

EU ICT Challenge 1

Pervasive and Trusted Network and Service Infrastructures

Pályázati célok

**Németh Vilmos
(NIH)
BME**

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ICT WP 2011-2012

ICT in Work Programme 2011 – 2012 (Calls 8 and 9)

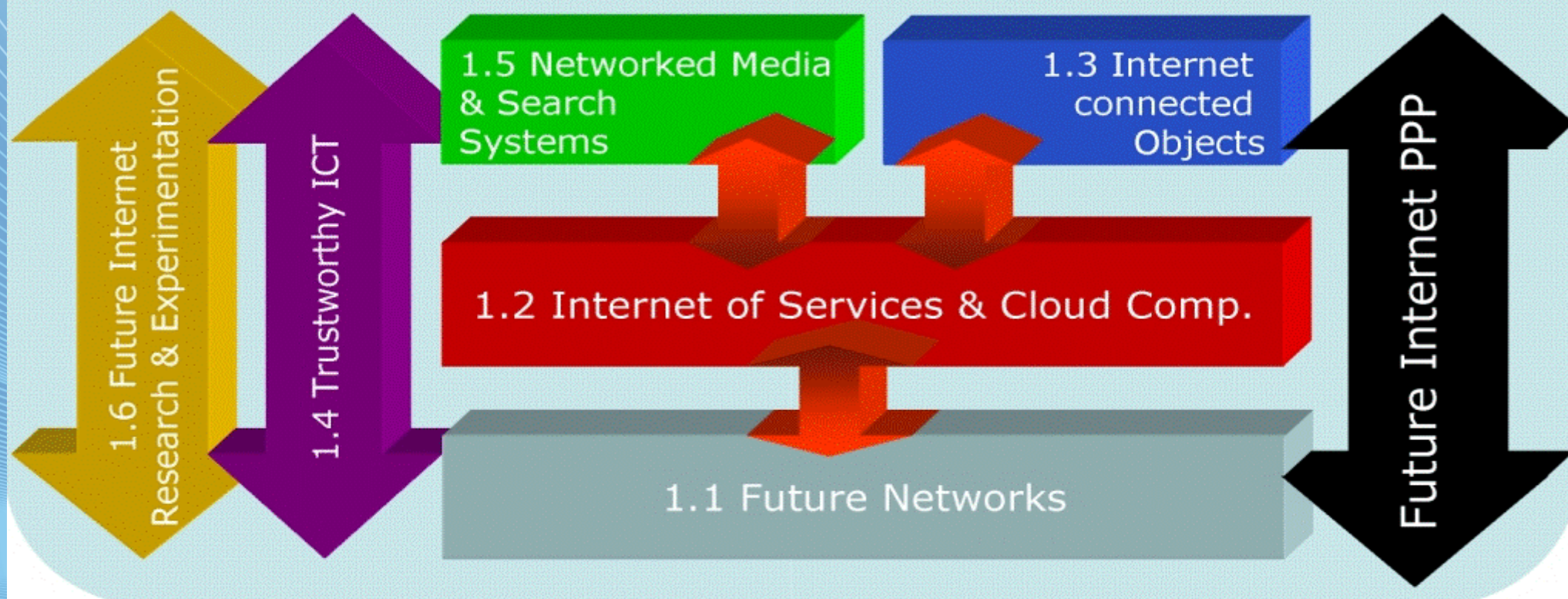
- ~1350 M€ funding

ICT Work Programme 2013 - Bridging into the Next Framework Programme **Horizon 2020** (Common Strategic Framework for Future EU Research and Innovation Funding – CFS)

- >1500 M€ funding

ICT Work Programme – Challenge 1

Challenge 1 - "Pervasive and Trusted Network and Service Infrastructures"



Challenge 1 – Call 8

Deadline : 17/1/2012

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

80 M€

security in networked service and computing environments; trust, privacy and claims management infrastructures; data policy, governance and socio-economic aspects of trustworthy ICT

1.6: Future Internet Research and Experimentation (FIRE)

