



Horizon 2020

Information and Communication Technologies in Work Programme 2016-17

ARTEMIS brokerage event 2016



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Digital innovations: What is at stake?

Where does Europe stand?

Action Plan for Digitising European Industry

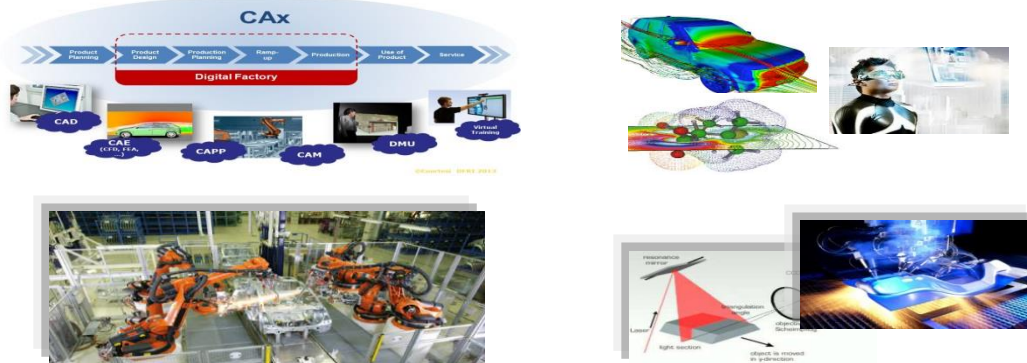
Horizon2020 Workprogramme

Three dimensions of Value Creation from Digitisation

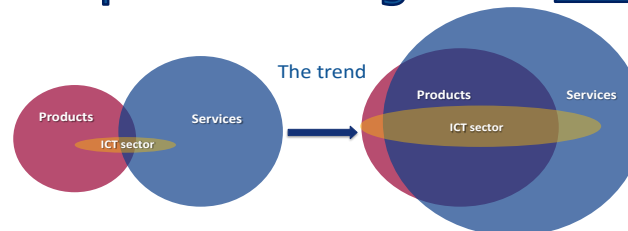
"Digital inside": Innovations in products (all types)

