses in general

eHealthMonitor

Development of a platform for individualized personal healthcare services, design of knowledge sharing methods which consider privacy protection requirements, and include all stakeholders in the decision making process. More info: www.ehealthmonitor.eu

Duration: 2011-2014

Mobiguide

The aim of the MobiGuide project (www.mobiguide-project.eu) is to develop an intelligent decision-support system for patients with chronic illnesses. The system accompanies the patients wherever they go and helps them and their care providers in managing their illness, whether they are at home, at work, out and about or travelling abroad on holiday or for business. The MobiGuide tool analyses bio signals from body-worn sensors and gives advice 24/7.

Duration: 2011-2015

MyHealth Avatar

Digital representation of patient health status. More info: www.myhealthavatar.eu

Duration: 2013-2016

p-Medicine

 p-Medicine ('Personalised Medicine') is working on an infrastructure that will facilitate the translation from current practice to personalised medicine. More info: www.p-medicine.eu

Duration: 2011-2015

1.16. General VPH projects: knowledge sharing & infrastructure

The "Virtual Physiological Human" (VPH) deals with biomedical modelling and simulation of the human body.

RICORDO

The RICORDO project (www.ricordo.eu) focused on the study and design of a multiscale ontological framework in support of the Virtual Physiological Human community to improve the interoperability amongst its Data and Modelling resources. To this end, it built directly upon the shared experiences and published recommendations emerging from the VPH Network of Excellence and ELIXIR initiatives.

Duration: 2010-2012

VPH NoE

Coordination of the activities within the VPH initiative, development of a 'VPH ToolKit' and associated infrastructural resources, VPH community building and support, development of career structures for those involved in VPH. More info: www.vph-noe.eu

Duration: 2008-2013

VPH-Share

http://www.vph-share.eu/ to be achieved: the infrastructure to (1) expose and share data and knowledge, (2) jointly develop multiscale models for the composition of new VPH workflows, (3) facilitate collaborations within the VPH community.

Duration: 2011-2015

2. Innovation: Personalised care and mobile health

These projects all focus on innovating and reforming our health care system. Keywords are: personal health systems, integrated care services, mobile health ('mHealth'), telemedicine and patient empowerment. Innovation projects are mainly funded by the ICT Policy Support Programme (ICT PSP) - Competitiveness & Innovation Programme (CIP).

2.1. Projects related to personalised health services, telemedicine and chronic disease management

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

eHealth Innovation

This thematic network wants to develop a European roadmap for sustained eHealth innovation. The focus is on personalised health services and a supportive eHealth infrastructure. Special emphasis will be put on chronic disease management for an ageing population.

The network involves 22 partners: 20 from 10 Member States and 2 from Switzerland representing a broad range of stakeholders: national and regional authorities, industry (ICT and pharma), national solution providers, researchers and users (health professionals, patients, healthcare providers and insurers/third party payers), European and national associations. More info: www.ehealth-innovation.eu

Duration: 2011-2013

CLEAR

This project proposed the implementation of a "Tele-rehabilitation service" in four Member States of the European Union (IT, ES, NL, PL). The ambition was to convert the project, after its completion, to a European platform for Tele-rehabilitation, and to contribute to the harmonization of eHealth services in the EU.

CLEAR was a fundamental step in helping doctors treating patients who seek health treatment in a comfortable environment, including home, under supervision of a specialized team. Click here for the final results. More info: www.habiliseurope.eu

Duration: 2008-2012

CommonWell

The CommonWell project (commonwell.eu) delivered integrated telecare and telehealth services among social care providers and hospitals on open platforms. The developed services were targeted mainly for patients suffering from chronic diseases and professionals dealing with these conditions. The system collects and makes sure health parameters are monitored and health care providers receive up-to-date information about patients. The main advantage with this ICT solution is that it prevents unnecessary admissions to hospitals and patients can go on living actively and independently.

