

A guide to ICT-related activities in WP2016-17


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 2016-17.




Excellent Science

Frontier Research (ERC)
Future & Emerging Technologies (FET) 
Skills & career development (Marie Skłodowska-Curie)
Research Infrastructures 

Industrial Leadership

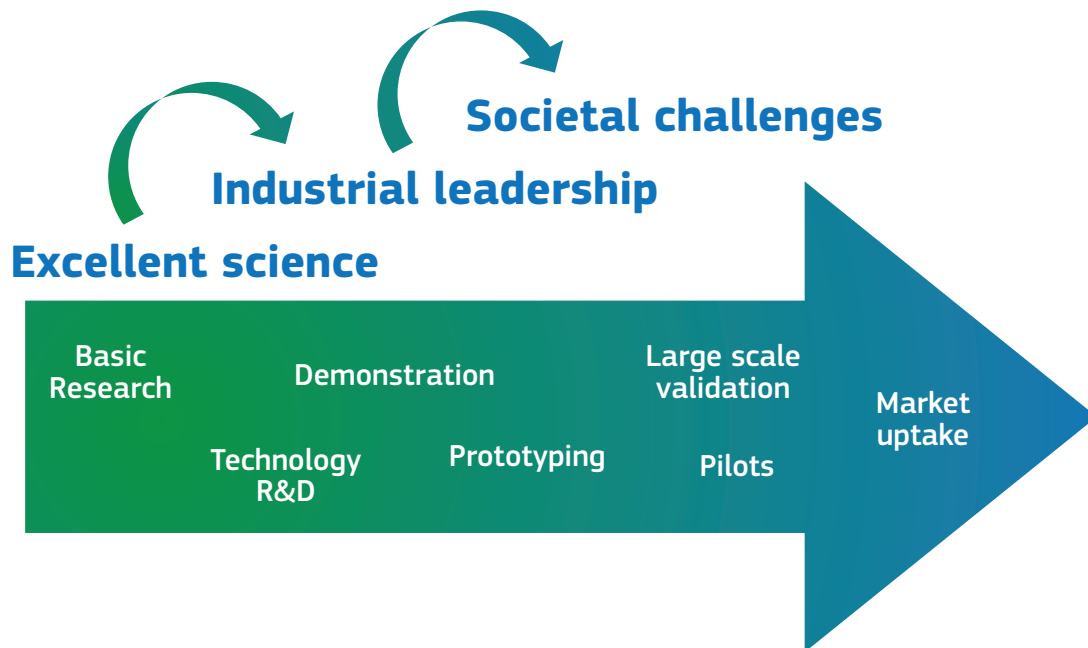
Leadership in enabling
& industrial technologies
ICT 
Nanotech., Materials, Manuf. & Processing 
Biotechnology
Space
Access to risk finance
Innovation in SMEs 

Societal Challenges

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

Like in 2014-15 ICT actions supported through the work programme will allow covering the full innovation chain, from basic research to market uptake:

- Advanced research to uncover radically new technological possibilities and ICT contributions to upstream research and innovation are addressed in the 'Excellent science' part of the work programme, respectively under 'Future and Emerging Technologies' and 'European research infrastructures' ('infrastructures');
- Research and innovation activities on generic ICT 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;
- Multi-disciplinary application-driven research and innovation leveraging ICT to tackle societal challenges are addressed in the different 'Societal challenges'.



However, although the overall structure of the work programme 2016-17 is very similar to the one of 2014-15, a few changes need to be taken into account:

- Activities aiming at supporting innovative SMEs of the ICT sector through the dedicated **SME instrument** are grouped together with similar activities addressing other scientific and technical fields in a single call of the **'Innovation in SMEs'** part of the work programme.
- **'Cross-cutting activities'** combining contributions from the 'Leadership in enabling and industrial technologies' priority and 'Societal Challenges' are also grouped together in a specific part of the work programme.

The following sections give more details on the ICT-related activities in the different parts. **A list of the topics where ICT's contribution is the most relevant is also provided in annex (with the main call details).**

The detailed description of all these topics can be found in the complete work programme with the references available in this document.

Note that ICT is also addressed by the **European Research Council (ERC)** and the **Marie Skłodowska-Curie actions**, which are not covered in this document.

ICT in ‘Excellent science’

1. Future and Emerging Technologies (FET)

FET Open: novel ideas for radically new technologies

FET Open, which will represent 40% of the overall FET budget in Horizon 2020, is entirely non-prescriptive with regards to the nature or purpose of the technologies that are envisaged. FET Open covers all technological areas, without budget specifically earmarked for ICT.

In WP2016-17, a new activity aiming at stimulating innovation by initiating entrepreneurial activities around results from FET research projects is introduced, the ‘**FET Innovation Launchpad**’.

FET Proactive: boosting emerging technologies

Two calls are proposed in FET proactive, one specifically addressing **High Performance Computing** and another one entitled ‘**Boosting emerging technologies**’, with its main topic (*FETPROACT-01-2016: FET Proactive: emerging themes and communities*) covering four areas, out of which one proves particularly relevant for ICT (**Area 3: Disruptive information technologies**’).

The two other topics of this second call are introducing the possibility of supporting **ERA-Net co-fund actions** in FET Proactive. One of these two topics specifically targets **quantum technologies**.