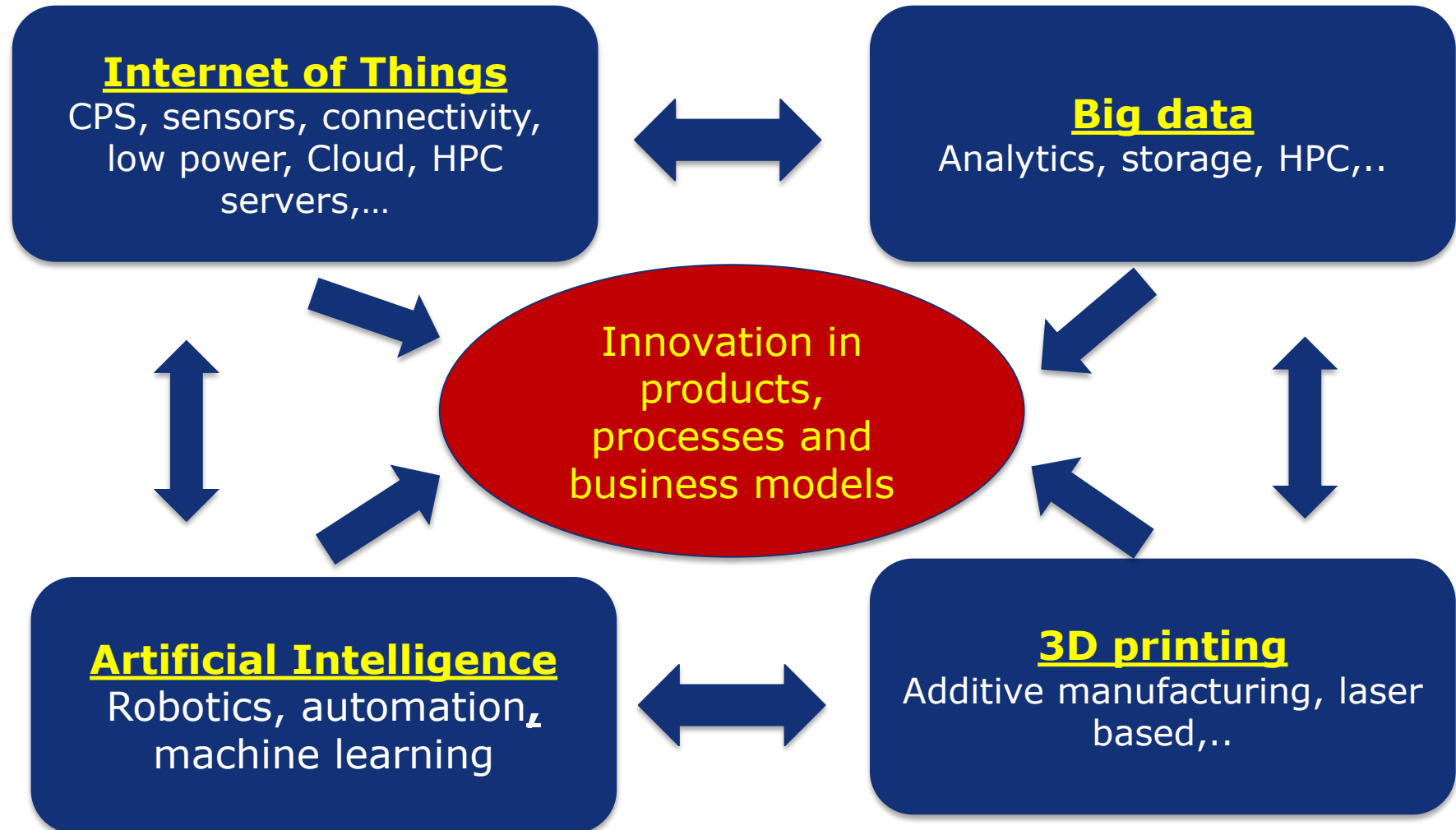


Digital transformations of processes



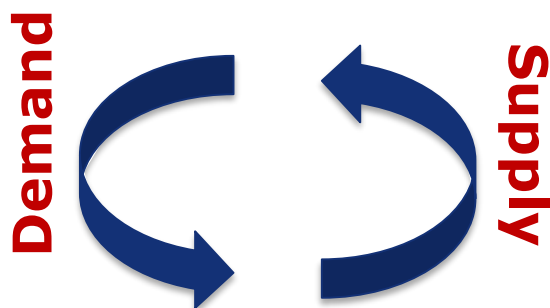
Radical/disruptive changes in business models





The challenge of digital transformation

Digital transformation
of all industry in Europe requires
a strong digital sector in Europe



Broad digital transformation
of all industry offers a unique
opportunity to strengthen
Europe's digital sector



