PICASSO Project

Towards new avenues in EU-US ICT collaboration

Policy Briefing on Privacy and Data Protection

First Webinar of the PICASSO Policy Expert group

11 October 2016, 15:00 UTC

ICT Policy, Research and Innovation for a Smart Society

www.picasso-project.eu

PICASSO has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 687874.

Project in brief

> **Coordination and Support Action**, funded by the European Commission/DG CONNECT

> **Duration:** January 1, 2016 - June 30, 2018

> **Target groups:** industry, government and civil society actors involved with ICT research and innovation development and policy

> **Target regions:** European Union, United States of America

> **Key Message:** ICT research and innovation (R&I) collaboration between the EU and the US can help it to reflect socioeconomic and technological realities and to improve the contributions of ICT development and policy to enhancing economic growth and reconciling industrial needs with societal objectives.

PICASSO
EU-US ICT collaboration

PICASSO priorities at the heart of EU policy orientations

"On its Strategy to create a Digital Single Market and digitise European industry, the European Commission focuses on accelerate standard setting and related enabling technologies, such as 5G, cloud computing, internet of things, data technologies and cybersecurity."

Andrus Ansip , Vice-President EC for Digital Single Market
Günther Oettinger, Commissioner for Digital Economy and Society

PICASSO focusses on synergies between ICT *policies* and ICT *technologies* to:

> reinforce EU-US collaboration in pre-competitive ICT R&I in key enabling technologies with the greatest promise in meeting societal challenges: **5G Networks, Big Data and Internet of Things (or Cyber Physical Systems)**

> support EU-US ICT policy dialogue by creating a forum for discussion and contributing to policy debate regarding **privacy, security, internet governance, interoperability and ethics**.

PICASSO EU-US ICT collaboration

Expert Groups

Synergies between policy and technology groups

3 Technology Groups
Strategic ICT Technology areas linked to Societal Challenges

5G Networks

Big Data

IoT/CPS

1 Horizontal Group
On ICT Policy linked to key ICT technology areas

Policy issues:
Privacy and data protection | Security | Standards and Interoperability | Ethics …

+25 Experts in total across all groups

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Webinar on Privacy and Data Protection

1. Welcome and Purpose of the Call
2. Introduction to EU – US Privacy and Data Protection issues
3. Privacy and Data Protection R&I collaboration policy issues in:
    1. 5G
    2. Big Data
    3. IoT/CPS
4. Discussion of overarching issues and possible ways forward
5. Preliminary conclusions

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EU – US Privacy and Data protection Issues: fundamental approaches and developments

Dr. Jonathan Cave, GNKS Consult BV and University of Warwick

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Privacy and Data Protection are high on the agenda

- Prominent features on the Transatlantic Agenda and more visible to many with the take-down of *Safe Harbor*, replaced by *Privacy Shield* as of 1 August 2016
  - Compliance still self-certified
  - Enforcement (policy vs practice) remains with US DOC
  - EU annual review and EU citizens' power to sue USG
  - Is 'mass surveillance' (Schrems/Yahoo) issue resolved?
  - Art29 WP has suspended legal action for a year
- Touches upon many ways US companies engage with EU markets and collaborate with EU firms when personal data are involved
- Policies specifically affected include:
  - Trade policy
  - Surveillance and other bulk action
- Privacy and data protection are very different things

Basis for EU and US related legislation is different

- EU: Fundamental rights-based values (independent of any legal instrument but recognized in Lisbon Treaty and the Charter of Fundamental Rights);
  - General Data Protection Regulation into full force May 2018;
  - Protecting citizens from private sector actors.
- U.S.: economic right interpretation deriving explicitly from a Constitutional base;
  - Case law building on Constitution including 4th Amendment protection against “unreasonable search and seizure” by government; 14th Amendment “due process” clause;
  - Stronger protection of specific data e.g. health (HIPAA), finance (FTC), etc.
  - Emphasizes economic value of (personal) data

Supporting principles for ICT innovation and development

- Transparency: people must (be able to) understand how their environment affects data protection and privacy.
- Accountability: Rules and norms cannot be enforced if lines of accountability are unclear, since it is not possible to know whom to call to account, on whom to impose liability and to whom to delegate authority or the power to act.
- Context: consumers, citizens and others whose choices determine market outcomes should not be surprised or misled … requires interoperability, security, standards, etc.
  - Joint taxonomy of privacy, security and safety sensitivities
  - Technical standardisation processes built on clear ethical principles, using informed consent where appropriate and feasible and taking ethical considerations into account

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Preliminary conclusions

- Consider human element from the outset when developing and deploying solutions:
  - Privacy and interoperability of systems are opposite sides of the same invaluable coin: important for industry to explicitly consider the human element from the outset when developing industrial solutions;
- Awareness raising is important
  - Those with important decisions to make and those most exposed to the consequences too often only have limited insight into what is happening on the ground.
- Need for a taxonomy of sensitivities
  - Potential privacy impact of different applications and how they are used varies greatly, from “trivial” to huge, and from positive to negative..

