

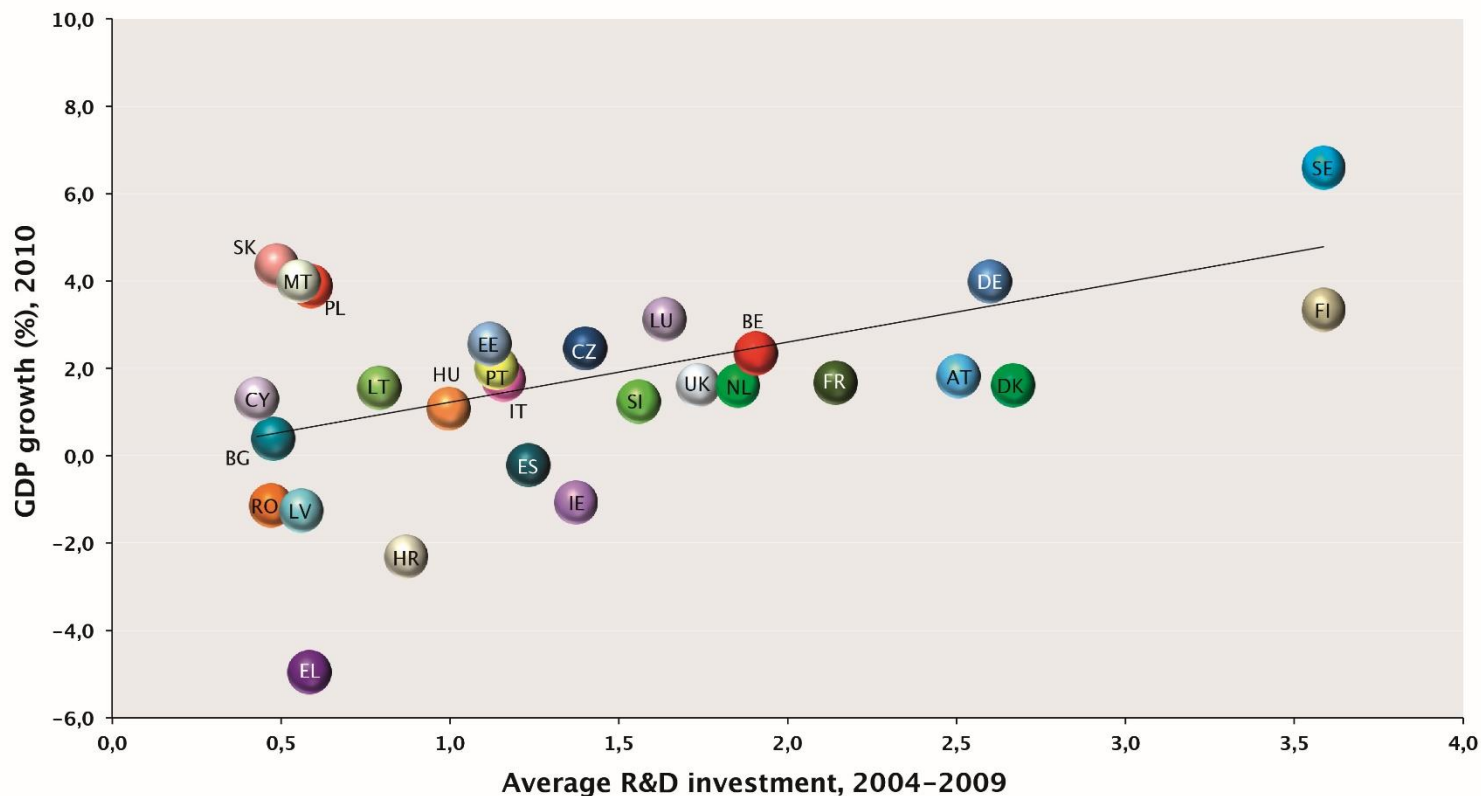
# INTRODUCTION TO HORIZON 2020

**Information and  
Communication Technologies  
2014-2020**



**Presenter:  
Dr. János Hamar**