- **Strengths**

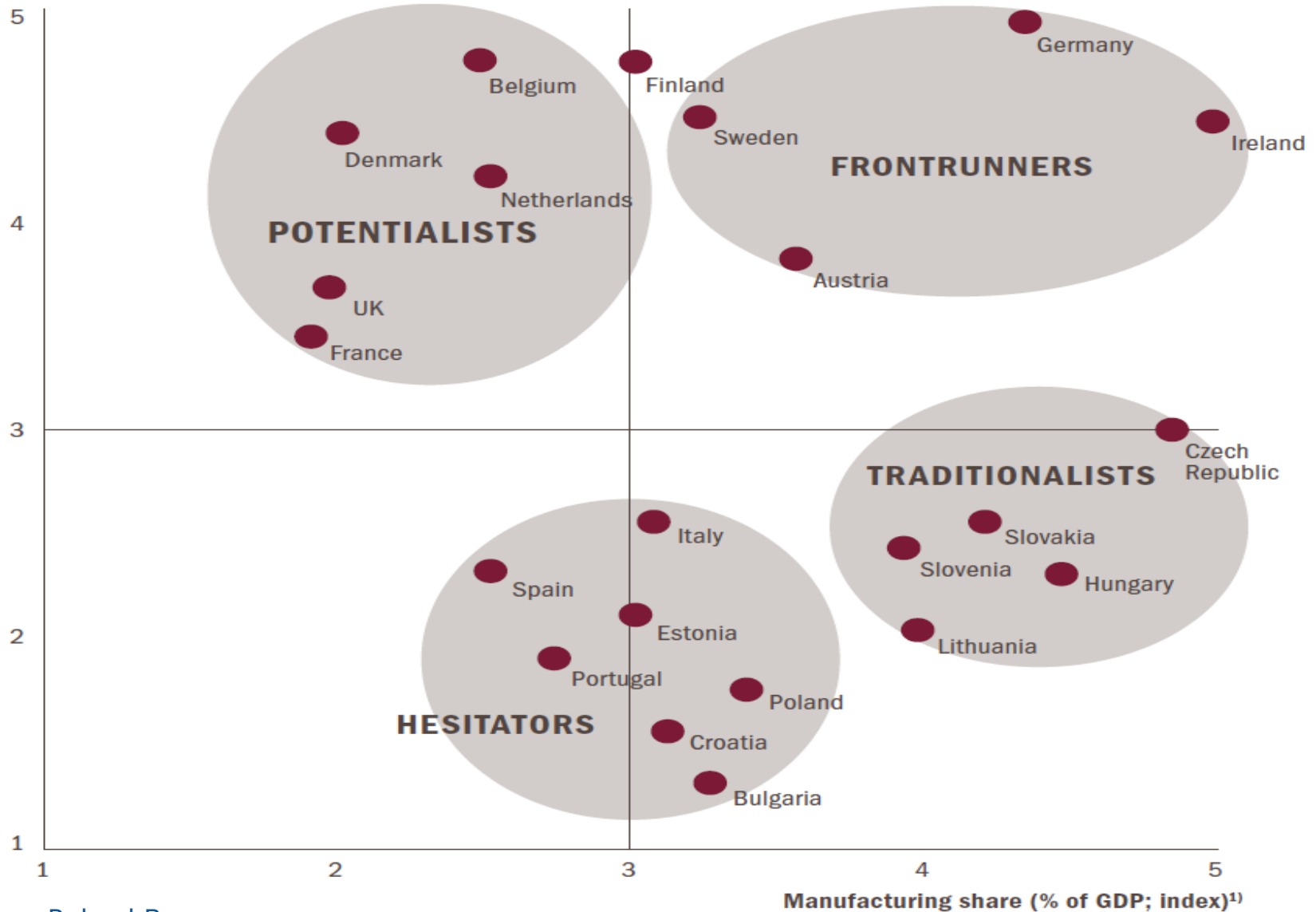
- Professional and vertical markets (products and services)
- World class R&D hubs
- Good infrastructure
- Size of EU market (~27% of world ICT market)

- **Weaknesses**

- Consumer markets: Internet, web,
- On-line platforms, data
- Structural weaknesses: No DSM yet, reducing R&D investment

Digitisation readiness: disparities in Europe

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■ **RB Industry 4.0
Readiness Index¹⁾²⁾**