The project implemented a platform which tested 4 different services in the pilot sites:
- Telecare integration for better emergency care;
- Managed hospital admission for care providers;

- Early intervention and telehealth for CODP patients;
- Integrated support for heart failure patients.

The project ended in early 2012 and integrated services are now in real-life operation at the four pilot sites established in Spain, Germany, England and the Netherlands.

Duration: 2008-2012

MOMENTUM

A European telemedicine "Blueprint" to mainstream telemedicine into daily practice and make it sustainable. More info: www.telemedicine-momentum.eu

Duration: 2012-2014

NEXES

The NEXES project (www.nexeshealth.eu) moved the focus from hospital care to primary and home care using ICT support. To this end, the project assessed deployment of 4 innovative Integrated Care Services (ICS) for *chronic patients* (respiratory, cardiac and type II diabetes mellitus) including well standardized patient-centred interventions: home-based wellness and exercise-training; enhanced care for frail patients; home hospitalization and early discharge and remote support to primary care for diagnosis and therapy.

The pilot was carried out in three different sites – Spain, Greece and Norway – where it developed insights into local structural and operational barriers which have to be overcome for further development of Integrated Care Services.

Specific achievements of the project have been:
- Development of Integrated Care Services for chronic patients with enhanced effectiveness and reduced costs;
- Consolidation of an open source modular Health Information Sharing Platform supporting organizational interoperability among actors and clinical decision support systems;
- An innovative business case;
- Strategies for scalability of the ICT services at regional level.

Duration: 2008-2012

RENEWING HEALTH

This project seeks to deliver telemedicine and PHS services to the many people suffering from Chronic Obstructive Pulmonary Diseases (COPD), diabetes and cardiovascular diseases.

The project implements large scale real-life pilots to validate and evaluate innovative patient-centred personal health systems and telemedicine services. The ultimate goal is to demonstrate what PHS and telemedicine services can deliver: more effective and efficient care, improving of the quality of life and enhancing patients' involvement and empowerment. http://www.renewinghealth.eu

Duration: 2010-2013

United4Health

The United4Health project aims to exploit and further deploy innovative telemedicine services implemented and trialled under the RENEWINGHEALTH project. All included service solutions adopt a patient centred approach, and involve the telemonitoring and the treatment of chronic patients with diabetes, COPD or CVD diseases. More info: ec.europa.eu

Duration: 2013-2015

2.2. Projects focused on mobile health ('mHealth') in general

DECIPHER PCP

DECIPHER PCP (www.decipherpcp.eu) deals with mHealth procurement. It is developing a mobile solution which enables secure cross-border access to existing patient healthcare portals. Article: "1st Decipher PCP market consultation day"

Duration: 2012-2016

MovingLife

MovingLife ("MObile eHealth for the VINdication of Global LIFEstyle change and disease management solutions") has delivered a set of roadmaps for mHealth ("mobile health"). These include technology and application research and innovation, implementation practice and policy support. The roadmaps are supposed to accelerate the establishment, acceptance and wide use of mHealth solutions at a global scale. More info: www.moving-life.eu

Duration: 2011-2013

2.3. Projects focused on patient empowerment in general

PALANTE

PALANTE (www.palante-project.eu) focusses on patient empowerment: Maximize the potential of ICT technologies in health care by validating pilots that address mechanisms involved in patient empowerment.

Currently there are 9 ongoing pilots: in Andalusia (Spain), Lombardy (Italy), Turkey, Norway, Austria, Czech Republic, Basque Country (Spain), France, Denmark. All of these pilots address the issue of patient's secure access to their own health information.

Duration: 2012-2015

SUSTAINS

To empower patients, SUSTAINS ("Support User Access to Information and Services") comprises a basket of services based on giving citizens online access to their Electronic Health Records (EHR). The services proposed have been distilled from the experience of regions which have already pioneered such access.

