



## PROJECT RESULTS

# Using tele-healthcare

To provide a better quality of life cost-effectively

**NUADU explored use of networked services to provide cost-effective tele-healthcare and wellness services. These could improve the quality of life for an increasingly elderly population and those suffering from major problems such as strokes. Results showed tele-monitoring with feedback provides highly efficient support, reducing demands on healthcare personnel.**

Overall levels of healthcare expenditure are rising faster than GDP in Europe. A rapidly aging population requires costly long-term care. Young people are increasingly inactive, overweight or obese, which is likely to result in higher proportions of disorders later in life. And chronic diseases such as diabetes, high blood pressure, congestive heart failure and dementia are a major factor, accounting for 75% of healthcare costs and 85% of deaths.

### Health and wellbeing

The main objective of NUADU was to see how innovations in electronics and information and communication technology (ICT)

could help improve medical care, while encouraging people to control successfully their own health and wellbeing.

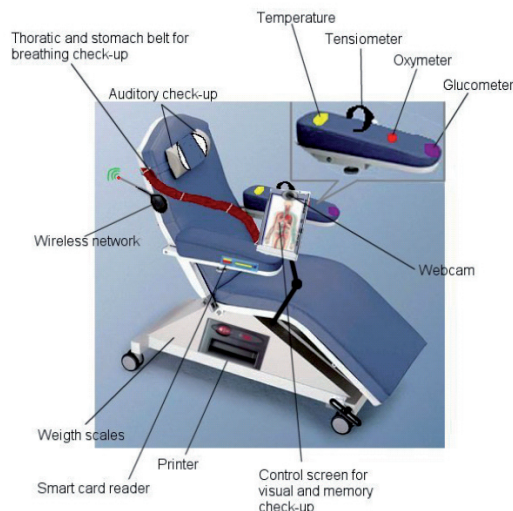
This required developments in three areas:

1. **Sensors** – it is necessary to know about the person being studied, either by using body sensors for heart rate or motion monitoring, or by visual sensors such as cameras;
2. **Services** – this could be a computer connected to a network which registers all the data measured and can provide feedback to the patient or to a central service; and, in between,
3. **Interconnections** – hubs, wireless links, ....

The challenge was to bring these technologies together – to see what existed, how they could be combined to provide a solution, and to identify what was missing and then carry out new developments to make things even better overall.

### Focus on real applications

NUADU focused on real applications with an emphasis not just on the technology but also on



A tele-medical armchair

## NUADU (ITEA 05003)

### Partners

Alcatel-Lucent  
 Atos Origin Italia  
 CEA/List  
 Coronaria  
 C2 Innovativ'Systems  
 FIOH  
 Firstbeat Technologies  
 HUT / HEMA  
 Institut National des  
 Télécommunications  
 IST  
 ITACA  
 MEDeTIC  
 Nokia  
 Pace  
 Philips  
 Polar Electro Oy  
 Streamvision  
 Telvent  
 Tuulia  
 Universidad Politécnica de  
 Madrid  
 Universidad Politécnica de  
 Valencia  
 Università del Sannio  
 VTT – Technical Research  
 Centre of Finland

### Countries involved

Finland  
 France  
 Italy  
 The Netherlands  
 Spain

### Start of the project

April 2006

### End of the project

December 2008



## PROJECT RESULTS

pilot sites and demonstrations. How were the technologies appreciated by users? Were they easy to use and user friendly?

Seven pilots covered:

- Preventative measures encouraging healthcare self-management by municipal workers in Espoo, Finland and self-management of nutrition, activity and weight by consumers in Valencia, Spain;
- Independent living for the handicapped and elderly in Kunheim, France and for stroke victims in Hoensbroek, Netherlands; and
- Effective management of chronic conditions by monitoring heart patients in Madrid, Spain using mobile terminals as they went about their daily lives.

Key impacts included cost-effective support for health – the more someone moves and receives feedback or support, the less the demands on doctors or hospital services.

A series of new products and service developments emerged, including:

- A *tele-medical armchair* enabling non-invasive medical tests such as temperature, blood pressure, hearing, breathing performance and memory;
- A small *wireless motion-sensor* that measures how a person is moving and provides feedback against personal targets such as calorie use; and
- Domestic *stroke-rehabilitation*

*services*, where a stroke victim with a limp for example can have a personalised exercise programme with feedback.

### Increasing support cost effectively

NUADU demonstrated clearly that technology can encourage people to adopt a healthier lifestyle and so prevent diseases. There is a strong demand for such applications in the healthcare sector as people are getting older and care centres are not well staffed. However the business model is complex: Who is to pay for these facilities: the user, the healthcare provider, the insurance company, the government?

Tele-healthcare allows effective support with much less staff time. It is interesting for healthcare providers and could have a major impact on cost reductions and quality of healthcare. People are also taking a greater interest in their own health. While traditional health services will have an increasing problem in providing sufficient cover, consumers appear more willing to invest themselves in a long healthy life with a high level of quality.

Several elements are being followed up. Philips and VTT started the InnoHub open innovation centre in Finland to work on innovations in tele-healthcare. And other partners are ready to develop and market more new products based on the knowledge acquired.

### Major project outcomes

#### Dissemination

- 29 publications
- 7 presentations/demonstrations at conferences, exhibitions and company days

#### Standardisation

Participation in Continua Health Alliance (<http://www.continuaalliance.org/>) dedicated to interoperable healthcare products and solutions

#### Spin-offs

InnoHub in Espoo, Finland: a Philips and VTT development centre

### ITEA 2 Office

High Tech Campus 69 - 3  
5656 AG Eindhoven  
The Netherlands  
Tel : +31 88 003 6136  
Fax : +31 88 003 6130  
Email : [itea2@itea2.org](mailto:itea2@itea2.org)  
Web : [www.itea2.org](http://www.itea2.org)

ITEA - Information Technology for European Advancement - is an eight-year strategic pan-European programme for pre-competitive research and development in embedded and distributed software. Our work has major impact on government, academia and business.

ITEA was established in 1999 as a EUREKA strategic cluster programme. We support coordinated national funding submissions, providing the link between those who provide finance, technology and software engineering. We issue annual Calls for Projects, evaluate projects, and help bring research partners together. We are a prominent player in European software development with some 10,000 person-years of R&D invested in the programme so far.

ITEA-labelled projects build crucial middleware and prepare standards, laying the foundations for the next generation of products, systems, appliances and services. Our projects are industry-driven initiatives, involving complementary R&D from at least two companies in two countries. Our programme is open to partners from large industrial companies, small and medium-sized enterprises (SMEs) as well as public research institutes and universities.