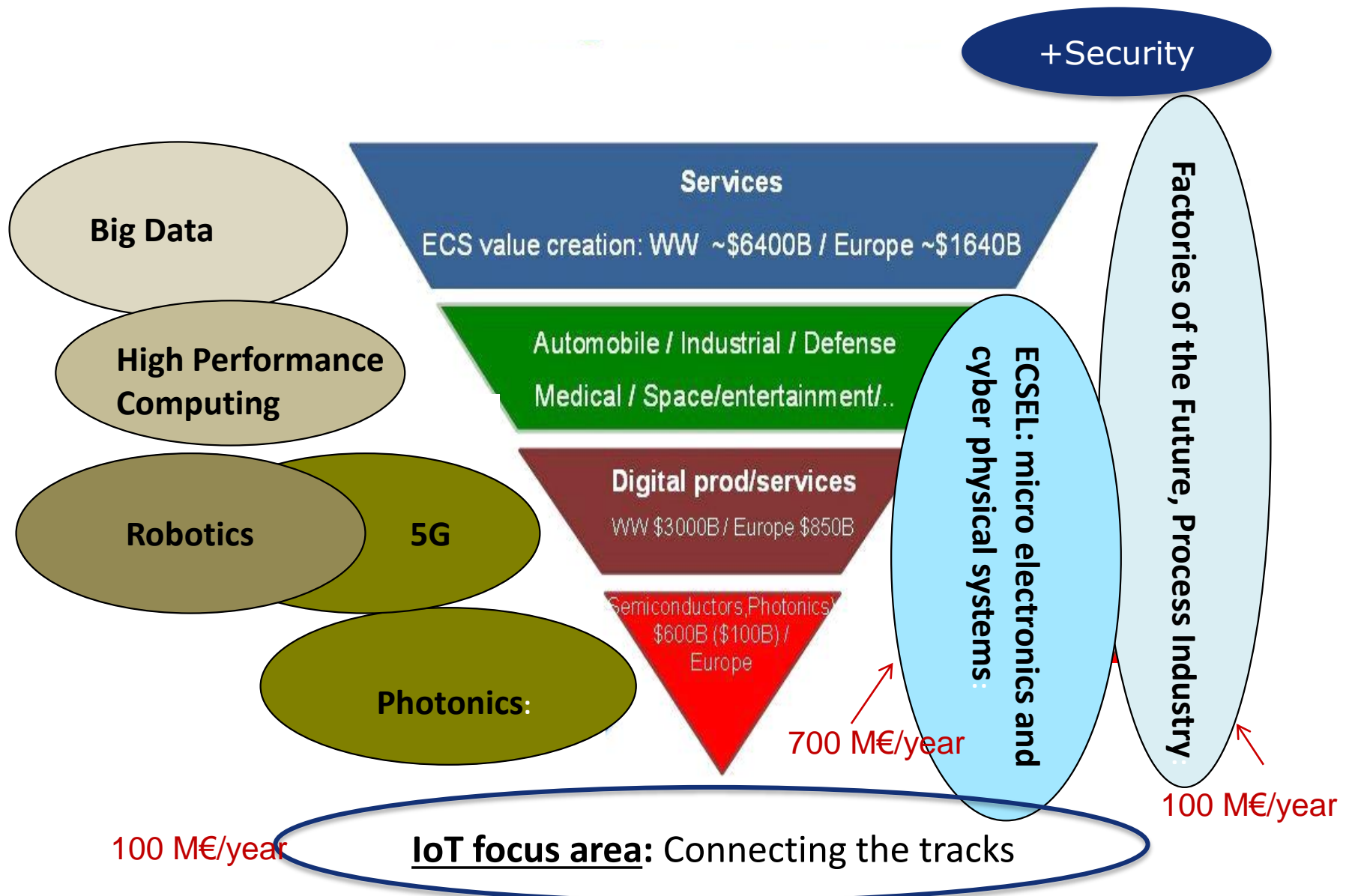
- **Access to latest technology**
 - To any industry in Europe (SMEs, mid-caps, non tech, etc..)
 - Bottom up spurring of digital innovations
- **Leadership in digital platforms & relevant key technologies**
 - From vertical markets to mainstream
 - Openness, standards,..
- **Skilling our workforce for digital change**
 - rethinking the workplace
- **Adapting the legislation**
 - Eliminate barriers for digitisation

An EU-wide effort on next generation platforms

- Focus, up-scale and further integrate R&D&I on core platforms
 - EU, Member States, Industry
- Reinforce the development of European reference architectures
 - From national initiatives to EU-wide and international leadership
- Support experimentation environments such as reference implementation, test-beds, large-scale demonstrators
 - Leading to standards (including de-facto) for industry
- Foster constituency building across value chains and vertical silos
 - + Links to international effort (IIC, ...)

Role of Public-Private Partnerships: More than 23 B€ of investment!