What does this mean for ICT collaboration in development and deployment of 5G; Big Data; and IoT/CPS?

What can we do, as stakeholders, to make collaboration easier and more attractive?

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5G: key developments and relation with Privacy and Data Protection

Dr. Gerhard Fettweis

Chairman of PICASSO 5G Networks Expert Group

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The Wireless Roadmap

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Via Della Conciliazione

2005/4/4

Source: http://www.spiegel.de/panorama/bild-889031-473266.html

2013/3/12

Source: http://www.spiegel.de/panorama/bild-889031-473242.html

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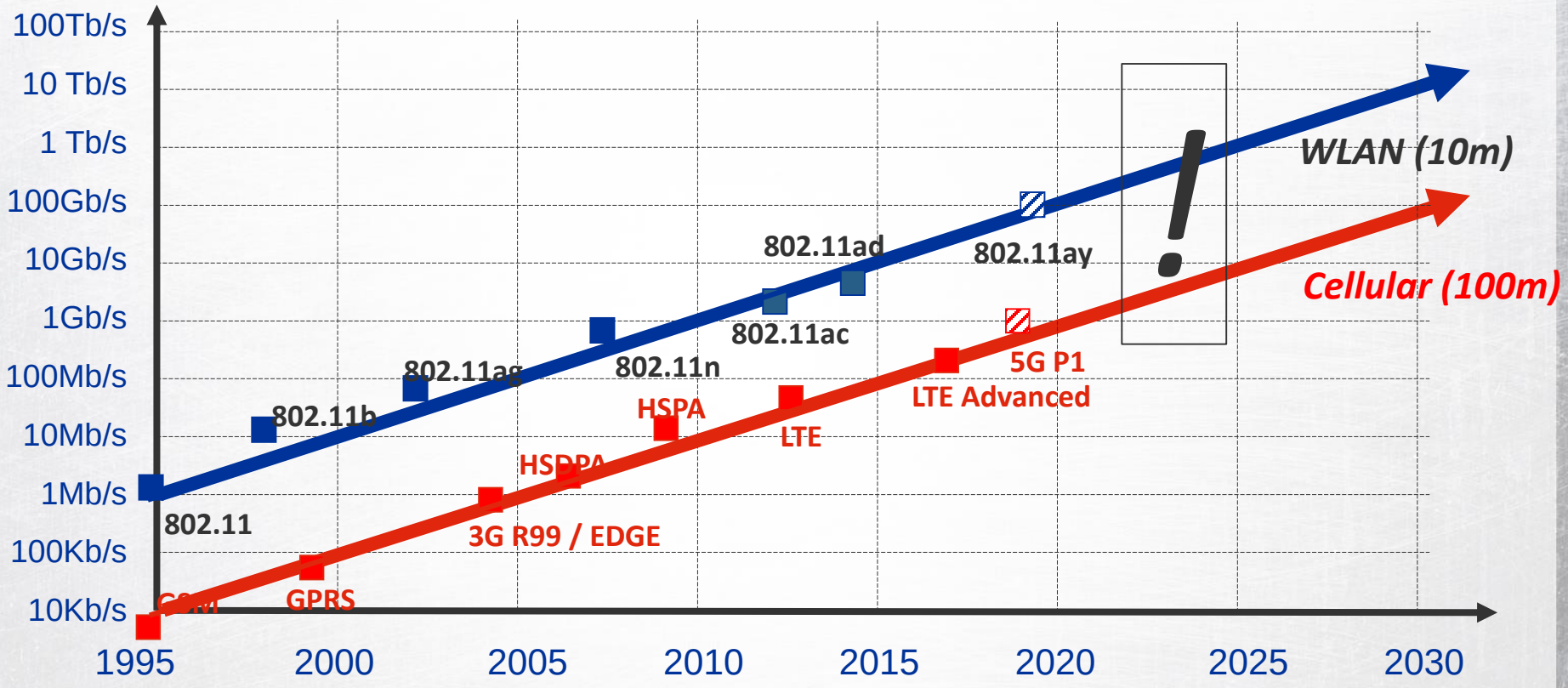
The Wireless Roadmap >2020 Outlook



