European Commission

HORIZON 2020

The New EU Framework Programme for Research and Innovation

2014-2020

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HORIZON 2020

Horizon 2020

The Multiannual Financial Framework 2014-2020:
European Council conclusions, 8 February 2013

Key challenge: stabilise the financial and economic system while taking measures to create economic opportunities

1. **Smart & inclusive growth (€451 billion)**

2. **Sustainable growth, natural resources (€373 billion)**
3. **Security and citizenship (€16 billion)**
4. **Global Europe (€58 billion)**
5. **Administration (€61.6 billion)**

Investment in R&D is part of the solution to exit from the economic crises

Source: DG Research and Innovation - Economic Analysis Unit
Data: Eurostat

Notes. (1) Greece: average R&D intensity refers to 2004-2007.
(2) Denmark, Portugal, Slovenia, Sweden: Break in series between 2004-2009.

What is Horizon 2020

- **Initial Commission proposal for a €80 billion research and innovation funding programme (2014-2020); now just over €70 billion**
- **A core part of Europe 2020, Innovation Union & European Research Area:**
  - Responding to the economic crisis to invest in future jobs and growth
  - Addressing people's concerns about their livelihoods, safety and environment
  - Strengthening the EU's global position in research, innovation and technology

Active involvement of stakeholders

- **EU Presidencies: Sweden** (societal challenges-based approach), **Spain** (integration of research and innovation), **Hungary** (FP7 interim evaluation), **Poland** (widening participation), **European Council conclusions** from 4.2.2011 (Common Framework to bring together all EU research and innovation funding)
- **European Parliament** reports**:** Merkies (Innovation Union), Audy (FP7 evaluation), Matias (Horizon 2020) and Carvalho (simplification)
- Overwhelming response to **the public consultation** on Horizon 2020 (more than 2000 contributions)
- **Survey on administrative costs for participants in FP7**
- **25 workshops on the content** of Horizon 2020

What's new

- **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)

Three priorities

31%

Excellent science

+ EIT, JRC, Widening, SwfS

8%

22%

Industrial leadership

Societal challenges

39%

Coverage of the full innovation chain

Priority 1.
Excellent science

- **Why:**
- World class science is the foundation of tomorrow's technologies, jobs and wellbeing
- Europe needs to develop, attract and retain research talent
- Researchers need access to the best infrastructures

Funding (€ million, 2014-2020)*

European Research Council (ERC) Frontier research by the best individual teams	**13 095**
Future and Emerging Technologies Collaborative research to open new fields of innovation	**2 696**
Marie Skłodowska-Curie actions (MSCA) Opportunities for training and career development	**6 162**
Research infrastructures *(including e-infrastructure)* Ensuring access to world-class facilities	**2 488**

Priority 2.
Industrial leadership

- **Why:**
- Strategic investments in key technologies (e.g. advanced manufacturing, micro-electronics) underpin innovation across existing and emerging sectors
- Europe needs to attract more private investment in research and innovation
- Europe needs more innovative small and medium-sized enterprises (SMEs) to create growth and jobs

Funding (€ million, 2014-2020)

Leadership in enabling and industrial technologies (LEITs) (ICT, nanotechnologies, materials, biotechnology, manufacturing, space)	**13 557**
Access to risk finance Leveraging private finance and venture capital for research and innovation	**2 842**
Innovation in SMEs Fostering all forms of innovation in all types of SMEs	**616** + complemented by expected 20% of budget of societal challenges + LEITs and ***'Access to risk finance'*** with strong SME focus

Priority 3.
Societal challenges

- **Why:**
- Concerns of citizens and society/EU policy objectives (climate, environment, energy, transport, etc) cannot be achieved without innovation
- Breakthrough solutions come from multi-disciplinary collaborations, including social sciences & humanities
- Promising solutions need to be tested, demonstrated and scaled up

Funding (€ million, 2014-2020)

Health, demographic change and wellbeing	**7 472**
Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the Bioeconomy	**3 851**
Secure, clean and efficient energy *	**5 931**
Smart, green and integrated transport	**6 339**
Climate action, environment, resource efficiency and raw materials	**3 081**
Inclusive, innovative and reflective societies	**1 310**
Secure societies	**1 695**
Science with and for society	*462*
Spreading excellence and widening participation	*816*

