

Antti Peltomäki

Deputy Director-General

European Commission

Information Society and Media Directorate-General

Stimulating an Innovation Ecosystem for Future Internet Technologies

FIRE and Living Labs – Future Internet by the People

*Check Against Delivery
Seul le texte prononcé fait foi
Es gilt das gesprochene Wort*

Luleå, Wednesday, 1 July 2009

Ladies and Gentlemen,

It's a pleasure for me to be with you here in Sweden on this special day: Today Sweden takes over the EU presidency. For 6 months, Sweden will be the centre of Europe shaping important EU policies and representing Europe in the world. Let me therefore first use this opportunity to warmly thank the Swedish Presidency and the regional authorities for their support to the organisation of this conference in this beautiful region in the North.

I am happy to open this conference "Future Internet by the People", which I personally regard as a milestone towards an innovation ecosystem for Future Internet Technologies. Two communities, the FIRE Future Internet research community and the Living Labs community, are coming together here to discuss how experimentation using advanced innovation methodologies can bridge between technology-pushed research on the Internet and the needs of the "people" potentially using it. I am also happy to welcome here the ITU-T Focus Group on Future Networks, which will tomorrow meet with FIRE and the European Future Internet research community to discuss potential standardisation issues.

The Future Internet

For European policy makers, the Future Internet represents an opportunity to improve the competitiveness of our European businesses, to create more innovation based growth and jobs, and to further contribute to the social well being of our citizens.

The Internet of today has already largely contributed to these policy goals. Over the last 15 years, it has enabled the creation of an entirely new economic sector. It has also deeply transformed our approach to social relations, our access to culture, education, and entertainment.

But more is to come. New challenges are ahead of us: an ageing population, environmental and energy concerns, the scarcity of raw materials, globalisation, and regional imbalances. The recent conference "ICT for a global sustainable future", which was supported by my Directorate General under the FIRE initiative, has discussed how ICT can durably contribute to the well-being of all citizens of the world.

Novel socio economic trends fuelled by restless technological developments will also raise new challenges and opportunities for the Internet. Let me mention a few of those:

1) **Web 2.0 and social networks** are growing at viral rates. Popular social sites attract more than 120 million regular users. This is only the beginning as web 2.0 applications will be more and more used by businesses, not only by individuals. The emergence of 'enterprise 2.0' will bring about huge benefits to European companies and SMEs in particular.

2) **Mobility and nomadic usages** are becoming the norm. By 2012, at least 1 Bn of Internet users will use mobile as their only access means, adding to the today 1.5 Bn of fixed users.

3) **An ever richer content and media environment.** Content is clearly one of the main drivers of Internet changes. Every year, the Internet traffic grows by 60%. This is mainly due to video, and will be further amplified with the advent of on-line 3D content.

4) **The emergence of an Internet of "Things":** In the near future, it will be possible to interconnect myriads of objects and devices. New types of applications combining information of the virtual world with a perception of the physical world have enormous economic prospects.

5) Last but certainly not least, the ever growing sensitivity **to security and trust** issues coupled with the legitimate desire of users to protect their privacy.

So, the question that we can ask is the following: Is the Internet of today able to face the increasing number of requirements and expectations I just mentioned? Concerns have been expressed by several prominent industrial and academic stakeholders that this is not the case.

Let me address the challenges of the Internet of tomorrow and Europe's response to them **from four perspectives:** the policy, the technological, the services, and the innovation perspective.

Policy perspective

The Internet of tomorrow raises important policy issues related to new risks in terms of privacy, security, and market distortion, which I can only briefly touch here:

1) **First**, the Internet of tomorrow must preserve openness and must be based on the right governance principles. **Openness** is one of the key ingredients that made the Internet so successful as an innovation place and as a tool to empower users. **From the governance** point of view, "Net Neutrality" is essential. New network management techniques allow traffic prioritisation. These tools may be used to guarantee good quality of service but may also be used for anti-competitive practices. The Commission has taken steps to empower national regulators to prevent such unfair abuse to the detriment of consumers. These measures are at the heart of the new telecom regulatory package.

2) **Second**, the transition to high speed broadband accessed through interoperable fixed and wireless technologies is crucial for ubiquitous access to the internet. The European Council after a proposal from the Commission made available up to 1 Billion € for investments in broadband in the EU. On the mobile side, our spectrum policy is aiming at making available the needed spectrum, for innovative broadband wireless networks to thrive.

3) **Third**, trust and security policies need to be strengthened. The Communication on "Critical Information Infrastructure Protection" adopted by the Commission this year points in that direction.

