Service Science and Innovation

Global Forum 2007, Venice, Italy

Bror Salmelin
Advisor to the Director
bror.salmelin@ec.europa.eu

European Commission
Information Society and Media

Cooperation and competition in the information society

- **Knowledge society is not driven by technology**
  - its driven by systemic societal and technical innovation

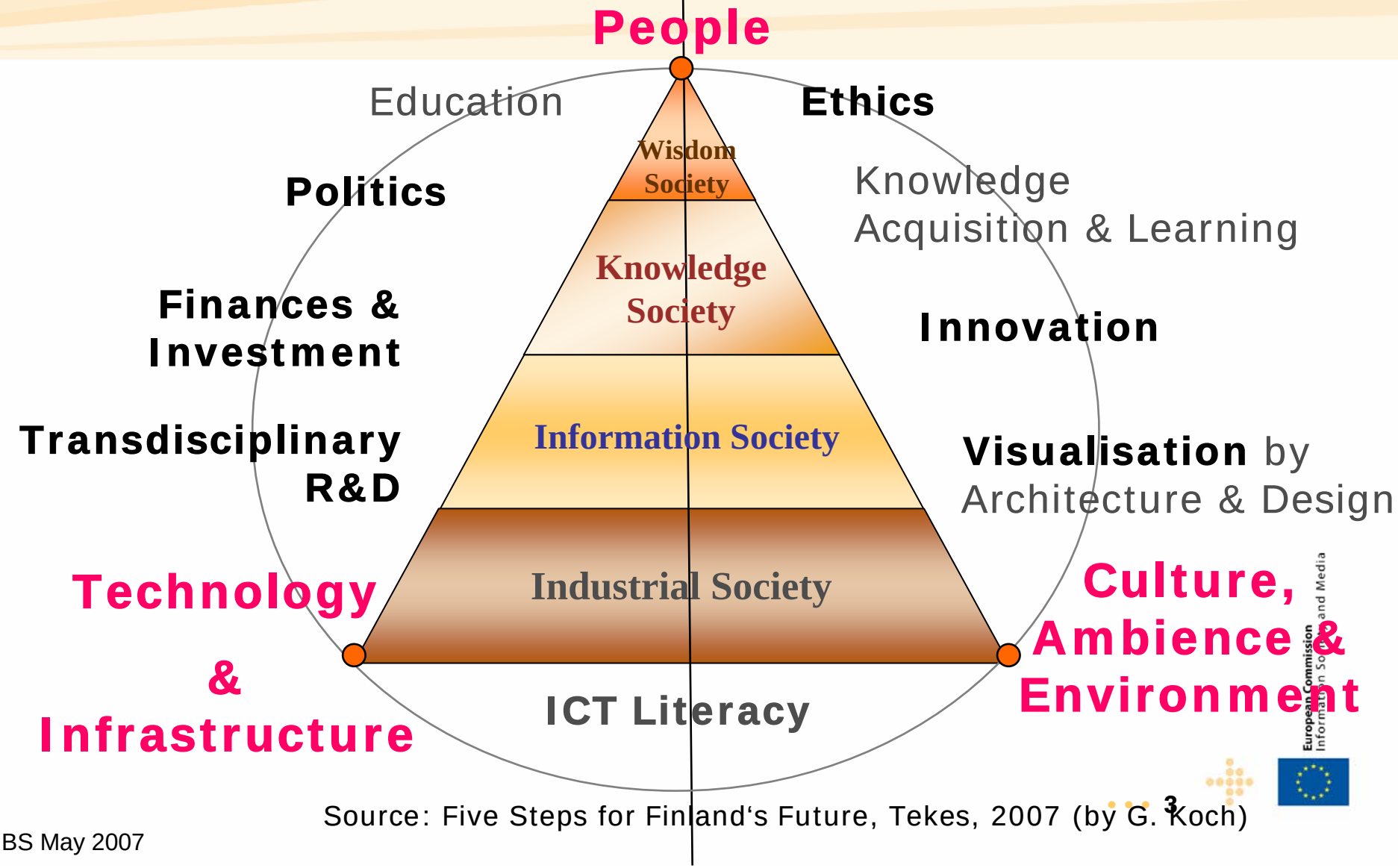
- **Innovation is not invention**

- **By whom and how is value created – and co-created**

