ICT Workprogramme Call 8

Objective 2011.1.1
Future Networks

Future Networks Unit D1
Information Society and Media DG
European Commission
Brussels, Belgium

SEVENTH FRAMEWORK PROGRAMME

FUTURE NETWORKS

European Commission
Information Society and Media

Future Networks
R&D in Communication Technologies

What?

Future Internet design for multi-service networks

Mobile communications with efficient spectrum usage

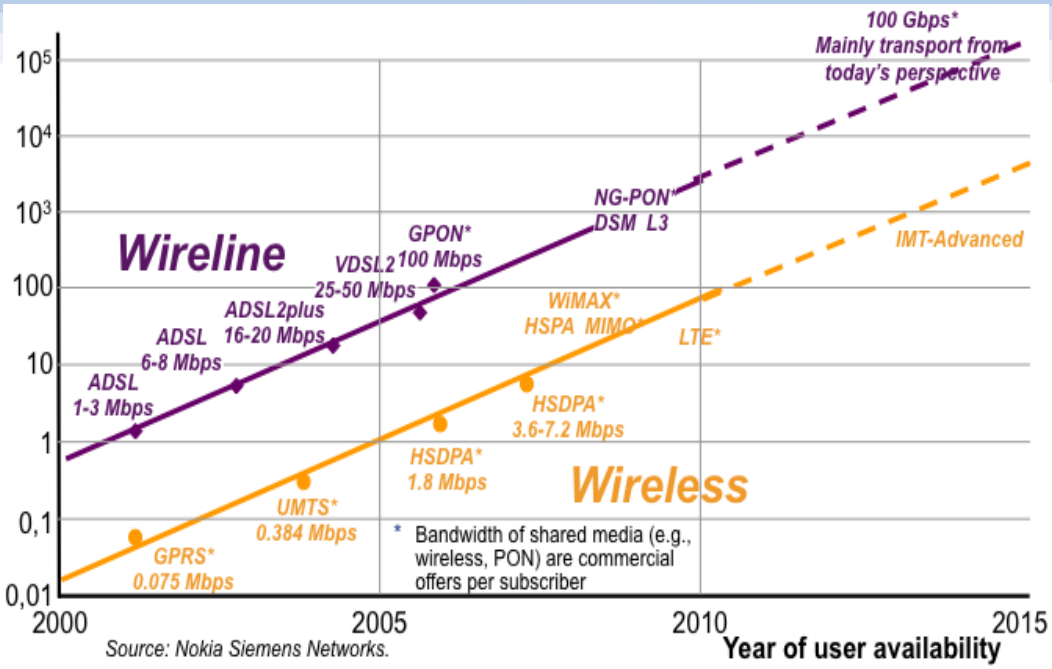
Broadband infrastructure technologies

EU funding: 100m€/y, 90 projects

Why?

Communication networks essential for:

- European Citizens
- Digital Economy
- Key applications and services
- Strategic innovations for vital areas
- 400 B€ market



Who are the key players?

Telecom Industry = Equipment + Operators + Service Providers in fixed & mobile networks

