



EIT ICT Labs

# Invest for Impact

ANNUAL REPORT  
2012



# EIT ICT LABS

## DRIVING EUROPEAN LEADERSHIP IN ICT INNOVATION FOR ECONOMIC GROWTH AND QUALITY OF LIFE

EIT ICT LABS SPONSORED START-UP "PANOSPECTIVE" AT SLUSH 2012  
[HTTP://WWW.YOUTUBE.COM/WATCH?V=IGRLCQXKCFG](http://www.youtube.com/watch?v=IGRLCQXKCFG)

Highlights 2012 .....	04
Foreword.....	05
CEO Statement.....	06
EIT ICT Labs' Strategy .....	08
EIT ICT Labs Berlin.....	11
EIT ICT Labs Eindhoven.....	12
EIT ICT Labs Helsinki.....	13
EIT ICT Labs Paris.....	14
EIT ICT Labs Stockholm.....	15
EIT ICT Labs Trento.....	16
Education, Research, and Business .....	17
Empowering ICT Top Talents for the Future.....	18
EIT ICT Labs Master School.....	19
Summer Programme.....	21
EIT ICT Labs Doctoral School.....	22
Bringing ICT Innovations to Life.....	23
Start-Ups & Spin-Offs, Success Stories.....	25
Success Stories: SOWISO.....	27
Success Stories: Innorange & Cliris.....	29
Success Stories: UbiCast.....	31
Driving European Leadership in ICT Innovation.....	33
Internet Technologies and Architecture.....	34
Privacy, Security & Trust .....	35
Health & Wellbeing.....	36
Computing in the Cloud.....	38
Digital Cities of the Future.....	40
Cyber-Physical Systems.....	41
Smart Energy Systems.....	42
Smart Spaces.....	44
Intelligent Mobility and Transport System.....	45
Networking Solutions for Future Media.....	46
Collaborations.....	48
Invest for Impact.....	50
Financial Review.....	52
Outlook 2013.....	54
Management Committee.....	56
About EIT ICT Labs.....	57
Annexe 1: EIT ICT Labs News & Events 2012.....	58
Annexe 2: Partners of EIT ICT Labs .....	62
Annexe 3: Glossary .....	64

## Content

### EIT ICT Labs Annual Report 2012

2012 has seen a vast number of activities and results, pursuing our goals to empower **ICT top talents** for the future and to bring **ICT innovations** to life **►06** This includes the setup of **higher education** institutions **►18** but also the creation of **new products, services, and companies** **►23** Investing in partnerships, **activities, and talents** created high impact in 2012 **►50**

## EIT ICT LABS 2012

- Launch of EIT ICT Labs Master School with first group of 94 master students
- Start of four Doctoral Training Centres in Budapest, Helsinki, Rennes, and Trento with 40 doctoral students
- EIT ICT Labs partnership grew from around 70 partners in 2011 to over 80 in 2012
- Italy became a new full Node with a Co-location Centre in Trento
- Helsinki Co-location Centre upgraded with its relocation to the new Open Innovation House
- London associate partnership made good progress towards becoming a full Node
- Budapest associate partner group was successful in the outreach towards Eastern Europe
- Solid relation built with key actors in Spain, leading to an associated partnership group in 2013
- Analysis of specific models for turning KIC assets into sustainable services
- Streamlined Business Plan generation process and implementation of a KPI system
- Design of portfolio management process, piloted with two Action Lines
- Participation as exhibitor at the largest ICT event in Europe, CeBIT in Hannover, which delivered high visibility
- Annual partner event at new Helsinki Co-location Centre with the motto "Innovation in Action"
- Health & Wellbeing Action Line delivered a robust certified stress management implementation and the creation of the start-up Mirror-Mirror
- Smart Energy Systems Action Line delivered state of the art micro-grid management and energy forecasting solutions
- Signing of a Memorandum of Collaboration with the Future Internet Public Private Partnership (FI-PPP)
- Intensified collaborations and discussions with other programmes at national and European level

### BRINGING ICT INNOVATIONS TO LIFE

The Business Development Accelerator supported a number of start-ups and spin-offs, such as SOWISO, Smart Signs, Cliris, UbiCast, RSens, SpazioDati, Dipos, Quuppa, Blaast, InnoRange, UXvibe, and Mosync.

### EMPOWERING ICT TOP TALENTS FOR THE FUTURE

The EIT ICT Labs Master School, Summer Schools, and EIT ICT Labs Doctoral School attracted students from all over the globe aiming at breeding entrepreneurial skills.

**560** Master School student applications for EIT branded programmes

**94** students registered in EIT branded programmes of the Master School

**59** doctoral student applications for EIT branded programmes

**40** doctoral students enrolled in EIT branded programmes

### DRIVING EUROPEAN LEADERSHIP IN ICT INNOVATION

Teams within the EIT ICT Labs European network collaborate and drive innovations projects – Action Lines – in various fields. Together with our partners we achieved

Incubation of **51** innovations

**26** knowledge adoption cases of KIC-generated knowledge

**23** knowledge transfer cases of KIC-generated knowledge

Creation of **12** new companies

Launch of **16** new products and services

## FOREWORD



I am pleased to present the second annual report of EIT ICT Labs which provides an overview of the work done in 2012. Where 2011 has been the year to set-up the organization and start the activities, 2012 has been a year of scaling up operations as investments for future impact.

**Henning Kagermann**

Chairman of the Executive Steering Board EIT ICT Labs

On January 1, 2012 Italy joined the EIT ICT Labs as a full Node with the Co-location Centre in Trento. The growth of our partnership together with the growth of our operations shows that EIT ICT Labs is starting to become recognized as an important ICT innovation player in the European landscape.

The results produced by EIT ICT Labs grow in terms of quantity, quality and impact. We are very proud of the start of our pan-European Master School in September with the first group of Master Students. In addition, we launched Doctoral Training Centres in four of our Co-location Centres. In Germany the Software Campus enrolled its first full cohort of students. Our partner community has expanded and our Co-location Centres are becoming vibrant meeting places where researchers, business developers, students, and teachers meet to jointly drive ICT innovations from our ecosystem. Our research activities become more focused on technology maturation and experimentation, while our business development activities are scaling up amongst others through the deployment of dedicated teams in our Co-location Centres. Our relationships with organisations at national and European level intensify

demonstrated by the signing in June of a Memorandum of Collaboration between the Future Internet PPP and EIT ICT Labs in the presence of Neelie Kroes, European Commission Vice-President for Digital Agenda, and Androulla Vassiliou, European Commissioner for Education, Culture, Multilingualism and Youth.

The year 2013 will be an important year for EIT ICT Labs given the decisions to be made on Horizon2020 and the EIT. During 2012 and 2013 EIT ICT Labs actively participates in the visits to many European capitals to disseminate the virtues and impact of EIT and its KICs. Via concrete examples of how EIT ICT Labs functions and by presenting tangible and impactful results, EIT ICT Labs, together with the EIT and the other KICs, demonstrates the value of the EIT as a powerful innovation factory for Europe.

2012 has been a very good year for EIT ICT Labs and serves as a strong motivation for our continuous efforts in 2013. I would like to thank our members, partners and individuals at all levels in our organization for their contributions and personal commitment.

## CEO STATEMENT

2012 has been a very productive year for EIT ICT Labs. Significant investments to achieve impact have been made in the Education, Research, and Business development domains with the goal to Empower ICT Top Talents for the Future and to Bring ICT Innovations to Life.

**Willem Jonker**  
CEO EIT ICT Labs

Our motto for 2012 has been "Invest for Impact". In 2011 it has been "Get organized, get recognized" and although organization improvement and recognition require continuous effort, we feel that the solid foundation for our organization has been deployed in 2011. Our focus in 2012 has been on making the right investments for achieving impact with our innovations, as in the end recognition is achieved via the quality and impact of the results.

The EIT ICT Labs partnership has again grown in several of our Nodes in 2012. Next to that on January 1 Italy became a new full Node with a Co-location Centre in Trento that was officially inaugurated on April 18 by – amongst others – Trentino president Lorenzo Dellai. The General Assembly appointed Felice Fulvio Faraci and Oliviero Stock as Executive Steering Board (ESB) members and Roberto Saracco was appointed as Node Director by the ESB.

**In Finland, our Co-location Centre has significantly been upgraded through its relocation to the new Open Innovation House.**

Moreover, our London associate partnership has made good progress towards becoming a full Node. In the context of our mission to serve Europe our Budapest associate partner group has been very active as a hub in the outreach towards Eastern Europe and a solid relation has been built with key actors in Spain which will lead to the establishment of an associated partnership group next year.

We have simplified the set-up of our Action Lines to make sure that they integrate the Education, Research, and Business (ERB) triangle

across their activities. The communication between Action Line Leaders and the Management Committee (MC) has been improved through Node Directors acting as MC owners of specific Action Lines and ERB Directors directly interacting with Action Line Leaders on the application of the Education, Research, and Business catalysts in the Action Lines.

During 2012 the MC has extensively worked together with an external consultancy company on mid-term and long-term sustainability of EIT ICT Labs by identifying potential sustainable business models. This has resulted in a first collection of potential revenue generation opportunities that will be both worked out in more detail and piloted on a small scale in 2013.



To further professionalise our organisation we have streamlined the Business Plan generation process and implemented progress and impact monitoring via our Key Performance Indicator (KPI) system. Our back office system is continuously improved and provided meanwhile full automated support for reporting. In addition, we did design a portfolio management process and piloted it with two Action Lines. Portfolio management will be used to balance our investments across and within Action Lines. Portfolio management will be rolled out in 2013.

With the arrival of our new Marketing and Communications (MarCom) Director Johanna Gavelfalk our team has gained a very experienced leader. The MarCom team is operational in all our Co-location Centres and supports both internal and external communication at a local and European level. The team members work closely with the Action Line Leaders to support the communication and dissemination of results. At the European level the team supports the external visibility of EIT ICT Labs to promote our recognition as a leading European ICT Innovation organization. An important event has been the EIT ICT Labs presence at the largest ICT event in Europe, CeBIT in Hannover March 5 till 10, which delivered high visibility to many stakeholders, politicians, and partners. Our annual partner event took place on October 25-26 in our new Co-location Centre in Helsinki with the motto Innovation in Action.

**In the area of education we have made significant progress with the start of the first group of 94 master students starting in the Master School programs in September, and the start of four Doctoral Training Centres in Budapest, Helsinki, Rennes, and Trento with 40 PhD students in total.**

After driving the set-up of the various education programmes Hannu Tenhunen decided it was time to hand over. We thank Hannu for all the work he has done and his commitment. Anders Flodström succeeds Hannu as our new Education Director and we welcome his vast experience.

The Action Lines are starting to deliver high impact results, as can be seen in the remainder of this annual report. To illustrate the functioning of EIT ICT Labs' catalyst-carrier model I will briefly touch on some results from two Action Lines:

In the Health & Wellbeing Action Line the activity directed to opening up the market of stress management delivered

impressive results. Platforms and algorithms from Philips Research and Aalto University were used as carriers. Living labs experiments, business modelling and technology transfer were applied, serving as catalysts.

**This resulted in the delivery of a robust certified stress management implementation and the creation of the start-up company Mirror-Mirror in Sweden with the Dutch Human Capital Care company as launching customer.**

In the Smart Energy Systems Action Line the Smart Grid Lab activity delivered state of the art micro-grid management and energy forecasting solutions that are now deployed in Stockholm Royal Seaport and Stadtwerke Saarlouis respectively. This resulted from applying catalysts such as test beds integration, technology experimentation and business modelling building upon existing test beds from Swedish, German and EU projects serving as carriers.

Our collaborations on national and European level have been intensified during 2012. Together with Trust in Digital Life we have received a coordination and support action grant from the EU and work together on community building and a number of concrete innovation cases. First results from the cooperation with Information Technology for European Advancement (ITEA) emerge from our Action Lines where ITEA projects act as carriers. And with the Future Internet PPP we signed a Memorandum of Collaboration on June 21 in the presence of Neelie Kroes, Vice-President of the European Commission responsible for the Digital Agenda, and Androulla Vassiliou, European Commissioner for Education, Culture, Multilingualism and Youth. Finally, we have started discussions with the European Investment Fund to explore opportunities for the creation of instruments that address the capital needs of start-ups and SMEs with serious growth ambitions.

It is very motivating to work in an environment with highly professional and very committed people at all levels: partner representatives, ESB members, MC members, Action Line Leaders, the Marketing and Communications team, and everybody participating in our activities.

**Without your relentless efforts this would not have been possible; a big thanks to all of you!**

# EIT ICT LABS' STRATEGY



Europe is often perceived to suffer from the so-called innovation paradox: even though we are strong in basic research, we lag behind other regions in turning the results of excellent research to practice in terms of new products and services, new companies and business, and new jobs in the European region.

**Martti Mäntylä**  
CSO EIT ICT Labs

The domain of Information and Communications Technologies (ICT) is in particular suspected to have this disease: after a glorious past where European innovators introduced mobile telephony to the world, Europe seems to have lost the lead to regions in other continents.

The top-level goal of EIT ICT Labs is to decisively turn this tide. The mission of EIT ICT Labs is to drive European leadership in ICT Innovation for economic growth and quality of life.

To achieve European leadership, we aim at boosting significantly the innovation pace of core European ICT players by exploiting their relative strengths in deploying ICT in various application domains, and also through the creation of fast growing ICT players in new markets and the breeding and deployment of entrepreneurial ICT talents by close interaction between the Education, Research, and Business actors.

The elements of our strategy bring the unique characteristics of EIT ICT Labs into play. In particular, a close and pragmatic linkage

between Education, Research, and Business will allow us to tap into new pools of entrepreneurial talents and give them opportunities to excel; our Co-location Centres will upgrade already strong local innovation ecosystems to a European network of ICT hot spots for rapid scaling-up of innovations; our industrial base gives us access to problem domains and markets where the European strengths can be exploited to the fullest both for economic impact and for bringing added value to people in Europe and beyond.

**The implementation of the strategy rests on two pillars. First, we aim at Bringing ICT Innovations to Life by catalysing open and collaborative ICT innovation strongly driven by perceived market opportunities.**

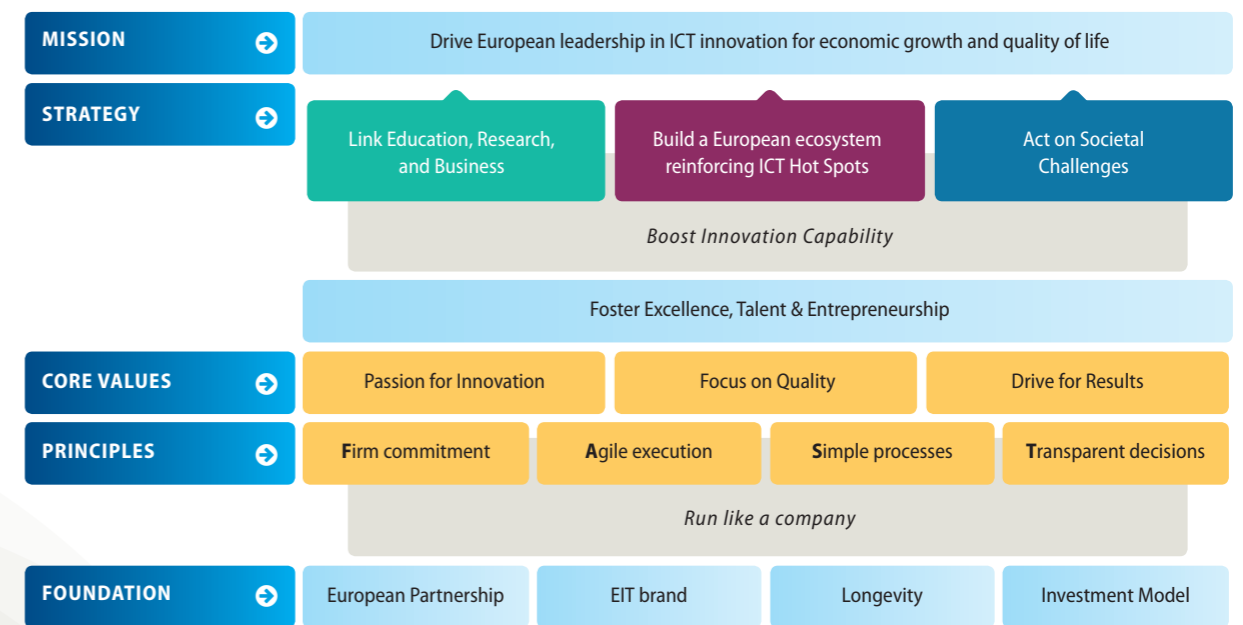
To boost the market and societal impact of ICT R&D results, we exploit the knowledge triangle by having students, researchers and business developers working together towards more impactful ICT innovations and by making education an integral part

of the innovation process for faster and better take-up of the ICT innovations by users and practitioners.

With this, we aim at rapid and impactful market introduction of ICT innovations and the creation of fast growing ICT companies.

**Second, we Empower ICT Talent for the Future by deploying the knowledge triangle to attract and breed entrepreneurial ICT top talents both with our own EIT labelled programmes and through outreach actions with wider European footprint.**

We link ICT students to advanced research and business environments to offer them opportunities to excel with tough real-world problems and to increase their innovation and business awareness. With this, we not only create more ICT entrepreneurs, but more generally facilitate the continuous skill renewal of the ICT workforce in Europe.





13

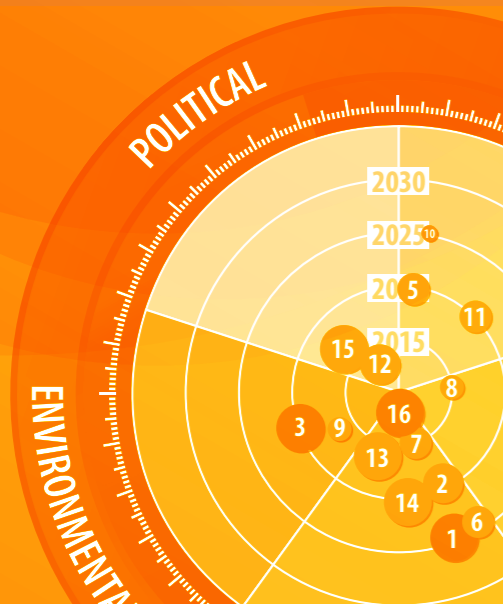
PUBLICATIONS  
IN 2012

## Innovation Radar

Even if predicting the future of ICT is impossible, important and early signals in the data available can often be detected. The Innovation Radar detects signals of change, disruption, business opportunities, and innovative developments.

Such detection is made possible via the employment of EIT ICT Labs' internal expert network. To foresee future business model adaptations it is vital to successfully invest for impact. Business intelligence and strategic information necessary for our partner companies and research organisations is presented and disseminated in the foresight reports of the Innovation Radar. A dynamic picture of what lies beyond state-of-the-art is maintained and all results are integrated into EIT ICT Labs' strategic activities. Selected results are being made publicly available, in order to provide impulses.

In 2012, the Innovation Radar output included a Foresight Study on Smart Energy Systems, seven Foresight Technical Reports and two White Papers related to Digital Cities and Network Solutions for Future Media, two so-called Trend Lab books, and an annual trend report



## The strategy rests on the unique selling propositions of EIT ICT Labs

- **Knowledge triangle integration:** EIT ICT Labs has the mandate to engage in all realms of the knowledge triangle – Education, Research, and Business – and to work across them for added value. We are the sole European institution with this mandate.
- **Complementarity, added value, and leverage:** The EIT grant is exclusively aimed at complementary actions executed on top of existing programmes and instruments for added value and high leverage. With this, EIT ICT Labs has the mandate to innovate its ways of working.
- **Co-location Centres and Nodes:** Our Nodes and Co-location Centres provide EIT ICT Labs the muscles for executing its agenda at European and national levels. They are also the focus points for mobility, interaction, and open innovation, aiming to become world-class innovation hotspots in their chosen foci.
- **Long-term vision:** EIT ICT Labs has been established with a 15-year vision. This longevity makes it possible to define and execute long-term strategies based on knowledge and trust accumulation, leading to a growing presence in the European innovation ecosystem.