- **Role of services for growth and well-being increasing**

- **What is particular in knowledge *society***
  – European values

Multidisciplinary innovation for knowledge society

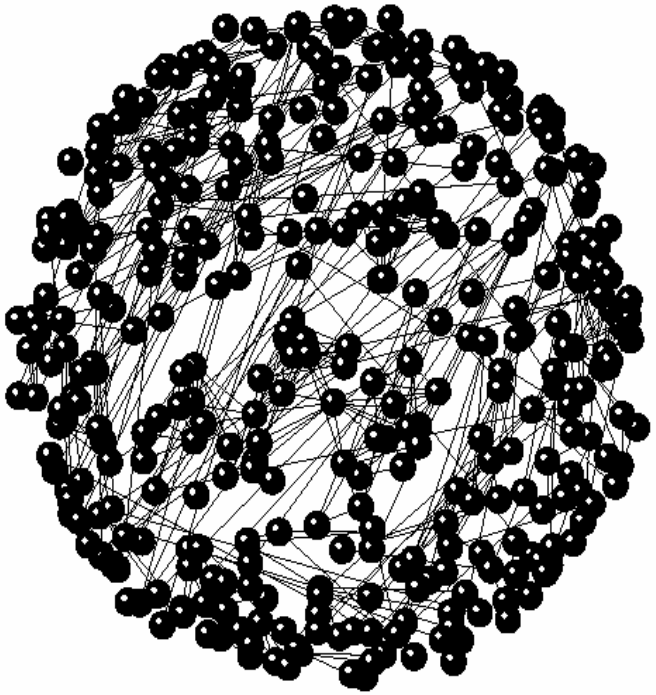


Source: Five Steps for Finland's Future, Tekes, 2007 (by G. Koch)

Proven “new” innovation dynamics

Valley dynamics:

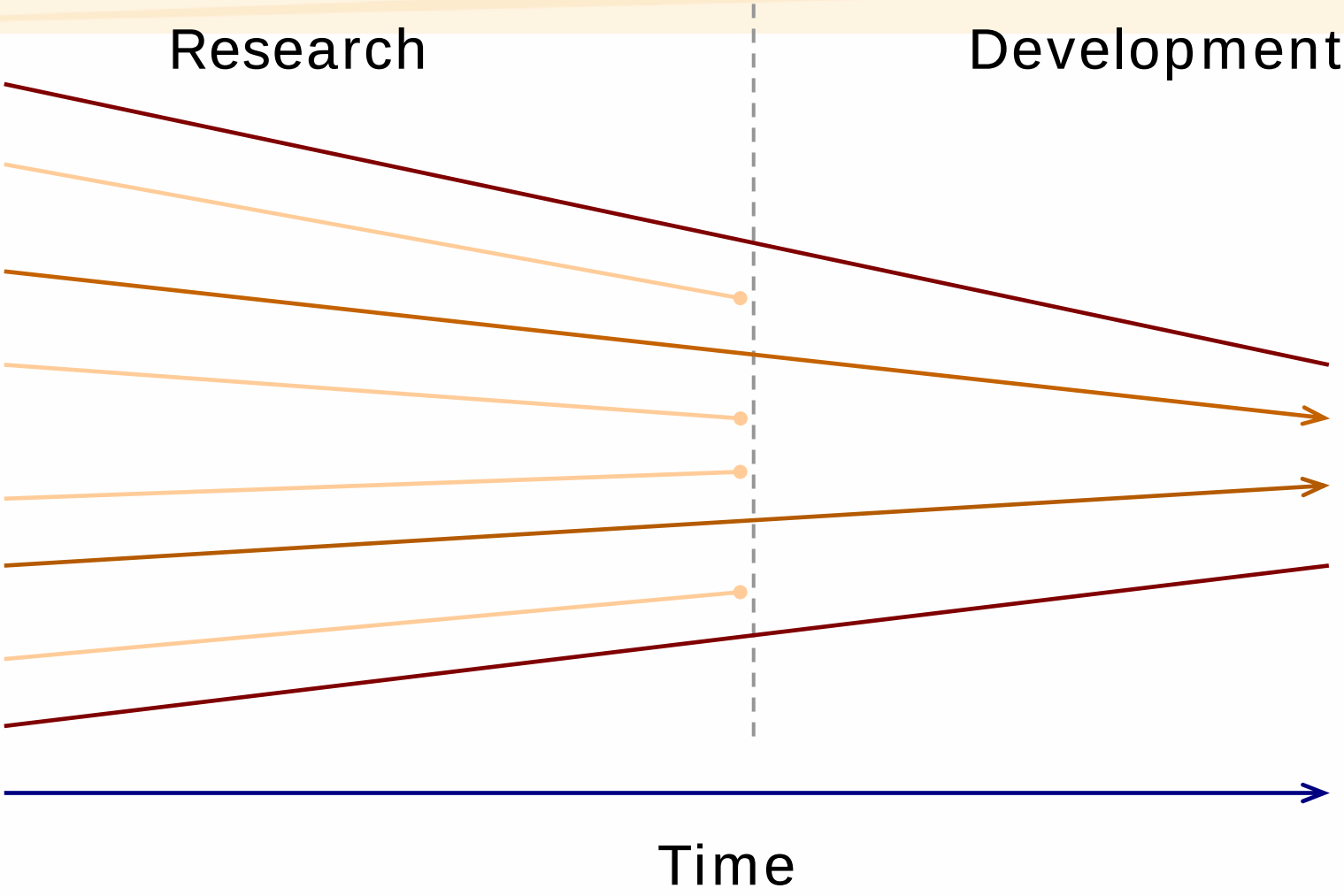
- Sharing
- Collaborating
- Open
- Social capital
- New business models