Technological perspective

And what about the technological perspective: Even in these hard times of economic downturn, forward looking investments in

research and innovation need to be preserved. A large part of the issues at stake for the Future Internet are of technological nature and require in depth research work. Ambitious research initiatives have been launched, world-wide, with the objective of creating a renewed Internet architecture capable of performing its role as a critical infrastructure. Besides the US and Japan, many EU Member States have started large programmes like German-Lab, or Ambient Sweden – just to name some of them. On the European level, the 7th Framework Programme for R&D provides us with a powerful tool to address the needed research on the multiple aspects of a Future Internet at European level. Under this umbrella, European industrial and academic research actors benefit from a large scale coordinated effort of some 400 Million € for two years, addressing the future of the Internet.

The European approach is a truly holistic one: all network and service platforms technologies called upon to constitute the Internet of tomorrow are looked upon as part of a single system. More than 90 research projects addressing the multiple facets of the Future Internet gather every 6 months under the "Future Internet Assembly" (FIA), where they exchange research results and approaches.

The FIRE initiative is an important part of this huge effort. With its launch European research actors have access to an experimental facility required by such a complex research domain. The FIRE-Facility provides the possibility for large scale experimentation as

the glue between different Future Internet research domains and as a means to early assess the potential impact of changes to the current Internet in technical as well as socio-economic terms. FIRE-Research complements this cross-domain approach by supporting visionary, multidisciplinary and experimentally-driven research taking a holistic view of the internet as a complex system.

In the nearer term, it is also our intention to closely couple our Future Internet technology research with applications of high societal value such as health, urban mobility, energy grids or smart cities. Doing so, we expect to provide an early "Internet response" to the societal challenges mentioned earlier. Our goal is to establish a Public Private Partnership with industry to complement our longer term Future Internet research of the FP7 ICT Work Programme. Currently, my colleagues are working with industry to define the content and structure of this PPP, towards an operational start in 2011. A Forum of Member States, the "Future Internet Forum" supports Europe in better federating our Internet research in Europe and overcoming fragmentation by sharing our know-how.

Services perspective

Let me now look at the Future Internet from the Services perspective: The movement towards the Future Internet enables a new range of services both for citizens and enterprises. A new generation of users want to use the services offered anytime, anyplace and at the right price to fit their professional and personal needs. People are listening to music, watching videos, doing online-

payments, gaming, reading newspapers or books, looking for information about products and services. Overall, vital areas for applications in the information society will be healthcare, assisted living, particularly for the elderly or the disabled and improved energy efficiency. It is clear also, that we are increasingly moving towards a services society, offered on the Internet by applications such as Google, Wikipedia, Facebook, Youtube or Skype, to name just a few.

Technological research programmes can help providing the building blocks which enable these services, as for example GPS enables location-based services. There are new devices for communication, visualisation and search. It is already difficult to say exactly what people are using them for today. But, can we imagine what they will use them for tomorrow? It is indeed hard to answer. But what is sure is that the network requires more and more capabilities to provide increased functionalities, to services that go beyond our current imagination.

We have constantly focused our previous research programmes on how will the industry deliver advanced communications technology. But are we now prepared in Europe to deal with the boom of such new services? This is for sure a great challenge but also a major opportunity to be seized by our economies. Europe needs to build up the right conditions to foster strong entrepreneurship. It will allow

our enterprises to grow and take advantage of the new service opportunities.

Innovation perspective

This leads me to the innovation perspective:

I believe that research alone is not enough. The usefulness of research is determined by an overall innovation strategy for ICT and its factors of success. The Commission emphasised the need for strong commitments in its recent communication on the "Strategy for ICT Research Development and Innovation in Europe: Raising the game". This Communication proposes a strategy to establish Europe's industrial and technology leadership in information and communication technologies (ICT), to make Europe more attractive for ICT investments and skills, and to ensure that its economy and society benefit fully from ICT developments.

The innovation strategy for ICT is to be seen in the broader context of the preparation of a future innovation plan by the Commission, within the framework of the post-2010 Lisbon strategy. This process has started with a review of the Community innovation policy and its instruments across the Commission: Since 2005, innovation policy moved up in terms of EU policy priorities and became widely recognised as a key enabler of competitiveness, productivity growth and sustainability. It is also increasingly recognised that enhanced European co-operation is the way to fully exploit the innovation and creativity potential of Europe in all its diversity. A large variety of

instruments is used to improve Europe's innovation ecosystem. These can be categorised in three groups:

First, there are the Framework condition like an innovation friendly State-aid regime, an optimal use of R&D tax incentives, improving the IPR regime, or the promotion of innovation poles and industrial clusters, just to name some of them.