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



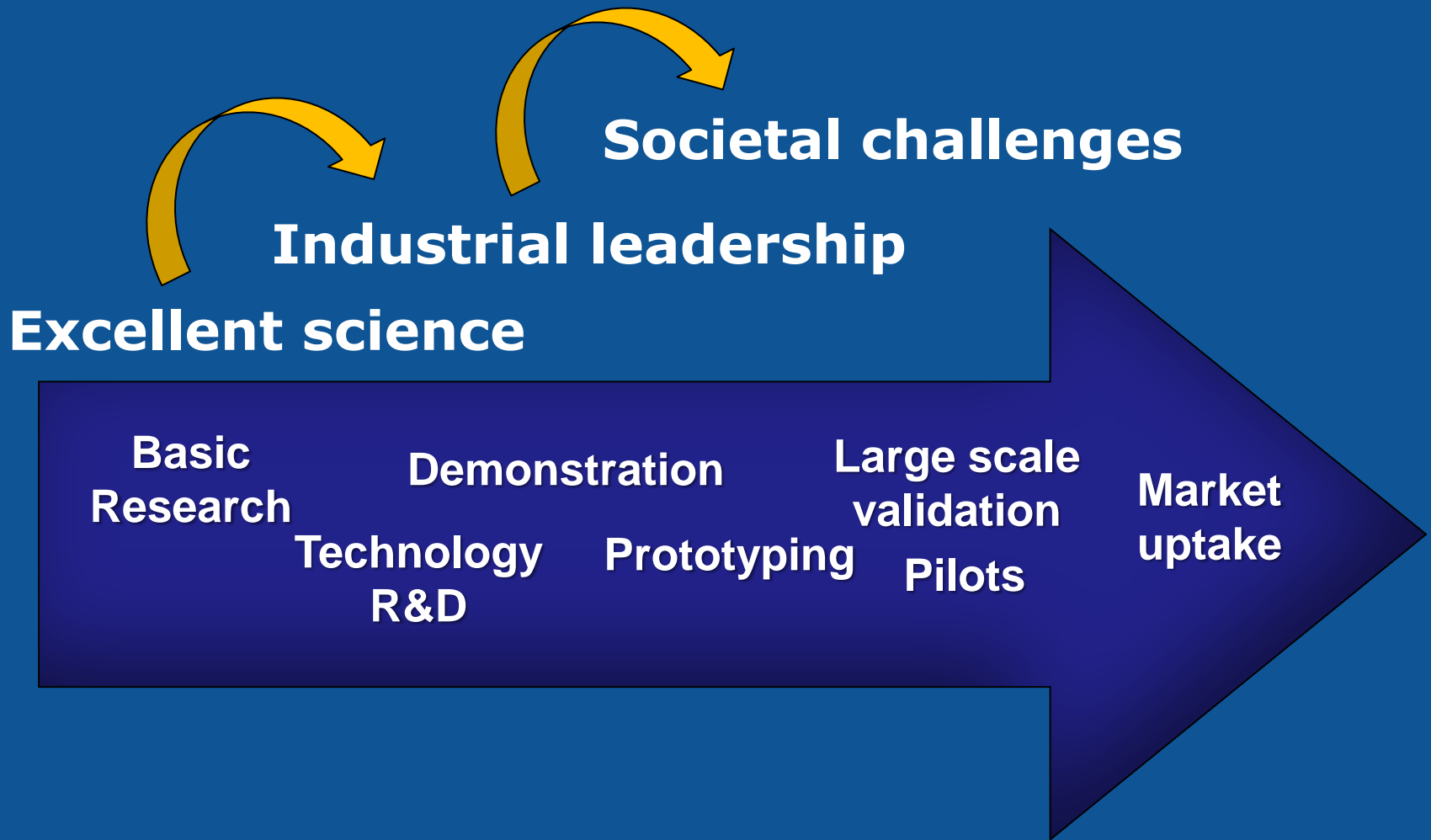
Source: DG Research and Innovation - Economic Analysis Unit  
Data: Eurostat

