



PICASSO Project

Towards new avenues in EU-US ICT collaboration

**Mutual Opportunities to access EU-US research
and innovation cooperation opportunities**

First meeting of the PICASSO expert groups
Washington DC, May 20, 2016

ICT Policy, Research and Innovation
for a Smart Society

www.picasso-project.eu



EU-US Mutual Opportunities for Collaboration

Purpose of research:

- **Overview** on access/cooperation opportunities on ICT R&I (EU ICT programmes opened for US, and vice versa).
- **Orientation tool** for all stakeholders interested in establishing partnerships or applying for funds
- PICASSO mission and focus: foster cooperation on 5G, Big Data, IoT, Cyber Physical Systems

Looking for:

- Areas of funding and mutual interest
- Eligibility conditions and application features/ Openness to foreign participants

EU side: focus on H2020 and EU level initiatives open to US individuals/organisations

US side: focus on Federal programmes

Results will be published on PICASSO website

A successful story of cooperation

THE EUROPEAN LANDSCAPE AND US PARTICIPATION

Horizon 2020: Structure and Priorities

Excellent Science

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

Industrial Leadership

- **Leadership in enabling and industrial technologies** ICT
 - **ICT**, nanotechnologies, materials, biotechnology, manufacturing, space
- **Access to risk finance**
 - Leveraging private finance and venture capital for research and innovation
- **Innovation in SMEs**
 - Fostering all forms of innovation in all types of SMEs

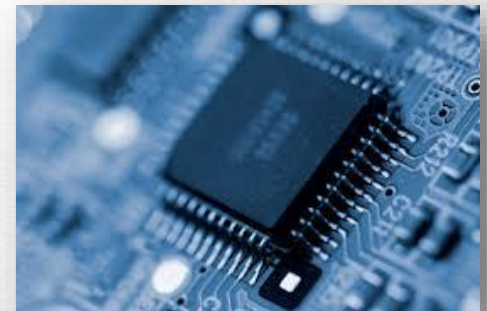
Societal Challenges

- **Health, demographic change and wellbeing** ICT
- **Food security, sustainable agriculture, marine and maritime research & the bioeconomy** ICT
- **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** ICT
- **Secure societies** ICT

WP Cross Cutting (IoT and Smart Cities)

Focus on the ICT Work Programme

- 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
 - **5G**
- Content technologies and information management:
 - ICT for digital content, cultural and creative industries
 - **Big Data**
- Advanced interfaces and robots:
 - **robotics** and smart spaces
- Micro- and nano-electronics and photonics:
 - key enabling technologies



US Participation in the 7th Framework Programme (2007-2013)

Prominence of US participation in EU Framework Programme:

U.S. instances of participation (organisations and individuals)

- >500 instances in signed grant agreements for R&D **collaborative projects**
- ~ 800 instances in **mobility** fellowships and networks (Marie Curie actions)
- ~ 140 European Research Council Principal Investigators (45% of all non-Europeans)
- Success rate: >25%

Most popular themes in collaborative projects

- Health: 157 organisations
- Information and Communications Technologies: 89
- Food, Agriculture, Fisheries and Biotechnology: 47
- Nanosciences, Materials and New Production Technologies: 29
- Environment (incl. Climate Change): 28
- Energy: 19



Total EU funding provided to U.S. partners: ~\$110ml (€80ml)

US Participation on ICT / Horizon 2020 (2014-2020)

- **H2020 ICT 2014 Calls**
 - 20 proposed participations
 - **5 granted participations (2 related to 5G field)**

- **H2020 ICT 2015 Calls**
 - 14 proposed participations
 - **8 granted participations**

- **Total EU Funding to U.S. Organizations for 2014 and 2015**
 - EC requested contribution 966.385 \$ (853.584,00 €)
 - **EC ranked contribution 138.122 \$ (122.000,00 €)**



Upcoming relevant H2020 calls (2016-2017)



