# Hungarian experiences from the first wave of KICs: EIT ICT Labs

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# The creation of an innovative ICT ecosystem in Budapest

# Overview of the Hungarian ICT related R&D activities since 1990s

- Starting from the early 1990s, intensive industrial relations have been created between ELTE, BME and the local ICT partners
  - Ericsson Hungary, Nokia-Siemens Networks Hungary, Cisco, Telekom Hungary

- Participation in the first EU-funded ICT pilot project in 2007

- Several medium enterprises have emerged as local spin-offs over the last two decades
  - Graphisoft, Kürt Zrt., AITIA
  - Prezi.com, LogMeIn, Nav'n'Go, Verba Technology…

# Partners of the EIT ICT Labs Budapest Associate Partner Group

- The EIT ICT Labs Budapest Associate Partner Group directly aims at speeding up and assisting future developments and at forming an R&D and innovation friendly environment
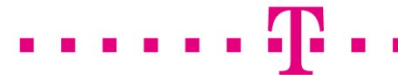
# Knowledge triangle in Budapest



**EDUCATION**
Creating a new breed of entrepreneurs

**RESEARCH**
Enabling excellent individuals and multidisciplinary teams to develop breakthrough ideas

3 MSc programmes in Budapest

Schools and camps

CLC in the Infopark

Cooperation with established companies

Raising awareness event

I& E Education of PhD students

Empowering entrepreneurship

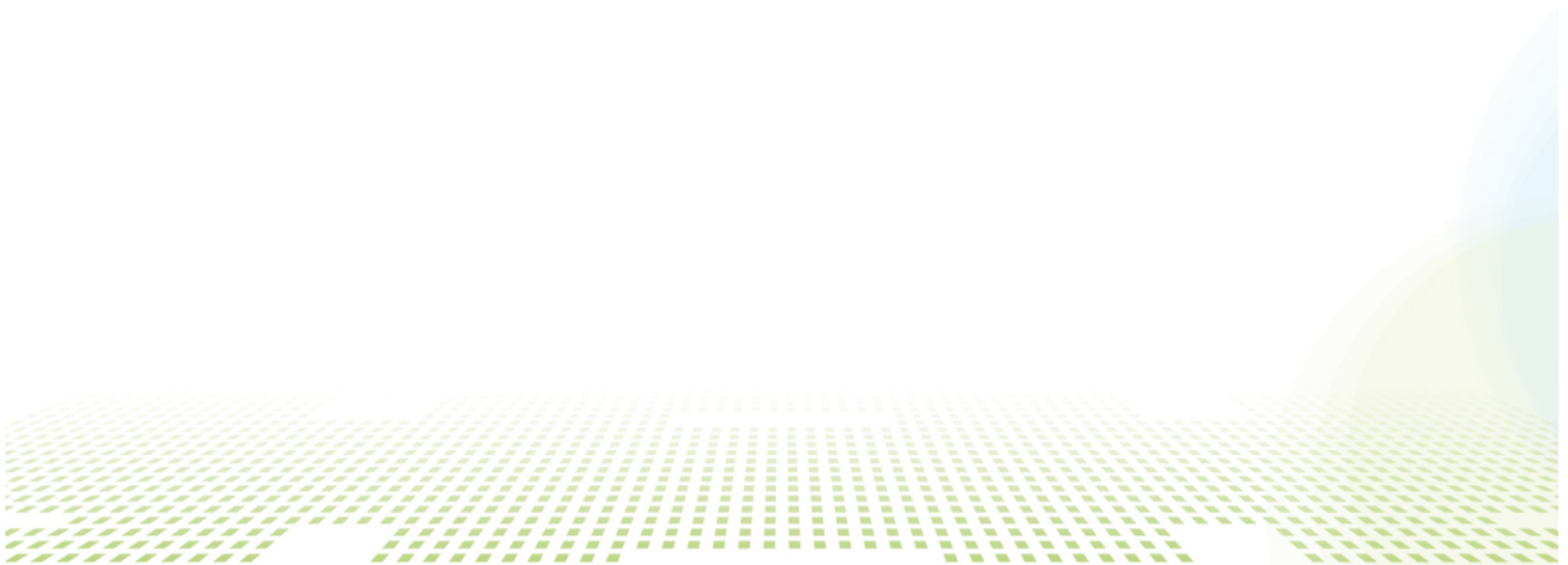**BUSINESS**
Supporting innovators all the way to the market
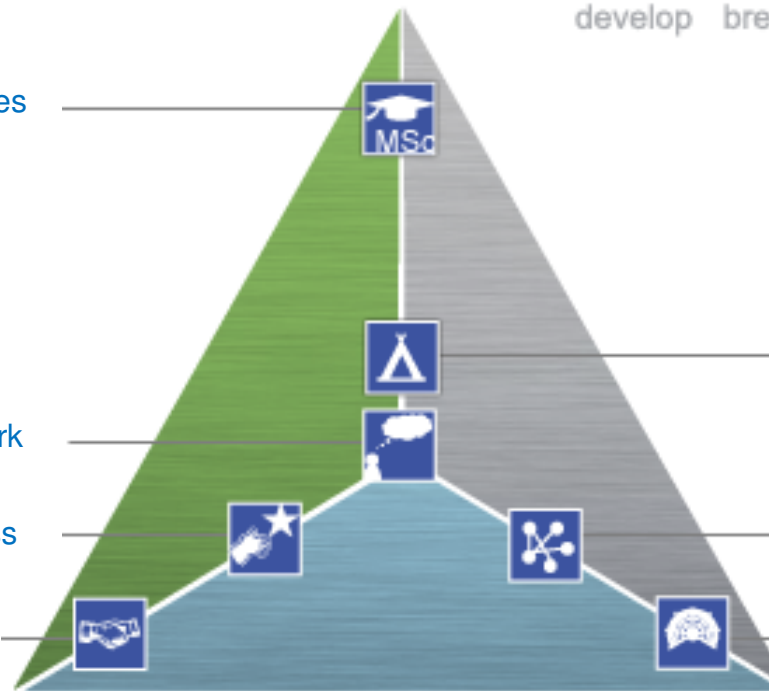
# Business

