Towards Pervasive Health and Wellbeing Services

Niilo Saranummi
VTT Technical Research Centre of Finland, Pervasive Health Technologies
niilo.saranummi@vtt.fi

Abstract

Health services are today facing a number of interacting challenges. It is generally accepted that major, even radical, changes are required in health services to deliver better health outcomes at an affordable cost.

IT is a change driver both in the horizontal and vertical directions. Horizontally we see the emergence and extension of a generic IT infrastructure that eventually will allow anytime, anywhere access to information and knowledge and context aware decision making.

In the vertical direction IT enables a more effective and efficient health service environment. Standards and guidelines for an interoperable Electronic Patient Record (EPR) have been developed and are today endorsed by industry and governments (e.g. HL7, Dicom, IHE and Continua). Several countries are investing into a nation-wide “backbone” for health information and EPR exchange. The creation of the “backbone” allows separating data from processes. It’s the processes (services) where the biggest potential and challenge is for improving the effectiveness and efficiency of health services.

Another change driver is the expansion of (traditional) healthcare into a “health continuum” with the aim to engage and empower people to proactively manage their health and illness. This extends to the ageing people that can be assisted with tools and services to remain independent and integrated with the society.

The health continuum poses interesting challenges for device manufacturers and service providers, such as what are viable business models for health management. Additionally, there are technical challenges in developing sensors, systems and methods that allow meaningful acquisition of vital signs in uncontrolled environments. The devices and services should also be cheap, easy to use, self-motivating and connected to front and back end office services.

A third driver is the integration of medicine, life sciences, and engineering and physical sciences. The sequencing of the genome in the early 90’s was the start towards diagnostics and therapies that are tuned to the individual genomic profile. The concept used in this connection is personalized medicine.

These drivers point towards an application landscape that is characterized by “3 P’s”: Pervasive, Personal and Personalized. In the keynote I define what these three P’s contain and how they relate to each other.