- Smart Anything Everywhere initiative 8th November 2016
- 5G PPP Research and Validation of critical technologies and systems
- 5G PPP Convergent Technologies 25th April 2017
- Customised and low energy computing
- Collective awareness platform for sustainability and social innovation
- Big Data PPP: cross-sectorial and cross-lingual data integration and experimentation
- Big Data PPP: Large Scale Pilot actions in sectors best benefitting from data-driven innovation
- Big data PPP: research addressing main technology challenges of the data economy
- Big data PPP: Support, industrial skills, benchmarking and evaluation
- Tools for smart digital content in the creative industries
- Interfaces for accessibility
- Advanced robot capabilities research and take-up Explicit reference to USA
- System abilities, SME & benchmarking actions, safety certification
- Robotics Competition, coordination and support
- Photonics Key Enabling Technologies
- Micro- and nanoelectronics technologies

EU ICT ecosystems – partnerships and initiatives

> Contractual Public Private Partnerships (PPP)

- 5G PPP
- BDV - Big Data Value
- Photonics 21
- Robotics
- HPC - High Performance Computing
- FoF - Factories of the Future

> Relevant initiatives related to EC

- AIOTI - Alliance for Internet of Things Innovation
- NetWorld2020 - European Technology Platform for communications networks and services
- FIWARE Accelerator Programme (Future Internet)
- NEM Initiative – New European Media
- NESSI - European Technology Platform dedicated to Software, Services and Data
- STARTUP EUROPE
- STARTS – The ICT & Arts Platform

> Joint Programmes

- JU ECSEL – PPP for electronic component and systems
 - ✓ EPoSS - European Technology Platform on Smart System Integration
 - ✓ AENEAS - European Technology Platform on micro and nano electronics enabled components and systems
 - ✓ ARTEMIS - Industry Association for embedded/cyber-physical systems
- AAL – Active and Assisted Living



5G European Landscape

5G
NETWORKS

Relevant Stakeholders:

- **5G-Infrastructure-Public Private Partnership (5G-PPP)** between the European ICT industry and the European Commission, signed December 2013

Funding:

- € 1.4 Billion Euro, of which €700 million of public funding from the EC through the Horizon 2020 Programme (7 years)

Scope:

- Rethink the infrastructure and create the next generation of communication networks and services that will provide ubiquitous super-fast connectivity and seamless service delivery in all circumstances
- 2015: the EU's vision of 5G technologies and infrastructure

Partnerships:

- Within *4G Americas* a Memorandum of Understanding has been signed

Big Data European Landscape



BIG
DATA

Relevant Stakeholders:

- **Public Private Partnership on Big Data Value (BDV PPP)** between the European ICT industry and the European Commission, signed October 2014

Funding:

- €2.5 billion in a public-private partnership (PPP) of which € 500 million of public funding from the EC through the Horizon 2020 Programme (7 years)

Scope:

- Foster, strengthen and support the development and wide adoption of Big Data Value technologies, successful use cases and data-driven business models
- March 2016: outlined the Big Data Value Strategic Research and Innovation Agenda (BDV SRIA) (v2.0)

Partnerships:

- No partnerships currently established

IoT and CPS European Landscape

IoT/CPS

Relevant Stakeholders:

- **Alliance for Internet of Things Innovation**, launched on March 2015.
- **ARTEMIS European Technology Platform** (embedded/cyber-physical systems) established in June 2004.

Funding:

- The Commission published a 51M€ [call](#) for projects in 2015, closed in April 2016 through the Horizon 2020 Programme. The initiative cuts across several technological areas (smart systems integration, cyber-physical systems, smart networks, big data), and targets SME and IoT innovators for to create an open IoT environment.

Scope:

- October 2015: AIOTI published [12 reports](#) covering policy and standards issues and providing recommendations on the IoT main focus areas of H2020 [2016-2017 work programme](#).
- 2016: new edition of the ARTEMIS Strategic Research Agenda (ARTEMIS SRA 2016)
- 2015 and 2016: the ECSEL Multi-Annual Strategic Research and Innovation Agenda for PPP for electronic component and systems (MASRIA) was written by AENEAS, ARTEMIS Industry Association and EPoSS (MASRIA 2016)

How to get involved?