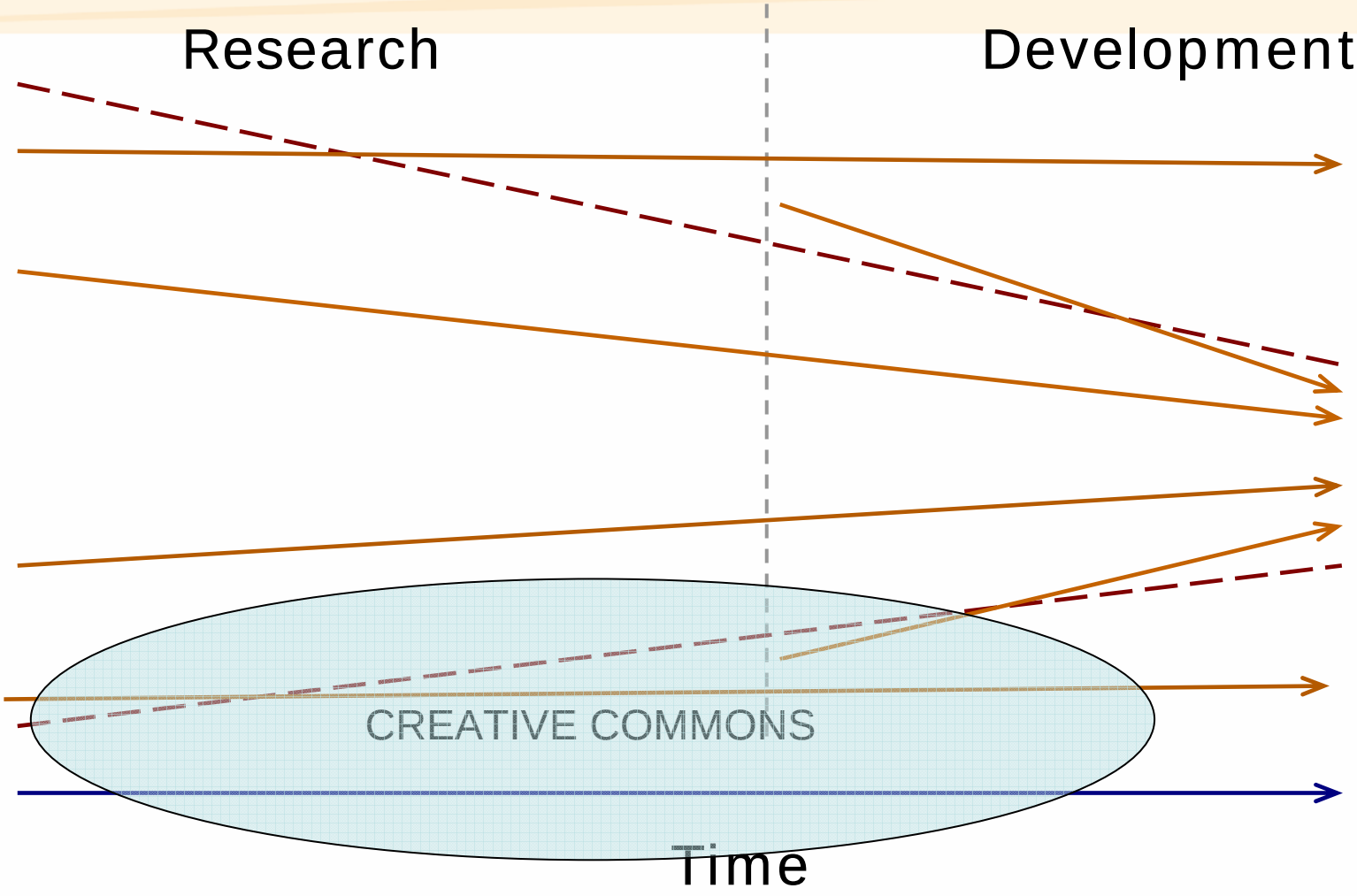
Versus ``Old`` dynamics: the brilliant individual (Bell), or the brilliant proprietary lab (IBM)

Source: "Castilla, E.J., et al. (2000). Social networks in Silicon Valley."

Closed Innovation concept



Open Innovation concept



European Commission
Information Society and Media

Innovation within the services environment

- Software and related services play a key role in the Information Society and Economy in general
  - Services account for around 70% of economic activity in the EU (the fastest growing ICT market segment)
  - BUT Services have been under-represented in Innovation Policies
- Division between services and manufacturing is artificial
- The whole spectrum of policies is needed for services innovation
  - Multidisciplinary approach
  - Clear need of competition in Public sector services: pre-commercial public procurement
  - Promote horizontal and vertical networking within the services sector
- Service Innovation needs recognition at International level
  - Technological approach, but also service concepts, business models, organization, customer interfaces

Source: Nuria de Lama, ATOS Origin, Taipei Aug 2007

Open Innovation and eServices

- **Process is a co-creative process Open innovation captures creativity of users**

- Open innovation increases the social and intellectual capital of the community
- Open innovation sites are the „site“ for this creative commons capital (Physical, connected, sectorial, regional…)

- Network of innovation environments enables development of functional interoperability of eServices across Europe
- Network enables pan-European co-creation and references

- eServices „best suited“for open innovation environments in real world settings:
  - Need for high dynamics, multidisciplinarity
  - Different maturity levels of technology and society merging
  - New co-creation processes of eServices; user-drive configurations

New approach to services‘ creation

- The value of **open innovation richness** is in incentive and well as in scalability in real world settings; multimaturity and multidisciplinarity
- Leading to
  - New eServices in open environments; open also for new players (/vendors, service providers etc.). Service Ecosystems are being created
  - Creation of user-centric scalable service infrastructures and services; acceptability, usability
  - Creation of *functional reference architecture* for eServices
  - Experience on societal acceptance of systems, solutions and services; co-creation
  - Service industry moving up in the value chain building on creative commons

European Commission
Information Society and Media

European Innovation?