Second, there are the supply-side measures. Here you are very well aware of examples like Joint Technology Initiatives or an increased focus to support innovation in cohesion policy.

Third, there are those measures, which combine supply-side with demand-side measures: Examples very prominent in the discussion in my Directorate General are the facilitation of the emergence of lead markets and the promotion of pre-commercial public procurement to stimulate research and innovation.

In the future, further changes in the range and number of EU instruments used to support innovation policy are necessary, notably to promote coherence between instruments and to complement or extend them to also cover demand-led innovation measures. In our ICT R&D and innovation strategy communication we are proposing a big step in this direction:

Esko Aho, in an evaluation report he did on ICT research financed by the Commission, has reminded us that we must not just focus on keeping up with global ICT R&D spending levels but we must also

look closely at the efficiency and effectiveness of the ICT innovation eco-systems in Europe. This means to join up all the way through from research to innovation to commercialisation. We must combine 'demand pull' from innovative markets with 'supply push' from new ICT technologies and infrastructures. This involves not only increased financial support to research and innovation, but also stronger collaboration between all stakeholders and the backing of projects that cut across the phases of research, testing and deployment of ICT innovations.

This should facilitate the emergence of markets with clearer demands from users, allowing for shorter innovation cycles, faster responses to socio-economic challenges and opening new opportunities for industry in Europe. It should also result in more rapid returns on investments and thus greater incentives for expanding private investments. Europe should therefore become more attractive to investors, companies and researchers.

Complementary to this, we need a series of measures ensuring competitive, open, innovation-friendly markets for ICT and supporting the earlier commercialisation of research results. We have to involve the users more directly in research and development to ensure that the outcomes meet societal and business needs. We also need to ensure that users take account of ICT innovations when they seek new solutions. Even if this is a

common practice in large companies, it is less so in SMEs and rare in the public sector.

One of the mechanisms to do this is that of user-driven open innovation as for example promoted and practiced by the European Network of Living Labs (ENoLL): Living Labs are user-driven open innovation ecosystems in real-life settings. Innovation is fully integrated within the co-creation process of new services, products and societal infrastructures. In recent years, Living Labs have become a powerful instrument for effectively involving the user at all stages of the research, development and innovation process, thereby strongly contributing to European competitiveness and growth.

FIREweek

With this overview of policies and actions related to the Internet of tomorrow and the short discourse into general innovation policy, I would like to come back to my initial statement about this event and its role in the overall picture: **"Here in Luleå, two communities, the FIRE Future Internet research and experimentation community and the Living Labs community, are coming together to discuss how experimentation using advanced innovation methodologies can bridge between technology-pushed research on the Internet of tomorrow and the needs of the "people" potentially using it."**

What I mean by this is the following:

The Internet consolidates a complex system, a living and evolving entity, where any technological development affecting its future may have multifaceted and even unexpected consequences – at any technological, social or economic level. The FIRE Initiative is addressing this need. With its concept of experimentally-driven research, it gears itself towards creating a multidisciplinary research environment for investigating and experimentally validating highly innovative and revolutionary ideas for new networking and services paradigms. FIRE is creating a dynamic, sustainable, large scale European Experimental Facility, which is built by gradually connecting and federating existing and new testbeds for emerging and radically new Internet technologies.

But what is experimentation without real end-users? Whereas in an early stage of testing, user behaviour can be emulated or simulated, experimentation with more complex systems or subsystems of the Internet can only be done in a realistic way through involving real end-users at large scale. Normally, researchers neither have access to users, nor do they have the means to setup experiments attractive to users thereby stimulating their participation.

Living Labs can bridge this gap: The European Network of Living Labs comprises more than 150 Living Labs across Europe, which all work with users and innovative technologies in their daily business. In a future Public Private Partnership effort towards a Future Internet, Living Labs have the potential to add a fourth P by linking the PPP to the "People".

Therefore, for me the major objective of this event is to derive the details on how this collaboration between the Internet research community and the Living Lab community can become reality towards a "Future Internet by the People" and a competitive European Future Internet industry.

I wish you all a successful conference. I hope you will as well find a bit of time to enjoy the endless days in this beautiful region close to the Arctic Circle. Myself being from the North of Europe, I can assure you that this is a unique experience, in particular at this time of the year just after what the Swedish call "Midsommarnatt" - Midsummernight.

Thank you for your attention.

Contact: Max Lemke, F4, 91575