* Additional funding for nuclear safety and security from the Euratom Treaty activities (2014-2018)

Horizon 2020 and partnering

Public private partnerships:

- Through Joint Technology Initiatives or other formal structures (Art. 187)
- Through contractual agreements, which provide inputs for work programmes
- Only when criteria met, e.g. clear commitments from private partners

Public public partnerships:

- Through « ERA-Nets » for topping up individual calls/actions (replacing current ERA-Net, ERA-Net Plus, Inco-Net, Inno-net)
- Through participation in joint programmes between Member States (Art. 185)
- Supporting agendas of Joint Programming Initiatives when in line with Horizon 2020
- Only when criteria met, e.g. financial commitments of participating countries

European Innovation Partnerships:

- Not funding instruments, but for coordination with broader policies and programmes

Benefits of Partnerships

Joint Technology Initiatives (with industry)

- Industry driven research agenda
- Fixed budget for 7 years to leverage more industry investment
- Sector structuring to achieve impact
- Coverage of longer value chains and interrelated sectors
- Higher level of SME participation (30%) than in FP7
- Links and synergies with Structural and Investment Funds

Joint programmes (with Member States)

- Link to national programmes
- Leverage effect
- Industry involvement
- Cross-border collaboration

Role of the EIT and JRC in Horizon 2020

	Proposed funding (€ million, 2014-2020)
European Institute of Innovation & Technology (EIT) Combining research, innovation & training in knowledge and Innovation Communities	**2 711**
Joint Research Centre (JRC)* Providing a robust, evidence base for EU policies	**1 903**

* Additional funding for the JRC for Euratom Treaty activities

Simplification: Rules for Participation

1. A single set of rules:

- ✓ Adapted for the whole research and innovation cycle
- ✓ Covering all research programmes and funding bodies
- ✓ Aligned to the Financial Regulation, coherent with other new EU Programmes

2. One project – one funding rate

- ✓ Maximum of 100% of the total eligible costs (except for innovation actions, where a 70% maximum will apply for profit making entities)
- ✓ Indirect eligible costs: a flat rate of 25% of direct eligible costs

3. Simple evaluation criteria

- ✓ Excellence – Impact – Implementation (Excellence only, for the ERC)

4. New forms of funding aimed at innovation

- ✓ pre-commercial procurement, inducement prizes, dedicated loan and equity instruments

5. International participation

- ✓ facilitated but better protecting EU interests

Simplification: Rules for Participation

6. Simpler rules for grants

- ✓ broader acceptance of participants accounting practices for direct costs, flat rate for indirect costs, no time-sheets for personnel working full time on a project, possibility of output-based grants

7. Fewer, better targeted controls and audits

- ✓ Lowest possible level of requirements for submission of audit certificates without undermining sound financial management
- ✓ Audit strategy focused on risk and fraud prevention

8. Improved rules on intellectual property

- ✓ Balance between legal security and flexibility
- ✓ Tailor-made IPR provisions for new forms of funding
- ✓ A new emphasis on open access to research publications

Beyond the Rules: further simplified provisions in the Grant Agreement and implementing procedures to facilitate access to Horizon 2020 (e.g. common IT platform).

Simplification: summary

- **Single set of** simpler and more coherent participation **rules**
- New **balance between trust and control**
- Moving from several **funding rates** for different beneficiaries and activities to just two
- Replacing the four methods to calculate overhead or «indirect costs» with a **single flat rate**
- **Successful applicants to get working more quickly:** time-to-grant of 8 months; exceptions for the ERC and in duly justified cases

Strong participation by SMEs

- **Integrated approach** - around 20% of the total budget for societal challenges and LEITs to go to SMEs
- **Simplification** of particular benefit to SMEs (e.g. single entry point)
- A **new SME instrument** will be used across all societal challenges as well as for the LEITs
- A dedicated activity for research-intensive SMEs in **'Innovation in SMEs'**
- **'Access to risk finance'** will have a strong SME focus (debt and equity facility)

ICT in Horizon 2020

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
ICT
ICT
ICT
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ICT
ICT
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
ICT
EIT
JRC
Excellence in the Science Base
– Frontier research (ERC)
– Future and Emerging Technologies (FET)
– Skills and career development (Marie Curie)
– Research infrastructures
ICT
ICT
Simplified access
Common rules, toolkit of funding schemes
Dissemination & knowledge tranfer