## EIT ICT LABS BERLIN



In 2012 we brought Software Campus to operational excellence and received recognition on highest levels. Software Campus creates a new generation of top managers and entrepreneurs with an excellent IT background.

**Udo Bub**  
Node Director



The Berlin Node's Co-location Centre is functioning as a home-base for partners and activities within the EIT ICT Labs community and it forms a headquarters facility for start-up initiatives from the German and European communities.

During 2012, a growing number of meetings, workshops, conferences and participants have benefited from the Berlin facilities: a closing event called Integrated Research Agenda CPS by Acatech, a visit of European Commissioner Androulla Vassiliou, a two-day business model design lecture (a joint-workshop with the EIT KIC InnoEnergy), Patent Booster workshops, Smart Grid Security (an activity of the Smart Energy Systems Action Line), and many more. EIT ICT Labs Germany furthermore played an active role in activities such as the national IT-Summit and regular interexchange with European governmental representatives and other stakeholders.

The Berlin Node management coordinates and facilitates the Action Lines Smart Energy Systems and Internet Technologies and Architectures. Furthermore, close ties have been established with Intelligent Mobility & Transportation Systems, as well as Cyber-Physical Systems, two Action Lines based in Germany.

In order to increase their reach and thus exploit Europe's capabilities to a higher degree, EIT ICT Labs have created the Outreach Programme, aiming at promoting activities in regions where EIT ICT Labs is currently not present, especially among companies, organizations and start-ups. Together with the Helsinki Node we have accomplished a successful start of the programme and established eminent new contacts with innovation epicenter leaders and organizations in multiple Central Eastern European countries.

The most outstanding project of the Berlin Node is the national project Software Campus - an initiative by the German government,

industry and academic partners for the education of tomorrow's IT leaders to strengthen Germany as a location for leading edge technology innovation. It is aimed at excellent Master's and PhD students of information technology and young professionals from other disciplines with the relevant IT knowledge. In autumn 2012, the first cohort of almost 80 students started their Software Campus curriculum, in which they will develop innovative academic IT projects supported by the project's partners.

In order to fulfil our responsibilities in the European community, the Berlin Node further invests in

- high maintenance of direct communication lines to Node partners
- execution of transparent communication to other Nodes, partners and other collaborations to enrich EIT ICT Labs
- design of management concepts and processes
- the presentation and strengthening of the brand
- (local) activity planning and reporting and establish a strong information interexchange

During 2012, the first initiatives to showcase local start-ups have taken place. The Berlin Node strives to be a gateway for soft-landing and partnering innovation. It aims at being an important link between Business Program and EIT ICT Labs' community, emphasized by the fact that the Berlin Node is the home base of the Business Director of EIT ICT Labs.

In 2013, the Berlin Node will further strengthen the interaction between Nodes, and build the brand on the German and European level.

## EIT ICT LABS EINDHOVEN



The Eindhoven Node implements the knowledge triangle in the Benelux area. The Node and Co-location Centre is becoming a nucleation point for activities that integrate Education, Research, and Business, leading to a more pragmatic, result-driven and people-centric approach to innovation.

**Patrick Strating**  
Node Director

The Eindhoven partnership in EIT ICT Labs consists of Philips, Océ, 3TU Federation (TU Delft, TU Eindhoven and UTwente), Novay, CWI, and TNO. The Affiliate Partners are Holst Centre, University Utrecht, NXP, and High Tech NL. The Co-location Centre Eindhoven is situated at the High Tech Campus Eindhoven, a high-tech industrial R&D area. The Eindhoven Co-location Centre provides workplaces, meeting rooms and various video conferencing facilities suited for project meetings, informal meetings and event broadcasting. The Co-location Centre now houses 6 staff members and partner High Tech NL, as well as several visiting residents. It also hosted the start-up company Storioes for six months.

The Eindhoven Node co-organised 29 events that were related to Education, Research, and Business creation. Successful events included, e.g. the Health & Wellbeing call workshop, Health & Wellbeing Winter school, and a dedicated track in the Ambient Assisted Living Forum conference in Eindhoven, showing the increased focus on ICT for Health & Wellbeing.

In 2012, EIT ICT Labs Eindhoven has taken significant steps in the areas of:

- ➔ Strengthening the Co-location Centre on the High Tech Campus towards a multipurpose work and meeting facility
- ➔ Receiving the first group of international students attending the EIT ICT Labs Master School
- ➔ Developing a strong position by creating a ICT hotspot for Eindhoven in the thematic area of Health & Wellbeing
- ➔ Kicking-off and leading the activities for Professional Education
- ➔ Strengthening the activities in the business domain, such as setting up the cross-Node network of business developers.

The Co-location Centre also contributed to business creation through events like the Eindhoven Startup Weekend, the SME support programme in collaboration with partner High Tech NL, and the Patent Booster workshop. Through a Master School Meet & Greet, Christmas Breakfast and partner site visits, the EIT ICT Labs Master School students were familiarised with life on the High Tech Campus.

## EIT ICT LABS HELSINKI



The Helsinki Node operates under a consortium agreement and involves three Core Partners (Aalto University, Nokia and VTT) and 12 Affiliate Partners. All Core Partners increased the volume of their EIT ICT Labs activities during 2012, with Aalto being the largest partner and also responsible for organizing the Helsinki Node activities and running the Helsinki Co-location Centre (CLC).

The move of Helsinki CLC into the newly built Open Innovation House on the Otaniemi campus provided a significant boost to the Node's activities.

Open Innovation House is aimed at becoming one of the main hubs for Finnish ICT innovation hosting EIT ICT Labs, Nokia Research Center, AppCampus, and Helsinki Institute for Information Technology HIIT. The CLC office space has been shared by the Node staff, the CSO of EIT ICT Labs, personnel from Aalto University and VTT, Master and Doctoral School students, and eight start-ups.

The Helsinki Node has taken an active role in connecting different actors in the Otaniemi campus and Helsinki region, and facilitating collaboration between researchers, ICT companies, start-ups and students. Moreover, our Affiliate Partners in Turku, Tampere and Oulu have started to participate more actively in EIT ICT Labs activities.

The main results and highlights of the Helsinki Node in 2012 were:

- ➔ Identification of six focus areas for future activities of the Helsinki Node: Enabling Mobile Data Expansion, Smart Spaces and Ubiquitous Interaction, Green ICT for Ecological Sustainability, Services Based on Big Data, Games and Gamification, and ICT for Well-Being and Active Ageing
- ➔ Partner event in the Open Innovation House in October
- ➔ Open Innovation House speaker series launch with Linus Torvalds
- ➔ Kupla MultiTouch Wall at CeBIT and placed in all six EIT ICT Labs' CLCs
- ➔ Eight start-ups hosted in Helsinki CLC

- ➔ Collaboration with Slush start-up event
- ➔ Co-location and co-operation with the AppCampus programme
- ➔ Setting up of the Doctoral School and launching the Doctoral Training Centre

The outlook for 2013 is very positive considering the continuous growth of EIT ICT Labs activities, momentum of Helsinki CLC in the Open Innovation House, and the recognised position of the Helsinki Node as one of the key actors in Finland concerning major future programmes for renewing the ICT sector.

Special efforts are needed to increase the general external visibility and awareness of EIT ICT Labs in Finland, to increase the industry participation in EIT ICT Labs activities, and to boost local student recruitment to EIT ICT Labs' Master and Doctoral Schools.



The year 2012 was characterised by a significant growth for the Helsinki Node, both in terms of value added activities carried out by its partners, as well as in terms of the supporting facilities and activities run by the Helsinki Node staff.

**Marko Turpeinen**  
Node Director

## EIT ICT LABS PARIS



**Bruno Le Dantec**  
Node Director

The Paris Node, with its Co-location Centre (CLC) in downtown Paris, easily accessible by public transport, encompasses three Core Partners (Inria, UPMC, IMT) and a joint laboratory on Future Internet (LINCS). The CLC has become a vibrant hub where stakeholders gather, attracting new partners. It is now fully equipped with excellent ICT infrastructure, the team is well trained and always available to identify needs and to connect to existing or new partners. Partners have access to conference and video conferencing rooms, solutions for recording lectures and seminars, and a welcoming cafeteria.

**130 local meetings and events took place bringing together more than 2,000 participants.**

Major events included the Android DevCamp in February, EIT ICT Labs Entrepreneurial Research Day in May, Futur en Seine in June, Start-ups competition at Le Web Paris in December, and the visit of European Commissioner Androulla Vassiliou and French Minister for Higher Education and Research Geneviève Fioraso who met EIT's Knowledge and Innovation Communities (Climate KIC, EIT ICT Labs, and KIC InnoEnergy).



The Master School and its Innovation & Entrepreneurial (I&E) modules have been successfully implemented at the French participating universities, namely Internet Technology and Architecture (ITA) at the University Pierre et Marie Curie, Human Computer Interaction and Design (HCID) at the University Paris-Sud, and Distributed System and Services (Cloud Computing) at the University Rennes 1. I&E module courses are taught at the CLC and students are enjoying additional monthly sessions with external experts. Two Doctoral Training Centres have

been granted, one in Paris hosted at the CLC in the LINCS laboratory, the second one at the Rennes 1 University.

The LINCS laboratory is now closely linked with the Internet Technologies and Architecture Action Line and interactions with the European Commission FIRE unit are underway. Running the Digital Cities Action Line, the Paris Node has developed an effective strategy to increase and structure its activities. Regular contacts have been established with the Paris City Government for Digital Cities activities to deliver a wide range of innovative services. The Cloud Computing Action Line starts delivering structured results.

**Business activities at the CLC are now well structured, allowing four developers to run the defined Business Development Accelerator (BDA).**

In 2012, Technology Transfer has identified mature technologies, to be injected into the BDA. Four SMEs have been hosted at the CLC benefitting from connections to new customers, access to finance, and soft landing processes to penetrate other European markets with the support of Systematic (Paris region systems and ICT cluster), based at the CLC as well.

The European scale and long-term vision is a real asset for EIT ICT Labs and the Paris Node. Partners are confident that their investment will lead to effective results. We have implemented both the sub-granting schema and the Business Development Accelerator to integrate more SMEs. The CLC team, with the support of EIT ICT Labs' partners, has identified new partners to reinforce our activities and footprint. Large corporations such as Thales Services and Communication and Cassidian will join in 2013. Four SMEs (JCP Consult, Missions Publiques, Alfstore, and Milpix) will become Affiliated Partners. Furthermore, so will the Commissariat à l'Énergie Atomique (CEA), bringing with it its strong research department. With transfer activities it also reinforces our links with the Climate and the InnoEnergy KICs. This leverages the industrial Paris Node footprint and the launch of new innovative projects. Together with its satellites in Rennes and Sophia-Antipolis, the Paris Node has established a solid and visible presence in the three main ICT areas in France gathering a critical mass of academics, industries and SMEs.

## EIT ICT LABS STOCKHOLM



The Stockholm Node of EIT ICT Labs experienced significant positive development and consolidated its activities during 2012. ST Ericsson was welcomed as a new Core Partner to the Stockholm Node. The Co-location Centre became host not only to the Node and KIC staff, but also to the Master School Office.

**Gunnar Landgren**  
Node Director



The Co-location Centre in Stockholm is excellently located in the Electrum building in Kista Science City, the most innovative and ICT-dense area of all of Sweden. Most of the partners are located within the building or within a few minutes walking distance.

The proximity to KTH, SICS, Ericsson (HQ & Research), STING, KSC and SU has greatly facilitated the establishment of the Co-location Centre as the preferred meeting place for our partners and project activities.

The Co-location Centre was expanded and completely refurbished and provides meeting facilities for 70 people, two video conference rooms, a video café constantly connected to the other CLCs, office rooms and workspace for students, projects, and visitors.

The activities at the Co-location Centre increased dramatically in 2012, particularly as a result of the daily presence of the Master Students. More than 2,000 participants or visitors attended meetings and events at the Co-location Centre during the year and another 1,000 people attended outreach events co-organized with our partners in Kista.

Two major events at the Stockholm Co-location Centre during 2012 were the visit of European Commissioner Androulla Vassiliou in May and the EIT ICT Labs Master School Kick-Off in October.

Further outreach to political, industrial, research and entrepreneurial communities of the local innovation ecosystem was successfully achieved through a number of events in collaboration with our partners.

**During the year a bi-weekly informal lunch talk series was launched and much appreciated in addition to the continued collaboration with the local Center of Excellence "Wireless@KTH" in joint weekly "Friday seminars".**

Furthermore, the Node supported the development and first pilot of a short innovation awareness "Startup" course aimed at faculty and PhD students. The Co-location Centre also became a test area for a physical access solutions based on NFC technology by the Stockholm Node startup Telcred.

The Stockholm Node of EIT ICT Labs is organized as a non-profit association registered in Sweden, "EIT ICT Labs Stockholm". The Swedish Node association is managed as a decision body with its actual operations almost entirely carried out by its members, mainly KTH, on direct contract with EIT ICT Labs IVZW. Consequently, for cash flow and VAT reasons no money is transferred through EIT ICT Labs Stockholm to members.



## EIT ICT LABS TRENTO



The Trento Node joined EIT ICT Labs on January 1, excited to become part of this network of excellence and intended to contribute in a strong territorial perspective to the ensemble.

**Roberto Saracco**  
Node Director

The Trento Node is a legal entity that started in 2012 with 10 partners: Engineering, Telecom Italia and Trento RISE (comprising FBK and Trento University) as Core Partners, CRF (Fiat Research Centre) and ST Microelectronics as affiliate Industrial Partners and CNR (National Research Council), Politecnico of Milan, Politecnico of Turin, SSSUP (Scuola Superiore Sant'Anna) and University of Bologna as academic and research partners.

The Trento Co-location Centre is located on Povo Scientific and Technological campus, in the outskirts of Trento, less than an hour from Verona International airport in a Trentino region where investment in the field of Research & Development has allowed transforming the local economic system into a genuine "research and knowledge hub". Public investment in R&D totals 150 million euros a year, representing 1.2 per cent of GDP, which is considerably above the average in Italy.

The area is bristling with innovative companies. Our Co-location Centre is in a building connected by a bridge to Fondazione Bruno Kessler, the major research centre in Trentino and one of the most important in Italy. The venue also hosts our three Core Partners and provides spaces for our Affiliate Partners' activities.

In 2012 the Node employed a full time Director, a full time Co-location Centre Manager, a full time Marketing & Communications Manager, and a Projects Coordinator. In addition, we selected a Business Development team offering integral support for all the stages of the innovation chain.

We built the community of our partners by structuring the information flow and creating reference points to orchestrate ICT-related activities in Italy, which can be seen as co-funding to the EIT ICT Labs initiatives.

We extended our reach to the local territory through presentations and cooperation initiatives, for example with the Istituto Buonarroti, high technical school in ICT in Trento, with MUSE (Museum of Science), and MART (Museum of Modern Art) in Rovereto and with several SMEs active in the area. In all these cases the objective was to show in a concrete way what ICT can bring to them.

A major achievement, as a new Node, was the participation in the 2013 Call for Activities that saw a significant success with the involvement of all our partners, reaping more than 4 million euros of funding matched by almost 18 million euros co-invested by our partners.

**The Node is coaching the Intelligent Mobility and Transportation, and the Privacy, Security & Trust Action Lines.**

In 2013 we will be fully involved in activities in all Action Lines, including Master and Doctoral School. We will triple the space available to the Co-location Centre, creating mingling spaces and showcase spaces for on-going activities and results, as well as providing room for new co-located partners and start-ups.

In 2013 our Italian Partnership will grow to include FT Coop (a cluster of innovative SMEs based in Trentino), Poste Italiane, and Reply (a strong Italian and European ICT innovator).

## EDUCATION, RESEARCH, AND BUSINESS



### STRONG COLLABORATION TO SPEED UP ICT INNOVATION IN EUROPE

The EIT ICT Labs set of Education, Research, and Business tools – so-called catalysts – fosters and drives ICT innovation activities.

Students, researchers and teachers are equipped with skills for creativity, risk-taking and entrepreneurial capacity by catalysing and renewing the ICT educational programmes at Master's and PhD level.

Researchers and engineers participate in mobility programmes and get access to networks, meetings and state-of-the-art test beds and living labs. Entrepreneurs get coaching on how to bring ideas to market, access to finance and support in business and consumer development. Companies will benefit from the exchange of information and knowledge with researchers as well as access to top ICT students.

## EMPOWERING ICT TOP TALENTS FOR THE FUTURE

### Breeding Entrepreneurial Talent through Education

We live and work in a society where innovation drives the economy and where the innovation rate changes the knowledge and skills basis faster than educational cycles can handle. Access to the employees with the appropriate competencies for product development and production of products and services is key strategic issue for all companies and especially for companies working in or with the ICT sector. EIT and EIT ICT Labs were created to renew European engineering education towards one more built on skills and competencies. This should be a common effort and shared responsibility between companies, universities including students and policy makers.

With the ambition of EIT ICT Labs to renew European higher education in ICT by cross-fertilising cutting edge technical education with robust innovation and entrepreneurship education,

2012 turned out to be a very successful year with the launch of both the Doctoral School and the Master School. EIT ICT Labs educations enhance capacity for creativity, risk-taking and entrepreneurial efforts. Our education portfolio includes graduate programmes on research level - the Doctoral School, on advanced level - the Master School, and we are in the process to establish a virtual eLearning-based professional education targeting employees in companies, jobless STEM (science, technology, engineering, and mathematics) graduates and STEM students. Thus, we will take responsibility to educate the right competence for the digitisation transform of all society including European industry.

**Anders Flodström**  
Education Director

Strong industrial involvement in the educational programmes as well as substantial hands-on experience in innovation and entrepreneurship are important. The education programmes also have a European dimension with geographical mobility and frequent team-building activities. Resources and activities of research and business development character are made available to students through national Co-location Centres. Educations are carried out, as joint European efforts, by top European technical universities. The educational programmes provide EIT-labelled degrees with an EIT degree certificate.

The goal of the EIT ICT Labs Doctoral School is to develop the ICT Innovation concept where doctoral students are offered the opportunity to acquire a mind set for Innovation and Entrepreneurship (I&E). After graduation, these doctors will be (research) leaders who understand current and future business challenges, as well as the opportunities that these present to industry. To achieve this goal, the EIT ICT Labs Doctoral School organises an I&E education that complements the doctoral thesis work of each student.

The EIT ICT Labs Master School is a unique joint initiative of leading technical universities and business schools in Europe with additional mentoring and partnering from excellent European research organisations and leading business partners. "As a student in this Master's programme you will be prepared to face the challenges of your future career as well as the global challenges of the society." You will gain state of the art technical knowledge and learn the skills needed to drive your innovations to the market, all within a highly relevant technical major. The programme focuses strongly on the acquisition of competencies or transferable skills, especially in innovation and entrepreneurship.

**In 2013 EIT ICT Labs will further renew European higher education in ICT.**

An exciting new perspective will through outreach widen the EIT educational concepts to more universities beyond existing Nodes. In an exchange model students as individuals will benefit and also these universities must by structural reforms assume their responsibility to educate modern, innovative and entrepreneurial students.

