ITEA INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT

PROJECT RESULTS

Using tele-healthcare
To provide a better quality of life cost-effectively
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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.
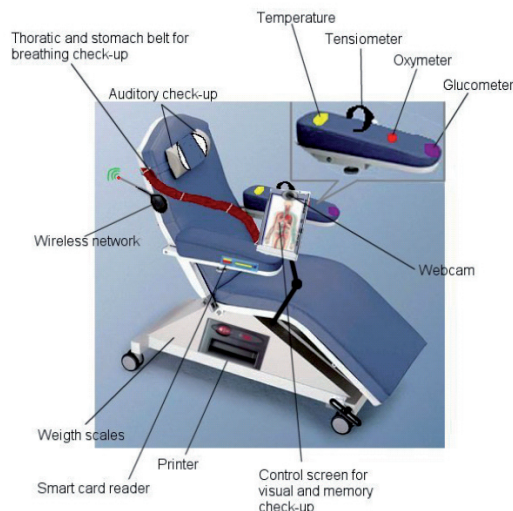
This required developments in three areas:
1. **Sensors** – it is necessary to know about the person being studied, either by using body sensors for heart rate or motion monitoring, or by visual sensors such as cameras;
2. **Services** – this could be a computer connected to a network which registers 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

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

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