ICT in Excellent Science

Three priorities for ICT

Coupling research to innovation

- Support to Research and Innovation **from lab to market**

  Use of 'research and innovation actions' and 'innovation actions' depending on the centre of gravity of the targeted activities

- Promotion of a closer relationship between **research and entrepreneurship**
- More support to **SMEs**
- More **evaluators from the business world** involved in the selection process
- About **half of the budget of ICT-related activities** allocated to instruments directly aiming at supporting innovation

Benefits of Partnerships

Joint Technology Initiatives

- **Industry driven research agenda**
- **Fixed budget for 7 years** to leverage more industry investment
- Sector structuring to achieve impact
- Coverage of longer value chains and interrelated sectors
- Higher level of SME participation
- **Specific solutions outside FP rules**

Contractual PPPs

- **Involvement of industry in the preparation**
- **Indicative pre-defined budget**
- More emphasis on **relevance of industry and impact**
- **Open to all according to normal FP rules**

Benefits of Partnerships - ICT

Joint Technology Initiatives

- **ECSEL** (Electronic Components and Systems for European Leadership)
  - ✓ **1,215 b€ from EU** (250m€ in 2014-15)
  - ✓ **3,6 b€** (out of which 1,2 b€ from Member States) **from industry partners and other sources**

Contractual PPPs

- **5G** –> **700m€** indicatively earmarked in H2020 (125m€ in WP2014-15)
- **Photonics** –> **700m€** (156m€ in WP2014-15)
- **Robotics** –> **700m€** (157m€ in WP2014-15)
- **High Performance Computing** –> **700m€** (157m€ in WP2014-15)
- **Factories of the Future** (ICT part) –> **450m€** (102m€ in WP2014-15)
- **Green Vehicles** (ICT part) –> **80m€** (20m€ in WP2014-15)

Responsible Research and Innovation (RRI) & Socio-Economic Sciences and Humanities (SSH)

- **RRI actions & SSH expertise** are called for as a baseline in Excellent Science, Industrial Leadership, and Societal Challenges.
- **RRI & SSH** are explicitly called for in numerous topics.
- One ICT topic calls for intensive **RRI & SSH** input (ICT 10 – Collective Awareness Platforms)
- **Human-Centric Digital Age** (ICT 31) serves as a hub for **RRI/SSH** in ICT
- See http://bit.ly/MoreDetail for an overview.

ICT in Excellent science

Excellent Science - ICT

2,5 b€*

- **Future and Emerging Technologies (FET)**
  - **FET Open**: fostering novel ideas
  - **FET Proactive**: nurturing emerging themes and communities
  - **FET Flagships**: pursuing grand interdisciplinary science and technology challenges
    - **Graphene**
    - **Human Brain Project**

**** Including budget for other areas than ICT covered in FET***

- **Research infrastructures**
  - Developing the European research infrastructure for 2020 and beyond
    - **Development, deployment and operation of ICT-based e-infrastructures**
      - **ICT infrastructure resources and services for Research**
      - **Access to and management of scientific data**
      - **High Performance Computing**

862 m€

Future and Emerging Technologies
2014-2015

472 m€

- **FET Open** (160 m€)
  - **All technologies, no topical scope**
  - **Light and fast scheme**
    - Several cut-off dates per year, one-step submission of ~15 pages
    - One stage evaluation
- **FET Proactive** (132,4 m€)
  - **Global Systems Science (GSS)** (10 M€)
    - Improve the way in which scientific knowledge can stimulate, guide, and help evaluate policy and societal responses to global challenges
  - **Knowing, doing, being: cognition beyond problem solving** (15 M€)
    - New approaches to cognitive systems
  - **Quantum simulation** (10 M€)
    - Quantum technologies to ultimately address real world problems
  - **Towards exascale high performance computing** (97,4 M€)
    - → **HPC PPP**: To be coordinated with complementary work in LEIT and RI
- **FET Flagships** (179,6 m€)
  - **Graphene**
  - **Human Brain Project**

eInfrastructures / 2014-2015

177 m€

- **ICT infrastructure resources and services for Research (48 M€)**
  - Provision of core services across e-infrastructures
  - Research and Education Networking – GEANT
  - eInfrastructures for virtual research environments
- **Access to and management of scientific data (72 M€)**
  - Managing, preserving and computing with big research data
  - Towards global data e-infrastructures – Research Data Alliance
  - eInfrastructure for Open Access
- **High Performance Computing (57 M€)**
  - Pan-European High Performance Computing infrastructure and services
  - Centres of Excellence for computing applications
  - Network of HPC competence centres for SMEs