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Thingbook

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The Three New Huge Wide Area Network Opportunities

5G LAB GERMANY

Monitoring & Sensing
> 10B units / year

Switching & Sensing
~100B units / year

Tracking & Tagging
~1T units / year

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Tactile Internet

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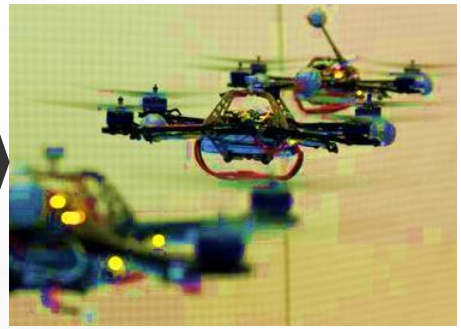
Revolution Ahead: The Tactile Internet



5G:

Ubiquitous

Steering & Control
Communications

Health & Care
Traffic & Mobility
Sports & Gym
Edutainment
Manufacturing
Smart Grid
…

≤ 4G:

Ubiquitous

Content
Communications

IoT

Internet of Things

…

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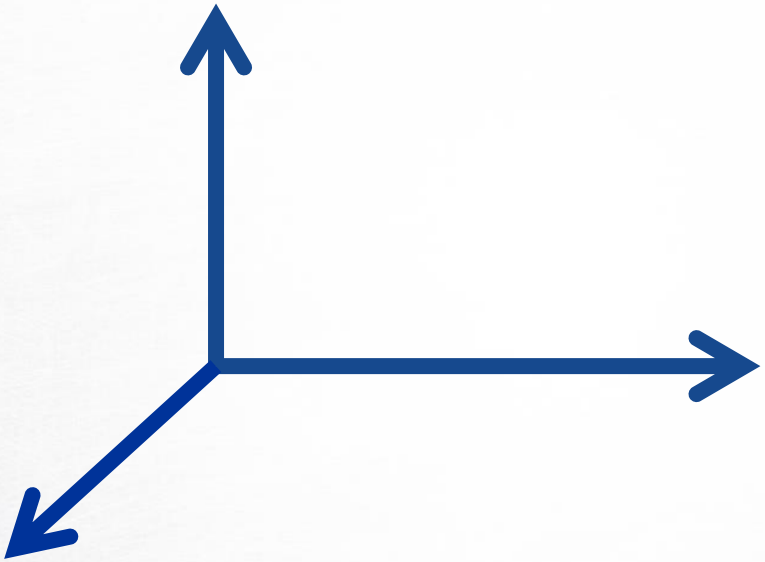
A 5G Hyperplane