25 M€

FIRE Federation

FIRE Experimentation

Coordination and support

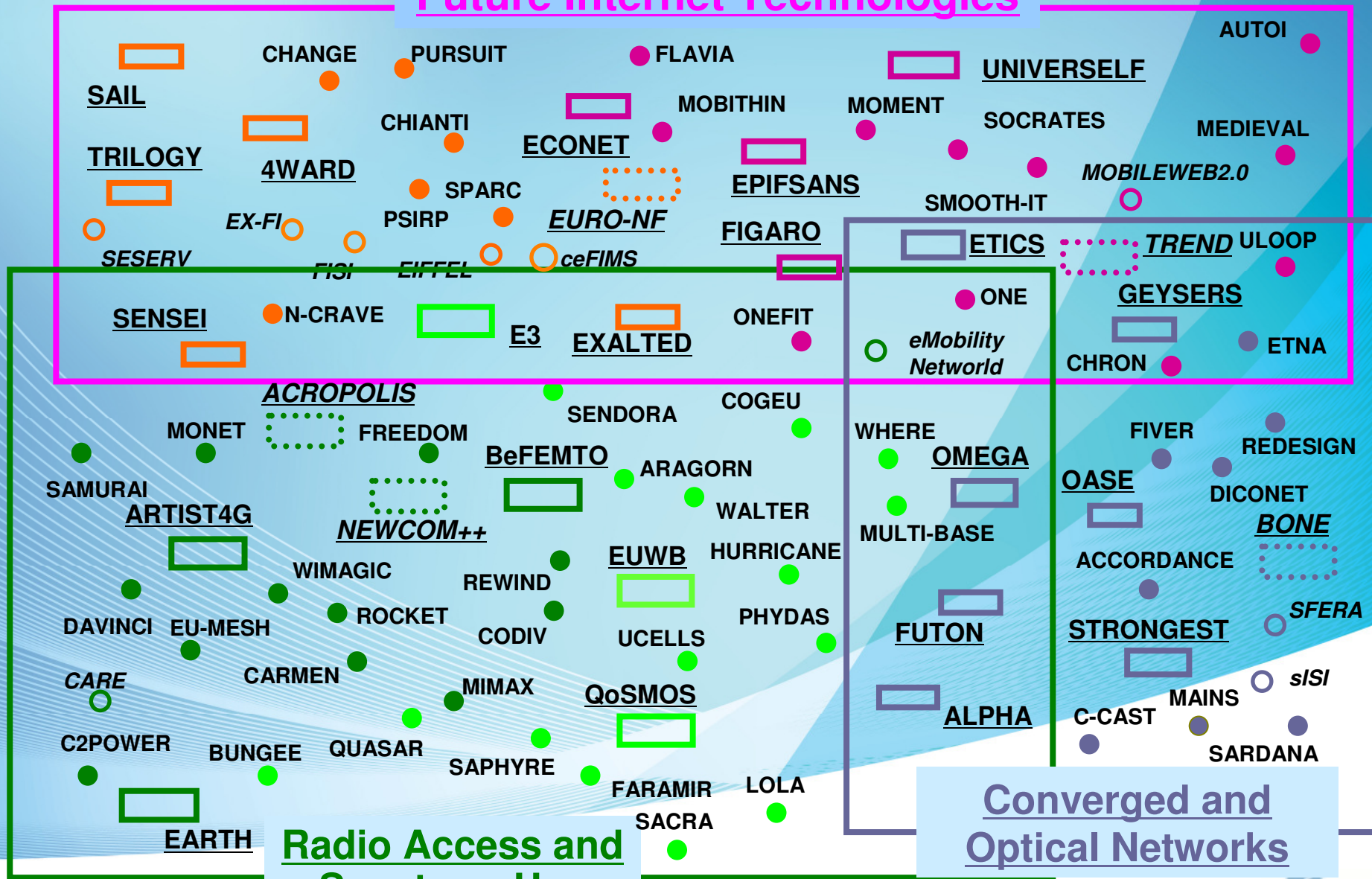
Objective 1.1. - Future Networks

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.

Call1-5 Future Networks Project Portfolio & Clusters

Future Internet Technologies



Radio Access and Spectrum Use

Converged and Optical Networks

Objective 1.1. – Future Networks (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)*

Objective 1.1. – Future Networks (2)

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

Objective 1.1. – Future Networks (3)

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)

Objective 1.1. – Future Networks (4)

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)

Objective 1.1. – Future Networks (5)

e) Coordination and Support Actions and Networks of Excellence

- European network/service requirements definition, exploitation of results, (pre)standardisation
- Joint policy framework fostering the development and integration of terrestrial mobile, fixed and satellite communications
- International cooperation (USA, Japan, ...)
- NoEs – critical mass of researchers in new and emerging topics key to Future Networks, bridging academic research and industrial exploitation

