

Health and Wellbeing

Mission of the Action Line: Reduce the demand for expensive healthcare by detecting small physical and mental health issues early and avoiding larger health problems by suitable lifestyle interventions.

Opportunities that EIT ICT Labs invests in: Global and societal trends, like the ageing population and growing consumer empowerment, demand an innovative and entrepreneurial ICT-enabled and -supported approach. The EU27 population's annual healthcare expenditure has risen to € 1,085 billion, a substantial share of which arises through secondary prevention, long-term care and home-care (€ 90 billion). These costs are increasing towards 2020, while the available budget and the number of caretakers are shrinking. The Action Line will act on this challenge by offering ICT-based solutions that respond to the consumer demand for self-monitoring (quantified-self), while these solutions will also reduce the costly demand for secondary prevention, cure and care for caretakers and insurers. Effectiveness is ensured by focusing on primary prevention areas where regulation barriers are less strict, which allows for the application of a more diverse set of ICT-enabled solutions and consequently encourages entrepreneurship.

The Challenges addressed by EIT ICT Labs: In order to realise these ambitions, EIT ICT Labs faces three key challenges: 1) ensure the availability of affordable unobtrusive vital signs sensors, to mature these primary prevention product service combinations and bring them to the market; 2) overcome the fragmentation of the European domestic market, which in healthcare is an even bigger challenge than in other sectors due to the cross-member state differences in legislation, healthcare financing and healthcare processes; and 3) leverage on the European lifestyle and wellbeing businesses that have competitive advantages opposed to their US counterparts with regards to their IPR portfolios, partnerships with traditional health care sector and ecosystems of innovative SMEs. However, European businesses need to increase their consumer-orientation compared to non-European competitors.

EIT ICT Labs achievements to date: The past achievements of the action line have been the founding of one start-up company (Mirror Mirror in Stockholm) and eight technology / knowledge transfer cases with established companies like Philips and Human Capital Care. The results of these cases included: 1) a CE-certified wristband (DT2) for the measurement of Skin Conductivity for experiments and concept validation in two business-oriented application areas (B2B and B2C); 2) a patch-based sensor device to measure heart rate; 3) a software package to capture context-based information; 4) the correlation and synchronization of the sensor data with the contextual information; 5) data analysis with respect to predefined goals and feedback to the end-user and health care professional; 6) a visualization package in a B2B context (Stress Management on a desktop system) and 7) B2C context (on a consumer smartphone in the WeCare context).

EIT ICT Labs strategy for 2014 – 2016: Open up the market of active healthy ageing by providing affordable unobtrusive ICT-enabled mental, physical and social wellbeing services. Focus on common or consumer-level devices. Leverage on EIT ICT Labs partner-owned "quantified self" technology, market access and connected business communities. Focus on two priorities with maximum societal and economic impact: early detection of physical (cardio) anomalies and early detection of mental anomalies.

Priority 1: Early detection and treatment of physical anomalies with a focus on cardio-vascular diseases (physical wellbeing)

Description: Cardiovascular disease is estimated to cost the European economy €196 B a year, 54% due to healthcare costs, 24% due to productivity losses and 22% due to the costs of informal care. Unhealthy lifestyle factors among individuals at risk of heart disease were found to cause 11-16% of the attributed costs. There is a need for mature product / service combinations intended to prevent, detect and monitor cardiac anomalies in an early stage and that will slow down physical decline. EIT ICT Labs partners own "quantified self" technology and have access to the world market amongst others via Philips and Siemens.

Strategic steps: Focus on avoidance of cardiac events via cardio fitness programmes, early detection services for preventive healthcare and cardiovascular monitoring solutions for early detection of anomalies; Mature solution out of research prototypes; Create awareness about potential of primary prevention (target group is one third of adult population with cardio vascular condition); Collection of long-term evidence data; Generate effectiveness evidence; Build a complete ("closed loop") B2B solution; Professional claim validation.

Results/deliverables 2016: Productisation and commercialisation of a B2C Cardio Fitness solution via start-ups and transfer of sensors, smart algorithms and applications to exiting companies; Evidence for effectiveness of solution; Introduction of at least three solutions (e.g. lifestyle / health, sports and high risk jobs).

Impact 2016: Societal Impact: Improved quality of life through early treatments and saving lives due to reduction of fatal strokes. Economic Impact: Reduced productivity loss and related (medical and informal) care costs due to less hospitalisation; EIT ICT Labs partners gain market share of the €500 Market in 2020.

Priority 2: Early detection and treatment of mental deterioration with a focus on stress and dementia (mental wellbeing)

Description: Mental decline (dementia) is a key challenge modern western societies are facing. The total estimated worldwide costs of dementia were \$604 B in 2010. In high-income countries, informal care (45%) and formal social care (40%) account for the majority of costs, while the proportionate contribution of direct medical costs (15%) is much lower. There is a need for product / service combinations for the early detection of cognitive decline by means of unobtrusive wearable sensor technology, aiming to slow down mental decline. EIT ICT Labs partners own “activity of daily life sensing” technology and have access to the world market amongst others via Philips and Nokia.

Strategic steps: Focus on avoiding burn-out and dementia care. Stress / burn-out: Productisation of matured and validated stress management solution via an “internal crowd funding” approach; pilot production (revenue €325K); stimulate B2B and B2C roll-out (stress is one of the top five diseases by 2020); collection of long-term evidence data. Dementia: Mature the 2013 solution; generate evidence for detection and prevention effectiveness; build complete (“closed loop”) detection solution and lifestyle advice system for B2B market; productisation and commercialisation for B2C market (target group one third of the population age 45-70); collection of long-term evidence data.

Results/deliverables 2016: Stress / burn-out: Solutions commercialized in B2C and B2B markets, initial annual revenue plan of €6M. Dementia: Solutions commercialized in B2C and B2B market. In total at least three solutions introduced, via start-ups and transfer of activity of daily life sensing, smart algorithms, (big) data mining and applications to existing companies.

Impact 2016: Societal Impact: Improve quality of life through early treatments and extend labour participation & independent living due to reduction of burnout & early development of dementia. Economic Impact: Lower healthcare costs due to less residential care; EIT ICT Labs partners gain market share of the €400 M market in 2020.

EIT ICT Labs overall impact in 2016:

Technology development/deployment: Six (three per target area) unobtrusive (ICT-based) lifestyle solutions in the primary prevention area developed to prevent or slow down the development of multiple chronic diseases (like stress, dementia, heart condition); Improved quality of life with the intention to extend the labour participation and the timeframe of independent living.

Initiation of start-ups/growth of SMEs: Three start-ups deployed the matured product / service combination resulting from the action lines activities (including the education related activities) and / or new business lines initiated in existing companies. Three SME’s grown by connecting them to the action line technologies and markets and offering them international expansion.

EU policy objectives: The Action Line directly addresses the EU 2020 aim of adding 2 more years to the labour participation and period of independent living through user-centric early detection and self-monitoring solutions. Support gained at the national and European level (governmental, insurance, occupational health and the like).

EU citizen and/or society at large: Improved Quality of Life of the European citizen through early detection of anomalies; New solutions reducing the need for treatment and therefore the use of the limited (financial and labour) resources.

Collaboration with other (European) initiatives: Ambient Assisted Living (AAL) programme and the (future) KIC Active and Healthy Ageing. The relationship will be structured during the next years.

Synergy with Horizon 2020: playing a key role in the solution space for the active Health and Ageing domain by offering ICT solutions within H2020 consortia and the KIC Active Living & Healthy aging.