People, users

Ideas

Knowledge

Industry,

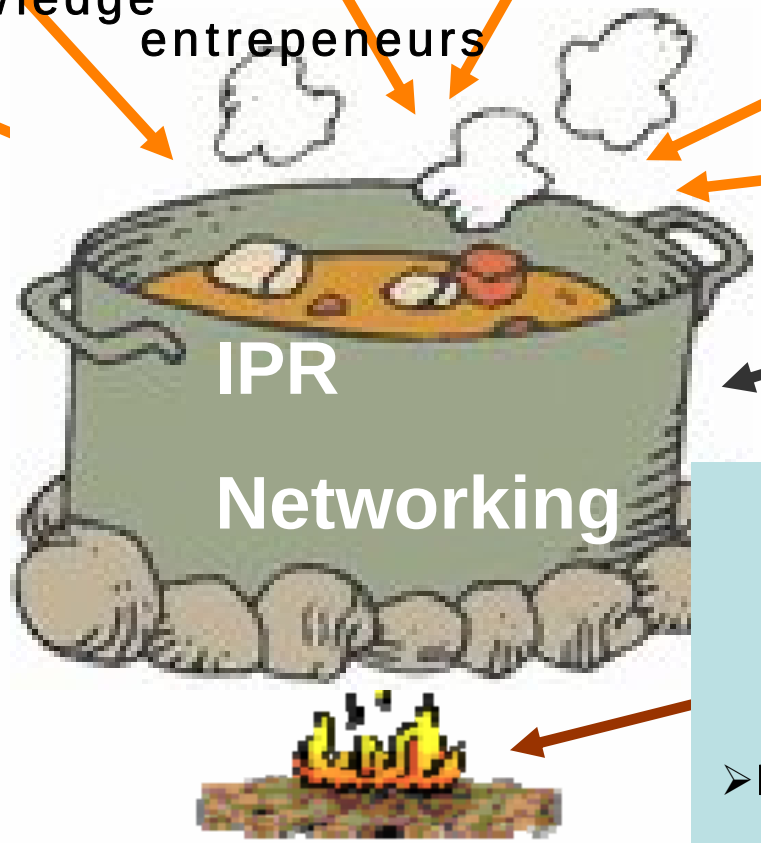
Enterprises, entrepeneurs

Openness in the process

Leaders

Local/Regional flavor

The cooking pot (Open innovation environments)



FROM END PRODUCT CAN NOT BEEN SEEN THE COOKING PROCESS IN DETAILS:

- **BUT IT REQUIRES RIGHT INGREDIENTS, ENERGY AND COOKING**
- **LOCAL FLAVORING**

THE FIRE:

- Public – Private – People partnership
- Creative commons
- Precommercial Public Procurement

Issues for Open Innovation Networks

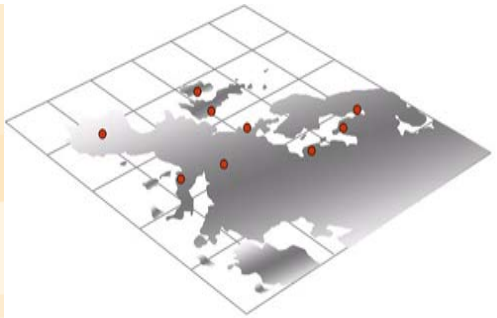
- IPR: How to combine **open innovation and open infrastructures** (creative commons) to possibly very closed industrial projects developed in these environments
- How to have **spill-over effects** to the creative commons
- How to motivate, give **incentive to the „real world participation“**
- Identifying the public-private-civic partnership and the roles of all stakeholders
- Using new funding instruments, e.g. pre-commercial public procurement for infrastructure funding, and also for implementing the systems developed in these open innovation environments
- Research needed to **understand open innovation**
- **Research on ICT supporting open innovation and functional reference architectures**

- **How to widen enterprise interest beyond the thought leaders**
- Companies need to explore their strategies on how to capture the whole potential of open innovation environments vs. the traditional (closed) testbeds
- What is the role of this industrial leadership group

- **Openness is a critical issue**

European Commission
Information Society and Media

Evolution of concepts



- In the beginning…
- ISTAG (Information Society Technology Advisory Group – a set of influential individuals to give advices to the European Commission on the future of IST) recommends a set of measures to enhance the usability of technology and inclusion into the everyday life. The approach is named Experience and Application Research (EAR)
- European Technology Platforms (ETP) are industrially-led initiatives where all stakeholders join to define Strategic Research Agendas (SRA) and foster INNOVATION (ex. NESSI in Software and Services, e-Mobility in mobile technologies, ARTEMIS in embedded systems…)

