Tele-healthcare can offer higher quality living

The NUADU project set out to explore the opportunities of using networked services to provide cost-effective and efficient healthcare and wellness services. Such applications 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 effective support with a lower demand on healthcare personnel. However, questions remain on how to fund such systems.

Overall levels of public and private healthcare expenditure are continuing to rise faster than GDP in the EU. This is not helped by a rapidly aging population requiring costly long-term care and an increasing tendency for young people to be inactive, overweight or obese which, if allowed to continue, is likely to result in higher proportions of disorders later in life.

Chronic diseases such as diabetes, high blood pressure, congestive heart failure and dementia are a major factor, accounting for 75% of all healthcare costs and 85% of all deaths.

Technology can be used to educate and stimulate people to adopt a healthier lifestyle and thus prevent such diseases. In addition, people are taking a greater interest in their own health. While traditional health services will have an increasing use of in-person services, new developments to make things even better overall.

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Applications envisaged were those that encouraged people to control successfully their own health andCLINIC, and those requiring support from these technologies:

1. Sensors – it is necessary to know something 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 that is measured and which can provide feedback to the patient or to a central service; and, in between:

- 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.

NUADU involved 25 partners, each with its own range of in-house technologies. There had already been a drive for co-operation between these companies based on the need for an end-to-end approach to health problems, the concerns of care providers and the increasing use of sensors and networked services in medical care.

FOCUS ON REAL APPLICATIONS

A strong software element meant the project fitted well into ITEA. In addition, NUADU focused on real applications. An important point was the emphasis not just on the technology but also on pilot sites and demonstrations as a key issue was how the technologies were appreciated by users – were they easy to use and user friendly.

Seven pilot sites allowed a direct confrontation between technology and user, and enabled optimisation. These pilots covered:

- Preventive measures encouraging healthcare self-management by municipal workers in Espoo, Finland and self-management of nutrition, activity and weight by consumers in Valencia, Spain;

- Enabling independent living for the handicapped and elderly in Kunheim, France and for stroke victims in Hoornbroek, Netherlands;

- Effective management of chronic conditions by monitoring of heart patients in Madrid, Spain using mobile terminals as they went about their daily lives.

Key impacts of the NUADU approach include more cost-effective support for health – if you are moving more and get feedback or support, you will make less demands on your doctor of hospital services. In addition, there is a large potential business market as indicated by the number of products already being introduced by Europe’s competitors.

A series of new product and service developments emerged, including

- A tele-medical armchair enabling a series of non-invasive medical tests such as temperature, blood pressure, hearing, breathing performance and memory, suitable for retirement homes and hospitals as well as luxury hotels;

- A small wireless motion-sensor that measures how a person is moving and provides feedback against personal targets such as calorie use;

- Domestic stroke-rehabilitation services, where a stroke victim with a limp for example can have a personalised exercise programme with feedback, and

- A Wellness Diary service on a mobile platform.

INCREASING SUPPORT COST EFFECTIVELY

There is a large demand for NUADU applications in the healthcare sector where people are getting older and care costs are not well offset. Tele-healthcare allows effective support with much less staff time involved.

Such an approach is particular interesting for healthcare providers and could have a major impact on cost reductions and quality of healthcare. Several studies point in this direction. A recent German hospital study concluded that by using tele-healthcare in a hospital environment, there is a significantly higher survival rate in chronic cases – 35% after 12 months and 20% after 20 months.