



# ***FIRE Research as a driver for the FIRE Facilities***

**FIREweek**  
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***New Paradigms and Experimental Facilities  
DG Information Society and Media***





# Objective ICT-2009 1.6: Future Internet experimental facility & experimentally-driven research

**Building the FIRE experimental facility & stimulating its use**

**25 M€  
for IPs**

**FIRE Components  
(gradual expansion)  
(20%)**

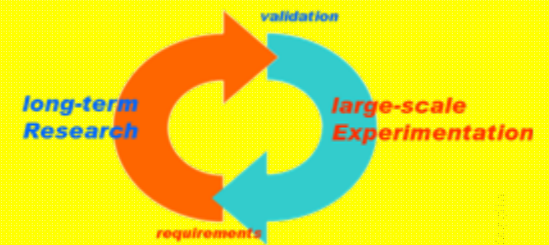
**FIRE Users  
(user stimulation)  
(20%)**

**Defining the challenges for the facility**

**Taking advantage of the facility**

**FIRE experimentally driven research**

**20 M€  
for STREPs**



**Co-ordination and support actions - 5 M€ for CSAs**

**ICT Call 5 - publication 31/7/09 deadline 3/11/09**



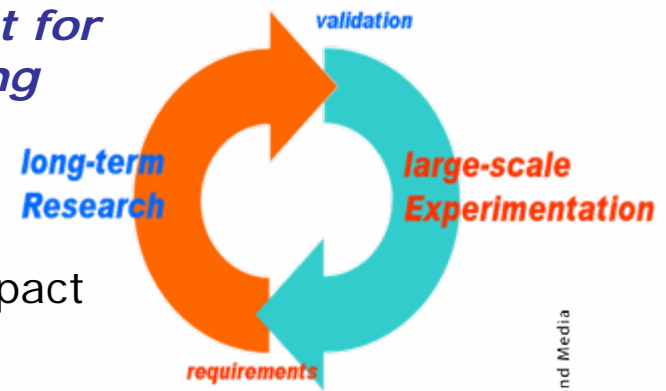


# FIRE research: visionary, multidisciplinary, experimentally-driven *what has been done in the EU insofar*

- 2004: **SAC** (Situated and Autonomic communications)
  - Long-term research dealing with managing Internet complexity, socio-economic context, self-organisation, interdisciplinary approach
- 2007: **FIRE** Future Internet Research and Experimentation

- FIRE goal: *creating a research environment for investigating and experimentally validating highly innovative and revolutionary ideas*

- To investigate, test and compare, at large scale, new paradigms and future internet architectures, and their socio-economic impact
  - e.g. transport/routing paradigms, dynamic topologies, service architectures ...
  - e.g. socio economic impact of putting intelligence into the core, changing the end-to-end principle, ...



- 2007: **FIRE** in the larger **FIA** - Future Internet Assembly





*FIRE goal: Understand*  
how **Internet** *is* **changing**  
*economy and society,*  
and how it can **improve**  
*society and environment*

- Keywords:
  - Network ( /Services)
  - Complexity
  - Multidisciplinarity
  - Empirical approaches

• *Towards an “internet science”?*

... 4



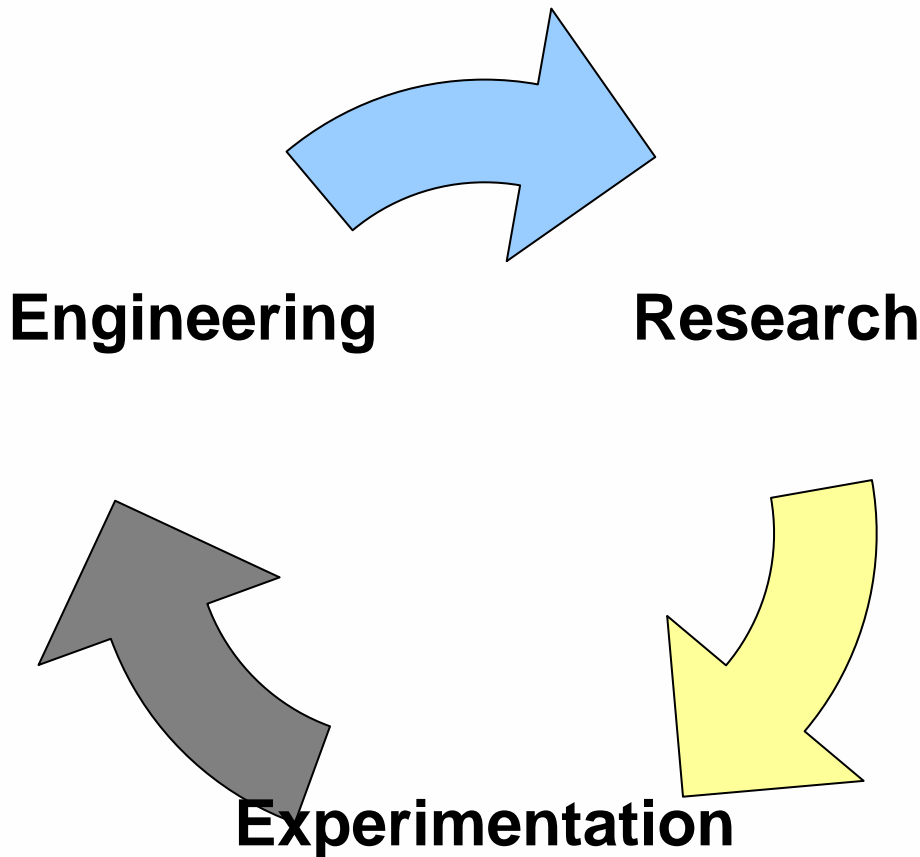


# Towards a PPP: defining Future Internet scope

Combinations of the **Internet of Networks, Services, Contents, Things**

Address the **massive scalability, complexity, reliability and usability** perspectives

Dynamic and **autonomic** management of **networked resources**



**Clear role for FIRE research:**

- methodology
- content





# main characterising points of **FIRE**

- **Integration** of projects in a **sustainable environment** for investigation and experimentation of new (evolutionary and revolutionary) paradigms
- Empirical, **experimentally-driven** character of the **visionary** research (not just paperwork)
- Bottom-up approach, **multidisciplinary, holistic**, considering the internet as a complex system
- Attention to the **social, economic** and **environmental** impacts





# Objective 1.6: experimentally-driven research

- “Visionary multidisciplinary research, defining the challenges for and taking advantage of the Experimental Facility, consisting of iterative cycles of research, design and large-scale experimentation of new and innovative network and service architectures and paradigms for the Future Internet from an overall system perspective.
- The refinement of the research directions should be strongly influenced by the data and observations gathered from experimentation in previous iterations.
- Research should consider the Future Internet as a complex system and therefore address all the associated aspects in a holistic vision and at all relevant levels and layers.
- This includes the definition of relevant metrics as well as taking into account energy, low cost, environmental or **socio-economic**





# examples of paradigm shifts for the Future Internet design and their socio-economic relevance

- **Content- and human- centric networking**  
→ **social networks, privacy, IPRs**
  - **Cooperative, multi-hop, self-managed networks**  
→ **new economic models, trust, privacy**
  - **More intelligence within the network (QoS, etc.)**  
→ **network neutrality, network control**
  - **Communication resources as shared commodities**  
→ **economics, management, energy efficiency**
- ...