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

# Priorities



# Coverage of the full innovation chain



# Three main priorities



# Horizon 2020 structure

## Excellent Science

Frontier Research (ERC)

Future and Emerging Technologies (FET) **ICT**

Skills and career development (Marie Skłodowska-Curie)

Research Infrastructures **ICT**

## Industrial Leadership

Leadership in enabling  
and industrial technologies

ICT **ICT**

Nanotech., Materials, Manuf. & Processing **ICT**

Biotechnology

Space

Access to risk finance

Innovation in SMEs

## Societal Challenges

Health, demographic change and wellbeing **ICT**

Food security, sustainable agriculture,  
and the bio-based economy

Secure, clean and efficient energy **ICT**

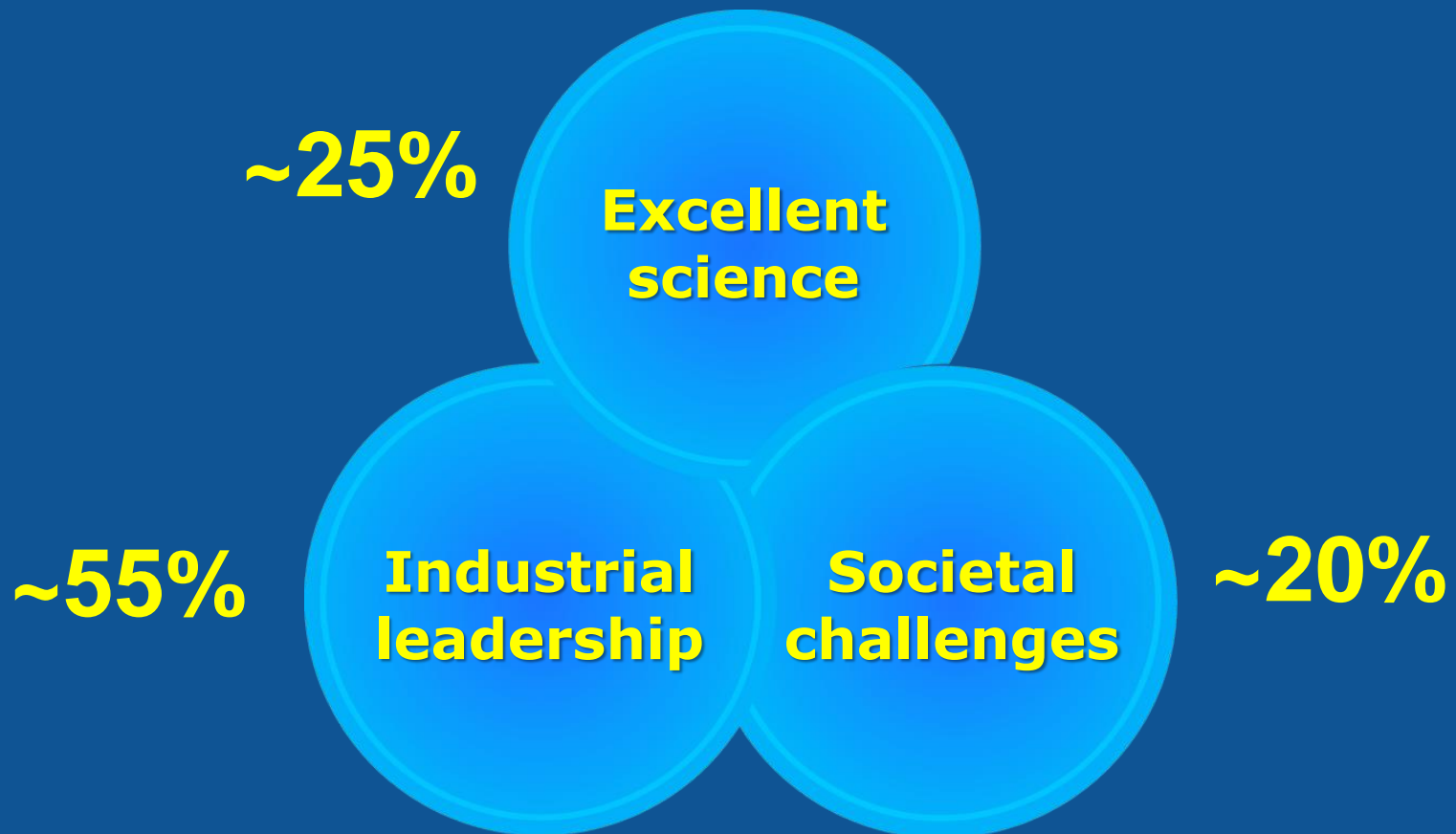
Smart, green and integrated transport **ICT**

