

European Technology Platforms Conference 2010

Workshop D1

Affordable, Personalised Health Services: ICT-enabled Solutions

Session 2, 11 May, 14h30 - 16h00

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European healthcare systems are facing increasing demands for better quality services, rising costs and the need for prolonged medical care for an ageing society. ICTs can enable a restructuring of health delivery systems towards a preventive and person-centred delivery model. Coordinated action by relevant ETPs, ideally through a common Strategic Research and Innovation Agenda, will ensure European leadership and will strengthen the competitiveness of the European eHealth industry.

1. Introduction

Healthcare is the largest economic sector in the EU employing 10% of its workforce. Healthcare expenditure in Europe reaches 8.5% of GDP on average, and is projected to grow to 16% by 2020¹. The main healthcare sector industries are pharmaceuticals, medical devices and eHealth, with significant market sizes of 205, 64 and 20 bn€ respectively. ICT contributes to the fast growth of eHealth and brings innovations to the two other industries too.

These industries are mostly represented by SMEs. The European eHealth industry has leading positions in areas such as regional health networks, electronic health records, medical imaging and telemedicine services based on personal health systems. To maintain European leadership in the fast-growing eHealth industry, coordinated action is needed.

The EC is supporting policy activities in order to remove barriers for successful market uptake of innovative products and services in this domain (e.g., the Communication on "Telemedicine for the benefit of patients, healthcare systems and society, Brussels, 4.11.2008, COM(2008)689 final").

In addition to this, EC research activities within FP7 aim to support a restructuring of health delivery systems in Europe towards a preventive and person-centred delivery model. This change is widely regarded as necessary by health authorities and other stakeholders in order to allow European healthcare systems to facilitate better collaboration among health specialists and provision of personalised care, with more coordinated approaches to medical and social care. ICT for health can enable the transformation of today's health systems to be patient-centred and empower individuals to be more involved in the management of their health.

Within FP7, research activities in ICT for Health address 3 main areas:

1. A **pan-European healthcare information infrastructure (infostructure)**, to help catalyse a single eHealth market in EU and to solve the defragmentation of the healthcare information services market. This infostructure can be based upon second generation electronic health records and patient services which provide patients with (mobile) access to their health records or other relevant health data for health status management, prevention of

¹ Price, Waterhouse, Coopers study, HealthCast 2020: Creating a Sustainable Future, 2006

complications and support to lifestyle choices. **Semantic and technical interoperability and EHR standards** are prerequisites.

2. **Personal Health Systems (PHS)**, which facilitate personalised care (through wearable, portable and implantable systems for disease prevention), early diagnosis and remote disease management, rehabilitation and treatment. The PHS market is emerging and has great potential. It is a major target to ensure the sustainability of European healthcare systems, prevention of diseases and an efficient management of chronic diseases, presently counting for more than 70% of health expenditure. For robust telemedicine services and market penetration, research is needed towards **precise, reliable, easy to use, standardised and certified systems**.

3. Prediction and prevention of diseases require the development of complete disease simulators and anatomical, physiological and genotype models of the human body. The **Virtual Physiological Human** concept – Digital Patient - is a complex computer modelling framework, which compares observations of an individual patient and relates them to a dataset of observations of others with similar symptoms and known conditions. This allows also prediction of patient specific response to a certain treatment and will also allow personalised medicine. This virtual model of the patient could also be part of the electronic health record. **Interoperability, standards for data exchange and meta-models, accessibility and usability of Grid technologies, high performance computing, multilevel modelling** are the main challenges and call for EU and international cooperation.

The **market perspectives** of these 3 research areas (infostructure, PHS and VPH) vary from short to medium to long term respectively. The eHealth infostructure connects with Personal Health Systems and with the "Digital Patient". Spin-off results of PHS and VPH activities, leading to innovative products or services should be implemented (plugged-in) gradually into the health infostructure.

The **CIP (Competitive and Innovation programme)** supports Member States and stakeholders in the implementation of EU-wide interoperable health services and in deploying the more mature research findings. Large scale pilots such as EpSOS aim at developing, testing, and validating interoperable patients' summaries and ePrescriptions services. The RENEWING HEALTH pilot aims at implementing large-scale real-life test beds for validation of innovative telemedicine services using a patient-centred approach.

