

*Project Communication (Publication: June 2018)*

## Impact of PICASSO in the field of 5G networks

**The PICASSO 5G Expert Group established an expertise network and analysed opportunities and challenges of EU-US collaboration on 5G networks. Based on these analyses, the Expert Group identified seven technology themes and three strategic initiatives, which provides public and private organisations a solid foundation and knowledge base to take concrete actions on EU-US collaboration in the future.**

### What is the PICASSO project about?

The PICASSO project “ICT Policy, Research and Innovation for Smart Society: towards new avenues in EU-US ICT collaboration” is a 2-years project, from January 2016 to June 2018, funded under the European Union Horizon 2020 programme. The project brought together EU and US prominent specialists. Their aim was to reinforce EU-US ICT collaboration in **pre-competitive research about the key enabling technologies related to societal challenges of common interest** – 5G Networks, Big Data, Internet of Things and Cyber Physical Systems – and to support the **EU-US ICT policy dialogue**.

### Who are the 5G Experts?

In the PICASSO project period, the 5G Expert Group chair identified and invited several top experts in the 5G network area based on the scope of the 5G group. In total, 9 experts were assembled to the PICASSO 5G Expert Group and provided their insights and contributed their visions on EU-US collaborations in the field of 5G networks on a voluntary basis. Those experts are:

- Prof Gerhard Fettweis (Expert Group chair) – Vodafone Chair Professor, TU Dresden Germany, IEEE Fellow, member of acatech, coordinator 5GLab, Germany
- Mr Leif Johansson – BusDev Manager Northern Europe, European Leaduser Manager RF/Communication, National Instruments, Sweden
- Dr Deborah Crawford – Vice President of Research at George Mason University (GMU), US
- Dr Olav Queseth – Project Coordinator METIS I & II, Ericsson, Sweden
- Dr Amitabha Ghosh – Head, North America Radio Systems Research, Nokia, US
- Mr David Kennedy – Director, Project Coordinator EURO 5G and To-EURO 5G, Eurescom, Germany
- Prof Chengshan Xiao – Lehigh University / NSF, US
- Prof. Matti Latva-Aho – Professor, Head of Telecommunication Laboratory, Oulu University, Finland
- Dr. Meryem Simsek – Senior Scientist, ICSI/Berkeley, US

Expert Group manager: Dr. Yaning Zou – Research Manager, TU Dresden, Germany

### What are the impacts of their actions?

With contributions from the above-mentioned members of the 5G Expert Group as well as PICASSO project partners, the PICASSO 5G Expert Group creates the following impacts:

- **Establish an external stakeholder network for EU-US collaboration**

With the help of members of the PICASSO Expert Groups and through different PICASSO project activities, the 5G Expert Group has gradually established an external stakeholder network with many influential public and private external stakeholders from the EU and the US. This provides a solid foundation for continuing the exchange within a sustainable EU-US research community in the future:



- **Identify opportunities, challenges, major technology themes for EU-US collaboration**

As one important output of the PICASSO 5G Expert Group, the opportunity report thoroughly analysed major opportunities and challenges as well as identified four technology themes for EU-US collaboration:

- Connecting the last billions in unserved areas
  - ultra large terrestrial cells – technology
  - economical study on incentives by governments for rural connectivity
  - areal/satellite communications for broadband access in oceans
- Ad-hoc premises networks, e.g. for regional niche markets as farms
  - Technology development and standardization
- mmWave technology
  - at carrier frequencies beyond 100 GHz
  - mmWave deployment strategies
  - mmWave deployment strategies
- Spectrum farming & harmonization

Considering the major challenges faced in building a sustainable EU-US collaboration partnership, the PICASSO 5G Expert Group recommends to **focus on technologies that have niche markets yet will have strong societal impact.**

- **Identify potential strategic initiatives for the EU-US collaboration**

Based on analyses of opportunities and challenges, the PICASSO 5G Expert Group proposed two types of strategic initiatives for EU-US collaboration:

- US PAWR model & EC project model
- ERC model, each side funds it part

For the both types of initiatives, the PICASSO 5G Expert Group recommends to establish a joint evaluation panel to ensure constructive collaboration between EU and US sides.