Climate action, resource efficiency,  
and raw materials **ICT**

Inclusive, innovative and reflective societies

Secure societies **ICT** **ICT**

# Three priorities **for ICT**





# 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**

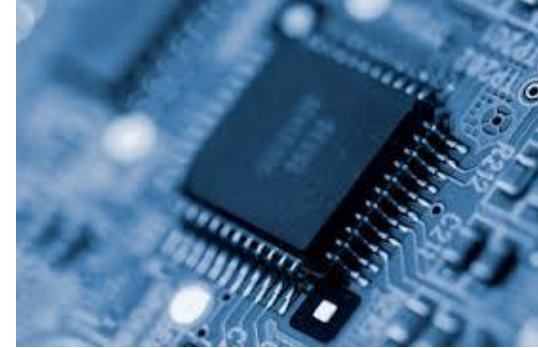
- Developing the European research infrastructure for 2020 and beyond
- **Development, deployment and operation of ICT-based e-infrastructures**
  - **ICT infrastructure resources and services for Research**
  - **Access to and management of scientific data**
  - **High Performance Computing**

862 m€



# 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



# Societal Challenges - ICT



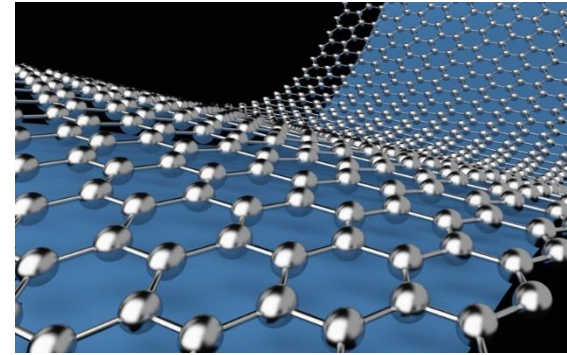
- **Health, demographic change and wellbeing**
- **Food security, sustainable agriculture, and forestry, marine, maritime and inland water research, and the bioeconomy**
- **Secure, clean and efficient energy**
- **Smart, green and integrated transport**
- **Climate action, environment, resource efficiency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

# Expected H2020 ICT Calls for 2016-2017

HORIZON 2020

The background of the slide is a deep blue gradient. In the center, there is a stylized representation of the Earth's horizon. A small, metallic-looking sphere, resembling a globe, sits on the horizon line. From this point, numerous bright blue and white rays of light radiate outwards, creating a starburst effect. The text 'HORIZON 2020' is written in a clean, white, sans-serif font, positioned horizontally across the middle of the image, with the globe acting as the letter 'O' in 'HORIZON'.