FET Flagships: tackling grand interdisciplinary science and technology challenges

The two flagships launched in 2013, and already addressed in the work programme 2014-15, will be further developed and supported:

- the **Graphene** flagship,
- the **Human Brain Project** (HBP).

Both initiatives strengthen the interfaces between ICT and other disciplines, most notably material science and neuroscience.

2. Research infrastructures

eInfrastructures

The **e-infrastructure** call for 2016-17 will support the European policies on open research data, data and computing intensive science, research and education networking, high-performance computing and big data innovation.

This call is structured along the following two themes:

- Theme 1 – **Integration and consolidation of e-infrastructure platforms** supporting European policies and research and education communities,
- Theme 2 – **Prototyping innovative e-infrastructure platforms and services** for research and education communities, industry and the citizens at large.

In addition to eInfrastructures, ICT-related activities are present in the two other calls of the ‘Research infrastructures’ part of the work programme:

- ‘Development and long-term sustainability of new pan-European research infrastructures’, where an action aims at launching a pilot **European Open Science Cloud for Research**;
- ‘Support to policy and international cooperation’, where a topic specifically addresses the **support to policies and international cooperation for e-infrastructure**s.

ICT in ‘Leadership in Enabling and Industrial Technologies’

This part covers the following ICT technological areas:

- a new generation of components and system,
- advanced computing and cloud computing,
- future Internet,
- content technologies and information management,
- robotics and autonomous systems,
- micro- and nano-electronic technologies, photonics.

The corresponding activities are grouped in a **single ICT call**, which also covers topics addressing ‘**Innovation and Entrepreneurship support**’, ‘**Responsibility and Creativity**’ and ‘**International Cooperation Activities**’.

These international cooperation activities are complemented by a series of **dedicated joint calls** with **Japan, Brazil** and also **South Korea** (new partner country in 2016-17).

Moreover, one topic of the call for ‘nanotechnologies, advanced materials, biotechnology and production’ requires contribution from ICT: ‘**Cross-cutting KETs for diagnostics at the point-of-care**’.

In the work programme 2016-17, the research and innovation activities related to **digital security** and the **Internet of Things** are covered through two dedicated focus areas, i.e. specific calls which cut across several parts of Horizon 2020. Note that the **Internet of Things** focus area is presented in a separate part of the work programme specifically dedicated to cross-cutting activities.

The ‘**Open and Disruptive Innovation**’ (ODI) scheme, successfully introduced in the work programme 2014-15, is also no longer covered in the main ICT call, but in a call which gathers all topics using the SME instrument.

ICT in ‘Innovation in SMEs’

SME participation is encouraged throughout the work programme and in particular in the priorities Industrial Leadership and Societal Challenges. Dedicated SME support is channelled through the **SME instrument**, introduced in the Work Programme 2014-2015, which promotes SMEs’ innovation activities from concept to market.

In 2016-17, all topics using the SME instrument are grouped in a continuously open common call.

Two of these topics are targeting SMEs from the ICT sector only:

- ‘**Open Disruptive Innovation Scheme**’,
- ‘**Accelerating market introduction of ICT solutions for Health, Well-Being and Ageing Well**’.

Moreover, amongst the other topics, the four following ones offer opportunities for ICT SMEs:

- ‘**Stimulating the innovation potential of SMEs for a low carbon and efficient energy system**’,
- ‘**Small business innovation research for Transport and Smart Cities Mobility**’,
- ‘**New business models for inclusive, innovative and reflective societies**’,
- ‘**Engaging SMEs in security research and development**’.

ICT in ‘Societal challenges’

ICT contributions are expected in each of the seven societal challenges in Horizon 2020:

- SC1: Health, demographic change and wellbeing,
- SC2: Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy,
- SC3: Secure, clean and efficient energy,
- SC4: Smart, green and integrated transport,
- SC5: Climate action, environment, resource efficiency and raw materials,
- SC6: Europe in a changing world - Innovative, inclusive and reflective societies,
- SC7: Secure societies – Protecting freedom and security of Europe and its citizens.

ICT is in the societal challenges addressed through either specific topics or calls or as part of a broader set of contributing technologies in the description of the targeted activities.

1. SC1 – Health, demographic change and wellbeing

ICT, which does have a prominent role in this societal challenge, is addressed in dedicated topics in three parts of the unique call ‘**Personalised Medicine**’:

- active ageing and self-management of health,
- methods and data,
- coordination activities.

2. SC2 – Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

One of the topics of the call “Sustainable Food Security - Resilient and resource-efficient value chains” is dedicated to “**Robotics Advances for Precision Farming**”.

3. SC3 – Secure, clean and efficient energy

ICT is present in the two calls of this societal challenge:

- ‘Energy Efficiency’ (EE),
- ‘Competitive Low-Carbon Energy’ (LCE).

It is to be noted that ‘Smart Cities and Communities’, which cut across several societal challenges (including SC3), are now addressed in a focus area which is to be found in the part of the work programme dedicated to cross-cutting activities.

In the ‘**Energy Efficiency**’ call, ICT is expected to contribute to four topics, in three different areas:

- Engaging consumers towards sustainable energy,
- Buildings,
- Industry, services and products.

