

HORIZON 2020

ICT



Europe 2020 priorities

Shared objectives and principles

Tackling Societal Challenges

- Health, demographic change and wellbeing
- Food security, sustainable agriculture and the bio-based economy
- Secure, clean and efficient energy
- Smart, green and integrated transport
- Climate action, resource efficiency and raw materials
- Inclusive, innovative and reflective societies
- Secure Societies

Creating Industrial Leadership and Competitive Frameworks

- Leadership in enabling and industrial technologies
 - ICT
 - Nanotech., Materials, Manuf. and Processing
 - Biotechnology
 - Space
- Access to risk finance
- Innovation in SMEs

Excellence in the Science Base

- Frontier research (ERC)
- Future and Emerging Technologies (FET)
- Skills and career development (Marie Curie)
- Research infrastructures

**EIT
JRC**

Simplified access

Common rules, toolkit of funding schemes

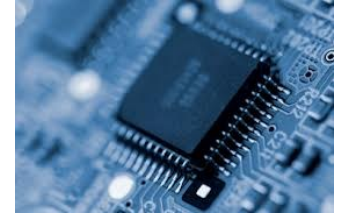
Dissemination & knowledge transfer

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Industrial Leadership - ICT



1. A new generation of components and systems: engineering of advanced embedded and resource efficient components and systems
2. Next generation computing: advanced and secure computing systems and technologies, including cloud computing
3. Future Internet: software, hardware, infrastructures, technologies and services
4. Content technologies and information management: ICT for digital content, cultural and creative industries
5. Advanced interfaces and robots: robotics and smart spaces
6. Micro- and nanoelectronics and photonics: key enabling technologies

2. Advanced Computing / 2014-2015

- Reinforce and expand Europe's industrial and technology strengths in **low-power ICT**
- Focus is on **integration of advanced components on all levels in computing systems**
- **Complementary to and coordinated with work in the Future Internet area (on Cloud Computing) and in Excellence Science pillar under Research Infrastructures and FET (on High Performance Computing)**
- **Organised in one topic:**
 - Customised and low power computing

3. Future Internet / 2014-2015

- Focused on **network and computing infrastructures** to accelerate innovation and address the most critical technical and use aspects of the Internet
- **Organised in ten topics:**
 - Smart networks and novel Internet **architectures**
 - Smart **optical** and **wireless network** technologies
 - Advanced **5G** Network Infrastructure for the Future Internet (**→5G PPP**)
 - Advanced **cloud** infrastructures and services
 - Boosting public sector productivity and innovation through cloud computing services
 - Tools and methods for **Software Development**
 - **FIRE+ (Future Internet Research & Experimentation)**
 - More Experimentation for the Future Internet
 - **Collective Awareness Platforms** for sustainability and social innovation
 - **Web Entrepreneurship**

4. Content technologies and information management / 2014-2015

- **Addresses:**

- **Big Data** with focus on both innovative data products and services and solving research problems
- **Machine translation** to overcome barriers to multilingual online communication
- **Tools for creative, media and learning industries** to mobilise the innovation potential of SMEs active in the area
- **Multimodal and natural computer interaction**

- **Organised in eight topics:**

- Big data innovation and take-up
- Big data research
- Cracking the language barrier
- Support to the growth of ICT innovative creative industries SMEs
- Technologies for creative industries, social media and convergence
- Technologies for better human learning and teaching
- Advanced digital gaming/gamification technologies
- Multimodal and natural computer interaction

Research and innovation:

- High performance heterogeneous cloud infrastructures
- Federated **cloud networking**
- Dynamic configuration, automated provisioning and orchestration of cloud resources
- Automated discovery and composition of services (cloud of public services)
- Cloud security

66 M € small and large projects; R&I



è **ICT 5. Smart Networks and novel Internet Architectures** (23 M€)

Novel architectural and networking approaches to information delivery and access

Key functionalities:

Security, trust, mobility and scalability (built-in)

Impact:

Strengthen the EU datacom/telecom industry

Contribution to industrial strategies and roadmaps

Establish links with international initiatives

Contribution to large scale trials

Type of Action:

Research and Innovation – Small projects



è **ICT 6. Smart optical and wireless network technologies**

1/2

Innovative network technologies addressing the increasing traffic and the multiplicity of usages (29 MÖ)

Optical networks

- Flexible management
- Very high speed transmission and access
- Efficient data center architectures

Scalability, cost and energy efficiency

Wireless networks

- New paradigms for wireless connectivity
- Flexible use of spectrum
- Addressing usage diversity

Hybrid (terrestrial/satellite) infrastructure for extensive coverage and resilience



ICT 6. Smart optical and wireless network technologies

2/2

Expected impact:

- Strengthen current EU industrial capabilities on wireless and optical
- Reduce energy consumption (10x)
- Higher spectrum efficiency, lower radiation
- Support new applications and services
- Community building, coordination with national initiatives (Support Actions)