A number of **European Technology Platforms (ETPs)** have recognised health care as an important application field. Some of them are either entirely focused on healthcare (e.g. IMI, Nanomedicine), while others have dedicated Working Groups on Health (e.g. NESSI, EPoSS, Photonics21) or identify healthcare as application domain in their SRAs (e.g. ARTEMIS, eMobility and ENIAC).

2. Objectives

Overall objective

The objective of the session is to highlight the potential for coordinated ETP action, ideally leading to a common Strategic Research and Innovation Agenda, to tackle more effectively common challenges in the area of eHealth, make better use of Europe's human and material resources and strengthen the competitiveness of the European eHealth industry. Market potential in the areas of infostructure, PHS and VPH should be identified. Objectives to be achieved in short, medium and long term should lead to specific research needs. Common priority setting by involved ETPs will foster research and innovation in these areas. A few

specific needs and proposed solutions with high societal impact could be worked out as showcases at large scale.

Sub objectives

- Identify existing or necessary foresight activities and trend analyses
- Draw up a list of main research and/or innovation lines to be pursued.
- Identify framework conditions that are important.
- Describe the potential for coordinated action.
- Draw up a list of possible steps forward.

3. Examples of deliverables

- Research and innovation lines to be pursued
- Potential for cooperation in research and innovation, including stakeholders

4. Speakers

- Chair : Michèle Thonnet (Ministère de la santé et des sports)
- *Setting the scene: Opportunities for eHealth : from a healthcare authority or ministry perspectives.* Leo Kliphuis ,LVG Netherlands
- *Research, innovation and deployment problems that need to be solved:* Nilo Saranummi (VTT)
- *Can we learn from the successes and failures of eHealth?* Tove Sørensen, Norwegian Centre for Telemedicine
- *The role of the ETPs respective technologies in developing possible solutions:*
 - Contribution from NESSI (by Jose Maria Cavanillas, Atos)
 - Contribution from EPOSS (by Jeroen Wals, Philips)
 - Contribution from Nanomedicine (by Nicolas Gouze)
 - Contribution from Emobility (by Luis Correia)
 - Contribution from Photonics 21 (by Karin Schütze)
 - Contribution from IMI (by Ann Martin)

5. Rapporteurs:

- Veli Stroetmann (Empirica)
- Rod Hose (University of Sheffield)

Discussion: required demand-side measures, potential for coordinated action at EU and national levels, potential for an agreement to develop a vision, potential for an agreement to develop a roadmap.

5. Background information

- **eHealth in Europa website**

http://ec.europa.eu/information_society/ehealth

[PHS2020 roadmap \(February 2009 \)](#)

[VPH roadmap \(2007\)](#)

- **Telemedicine communication : [Commission Communication COM/2008/0689 final](#)**

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions (COM/2008/0689 final) on **telemedicine** for the benefit of patients, healthcare systems and society

- **Interoperability Recommendation : [Commission Recommendation \(C\(2008\) 3282\)](#)**

Commission Recommendation of 2 July 2008 on cross-border interoperability of electronic health record systems (notified under document number C(2008) 3282). It provides guidelines for **interoperable** electronic health record systems, allowing for cross-border exchange of patient data within the Community so far as necessary for a legitimate medical or healthcare purpose.

- **[European Patients Smart Open Services project](#)**

The 2008-2011 European Patients Smart Open Services project (epSOS) [www.epsos.eu] and its related thematic network Calliope [www.calliope-network.eu], was co-financed by DG Info to develop and validate cross-border interoperability of patient summaries and ePrescription solutions.

01 May 2007

- **[2009 ICT Standardisation Work Programme.](#)**

The standardization mandate "403" to the European Standardization bodies (CEN, CENELEC and ETSI) aims at agreeing on or recommending standards relevant to eHealth.

- **[Communication from the Commission COM/2004/0356 final](#)**

Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions - **e-Health** - making healthcare better for European citizens: an action plan for a European e-Health Area {SEC(2004)539} /* COM/2004/0356 final */