ICT in Industrial leadership

Industrial Leadership - ICT

7,3 b€

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

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Components and systems
2014-2015

142 m€

- Covers **systemic integration from smart components to cyber-physical systems**
- **Complementary to the JTI Electronic Components and Systems (ECSEL)**
- **Organised in three related topics:**
  - Smart cyber-physical systems (56 M€)
    - Next generation embedded and connected systems
  - Smart system integration (48 M€)
    - Integration of heterogeneous micro- and nanotechnologies into smart systems
  - Advanced Thin, Organic and Large Area Electronics (38 M€)
- R&I in this area will also contribute to the implementation of the **SRA on Energy Efficient Buildings**

Advanced Computing
2014-2015

57 m€

- 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

Future Internet / 2014-2015

395,5 m€

- 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** (24 M€)
  - Smart **optical** and **wireless network** technologies (30 M€)
  - Advanced **5G** Network Infrastructure for the Future Internet (125 M€) **→ 5G PPP**
  - Advanced **cloud** infrastructures and services (73 M€)
  - Boosting public sector productivity and innovation through cloud computing services (22 M€)
  - Tools and methods for **Software Development** (25 M€)
  - **FIRE+ (Future Internet Research & Experimentation)** (31,5M€)
  - More Experimentation for the Future Internet (18 M€)
  - **Collective Awareness Platforms** for sustainability and social innovation (37 M€)
  - **Web Entrepreneurship** (10 M€)

Content technologies and information management / 2014-2015

260 m€

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

- **Organised in eight topics:**
  - Big data and Open Data innovation and take-up (50 M€)
  - Big data research (39 M€)
  - Cracking the language barrier (15 M€)
  - Support to the growth of ICT innovative creative industries SMEs (15 M€)
  - Technologies for creative industries, social media and convergence (41 M€)
  - Technologies for better human learning and teaching (52 M€)
  - Advanced digital gaming/gamification technologies (17 M€)
  - Multimodal and natural computer interaction (31 M€)

Robotics / 2014-2015

157 m€

- **Roadmap-based research driven by application needs → Robotics PPP**
- Effort to close the innovation gap to **allow large scale deployment of robots and foster market take-up**: use-cases, pre-commercial procurement, industry-academia cross-fertilisation
  - Includes two pre-commercial procurement actions (health-care sector, public safety and environmental monitoring)
- Additional activities: shared resources, performance evaluation & benchmarking, community building and robotic competitions
- **Organised in two annual calls** (of 74 M€ and 83M€ respectively)

Micro- and nano-electronics and photonics Key Enabling Technologies
2014-2015

215 m€

- Covers **generic technology developments on micro- and nano-electronics** focused on **advanced research** and lower Technology Readiness Levels (TRLs) (50 M€)
  - Complementary to the JTI Electronic Components and Systems

- Addresses the **full innovation and value chain** in markets sectors where the European **photonics** industry is particularly strong (optical communications, lighting, medical photonics, laser technologies, etc.) (156 M€)
  →Photonics PPP
  - Includes calls for ERANETs as well as public procurement actions (roll-out and deployment of optical networking technologies)

Factory of the Future / 2014-2015

102 m€

- Focuses on **ICT components of innovative production systems in all sectors** (for more personalised, diversified and mass-produced product portfolio and for rapid adaptations to market changes)
- Organised in **three topics:**
  - Process optimisation of manufacturing assets (34 M€)
  - ICT-enabled modelling, simulation, analytics and forecasting technologies (32 M€)
  - ICT Innovation for Manufacturing SMEs (36 M€)
  - Part of **FoF PPP**

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ICT Cross-Cutting Activities / 2014-2015