## EIT ICT LABS MASTER SCHOOL

The EIT ICT Labs Master School is up and running and the first group of students are successfully in the mid of their studies. **Prof. Carl-Gustaf Jansson**  
Master School Director

The EIT ICT Labs Master School is a two-year programme (120 ECTS) at advanced level leading to a double Master's Degree including a mandatory Innovation & Entrepreneurship (I&E) Minor (30 ECTS) embedded in seven Technical Majors. Apart from the re-design of first rate technical masters programmes at top European Technical Universities, so that they can be integrated with a standardised Business Minor, the main added values of the Master School are:

- To provide all students with an industrial mentorship programme, guest lecturers from industry, and a three month industrial Internship
- To utilise EIT ICT Labs Co-location Centre resources for creating links to other EIT ICT Labs activities
- To facilitate interdisciplinary inter-Node team building amongst the students.

#### THE 2012 ADMISSION

Having signed agreements with 19 university partners as late as in November 2011, marketing and recruitment had a very late start with a very short application period as a consequence. The around 500 online applicants resulted in 200 complete eligible applications. Half of these were finally admitted after a thorough evaluation by seven selection committees.

**An additional local recruitment campaign gave us finally about 100 registered students in the autumn and a satisfactory share of 43% Europeans.**

#### THE TECHNICAL MAJORS

The admitted students were distributed on seven Technical Majors: Human Computer Interaction Design (HCID), Digital Media Technology (DMT), Service Design and Engineering (SDE), Distributed Systems and Services (DSS), Internet Technology and Architecture (ITA), Embedded Systems (ES), and Security and Privacy (S&P). The most popular orientation was ES, followed by HCID and S&P. The average number of entry point universities/Technical Major was two and students started to study at eight of our universities.

#### THE I&E MINOR

The first two modules of the I&E Minor – the Basics and Business Development Labs modules – have been implemented at all these eight universities. Regular meetings with the whole distributed I&E faculty secure the uniform learning outcomes for these modules. The I&E academic faculty is supported by the local innovation ecosystems at all Nodes.

**560**  
MASTER SCHOOL  
STUDENT  
APPLICATIONS

**Jenny Lundin**  
Master School Office



**Karin Högström**  
Master School Office

**Helena Törnqvist**  
Master School Office



term followed up by an evaluation in early spring as a prerequisite to the allocation of the exit point universities for year 2.

The 94 students of the 2012 group will have two two-week summer schools to choose from, one in Eindhoven and one in Trento. The mentorship and internship mechanisms will be in place in the summer of 2013.

#### PLANNING FOR YEAR 2 FOR THE 2012 GROUP OF STUDENTS

Three major components of the education are introduced in the second year:

1. *The I&E summer schools,*
2. *The industrial mentorships and*
3. *The internships in industry.*

#### PLANNING FOR THE 2013 GROUP OF STUDENTS

Based on the experience from 2011, recruitment and marketing efforts started much earlier in 2012. Apart from an improved website, search engine optimisations and various physical promotion materials, a local recruitment team has been established at each university with recruitment of European students as the primary goal. A new neutral online application portal has been developed, which supports the whole admission process. Two application periods secure the harvest of applications from both Europe and overseas.

The planning of these all started in 2012.

**94**  
STUDENTS REGISTERED IN MASTER SCHOOL

#### THE MASTER SCHOOL OFFICE

The central Master School Office is up and running. It has shown its ability to handle the central admission, but has also successfully taken care of the legal, economic and material issues for the first student group. As a complement to the

traditional forms of student counselling, a community portal was launched which promotes easy communication among students, teachers and university administrators. An administrative network with representatives from all participating universities has been established to secure smooth student services.

#### THE 2012 GROUP OF STUDENTS

The 2012 student group comes from more than 20 countries and has a bachelor background in computer science, electrical engineering, and computer engineering. 20% of the students are women. Apart from a suitable academic background, many students have a serious work experience and a clear entrepreneurial spirit. A majority reflects about their studies in a very mature fashion and seems to have made a very conscious choice of study.

#### THE 2012 KICK-OFF

On October 11-13 all new students were invited to Stockholm to participate in the first Master School kick-off together with 100 teachers and administrators. For three days the students worked with a simple business modelling task in groups, mixing representatives for different Technical Majors and universities. The I&E and technical faculty members served as business coaches and

technical consultants. The kick-off also served to strengthen the synergy among faculty members and administrators.

#### THE CO-LOCATION CENTRES

The Co-location Centres (CLCs) have already been proven to be valuable resources for the new students. At each EIT ICT Labs Node the newly arrived students were invited to a meet-and-greet event at the CLC. The resources of the CLCs are freely available for the students. This includes both material resources and other EIT ICT Labs related events taking place in the CLC. Through the always open video cafes and other video conference facilities, the students can communicate with fellow students at other Nodes they got to know during the kick-off.

#### THE SITE VISITS

In the autumn of 2012 the core planning team lead by the Director visited all eight universities that host students during the first year. The purpose was to ensure the quality of the first year implementations. All aspects of the studies including technical content, I&E content, administrative support, as well as material and social environment were screened. The purpose was also to get acquainted with a wider group of faculty contributing to the education.

#### MONITORING STUDY PERFORMANCE

The Master School is a highly integrated and tightly structured education with mandatory organizational as well as geographical mobility. A student cannot afford to lose the grip on the examinations. Apart from the normal local monitoring of progress, an early smoke detection procedure is carried out at the end of the first

## SUMMER PROGRAMME

*The Summer Programme is a mandatory part of the Innovation and Entrepreneurship (I&E) education of the EIT ICT Labs Master School.*

The I&E courses of the first year of the Master provide an introduction to business science, high-tech marketing, and business model generation. In the second year, students work for their ICT specialisation on a thesis project in a company, and conclude the thesis with a chapter on the business aspects related to the topic of the specialization thesis (the I&E thesis).

The Summer Programme is positioned between the first and second year and aims to establish a community of students among various universities and to create interaction with companies and start-ups. The programme is implemented through a small set of summer schools with a thematic and geographic spreading. Each summer school brings together students for two weeks to work in groups on a business development process in the context of a societal relevant thematic area. It

consists of lectures of academics and practitioners, project work, tutoring, field visits, a competition exercise with a price for the best-presented project, and socializing events.

During 2012, the main focus has been on planning the two summer schools for 2013. To fulfil their requirements the Master School students should choose either "Service Design for Quality of Life Summer School" in Trento or "Wellbeing Innovation Summer School" in Eindhoven. The planning efforts have included:

1. *Securing the learning outcomes of the I&E course module*
2. *Securing the thematic focus of each school*
3. *Defining a shared summer school format*
4. *Defining shared schemes for logistics and cost handling*

## EIT ICT LABS DOCTORAL SCHOOL

A Cooperation Agreement between EIT ICT Labs and selected partner universities has been concluded in 2012, which specifies the criteria for the EIT label of the Doctoral Degree, the operational procedures, the content of the unique and standardised Innovation and Entrepreneurship (I&E) education, and the requirements for our specific Doctoral Training Centres (DTC). This agreement was quickly signed by more than ten Higher Education Institutions (HEI) and more are expected in 2013. The criteria for receiving an EIT label of the doctoral exam are summarized as follows:

Once admitted in the Doctoral School (DS), a doctoral student has to

- ➔ Work on and successfully defend a regular PhD at the local university
- ➔ Attend and successfully pass three courses (Opportunity Recognition, Business Modelling, Growth and Harvest),
- ➔ Carry out a "business development experience" of six additional months in an I&E-friendly and inspiring place, e.g. with one of our start-ups or one of our business partners
- ➔ Spend six months working at another EIT ICT Labs Node

A central office, served by UPMC, was set up to manage and administer the doctoral students of this DS, to coordinate the I&E events (courses and summer schools), and to collect performance indicators. The I&E education is

The culmination of the year was the conclusion of a Cooperation Agreement between EIT ICT Labs and a set of our partner universities defining the "EIT ICT Labs Doctoral School on ICT Innovation".

**Christian Queinnec**  
Head of EIT ICT Labs Doctoral School

40

DOCTORAL STUDENTS IN 4 DOCTORAL TRAINING CENTRES

spread over the whole duration of the thesis that is, 3 to 5 years depending on the country. Inspirational seminars, named Raising I&E Awareness, were held in three Nodes and the first course (Opportunity Recognition) was held in Helsinki in the fall of 2012, gathering more than 35 doctoral students. This course will be given twice in 2013 to accommodate the expected growth in the number of doctoral students. The second course (Business Modelling) will be organised in 2013 for the first time.

Summer schools provide additional opportunities for networking along the whole I&E education. In 2012 one such summer school "Imagine the Future in ICT" was successfully organised in Paris with renowned ERC-prized speakers.

The DS is open for applications from all ICT-related doctoral students. In addition, EIT ICT Labs has developed the Doctoral Training Centre (DTC) concept to further promote focused business-academia collaboration in the context of our Co-location Centres and the local business ecosystem. A DTC links more intimately doctoral studies and industrial scientific challenges within the scope of EIT ICT Labs Action Lines. The DTCs will also be essential for implementation of the I&E education. Four DTCs were created during 2012 in Budapest, Helsinki, Rennes, and Trento.

By the end of 2012, the Doctoral School had admitted 40 doctoral students. Another 80 new doctoral students are expected to join in 2013. The first EIT ICT Labs I&E labelled doctoral degrees are expected to be granted in the 2014-2015 time-frame.

## BRINGING ICT INNOVATIONS TO LIFE

The target of EIT ICT Labs is to transform research results into business. **Klaus Beetz**  
Business Director



The business activities of EIT ICT Labs are directed to support this goal by a comprehensive end-to-end platform for catalysing new ventures, growing existing SMEs to European level and world-class scale, facilitating the renewal of established large industries, and support the commercialisation of technologies matured by the Action Lines of EIT ICT Labs.

In 2012 the key achievements included the setup and launch of the EIT ICT Labs Business Development Accelerator that integrates the various business catalysts to a comprehensive end-to-end service aimed to offer support at all stages of the innovation chain.

Besides the success stories, which describe some of our achievements in detail there are numerous other main accomplishments for this year, e.g. the Idea Challenge 2012 where more than 130 teams from all over Europe applied with their business ideas.

The finalists benefited from individual coaching and workshops by entrepreneurs Christian Göttisch and Andy Goldstein, as well as networking opportunities. Furthermore, the teams enjoyed entrepreneurial tips and tricks by jury members from Venture Stars, Zebra Mobil, Wayra, Wellington Partners, and Doughty Hanson & Co.

### EIT ICT LABS INNOVATION BOOSTER AIMS AT CREATING EUROPEAN SUCCESS STORIES.

- Technologies at different levels of maturity ➔
- Innovative SMEs ➔
- Innovative start-ups ➔
- Talents ➔

Business Development Accelerator





Technology Transfer has processed 16 technologies and supported the maturation towards commercialisation by recommending exploitation paths, hence accelerating ICT innovation.

The Action Lines of EIT ICT Labs were supported in several cases by business modelling exercises, e.g. for the Action Line Intelligent Mobility and Transportation Systems market research was done, value chains were analysed, and finally possible business models for the venture white\_c have been developed.

The EIT Innovation Radar in close collaboration with the domain experts produced foresight studies and trend reports helping to define the future evolution of the Action Lines, e.g. for city management and future energy distribution systems.

In 2013 the main goal will be to create a continuous innovation flow between different stakeholders in the innovation web, the Action Lines of EIT ICT Labs, the large companies, the start-ups and SMEs, and the research institutes by integrating them into innovation activities from the earliest stage of ideation till the stage of successful commercialisation. To achieve this, systematic and structured scouting for innovation opportunities in the huge partner network will be set up. The identified opportunities will be evaluated and the most promising further supported to become the next European success stories.

### START-UPS & SPIN-OFFS SUCCESS STORIES

A major goal of the Business Development Accelerator is supporting the commercialisation of mature technologies related to the EIT ICT Labs Action Lines. In its second operational year EIT ICT Labs continued with a full-time business developer per Node at work. These business developers form a team to collaborate on a pan-European level and connect the local eco-systems. The

team of business developers supports start-ups and SMEs to grow on a European level and beyond with, e.g.: developing a global strategy and business model for technologies developed in EIT ICT Labs Action Lines, supporting access to finance (e.g., to pitch their concept to venture capitalists), developing partnerships around related technologies, access to business expertise, and hands-on mentoring and coaching for European growth.

The main activity of the Business Development Accelerator team in 2012 was to give hands-on intensive support to typical EIT ICT Labs start-ups and SMEs. A set of selection criteria was developed that shows the EIT ICT Labs typicality of support in comparison to more local carrier projects. During the year more than 30 companies spread across all Nodes and the Action Lines received coaching and mentoring from the business developers.

The following success stories prove our ambitions to act as a funnel for both, innovation and economic growth.

## START-UPS & SPIN-OFFS SUCCESS STORIES

### We provide for soft landings


'To internationalise your business is really tough', Mr Alain le Loux MSc MBA says. He coaches IT companies from the Dutch Node of EIT ICT Labs. 'If you just try to find partners abroad, you hardly ever succeed. You need someone to open doors, a network to provide for a soft landing. That's what we aim to achieve.'

#### SOWISO



SOWISO in Amsterdam is a spin-off from the Technical University of Eindhoven. It has developed a software platform for e-learning in mathematics. 'Very, very advanced', Mr le Loux stresses. 'By analysing every step the pupils take to solve a mathematical problem, it shows them exactly where they went wrong. They really learn from it.'

In order to facilitate SOWISO to expand its business, Mr le Loux, with help from the Finnish Node of EIT ICT Labs, arranged that the owners were invited to pitch in Helsinki. With almost immediate result: 'Two companies, from Sweden and France, have become very interested. They want to sell the software platform, whereas SOWISO continues to invent modules for the Dutch market', Mr le Loux adds. In recent days, the company got into contact with a Belgian firm. It also took part in LeWeb Paris, in the early days of December 2012, as a start-up incubated by EIT ICT Labs.

 For more information go to [www.sowiso.nl](http://www.sowiso.nl)

#### SMART SIGNS



Another company, Smart Signs from Enschede, spin-off of the University of Twente, delivers indoor personal navigation solutions by means of digital signs, to guide visitors through large buildings, such as hospitals, airports and offices. 'Smart Signs has won several prizes, but it still lacks international success. I think it's about to time to change that', Mr le Loux says.

'We developed new business models for Smart Signs with the help of two German EIT ICT Labs colleagues. They are impressed by

the possibilities of the technology. Right now, they are looking for suitable projects in Munich to apply it. A major German high-tech company intends to decrease its office facilities as a way to cut costs. It considers to use the technology of Smart Signs to detect how many square meters will be needed if people share offices. That would mean an international breakthrough.'

 For more information go to [www.smartsigns.nl](http://www.smartsigns.nl)

### We identify new opportunities


'What we try to do, is to find a way to turn a good story into a great story, by creating synergy and cross-activity', Mr Florent Mérian remarks. As a business developer of the Institut Mines-Télécom, the leading group of engineering and business schools in France, he is closely involved with EIT ICT Labs.

#### CLIRIS



One of the companies Mr Mérian, in close cooperation with his colleague Mr Pierre Pleven, supports is Cliris, which, in his words, has revolutionized the behavioural analysis of shoppers by means of image processing. 'Their technology provides valuable information for retailers. It makes clear what gets the attention of their customers.'

On discussing Cliris' possibilities during the conferences of EIT ICT Labs, colleagues from the Helsinki Node mentioned InnoRange, founded in 2011 as the first start-up from the Helsinki Co-location Centre. Using a similar technology, it offers innovative solutions for People Flow Management. 'If you combine those technologies, you get a system for indoor geo-location to identify your customers and know where they are. That opens opportunities for creating new business.' EIT ICT Labs made both companies meet at CeBIT, the international IT fair. Now they're working together on a proof of concept, which has the interest of Alcatel-Lucent. 'Without EIT ICT Labs, both would still be focusing on local markets. We helped them to identify new opportunities.'

 For more information go to [www.clirisgroup.com](http://www.clirisgroup.com)

## UBICAST



Then there is UbiCast. It creates storage and streaming platforms for recording and sharing live presentations, such as lectures, conferences and other events, in an easy way. 'A very interesting company, which develops and uses really creative technology,' Mr Mériant says.

'It decided itself that it wanted to expand its business by going abroad for it's already the leading actor in France. That's why they came to us by themselves. We helped them to find partners, distributors and resellers and made a market study.'

Like Cliris, UbiCast also was invited to take part in CeBIT to meet relevant partners. Now it has an office in the Co-location Centre of the Berlin Node. 'We had them equip this centre, so they can invite customers there to demonstrate the opportunities and find new clients and partners. They're ready for take-off, to find clients and detect potential partners. Again, this wouldn't have been possible without EIT ICT Labs.'

 For more information go to [www.ubicast.eu](http://www.ubicast.eu)

## Companies that want to conquer the world

The Trento RISE Association is the youngest partner in EIT ICT Labs. It is also the first founding partner of the Italian Node. As business developer Mr Paolo Lombardi says: 'We help companies that want to conquer the world to get out of their comfort zones. They have very interesting projects that can make the difference.'


## RSSENS



RSens, which has developed a sensor to detect the radioactive radon gas, is well on its way. 'It's ten times less expensive than existing devices,' Mr Lombardi explains. 'Although still in an early

stage, the company has got important contracts from some major environmental companies in Italy.'

Yet, the opportunities are even bigger. Radon is a heavy gas that heaps up in the corners of houses and other buildings. If the sensors of RSens were being used in air-conditioner pumps, the gas could be detected immediately. That would improve the quality of life of the users. 'EIT ICT Labs has offered the opportunity to connect RSens with companies in Finland, France and Germany,' Mr Lombardi explains. And, talking about added value, he continues, 'I got a call from my colleague Pierre Pleven from Paris. 'Paolo, didn't you mention that sensor? Yes? Fantastic! We need it!' Within three days they had everything they needed.'

 For more information go to [www.rsens.it](http://www.rsens.it)

## SPAZIODATI



Although there is not yet a success story, Mr Lombardi also mentions SpazioDati. 'It has developed a system which links clusters of data out of different repositories, both proprietary and open. It has great potential, as the data market is pretty hot at the moment, especially the API market.'

That's why EIT ICT Labs invited SpazioDati to present itself at LeWeb in Paris, December 4-6. 'The place to be,' Mr Lombardi says, 'as it offers plenty of opportunity to get in touch with investors and other companies.'

Therefore, SpazioDati is an example of a really young start-up ready for take-off. 'It's been formed under my eyes. They've gathered over 400,000 euros from public investors in their first year. That's pretty good. They're ready; they've just sold an analyser. I'm convinced that the contacts from EIT ICT Labs will help them to expand abroad.'

 For more information go to <http://spaziodati.eu>

## SUCCESS STORIES

# SOWISO



Providing a unique e-learning platform for the exact sciences

## A HIGH-TECH COMPANY

SOWISO is a young high-tech ICT company, founded in 2010 as a spin-off from the Technical University of Eindhoven. Their clients are large educational institutions, such as universities, colleges and publishers. Innovation is lagging behind in some educational sectors. With SOWISO's new platform this gap can be filled with ease; it's a tool to create smart interactive digital content for the next generation of students. SOWISO is based in Amsterdam. In the Netherlands many universities already use the software in their day-to-day education. A large international publisher has chosen SOWISO as their learning technology provider. More international clients are expected to follow suit.

## AN E-LEARNING PLATFORM

Most existing e-learning software is limited to multiple-choice questions and binary right or wrong feedback. The SOWISO software is more advanced: it is able to interpret and analyse open answers in the form of calculations or algebraic formulas. SOWISO's main product is an online e-learning platform, which enables clients to create, manage and publish their own interactive e-learning courses. Moreover, it gives feedback on the answers and is not only able to see that a mistake has been made, but also what that mistake is. It will then provide the user with adequate feedback, just like a teacher would have done. The platform also contains an authoring tool, so teachers and authors can create rich type of exercises, without having to know any programming language.