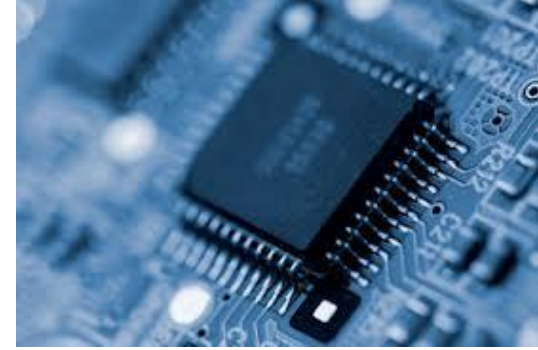
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ICT in Industrial leadership



Industrial Leadership - ICT



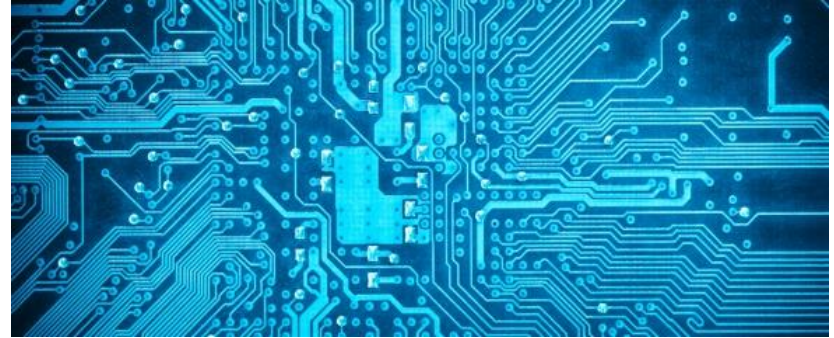
- **A new generation of components and systems:**
 - engineering of advanced embedded and resource efficient components and systems
- **Next generation computing:**
 - advanced and secure computing systems and technologies, including cloud computing
- **Future Internet:**
 - software, hardware, infrastructures, 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



Components and systems

2016-2017

84 M€



- Cover **systemic integration from smart integrated components to cyber-physical systems**
- **Complementary to the JTI Electronic Components and Systems (ECSEL)**
- Organised in four topics:
 - **Smart cyber-physical systems** (20 M€)
 - Next generation embedded and connected systems
 - **Thin, Organic and Large Area Electronics** (20 M€)
 - **Smart system integration** (18,5 M€)
 - Integration of heterogeneous micro- and nanotechnologies into smart systems
 - **Smart Anything Everywhere** initiative (25,5 M€)

Advanced Computing and Cloud Computing

2016-2017

71 M€



- Reinforce and expand Europe's industrial and technology strengths in **low-power ICT**
- Foster the evolution of **Cloud technology** to increase its uptake
- Complementary to the work in the Excellent Science pillar under Research Infrastructures and FET (on High Performance Computing)
- Organised in two topics:
 - **Customised and low energy computing** (26 M€)
 - **Cloud Computing** (45 M€)

Internet of Things

2016-2017

139 M€

- **Cross-cutting focus area**
 - Contributions from **SC1** and **SC2**
- Increased support with the ambition to **foster the take-up of IoT in Europe** and to **enable the emergence of IoT ecosystems** supported by open technologies and platforms
- Organised in three topics:
 - **Large scale pilots** (100 M€)
 1. Smart living environment for ageing well
 2. Smart farming and food security
 3. Wearables for smart ecosystems
 4. Reference zones in EU cities
 5. Autonomous vehicles in a connected environment
 - IoT Horizontal activities (4 M€)
 - **R&I on IoT integration and platforms** (35 M€)



Robotics and autonomous systems

2016-2017

164 M€

- **Technology-driven** actions to keep EU at the cutting edge of research + **market-driven** actions to accelerate take-up and deployment of robot
- **Roadmap-based approach**
→ **Robotics PPP**
- Organised in four topics in LEIT-ICT + one topic in SC2:
 - **Advanced robot capabilities research and take-up** (64 M€)
 - **System abilities, development and pilot installations** (42 M€)
 - **System abilities, SME & benchmarking actions, safety certification** (46 M€)
 - **Robotics competition**, coordination and support (5 M€)
 - **Robotics Advances for Precision Farming** (7 M€) (SC2)