## **A new generation of components and systems 2016-2017**



- ICT-01-2016: Smart Cyber-Physical Systems
- ICT-02-2016: Thin, Organic and Large Area Electronics
- ICT-03-2016: SSI - Smart System Integration
- ICT-04-2017: Smart Anything Everywhere Initiative

## **Advanced Computing and Cloud Computing 2016-2017**



- ICT-05-2017: Customised and low energy computing
- ICT-06-2016: Cloud Computing

# Future Internet

## 2016-2017



- ICT-07-2017: 5G PPP Research and Validation of critical technologies and systems
- ICT-08-2017: 5G PPP Convergent Technologies
- ICT-09-2017: Networking research beyond 5G
- ICT-10-2016: Software Technologies
- ICT-11-2017: Collective Awareness Platforms for Sustainability and Social Innovation
- ICT-12-2016: Net Innovation Initiative
- ICT-13-2016: Future Internet Experimentation - Building a European experimental Infrastructure

# Content

## 2016-2017



- ICT-14-2016-2017: Big Data PPP: cross-sectorial and cross-lingual data integration
- ICT-15-2016-2017: Big Data PPP: Large Scale Pilot actions - data-driven innovation
- ICT-16-2017: Big data PPP: main technology challenges of the data economy
- ICT-17-2016-2017: Big data PPP: Support, industrial skills, benchmarking and evaluation
- ICT-18-2016: Big data PPP: privacy-preserving big data technologies
- ICT-19-2017: Media and content convergence
- ICT-20-2017: Tools for smart digital content in the creative industries
- ICT-21-2016: Support technology transfer to the creative industries
- ICT-22-2016: Technologies for Learning and Skills
- ICT-23-2017: Interfaces for accessibility
- ICT-24-2016: Gaming and gamification



# Robotics and Autonomous Systems 2016-2017



- ICT-25-2016-2017: Advanced robot capabilities research and take-up
- ICT-26-2016: System abilities, development and pilot installations
- ICT-27-2017: System abilities, SME & benchmarking actions, safety certification
- ICT-28-2017: Robotics Competition, coordination and support

## ICT Key Enabling Technologies 2016-2017

- ICT-29-2016: Photonics KET 2016
- ICT-30-2017: Photonics KET 2017
- ICT-31-2017: Micro- and nanoelectronics technologies





# Innovation and Entrepreneurship support 2016-2017

- ICT-32-2017: Startup Europe for Growth and Innovation Radar
- ICT-33-2017: Innovation procurement networks
- ICT-34-2016: Pre-Commercial Procurement open



## Responsibility and Creativity 2016-2017

- ICT-35-2016: Enabling responsible ICT-related research and innovation
- ICT-36-2016: Boost synergies between artists, creative people and technologists



# International Cooperation Activities 2016-2017



- ICT-37-2016: CHINA: Collaboration on Future Internet
- ICT-38-2016: MEXICO: Collaboration on ICT
- ICT-39-2016-2017: International partnership building in low and middle income countries\*



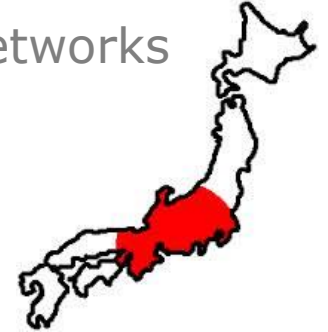
\* Targeted countries: Low and middle income countries in sub-Saharan Africa and ASEAN countries

# Joint Calls

## 2016-2017

### EU-Japan Joint Call

- EUJ-01-2016: 5G – Next Generation Communication Networks
- EUJ-02-2016: IoT/Cloud/Big Data platforms in social application contexts
- EUJ-03-2016: Experimental testbeds on Information-Centric Networking



### EU-Brazil Joint Call

- EUB-01-2017: Cloud Computing
- EUB-02-2017: IoT Pilots



### EU-South Korea Joint Call

- EUK-01-2016: 5G – Next Generation Communication Networks
- EUK-02-2016: IoT joint research
- EUK-03-2016: Federated Cloud resource brokerage for mobile cloud services



