

# The European FIRE Initiative

Future Internet Research and Experimentation

8th Würzburg Workshop on IP: Joint EuroNF, ITC, and ITG  
Workshop on "Visions of Future Generation Networks"  
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## Long term research issues

The original Internet design has successfully enabled multiple waves of innovation! But...

Novel societal and commercial usages are pushing the original Internet architecture to its limits...

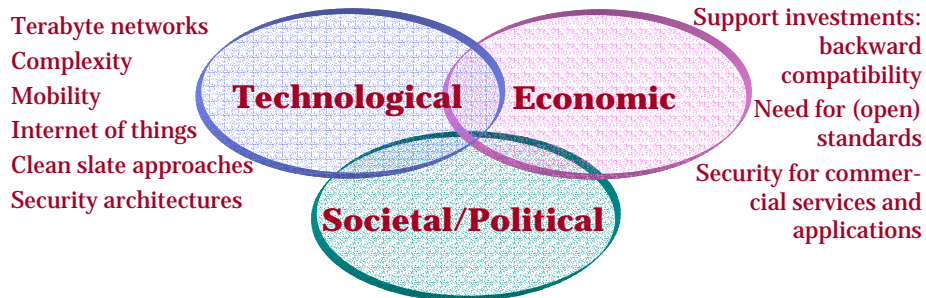
- Mobility and pervasiveness
- Security, trust, dependability
- QoS for commercial video streaming applications and broadband services
- Heterogeneity of devices and services/applications (e.g. RFIDs, sensors)
- Complexity of network management
- ...

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## Dimensions of Future Internet



European competitiveness on future Internet (act where market forces fail)

Consumer protection / empowerment

Social responsibility: preserve neutrality, openness, fairness, social role

Balance the need for security/accountability and the right to privacy

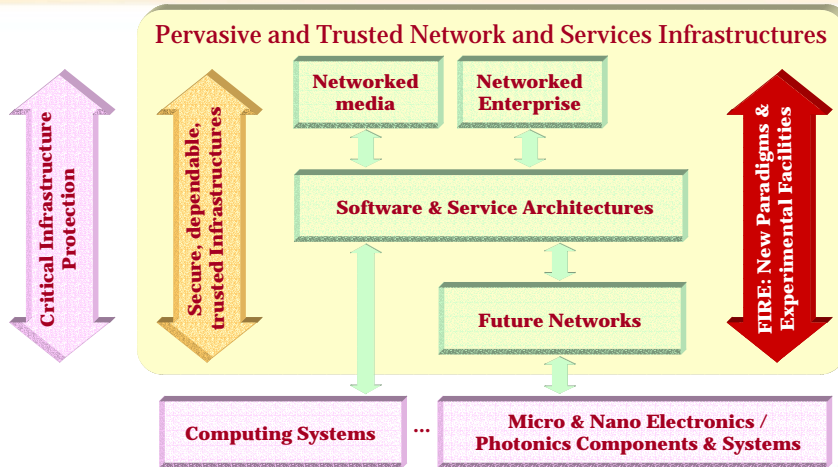


## Future Internet: opportunity for Europe

- The main technological drivers for an Internet architecture review (mobility, security, broadband, sensors..) are EU domains of excellence
- Prospects of regaining ground in a crucial field where EU visibility is not at a level commensurate with its know how
- Value chain multiplier: downwards, towards the components and subsystems industries; upwards, towards the service industry and as a novel applications enabler
- Opportunity to leverage the EU competencies



# ICT challenge 1



Total EU contribution: ~ 200M€



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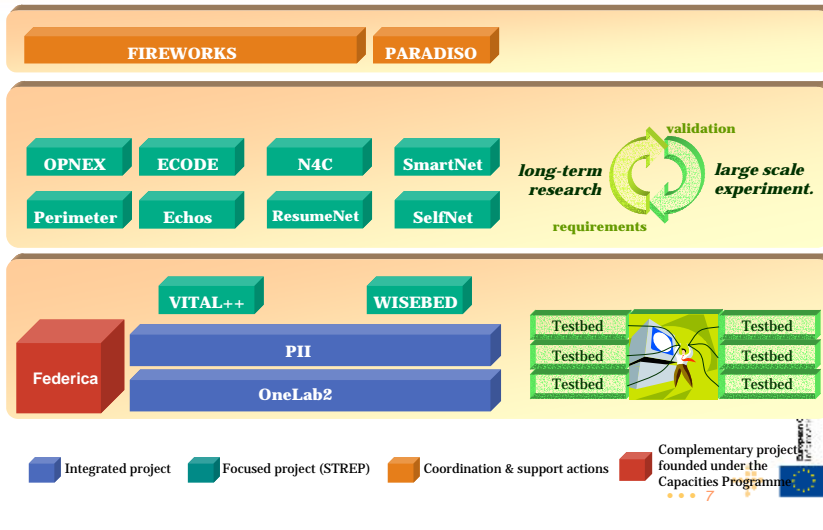
- Allowing European researchers to test new paradigms at large scale, including interactions with end users and communities



- Internet as a complex system: need to promote strategic, advanced, experimentally-driven, multi-disciplinary research on new internet concepts



# FIRE - Overview of Projects



# Building the FIRE Facility

**FP6: Early design & prototyping**



**FP7 – WP 2007/08: Prototyping the concept of federating testbeds**



**Next: Expanding the concept & building the facility**

- expand to include **service architectures**
- support experimentation cutting **across layers**
- enable **socio-economic** impact assessment
- broaden involvement of large **user communities**
- support **sustainability**
- develop the facility in **close cooperation with FIRE research projects**
- **Join forces in Europe and collaborate internationally**

## Future FIRE research

- **Future Internet as a Complex System**
  - Cross-layer, multidisciplinary, system approach
  - Need for testing on the experimental facility
- **Visionary research on Internet protocols, architectures and services**
  - Open, bottom-up approach
  - Not necessarily backward-compatible
  - Multidisciplinary, allowing cross-fertilisation, e.g. bio-inspired principles, evolutionary concepts, economic principles, ...
- **Experimentally-driven research**
  - Not just paperwork: research, theories must be based on testbeds and data-driven experiments
  - Allowing identification of potential evolutionary transition paths



## Conclusions

- More radical Future Internet evolutions/re-designs will have complex societal and economic repercussions
- Need for a multidisciplinary research environment allowing large-scale experimentation
- Internet to be addressed as a complex system across layers – from connectivity to all levels of service architectures
- Europe must join forces to increase its global competitiveness
- Internet is a global issue: international co-operation is a must
- FIRE launch event 10 September in Paris

<http://cordis.europa.eu/fp7/ict/fire>