In the ‘**Competitive Low-Carbon Energy**’ call, ICT’s contribution is focussed on smart grids, which are addressed in the five topics of the part entitled ‘**Towards an integrated EU energy system**’.

4. SC4 – Smart, green and integrated transport

Three calls are planned in 2016-17 for this challenge:

- ‘Mobility for Growth’ (MG), which actually constitutes the main call of SC4 and is sub-divided in eight parts corresponding to transport modes or environments (aviation, waterborne, urban mobility), or horizontal issues (safety, logistics, intelligent transport systems, etc.),
- ‘Automated Road Transport’ (ART),
- ‘Green vehicles’ (GV), which implements the Green Vehicle cPPP.

In the ‘**Mobility for Growth**’ call ICT will contribute in the following areas:

- **urban mobility**, where the integration of ICT solutions can be considered in a topic addressing sustainable mobility,
- **logistics**, where one topic is dedicated to innovative ICT solutions for future logistics operations,
- **intelligent transport systems**, which rely on ICT and for which three topics are proposed.

Moreover, one of the topics of the part dedicated to ‘**socio-economic and behavioural research and forward looking activities for policy making**’ will address **Big Data in transport**.

The first topic of the ‘**Automated Road Transport**’ call will be centred on ICT and one of the topics of the ‘**Green vehicles**’ call explicitly refers to ICT.

5. SC5 – Climate action, environment, resource efficiency and raw materials

This societal challenge will be addressed in 2016-17 through one generic call ‘Greening the Economy’ and contributions to two cross cutting focus areas, ‘Industry 2020 in the Circular Economy’ and ‘Smart and sustainable cities’. SC5 will also contribute to the ‘Blue Growth’ focus area of SC2.

In the main call ‘Greening the Economy’, there are only very few explicit references to ICT. The only topic where ICT’s contribution is clearly requested is the one entitled ‘**European data hub of the GEOSS information system**’.

6. SC6 – Europe in a changing world – Innovative, inclusive and reflective societies

In 2016-17, ICT will be contributing with specific topics proposed in three out of the four calls of this societal challenge:

- ‘**Co-creation for growth and inclusion**’, where most of the activities related to public sector modernization are located (in three topics),
- ‘**Reversing inequalities and promoting fairness**’,
- ‘**Understanding Europe – promoting the European public and cultural space**’, where two topics cover the area of **ICT for cultural heritage** and a third one complements the set of topics addressing public sector modernization mentioned above.

7. SC7 – Secure societies – Protecting freedom and security of Europe and its citizens

This part of the work programme is structured around five calls out of which two are particularly relevant for ICT:

- ‘**Critical infrastructure protection**’ (CIP), which contains a topic cutting across physical and cyber-security,
- ‘**Digital Security**’ (DS), which corresponds to a focus area covering most of cyber-security activities of SC7, with also topics from SC1 (on the **protection of health data**) and LEIT-ICT (on ‘**assurance and certification for trustworthy and secure ICT systems, services and components**’ and ‘**cryptography**’).

ICT in ‘cross-cutting activities’ (focus areas)

This new part of the work programme, introduced in 2016-17, gathers three focus areas cutting across several parts of LEIT-ICT and Societal Challenges:

- ‘Industry 2020 in the Circular Economy’,
- ‘Internet of Things’,
- ‘Smart and sustainable cities’.

The call ‘Industry 2020 in the Circular Economy’ comprises one part which is particularly relevant for ICT, ‘ICT for the factories of the future’, which corresponds to the ICT contribution to the FoF (Factories of the Future) PPP and contains three topics for 2016-17.

Another part of this call addresses the ‘Circular Economy’ and includes a topic on water management where ICT should contribute (‘Water in the context of the circular economy’).

Fast Track to Innovation pilot

The **Fast Track to Innovation** (FTI) pilot, which was launched in 2015, is testing a new approach to give the development of innovations the last push needed before their introduction to the market. It is the only **fully bottom-up** measure in Horizon 2020 promoting close-to-market innovation activities and **open to all types of participants**.

Important disclaimer

This document presents an overview of ICT-related activities to be supported in the work programme 2016 2017 of Horizon 2020. The adoption and the publication of the final work programme by the Commission are expected in mid-October 2015. The information provided here is therefore indicative and liable to change.

Readers should in any case refer to the official version on the Horizon 2020 Programme published on the Horizon 2020 website and on the Participant Portal (<http://ec.europa.eu/research/participants/portal>), notably for the call conditions.

Annex - Detailed list of topics

| Topic ID | Topic title | Budget (M€) | Opening | Deadline 2016 | Deadline 2017 |
|----------|-------------|-------------|---------|---------------|---------------|
|----------|-------------|-------------|---------|---------------|---------------|

Excellent Science

Future and Emerging Technologies (FET)

FET Open: novel ideas for radically new technologies

| | | | | | |
|----------------------|---|----------|----------|----------|----------------------|
| FETOPEN-01-2016-2017 | FET-Open research and innovation actions | 3 x 84.0 | 08/12/15 | 11/05/16 | 17/01/17 27/09/17 |
| FETOPEN-02-2016 | FET-Open Coordination and Support Actions | 3.0 | 08/12/15 | 11/05/16 | |
| FETOPEN-03-2017 | FET-Open Coordination and Support Actions | 1.5 | 20/09/16 | | 17/01/17 |
| FETOPEN-04-2016-2017 | FET Innovation Launchpad | 3.0 | 01/03/16 | 29/09/16 | 27/09/17 |