- What do we have now? User-centric paradigms seem to be the rigth decission…
- **Open Source Communities**
- **Human-oriented Web (WEB 2.0), sometimes adding SEMANTICS: social networking sites, wikis, communication tools and folksonomies**
  - **Wikipedia**
  - **http://del.icio.us (web application for social bookmarks)**
  - **http://flickr.com (digital photo sharing and tagging application)**
- **LIVING LABS & European Network of Living Labs (ENoLL)**

Source: Nuria de Lama, ATOS Origin, Taipei Aug 2007

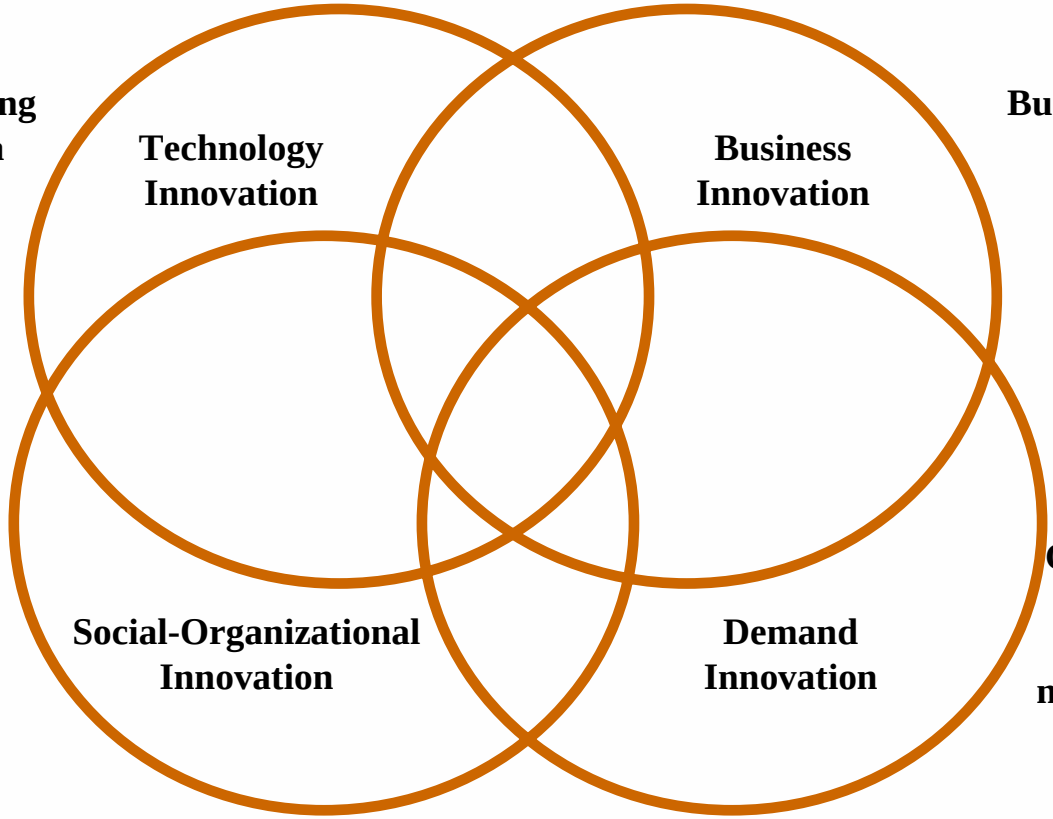
Open Innovation and eServices

- **eServices „best suited“for open innovation environments in real world settings:**
  - **Need for high dynamics, multidisciplinarity**
  - **Different maturity levels of technology and society merging**
  - **New co-creation processes of eServices; user-drive configurations**