The regions of the SUSTAINS Consortium share their experiences and achievements to speed up the implementation of the SUSTAINS outcomes. More info: sustainsproject.eu

Duration: 2012-2014

3. Interoperability & Standardisation

Where health and wellbeing are concerned, the European Commission would like to see Europe and its health care providers connected. These projects are on their way to make interoperability for health and wellbeing in Europe a reality.

3.1. Projects related to eHealth services in general

epSOS

epSOS (www.epsos.eu) is short for European patient Smart Open Services. This large scale project provides:

- a Patient Summary: a digital summary of your medical status to make abroad care better and more efficient, especially helpful in an emergency situation.

- ePrescription: a digital drug prescription, so you can pick up your medication in a participating pharmacy abroad.

To make use of this service, please consult your doctor. More info in this [video](#).

Duration: 2008-2013

HITCH

In order to deliver safe and efficient care, vendors, users, patients and authorities need to agree on practical solutions to validate and assert the interoperability of eHealth systems by means of appropriate testing and labelling/certification schemes.

HITCH (Healthcare Interoperability Testing and Conformance Harmonisation) involved major stakeholders to define and agree on a roadmap to establish a foundation for the Interoperability Conformance Testing of information systems in the field of healthcare. The project evaluated existing approaches and proposed an achievable Interoperability Conformance Testing foundation deployable starting in 2011. More info: www.hitch-project.eu

Duration: 2010-2011

Antilope

The Antilope project (www.antilope-project.eu) is the follow-up of HITCH. It has set up a network of core European National organisations to achieve a common approach for testing and certification of eHealth solutions and services in Europe.

Duration: 2013-2015

3.2. Projects related to clinical research

Many interoperability projects focus on clinical research: By making Electronic Health Records (EHRs) and other clinical data interoperable, you can facilitate clinical research and hugely improve its outcome.

EURECA

The EURECA project (eurecaproject.eu) allows 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. avoid the current need for multiple data entry in the various clinical care, faster transfer of new research findings and guidelines to the clinical setting.

Duration: 2012-2015

Linked2Safety

Linked2Safety (www.linked2safety-project.eu) provides 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.

Duration: 2011-2014

GRANATUM

The GRANATUM project (www.granatum.org) has developed a kind of "Facebook for biomedical researchers": an innovative social collaboration platform which connects biomedical researchers and provides access to information about cancer research and established pharmaceutical agents from 83 global data sources in an integrated, semantically interlinked manner. Sophisticated GRANATUM applications, all integrated in the GRANATUM Portal, facilitate a new collaborative and integrative approach in cancer chemoprevention research. Article: 'Biomedical Facebook': New web portal for drug discovery

Duration: 2011-2013

Salus

The Salus project (www.salusproject.eu) aims to provide a standard-based interoperability framework of EHRs that will enable the execution of drug safety studies áfter the drugs have come out on the market.

Duration: 2012-2015

SemanticHealthNet

The purpose of this project is 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 want to help ensure that EHR systems are optimised for patient care, public health and clinical research across healthcare systems and institutions. More info: www.semantichealthnet.eu

Duration: 2011-2014

TRANSFoRm

TRANSFoRm (www.transformproject.eu) aims to develop 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.

Duration: 2010-2015

4. Funding tools

Research projects are primarily funded under the [7th Framework Programme](#) (FP7) 2007-2013 and innovation projects under the [CIP ICT Policy Support programme](#), a funding tool supporting Member States and stakeholders in the implementation and uptake of ICT by citizens, governments and businesses.

Other funding sources are available through the [EU Structural Funds](#), part of which is dedicated to the investment in ICT for public services, including eHealth.

[Horizon 2020](#) is the next EU Framework Programme for Research and Innovation to enter into force in 2014. It replaces the FP7 and CIP ICT programmes as a way of improving better coherence across different funding instruments. The final goal is to add value to the entire innovation cycle, from research, to product development and market deployment.