Research Centres and Academia

Strengths: UMTS, LTE, ADSL, optical backbone infrastructures (WDM), satcoms

Missed opportunity: IP technology

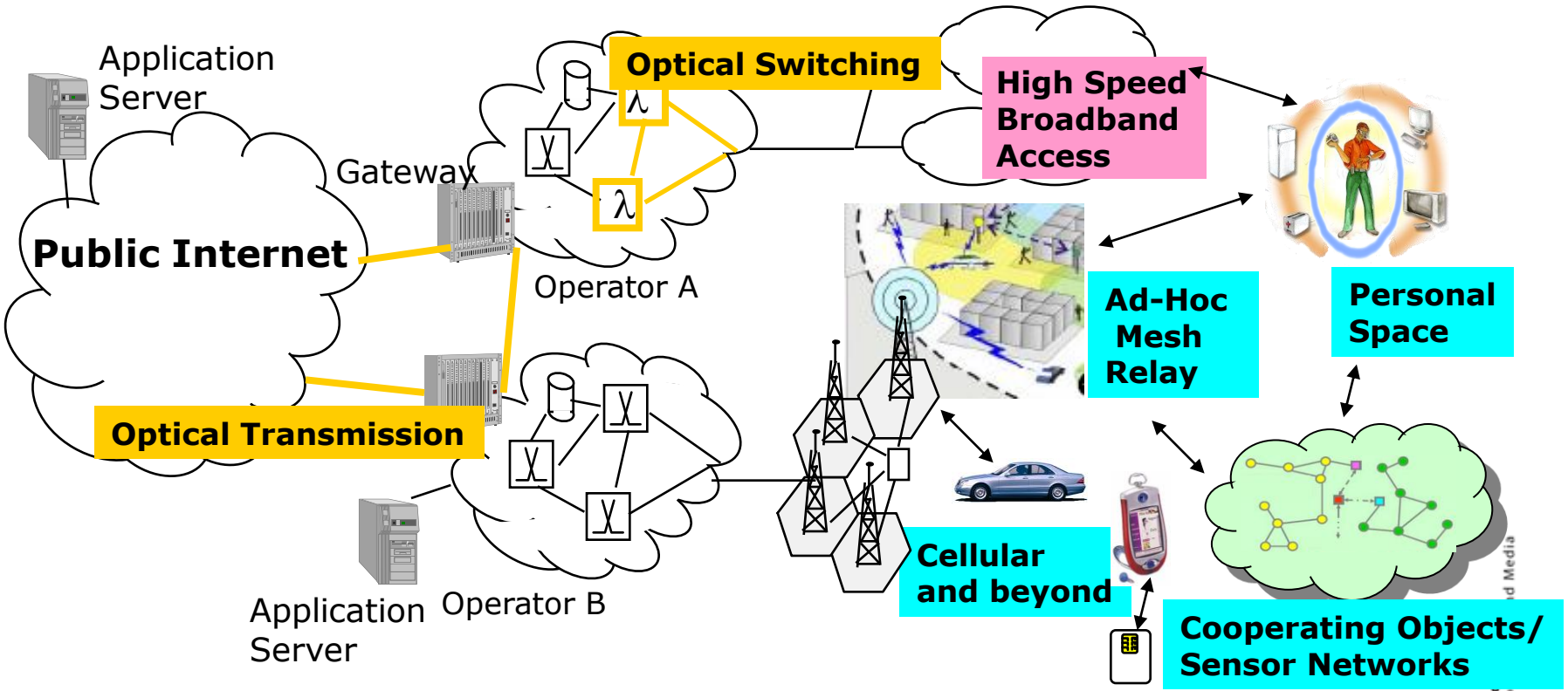
How is R&D implemented?

From research to market ~10 years

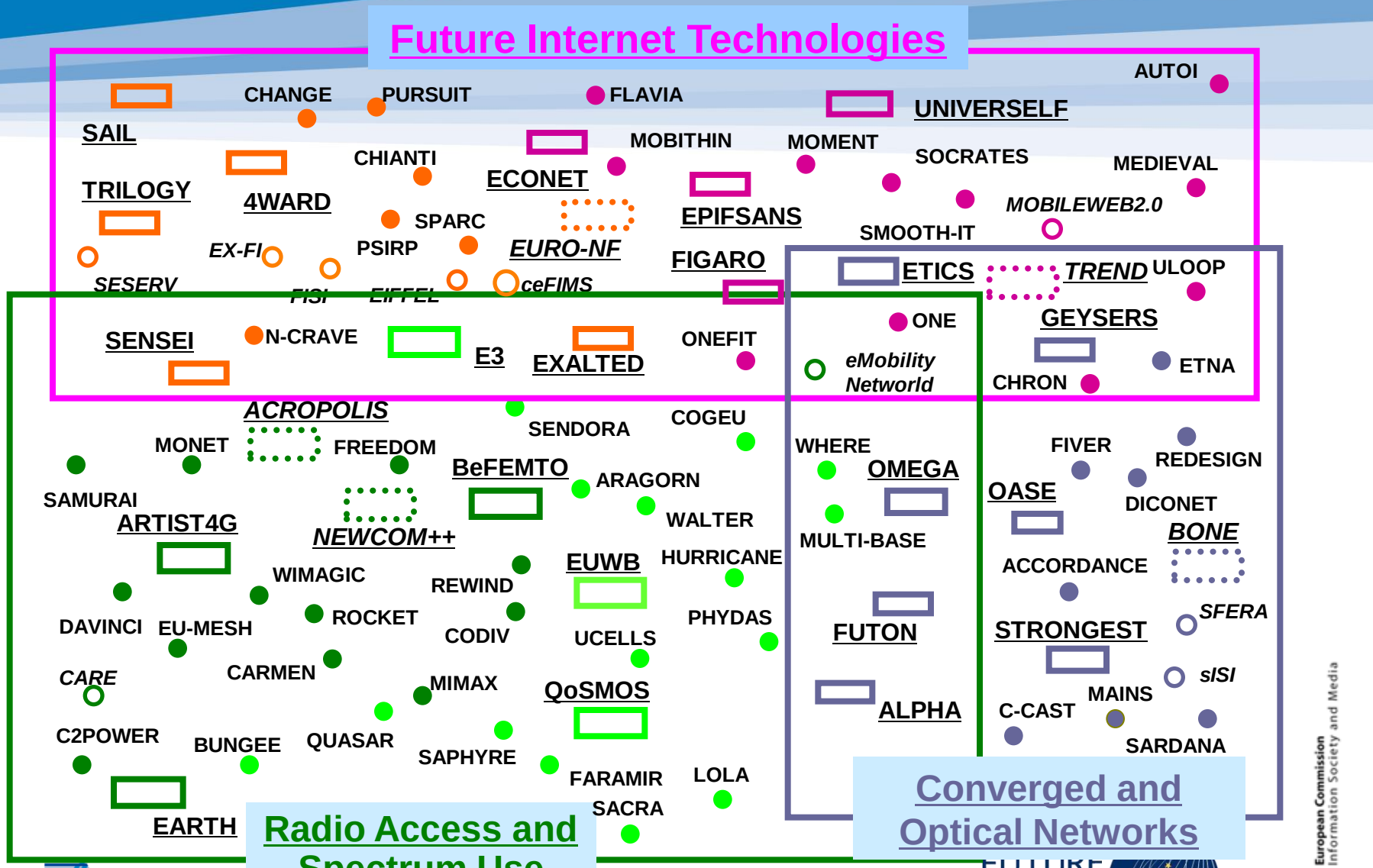
Pre-competitive EU-R&D Projects:

