Innovation is at the heart of the European global strategy for the next 10 years. The flagship initiatives ‘Innovation Union’ and ‘Digital Agenda’ are aiming at a smart, sustainable and inclusive growth for Europe that will tackle the societal challenges of today such as climate change, energy and resources scarcity, health and ageing. Information and communication technologies (ICT) represent a key element in achieving these agendas, because of the cross-sectoral impact such technologies have. However, compared to major trading partners (US, Japan, China), Europe continues to under-invest in ICT related research, development and transfer.

Moreover, increasing investments of Europe in R&D do not automatically imply that the best business ideas successfully reach the market. In addition to a shared strategy and agenda, Europe needs to cross the chasm between research and market by investing and developing those elements that ease the conversion of scientific findings into useful products or services for society.

Technology transfer, while crucial to enable successful innovations, is nowadays a very complex process because it is the least understood in industry and the worst managed of all entrepreneurial processes. A consortium of high level institutions involved in the field of ICT R&D and technology transfer have decided to pool their expertise and resources in the European project FITT. They have developed a set of tools for technology transfer professionals to foster innovative R&D-based projects.

The same institutions have identified critical topics for the creation of a European innovation environment. This paper provides leads for reaching the objectives of the European 2020 strategy and finally unleashing Europe’s innovation potential. It summarizes the lessons learned from 3 years of collaboration on improving ICT technology transfer. Building on the issues addressed within the FITT project, the seven institutions propose measures for fostering a culture of (innovative) entrepreneurship, improving the expertise and mutual recognition of technology transfer practitioners and creating a sustainable and dynamic technology transfer community promoting open innovation models.

### 1.1 Creating and Fostering a Culture of (Innovative) Entrepreneurship

Entrepreneurship is complex and multi-faceted, but for sure it is the engine of future economy and the digital economy in particular. The least we could say is that a real entrepreneurial culture is a building block towards new initiatives and innovation. Universities and research institutes are an important source of breakthrough technologies and new knowledge that should be used to their full potential.

Two main questions remain:

- How can we inspire people in generating ideas and innovation?
- How can we create a living culture of entrepreneurship to enable innovation across the whole research organization?

#### Policy recommendations:

1. The promotion and support of entrepreneurship within a proven academic setting is crucial to foster a more successful transfer from technology and knowledge towards the economy and society. Technology transfer offices have a crucial role in that respect and must receive enough public and private support to realize this.

2. Technology transfer offices (TTOs) need to create a dynamic ecosystem of existing, new and future ventures with multiple platforms for exchanging ideas and knowledge between academia and business.

3. Experienced business people and seasoned entrepreneurs must be more involved in the set up of demand driven research with a valorisation approach embedded in the research program.

4. Regional and national ecosystems need to be better interconnected, creating gateways for internationalization for new and existing entrepreneurs with global ambitions.

#### Practical recommendations:

1. Provide incentives for researchers to be involved in technology transfer. Different kind of measures can be implemented for a stimulating valorisation environment: financial reward for inventions, award for technology transfer achievements, entrepreneurship bootcamp, management’s statement, staff mobility... Several examples are available in the Toolbox developed by the FITT consortium for technology transfer professionals.

2. Concentrate on the generation and development of ideas, good entrepreneurial ideas. Work continuously to identify in advance new tendencies in the market place and share this information. Regular interaction between researchers with good contacts in the field and the central staff is the most efficient for business capturing and dissemination.

3. Develop a well-structured intake assessment to select the most promising ideas. The FITT toolbox proposes tools/methodologies in this area (such as a framework for preliminary assessment of business ideas, evaluation criteria for transfer projects and feedbacks on the implementation of a committee dedicated to technology transfer strategy).

4. Work and rework the idea. Let the solution to a problem grow with time and get feedback from other people and viewpoints outside of the well-known disciplines (listen to and imply lead customers).

5. Nourish and support people with workshops, trainings and skill development in the different areas of entrepreneurship, so that students and researchers get acquainted with the skills and reasoning of an entrepreneur. The FITT toolbox provides several “recipes” of programmes implemented by different public research organizations (PROs), aimed at developing entrepreneurial mindset among the employees.

6. Use proven business practices to help new ventures (mentoring, Entrepreneurship in Residence) and provide support for business start ups (coaching, bootcamps).

7. Offer management, financing and business development support to start-ups.

8. At least facilitate communication between VC’s or other funding groups and the new ventures².

### 1.2 Improving the Expertise, Alignment of Competencies and Mutual Recognition of Technology Transfer Professionals

Technology transfer is a complex process involving many aspects from technology evaluation, IPR protection, marketing, to licensing and negotiation. People in charge of technology transfer have a strategic position, acting as the interface between researchers and socio-economic partners of diverse cultures. Many skills are required, which call for the adequate education courses and curricula.