FET Proactive - Boosting emerging technologies

| | | | | | |
|-------------------|--|------|----------|----------|----------|
| FETPROACT-01-2016 | FET Proactive: emerging themes and communities | 80.0 | 08/12/15 | 12/04/16 | |
| FETPROACT-02-2017 | FET ERANET Cofund | 5.0 | 20/09/16 | | 24/01/17 |
| FETPROACT-03-2016 | FET ERANET Cofund in Quantum Technologies | 10.0 | 08/12/15 | 12/04/16 | |

FET Proactive - High Performance Computing

| | | | | | |
|----------------|---|------|----------|----------|----------|
| FETHPC-01-2016 | Co-design of HPC systems and applications | 41.0 | 14/04/16 | 27/09/16 | |
| FETHPC-02-2017 | Transition to Exascale Computing | 40.0 | 12/04/17 | | 26/09/17 |
| FETHPC-03-2017 | Exascale HPC ecosystem development | 4.0 | 12/04/17 | | 26/09/17 |

FET Flagships - Tackling grand interdisciplinary science and technology challenges

| | | | | | |
|-----------------|--|-----|----------|----------|--|
| FETFLAG-01-2016 | Partnering environment for FET flagships | 9.0 | 10/11/15 | 01/03/16 | |
|-----------------|--|-----|----------|----------|--|

Research Infrastructures

Development and long-term sustainability of new pan-European research infrastructures

| | | | | | |
|------------------|--|------|----------|----------|--|
| INFRADEV-04-2016 | European Open Science Cloud for Research | 10.0 | 15/03/16 | 22/06/16 | |
|------------------|--|------|----------|----------|--|

E-Infrastructures

| | | | | | |
|----------------|---|--------------|----------------------|----------|----------|
| EINFRA-11-2016 | Support to the next implementation phase of Pan-European High Performance Computing infrastructure and services (PRACE) | 15.0 | 08/12/15 | 30/03/16 | |
| EINFRA-12-2017 | Data and Distributed Computing e-infrastructures for Open Science | 40.0 | 08/12/16 | | 29/03/17 |
| EINFRA-21-2017 | Platform-driven e-infrastructure innovation | 26.0 20.0 | 14/04/16 08/12/16 | 20/09/16 | 29/03/17 |
| EINFRA-22-2016 | User-driven e-infrastructure innovation | 21.0 | 08/12/15 | 30/03/16 | |

Support to policy and international cooperation

| | | | | | |
|--------------------|---|-----|----------|----------|--|
| INFRA supp-03-2016 | Support to policies and international cooperation for e-infrastructures | 7.5 | 08/12/15 | 30/03/16 | |
|--------------------|---|-----|----------|----------|--|

Industrial Leadership

LEIT - Information and Communication Technologies

Information and Communication Technologies

A new generation of components and systems

| | | | | | |
|-------------|--|------|----------|----------|--|
| ICT-01-2016 | Smart Cyber-Physical Systems | 20.0 | 20/10/15 | 12/04/16 | |
| ICT-02-2016 | Thin, Organic and Large Area Electronics | 20.0 | 20/10/15 | 12/04/16 | |
| ICT-03-2016 | SSI - Smart System Integration | 18.5 | 20/10/15 | 12/04/16 | |
| ICT-04-2017 | Smart Anything Everywhere Initiative | 25.5 | 10/05/16 | 08/11/16 | |

Advanced Computing and Cloud Computing

| | | | | | |
|-------------|-------------------------------------|------|----------|----------|----------|
| ICT-05-2017 | Customised and low energy computing | 26.0 | 08/12/16 | | 25/04/17 |
| ICT-06-2016 | Cloud Computing | 45.0 | 20/10/15 | 12/04/16 | |

Future Internet

| | | | | | |
|-------------|---|-------|----------|----------|----------|
| ICT-07-2017 | 5G PPP Research and Validation of critical technologies and systems | 103.0 | 10/05/16 | 08/11/16 | |
| ICT-08-2017 | 5G PPP Convergent Technologies | 45.0 | 10/05/16 | 08/11/16 | |
| ICT-09-2017 | Networking research beyond 5G | 18.0 | 10/05/16 | 08/11/16 | |
| ICT-10-2016 | Software Technologies | 31.0 | 20/10/15 | 12/04/16 | |
| ICT-11-2017 | Collective Awareness Platforms for Sustainability and Social Innovation | 10.0 | 08/12/16 | | 25/04/17 |
| ICT-12-2016 | Net Innovation Initiative | 20.2 | 20/10/15 | 12/04/16 | |