Service Innovations & Service Science

Service innovation is inherently multidisciplinary…

Knowledge sources driving service innovations…

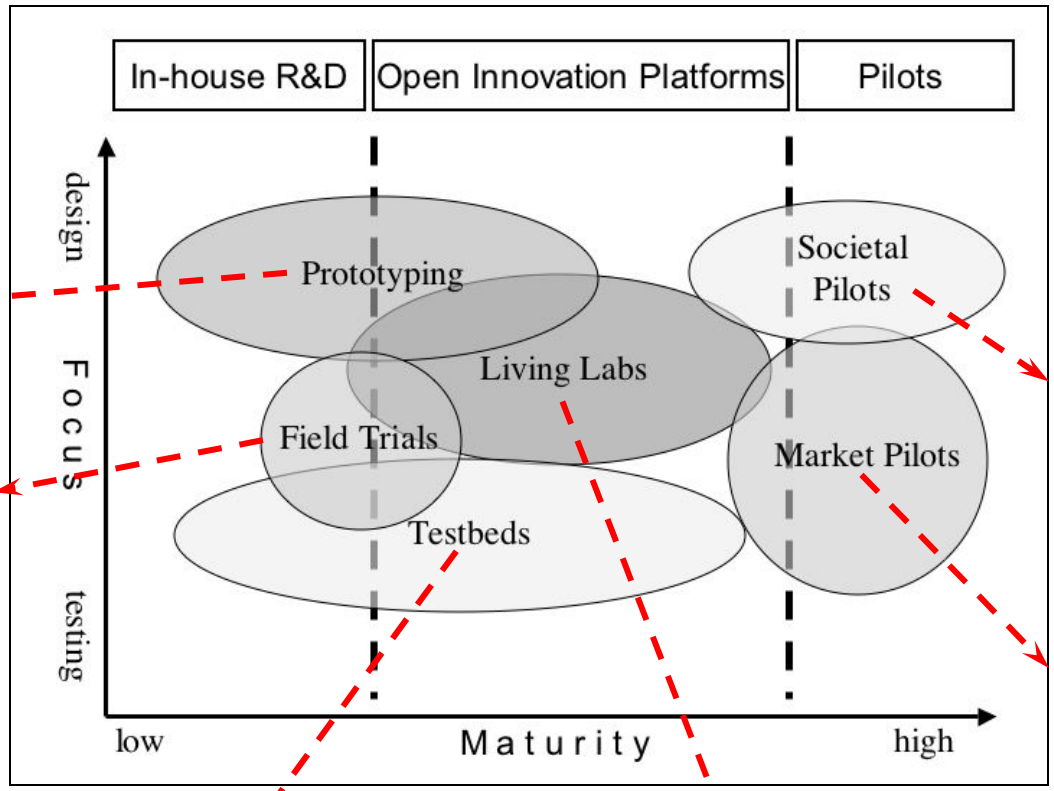


SSME = Service Sciences, Management, and Engineering

European Commission
Information Society and Media

Test and Experimentation Platforms

- Degree of participation: LOW (Observation) VS. HIGH (Observation + Creation)
- Knowledge Focus: Single and controlled contexts VS. Multiple & Emerging contexts



Silicon Hill (FI)

SURFnet/ Kennisnet project: pilot schools (NL)

Digital Playgrounds (NL)

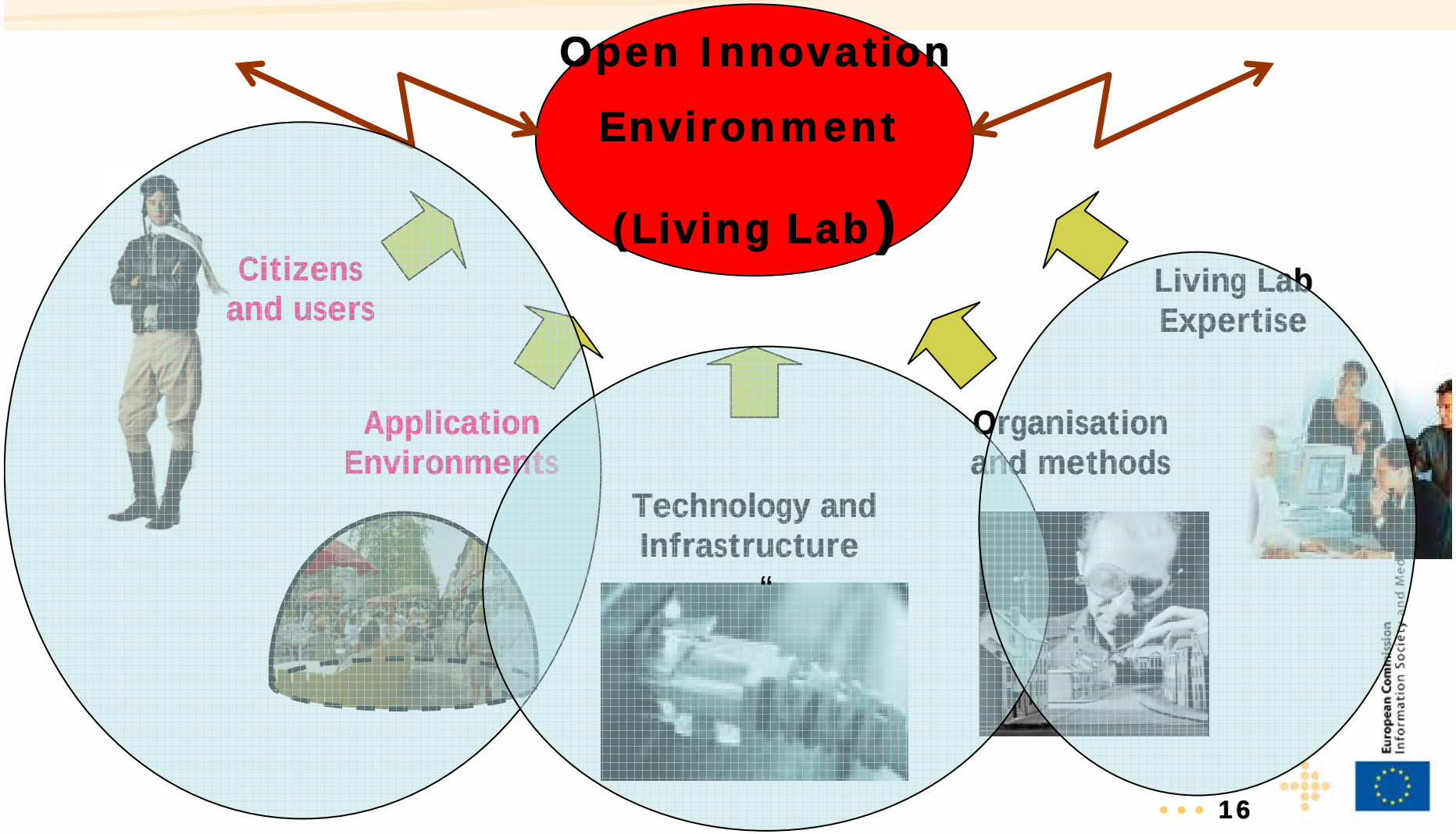
Octopus (FI)

Testbed Finland (FI)

Kenniswijk (NL)

Source: Nuria de Lama, ATOS Origin, Taipei Aug 2007

The interplay between actors needed!