- Risk-sharing of huge investments between industrial competitors
- European infrastructure requires a long-term perspective
- Innovative thinking, IPR creation & standardization

Goal: Internet architecture designed for future broadband fixed and mobile access



Call1-5 Future Networks Project Portfolio & Clusters



Network Evolution Drivers

- Traffic Growth
- Cost reduction
- Security and Dependability
- Speed and Latency
- Energy Efficiency
- Net Neutrality with QoS
- Wireless and wired access convergence
- Clouds and VPNs
  - High-speed computing
  - Content Delivery Networks

Future Network Evolution (5-10 years):

- 1 Gb/s end-user access and also in-home (ALPHA, OMEGA, OASE, SARDANA, ACCORDANCE)
- Over 100 Tb/s per fibre
- wired-wireless integration (ALPHA, FUTON, FIVER, OMEGA, ACCORDANCE)
- Cross-layer optimisation and network domains integration
- (ETICS, GEYSERS, STRONGEST, DICONET)
- Business models which fit all actors (ETICS, OASE, STRONGEST)
- New networking paradigms for highly demanding applications (MUPBED, GEYSERS)
- Mobile systems: ARTIST 4G, Femtocells projects for LTE
- Cognitive radio and flexible spectrum usage (FARAMIR, COGEU, SAPHYRE, QosMOS etc.)
- Green networks: C2POWER, EARTH, TREND, ECONET

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Network and service infrastructures

Challenge 1

Deadline: 17/1/12

- **1.1: Future Networks supporting the convergence and interoperability of heterogeneous mobile, wired and wireless broadband network technologies** — 160 M€
  - novel Internet architectures; network management and operation frameworks, wireless and mobile broadband systems and ultra-high capacity all-optical networks, satcoms
- **1.2: Cloud computing, Internet of Services & advanced software engineering** — 70 M€
  - technologies specific to the networked, distributed dimension of software and the access to services and data
- **1.4: Trustworthy ICT**
  - security in networked service and computing environments; trust, privacy and claims management infrastructures; data policy, governance and socio-economic aspects of trustworthy ICT — 80 M€
- **1.6: Future Internet Research and Experimentation (FIRE)**
  - FIRE Federation
  - FIRE Experimentation
  - Coordination and support — 25 M€

WorkProgramme 2011-12: Objective 1.1. Future Networks

The target is the development of Future network infrastructures that support the convergence and interoperability of heterogeneous mobile, wired and wireless broadband network technologies as enablers of the future Internet.

This includes ubiquitous fast broadband access and ultra high speed end-to-end connectivity, with optimised protocols, addressing and routing capabilities supporting multiple operation schemes and provision of open generic services and applications.

- Call 8: Planned Date of publication: 26 July 2011
  Expected Deadline: 17 January 2012, at 17:00

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Objective 2011.1.1: Future Networks (Call 8, 160M€)

Target Outcome

- Development of energy-efficient future network infrastructures that support the convergence and interoperability of heterogeneous **mobile, wired and wireless** broadband network technologies

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WP 2011-12: Objective 1.1.
a) Wireless and mobile broadband Systems

- **LTE-Advanced and post-LTE Systems** (*targeting new radio transmission paradigms and system designs)*
- **Flexible and efficient spectrum usage** (*reference implementation for cognitive radio, low radiation, spectrum sharing*)
- **Novel radio network topologies** (*autonomy, energy efficiency)*
- **Integration radio and fiber** (*integrated communication systems using e.g. femto-cells*)

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WP 2011-12: Objective 1.1.

b) High capacity end-to-end infrastructure technologies

- **Ubiquitous fast broadband access**: convergence of heterogeneous broadband and mobile network technologies;