| Topic ID | Topic title | Budget (M€) | Opening | Deadline 2016 | Deadline 2017 |
|---|---|--------------|----------------------|---------------|---------------|
| ICT-13-2016 | Future Internet Experimentation - Building a European experimental Infrastructure | 26.0 | 20/10/15 | 12/04/16 | |
| Content | | | | | |
| ICT-14-2016-2017 | Big Data PPP: cross-sectorial and cross-lingual data integration and experimentation | 27.0 27.0 | 20/10/15 08/12/16 | 12/04/16 | 25/04/17 |
| ICT-15-2016-2017 | Big Data PPP: Large Scale Pilot actions in sectors best benefitting from data-driven innovation | 25.0 25.0 | 20/10/15 08/12/16 | 12/04/16 | 25/04/17 |
| ICT-16-2017 | Big data PPP: research addressing main technology challenges of the data economy | 31.0 | 08/12/16 | | 25/04/17 |
| ICT-17-2016-2017 | Big data PPP: Support, industrial skills, benchmarking and evaluation | 5.0 2.0 | 20/10/15 08/12/16 | 12/04/16 | 25/04/17 |
| ICT-18-2016 | Big data PPP: privacy-preserving big data technologies | 9.0 | 20/10/15 | 12/04/16 | |
| ICT-19-2017 | Media and content convergence | 39.0 | 10/05/16 | 08/11/16 | |
| ICT-20-2017 | Tools for smart digital content in the creative industries | 17.0 | 08/12/16 | | 25/04/17 |
| ICT-21-2016 | Support technology transfer to the creative industries | 14.0 | 20/10/15 | 12/04/16 | |
| ICT-22-2016 | Technologies for Learning and Skills | 31.0 | 20/10/15 | 12/04/16 | |
| ICT-23-2017 | Interfaces for accessibility | 12.0 | 08/12/16 | | 25/04/17 |
| ICT-24-2016 | Gaming and gamification | 12.0 | 20/10/15 | 12/04/16 | |
| Robotics and Autonomous Systems | | | | | |
| ICT-25-2016-2017 | Advanced robot capabilities research and take-up | 30.0 34.0 | 20/10/15 08/12/16 | 12/04/16 | 25/04/17 |
| ICT-26-2016 | System abilities, development and pilot installations | 42.0 | 20/10/15 | 12/04/16 | |
| ICT-27-2017 | System abilities, SME & benchmarking actions, safety certification | 46.0 | 08/12/16 | | 25/04/17 |
| ICT-28-2017 | Robotics Competition, coordination and support | 5.0 | 08/12/16 | | 25/04/17 |
| ICT Key Enabling Technologies | | | | | |
| ICT-29-2016 | Photonics KET 2016 | 66.0 | 20/10/15 | 12/04/16 | |
| ICT-30-2017 | Photonics KET 2017 | 87.0 | 08/12/16 | | 25/04/17 |
| ICT-31-2017 | Micro- and nanoelectronics technologies | 23.0 | 08/12/16 | | 25/04/17 |
| Innovation and Entrepreneurship support | | | | | |
| ICT-32-2017 | Startup Europe for Growth and Innovation Radar | 12.0 | 08/12/16 | | 25/04/17 |
| ICT-33-2017 | Innovation procurement networks | 4.0 | 08/12/16 | | 25/04/17 |
| ICT-34-2016 | Pre-Commercial Procurement open | 4.0 | 20/10/15 | 12/04/16 | |
| Responsibility and Creativity | | | | | |
| ICT-35-2016 | Enabling responsible ICT-related research and innovation | 7.0 | 20/10/15 | 12/04/16 | |
| ICT-36-2016 | Boost synergies between artists, creative people and technologists | 8.0 | 20/10/15 | 12/04/16 | |
| International Cooperation Activities | | | | | |
| ICT-37-2016 | CHINA: Collaboration on Future Internet | 1.0 | 20/10/15 | 19/01/16 | |
| ICT-38-2016 | MEXICO: Collaboration on ICT | 1.0 | 20/10/15 | 19/01/16 | |
| ICT-39-2016-2017 | International partnership building in low and middle income countries | 0.8 13.0 | 20/10/15 08/12/16 | 19/01/16 | 25/04/17 |
| EU-Japan Joint Call | | | | | |
| EUJ-01-2016 | 5G - Next Generation Communication Networks | 3.0 | 20/10/15 | 19/01/16 | |
| EUJ-02-2016 | IoT/Cloud/Big Data platforms in social application contexts | 2.7 | 20/10/15 | 19/01/16 | |
| EUJ-03-2016 | Experimental testbeds on Information-Centric Networking | 1.3 | 20/10/15 | 19/01/16 | |
| EU-Brazil Joint Call | | | | | |
| EUB-01-2017 | Cloud Computing | 2.5 | 08/11/16 | | 14/03/17 |
| EUB-02-2017 | IoT Pilots | 4.5 | 08/11/16 | | 14/03/17 |
| EU-South Korea Joint Call | | | | | |
| EUK-01-2016 | 5G - Next Generation Communication Networks | 3.0 | 20/10/15 | 19/01/16 | |
| EUK-02-2016 | IoT joint research | 1.5 | 20/10/15 | 19/01/16 | |
| EUK-03-2016 | Federated Cloud resource brokerage for mobile cloud services | 1.5 | 20/10/15 | 19/01/16 | |
| LEIT - Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing | | | | | |
| Nanotechnologies, advanced materials, biotechnology and production | | | | | |
| Advanced materials and nanotechnologies for healthcare | | | | | |
| NMBP-13-2017 | Cross-cutting KETs for diagnostics at the point-of-care | 15.0 | 20/09/16 | | 19/01/17 |

| Topic ID | Topic title | Budget (M€) | Opening | Deadline 2016 | Deadline 2017 |
|----------|-------------|-------------|---------|---------------|---------------|
|----------|-------------|-------------|---------|---------------|---------------|