Content technologies

2016-2017

278 M€



- Improve **access, creation, management** and **use** of **data** and **content** through advances along the **data, content and knowledge value chains**.
- Organised in eleven topics (+ one prize):
 - **Big data PPP (153 M€)**
 - Cross-sectorial and cross-lingual data integration and experimentation (54 M€)
 - Large scale pilots in sectors best benefitting from data-driven innovation (50 M€)
 - Research addressing main technology challenges of the data economy (31 M€)
 - Support, industrial skills, benchmarking and evaluation (7 M€)
 - Privacy-preserving big data technologies (9 M€)
 - *Big Data inducement prize (2 M€)*
 - **Media and content convergence** (39 M€)
 - Tools for **smart digital content in the creative industries** (17 M€)
 - Support **technology transfer to the creative industries** (14 M€)
 - Technologies for **Learning and Skills** (31 M€)
 - Interfaces for **accessibility** (12 M€)
 - **Gaming and gamification** (12 M€)

ICT for the Factories of the Future 2016-2017

116 M€

- Part of the '**Industry 2020 in the Circular Economy**' cross-cutting focus area
- Focus on **ICT components of innovative production systems in all sectors** (for a more personalised, diversified and mass-produced product portfolio and for rapid and flexible reaction to market changes)
- Implementation of the **FoF PPP**
- Organised in three topics:
 - Digital automation (53 M€)
 - ICT Innovation for Manufacturing SMEs (I4MS) (33 M€)
 - Photonics laser-based production (30 M€)

Future Internet 2016-2017

253 M€



- Integrated response to **technology** challenges and **innovation** needs of the future Internet
- Organised in seven topics:

- 5G PPP** (148 M€)
 - **5G PPP** Research and Validation of critical technologies and systems (103 M€)
 - **5G PPP** Convergent Technologies (45 M€)
 - **Networking research beyond 5G** (18 M€)
 - **Software Technologies** (31 M€)
 - **Future Internet Experimentation** - Building a European experimental Infrastructure (26 M€)
 - **Collective Awareness Platforms for Sustainability and Social Innovation** (10 M€)
 - **Net Innovation** Initiative (20 M€)

ICT key enabling technologies

2016-2017

181 M€

- Translate Europe's S&T excellence in **photonics** and **micro- and nano-electronics** into strengthened competitiveness and market leadership
- **Address the whole research and innovation value chain in photonics technology:** from materials to manufacturing, products and services, through equipment and devices – from advanced R&D to pilot lines
 - **Photonics PPP (153 M€)**
 - Complemented by activities of LEIT-NMBP and **FoF PPP**
- Cover **generic technology developments on micro- and nano-electronics** focused on exploratory research and lower Technology Readiness Levels (TRLs) (23 M€)
 - Complementary to the JTI Electronic Components and Systems
- Organised in three topics in LEIT-ICT + one in LEIT-NMBP + one in FoF

Digital Security

2016-2017

118 M€



- **Focus area**

- Combining contributions from **LEIT-ICT**, **SC1** and **SC7**

- **Grouping the main R&D&I activities in digital security**, from enabling technologies to specific use cases

- Organised in eight topics:

- **Cryptography** (18,5 M€)
 - **Assurance and Certification** for Trustworthy and Secure ICT systems, services and components (23,5 M€)
 - Addressing **Advanced Cyber Security Threats and Threat Actors** (18 M€)
 - **Privacy, Data Protection, Digital Identities** (18 M€)
 - **Cyber Security for SMEs, local public admin. and individuals** (22 M€)
 - **Economics of Cybersecurity** (4 M€)
 - **EU Cooperation and International Dialogues** in Cybersecurity and Privacy Research and Innovation (3 M€)
 - Increasing **digital security of health related data** on a systemic level (11 M€)

Innovation and Entrepreneurship support 2016-2017

156+ M€

- Reinforce the **involvement of users** in R&D&I
- Support **digital entrepreneurship**
- Strengthen the **support to start-ups** and **SMEs**
- Facilitate the meeting between **investors** and start-ups
- Increase the **entrepreneurial skills**
- Organised in five topics + inducement prizes:
 - **Startup Europe for growth and Innovation Radar** (12 M€)
 - **Innovation procurement networks** (4 M€)
 - **Pre-commercial procurement open** (4 M€)
 - **Open Disruptive Innovation** scheme – SME instrument (**126 M€**)
 - **Fast Track to Innovation** (100 M€ - for all fields of LEIT and SCs)
 - **ICT Horizon prizes** (10 M€)