- **Promote EU-US collaboration by improving mutual understanding and visibility**

Through versatile PICASSO project activities, e.g. public events, expert group meetings and email discussions, the PICASSO 5G Expert Group has reached a wide range of external stakeholders and discussed individually with different interest groups.

- **Impact beyond the PICASSO project**

It is expected that the knowledge obtained in the PICASSO project will be used as basis within a future EU-US collaboration project on advanced wireless and inspire the wireless research community on both sides of the Atlantic, to continue working together bringing benefits to the both EU and US societies.

**PICASSO Project Website:** [www.picasso-project.eu](http://www.picasso-project.eu)

**Twitter:** @picasso\_ict - **Linkedin:** PICASSO – EU/US ICT research

### About the PICASSO Project:

**PICASSO** is co-funded by the European Commission under the Horizon 2020 programme.

**Start Date:** 1<sup>st</sup> January 2016 - **Duration:** 30 months

**Project coordinator:** Svetlana Klessova, inno TSD, France: [s.klessova@inno-group.com](mailto:s.klessova@inno-group.com)

### PICASSO Consortium Members:

	<p><b>inno TSD, France</b> – one of Europe’s leading innovation management consultancy firms, specialised in helping major private and public stakeholders design and implement R&amp;D and innovation projects. <a href="https://www.inno-tds.fr/en">https://www.inno-tds.fr/en</a></p>
	<p><b>TECHNISCHE UNIVERSITÄT DORTMUND, Germany</b> – a leading German technically oriented research university with strong research groups in big data, communications, smart grids, e-mobility and cyber-physical systems... <a href="http://www.tu-dortmund.de">http://www.tu-dortmund.de</a></p>
	<p><b>THINK WIRELESS TECHNOLOGIES LIMITED, United Kingdom</b> - an ICT company founded in 2009 after more than a decade of research and development in wireless and energy harvesting technologies. <a href="http://www.think.com/">http://www.think.com/</a></p>
	<p><b>ATC SA, Greece</b> - an SME and Technology Centre in the field of ICT participating in 3 ICT European Technology Platforms: NESSI (Steering Committee member), NEM (member) and NETWORLD2020 (member), and founding member of European Big Data Value Association. <a href="http://www.atc.gr">http://www.atc.gr</a></p>
	<p><b>AGENZIA PER LA PROMOZIONE DELLA RICERCA EUROPEA, Italy</b> – a non-profit research organisation, grouping together more than 100 members, including public and private research centres, industries, industrial associations, chambers of commerce, science parks and more than 50 universities, with the main objective to promote the participation in national and European RTD programmes. <a href="http://www.apre.it/">http://www.apre.it/</a></p>
	<p><b>HONEYWELL INTERNATIONAL INC, United States</b> – a multinational company and global leader that invents and manufactures technologies to address some of the world’s toughest challenges initiated by revolutionary macrotrends in science, technology and society. The company’s products and solutions are focused on energy and the environment, safety and security, and efficiency and productivity. <a href="http://honeywell.com/">http://honeywell.com/</a></p>
	<p><b>GNKS CONSULT BV, Netherlands</b> - conducting strategic and policy research and evaluation, building on excellence in understanding of the impact of the emerging Global Networked Knowledge Society <a href="http://www.gnksconsult.com/">http://www.gnksconsult.com/</a></p>
	<p><b>TECHNISCHE UNIVERSITÄT DRESDEN, Germany</b> - a full-scale university with 14 faculties, covering a wide range of fields in science and engineering, humanities, social sciences and medicine. <a href="https://tu-dresden.de/">https://tu-dresden.de/</a></p>
	<p><b>FLORIDA INTERNATIONAL UNIVERSITY, United States</b> - The Miami-Florida Jean Monnet Center of Excellence, (MFJMCE), a member of the global network of EU-sponsored Jean Monnet centers, has the mission to promote teaching, research and outreach activities relating to the EU. <a href="http://www.fiu.edu/">http://www.fiu.edu/</a>; <a href="https://miamieuc.fiu.edu/">https://miamieuc.fiu.edu/</a></p>
	<p><b>UNIVERSITY OF MINNESOTA, United States</b> – The Technological Leadership Institute bridges the gap between business and engineering. TLI’s mission is to develop local and global leaders for technology enterprises. <a href="https://tli.umn.edu/">https://tli.umn.edu/</a></p>