 For more information go to [www.sowiso.nl](http://www.sowiso.nl)

## TURN-KEY SOLUTION FOR THE EDUCATION SECTOR

Schools, universities and publishers often struggle to make the transition from the analogue to the digital world. However, the infrastructure they use is becoming more available, via Wi-Fi availability, smartboard and laptop or tablet classes. Teachers and students are looking for rich interactive learning material, which is not yet available in the exact sciences. SOWISO offers an e-learning platform as a turn-key solution for large education institutions to create their next generation of e-learning.

## EIT ICT LABS ADDED VALUE

During their start-up phase SOWISO received strategic coaching to determine the best business model for their product. Further, EIT ICT Labs acted as a facilitator for meeting potential clients throughout Europe. EIT ICT Labs' network consisting of many partner universities provided SOWISO easier access for business development. EIT ICT Labs provided SOWISO with stages and showrooms at various events where opportunities for sharing thoughts on e-learning in general and the SOWISO software in specific have been created. The mission of SOWISO is to provide state-of-the-art e-learning tools in the exact sciences for the European educational sector, thus sharing EIT ICT Labs' vision of driving ICT innovation and knowledge in Europe.



## Bringing higher value to ideas and technologies

'EIT ICT Labs is a lot more than its success stories, important though they are', says Mr Gilbert Harrus. He is the chairman of the EIT ICT Labs Technology Transfer Coaching & Advisory Committee, which assesses the early stage technologies brought to it, to help to define the proper markets and partners.

'In general, researchers do their work for the sake of research', Mr Harrus starts. 'Most of them know that it would be better, if their idea would be applied for business, but they don't know where to start. The Committee, formed by experts from different Nodes, reviews the maturity of their idea and explores their potential value propositions and how it could be brought to market. In essence, the Committee is a collective intelligence, consisting of many brains, with different points of view and their own connections with and knowledge of business.'

He mentions the case of Dipos, which aspires to combine various technologies for indoor positioning. 'Their idea has been brought to us by Mr Pierre Pleven, one of our business developers in Paris. They were looking for manufacturing partners, but we recommended to connect also with other partners, to reach for a higher segment in the chain', Mr Harrus says. 'In general, we don't discuss the technology itself, we just point at challenges and risks, in engineering, intellectual property, delivery chain or product development, to help bringing their idea to maturity. Or we point out an opportunity to explore, as in the case of Dipos.'

To facilitate the analysis the Committee has to make, Mr Harrus has written down the process to be followed. 'To get started or bootstrapped in a process of technology transfer, researchers often need to step back from their projects at first and look at the many possibilities.' For this, the Committee uses different templates. The main one is a questionnaire, which the researchers have to fill out. 'It helps them to create the right mindset and to focus, and to reflect on their actions and structure their thoughts.'

In 2012, the Committee analysed a total of 17 cases. 'Respondents to a satisfaction survey have shown 94% positive feedback and satisfaction. More than 88% declare that we have brought high or very high value.'

## For doing business, you have to cross the street


Mr Alessandro Ligabo, business developer at Trento University, is quite open from the start: 'I just have one success story, which nevertheless shows what EIT ICT Labs can do to establish business. It connects companies that wouldn't have found each other so easily if it had to be done in another way.'



The story starts in Helsinki, where the Italian start-up Latte+ founded by Lorenzo Modena visited Slush in Helsinki, an event which aims to connect Northern European and Russian start-ups with investors. They were there on invitation of EIT ICT Labs and met the CEO of Quuppa, a Finnish spin-off from Nokia's research laboratories. 'Their technology is mostly related to indoor tracking and positioning', Mr Ligabo says. 'Mr Modena is a serial entrepreneur, who is launching his second start-up Libon, operating on the chronosystem market. It was a perfect match, as Mr Modena decided to bring Quuppa's technology to Italy, and set the base for developing a new chronosystem for sports. Both companies are doing different things, but they complement each other.'

The chronosystems developed by Libon are based on the use of cell phones but can be greatly empowered by Quuppa's unique technology. 'You could say that it is using technology of 2013 to do something already in existence, but it lowers the costs by factor 10. And that might prove to be very interesting, even more as Mr Modena continues to develop this technology still further, which could lead to other products and services. Besides, his company just started.'

According to Mr Ligabo, there wouldn't have been a new company without EIT ICT Labs. 'The meeting of Mr Modena and the people of Quuppa has been of fundamental importance. And that's how it works: to put a plan into business, you have to meet each other. We're no Silicon Valley where everyone is close. A lot still has to be done, but it all starts by crossing the street; in Europe the distances are larger, but we can trigger a huge potential if we tighten the network by getting people in touch. And that's what has happened here.'

 For more information go to [www.lattepl.us](http://www.lattepl.us),  
[www.quuppa.com](http://www.quuppa.com), [www.facebook.com/libon.st](http://www.facebook.com/libon.st)

## SUCCESS STORIES

# INNORANGE & CLIRIS



## Integrated Technology Transfer and Business Development

### INNOVATION GAP BETWEEN RESEARCH AND BUSINESS

There's a number of excellent higher education institutions, research centres and businesses, but what is lacking in many cases is the collaboration between the three corners of the knowledge triangle Education, Research, and Business. The fragmentation leads to dispersed innovation efforts, and the innovation gap needs to be bridged. Research organisations generally experience a gap between their research activities and potential commercialisation, so they need tools and processes to help bridge the gap. Many academic researchers and potential innovators lack knowledge on how to develop their project into a valuable innovation, whether as a start-up candidate or to be handed-off to a small, medium or large company.

### TRANSFORMING INNOVATION INTO BUSINESS SUCCESS THROUGH EIT ICT LABS' TECHNOLOGY TRANSFER AND BUSINESS DEVELOPMENT ACCELERATOR

One of the first cases of Technology Transfer was proposed by Core Partner Institut Mines-Télécom. The technology is addressing an indoor extension of the GNSS positioning. Simulations of such a technology needed to be validated through real life experiments. EIT ICT Labs organised such tests with a real life application, namely Customer Analytics for the Retail Market, in relationship with the SMEs InnoRange (Finland) and Cliris (France). The expected result is a speed-up of the validation of the technology.

 For more information go to [www.innorange.fi](http://www.innorange.fi) / [www.clirisgroup.com](http://www.clirisgroup.com)

This means a shorter technology and knowledge transfer cycle time, followed by the creation of a spin-off by Institut Mines-Télécom. EIT ICT Labs Business Developers detected potential synergies between Cliris and InnoRange, and an opportunity to build a common R&D project. Lobbying has been done, in order to create industrial interest and the two companies were given access to indoor geo-location technology.

### OUR MAIN GOAL IS TO INCREASE THE FLOW OF TECHNOLOGIES FROM ACADEMIA TO COMPANIES, HENCE ACCELERATING ICT INNOVATION.

The French company Cliris revolutionises behavioural analysis of "shoppers" and is a benchmark for measuring performance by image processing. The Cliris solution automatically captures human behaviours on camera in real time. It identifies the customer flows, the age groups, the gender or the customer navigation inside the store. The captured images are instantaneously translated in numerical data, and no video is registered. The Finnish company InnoRange offers innovative solutions for People Flow Management needs in physical spaces. The InnoRange solution gives real-time information on how different services (shopping malls, air and seaports, theme parks, and trade fair centres) are used. The solution is built on sensor networks that observes movement of mobile devices on the area, and does not require any installed applications.



## A match made in heaven

'Sometimes local companies have very good ideas or propositions. When we discuss them with other Nodes from EIT ICT Labs, we get immediate feedback. And that opens doors', Mr Antti Aarnio, business developer at Aalto University, has experienced more than once. 'The connection with other Nodes is essential to find partners and customers.'

### BLAAST



'A match made in heaven', Mr Aarnio calls Blaast. It's a new company, founded by two Finnish companies working in the same field. 'Each of them had developed the technology the other needed, one of these technologies being developed within Aalto University', he explains. Together they've designed a software solution that enables more or less old fashioned cell phones to make use of the Internet, apps and social media. 'It's a novel way for producing interfaces for wireless networks, for people who don't have a smart phone in areas where the networks are crowded and of poor quality. Think of developing countries and of youngsters who lack the money to buy a smart phone.'

'Although Blaast already had international customers, we, in cooperation with other EIT ICT Labs Nodes and their networks, helped them with business development, patenting, investing and looking for other companies. It has very interesting market possibilities, which have been enhanced by EIT ICT Labs.'

 For more information go to [www.blaast.com](http://www.blaast.com)

### INNORANGE



Originating from Nokia, InnoRange makes it possible for retailers to find out where their customers are and what they want. Using indoor positioning technology, it might turn out to be a 'sales booster' as a funnel for customers. 'They've had their office within the Helsinki Co-location Centre and we have discussed InnoRange with other Nodes. As it turned out, there were related companies in France and the Netherlands. The involved Nodes acted together

and helped the companies to make contact', Mr Aarnio explains. Nowadays, InnoRange is cooperating with Cliris from France. 'They're doing very well and work together in many levels. The Dutch firm is still in touch with InnoRange. So it's possible they'll be doing business in the future or help each other. The story hasn't ended yet.'

 For more information go to [www.innorange.fi](http://www.innorange.fi)

## Understanding how to work together

Every year, Mr Raoul Stubbe and his colleagues from STING (Stockholm Innovation & Growth) view and screen about 250 business cases. These start-ups come from both universities and industry. 'As a partner of EIT ICT Labs, we have even more opportunities to help them grow.'

### UXVIBE



'This company has developed a platform for people who want to play, or want to develop, games for cell phones. Very often, when playing, they find they can't compete with others. UXvibe has created a connection by means of which they can, so they'll have more excitement', Mr Stubbe describes the main activity of UXvibe.

'When I presented the company in our weekly conferences, business developers from other Nodes told they knew companies who were doing more or less the same, for instance in France and Finland. One of the business developers was even involved as founder of one these start-ups. This has resulted in a lot of very fruitful talks and we also had UXvibe participate in Slush, a conference in Helsinki where start-ups from Northern Europe and Russia meet leading investors.'

Results are still in the making. Yet Mr Stubbe considers it to be a success story. 'We have two business developers from two Nodes of EIT ICT Labs working on it. This has high potential!'

 For more information go to [www.uxvibe.com](http://www.uxvibe.com)

## SUCCESS STORIES

# UBICAST



Offering a window for innovations to be visible on a European scale

### A FRAGMENTED LOCAL MARKET IN EUROPE

Many European ICT companies are limited to their national market. Many SMEs lack contacts with large European companies or potential partners and customers outside their own local markets. Markets in Europe are often fragmented and the challenge is to remove regional barriers. These barriers prevent growth and more importantly transfer of knowledge.

### MAKING INNOVATIONS VISIBLE ON A EUROPEAN SCALE

EIT ICT Labs offer a gate to Europe and access to important networks. UbiCast was selected as one of 40 SMEs with a growth potential through the EIT ICT Labs Innovation Scouting in 2011/2012 and has

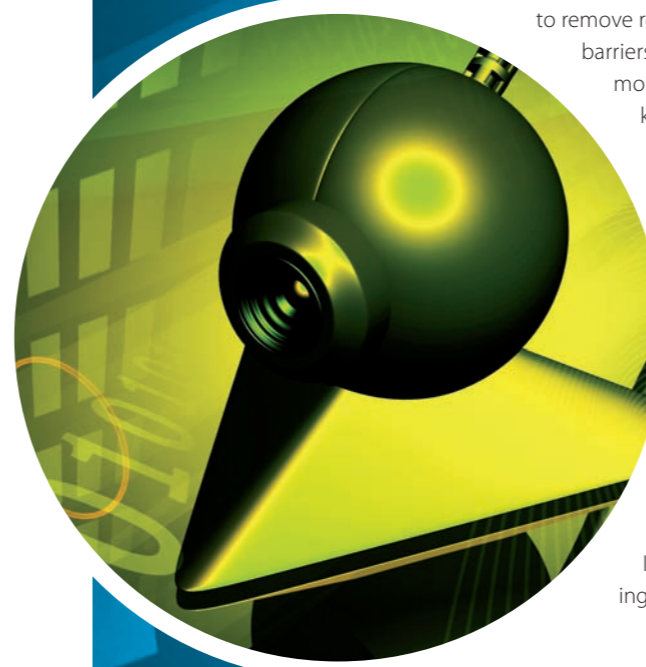
been given individual business coaching to prepare the company for the expanding market. In the process about 20 partners and prospects have been identified.

### UBICAST GOES EUROPEAN

UbiCast is the creator of EasyCast, a range of solutions for recording lectures, training sessions and seminars and publishing them to the Internet or intranet in Rich Media format. UbiCast offers two types of output: interactive webinar and HD Podcast. The company is a leading actor in France with a number of local customers and partners and is looking for spreading its activity abroad. Therefore, it is looking for new partners, distributors and resellers. To take the UbiCast to the next level they need to go "European".

UbiCast was invited at CeBIT to present its product and to meet the EIT ICT Labs local community. UbiCast will get a "soft landing" at the Berlin Node in Germany which is an important market for any European company wanting to grow and prosper. Soft landing is defined by access to market research, re-seller sourcing, and hosting opportunity at the Berlin Co-location Centre. This will boost sales and give growth acceleration of the company. It will also provide UbiCast with an environment for future innovative development.

 For more information go to [www.ubicast.eu](http://www.ubicast.eu)





## MOSYNC



Another company to be mentioned is MoSync, which employs about 20 people and has already found international customers. 'They really have a unique value proposition, because they have been developing one single cross-platform tool for apps on cell phones. As you know, apps are designed for a specific operating system, e.g. Android or the iPhone's iOS. MoSync makes them work on whatever smart phone', Mr Stubbe explains.

'We've introduced them to EIT ICT Labs, which has resulted in several leads with companies in France, Germany and Finland. A French network has said to introduce the firm to about 700 companies. Again, this is an example which hasn't been fully materialized, but the potential is enormous', Mr Stubbe stresses.

'In a year or so, they'll have made great progress. It wouldn't have happened without EIT ICT Labs and without the support from its Nodes. That's the key to success.'

 For more information go to [www.mosync.com](http://www.mosync.com)

## Close contacts with other Nodes and industry

'One of the outstanding features of EIT ICT Labs is the close contact we in Berlin have with colleagues from other Nodes and with the industry cooperating with those Nodes', Mrs Corina Weber, business developer at the Technische Universität Berlin, says. 'Not only start-ups and other companies, but we ourselves as well learn and benefit from it.'

## TestObject

For a start, Mrs Weber points out that most German start-ups differ from those in other parts of Europe. 'In general, many don't think of looking abroad. The German speaking market contains Austria as well as large parts of Switzerland, so it's huge enough. Only later they might tend to consider entering other markets', she says. On the other hand, start-ups from France, Italy and the Netherlands try to get access to Berlin and the German market with the help of EIT ICT Labs and Mrs Weber and her colleagues.

There is another relevant effect as well. 'In Germany, investors don't easily put their money in start-ups', she explains. 'Business angels, like those in Scandinavia or the Netherlands, are rare. As are investor readiness programmes. We really have learned a lot from other Nodes, as they not only support start-ups with defining their business cases, but also with their access to finance. We have adapted a lot from them, especially from STING in Stockholm. That, in my opinion, is already a very important cross-Node activity. One which has brought real added value to us in Berlin.'

And this is only beginning. Mrs Weber has been able to support some start-ups from a very early stage. 'Characteristically initiated by researchers who didn't even realize they could make money out of their technology. They are well under way now. Quite recently, there has been another success, as several investors have decided to put 1.4 million euros into TestObject, a start-up from TU Berlin which has developed a technology to increase the speed and efficiency of testing mobile apps. 'Being a part of EIT ICT Labs enables us to support start-ups in an even better, more profound way', Mrs Weber concludes.

 For more information go to [www.testobject.com](http://www.testobject.com)

# DRIVING EUROPEAN LEADERSHIP IN ICT INNOVATION

To this end, 2012 has been a very exiting year for the Research pillar of the EIT ICT Labs knowledge triangle. The activities that were launched throughout the year enabled the integration of more than 300 researchers who contribute to our activities and did lead to excellent scientific collaboration and research results, including models, prototypes, testbeds, and integrated pan-European platforms and Living Labs. Scientific dissemination has also been extremely efficient with multiple top-level publications as well as contributions to standards made in all scientific disciplines covered in our Action Lines.

2012 has also been the year of refinement for the initially designed set of research catalysts. Structured around 6 catalysts, EIT ICT Labs Research has fostered the support of collaborative activities that have a strong potential for exploitation of solid scientific results.

This refinement did lead to a very high solicitation of the research instruments of the KIC in the 2013 call. The Entrepreneurial research instrument, which aims at enabling identified talented researchers from both industry and academics to push their research results

and embody their transfer into value added services, was introduced in 2012.

It enables to support eleven strong scientific innovation initiatives surrounded by a full set of promotion and support initiatives spread across Europe and offered in our Co-Location Centres.



Research in EIT ICT Labs aims at identifying, inspiring, and impacting the most promising areas of science and innovation by bringing together Europe's best talents in in these fields.

**Olivier Festor**  
Research Director

## INTERNET TECHNOLOGIES AND ARCHITECTURE

2012 was a transition year in preparation of an integrated approach towards network technologies in the area of the Internet of Things, as well as access and core networks. Testbeds play an important role in this approach.

**Udo Bub**  
MC Owner

The Internet Technologies and Architecture Action Line conducts activities that are spanning all the network segments, from local to core networks, for both wireless and wired technologies. A particular emphasis is made on the creation and sharing of large European testbeds, in order to experiment and validate innovative solutions for Internet technologies and architecture. Fundamental networking leading to innovation is also in the scope of the Action Line. In 2012, our activities included e.g.

**MULTI-SERVICE NETWORKS** (addressing traffic & application management, network/service integration, content/information-centric networking, sensor networks, and the Internet of Things), **EFFICIENT NETWORKING** (dealing with multi-technology cooperation, integration & convergence, network virtualization, autonomic networking, self-management and self-mechanisms, ad-hoc networks, and green networks & networking), and **USABLE NETWORKS** (comprising network security, network robustness & trust ability, and business aspects & models associated to the new technologies and architectures).

Experiment-driven activities are important as they unify efforts to develop common tools that can be used in an integrated way leveraging our three pillars of Education, Research, and Business. Some of the outstanding projects have been FITTING, Software Defined Networking (SDN), and Information Centric Networking (ICN).

### FUTURE INTERNET OF THINGS (FITTING)

FITTING has brought together partners from several Co-Location Centres to contribute to an open federated and evolving experimental platform. It enables experimenting with emerging network technologies and has succeeded in bringing together testbed initiatives, hence enlarging their footprint by involving a wider community, enhancing sustainability, developing better means for more researchers, and by contributing to emerging standards concerning

federating resources for future networks. New projects have been launched, e.g. the French "Equipex" project FIT for the development of a testbed federation in France, as well as the FP7 ICT-FIRE IP projects OpenLab and Fed4FIRE.

### INFORMATION-CENTRIC NETWORKING (ICN)

For this activity the development of prototypes - in particular CCN and NetInf - has been established, which have been used for a number of experiments for evaluating and testing key ICN protocol mechanisms, e.g. congestion control, routing and multi-path transport. There is great added value in the provision of experimental tools, including facilitating synergies between projects. The experiments made possible through these testbed activities are extremely valuable for taking ICN to experimental deployment, testing, and standardisation.