Innovation in SMEs

Horizon 2020 dedicated SME Instrument 2016-2017

| Topic ID | Topic title | Budget (M€) | Opening | Deadline 2016 | Deadline 2017 |
|----------------------|---|-------------|----------|----------------------------------|----------------------------------|
| SMEInst-01-2016-2017 | Open Disruptive Innovation Scheme | 126.0 | 26/11/15 | Phase 1: 24/02/16 | Phase 1: 15/02/17 |
| SMEInst-06-2016-2017 | Accelerating market introduction of ICT solutions for Health, Well-Being and Ageing Well | 30.5 | | 03/05/16 | 03/05/17 |
| SMEInst-09-2016-2017 | Stimulating the innovation potential of SMEs for a low carbon and efficient energy system | 96.0 | | 07/09/16 | 06/09/17 |
| SMEInst-10-2016-2017 | Small business innovation research for Transport and Smart Cities Mobility | 118.8 | | 09/11/16 | |
| SMEInst-12-2016-2017 | New business models for inclusive, innovative and reflective societies | 22.2 | | Phase 2: 03/02/16 | Phase 2: 18/01/17 |
| SMEInst-13-2016-2017 | Engaging SMEs in security research and development | 30.0 | | 14/04/16 15/06/16 13/10/16 | 06/04/17 01/06/17 18/10/17 |

Societal Challenges

Health, demographic change and well-being

Personalised Medicine

1.4 Active ageing and self-management of health

| Topic ID | Topic title | Budget (M€) | Opening | Deadline 2016 | Deadline 2017 |
|----------------|--|-------------|----------|---------------|---------------|
| SC1-PM-12-2016 | PCP - eHealth innovation in empowering the patient | 18.0 | 20/10/15 | 16/02/16 | |
| SC1-PM-13-2016 | PPI for deployment and scaling up of ICT solutions for active and healthy ageing | 10.5 | 20/10/15 | 16/02/16 | |
| SC1-PM-14-2016 | EU-Japan cooperation on Novel ICT Robotics based solutions for active and healthy ageing at home or in care facilities | 5.0 | 20/10/15 | 12/04/16 | |
| SC1-PM-15-2017 | Personalised coaching for well-being and care of people as they age | 25.0 | 20/09/16 | | 31/01/17 |

1.5 Methods and data

| Topic ID | Topic title | Budget (M€) | Opening | Deadline 2016 | Deadline 2017 |
|----------------|--|-------------|----------|---------------|---------------|
| SC1-PM-16-2017 | In-silico trials for developing and assessing biomedical products | 19.0 | 08/11/16 | | 14/03/17 |
| SC1-PM-17-2017 | Personalised computer models and in-silico systems for well-being | 19.0 | 08/11/16 | | 14/03/17 |
| SC1-PM-18-2016 | Big Data supporting Public Health policies | 10.0 | 20/10/15 | 16/02/16 | |
| SC1-PM-19-2017 | PPI for uptake of standards for the exchange of digitalised healthcare records | 8.2 | 08/11/16 | | 14/03/17 |

Coordination activities

| Topic ID | Topic title | Budget (M€) | Opening | Deadline 2016 | Deadline 2017 |
|-----------------|---|-------------|----------|---------------|---------------|
| SC1-HCO-10-2016 | Support for Europe's leading Health ICT SMEs | 3.0 | 20/10/15 | 16/02/16 | |
| SC1-HCO-11-2016 | Coordinated action to support the recognition of Silver Economy opportunities arising from demographic change | 1.0 | | | |
| SC1-HCO-12-2016 | Digital health literacy | 2.0 | | | |
| SC1-HCO-13-2016 | Healthcare Workforce IT skills | 0.5 | | | |
| SC1-HCO-14-2016 | EU-US interoperability roadmap | 1.0 | | | |
| SC1-HCO-15-2016 | EU eHealth Interoperability conformity assessment | 1.0 | | | |
| SC1-HCO-16-2016 | Standardisation needs in the field of ICT for Active and Healthy Ageing | 1.0 | | | |

Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

Sustainable Food Security - Resilient and resource-efficient value chains

More resilient and resource efficient value chains

| Topic ID | Topic title | Budget (M€) | Opening | Deadline 2016 | Deadline 2017 |
|-------------|---|-------------|----------|---------------|---------------|
| SFS-05-2017 | Robotics Advances for Precision Farming | 7.0 | 04/10/16 | | 14/02/17 |

Secure, Clean and Efficient Energy

Energy efficiency

2. Engaging consumers towards sustainable energy

| Topic ID | Topic title | Budget (M€) | Opening | Deadline 2016 | Deadline 2017 |
|-----------------|---|-------------|----------------------|---------------|---------------|
| EE-06-2016-2017 | Engaging private consumers towards sustainable energy | N/A | 15/03/16 19/01/17 | 15/09/16 | 07/06/17 |
| EE-07-2016-2017 | Behavioural change toward energy efficiency through ICT | N/A | 15/10/15 15/06/16 | 21/01/16 | 19/01/17 |