# Our framework drives innovations to the market

**Creation** > **Transition** > **Acceleration**

**Innovation nucleus**

Breed entrepreneurial talent through education

Generate knowledge through excellent R&D

**Co-location**

increase collaboration and effectiveness through physical proximity

Driving commercialization of R&D results through established companies

Innovation in established companies

New business creation

Driving commercialization of R&D results through empowering entrepreneurship

| Personal networks | Open Innovation | Innovation culture | Attractive environment | Benchmarking |

# From lab to market: Cooperation with established companies

- Integrated cooperative educational and research programmes at ELTE and BME
  - Labs: Research, Development and Innovation (R&D&I) activities together with the main industrial partners:
    - Ericsson Hungary, NSN Hungary, Hungarian Telecom, Cisco and ELTE Soft
    - minimun 2 patents per year
      (e.g. Ericsson applies the results of joint R&D projects 15 patents in the last years)

- The Budapest PhD students are working in a team with the university researchers and the industrial partner delegates
  - The 10 new students of the Doctoral School for ICT Innovation from Budapest have research topics reflecting the demands of industry

# Examples of planed cooperations with established companies (EIT ICT Labs / 2013)

- **Smart Spaces - Privacy in collaborative sensing applications and traffic analysis prevention** – Levente Buttyán (industrial partner: Nokia)
  - Design of a proxy based transaction protocol to be used by distributed clients to download content from a context based web service in a privacy preserving manner.

- **Smart Content Delivery and Storage in Mobile Networks with Network Coding** – Róbert Szabó (industrial partner: Ericsson)
  - Use of a random network coding technique to decrease the packet delay of multimedia streams for the peers behind slower connections.