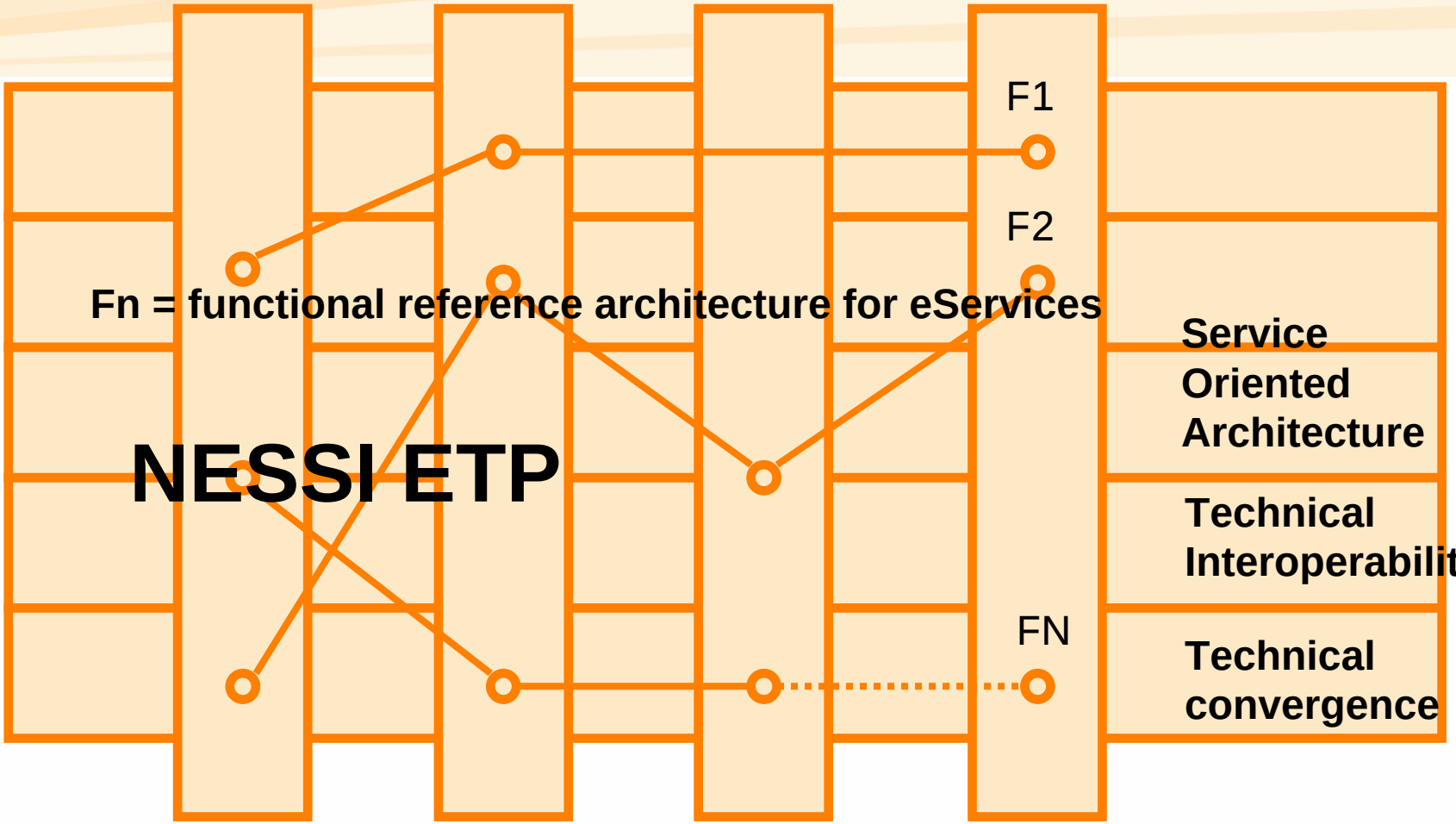


The user is in a new position

- RESEARCH is making knowledge out of money; INNOVATION is making money out of knowledge
- Heavy investments have been made during the last decade into new technologies (ex. 3G, DVB-T, etc). The industry is now waiting for the services to be deployed, but success seems not always evident. It is more and more obvious that technology will not be a success just because of technical excellence
- If previous years were devoted to explore the possibilities given by technology, the coming decades must be devoted to mass-deployment making full benefit of opportunities
- It does not mean mass-produced standardized products for everyone, but rather a greater focus on customization and personalisation of products and services. Humans are complex, governed by not only logics, but fears, worries, attitudes etc. There is no standard user!
- Cooperation among stakeholders is needed: Universities, Industrial firms, Public Administration and Civil Society…all have to be present (cross-fertilization).