# Innovation and Entrepreneurship support 2016-2017

- SMEINST-01-2016-2017 - Open Disruptive Innovation Scheme

## Main objectives

1. Nurture promising innovative and disruptive ideas;
  2. Support prototyping and scalability of disruptive solutions through validation and demonstration in real world conditions;
  3. Promote wider deployment and/or market uptake.
- FAST TRACK TO INNOVATION - PILOT
    - Fully bottom-up
    - Reduced time-to-grant (6 months)
    - Business-driven

# ICT for the Factories of the Future 2016-2017



- FOF-11-2016: Digital automation
- FOF-12-2017: ICT Innovation for Manufacturing SMEs (I4MS)
- FOF-13-2016: Photonics Laser-based production

# Internet of Things 2016-2017

- IoT-01-2016: Large Scale Pilots
- IoT-02-2016: IoT Horizontal activities
- IoT-03-2017: R&I on IoT integration and platforms



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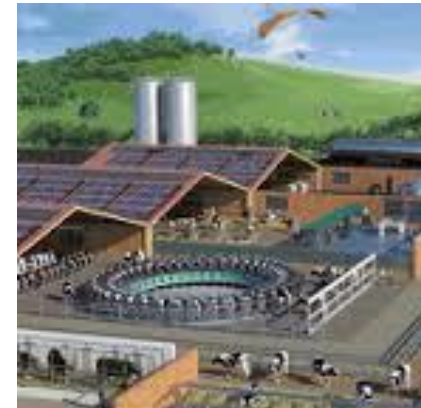
## Digital Security Focus Area 2016-2017

- DS-01-2016: Assurance and Certification for Trustworthy and Secure ICT systems, services and components
- DS-06-2017: Cryptography



## Food security, sustainable agriculture and forestry 2016-2017

- SFS-5-2017: Robotics advances for precision farming



## Conditions for the Sustainable Food Security 2016-2017

- NMBP-13-2017: Cross-cutting KETs for diagnostics at the point-of-care



# Expected budget 2014-2015 vs. 2016-2017

Topic	2014-15	2016-17
CH1: Components and Systems	142	84.0
CH2: Advanced computing and Cloud Computing	57	71.0
CH3: Future Internet	395.5	253.2
CH4: Content technologies	260	278.0
CH5: Robotics	157	164.0
CH6: Micro-Nano and Photonics	206	181.0
Manufacturing	102	116.0
Internet of Things	51	114.0
Cyber-Security	38	43.0
Open Disruptive Innovation	90	126.0
Fast track to Innovation	0	17.9
Responsible Research and Innovation - Social Sciences and Humanities and creative dialogue	7	15.0
Horizontal Innovation	26	30.0
International Activities	27	35.0
Horizontal support	57	42
NCP	4	0
<b>Total</b>	<b>1619.5</b>	<b>1570</b>
Electronic Components and Systems for European Leadership (ECSEL)	250	321
<b>Total with ECSEL</b>	<b>1869.5</b>	<b>1891</b>

# More information



- **Horizon2020 web site**

- ✓ <http://ec.europa.eu/programmes/horizon2020>

- **Participants portal**

- ✓ [http://ec.europa.eu/research/participants/portal/desktop/en/home.html#elpdesk](http://ec.europa.eu/research/participants/portal/desktop/en/home.html#helpdesk)

- **H2020 Helpdesk, including FAQ**

- ✓ <http://ec.europa.eu/research/index.cfm?pg=enquiries>

- **National Contact Points**

- ✓ [http://ec.europa.eu/research/participants/portal/desktop/en/support/national\\_contact\\_points.html](http://ec.europa.eu/research/participants/portal/desktop/en/support/national_contact_points.html)



# HORIZON 2020

**Thank you  
for your attention!**

**Find out more:**

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