- **Internet of Things and platforms for Connected Smart Objects (51 M€)**
  - Cutting across several LEIT-ICT areas (smart systems integration, smart networks, big data)
  - Bringing together different generic ICT technologies and their stakeholder constituencies

- **Human-centric Digital Age (7 M€)**
  - Understanding technologies, networks and new digital and social media and how these are changing the way people behave, think, interact and socialise as persons, citizens, workers and consumers

- **Cyber-security, Trustworthy ICT (38 M€)**
  - Focuses on security-by-design for end to end security and a specific activity on cryptography
  - Complementary to Cyber-security in Societal Challenge 7
- **Trans-national co-operation among National Contact Points (4 M€)**
  - Mechanisms for effective cross border partnership searches, identifying, understanding and sharing good practices among ICT NCPs

ICT horizontal innovation actions / 2014-2015

- **Support for access to finance (15 M€)**
  - Pilot action for business angels to co-invest in ICT innovative companies
  - Implemented by EIF and closely coordinated with "Access to risk finance" part of H2020

- **Innovation and Entrepreneurship Support (11 M€)**
  - ICT business idea contests in universities and high schools
  - ICT entrepreneurship summer academy
  - ICT entrepreneurship labs
  - Campaign on entrepreneurship culture in innovative ICT sectors
  - Support for definition and implementation of inducement prizes
  - European networks of procurers
  - Pre-commercial procurement

- **Open Disruptive Innovation Scheme (90 M€)**
  - Support to a large set of **early stage high risk innovative SMEs in ICT**
  - Implementation through the **SME instrument**
    -> Continuously open calls with several (3) cut-off dates/year
    -> 5% of LEIT budget

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International cooperation actions / 2014-2015

27 m€

- **Coordinated calls**
  - **EU-Brazil (7 M€)**
    - Cloud computing, including security aspects
    - High performance computing
    - Experimental platforms
  - **EU-Japan (6 M€)**
    - Technologies combining big data, internet of things in the cloud
    - Optical communications
    - Acces networks for densely located users
    - Experimentation and development on federated Japan-EU testbeds

- **International partnership building and support to dialogues with high income countries (USA, Canada, East Asia and Oceania) (3 M€)**
- **International partnership building in low and middle income countries (11 M€)**

ICT in Societal challenges

Societal Challenges - ICT

636 m€
(2014-15)

- **Health, demographic change and wellbeing**
- **Food security, sustainable agriculture, and forestry, marine, maritime and inland water research, and the bioeconomy**
- **Secure, clean and efficient energy**
- **Smart, green and integrated transport**
- **Climate action, environment, resource efficiency and raw materials**
- **Europe in a changing world – inclusive, innovative and reflective societies**
- **Secure societies – protecting freedom and security of Europe and its citizens**

Key principles for ICT R&I in the Societal Challenges

- Interoperability
- Re-use and economies of scale
- Breakthroughs leveraging the transformative power of ICT
- Preparation for market deployment

+

- Information for future digital policy

Societal Challenges - ICT
Proposed funding (€ million, 2014-2015)

Challenge	Total	ICT	%
Health, demographic change and wellbeing	**1 804**	**269**	**15%**
Food security, sustainable agriculture, marine and maritime research & the Bioeconomy	**687**		
Secure, clean and efficient energy	**1 447**	**72**	**5%**
Smart, green and integrated transport	**1 542**	**92**	**6%**
Climate action, environment, resource efficiency and raw materials	**745**	**26**	**3,5%**
Innovative, inclusive and reflective societies	**310**	**77**	**25%**
Secure societies	**393**	**100**	**25%**

Health, demographic change and wellbeing / 2014-2015

269 m€

- **Advancing active and healthy ageing with ICT**
  - **Service robotics** within assisted living environments
  - ICT solutions for **independent living with cognitive impairments**
  - ICT solutions enabling **early risk detection and intervention**
- **Integrated, sustainable, citizen-centred care**
  - ICT-based approaches for **integrated care** (beyond current state-of-art in tele-health and tele-care)
  - **Self-management of health and disease**
  - Public-procurement of innovative eHealth services

- **Improving health information and data exploitation**
  - Digital representation of **health data** to improve diagnosis and treatment
  - **eHealth interoperability**

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Secure, clean and efficient energy / 2014-2015