Speed: >10 Gb/s ➔ Tb/s

Massive Content



Massive Sensing

1b/s over 10 years
off an AAA battery

Tactile Internet:
Massive Remotes

Response: 1-10 ms

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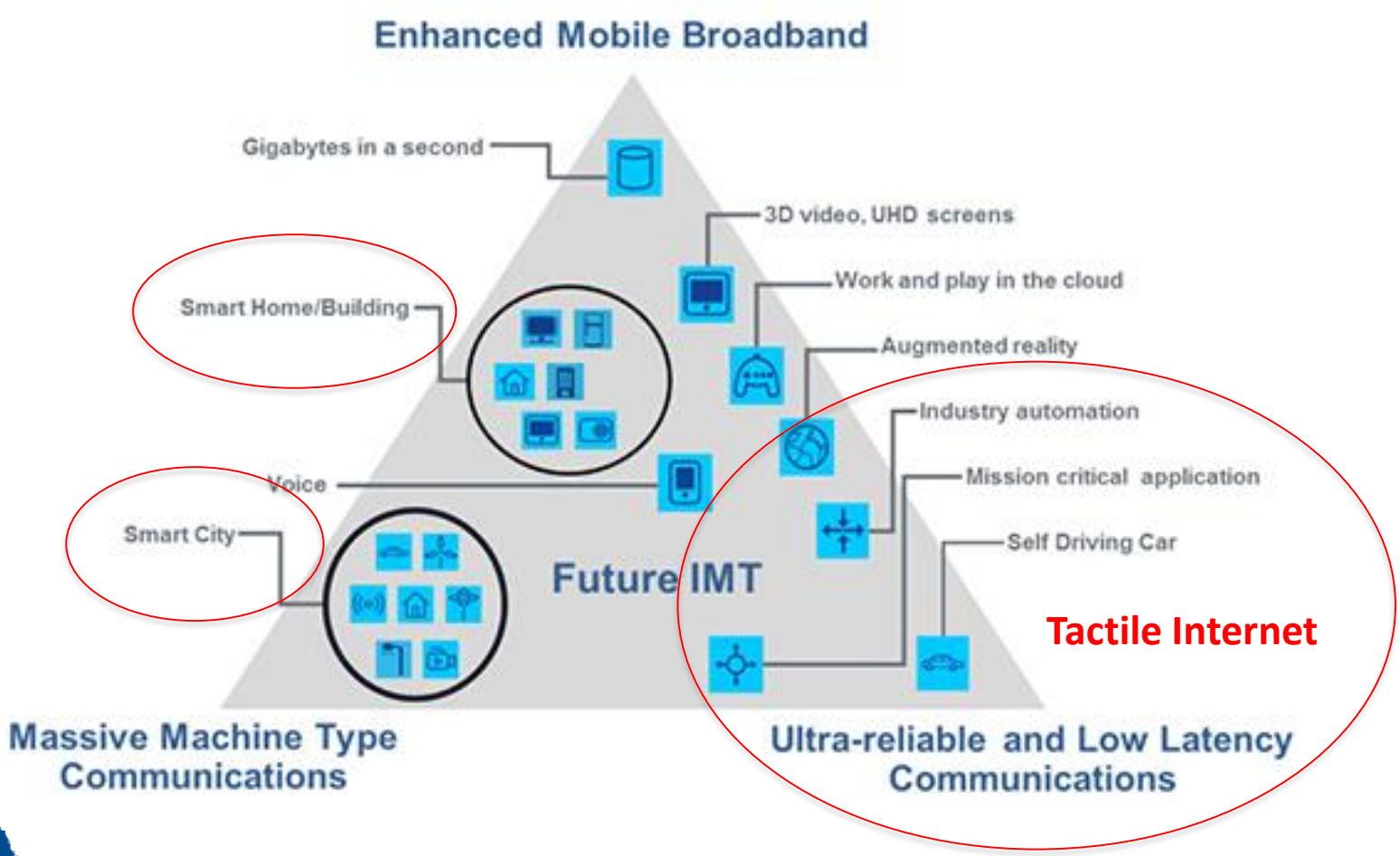
About 5G

Application Fields



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- # devices connected ➔ trillions
- # objects controlled ➔ billions
- Bandwidth availability ➔ see and sense everything

- Mission critical
- Non-mission critical but essential !

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Big Data: key developments and relation with Privacy and Data Protection