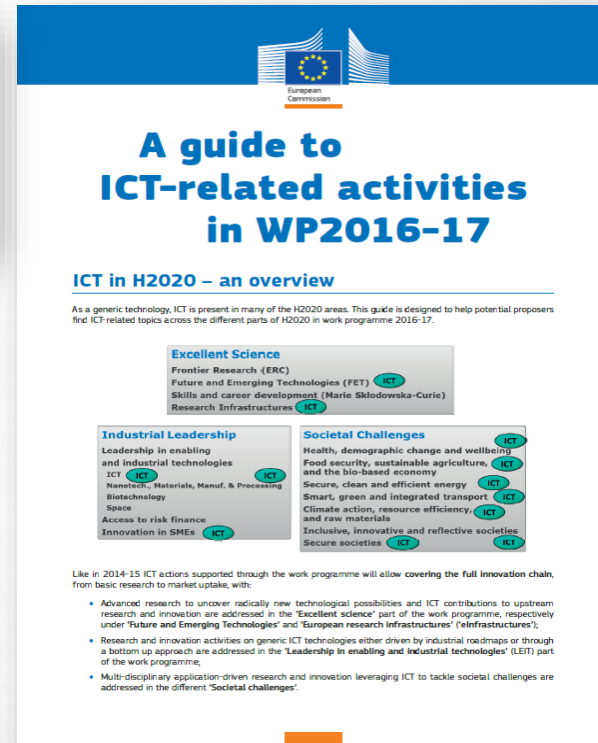
European Commission - Digital Single Market

<https://ec.europa.eu/digital-single-market>



H2020 Network of ICT
National Contact Points
(NCP)

www.ideal-ist.eu



<https://ec.europa.eu/programmes/horizon2020/sites/horizon2020/files/Guide%20to%20ICT-related%20activities%20in%20WP2016-17%20A4%20v8.pdf>

THE UNITED STATES LANDSCAPE AND EU PARTICIPATION

Main USA priorities on ICT R&I

Multi-agency Science and Technology Priorities FY 2017 Budget

- High performance computing
- Trustworthy Cyberspace/Cybersecurity
- Big Data
- Private protection for personal data

Policy Highlights

- *Cybersecurity R&D Strategy (2014)*
- *National Strategic Computing Initiative (2015)*
- *Big Data R&D Strategy (2016)*
- *Privacy R&D Strategy (2016, expected)*

NITRD Program Component Areas	Coverage and definition in EU Programmes
Cyber Security Information Assurance (CSIA)	Cybersecurity; IoT; Big Data
Enabling-R&D for High-Capability Computing Systems (EHCS)	High Performance Computing; Big data; FET; Human Brain Project
High-Capability Computing Systems Infrastructure and Applications (HCSIA)	High Performance Computing,
High Confidence Software and Systems (HCSS)	CPS; Standardization; IoT;
Human Computer Interaction and Information Management (HCI&IM)	Human Computer Interaction
Large-Scale Data Management and Analysis (LSDMA)	Big-Data
Large Scale Networking (LSN)	5G
Robotics and Intelligent Systems (RIS)	Robotics and Autonomous Systems
Software Design and Productivity (SDP)	Software Technologies
Social, Economic, and Workforce Implications of IT and IT Workforce Development (SEW)	Learning Technologies; Collective Awareness Platforms for Sustainability and Social Innovation (CAPS). Challenge-related research on different areas (health, public administration and governance, socio-economic studies).