International cooperation 2016-2017

38 M€



- **International partnership building in low and middle income countries** (13,8 M€) / Target: **sub-Saharan Africa and ASEAN**

- **Coordinated calls**

- **EU-Brazil** (7 M€)

- Cloud computing
 - IoT pilots



- **EU-Japan** (7 M€)

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



- **EU-South Korea** (6 M€)

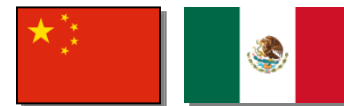
- 5G – Next Generation Communication Networks
 - IoT joint research
 - Federated Cloud resource brokerage for mobile cloud services



- **Cooperation with Taiwan in 5G PPP topic on Convergent Technologies** (2,5 M€)

- **Other international cooperation activities**

- **China:** Collaboration on Future Internet (1 M€)
 - **Mexico:** Collaboration on ICT (with a focus on FIWARE) (1 M€)



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More information...



Call planning – 2016

LEIT

- **Main ICT calls: 12 April, 8 Nov**
- EU-Japan, EU-South Korea: **19 Jan**

Cross-cutting activities

- **ICT for FoF: 21 Jan**
- **IoT: 12 April**

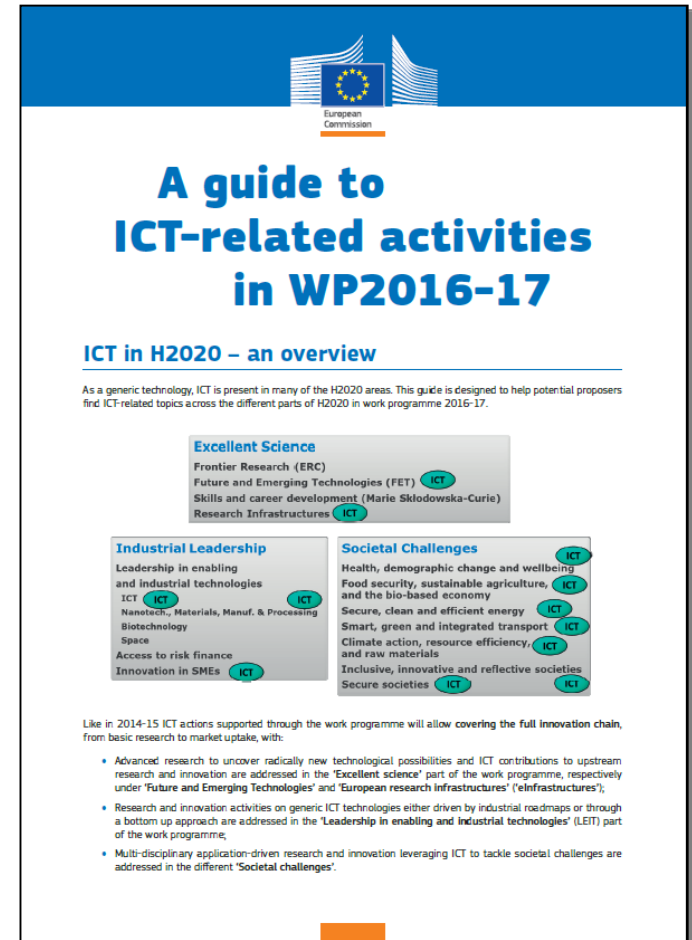


Guide to ICT-related activities in WP2016-17

- Comprehensive coverage of the three H2020 pillars
- Detailed list of calls and topics
- Available on H2020 website

➔ Draft versions of the WP parts available online:

<https://ec.europa.eu/programmes/horizon2020/en/draft-work-programmes-2016-17>



ICT conference



- **Conference** sessions on EC policy and initiatives on R&I in ICT
- **Networking** sessions
- **Exhibition** showcasing results of most recent EU projects
- **Presentation of WP2016-17**

info & registration: ec.europa.eu/digital-agenda/ict2015

Find out more

- **Horizon2020 web site**

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

- **Participants portal**

- ✓ <http://ec.europa.eu/research/participants/portal>

- **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





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**Thank you
for your attention!**