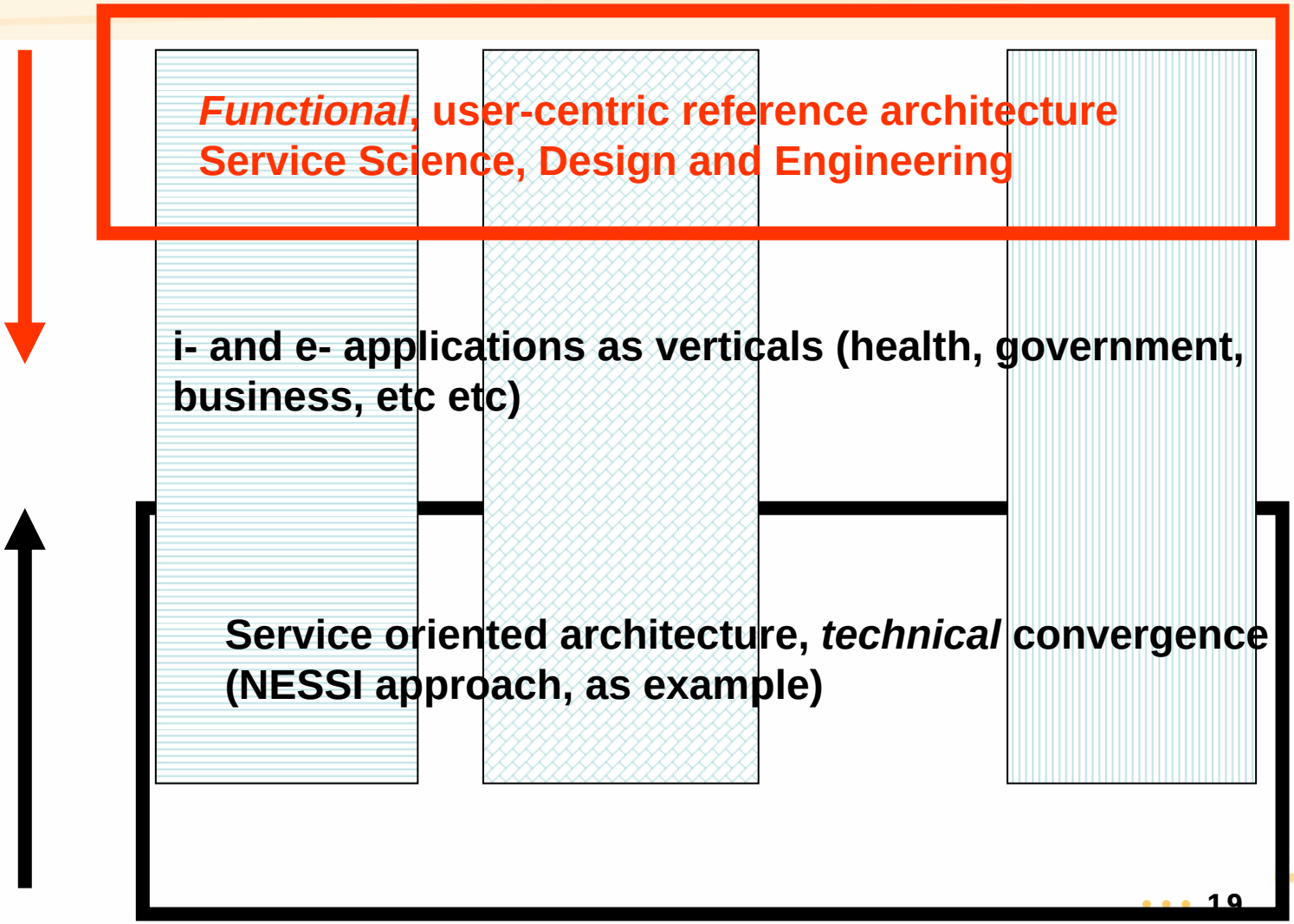
Source: Nuria de Lama, ATOS Origin, Taipei Aug 2007

Combining functional and sectorial convergence: Moving to eService roaming



F = Functionalities, e.g. shared space, connectivity, security, identity, management, fincances.

Technical and Functional Convergence for eServices



European Commission
Information Society and Media

New research discipline!

Service Science, Design and Engineering:

A new discipline to do research on
needs and develop solutions for the services' industry

--→ Create a various (user-centric) functionalities integrating to a platform architecture for eServices horizontally

--→ Industry-led pan-European action to be supported

-→ Enabling creation of open service platform for all actors

European Commission
Information Society and Media

Issues for Service Development

- **User-centric approach**
- **Technology convergence is not enough**
- **Service convergence leads to functionality thinking**
- **Multidisciplinary research needed, incl „soft“ sciences**
- **Requires iterative, systemic solution approach**

- **Requires new type of PPPP!**
- **Openness is a critical issue**

European Commission
Information Society and Media

More Information

- **FP7: http://ec.europa.eu/fp7/ict**

- **DG Information Society and Media:**
  Directorate H; ICT addressing Societal Challenges
  - **bror.salmelin@ec.europa.eu**

WEBLINK: www.openlivinglabs.eu

search with e.g. Google:

- service science(s)

- open innovation

European Commission
Information Society and Media