# From student to entrepreneur

- Individual mentoring to support students' start-up enterprises
  - I&E workshops organized by ELTE/BME
  - Legal/IPR support and involvement of coaches/business mentors

- Network of early stage investors and venture funds
  - The university's graduates and PhD students may get help for identifying and developing breakthrough-innovations,
  - Transferring their unique ideas into valuable projects, and starting-up innovative companies

- Example of students' I&E proposal: Mobile Security Solution Development Project
  - Creating a new mobile security solution portfolio and applying it into an existing security solution
  - Researchers forecasting increasing market, currently 49% of the companies need mobile security solutions

# Recent success story: Tresor IT

- A new technological invention by three IT engineering students and their professor at BME
  - A cloud-based, secure file synchronising software, specifically designed to share confidential data of business users
  - Suitable for shared directories to help the encrypted file get into the cloud
  - The file is decryptable only when permitted by the owner
  - A special feature: the encrypted contents are shareable without re-encryption

- Tresor IT Kft. was founded in 2011
  - Tresorit received a 380 million HUF investment from Euroventures IV venture capital investment fund and nine private investors
  - The aim is to become market leader among cloud based service providers using shareable encryption, mainly among SMEs

# R&D activities
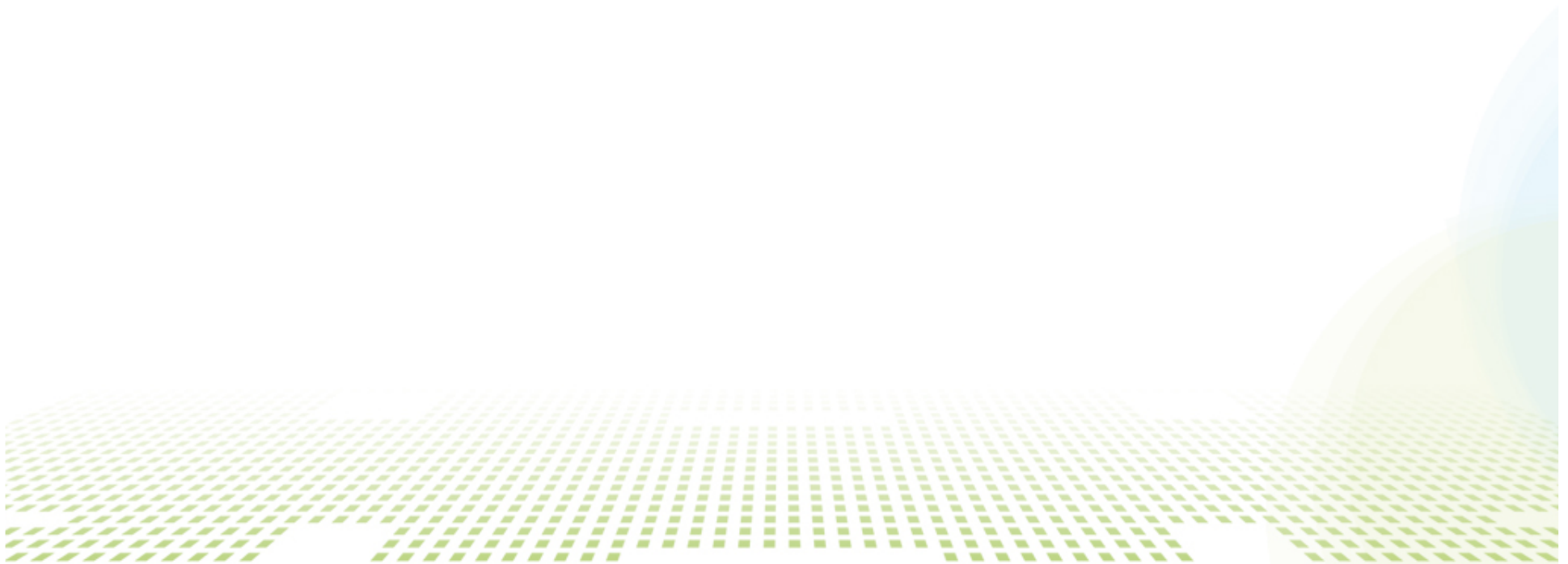
# Proposed R&D projects of 2013

1. Playful Learning on the Cloud
2. Crowd-source supported transportation service implementation
3. Sensor-based medical interfaces, knowledge acquisition, and data intelligence
4. Integration of data from various source
5. Smart Content Delivery and Storage in Mobile Networks with Network Coding
6. Extended federation, Resource browsing
7. Cross testbed measurement
8. Data repository
9. Detecting targeted attacks against Smart Energy Systems
10. Enhancing Security, Privacy and Accountability of e-voting and e-bidding systems
11. Software defined and virtualised network
12. Localization Toolkit
13. Privacy Aspect for Smart Spaces
14. Privacy Aspect for health and well being

# Education
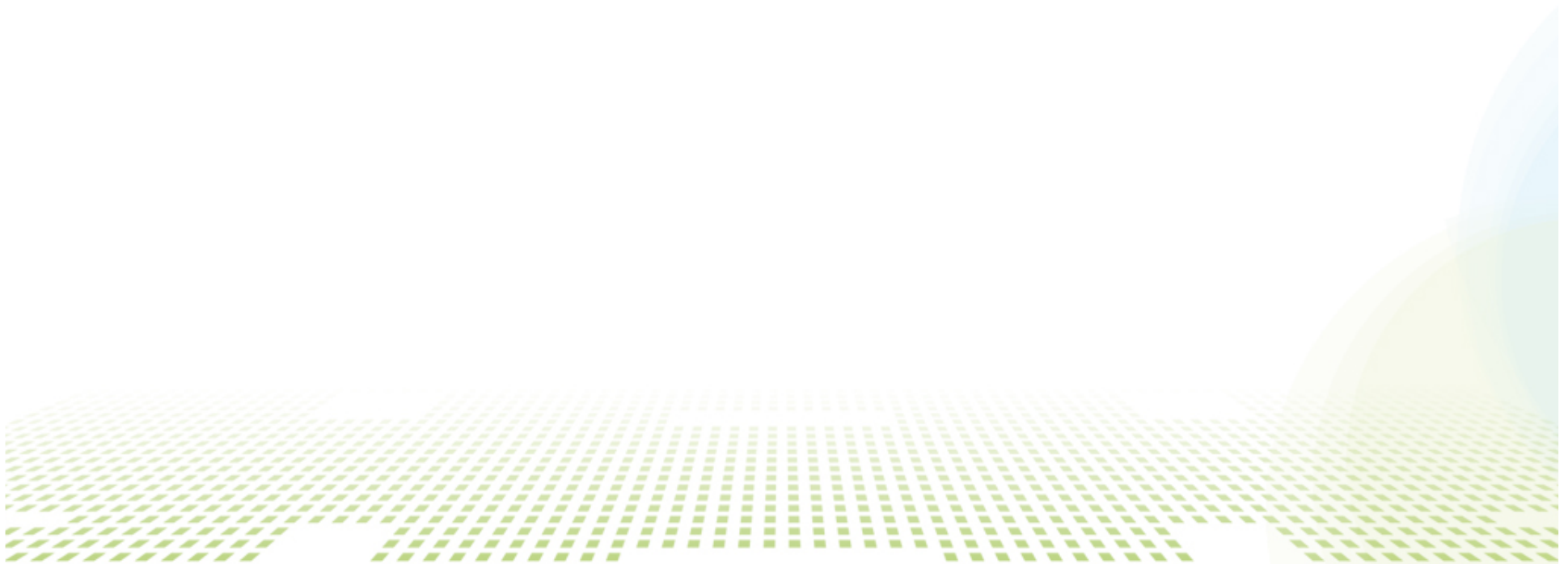
# EIT ICT Labs Master School

- The educational catalysts focus on robust entrepreneurship education to empower students and integrate them into the innovative ecosystems
- A two year programme with seven majors, at two universities in two different European countries to build a curriculum of their choice