- **Ultra high capacity all-optical networks** (*WDM technologies enabling transportation of 160 wavelengths at 40Gb/s, in combination with TDM technologies with e.g. 100Gb/s per wavelength*)
- Functional split between circuit, flow and packet switching
- system perspective for photonic components and sub-systems undertaken in Objective 3.5

WP 2011-12: Objective 1.1.
c) Novel Internet architectures and management and operation frameworks

- **Future Internet architectures**
  (*designed for open access and heterogeneity of end-points with the need of a seamless and generalised handover)*
- **Visionary multi-disciplinary research on new architectures**
  (*Cycles of research, design and large-scale experimentation of innovative architectures)*
- **Network management and operation frameworks**
  (*Internet mobility, virtualization, and backward compatibility strategies*)
- **Self or distributed management approaches** *(tighter integration between network functionalities and overlay service functionalities)*

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WP 2011-12: Objective 1.1.

d) Flexible, resilient, broadband satellite communication

- **Innovative system architectures and technologies**

  (*ultra high capacity satellite communication systems with seamless integration capabilities, reconfiguration of* satellite-terrestrial protocols)

- **Novel technologies and architectures for resilient and flexible networks**

  (Enabling institutional missions. Integration with navigation systems and sensor networks)

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Expected Impact

- Strengthened positioning of **European** industry in Future Internet technologies, mobile and wireless broadband systems, optical networks.
- Increased economic efficiency of access/transport infrastructures (cost/bit).
- Contributions to standards and regulation
- Industry adoption of all optical networks and spectral-efficient wireless systems.
- Industrial acceptance of novel Internet architectures and technologies

Register for Future Network Summit 2011 to

- Listen to strategic thinking from Keynote Speakers including
  Dr Zoran Stančič, Deputy-Director General, DG Information Society and Media, European Commission
  Matthew Finnie, Chief Technical Officer, Interoute
  Dr. Peter Meissner, Operating Officer, NGMN Next Generation Mobile Networks
  Thierry Van Landegem, Vice President Global Operations Bell Labs, Alcatel-Lucent Bell Labs
  Lauri Oksanen, Head of Research, Nokia Siemens Networks
  Jan Faerjh, Head of Research, Ericsson
- Plenary sessions focused on Research on Networks and Future Internet
- Over 30 thematically focused parallel sessions focused on Radio Access and Spectrum, Converged and Optical Networks, and Future Internet Technologies
- Discuss and research current and emerging Future Network related challenges and research opportunities under FP7
- Enjoy a unique opportunity to network and share experiences with representatives of leading commercial and research organisations
- Interact with innovative technology demonstrations in the Exhibition

Advance Programme can be downloaded online at www.FutureNetworkSummit.eu

Registration

Early Bird Fees until 31 March

Pre-Conference Events

Tuesday 14 June

Proposers' Networking Day - FP7-ICT Call 8 & Celtic-Plus Call

Workshops

- Future Internet Cluster Workshop on Future Network Architectures
- European Workshop on Broadband Femtocell Networks
- Putting Mobile Services into Context
- Next Generation Converged Access Network, Opportunities, Achievements and Challenges

Sponsorship Opportunities

Support Brand Identity & Build Relationships with Leading Industry and Research Organisations

To Discuss a Standard or Customised Package, Contact secretariat@FutureNetworkSummit.eu

Exhibition

Showcase Innovative Technology Applications

Supported by

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ICT Proposers' Day 2011
19 - 20 May, Budapest
Networking for European ICT R&D

- Aim of the event:
  to prepare for Calls 8 and 9 (together >1 billion €)
  - by networking and partnerships building
  - by first-hand information from >100 EC officials
- Structure:
  - thematic sessions with presentations of proposal ideas
  - information stands & meeting points
- Registration:
  free of charge, open from January 2011

http://ec.europa.eu/ictproposersday

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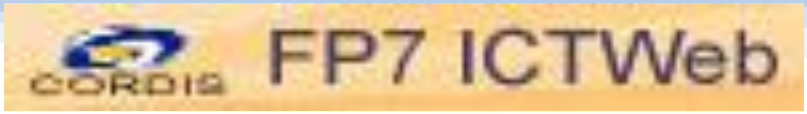
Getting help with proposals



- The ICT Future Networks web site:
  http://cordis.europa.eu/fp7/ict/future-networks/

- http://cordis.europa.eu/fp7
- National Contact Points:http://cordis.europa.eu/fp7/ncp_en.html
- Partner search facilities: http://www.ideal-ist.net/
- Information desk: ict@ec.europa.eu
- IPR Helpdesk: http://www.ipr-helpdesk.org/index.html
- Electronic proposal submission helpdesk: support@epss-fp7.org