### SOFTWARE DEFINED NETWORKING (SDN)

Future traffic requirements demand for 1Tb/s link speeds, which are expected by 2020. In order to make such speeds feasible, per-packet processing needs to be drastically simplified and energy consumption reduced. Software Defined Networking (SDN) is considered the solution to reduce cost and increase flexibility in fixed and mobile networks. SDN aims at streamlining the data flow transactions while moving control plane processing to centralized servers. The goal in this activity is to leverage the work done in the SDN area and build a testbed based on contributions from different partners in the area of mobility, flow management, and in-network caching among others to prove the proposed SDN improvements.

An important highlight in 2012 has been the signing of a Memorandum of Collaboration of EIT ICT Labs with the EU's Future Internet Public Private Partnership (FI-PPP).

## PRIVACY, SECURITY & TRUST

The innovation area "Privacy, Security & Trust in the Information Society" was initiated in 2012 with a major focus on privacy.

**Guido Marco Bertoni**  
Action Line Leader

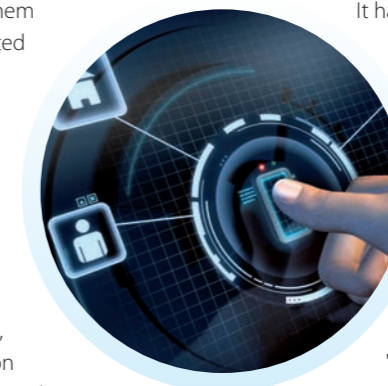


The pervasive presence of information technologies in many daily aspects of people's lives creates new possibilities, but also raises privacy concerns. In particular, if services and applications are not properly designed, end-users may feel that they no longer have suitable control or guarantees over their privacy. Indeed, protecting the privacy of individuals is one of the main challenges of the information society. It is however difficult to achieve as individuals constantly leave digital traces of their actions and whereabouts, often without even knowing it. If an unauthorized entity gathers these digital traces, they can use them for malicious purposes ranging from targeted spam to profiling, and even identity theft.

During the first year, the focus has been on the privacy aspects of geo-located systems such as mobile phones and vehicular communication systems. In particular, effort has been spent on a new version of a toolkit, whose main objective is to enable a data curator (e.g., a company, a governmental agency or a data protection authority) to design, tune, experiment, and evaluate various sanitisation algorithms and inference attacks as well as to visualise the following results and evaluate the resulting trade-off between privacy and utility. The tool is released as open source and empirical evaluations have been conducted to evaluate its practical efficiency.

In order to accelerate the adoption of Privacy Enhancing Technologies (PETs) by the public at large, one needs to understand how people interact with privacy sensitive operations and how conscious they are of the privacy risks they incurred. To close this gap, activities have focused on understanding the level of awareness with respect to privacy by users within the context of different

scenarios. One of the interesting outcomes of these studies is a report summarizing the experiments performed within the Trento privacy lab in which different groups of users have been interviewed and monitored on their understanding of the privacy settings while installing applications on Android smartphones.



It has been essential to help moving privacy mechanisms and sanitisation methods developed within the context of research projects into tangible products as well as to understand the privacy expectations of users through the privacy living lab. Having privacy-preserving mechanisms that can be directly integrated within future location-based services is especially important within the current context of the revision of the European Data Protection Directive into a regulation that will put forward the "privacy-by-design" principle, which integrates the privacy issues in the design phase of a system or application. Indeed, there is a business opportunity for companies to precede the change of regulation by developing innovative location-based services using the privacy-preserving mechanisms developed within the activity as building blocks.

Initially during the year 2012, Privacy, Security & Trust has seen the contribution of 9 partners.

For 2013 this innovation area is growing, with an increase of the number of activities and the involvement of 14 partners coming from the different Nodes of EIT ICT labs.

## HEALTH & WELLBEING



The challenge is to accomplish people to live uncompromised, safe and active lives through to an advanced age. Enabling active healthy ageing and independent living while at the same time avoiding social exclusion.

**Jean Gelissen**  
Action Line Leader

### BOOSTING THE QUALITY OF LIFE BY ACCELERATING ICT INNOVATION FOR ACTIVE HEALTHY AGEING

Traditional research in the health domain has the tendency to focus on specific problems, targeting specific groups in a specific context. Often, these health-related solutions get bogged down by non-functional barriers such as country-specific legal issues, different economical models, reimbursement schemes, privacy, security rules or differences in social and cultural systems. At the same time, global and societal trends like the ageing population and the growing consumer empowerment call for an innovative and entrepreneurial ICT-enabled approach towards health and wellbeing.

The population of working age is expected to decline steadily, while older persons will likely account for an increasing share of the population. Ageing is likely to affect all EU member states. In the Eurozone expenditure related to the ageing population is expected to grow from 0.9% of the GDP in 2010 (about 9,000B euros) to 1.7% in 2050. This increase can be reduced by 40% to 60% (Sources: EU, WHO/Europe and Rock Health). With



**6**  
VALIDATED SERVICES/  
PRODUCT IDEAS



the Action Line Health & Wellbeing, EIT ICT Labs contributes to the EU goal to tackle the major issues affecting the health and wellbeing of European citizens, by increasing quality of life and working towards a reduction of the expected expenditure. The combination of innovative technology and the expertise of top researchers within EIT ICT Labs will drive the development of new solutions into the market of health and wellbeing.

### ACHIEVEMENTS

In 2012, further developing and business modelling of the Stress@Work and Affective Health meter were hot items. One of the top 5 diseases will be stress-related by 2020.

**E.g., in the Netherlands 12.8% of Dutch employees have burnout symptoms; comparable statistics hold for the other EU member states. Prevention of stress will reduce the work drop-out risk.**

Specifically, the following results have been achieved in 2012:

#### ✓ 6 validated service or product ideas:

- e-services for job stress management
- affective health product
- mobile personalised food adviser
- robust activity monitoring system
- sleep oriented evaluation test bed
- emotion detection component

#### ✓ 4 products or services introductions

#### ✓ 1 venture and 1 transfer to an existing company as result of Action Line activities

#### ✓ Winter Camp 2012 for Post-Master trainees

### OPENING UP THE MARKET

The Stress@Work meter is targeted to workers in professions with a high risk of burnout caused by stress. In 2012, the validation of the stress meter started on request of a Dutch occupational health organisation, Human Capital Care. On their forecast

the target group is teachers at vocational schools in the Netherlands, a group likely to be affected by stress. The validation is on-going and expectations of the first outcome are high. Human Capital Care announced to include the Stress@Work meter and services in their portfolio as soon as the device is ready for exploitation. Further business creation within different organizations will be explored in 2013.

The Affective Health meter focuses on balancing body and mind to cope with stress in daily life. An important pillar in the use of the device is social group support based on the principle of the 'Weight Watcher' method. Target groups are performers in sports & wellness, and career women, especially working mothers. The validation of the Affective Health meter is on-going with the Swedish Olympic team. In 2012, the start-up MirrorMirror was a direct result of the activity around affective health. By broadening the business models, the device will be brought further into the market by MirrorMirror in 2013.

### OUTLOOK 2013

The partners in this Action Line in 2013 want to focus on:

- Implementing a platform for enabling Ambient Assisted Living for Active Healthy Ageing
- Product-Service combinations for Physical, Mental and Social Wellbeing
- Creating a front running business community of health and wellbeing SMEs and start-ups.
- Integration of Education through the HWB Post Master School, and the HWB Summer Schools and Winter Camps

## COMPUTING IN THE CLOUD

This programme or Action Line promotes innovations in large scale and internet-wide computing and storage services as well as innovations in data-intensive platforms for collecting, processing and analysing extremely large data sets.

**Seif Haridi**  
Action Line Leader



During 2012 four projects or activities have been running.

### EUROPA

EUROPA is a collaborative effort among EIT ICT Labs partners to create a European open-source platform for data-intensive processing based on Stratosphere (stratosphere.eu). The Stratosphere System is an open-source cluster/cloud-computing framework for Big Data analytics. EUROPA significantly enhances the functionality of the system and its user base. In particular it promotes usage of Stratosphere in both enterprises and education. The current platform extends and significantly improves on the current state of the art in cloud-based data-intensive computing frameworks such as Yahoo's map/reduce.

✓ **Results 2012:** Technically the work done during this year has resulted in (i) a more general data model; (ii) support of iterative computation and stream processing; (iii) more scalable elastic data store KTHFS compared to Yahoo's HDFS; (iv) and support of indexing of complex data. Another result of EUROPA is the validation of the platform on different use-cases including continuous multiplayer games data, large-scale graph analysis and bio-informatics.

The end-result is a much better and easy to use tool for challenging and commercially relevant areas of big data analytics, and

continuous stream processing as needed e.g., in smart energy grids or for traffic management and massive multiplayer gaming.

### REAL-TIME MULTIMEDIA

This project aims at developing Internet standards that are useful for scalable real-time Group Communication, for example HD multiparty video conferencing. This problem is more challenging than, e.g. live media streaming, because of the real-time requirements of multi-party communication. The project combines a hybrid approach of using peer-to-peer overlay networks and geographically distributed cloud infrastructure.

✓ **Results 2012:** In 2011 the EIT ICT Labs partners have proposed a new IETF standard for multi-party real-time communication (MP RTP). This year the proposal was refined, and a new IETF standard has been proposed as Multipath RTP (MP RTP) attribute in Session Description Protocol, <http://tools.ietf.org/html/draft-singh-mmusic-mprtp-sdp-extension-00>. This new standard intends to provide signalling on the application layer for accessing multiple resources as provided by cloud infrastructure or peer-to-peer environments. Furthermore, a testbed for real-time cloud services has been

set up, between Aalto FI, TU Berlin DE, CSIR ZA, and Amazon UK showing EIT technologies in action. The Amazon nodes used in the cloud test bed are located in the US East, US West, Brazil, the EU, and Singapore and Japan.

### TOWARDS A MOBILE CLOUD

The goal of this project is to create tools that help mobile apps developers where mobile devices are supported by cloud environments. In particular end-users expect a consistently high quality of service (QoS) without regard of resource utilization by others. Poor quality of service, in particular high response time, is directly perceived by end-users and strongly influences their satisfaction with a mobile application.

✓ **Results 2012:** The project resulted in a number of tools to support cloud-based mobile applications. The first is an open-source tool for end-to-end performance evaluation of cloud-based mobile applications. The second is a configuration tool to guarantee user-desired quality of experience for mobile services that run over multiple data centres with a wide variety of network characteristics. Finally, software is under development for adapting mobile apps to different location-based and activity-based conditions. The software is able to predict future network conditions and perform activity-specific actions, for example caching data if it predicts disconnected networks.

### RESOURCE MANAGEMENT ACROSS CLOUDS (RMAC)

RMAC provides solutions for effective, efficient, elastic resource management across multiple clouds at the Infrastructure-as-a-Service (IaaS) level for a wide range of application types, especially tools for data intensive applications. The project incorporates the results in mainstream cloud middleware.

✓ **Results 2012:** The partners achieved the following results.  
(i) Extension of the open-source KOALA job scheduler, designed for compute-intensive work, to handle Map/Reduce Jobs, open-source software. They developed an elastic Map/Reduce framework that runs on multiple/federated clouds middleware. Once it is mature enough it will be an open-source middleware. They also extended the cloud middleware open-stack to allow autonomic resource allocations. The technology has been transferred to Ericsson and discussions are on-going to incorporate the software in the official release of OpenStack, a major middleware for cloud management.



## DIGITAL CITIES OF THE FUTURE

New policies in the context of Citizen-Centric Cities (CCC) will aim in particular at increasing the citizens' awareness of their individual and collective capabilities, both in the decision making process and in the implementation of these decisions. The ultimate goal is to realize a migration from a customer-centric to a user-centric model.

Citizen participation can take different forms: (i) Collection of data to be broadcast to the other citizens, or used to analyse and "sense" the dynamic status of the city; (ii) Participation in the decisions for the evolution of the environment of the city; and (iii) Execution of actions to improve the city performance and sustainability.

The notion of open data was in the heart of the CCC paradigm in 2012. Three activities were granted:

**Data Bridges:** The objectives of the activity are to build extensible, open, efficient standard-compliant systems for analysing, enriching, linking, and understanding data. Participants consider data produced by multiple organizations or players, reflecting multiple viewpoints and perspectives. They plan to compare and combine the tools and research results, in order to address three specific types of data management scenarios: social data, open public data, and geographic recommender systems.

**HCI Technologies for the digital word:** The objectives of this activity are to explore the technological capabilities of the testbeds and involve living labs maintained at different European sites to employ their best complementary features. The collaboration will contribute to the generation of new ideas towards a joint project proposal.

**Innovation Radar:** The objectives of this activity are first to provide foresight reports on the potential innovation coming from the carrier projects involved in the Action Line Digital Cities of the Future and second to submit two proposals for new carrier projects between partners.

Two interesting business outputs have been achieved by the activities. The first comes from Data Bridges where a new product called territory dashboards was put into the market by the start-up Data Publica and the second one comes from the activity HCI, where a technology transfer was realized between DFKI and two German companies.



The focus of the Action Line is on Citizen-Centric Cities, a paradigm allowing governments and municipalities to enhance the participation of the citizens in the information, decision, and implementation processes for a better life in the city.

**Khaldoun Al Agha**  
Action Line Leader

2013 will be a fruitful year for Digital Cities of the Future. Five high quality activities are granted.

They provide a complementary eco-system to enforce the creativity of a digital city. The Action Line runs activities around the collection of data, the creation of crowdsourcing platforms and the creation of services for the citizens.

## CYBER-PHYSICAL SYSTEMS

Embedded hardware and software systems crucially expand the functionality and competitiveness of vehicles, aircrafts, medical equipment, production plants, and household appliances. Connecting these systems to a virtual environment of globally networked services and information systems opens completely new areas of innovation and novel business platforms.

In 2012 Cyber-Physical Systems was set as a focus area in EIT ICT Labs and the main goal was to build a strong community on a European scale.

There are currently 14 partners from 5 EIT ICT Labs Nodes involved including industry partners Siemens AG and Ericsson, the research institutions SICS, fortiss, DFKI, FBK, VTT, and TNO, and the academic partners TU Berlin, TU Munich, KTH Stockholm, ELTE Budapest, Trento University, and University of Bologna.

Focused workshops were organised to integrate EIT ICT Labs' key players, to assess the state of knowledge of the partners in CPS research and development, and to identify the key challenges in CPS engineering and the creation of business opportunities.

Our second goal was to enable testbed support for CPS applications developed within EIT ICT Labs and the research community. While the wireless sensor networking (WSN) community has developed a number of testbeds, only few large-scale test sites exist for CPS applications. We investigated and developed extensions to existing WSN testbeds. The "TWIST" testbed in Berlin has been enhanced with support for remote experimentation. Also mobility extensions were added to support context-awareness in CPS applications. The availability of concrete testbeds fosters the CPS application development and boosts the creation of new

In Cyber-Physical Systems (CPS), objects and processes of the physical world are integrated with the virtual world of global digital networks, such as the Internet, leading to an Internet of things, data and services.

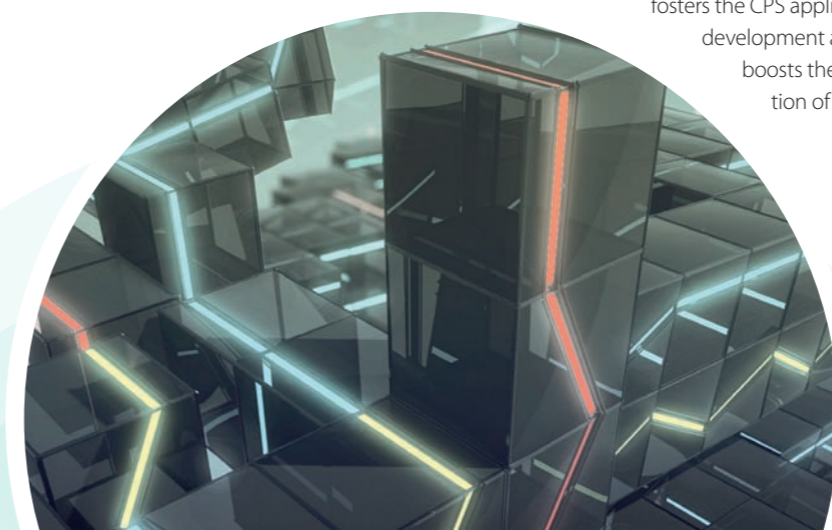
**Holger Pfeifer**  
Action Line Leader



companies in this area.

For 2013, one of our goals is to provide support for the engineering of complex CPS and further extending testbed support for CPS applications. Moreover, two of our activities focus on the transfer of sensor-based technology in both the medical and environmental domains.

Our Cyber-Physical Systems Summer School will educate students and practitioners on fundamental and applied aspects of the multi-disciplinary field of CPS.



## SMART ENERGY SYSTEMS



### BACKGROUND AND FOCUS

Meeting EU's climate change and energy policy objectives for 2020 and beyond will require a major transformation of our electricity infrastructure.

### Challenges

- Integrating an increasing amount of renewable energy generation
- Realising energy savings and efficiency
- Enhancing grid security
- Developing the internal energy market

### Focus

We aim to involve smart users to make life easier and come up with technologies for optimizing energy efficiency. We want to deploy ICT technologies in the energy domain enabling the future smart energy infrastructures and to accelerate implementation of results in daily life.

### ACTION LINE SCOPE AND ACTIVITIES IN 2012

Major activities in our focus areas user involvement and ICT infrastructures for smart grid are the Smart Energy user experience labs and the European Virtual Smart Grid Lab respectively. Specific targeted ICT infrastructure activities include smart energy security and value modelling highlighting the business values of a smart grid. The well-established Smart Energy Summer School boosts the education focus of the action line.

### Smart Energy User Involvement

A pan-European experience & living lab was established with four labs and a simulation platform involved in three different countries (UK, Netherlands, Germany) comprising interconnection of technical components in an AgentScape simulation framework with physical computers and lab software, network elements like web services as well as sensors, e.g. home automation devices and electric meters. Partners are fortiss, TU Delft, Imperial College, DAI,

KIT, Fraunhofer FOKUS, and DFKI. Siemens implemented a prototype of a new ICT gateway which locally balances and minimizes energy usage for a microgrid setup and which has been tested in labs successfully.

The labs established web services to communicate directly using the IEC 61850 standard for communication and exchanged data thus establishing a standardized interface instead of creating new communication protocols.

They implemented energy usage prediction algorithms partially based on real life data proving the feasibility of given standards for energy related communication between distributed partners.

### ICT Infrastructures: European Virtual Smart Grid Lab

Six smart grid labs from partners in five European countries have been connected thus establishing a unique pan-European facility. Technical connections include the connection of machines at KTH, VTT, and TU Berlin as well as TU Delft, Imperial College, and CWI.

Among joint projects, Virtual Microgrid Lab by KTH, Ericsson, SICS and others is greatly important. It evaluates ICT infrastructures for performing energy management services such as distribution automation, demand response and microgrid control. Experiments include scheduling of smart home appliances for demand response signalling and testing latency requirements using LTE/4G. Currently the lab is designed as a city-level distribution network. Results have been applied to the Stockholm Royal Seaport, a city planning project with 10,000 apartments and 30,000 work places.

A second project led by DFKI is dedicated to energy forecasting where results are applied in Saarbrücken by Stadtwerke Saarlouis in the context of the German PeerEnergyCloud project.

The European Virtual Smart Grid Lab also has a strong educational focus using the labs and results for lectures and granting access to students. For the Imperial College solar panel demonstrator comprising four photovoltaic modules a communication structure has been established by TU Delft based on AgentScape to enable remote access of other labs with the objective to investigate the effect of network latencies and errors. Moreover, Siemens Technical Academy connected their lab for in-house industrial education.

### Value Modelling and Business Models

Smart grid value modelling includes market research, cost-benefit analysis and analysis of drivers and obstacles for possible future cost-savings. The aim is to identify the business value, e.g. of LTE application and cost-modelling of mass data. Outcomes thereby depend on the selected smart meter protocol, access network technologies and selected data aggregation and concentration method.