3. Buildings

| Topic ID | Topic title | Budget (M€) | Opening | Deadline 2016 | Deadline 2017 |
|------------|--|-------------|----------|---------------|---------------|
| EE-12-2017 | Integration of Demand Response in Energy Management Systems while ensuring interoperability through Public Private Partnership (PPP) | 8.0 | 15/06/16 | | 19/01/17 |

4. Industry, services and products

| Topic ID | Topic title | Budget (M€) | Opening | Deadline 2016 | Deadline 2017 |
|------------|--|-------------|----------|---------------|---------------|
| EE-20-2017 | Bringing to market more energy efficient and integrated data centres | N/A | 15/06/16 | | 19/01/17 |

| Topic ID | Topic title | Budget (M€) | Opening | Deadline 2016 | Deadline 2017 |
|----------|-------------|-------------|---------|---------------|---------------|
|----------|-------------|-------------|---------|---------------|---------------|

Competitive low carbon energy

1. Towards an integrated EU energy system

| | | | | | |
|------------------|---|--------------|----------------------|----------|----------|
| LCE-01-2016-2017 | Next generation innovative technologies enabling smart grids, storage and energy system integration with increasing share of renewables: distribution network | 20.0 18.0 | 08/12/15 20/09/16 | 05/04/16 | 14/02/17 |
| LCE-02-2016 | Demonstration of smart grid, storage and system integration technologies with increasing share of renewables: distribution system | 74.9 | 08/12/15 | 05/04/16 | |
| LCE-03-2016 | Support to R&I strategy for smart grid and storage | 4.0 | 08/12/15 | 05/04/16 | |
| LCE-04-2017 | Demonstration of smart transmission grid, storage and system integration technologies with increasing share of renewables | 65.1 | 20/09/16 | | 14/02/17 |
| LCE-05-2017 | Tools and technologies for coordination and integration of the European energy system | 28.0 | 20/19/16 | | 14/02/17 |

Smart, green and integrated transport

Mobility for growth

4. Urban mobility

| | | | | | |
|-------------|--|-----|----------|--|----------------------|
| MG-4.1-2017 | Increasing the take up and scale-up of innovative solutions to achieve sustainable mobility in urban areas | N/A | 20/09/16 | | 26/01/17 19/10/17 |
|-------------|--|-----|----------|--|----------------------|

5. Logistics

| | | | | | |
|-------------|--|-----|----------|--|----------------------|
| MG-5.2-2017 | Innovative ICT solutions for future logistics operations | N/A | 20/09/16 | | 26/01/17 19/10/17 |
|-------------|--|-----|----------|--|----------------------|

6. Intelligent transport systems

| | | | | | |
|-------------|---|------|----------|----------|--|
| MG-6.1-2016 | Innovative concepts, systems and services towards 'mobility as a service' | 25.0 | 15/10/15 | 20/01/16 | |
| MG-6.2-2016 | Large-scale demonstration(s) of cooperative ITS | | | 29/09/16 | |
| MG-6.3-2016 | Roadmap, new business models, awareness raising, support and incentives for the roll-out of ITS | 5.0 | 15/10/15 | 26/01/16 | |

8. Socio-economic and behavioural research and forward looking activities for policy making

| | | | | | |
|-------------|---|-----|----------|--|----------|
| MG-8.2-2017 | Big data in Transport: Research opportunities, challenges and limitations | 2.0 | 20/09/16 | | 01/02/17 |
|-------------|---|-----|----------|--|----------|

Automated road transport

| | | | | | |
|-------------|---|-----|----------|----------|----------------------|
| ART-01-2017 | ICT infrastructure to enable the transition towards road transport automation | N/A | 20/09/16 | | 26/01/17 27/09/17 |
| ART-06-2016 | Coordination of activities in support of road automation | 3.0 | 15/10/15 | 26/01/16 | |

Green vehicles

| | | | | | |
|------------|---|-----|----------|--|----------|
| GV-10-2017 | Demonstration (pilots) for integration of electrified L-category vehicles in the urban transport system | N/A | 04/10/16 | | 01/02/17 |
|------------|---|-----|----------|--|----------|

Climate action, environment, resource efficiency and raw materials

Greening the Economy

Earth observation

| | | | | | |
|-------------|---|------|----------|----------|--|
| SC5-20-2016 | European data hub of the GEOSS information system | 10.0 | 10/11/15 | 08/03/16 | |
|-------------|---|------|----------|----------|--|

Europe in a changing world – inclusive, innovative and reflective Societies

Co-creation for growth and inclusion

| | | | | | |
|---------------------|--|------|----------|----------|----------|
| CO-CREATION-04-2017 | Applied co-creation to deliver public services | 10.0 | 04/10/16 | | 02/02/17 |
| CO-CREATION-05-2016 | Co-creation between public administrations: once-only principle | 9.0 | 05/01/16 | 24/05/16 | |
| CO-CREATION-06-2017 | Policy-development in the age of big data: data-driven policy-making, policy-modelling and policy-implementation | 11.5 | 04/10/16 | | 02/02/17 |

Reversing inequalities and promoting fairness

| | | | | | |
|---------------------|--|-----|----------|----------|----------|
| REV-INEQUAL-09-2017 | Boosting inclusiveness of ICT-enabled research and innovation | 3.0 | 04/10/16 | | 02/02/17 |
| REV-INEQUAL-10-2016 | Multi-stakeholder platform for enhancing youth digital opportunities | 1.0 | 27/10/15 | 04/02/16 | |