# Three MSc majors in Budapest

- **Human Computer Interaction and Design (HCID)**

- **Digital Media Technology (DMT)**

- **Service Design and Engineering (SDE)**

- **Internet Technology and Architecture (ITA)**

- **Distributed Systems and Services (DSS)**

- **Security and Privacy (S&P)**

- **Embedded Systems (ES)**

# Participation of the Budapest Associate Partner Group in the doctoral training

- To provide PhD students with knowledge and skills on innovation and entrepreneurship

- Several decades' long traditions in doctoral education in cooperation with industrial partners: over 200 PhD students and 68 awarded PhDs since 1991

- Budapest application for Doctoral Training Centre
  - Focus topic: „communication software and system performance"
  - strong cooperation with participating industry
  - 5+5 students' (ELTE/BME) enrollment suggested by the selection committee
  - Advisory board with members delegated by ELTE/BME and industrial partners
  - Students have already been involved in Business Development course, Raising Awareness, Opportunity Recognition events and I&E mentoring

# X-Europe Network of Excellence driven by the Budapest Associate Partner Group

- **Excellence scouting**
  - Reach the top talented and highly ambitious teachers, researchers and professionals

- **Student recruitment**
  - Promote the EIT ICT Labs master programs and doctoral school

- **Interaction and consulting**
  - Assistance with preparing the application materials, motivation letters
  - Technical information on the programs, curricula and internships
  - Daily update on Facebook and permanent online helpdesk via skype

# X-Europe Activities

- EIT ICT Labs countries with blue (eg. France)

- Countries approached as part of X-Europe in various forms
  - Univeristy fair
  - Conference
  - Visit
  - Diplomacy contacts
  - Follow-up e-mail
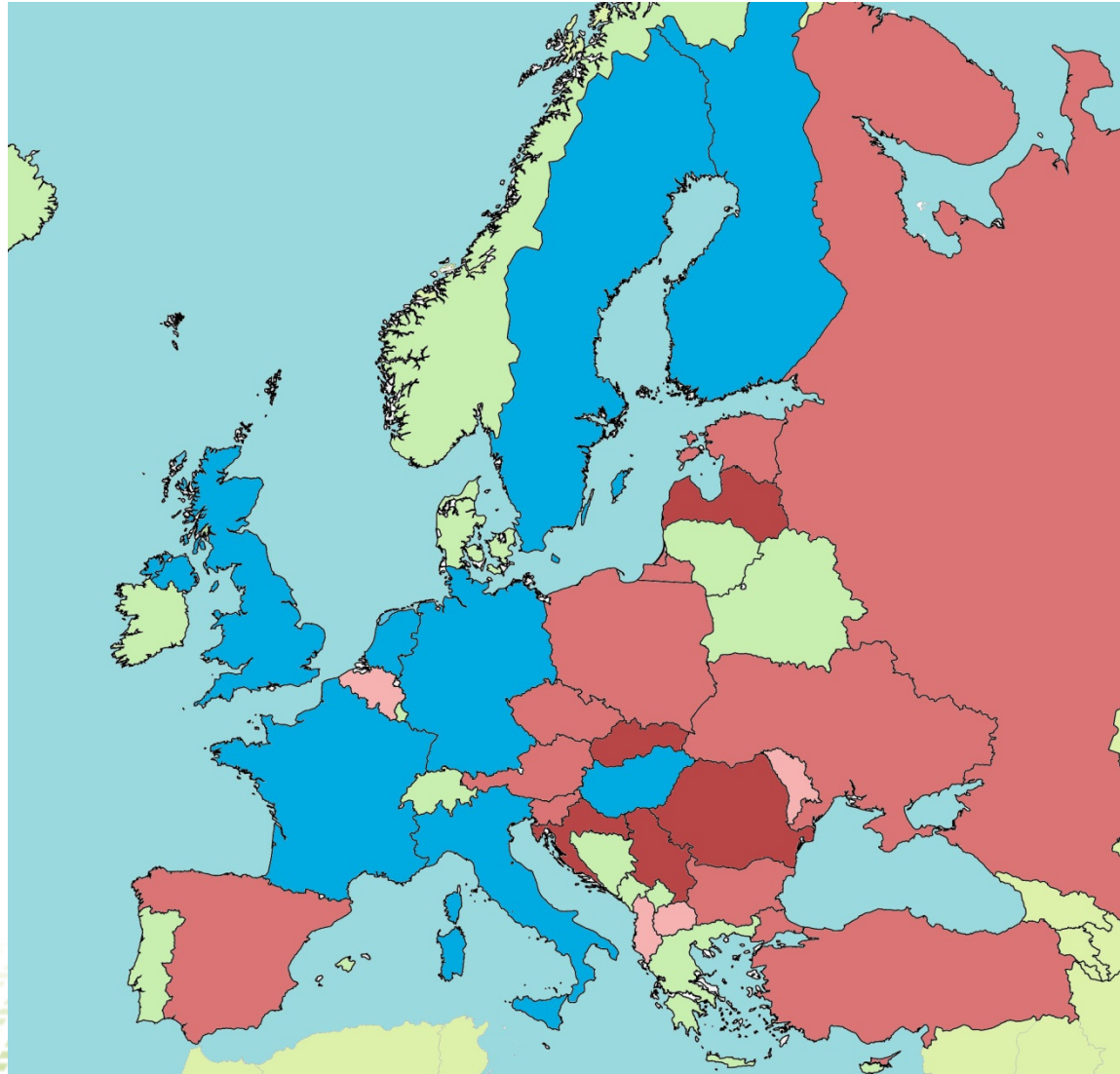
# Commitment of the Hungarian government