### Smart Energy Summer School

We educate the innovators of tomorrow in important topics of ICT: excellent PhD students and industry participants with multidisciplinary background. In September 2012, 38 participants (among those two of KIC InnoEnergy) benefitted from lectures, project work and visits to industries' facilities (e.g. Siemens) in London and Karlsruhe.

### ACHIEVEMENTS

Smart Energy Systems mobilizes a strong network of European partners from industry and academia to innovate on user involvement and ICT infrastructures for smart grid. Results include two prototypes of new products – an ICT gateway by Siemens and a smart home automation platform NEO by CDTM / TU Munich as well as an open source simulation platform by DAI Lab / TU Berlin. Knowledge adoption was made possible for industry partners Ericsson, Alcatel Lucent, and Siemens in at least five cases.

Top publications and participation at events and projects include:

- E-Energy congress with a presentation by CEO Willem Jonker, joint publication of study with Acatech
- Experience lab demonstration for industry partner CTOs at CeBIT

- Participation with booth and panel discussion at IEEE ISGT
- Security workshop with presentations published in LNCS
- A key note article in the special edition of ERCIM News on smart grids
- Smart Energy Innovation Radar

### OUTLOOK

In 2013 the focus will remain on user involvement and ICT infrastructures, performing seven activities. Labs will play a key role as platforms enabling experiments with concrete business impact. We will involve three SMEs in 2013 activities, possibly more. **Ariane Sutor**  
Action Line Leader

The user experience lab will strengthen the user focus by involving 100 users. Targeted activities include smart energy security and hybrid energy grid management implementing a secure gateway and prototype of an interoperable hybrid energy grid management system. In collaboration with KIC InnoEnergy we will continue our summer school and start a new round table series inviting key stakeholders to strengthen our agenda setting position.



## SMART SPACES

Work, live and play in smart environments.

**Petri Liuha**  
Action Line Leader



People spend time and effort every day trying to find relevant items, information and places. Smart spaces like offices, homes and shops equipped with sensing systems help people find relevant information quickly and use services comfortably.

Smart Spaces create the fifth screen to the digital world after TV, computer, smartphone, and the tablet. Imagine if by pointing your camera on the street you would in a blink of an eye get information of all local services relevant to you – restaurants, shops, offers, people nearby, busses, and many more. One of the focus areas of the Smart Spaces research is to bring mobile users situationally relevant information from the Internet radically faster than today – from 60 seconds to 2 seconds.

The practical business areas for the smart space applications include digital signage, mobile marketing, business analytics for shopping areas, analytics of places in general, information services in public buildings and at events, and convenience solutions in smart offices and homes.

In 2012, we concentrated in four applications areas and two major technical challenges. The application areas included:

- Public spaces like exhibition areas, travel and waiting areas, and games in public areas - including applications using user-generated content in public areas.
- Retail environments – solutions supporting the retail business and providing new services for the customers.
- Office environments – creating the level of standard and complete solutions for the smart office once and for all.

- Home and households – solutions easing the every-day life of different kinds of users and user groups.

The two major technical challenges were:

- Enabling technologies for human-centred interaction in smart spaces, which help to use the digital info without looking down (to a device or doing typing).
- Generic positioning technologies supporting applications, which help to locate people or items indoor at a sufficient accuracy.

Other focus areas include interactive public displays, lighting that automatically adapts to the activity in the room and smart offices like virtual and physical meeting or seminar rooms with seamless audio, screens and connectivity capabilities, and applications for interactive team work.

The main outcome from Smart Spaces in 2012 is the creation of three start-ups that use public screens for new applications for retail spaces or for public events. Also close to 20 different new application concepts that were tested with real users were created and implemented. Two concepts ended up in technology transfer and five in knowledge transfer to existing companies, and two in new products or services. The successful transfer cases and the new companies are in the retail, public spaces or office space. Our technical emphasis was on user interaction technologies and on supporting ecosystem approach for the creation of smart spaces applications. Also, several high-level publications (e.g., a Best Paper Award in the Computer Human Interaction Conference) were published as a result of the activities.

The community of 27 partners from industry and academia demonstrated clear potential of the smart spaces as a new area for innovation and business opportunities. The activities were able to take technologies created in previous research, package them in credible business concepts and demonstrate them in practice by introduction of new companies or technology and knowledge transfers.



## INTELLIGENT MOBILITY AND TRANSPORT SYSTEM

**Christian Müller**  
Action Line Leader



Already today, ICT is driving innovation in the intelligent mobility and transportation domain. By declaring its goal of becoming absolutely safe (zero accident) and sustainable (zero emission), "New Mobility" comes with additional challenges with respect to ICT. At the same time, the opening of in-car platforms creates new business opportunities for ICT (e.g., automotive apps). In 2012, Intelligent Mobility and Transportation Systems prepared the ground for innovators by applying grading-up instruments on research results (open-source, technology transfer, test-sites, living labs) and creating business on the European scale (patents, entrepreneurship support, business creation).

Our goal is to increase safety and security for individuals including, e.g. ICT for active safety in cars, cooperative vehicles, data and communication security, safety and security of mobility systems. Efficient mobility is a key success factor for the modern society.

We aim to make mobility universally accessible through ICT for individual accessibility including barrier-free access and support for people with special needs, as well as ICT for economical optimization of mobility and transportation.

This includes for example improving networking between different modes of transport through integrated solutions for trip planning and real-time access to information on available transport modes (online information at home, in vehicles, train stations, bus stops, on smart phones).

In 2012, we inter alia created the following new products and services:

**OPENDS**  
OpenDS is a flexible and expandable driving simulation for industrial research and development. It is also used in scientific

experiments in the automotive industry as well as in the areas of mobility and transportation. OpenDS is open-source software and includes a set of standards (dimensions, driving tasks, tests, etc.) that was previously available on paper only. OpenDS thus ensures a safe testing of new assistance systems. The core part of OpenDS is funded by the European Commission (7th Framework Programme) in the project GetHomeSafe. The open-source project receives additional funding by EIT ICT Labs. Particularly, we apply the so called "Open-Source Booster", a funding instrument dedicated to open-source software. OpenDS is presented at CeBIT 2013 in Hannover (DFKI stand).

**EVELOFIN**  
eVelofin is an e-bicycle fleet management solution that integrates ICT components from bicycle modules through the smart phone to a backend platform in the cloud. Bicycles are provided with a system covering patent-pending technologies for basic fleet management (security and authentication), advanced fleet management (surveillance and maintenance), active safety, and added-value applications. Customers are companies, institutions, and authorities renting out e-bikes.

The system also includes added value applications such as tourist guides and assistants for health and fitness. These apps run on a framework for Android smart phones, supporting flexible extensions and third party applications. The backend platform supports service provisioning, fleet surveillance and maintenance.

**eVelofin is presented at the Mobile World Congress 2013 in Barcelona.**

We furthermore coached and supported three spin-off companies: www.white-c.com (OpenDS), www.schlauesbike.fkom.de (eVelofin), and www.apptimists.de (intermodal mobility apps).



## NETWORKING SOLUTIONS FOR FUTURE MEDIA

The mission of the Action Line is to address the challenges of providing an ICT structure supporting producers and consumers exchanging rich digitised media across heterogeneous domains.

**Henrik Abramowicz**  
Action Line Leader



The media industry is in the midst of a digitalisation that is transforming broadcasting, photos, music and printed matter merging telecommunications, broadcasting, publishing and entertainment. The digitalisation also provides a change in consumer behaviour as consumers are no longer only consumers, but can easily also become producers and are doing this at an increasing pace.

**The usage of YouTube, Wikipedia, Twitter as well as social media like Facebook have exploded in only a few years.**

This process of digitalisation of media, the simplicity in creating content, and the wish to constantly be connected, using any terminal on any network at any place, creates a tremendous load onto the networks, demanding dramatically enhanced network efficiency. The wish for convenience while moving around also shows that connections are predominantly made by wireless access, so new and improved spectrum management methods are needed. The market pull is clearly

manifested in the tremendous demand for more mobile broadband connections, with an annual growth exceeding 40% in both Europe and globally. The traffic volume is increasing even faster.

To meet these requirements the Action Line contains activities addressing a) cross-layer optimisation for efficient resource utilisation resulting in enhanced user experience for a given network, b) heterogeneous mobile networks addressing cost effective ways towards network densification and capacity increase, and c) understanding the needs and opportunities offered by selected media applications and their implications for the network optimization. In particular, the Mobile Media Service Lab testbed has been set up to test and optimise end-to-end communication services.

Highlights of our 2012 achievements:

- ➔ Several cases of successful technology / knowledge transfer to established companies : Social Camera (Nokia), Media annotation tools (Engineering, TI and Nokia), Mobile



Backhaul (Ericsson and France Telecom), SLA Characterisation/resolution tool (Ericsson), Network coding (Ericsson).

- ➔ Three new products and services have been launched into the market: copper cable characterisation that has been launched as a service (Ericsson), Media converter (France Telecom), "Wanteat" app (UniTN and TI, which can be found on Apple store in Italy).
- ➔ Two cases of knowledge adoption of novel EIT ICT Labs-generated concepts: Parallel Faceted Browsing (introduced by DFKI) and the Tribler Mobile app (Android) for P2P streaming (introduced by KTH).
- ➔ A number of contacts with SMEs have been initiated and will continue.
- ➔ 16 standards contributions have been submitted relevant to future mobile backhaul market on G. Fast within ITU-T. Furthermore, there has been input to standardisation of PPS P2P streaming in IETF. One patent application has been approved and one has been filed.
- ➔ A summer school on visual recognition and machine learning, which attracted 181 participants (PhDs and MSc students as

well as practitioners from industry) from more than 34 countries.

Last but not least, several high quality scientific publications have been published and several prestigious awards and grants have been given to staff active in the action line. The Innovation Radar activity has produced four Foresight Technical Reports and one White Paper for the Mobile World Congress in Barcelona 2013.

**The outlook for 2013-2014 includes a shift in focus contributing to the work preparing for upcoming standardisation work aiming at "5G" mobile networks.**

Specifically, we foresee activities on both energy efficiency of the network and the integration of the "Internet of Things" scenario, with its dramatic increase of the number of connected devices. The latter will also be a challenge despite the relatively low volume data communicated to/from these devices.



## COLLABORATIONS WITH EUROPEAN PROGRAMMES AND INITIATIVES

Alignment with innovation programmes at both national and European level is of great importance for EIT ICT Labs.

In 2012 this has resulted in strategic collaborations with four European programmes and initiatives:

- ➔ ITEA 2
- ➔ European Investment Fund (EIF)
- ➔ Trust in Digital Life
- ➔ Future Internet Public Private Partnership

### ITEA2

ITEA 2 stimulates and coordinates industry-driven, business-oriented, pre-competitive R&D by bringing together partners from industry, universities and research institutes in strategic projects. Currently ITEA runs a set of over 140 projects (ITEA & ITEA 2) with more than 1,000 partners from 30 countries.

In 2012 the collaboration between ITEA 2 and EIT ICT Labs shows first results and proved that EIT ICT Labs strengthen the business impact of ITEA and speed up the exploitation of research results. One successful example was the ITEA 2 project Guarantee that applied the EIT ICT Labs Testbed Catalysts to refine those technologies with the greatest appeal for consumer-driven innovations for homecare. Julia Kantorovitch of VTT Finland pointed out: "EIT health and wellness testbed taught the partners to focus on human-scale issues, the modest, more practical robotic enhancement to everyday devices that will help care for the elderly with a clear value to family."

Having shown the benefit of the collaboration on project basis, for 2013 it is planned to intensify as well the collaboration on more strategic topics like education, trainings, and standardization.

For more information go to [www.itea2.org](http://www.itea2.org)

### EUROPEAN INVESTMENT FUND

In a high level strategic meeting with the European Investment Fund (EIF) and the European Investment Bank (EIB) on May 8, 2012 at the headquarters in Luxemburg EIT ICT Labs and EIF and EIB for the first time discussed the challenges to commercialise innovations from research, especially the early stage financing where there is a shortage of in Europe.

Following the meeting two topics for closer collaboration were identified and worked out for setting up a strategic partnership between EIF and EIT ICT Labs:

- ➔ A collaboration on the Corporate Innovation Platform (CorpIP) of the EIF; a unique tool to rapidly access innovation on a Pan-European scale and scope
- ➔ A collaboration on the EIF's PoC (proof of concept) approach, which addresses different growth steps such as PoC, advanced PoC, and pre-seed phase



Both topics are aiming for new instruments on the European landscape, in order to boost creation and expansion of growth companies in Europe enhancing the abilities for ventures and SMEs within the EIT ICT Labs partner network to get access to needed investments.

For more information go to [www.eif.org](http://www.eif.org)

### TRUST IN DIGITAL LIFE

EIT ICT Labs and Trust in Digital Life (TDL) have initiated a cooperation in Q4 2012 in the support action ATTPS (Achieving the Trust Paradigm Shift). The TDL consortium aims to set out a vision for trustworthy products relating to information and communications technology, including devices, applications, services, and infrastructures. EIT ICT Labs and TDL share a strong interest in trust and the Action Line Leader of Privacy, Security & Trust acts as a link between the two communities.

For more information go to [www.trustindigitallife.eu](http://www.trustindigitallife.eu)

### FUTURE INTERNET PUBLIC PRIVATE PARTNERSHIP

The Future Internet Public Private Partnership (FI-PPP) aims to advance Europe's competitiveness in Future Internet technologies and systems and to support the emergence of Future Internet-enhanced applications of public and social relevance. It addresses the need to make public service infrastructures and business processes significantly smarter (i.e., more intelligent, more efficient, more sustainable) through tighter integration with Internet networking and computing capabilities.

FI-PPP and EIT ICT Labs share a drive towards more innovation, especially from start-ups and SMEs.

On this basis, FI-PPP and EIT ICT Labs signed a Memorandum of Collaboration in June 2012, aimed at fostering joint actions in innovation. On the basis of the agreement, a specific FI-PPP liaison activity was created as part of the Business Plan 2013. Mr. Mikko Rieppula of the FI-PPP coordination activity CONCORD and EIT ICT Labs CSO Martti Mäntylä are driving the collaboration

For more information go to [www.fi-ppp.eu](http://www.fi-ppp.eu)

## INVEST FOR IMPACT

### Building a strong reputation and established brand

The motto for 2012 has been to "invest for impact" with the objective to establish EIT ICT Labs as a recognised innovation brand in education and business development - understanding our stakeholders' needs and demands - building trust and a strong reputation.

**Johanna Gavefalk**  
Marketing & Communications Director EIT ICT Labs

This covers the entire range of channels, external and internal interactions - from electronic communication and events to branding guidelines and Co-location Centres' interior and equipment. With over 1,700 people active on our intranet during 2012, internal communications for community building remained high on the marketing and communication agenda.

The "revenue" expected from marketing and communication activities is a "strong reputation and established brand", generated by a number of systematic and well-managed outreach actions to internal and external key stakeholders: EIT ICT Labs community and innovation ecosystem partners, industry clusters,

relevant innovation communities on European and national level, non-European contact points, user communities, decision makers, students, teachers, researchers, entrepreneurs, and the general public. Part of this strategy is influencing via digital and social media, press and media relationship, presence and visibility in key venues, training, seminars, and printed matters.

**A key activity carried out during 2012 was the execution of the EIT ICT Labs' participation at "CeBIT 2012", the world's largest information technology trade fair. "Managing Trust" was the keynote theme across the board at the event.**

The Opening Ceremony gathered some 2,500 guests and 16,000 Internet viewers. The fair included Global Conferences, 1,500 seminars and workshops. More than 130 business and political delegations from around the world followed the CeBIT call to debate the key issues of trust and security in a digital world, among them European Commissioners Neelie Kroes and Viviane Reding. More than 300,000 attendees from over 100 countries and more than 4,200 exhibitors from some 70 countries participated. At EIT ICT Labs' stand visitors experienced the latest trends in our Digital World via an interactive five meters wide 3D motion-sensing multi-touch wall where visitors could learn all about EIT ICT Labs. Seven demo stations presented our Action Lines and their activities within the areas of Digital Cities, Future Media, Smart Energy, Smart Spaces, ICT for Quality of Life, Health & Wellbeing, and Intelligent Mobility & Transportation Systems.



Taglines - branding slogans - were formulated to be used in marketing materials, communication and advertising. "Bringing ICT Innovation to Life" and "Empowering ICT Top Talents for the Future" sum up the tone and promise of EIT ICT Labs' brand and reinforce the audience's memory of EIT ICT Labs, its partners, "products" (e.g., Master School and Doctoral School), and "services" (e.g., Business Development Accelerator).

EIT ICT Labs' first Annual Report, covering the year 2011, was delivered. Numerous news items and articles were published and over 117 workshops and events were organised. Marketing managers supported the development, design, copy and communication of the EIT ICT Labs Business Plan 2013, as well as the design of several foresight studies, reports, success stories, and Action Line & Catalyst material. Various EIT ICT Labs newsletters were distributed.

Together with the EIT ICT Labs Master School a number of marketing activities were executed such as communication and social media campaigns, arrangement of Master School students' "Meet & Greet" events at CLCs, the organisation of a 3-day Master School Kick-off in Stockholm with 200 participants and the launch of a Master School application portal. Master School promotion suitcases were distributed to universities.

EIT ICT Labs participated at the EIT conferences in Copenhagen and Cyprus and organised a 2-day Partner Event in Helsinki with 170 participants from our community.

To improve our online communication some 15 Master School videos, 4 SLUSH & Start-Up cases videos and 4 Doctoral School videos were recorded. A Press & Media Newsroom based on the MYNEWSDESK platform improved significantly our ability to build media relationship and increase awareness.

All Nodes implemented a 3D motion-sensing multi-touch wall used as a key tool for communication. The interface has been developed by EIT ICT Labs researchers and enables information services and communication via gestures, voice, and video.

**In 2013 we will "Target & Focus" and increase our efforts to deliver marketing support that will build reputation of the EIT ICT Labs' brand, with a special focus on implementing the social media strategy.**

All marketing and communication activities will be carried out in alignment with the EIT ICT Labs' Branding Guideline to ensure a consistent "look and feel" - building trust and awareness.

In the beginning of 2013 we will launch the new websites for EIT ICT Labs and the Doctoral School. Soon after, on February 25-28, EIT ICT Labs will participate at the GSMA Mobile World Congress 2013 in Barcelona, a cutting-edge product and technology exhibition featuring 1,500 exhibitors and the world's best venue for seeking industry opportunities, making deals, and networking. Our expectations are high as in 2012 the numbers were impressive with over 67,000 attendees. 3,380 press and media representatives and 1,500 media outlets from 92 countries provided an excellent opportunity to generate visibility. Next is the EIT ICT Labs Partner Event for 2013 that will be held in Paris on April 17-18.

**I sincerely thank everyone who has contributed to building the reputation and brand of EIT ICT Labs.**

## FINANCIAL REVIEW

During 2012 the decision to use PROMISE Suite (toolkit for management of knowledge, relationships, documents, projects, and finance) for our Grant and Activity management has paid off. While we were able to collect and submit our Cost and Performance Report 2011 within two months we also received the EIT approval of these reports in May with only some very minor adaptations.

Consequently, we were able to perform the balance payments for the Grant 2011 to our partners in the June timeframe.

containing both Cost and Performance was ready and has been submitted to EIT for approval.

In autumn an update has been made to the Business Plan for the EIT Outreach initiative to involve more students and start-ups from new member states in the KIC Activities and an amendment of 1.3 million euros to the EIT Contribution of the budget was granted.