72 m€

- **Energy efficiency / buildings and consumers**
  - Public procurement of **green data centres**
  - New ICT-based solutions for **energy efficiency through citizens' behavioural change**
- **Competitive low-carbon energy / modernising the single European electricity grid**
  - Distribution grid and retail market
    - Next generation ICT infrastructure for **smart metering and smart grids**
- **Smart cities and communities**
  - Integration of **energy, transport and ICT** through **lighthouse projects** (large scale demonstration)

Smart, green and integrated transport / 2014-2015

92 m€

- **Road**
  - **Cooperative Intelligent Transport Systems**
    - Connecting people, vehicles, infrastructures and businesses
  - Safe and connected **automation in road transport**
- **Green vehicles**
  - **Electric vehicles'** enhanced performance and **integration into the transport system and the electricity grid**

- **Smart cities and communities**
  - Integration of **energy, transport and ICT** through **lighthouse projects** (large scale demonstration)

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Climate action, environment, resource efficiency and raw materials / 2014-2015

26 m€

- **Waste management**
  - ICT solutions for waste traceability, waste material flow management
- **Water management**
  - Development and deployment of advanced ICT solutions for water resources management in agriculture and urban areas

Europe in a changing world – inclusive, innovative and reflective societies / 2014-2015

77 m€

- **Reflective societies – Cultural Heritage**
  - **Innovative ecosystems of digital cultural assets**
  - **Advanced 3D modelling for accessing and understanding European cultural assets**

- **New forms of innovation**
  - **Innovation in the public sector** by using emerging ICT technologies
  - ICT-enabled **open government**
  - Personalised public services
  - M-government
  - Open participation
  - Transparency
  - ICT for **learning and inclusion**

Secure societies – protecting freedom and security of Europe and its citizens / 2014-2015

100 m€

- **Digital security: cybersecurity, privacy and trust**
  - Protecting our society by providing sustained **trust in the usage of ICT** and in securing the ICT underlying our digital society
  - **Preventing cyber-attacks** on any component of the digital society
  - **Ensuring freedom and privacy in the digital society**, protecting the fundamental values of our society and democratic rights of our citizens in cyberspace
  - Protect the weak in our society from abuses over the internet and **giving the user control over his private data**
  - Demonstrating the viability and maturity of state-of-the-art security solutions in **large scale demonstrators**, involving end users

Support to SMEs in ICT-related activities 2014-2015

- **SME instrument used in LEIT and Societal Challenges**
  - **Open Disruptive Innovation** scheme
  - **Innovative mobile e-government applications by SMEs**

94 m€

- **Other horizontal innovation actions in LEIT-ICT particularly relevant for SMEs**
  - ICT contribution to **pilot for co–investments by business angels in innovative ICT firms**
  - **Innovation and Entrepreneurship Support**
  - **Pre-commercial procurement** open to all areas of public interest requiring new ICT solutions

26 m€

- **Actions aimed at specific areas**
  - **Web Entrepreneurship**
  - Support the growth of **ICT innovative Creative Industries SMEs**

25 m€

Guide to the presence of ICT in H2020

- **Comprehensive coverage of all three H2020 pillars**
- **Detailed list of calls and topics**
- **Available on H2020 website: http://ec.europa.eu/programmes/horizon2020/en/area/ict-research-innovation**

→ ***Publication of the WP: online since 11 December***

→ ***First deadlines: Spring 2014***

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.

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' ('e-infrastructures');
- 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.

European Commission

Thank you for your attention!

Find out more:

http://ec.europa.eu/programmes/horizon2020

SME support in H2020

20 % budgetary target in LEITs & SC

'Innovation in SMEs'

Collaborative projects
13%

SME instrument
7%

Eurostars II
Enhancing Innovation Capacity
Market-driven Innovation

Access to Risk Finance

SME instrument

IDEA business coaching throughout the project MARKET

SME instrument

Phase 3 & coaching = 2% budget

Phase 1: Concept and feasibility assessment

Input: Idea/Concept: "Business Plan 1" (~ 10 pages)

Activities:
Feasibility of concept
Risk assessment
IP regime
Partner search
Design study
Pilot application
etc.