Since several years, a consensus emerged on the position of technology transfer managers in PROs and their mission. In parallel, many subcategories have also appeared as a result of the need for specialised expertise (IP TT person + spinoff expert + regional development expert etc). Consequently, an education & training offer has been developed in many European countries. The challenges now are to align their content and ensure their quality in order to provide professionals with the set of competencies needed for their job. A direct benefit will be an enhanced comprehension and the construction of a common language among practitioners, resulting in more transnational collaborations and cross-border technology transfer.
I.3 CREATE A SUSTAINABLE TECHNOLOGY TRANSFER COMMUNITY PROMOTING OPEN INNOVATION MODELS AMONG TTOS AND BETWEEN RESEARCH AND INDUSTRY

TTOs are mostly only active on a very local scale; their university or the business partners they are used to work with. Therefore a lot of opportunities are lost. They have to become more aware of the value of scale and internationalization. Each TTO should be able to ‘scale up’ by opening up to other TTOs. The concept of open innovation (Henry Chesbrough, 2003) proposes new ways of networking, will enable to achieve this ambition. An open business environment, which supports ICT start-ups and ‘Born Global’ companies.

Policy recommendations:
1. Encourage the setting up of standards for technology transfer professionals, including a European certification or accreditation and, in general, all initiatives targeting the transnational recognition of TT competencies.
2. Promote exchange programmes between TTOs including study visits in other organizations. The success of existing bilateral programmes shows the usefulness for practitioners and is a convincing argument for a European-wide programme.
3. Encourage initiatives aiming at increasing the mobility of people and public-private transition for better mutual comprehension.

The ICT market is, by the nature of it, fast and global. Therefore local approaches need of open innovation within the community of TTOs. The FITT toolbox is an example how this can be achieved by creating a cooperation platform for exchange practices, tools and interesting cases.

Policy recommendations:
1. Support the continuity of the FITT toolbox and community (ICT TechTransfer group on LinkedIn) by promoting its integration in a structural network of TTOs (e.g. EARTO, ProTon, ASTP).
2. Promote the dissemination of open innovation practices and collaboration throughout the network of iTTOs (see http://www.openinnovation.eu/).

Practical recommendations:
1. Support the establishment of Collaborative Research platforms and Living Labs in ICT promoting practices of open innovation between research and industry and bridging the gap between knowledge creation and the market.

GOING FURTHER

FITT stimulated a strong collaboration between seven institutions that besides exchanging experiences, best practices and working methods also repeatedly noted the specific needs of ICT entrepreneurs.

The ICT market is, by the nature of it, fast and global. Therefore local approaches do not provide sufficient speed for global business development and substantial international sales from very early stage. Internationalization and fast scaling up is a must to break through into the market. This is obviously contradictory to the small scale and investment possibilities from start-ups and SMEs themselves. There is a strong need for a leverage to accelerate the incubation, growth and internationalization of new ICT businesses and ICT SMEs the “Born Global” companies.

The FITT project (Fostering Interregional Exchange in ICT Technology Transfer) aims at closing the gap between ICT research and market. The project brings together seven technology transfer experts from five European countries to collaboratively improve the commercialization of Europe’s best research results and to maximise their exploitation for social and economic prosperity.

The FITT partners have developed a unique package of tools and services that supports the transfer of promising ICT research ideas into marketable products and services:
- Community of Practice ‘ICT TechTransfer’ connects technology transfer professionals in the ICT domain on LinkedIn to share experiences and knowledge
- Recommended Background Bibliography provides a collection of “must-reads” focusing on all aspects of technology transfer
- FITT Transnational Training Programme offers a personalised service for technology transfer practitioners meeting their special training needs

The project partners are:
- Centre de Recherche Public Henri Tudor
- MFG Baden-Württemberg – Innovation Agency for ICT and Media
- INRIA – Institut National de Recherche en Informatique et en Automatique
- DIGITEO – Fondation de cooperation scientifique Campus Paris Saclay
- IBBT – Interdisciplinary Institute for Broadband Technology
- LIEU – Liaison Entreprises Universitiés, University of Liège
- ICSB – Imperial College Business School

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1 More information is available at http://www.itti-for-innovation.eu/
2 The European project ICT VentureGate shows promise in this regard.
3 Certification is understood here as the endorsement of an individual’s professional knowledge and experience in TT by a qualified body. The strong interest of the community of practitioners and European Commission on the matter is demonstrated by the launch of CERT-TTM and EUKTS projects and recent actions of the Alliance of Technology Transfer Professionals (ATTP) regarding the Registered Technology Transfer Professional status.
4 Recognition of training providers based on the technology transfer courses delivered, as promoted by member organizations of ATTP.
5 Such as the France-USA technology transfer fellowship exchange program, supported by AUTM and CURIE associations.
6 Such as the training courses on technology transfer fundamentals proposed by Transfertic, ASTP and the training course ‘TT for ICT’ developed and tried out within the FITT project.