# EIT ICT Labs – National co-funding resources

- National funds help meet the carrier funds criteria for the Budapest Associate Partner Group
  - National Development Agency grant**: Carrier funding** for further **R&D activities** and for the inclusion of an increasing number of researchers
    - 92 FTE for 18 months (contract just signed, to be launched in 2013)
  - Direct support from the Minister of National Development
    - Provides the financial background for the preparation period
  - Education - Curricula Development
    - „Social Renewal Operational Program" (TÁMOP) financing of Curricula Development for Master School
    - 28 courses (80 lecturers involved, started in June 2012)

# Intensive cooperation at all national levels

- Highest level support of the Ministry of National Development and the National Economy Ministry

- Active cooperation with the National Innovation Office and National Development Agency

- Participation in the work of the Ministerial advisory board responsible for the innovation strategy of Hungary

- Strategic cooperation on innovation with the city of Budapest, fully supported by the mayor of the capital

# Added values and visions of Budapest Associate Partner Group

# Values added by the Budapest Associate Partner Group

**Intensive cooperation between the universities (ELTE/BME) and the industry in the field of *communication software and system performance***

- More than two-decade-long expertise in operation of a **unique „knowledge triangle" model**
  - Best practices of successful cooperation between ELTE, BME and industrial partners
  - The majority of the PhD themes support our partnerships

- **Exceptional international network**
  - More than one-thousand bilateral agreements and university network memberships
  - Ensures high efficiency in excellence scouting, student recruitment and enhanced regional visibility for the whole EIT ICT Labs KICs

# Visions of the Budapest Associate Partner Group

- Develop an innovative and entrepreneurial ecosystem in Hungary

- Improve the cooperation between the academia and industry in the CEE region

- Build up a co-location centre which provides an environment favouring business and innovation activities in Hungary with a regional outreach

- Build upon the innovative attitude of well-trained Hungarian ICT professionals with profound mathematics knowledge

- Enhance the I&E focused training of professionals from BA to PhD education

- Make a progress in the research area: „Communication Software and System Performance"

**Thank you for your attention!**

**www.ictlabs.elte.hu**