Objective 1.2. – Cloud Computing, Internet of Services and Advanced Software Engineering (1)

a) Cloud computing

- Intelligent and autonomic management of cloud resources, infrastructure virtualisation; service composition across multiple, heterogeneous environments; interoperability of clouds; seamless support of mobile, context-aware applications; energy efficiency and sustainability, integration of computing and networking environments; Open Source implementations of a software stack for Clouds

b) Internet of Services

- Service engineering principles; methods and tools including languages and tools to model parallelism; services for seamless integration of real and virtual worlds; massive scalability, self-management, verification, validation and fault localisation for software-based services; methods and tools manage for life cycle

Objective 1.2. – Cloud Computing, Internet of Services and Advanced Software Engineering (2)

c) Advanced software engineering

- Advanced engineering for software, architectures and front ends; quality measure and assurance techniques which adapt to changing requirements and contexts; management of non-functional requirements with guaranteed performance over time; tools and methods for community-based and open source software development, composition and life cycle management.

d) Coordination and support actions

- Support for standardization and collaboration in software and service technologies; the uptake of open source development models in Europe and beyond; collaboration with Japanese entities on: cloud computing, common standards for data portability and on interoperability; services having more efficient energy usage.

Objective 1.4. – Trustworthy ICT (1)

a) Heterogeneous networked, service and computing environments

- Trustworthy (meta) architectures and protocols for scalability and interoperability over heterogeneous ecosystems and networks domains; metrics and tools for security assessment and predictive security and for composition and evaluation of large scale systems; enabling technologies.

b) Trust, identity and privacy management infrastructures

- Trust architectures, protocols and models for trust assurance (e.g. identity, reputation..), delegation of trust and partial trust; protocols for privacy infrastructures enabling multi-identity; interoperable or federated management of user controlled identity claims; technologies and standardisation for use of multiple authentication devices.

Objective 1.4. – Trustworthy ICT (2)

c) Data policy, governance and socio-economic ecosystems

- Management and governance frameworks for consistent expression and interpretation of security and trust policies, socio-economic frameworks for risks analysis, liability assignment, insurance and certification; multi-polar governance and security policies between a large number of participating and competitive stakeholders; tools for trust management.

d) Networking and coordination activities

- Support for networking, road-mapping, coordination and awareness raising of research and its results in trustworthy ICT; priority: stimulating and organising the interplay between technology development and legal, social and economic research through multi-disciplinary research communities; promoting standards, certification and best practices; coordination of national RTD activities.

Objective 1.6. – Future Internet Research and Experimentation (FIRE) (1)

b) FIRE Federation

- Implementing federation framework for all FIRE prototype facilities and beyond making the facility self-sustainable towards 2015 assuming a significant decrease of EU funding; development of a joint FIRE portal, operated until the end of 2015; common tools addressing issues such as brokering, user access management, one-stop-shopping, measurement and performance analysis; aim for openness towards additional testbeds and facilities, building on proven existing federation models, use of open standards; standardisation and certification policies, using existing research infrastructures such as GÉANT and the NRENs, for cooperation with EU, national and international initiatives on experimental facilities.

Objective 1.6. – Future Internet Research and Experimentation (FIRE) (2)

c) FIRE Experimentation

- Experimentally-driven research using one or more of the existing FIRE facility prototypes; holistic approach for innovative demos; demonstrate a clear commitment of the FIRE facilities; where appropriate, participation from international cooperation countries at use level is encouraged.

e) Coordination and support actions

- EU-wide cooperation with related EU-level and Member States and associated countries activities such as Public Private Partnership on the Future Internet, or national experimentation facilities; international cooperation, cooperation on standardisation; socio-economic requirements gathering, impact analysis, and awareness creation.

Hasznos információk

1.) **Future Networks & Mobile Summit 2011**

15-17 June, 2011, Warsaw, Poland

Pre-conference Workshops, 14 June Proposers'

Networking Day - FP7-ICT Call 8 & Celtic-Plus Call 2

2.) **2nd FIRE "Open Calls" Information Day**

14 September, 2011, Brussels

3.) **Information Day on Objective 1.2 - Call 8**

27 September, 2011, Brussels

Future Internet Week Poznan, Poland 24-28 October, 2011



Köszönöm a figyelmet!

Németh Vilmos

vilmos.nemeth@nih.gov.hu