Understanding Europe – promoting the European public and cultural space

| | | | | | |
|------------------------|---|------------|----------------------|----------|----------|
| CULT-COOP-08-2016 | Virtual museums and social platform on European digital heritage, memory, identity and cultural interaction | 11.0 | 27/10/15 | 04/02/16 | |
| CULT-COOP-09-2017 | European cultural heritage, access and analysis for a richer interpretation of the past | 9.0 | 04/10/16 | | 02/02/17 |
| CULT-COOP-11-2016/2017 | Understanding the transformation of European public administrations | 8.5 7.0 | 27/10/15 04/10/16 | 04/02/16 | 02/02/17 |

| Topic ID | Topic title | Budget (M€) | Opening | Deadline 2016 | Deadline 2017 |
|----------|-------------|-------------|---------|---------------|---------------|
|----------|-------------|-------------|---------|---------------|---------------|

Secure societies – Protecting freedom and security of Europe and its citizens

Critical infrastructure protection

| | | | | | |
|------------------|--|--------------|----------------------|----------|----------|
| CIP-01-2016-2017 | Prevention, detection, response and mitigation of the combination of physical and cyber threats to the critical infrastructure of Europe | 20.0 20.0 | 15/03/16 01/03/17 | 25/08/16 | 24/08/17 |
|------------------|--|--------------|----------------------|----------|----------|

Digital security

| | | | | | |
|------------|---|------|----------|----------|----------|
| DS-01-2016 | Assurance and Certification for Trustworthy and Secure ICT systems, services and components | 23.5 | 20/10/15 | 12/04/16 | |
| DS-02-2016 | Cyber Security for SMEs, local public administration and Individuals | 22.0 | 15/03/16 | 25/08/16 | |
| DS-03-2016 | Increasing digital security of health related data on a systemic level | 11.0 | 27/10/15 | 16/02/16 | |
| DS-04-2016 | Economics of Cybersecurity | 4.0 | 15/03/16 | 25/08/16 | |
| DS-05-2016 | EU Cooperation and International Dialogues in Cybersecurity and Privacy Research and Innovation | 3.0 | 15/03/16 | 25/08/16 | |
| DS-06-2017 | Cryptography | 18.5 | 08/12/16 | | 25/04/17 |
| DS-07-2017 | Addressing Advanced Cyber Security Threats and Threat Actors | 18.0 | 01/03/17 | | 24/08/17 |
| DS-08-2017 | Privacy, Data Protection, Digital Identities | 18.0 | 01/03/17 | | 24/08/17 |

Cross-cutting activities (Focus Areas)

Industry 2020 in the Circular Economy

ICT for the factories of the future

| | | | | | |
|-------------|--|------|----------|----------|----------|
| FOF-11-2016 | Digital automation | 53.0 | 15/10/15 | 21/01/16 | |
| FOF-12-2017 | ICT Innovation for Manufacturing SMEs (I4MS) | 33.0 | 20/09/16 | | 19/01/17 |
| FOF-13-2016 | Photonics Laser-based production | 30.0 | 15/10/15 | 21/01/16 | |

Circular Economy

| | | | | | |
|-------------------|--|--------------|----------------------|-----------------------------|-----------------------------|
| CIRC-02-2016-2017 | Water in the context of the circular economy | 20.0 30.0 | 10/11/15 08/11/16 | 08/03/16 06/09/16 | 07/03/17 05/09/17 |
|-------------------|--|--------------|----------------------|-----------------------------|-----------------------------|

Internet of Things

| | | | | | |
|-------------|--------------------------------------|-------|----------|----------|----------|
| IoT-01-2016 | Large Scale Pilots | 100.0 | 20/10/15 | 12/04/16 | |
| IoT-02-2016 | IoT Horizontal activities | 4.0 | 20/10/15 | 12/04/16 | |
| IoT-03-2017 | R&I on IoT integration and platforms | 35.0 | 08/12/16 | | 25/04/17 |

Smart and sustainable cities

Smart cities and communities

| | | | | | |
|-----------------|--|--------------|----------------------|----------|----------|
| SCC-1-2016-2017 | Smart Cities and Communities lighthouse projects | 60.0 71.5 | 08/12/15 04/10/16 | 05/04/16 | 14/02/17 |
|-----------------|--|--------------|----------------------|----------|----------|

Sustainable cities through nature-based solutions

| | | | | | |
|------------------|---|--------------|----------------------|-----------------------------|-----------------------------|
| SCC-02-2016-2017 | Demonstrating innovative nature-based solutions in cities | 40.0 40.0 | 10/11/15 08/11/16 | 08/03/16 06/09/16 | 07/03/17 05/09/17 |
|------------------|---|--------------|----------------------|-----------------------------|-----------------------------|

Fast Track to Innovation Pilot

Fast Track to Innovation Pilot

| | | | | | |
|------------------|--------------------------------|-------|----------|----------------------------------|--|
| FTIPilot-01-2016 | Fast Track to Innovation Pilot | 100.0 | 02/12/15 | 15/03/16 01/06/16 25/10/16 | |
|------------------|--------------------------------|-------|----------|----------------------------------|--|

Note: For deadlines, shaded cells in the table correspond to two-stage calls.