Type of action:

Research and Innovation – Small projects

Support Actions (2M€)

Support to dissemination, standardisation, international cooperation, industrial roadmapping, etc



ICT 14. Advanced 5G Network Infrastructure for the Future Internet 1/4

a. Radio, convergence and network management strands

a.1. Radio network architecture & technologies

- § Increased frequency re-use, versatile low-cost radio access infrastructure (IoT to > 1Gbps) + low energy
- § Flexible backhaul solutions
- § Architecture for 5G "tranceivers" and micro-servers
- § Key hardware building blocks to support various spectrum usage scenarios
- § Preparing for large scale demonstrators and test-beds (possibly leveraging existing experimental facilities)



ICT 14. Advanced 5G Network Infrastructure for the Future Internet 2/4

a.2. Convergence beyond last mile

- š Uniquitous access continuum
- š Cooperative, cognitive fixed and heterogeneous resources, with fixed optical access reaching at least 10 Gb/s
- š Address access sharing issues related to competition and business models

a.3. Network management

- š Novel approaches (e.g. SON, QoS-enabled)
- š Combination SDN/autonomic management
- š Security across virtualised SDN domains

Type of Action:

Research and Innovation – Large projects


Societal Challenges: one of the main features of H2020

- **A single programme** bringing together three separate programmes/initiatives*
- **Coupling research to innovation** – from research to retail, all forms of innovation
- **Focus on societal challenges** facing EU society, e.g. health, clean energy and transport
- **Simplified access**, for all companies, universities, institutes in all EU countries and beyond

* The 7th Research Framework Programme (FP7), innovation aspects of Competitiveness and Innovation Framework Programme (CIP), EU contribution to the European Institute of Innovation and Technology (EIT)

Guide to the presence of ICT in H2020

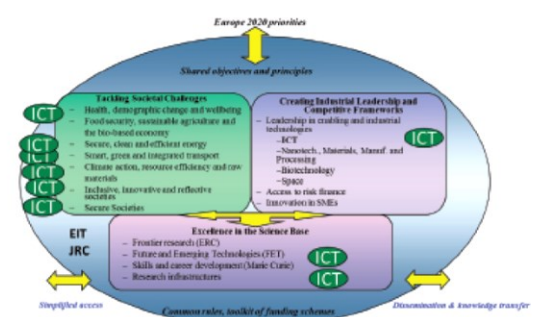
- Comprehensive coverage of all three H2020 pillars
- Detailed list of calls and topics


 European Commission

A guide to ICT-related activities in WP2014-15

ICT in H2020 – an Overview

As a generic technology, ICT is present in many of the H2020 areas. This guide is designed to help potential proposers find ICT-related topics across the different parts of H2020.




The diagram illustrates the structure of H2020 priorities and the role of ICT. At the top, 'Europe 2020 priorities' leads to 'Shared objectives and principles'. Below this, three main pillars are shown: 'Tackling Societal Challenges', 'Creating Industrial Leadership and Competitive Frameworks', and 'Excellence in the Science Base'. Each pillar has specific sub-topics and ICT-related activities. 'Tackling Societal Challenges' includes health, energy, and security. 'Creating Industrial Leadership and Competitive Frameworks' includes leadership, nanotech, and space. 'Excellence in the Science Base' includes frontier research, FET, and research infrastructures. The diagram also shows 'EIT' and 'JRC' as key entities, and 'Streamlined access' and 'Dissemination & knowledge transfer' as cross-cutting themes.

In work programme 2014-15, ICT-related topics are covered as follows:

- Advanced research to uncover radically new technological possibilities and ICT contributions to research and innovation are addressed in the 'Excellent science' part of the work programme, respectively under 'Future and Emerging Technologies' and 'European research infrastructures' ('eInfrastructures').
- Research and innovation activities on generic technologies either driven by industrial roadmaps or through a bottom-up approach are addressed in the 'Leadership in enabling and industrial technologies' (LEIT) part of the work programme, under 'information and communication technologies'.
- Multi-disciplinary application-driven research and innovation leveraging ICT to tackle societal challenges are addressed in the different 'Societal challenges'.

The figures above and below provide synthetic overviews of the presence of ICT in Horizon 2020:


 Horizon 2020

Simplified Funding Model

- **1 reimbursement rate** by action (same rate for all beneficiaries and all activities):
 - Up to 100% for Research and Innovation actions
 - Up to 70% for innovation (non-profit entities up to 100%) and programme co-fund actions
- **1 method for calculation of indirect costs:**
 - Flat rate of 25% of total direct costs, excluding subcontracting, costs of third parties and financial support to third parties
 - If provided in WP, lump sum or unit costs
- Funding of the action not exceed **total eligible costs minus receipts**

Tips

- linkedIn
- COST action
- Work Package
- Info Days and community building events
- Avoid small “coordinator” companies
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