Output: elaborated "Business plan 2"

Lump sum: 50.000 €

~ 6 months

Phase 2: R&D, demonstration, market replication

Input: "Business plan 2" plus description of activities under Phase 2 (~ 30 pages)

Activities:
Development, prototyping, testing, piloting, miniaturisation, scaling-up, market replication, research

Output: "investor-ready Business plan 3"

Typically 1-2,5 M€ EC funding (up to 5M€ if justified)

~ 12 to 24 months

Phase 3: Commercialisation

Promote instrument as quality label for successful projects

Facilitate access to private finance

Support via networking , training, information, addressing i.a. IP management, knowledge sharing, dissemination

SME window in the EU financial facilities (debt facility and equity facility)

Possible connection to PPC (and PPI?)

No direct funding

Coaching and EEN support

Volumes and funding (overall ~2,8 B€ over 2014-2020)

10%

5,200
Phase 1
projects

50 k€ lump sum

88%

1,700
Phase 2
projects*

1 to 2,5 M€

2% coaching

Phase 3
projects

Access to risk finance

***Average size of 1.5 M€**

Or 2550 projects of 1 M€, 1250 of 2 M€…

Main features

- *Targeted at all types of innovative SMEs showing a strong ambition to develop, grow and internationalise (EU dimension)*
- *Combination of demonstration and market replication encouraging the involvement of end users/potential clients, research as appropriate*
- *Only SMEs allowed to apply for funding*
- *Single company support possible*
- *Simple rules and procedures*
- *Continuous open call*
- *No obligation for applicants to sequentially cover all three phases; Each phase open to all SMEs*
- *Bottom-up approach, each SC & LEIT themes defines a broad topic*
- *Central implementation through Executive Agency*

Demand

- Target group estimation*: 1-6 % of all SMEs = 200,000 to 1.2 million SMEs
- Without restrictions: 10 to 15,000 SME applications for phase 1 every year
- Lower in case of topic oriented calls

Measures to limit number of applications:

1. Only one application per company (in both phases)
2. No possibility to apply for Phase 1 during the submission and/or implementation of a Phase 2 project and vice versa
3. Advice by the support networks
4. SMEs are encouraged to enter the scheme in Phase 1

*Based on various surveys (EVCA, EIM, NESTA)

Evaluation

1. *Remote evaluation whole process*
2. *Suggestion to abandon consensus meetings*
3. *Long feedback loops ("ESRs") slow down the process*
4. *Evaluation criteria focus :*

- *excellence (in innovation)*
- *impact (commercialisation potential)*
- *Quality and efficiency of the implementation (company's potential achieving results)*

5. *Competences of evaluators is important*

Open Disruptive Innovation - ICT LEIT

Implementation: SME instrument

Budget: 90M € for 2014-15 (45 M€ per year)

Funding: lump sum 50k€ phase1;
0.5 to 2.5 M€ phase2; 70% of eligible costs

Scope: No restriction on ICT area

"Disruptive ICT innovation":

Innovative ICT concept, product and service applying new sets of rules, values and models which ultimately disrupt existing markets

Cut off dates (TBC):
indicative 18/06/2014; 24/09/2014; 17/12/2014 for phase 1; Oct/Dec. for phase 2 (opening 01/03/2014) – subject to confirmation

International cooperation

- **International cooperation is crucial** to address many Horizon 2020 objectives
- **Principle of general openness:** the programme will remain to be the most open funding programme in the world
- Horizon 2020 shall be open to the **association** of: acceding countries, candidate countries and potential candidates and selected international partner countries that fulfil the relevant criteria (capacity, track record, close economic and geographical links to the Union, etc.)
- Targeted actions to be implemented taking **a strategic approach to international cooperation** (dedicated measures in the 'Inclusive, innovative and secure societies' challenge)

Innovation Investment Package

€22 billion Innovation Investment Package

Joint Technology Initiatives (under Article 187)

- Innovative Medicines Initiative 2
- Clean Sky (Aeronautics) 2
- Fuel Cell and Hydrogen 2
- Bio-based Industries
- Electronic components and systems

Joint programmes (under Article 185)

- European and Developing Countries Clinical Trials Partnership (EDCTP) 2
- European Metrology Research Programme 2
- Eurostars (for SMEs) 2
- Active and Assisted Living 2