The overall Catalyst budget has been well respected with regard to the total amounts committed by the partners in the PGA. The total actual reported is 31.3 million euros against a PGA budget of 31.5 million euros. However, there has been a shift from EIT funding to co-funding of 4.3 million euros resulting in an EIT actual of 24.3 million euros compared to a budget of 28.6 million euros.

The overall Carrier funding budget of 74.5 million euros has been exceeded by 6.4 million euros to a total of 80.9 million euros.

In general the actuals in the Action Lines are aligned with the budgets. A discrepancy of 630,000 euros occurred in the Scholarship budget of the Master School. Due to the lower number of admitted students this budget was not consumed to the full extent planned.

Based on the experience of 2010 and 2011 the execution of 2012 was more predictable with less disruptions for the partners. Also, the growth in the number of partners between 2011 and 2012 was a modest 10%.

**Stan Smits**  
COO EIT ICT Labs



The Grant Agreement 2012 and associated Business Plan were signed on May 10, 2012 for a total budget (catalyst and carrier) of 111,468,264 euros. The Catalyst budget was estimated at 33,136,339 euros with a maximum EIT contribution of 27,307,605 euros.

In 2012, two amendment rounds to the Partner Grant Agreements (PGA) have taken place, one in September and one in November. This gave us an excellent starting point for the 2012 Cost Reporting using PROMISE Suite directly by the partners. February 28 the KIC Report

Action Lines	EIT Contribution Catalyst	Co-Funding Catalyst	Total Cost Catalyst	Catalyst Budget	Carrier Cost	Carrier Budget
<b>Business</b>	<b>€3,239,090.30</b>	<b>€749,190.10</b>	<b>€3,988,280.40</b>	<b>€4,246,592.00</b>	<b>€8,984,377.76</b>	<b>€7,715,700.00</b>
Business Catalyst Development	€820,002.07	€36,354.46	€856,356.53	€948,000.00	€669,433.30	€586,000.00
Innovation in Established Companies	€1,164,803.87	€511,999.31	€1,676,803.18	€1,676,692.00	€3,170,942.40	€2,901,600.00
New Business Creation	€1,254,284.36	€200,836.33	€1,455,120.69	€1,621,900.00	€5,144,002.06	€4,228,100.00
<b>Education</b>	<b>€4,022,125.47</b>	<b>€1,006,930.63</b>	<b>€5,029,056.10</b>	<b>€6,805,200.00</b>	<b>€6,966,763.44</b>	<b>€5,307,000.00</b>
Doctoral School	€1,186,920.03	€167,239.46	€1,354,159.49	€1,390,000.00	€3,632,070.62	€2,922,000.00
Master School	€2,835,205.44	€839,691.17	€3,674,896.61	€5,415,200.00	€3,334,692.82	€2,385,000.00
<b>Management</b>	<b>€6,145,702.19</b>	<b>€2,782,691.44</b>	<b>€8,928,393.63</b>	<b>€8,351,235.00</b>	<b>€1,287,269.93</b>	<b>€1,560,000.00</b>
Co-Location Centres	€3,841,494.56	€2,278,731.13	€6,120,225.69	€5,592,680.00	€1,287,269.93	€1,560,000.00
Management	€2,304,207.63	€503,960.31	€2,808,167.94	€2,758,555.00	-	-
<b>Research</b>	<b>€3,311,284.36</b>	<b>€817,331.08</b>	<b>€4,128,615.44</b>	<b>€3,759,200.00</b>	<b>€18,499,022.89</b>	<b>€15,452,140.00</b>
Computing in the Cloud	€1,232,903.12	€224,786.47	€1,457,689.59	€1,320,000.00	€4,965,316.52	€5,967,500.00
Cyber-Physical Systems	€239,562.25	€21,631.75	€261,194.00	€244,200.00	€782,338.09	€777,640.00
ICT-mediated Human Activity	€661,225.09	€167,999.17	€829,224.26	€705,000.00	€2,724,758.93	€1,896,000.00
Internet Technologies and Architecture	€713,329.07	€119,514.43	€832,843.50	€945,000.00	€8,185,098.27	€5,214,500.00
Privacy, Security & Trust	€343,604.48	€233,770.94	€577,375.42	€398,500.00	€1,780,706.61	€1,521,500.00
Research Catalyst Development	€120,660.35	€49,628.32	€170,288.67	€146,500.00	€60,804.47	€75,000.00
<b>Thematic</b>	<b>€7,585,257.73</b>	<b>€1,636,153.20</b>	<b>€9,221,410.93</b>	<b>€8,333,150.00</b>	<b>€45,112,065.32</b>	<b>€44,491,519.00</b>
Digital Cities of the Future	€614,699.63	€136,177.72	€750,877.35	€650,000.00	€4,249,752.56	€2,719,500.00
Health & Wellbeing	€1,712,938.83	€409,611.58	€2,122,550.41	€1,945,000.00	€9,136,620.43	€12,060,245.00
Intelligent Mobility & Transportation Systems	€641,858.06	€74,894.12	€716,752.18	€649,800.00	€3,642,790.74	€2,718,000.00
Networking Solutions for Future Media	€1,599,555.02	€408,630.98	€2,008,186.00	€1,655,300.00	€11,250,393.44	€10,022,259.00
Smart Energy Systems	€1,648,531.34	€279,160.67	€1,927,692.01	€1,893,050.00	€8,343,492.78	€6,725,454.00
Smart Spaces	€1,367,674.85	€327,678.13	€1,695,352.98	€1,540,000.00	€8,489,015.37	€10,246,061.00
<b>Grand Total</b>	<b>€24,303,460.05</b>	<b>€6,992,296.45</b>	<b>€31,295,756.50</b>	<b>€31,495,377.00</b>	<b>€80,849,499.34</b>	<b>€74,526,359.00</b>

## OUTLOOK 2013

Based on our experiences we continuously evaluate our overall strategy and adjust it where needed. Our Innovation Radar plays a key role in our strategic choices that are laid down in our Strategic Innovation Agenda that provides a rolling three year outlook. The guiding principle is a focus on bringing high impact innovations to life via the consistent strengthening of the unique characteristics of EIT ICT Labs being tightly integrating the players in the Education, Research, and Business knowledge triangle, creating a pan-European ecosystem of excellent partners, and running vibrant Co-location Centres.

Our Co-location Centres already being vibrant meeting places in EIT ICT Labs will be further strengthened via the continuous presence of our business teams, our Action Line activities, Doctoral Training Centres (DTCs), students, entrepreneurs, and guests as well as through the organisation of meetings, workshops and events. With the arrival of the Madrid-driven Spanish activities, our associate partnership groups expanded. Together with the Budapest-driven Hungarian associate partnership group, these groups will play an important role in the implementation of our mission to serve Europe.

An important instrument to target the right innovation opportunities and focus our efforts is portfolio management. After the development of the portfolio management approach and the piloting in 2012, portfolio management will be introduced to all Action Lines and will play an important role in the creation of the Business Plan 2014. The emphasis on business economic underpinning of activities will be reinforced, amongst others through the build-up of fulltime business development teams in our Co-location Centres during 2013. The catalyst set will be

upgraded based on use and effectiveness. Our KPI system will be further professionalised as well as the monitoring of progress of activities.

**In the education domain we will further expand our Master School via the activation of our exit point universities for the first cohort of students and via the expansion of the number of entry points for the existing seven programs.**

The aim is to at least doubling the intake of new Master students. Also, we will expand our network of DTCs with at least two more to be established in 2013 and a doubling of the number of PhD students. The Software Campus will recruit the next cohort of students in spring and new education initiatives in the area of remote and life-long education will be deployed amongst others via a new initiative called Academy Cube. The tight integration of our education and innovation programmes will be further developed via the embedding of master and PhD thesis work in our Action Lines.

Action Lines will further scale up their activities in 2013 and are targeting high impact innovations via a selected number of focussed activities. The Health & Wellbeing Action Line concentrates on driving selected physical and mental wellness solutions to the market via a mix of start-ups and our large industry partner market channels. The Smart Energy Systems Action Line concentrates on the introduction of Smart Grid management solutions in a couple of selected pilots in Sweden and Germany. The Smart Spaces Action Line focusses on supporting people with augmented interaction and information services on mobile

Our motto for 2013 will be "Target and Focus". With a fast growing organisation like EIT ICT Labs, from a total budget of 82 million euros in 2011 to a planned total budget of 200 million euros in 2013, keeping focus and being selective on which targets to pursue is crucial.

**Willem Jonker**  
CEO EIT ICT Labs

devices. The Digital Cities of the Future Action Line concentrates on higher involvement of citizens via polling and crowd sourcing techniques as well as on improving safety in cities via integrated disaster management. The Intelligent Mobility Action Line concentrates on integrated traffic mobility solutions based on a variety of data sources, as well as connected cars. The emerging Cyber-Physical Systems Action Line concentrates on connected sensor-based solutions for smart manufacturing and critical infrastructure management.

Our Network Solutions related Action Lines (Internet Technologies and Architecture, Network Technology for Future Media, and Computing in the Cloud) group their 2013 activities around the key challenges in connectivity solutions around the enormous growth of (multi-media) data traffic and the consequences for the backbone and access networks, as well as on the development of new services in the area of Internet of Things. Finally, our Privacy, Security and Trust Action Line concentrates on privacy and trust in location-based and cloud-based services as well as secure identity management solutions.

In 2013 we will further extend our activities with our strategic partners: ITEA, Trust in Digital Life (TDL), Future Internet PPP (FI-PPP), and EIF. The Memorandum of Collaboration with FI-PPP is implemented in 2013 via a focussed activity on the industrial uptake of two selected FI-PPP technologies. The collaboration with Trust in Digital Life is deepened via the just started joint coordination and support action. The ITEA collaboration is broadened via the extension of the number of ITEA carrier projects in EIT ICT Labs activities. Finally, with EIF two concrete activities are carried out in 2013 aiming at jointly creating two European level

investment funds, one targeting early technology maturation and one targeting financing of SME growth.

**From creating EIT ICT Labs in 2010 via setting up the organisation in 2011 through investing in the high impact activities in 2012, in 2013 the emphasis will be on targeting and focussing our activities in order to deliver high impact results.**

Along that road we have created a thriving innovation community of entrepreneurial people in our pan-European ecosystem of Co-location Centres.

**A community that is fully committed to continue the journey to drive European leadership in ICT innovation!**



## MANAGEMENT COMMITTEE

The Management Committee (MC) includes the Chief Executive Officer, Chief Strategy Officer, the Chief Operations Officer, the Marketing and Communications Director, the Research Director, the Business Director, the Education Director, and the six Node Directors responsible for the Nodes in Berlin, Eindhoven, Helsinki, Paris, Stockholm, and Trento.



The Chief Strategy Officer (CSO) liaises with the Education, Research, and Business Directors and prepares the Strategic Innovation Agenda (SIA) and the annual Business Plan.

The Chief Operating Officer (COO) is responsible for the planning, record-keeping and reporting towards EIT and prepares the annual update of the Business Plan.

The COO is also responsible for distributing the EIT funds to the Nodes and KIC Partners according to the ESB decisions.

The Education, Research, and Business Directors are each responsible of developing the KIC activities in their respective areas, in particular new catalyst development.

The Marketing and Communications Director leads the marketing and communications operations of the KIC.

Each Node is governed by a Node Executive Committee (NEC) elected by the Core Partners associated with that Node. The NEC appoints the Node Director who is responsible for the daily operations and who is a member of the KIC Management Team.

The Chief Executive Officer (CEO) leads EIT ICT Labs daily operations and ensures achievement of the goals according to the business plan. The CEO is appointed by and works under the supervision of the Executive Steering Board (ESB).

### MANAGEMENT COMMITTEE 2012

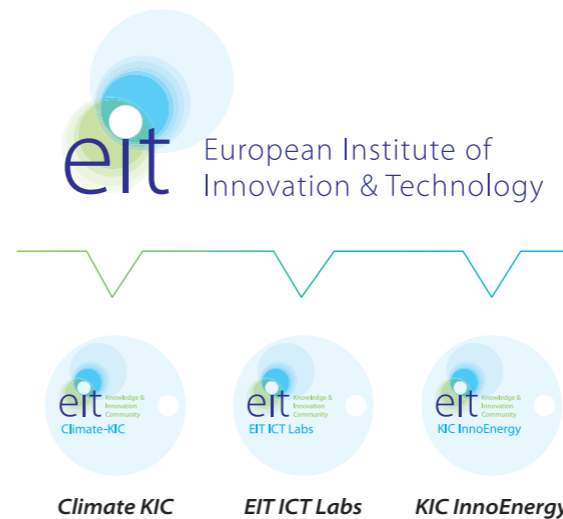
**Willem Jonker** CEO, **Martti Mäntylä** CSO, **Stan Smits** COO, **Johanna Gavelfalk** Marketing & Communications Director, **Prof. Anders Flodström** Education Director, **Olivier Festor** Research Director, **Klaus Beetz** Business Director, **Udo Bub** Berlin Node Director, **Patrick Strating** Eindhoven Node Director, **Marko Turpeinen** Helsinki Node Director, **Bruno Le Dantec** Paris Node Director, **Gunnar Landgren** Stockholm Node Director, **Roberto Saracco**, Trento Node Director

## ABOUT EIT ICT LABS

EIT ICT Labs is one of the first Knowledge and Innovation Communities (KIC) set up by the European Institute of Innovation and Technology (EIT), as an initiative of the European Union.

EIT ICT Labs' mission is to drive European leadership in ICT innovation for economic growth and quality of life.

Since 2010, EIT ICT Labs has consistently brought together researchers, academics and business people. By linking Education, Research, and Business, EIT ICT Labs empowers ICT top talents for the future and brings ICT innovations to life. EIT ICT Labs' partners represent global companies, leading research centres, and top ranked universities in the field of ICT.



## Governance Structure

### EXECUTIVE STEERING BOARD

The General Assembly (GA) is the highest decision-making body in EIT ICT Labs, deciding on the strategic issues and approving the EIT ICT Labs Strategic Innovation Agenda (SIA) and the Business Plan. The General Assembly also elects the Executive Steering Board (ESB).

The ESB consists of two Core Partner representatives per Node, one from industry and one from academia/research. The ESB appoints its chairman, the CEO and other main officers of the KIC. ESB provides guidance to the CEO in strategic tasks, decides on specific EIT-funded actions, evaluates and validates the progress of these actions, approves non-EIT funding, and makes recommendations on the admission and exit of partners.

The ESB Chairman is responsible for the strategic positioning of EIT ICT Labs and for securing long-term private funding.

### MEMBERS OF THE EXECUTIVE STEERING BOARD

<b>CHAIRMAN</b>	Henning Kagermann, Acatech
<b>BERLIN</b>	Heinrich Arnold, Deutsche Telekom AG Wolfgang Wahlster, DFKI
<b>EINDHOVEN</b>	Fred Boekhorst, Philips Peter Apers, 3TU.Nirict
<b>HELSINKI</b>	Jyri Huopaniemi, Nokia Tatu Koljonen, VTT
<b>PARIS</b>	Jean-Luc Beylat, Alcatel-Lucent Michel Cosnard, Inria
<b>STOCKHOLM</b>	Magnus Madfors, Ericsson Peter Gudmundson, KTH
<b>TRENTO</b>	Fulvio Faraci, Telecom Italia Oliviero Stock, Trento Rise

## Annexe 1: EIT ICT Labs News & Events 2012

News were regularly published on the general website. For more information go to [www.eitictlabs.eu](http://www.eitictlabs.eu).

**EIT ICT Labs was involved and in charge of several events and workshops during 2012, mainly:**

### 19 – 20 DEC 2012

EIT ICT Labs Italian Node Partner Event, Trento

### 18 DEC 2012

Good practices in Open Source, webinar

### 13 – 15 DEC 2012

Idea Challenge 2012 Finals – Digital Life of the Future, hosted by CDTM, Munich



### 12 DEC 2012

EIT ICT Labs, SICS & MDH brokerage event, workshop, Västerås

### 06 – 07 DEC 2012

Business Model Design with Alexander Osterwalder, workshop, Berlin

### 04 – 06 DEC 2012

LeWeb Startup Competition, Paris

### 03 DEC 2012

Entrepreneurial Boot Camp, Helsinki

### 03 DEC 2012

SmartGridSec12, workshop, Berlin

### 30 NOV 2012

Cross-meeting of Action Lines Computing in the Cloud and Digital Cities of the Future, Paris

### 29 NOV 2012

Computing in the Cloud, workshop, Paris

### 29 NOV 2012

Open Innovation with Henry Chesbrough, webinar

### 28 NOV 2012

Shaping Doctoral Studies in the EIT ICT Labs Doctoral Training Centre at the KTH, talk, Stockholm

### 28 NOV 2012

Mobile Future Conference and Mobile Innovation Alley, conference, Stockholm

### 27 NOV 2012

Business Modelling Expert Meeting, Munich

### 27 NOV 2012

Prospects of Intelligent and Adaptive Lighting, workshop, Eindhoven

### 27 NOV 2012

Keccak and the SHA-3 competition, seminar, Trento

### 26 – 30 NOV 2012

Health & Wellbeing PDEng Winterschool 2012, Eindhoven

### 26 NOV 2012

Networking Solutions for Future Media, workshop, Stockholm

### 23 NOV 2012

University-Industry Alliances, IP and Contractual Governance: a balanced scorecard approach, webinar

### 21 – 23 NOV 2012

Mediating Presence, workshop and final conference 2012, Delft

### 21 – 22 NOV 2012

SLUSH start-up conference, Helsinki

### 21 NOV 2012

Simulation & Virtual Reality for Healthcare and Healthcare applications, From Cell to Virtual Patient, Inria-Industry meeting, Strasbourg

### 21 NOV 2012

EIT and KICs: a glance into the official story and at the backstage, open seminar, Trento

### 20 NOV 2012

Big Data: perspective and experience of a Telco operator, seminar, Trento



### 18 – 23 NOV 2012

Chilean delegation of officers from universities and technology ministries, hosted in Paris, Saclay, Sophia-Antipolis and Rennes

### 15 – 16 NOV 2012

Future Seamless Communication Conference, Berlin

### 14 NOV 2012

New business opportunities through a new platform for streaming services, talk, Stockholm

### 13 NOV 2012

Horizon 2020, Q&A with key MEPs, Brussels

### 13 NOV 2012

Smart Energy Systems, workshop, Berlin

### 12 NOV 2012

Location Privacy, workshop, Stockholm

### 08 – 09 NOV 2012

EIT Stakeholders Conference – Addressing Societal Challenges through the EIT, Larnaca

### 07 – 08 NOV 2012

Smart Spaces, workshop, Stockholm

### 7 NOV 2012

Road Safety, workshop in session T3 Intelligent Vehicle Systems of the ATA-SAE conference "The Convergence of Systems Towards Sustainable Mobility", Torino

### 06 NOV 2012

Digital Cities EIT ICT Labs at California France Forum CaFFEET 2012, talk, Berkeley

### 06 NOV 2012

Big Data: Order matters! Harnessing a world of orderings for reasoning over massive data, seminar, Trento

### 06 NOV 2012

Patent Booster, training session, Paris

### 05 NOV 2012

Technology Transfer from Academia to Industry – The Role of IP Management in Joint Research Projects, workshop, Munich

### 05 NOV 2012

European Business Process Management, round table, Eindhoven

### 01 NOV 2012

PhD – an Entrepreneur?, course, Helsinki

### 31 OCT 2012

Patent Booster, training session, Eindhoven

### 25 – 26 OCT 2012

Partner Event 2012, Helsinki



### 24 – 25 OCT 2012

Experience and Living Labs: Workshop on Best Practices and Business Models, Helsinki