Finding on US ICT R&I Funding Landscape

- Majority of ICT issues under PICASSO focus are funded under NITRD Program
- Different priorities (PCA) funded by different funding agencies
- Website *Grant.gov* as single entry point for grants (some agencies still publish opportunities also on their website).
- Challenges for us
 - Capturing with exhaustiveness such complex picture
 - Different requirements and eligibility criteria for each agency/call
 - We could not find a unique explicit policy on foreign participation / only call specific

NITRD Program Component Area	Involved Agencies and Departments
1. Cyber Security Information Assurance (CSIA)	NITRD Agencies: DARPA, DHS, DoD (CERDEC), DoD Service Research Organizations (AFOSR, AFRL, ARL, ARO, ONR) DOE/OE, NIH, NIJ, NIST, NSA, NSF, and OSD Other Participants: DOT, IARPA, NRC, ODNI, and Treasury
2. Enabling-R&D for High-Capability Computing Systems (EHCS)	NITRD Agencies: DARPA, DoD (HPCMP), DoD Service Research Organizations, DOE/NNSA, DOE/SC, EPA, NASA, NIH, NIST, NOAA, NSA, and NSF Other Participants: IARPA
3. High-Capability Computing Systems Infrastructure and Applications (HCSIA)	NITRD Agencies: DoD (HPCMP), DoD Service Research Organizations, DOE/SC, NASA, NIH, NIST, NOAA, NSF, and OSD
High Confidence Software and Systems (HCSS)	NITRD Agencies: DARPA, DHS, DoD Service Research Organizations, DOE, NASA, NIH, NIST, NOAA, NSA, NSF, and OSD Other Participants: DOT, FAA, FDA, FHWA, NRC, and USDA/NIFA
4. Human Computer Interaction and Information Management (HCI&IM)	NITRD Agencies: AHRQ, DHS, DoD Service Research Organizations, EPA, NARA, NIH, NIST, NASA, NOAA, and NSF
Large-Scale Data Management and Analysis (LSDMA)	NITRD Agencies: DARPA, DHS, DOE/NNSA, DOE/SC, EPA, NARA, NASA, NIH, NIST, NOAA, NSA, NSF, and OSD Other Participants: USAID and USGS
5. Large Scale Networking (LSN)	NITRD Agencies: DARPA, DoD (CERDEC, DREN), DoD Service Research Organizations (AFRL, AFOSR, ONR), DOE/SC, NASA, NIH, NIJ, NIST, NOAA, NSA, NSF, and OSD Other Participants: FAA, FCC, USDA/ARS, and USGS
6. Robotics and Intelligent Systems (RIS)	NITRD Agencies: DoD Service Research Organizations, NASA, NIH, NIJ, NIST, NSF, and OSD Other Participants: DOE/EM and USDA/NIFA
7. Software Design and Productivity (SDP)	NITRD Agencies: DHS, DoD Service Research Organizations (AFRL, ARL, NRL, ONR), DOE/NNSA, DOE/SC, NASA, NIH, NIST, NSF, and OSD Other Participants: BLS, ED, IARPA, and USDA
8. Social, Economic, and Workforce Implications of IT and IT Workforce Development (SEW)	NITRD Agencies: DHS, DoD Service Research Organizations (AFRL, ONR), DOE/SC, NASA, NIH, NIST, NOAA, NSA, NSF, and OSD Other Participants: BLS, FDA, and NRC

Findings on Foreign participation/funding possibilities

- No explicit/uniform approach to participation /funding of non-US individuals/organisations.
- H2020-NIH agreement.
- Grant.gov website:
“*Foreign Applicants.* The authorizing legislation and agency policies will determine whether a foreign individual or organization may apply for the grant.”

Open questions

- Any major missing information on existing opportunities?
- What do you expect from access opportunities in our specific topics for the future?
- Which topics shall receive more attention in your view?
- How could the implementation of mutual access be improved between EU and US?
- Questions?

Other available funding opportunities?

- Important scholarships, fellowships?
- Any remarkable private sources of funding?
- Fullbright (STEM part)?
- Other initiatives?

For contacts, information and input

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Results will be available on:

www.picasso-project.eu