### 24 OCT 2012

ICT Delta 2012, conference, Rotterdam

### 24 OCT 2012

Patent Booster, training session, Helsinki

### 23 OCT 2012

Linus Torvalds at Open Innovation House, discussion, Helsinki

### 18 OCT 2012

Patent Booster, training session, Berlin

### 14 – 17 OCT 2012

Smart Energy Systems, presentation at IEEE ISGT conference on Innovative Smart Grid Technologies, Berlin

### 17 OCT 2012

ICT4MPOWER – Innovation and entrepreneurship in an African rural setting!, talk, Stockholm

### 16 OCT 2012

Patent Booster, training session, Trento

### 16 OCT 2012

Artic 15 – OOHACK HACKATHON 1, Helsinki

### 15 OCT 2012

FI-WARE 2nd Open Call Infoday, Trento

### 11 – 13 OCT 2012

EIT ICT Labs Master School Kick-off, get-together, Stockholm



### 10 OCT 2012

TIMIT Digital Services Strategy Day, Helsinki

### 09 OCT 2012

Open Innovation @ Otaniemi, technology presentations, Helsinki

### 08 OCT 2012

Berlin welcomes Master School students, welcome meeting, Berlin

### 03 OCT 2012

NFC trial at CLC Stockholm, talk, Stockholm

### 03 OCT 2012

Opening of the Satellite Co-Location Centre, Rennes

**02 OCT 2012**  
Business Modelling Partner Meeting, Paris

**28 SEP 2012**  
Mind the Bridge Boot Camp, training for selected start-ups, Trento

**25 SEP 2012**  
Patent Booster, training session, Stockholm

**24 – 27 SEP 2012**  
Ambient Assisted Living Forum 2012, presentations, Eindhoven

**21 SEP 2012**  
DrupalCamp 2012, Helsinki

**17 – 28 SEP 2012**  
EIT ICT Labs Smart Energy Summer School, London/Karlsruhe

**17 – 22 SEP 2012**  
Open Knowledge Festival and Green Hackathon, Helsinki

**17 – 21 SEP 2012**  
Vehicular Networking and Intelligent Transportation Systems Summer School, Ulm

**17 – 19 SEP 2012**  
Mediating Presence, workshop, Stockholm

**13 SEP 2012**  
Master School Students Meet & Greet, welcome meeting, Trento

**06 SEP 2012**  
Education Working Group meeting, Paris

**05 SEP 2012**  
Master School Students Meet & Greet, welcome meeting, Helsinki

**03-07 SEP 2012**  
Imagine the Future in ICT, conclusion of the Summer School, Paris

**27 AUG 2012**  
Master School Students Meet & Greet, welcome meeting, Eindhoven



**23 AUG 2012**  
Master School Students Meet & Greet, welcome meeting, Stockholm

**18 – 20 JUN 2012**  
Crowncom 2012, 7th International Conference on Cognitive Radio Oriented Wireless Networks, Stockholm

**17 – 20 JUN 2012**  
Mediating Presence, workshop, Delft

**03 – 08 JUN 2012**  
The EIT ICT Labs Cloud Computing Summer School at Otaniemi, Espoo, Finland

**01 – 03 JUN 2012**  
Startup Weekend Eindhoven

**09 MAY 2012**  
Health & Wellbeing Call for Proposals 2013, workshop, Eindhoven

**08 – 09 MAY 2012**  
Technology Transfer Programme Call for Proposals 2013, workshop, Stockholm

**04 MAY 2012**  
Smart Energy Systems Call for Proposals 2013, workshop, Berlin

**03 MAY 2012**  
STING Day 2012, networking event, Stockholm

**03 MAY 2012**  
EIT ICT Labs Innovation Radar, presentation, Stockholm

**02 MAY 2012**  
Entrepreneurial Research Day, presentations and round-tables, Paris

**25 APR 2012**  
Call for Activities 2013, roadshow event, Berlin

**23 – 24 APR 2012**  
EIT ICT Labs meets W3C on Web Applications In Your Car, workshop, Paris

**20 APR 2012**  
Privacy, Security & Trust, workshop, Trento

**19 APR 2012**  
Call for Activities 2013, roadshow event, Trento

**18 APR 2012**  
Inauguration of the EIT ICT Labs Trento Node Co-location Centre, Trento



**12 – 13 APR 2012**  
Cloud Computing, workshop, Stockholm

**10 APR 2012**  
Call for Activities 2013, roadshow event, Stockholm

**02 – 03 APR 2012**  
Experience & Living Labs Business Model Coaching, workshop, Turin

**02 – 03 APR 2012**  
Smart Spaces, workshop, Berlin

**02 APR 2012**  
Call for Activities 2013, roadshow event, Paris

**31 MAR 2012**  
Usage of Netflow/IPfix in Network Management, workshop, Paris

**23 – 25 MAR 2012**  
54 hour Startup Weekend, Trento

**19 MAR 2012**  
Digital Cities of the Future, workshop, Paris

**15 MAR 2012**  
Networking Solutions for Future Media, workshop, Trento

**15 MAR 2012**  
The Interaction Toolkit Kick-off, meeting, Paris

**14 – 16 MAR 2012**  
Mediating Presence, workshop, Stockholm

**10 MAR 2012**  
EIT ICT Labs @CeBIT: Student Day, talk and information events, Hannover

**09 MAR 2012**  
Kick-off meeting European SME Programme, Paris

**09 MAR 2012**  
CeBIT Lab talk "ICT for Quality of Life", Hannover

**09 MAR 2012**  
CeBIT Lab talk "Smart Energy", Hannover

**09 MAR 2012**  
CeBIT Lab talk "Digital Cities", Hannover

**08 MAR 2012**  
"Bringing ICT Innovation to Life" @CeBIT Lab, presentations and talks, Hannover

**07 MAR 2012**  
EIT ICT Labs@CeBIT: Education Day, presentations, Hannover

**06 MAR 2012**  
EIT ICT Labs booth F50 in hall 26 @CeBIT, press event, Hannover



**22 – 23 FEB 2012**  
CPS Action Line Roadmapping Workshop, Munich

**21 FEB 2012**  
EIT Entrepreneurship Awards, Start up! The European Entrepreneurship Summit, conference, Brussels

**20 – 24 FEB 2012**  
Winter Camp on Language and Data/Knowledge Technologies, Trento

**17 – 19 FEB 2012**  
Global Android Dev Camp, Paris

**15 – 17 FEB 2012**  
9th European Conference on Wireless Sensor Networks, Trento

**09 FEB 2012**  
Internet of Things Day at SICS, conference, Stockholm

**28 – 29 JAN 2012**  
London Green Hackathon, London

**19 JAN 2012**  
6th Bourse aux technologies "Objets Communicants", Rennes

**16 JAN 2012**  
Engineering Society and Territory Research Office inauguration, Trento

## Annexe 2: Partners of EIT ICT Labs

EIT ICT Labs' partners represent some of Europe's and the world's leading organisations, universities, research institutes, and companies in the field of ICT. Three different hence complementary categories of partners are brought together within the EIT ICT Labs KIC. Decision powers of these partners, i.e. formal voting rights, are based on their contributions to KIC activities.

### CORE PARTNERS

Core Partners which are the initial partners of the first application and Core Partners of the first Framework Partnership Agreement signed with EIT. The Core partners are members of the KIC Association. They represent world-class excellence, are fully committed to the KIC application and will raise the necessary co-funding for the EIT ICT Labs execution. Core Partners control and manage EIT ICT Labs through their membership in the Association and the Executive Steering Board (ESB) elected by the General Assembly (GA). They have equal voting rights at the GA, can participate in activities at any Co-location Centre and are organized through the Nodes and responsible for the operation of their respective Node. They must fulfil minimum criteria regarding contributions to EIT ICT Labs to remain Core Partner.



### AFFILIATE PARTNERS

Affiliate Partners are further organizations participating in and contributing to the activities of EIT ICT Labs. They are usually active on Node level and are typically universities, SMEs or venture capital funds and companies. They have a contract with the EIT ICT Labs KIC Association and a mandate with a specific Node through which they supply competence and human resources to its Co-location Centre. Affiliated partners obtain general information from EIT ICT Labs and have access to all activities of EIT ICT Labs, but are not members of the Association and have no voting rights in the GA.



### ASSOCIATE PARTNERS

Associate Partners have specific tasks at the EIT ICT Labs KIC level that are not addressed by the Nodes. These organisations are not linked to a specific Node due to their geographical location. They have a contract with the EIT ICT Labs KIC Association, obtain general information from EIT ICT Labs and have access to all EIT ICT Labs activities, but are not members of the Association and have no voting rights in the GA.

### ASSOCIATE PARTNER GROUP BUDAPEST

- 📍 The ELTE, Eötvös Lorand University of Sciences
- 📍 Budapest University of Technology and Economics

### ASSOCIATE PARTNER GROUP LONDON

- 📍 Imperial College London
- 📍 University College London

EIT ICT Labs have selected a small number of partners located outside the co-location sites' countries as Associate Partners who are given a direct mission from central EIT ICT Labs management, though they are also connected through the Nodes and, of course, expected to contribute significantly to co-location activities. Initial examples of such missions are outreach programmes to enhance ICT competence (ELTE) and monitoring the performance of EIT ICT Labs from a business school perspective (Imperial College). The two associate partners are listed with the companies, institutes and universities linked to them:



## Annexe 3: Glossary

<b>4G</b>	Fourth generation (mobile telecommunication standards)
<b>5G</b>	Fifth generation (mobile telecommunication standards)
<b>AL</b>	Action Line
<b>ATTPS</b>	Achieving the Trust Paradigm Shift
<b>BDA</b>	Business Development Accelerator
<b>CCC</b>	Citizen-centric Cities
<b>CCN</b>	Content-centric networking
<b>CDTM</b>	Center for Digital Technology and Management
<b>CEA</b>	Commissariat à l'Energie Atomique
<b>CEO</b>	Chief executive officer
<b>CFO</b>	Chief financial officer
<b>CLC</b>	Co-location Centre
<b>CNR</b>	National Research Council of Italy
<b>COO</b>	Chief operating officer
<b>CPS</b>	Cyber-Physical Systems
<b>CRF</b>	Centro Recherche FIAT
<b>CSO</b>	Chief strategy officer
<b>CWI</b>	Center Wiskunde & Informatica
<b>DAI</b>	Distributed Artificial Intelligence Laboratory
<b>DFKI</b>	Deutsches Forschungszentrum für Künstliche Intelligenz (German Research Center for Artificial Intelligence)
<b>DS</b>	Doctoral School
<b>DTC</b>	Doctoral Training Centre
<b>EC</b>	European Commission
<b>ECTS</b>	European Credit Transfer and Accumulation System
<b>EIB</b>	European Investment Bank
<b>EIF</b>	European Investment Fund
<b>EIT</b>	European Institute of Innovation & Technology
<b>ERB</b>	Education, Research, and Business
<b>ERCIM</b>	European Research Consortium for Informatics and Mathematics
<b>ESB</b>	Executive Steering Board
<b>ESI</b>	Embedded Systems Institute
<b>EU</b>	European Union
<b>FIRE</b>	Future Internet Research and Experimentation Initiative
<b>FI-PPP</b>	Future Internet Public Private Partnership
<b>GA</b>	General Assembly
<b>GDP</b>	Gross domestic product
<b>GNSS</b>	Global Navigation Satellite System
<b>GSMA</b>	Global System for Mobile Communications Association
<b>HCI</b>	Human-computer interaction
<b>HCID</b>	Human Computer Interaction and Design
<b>HD</b>	High definition
<b>HDFS</b>	Hadoop Distributed File System
<b>HEI</b>	Higher Education Institution

<b>HIIT</b>	Helsinki Institute for Information Technology
<b>I&amp;E</b>	Innovation & Entrepreneurial
<b>ICT</b>	Information and communications technology
<b>IEEE</b>	Institute of Electrical and Electronics Engineers
<b>IETF</b>	Internet Engineering Task Force
<b>IMT</b>	Institut Mines-Télécom
<b>ISGT</b>	Innovative Smart Grid Technologies
<b>ITA</b>	Internet Technology and Architecture
<b>ITEA</b>	Information Technology for European Advancement
<b>ITU-T</b>	International Telecommunication Union, Telecommunication Standardization Sector
<b>KIC</b>	Knowledge and Innovation Community
<b>KIT</b>	Karlsruher Institut für Technologie
<b>KPI</b>	Key performance indicator
<b>KSC</b>	Kista Science City
<b>KTH</b>	Kungliga Tekniska högskolan (Royal Institute of Technology)
<b>KTHFS</b>	KTH File System
<b>LINCS</b>	Laboratory of Information, Networking and Communication Sciences
<b>LNCS</b>	Lecture Notes in Computer Science
<b>LTE</b>	Long-term evolution
<b>MC</b>	Management Committee
<b>NEC</b>	Node Executive Committee
<b>P2P</b>	Peer-to-peer
<b>PET</b>	Privacy-enhancing technology
<b>PGA</b>	Partner grant agreement
<b>PoC</b>	Proof of concept
<b>QoS</b>	Quality of service
<b>R&amp;D</b>	Research and development
<b>RMAC</b>	Resource management across clouds
<b>SME</b>	Small and medium enterprises
<b>SIA</b>	Strategic Innovation Agenda
<b>SICS</b>	Swedish Institute of Computer Science
<b>SLA</b>	Service Level Agreement
<b>SSSUP</b>	Scuola Superiore Sant'Anna
<b>STEM</b>	Science, technology, engineering, and mathematics
<b>STING</b>	Stockholm Innovation & Growth
<b>SU</b>	Stockholm University
<b>TCP</b>	Transmission Control Protocol
<b>TDL</b>	Trust in Digital Life
<b>TNO</b>	Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek (Dutch Organization for Applied Scientific Research)
<b>UPMC</b>	Université Pierre et Marie Curie
<b>VTT</b>	Technical Research Centre of Finland
<b>WSN</b>	Wireless sensor networking

#### **Imprint/Contact**

EIT ICT Labs IVZW  
22 Rue d'Arlon, 1050 Brussels  
Belgium  
www.eitictlabs.eu

#### **Marketing & Communications Director**

Johanna Gavefalk  
Email: info@eitictlabs.eu  
www.eitictlabs.eu

#### **EIT ICT Labs Annual Report 2012**

ISBN 978-91-87253-23-2  
AR2012-001

#### **Images (©)**

EIT ICT Labs, mythja – shutterstock.com (04), Picture-Factory – fotolia.com (09), Nejrón Photo – shutterstock.com (29), Creations – shutterstock.com (31), Andrea Danti – shutterstock.com (35), SICS/Jann Lipka (36), ra2 studio – fotolia.com (39), Andrii Muzyka – shutterstock.com (41), Christian Mueller – shutterstock.com (44), ssguy – shutterstock.com (45), HaywireMedia – fotolia.com (47)

#### **Concept/Layout/Typesetting**

André Schulz – Designklub  
Email: info@designklub.de  
www.designklub.de

Schaltzeit GmbH  
Email: info@schaltzeit.com  
www.schaltzeit.com

# THE STRENGTH OF **EIT ICT LABS** RESTS ON OUR PARTNERS

#### **TOP TECHNICAL UNIVERSITIES**

3TU / NIRICT  
AALTO UNIVERSITY  
INSTITUT MINES-TÉLÉCOM  
THE ROYAL INSTITUTE OF TECHNOLOGY, KTH  
TRENTO RISE / UNIVERSITY OF TRENTO  
TU BERLIN  
UNIVERSITÉ PARIS-SUD 11  
UPMC - UNIVERSITÉ PIERRE ET MARIE CURIE

#### **EXCELLENT RESEARCH CENTRES**

CWI  
DFKI  
FRAUNHOFER  
INRIA  
NOVAY  
SICS  
TNO  
TRENTO RISE / FBK  
VTT

#### **LEADING COMPANIES**

ALCATEL-LUCENT  
DEUTSCHE TELEKOM LABORATORIES  
ENGINEERING SAP  
ERICSSON  
FRANCE TELECOM  
PHILIPS  
NOKIA  
SIEMENS  
TELECOM ITALIA

#### **AND MANY MORE**

SMART ENERGY SYSTEMS ENTREPRENEURSHIP HEALTH AND WELLBEING  
DIGITAL CITIES OF THE FUTURE INTELLIGENT MOBILITY AND TRANSPORTATIONS  
SYSTEMS ACTION LINE DOCTORAL SCHOOL INTERNET TECHNOLOGIES AND ARCHITECTURES  
EDUCATION ICT-MEDIATED HUMAN ACTIVITY KNOWLEDGE AND INNOVATION COMMUNITIES  
NEW BUSINESS CREATION SECURITY PRIVACY AND TRUST INNOVATION IN ESTABLISHED  
COMPANIES INSPIRATIONAL CATALYST TEAM EUROPEAN INSTITUTE OF INNOVATION  
AND TECHNOLOGY NETWORKING SOLUTIONS FOR FUTURE MEDIA MASTER SCHOOL  
COMPUTING IN THE CLOUD STOCKHOLM PARIS HELSINKI EINDHOVEN BERLIN TRENTO  
NETWORK EIT ICT LABS STUDENTS CLUB ENTREPRENEURS RESEARCHERS BUSINESS  
PEOPLE TOGETHER CYBER PHYSICAL SYSTEMS CHALLENGE COLLABORATION CARRIER  
EUROPE STUDENTS SPEARHEAD RESEARCH MOBILITY PROGRAM EXPERIENCE AND  
LIVING LABS CLUB INNOVATION RADAR ACCESS TO FINANCE OFFICE SPACE  
POPULATING OUR CO-LOCATION CENTRES TECHNOLOGY TRANSFER PROGRAM  
INNOVATION AND ENTREPRENEURSHIP MODULE MOBILITY CO-LOCATION CENTRES  
RESEARCH AND DEVELOPMENT QUALITY ASSURANCE AND ACCREDITATION  
SUMMER SCHOOLS WINTER CAMPS INDUSTRIAL DOCTORAL TRAINING CENTRE  
SPACES SMART ENERGY SYSTEMS ENTREPRENEURSHIP HEALTH AND WELLBEING  
DIGITAL CITIES OF THE FUTURE INTELLIGENT MOBILITY AND TRANSPORTATIONS  
SYSTEMS ACTION LINE DOCTORAL SCHOOL INTERNET TECHNOLOGIES AND ARCHITECTURES  
EDUCATION ICT-MEDIATED HUMAN ACTIVITY KNOWLEDGE AND INNOVATION COMMUNITIES  
NEW BUSINESS CREATION SECURITY PRIVACY AND TRUST INNOVATION IN ESTABLISHED  
COMPANIES INSPIRATIONAL CATALYST TEAM EUROPEAN INSTITUTE OF INNOVATION  
AND TECHNOLOGY NETWORKING SOLUTIONS FOR FUTURE MEDIA MASTER SCHOOL  
COMPUTING IN THE CLOUD STOCKHOLM PARIS HELSINKI EINDHOVEN BERLIN TRENTO  
NETWORK EIT ICT LABS STUDENTS CLUB ENTREPRENEURS RESEARCHERS BUSINESS  
PEOPLE TOGETHER CYBER PHYSICAL SYSTEMS CHALLENGE COLLABORATION CARRIER  
EUROPE STUDENTS SPEARHEAD RESEARCH MOBILITY PROGRAM EXPERIENCE AND  
LIVING LABS CLUB INNOVATION RADAR ACCESS TO FINANCE OFFICE SPACE  
POPULATING OUR CO-LOCATION CENTRES TECHNOLOGY TRANSFER PROGRAM  
INNOVATION AND ENTREPRENEURSHIP MODULE MOBILITY CO-LOCATION CENTRES  
RESEARCH AND DEVELOPMENT QUALITY ASSURANCE AND ACCREDITATION  
SUMMER SCHOOLS WINTER CAMPS INDUSTRIAL DOCTORAL TRAINING CENTRE  
SPACES