Dr. Nikos Sarris

Chairman of PICASSO Big Data Expert Group

ICT Policy, Research and Innovation for a Smart Society

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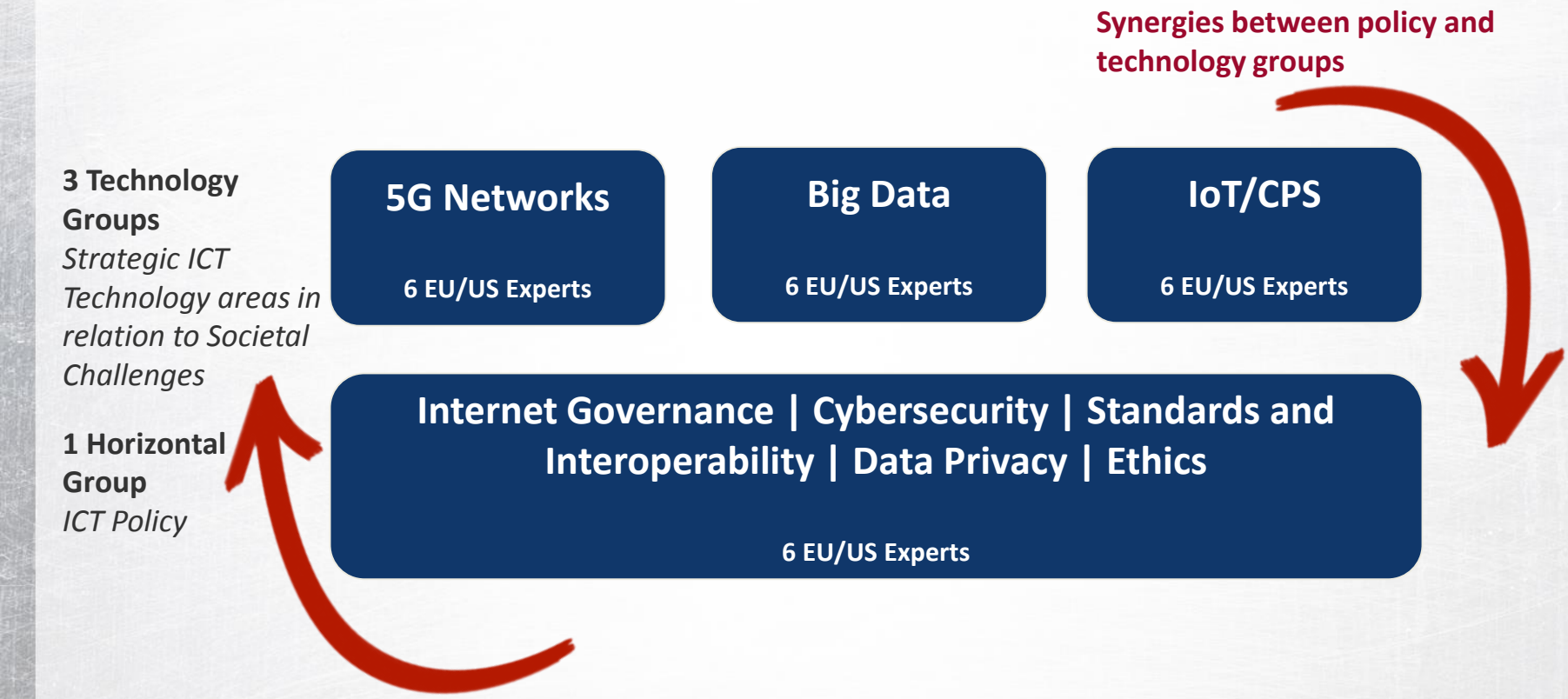
Expert Groups



Technology Expert Group on Big Data

Objective:

- Charting a high level status of the Big Data sector in Europe, the US and worldwide
- Charting of the greatest opportunities for collaboration between EU and US utilizing the most competitive strengths of each side
- Outlining a list of the most competitive achievements, challenges and opportunities
- In what way do privacy and data protection affect EU-US collaboration? Barriers and opportunities.
- What other EU and/or US policy issues have an important impact on EU-US collaboration? Barriers and opportunities.

Nikos Sarris - ATC, Greece

> Head of the ATC Innovation Lab
> Member of the Big Data Value Association
> Member of the Steering Committee of the NESSI ETP

Privacy and Data Protection in Big Data

Key considerations:

- A dataset is considered ‘Big’ when one or more of its attributes in the much discussed ’V’s (Volume, Variety, Velocity, Value, Veracity, etc) exceeds the usual expectations
- Obviously, this ‘Bigness’ in any of these attributes maximises the issues in Privacy and Data protection.

Datasets of huge:

- Volume (e.g. directory of all inhabitants of a country)
- Velocity (e.g. all mobile calls around the universe)
- Value (e.g. financial transactions in a whole country)
- Variety (e.g. combined datasets of all the previous even in a small town)
- Veracity (e.g. trustworthiness of what each individual says is happening around the world)

All pose substantial threat when the privacy of individuals and protection of data are not ensured

- The flip side of this coin is that extreme protection of privacy and data hinder the operation of applications which could (or could not) be used for the common good –

  Lets pick the Veracity attribute to illustrate an example of this in Social Media…

Privacy and Data Protection in Big Data – an example

An unidentified user posts on Twitter information about a criminal act taking place at a specific place and attaches a photo

Case 1:

- A system monitoring all traffic on Twitter in Real Time identifies this information as ‘interesting’
- An algorithm scans all information about this source from Twitter correlating also other sources and discovers the identity of the person and the position of the criminal act
- More algorithms are executed to determine that this is trustworthy information
- Law enforcement is contacted after seconds and since this is found to be a real person at a real position a team is deployed and the incident is dealt with

Such algorithms however are violating data protection and privacy directives.

If such algorithms were not allowed to operate on this data the incident would not have been dealt with by the Law Enforcement Team, with unforeseen consequences.

Privacy and Data Protection in Big Data – an example

An unidentified user posts on Twitter information about a criminal act taking place at a specific place and attaches a photo

Case 2:

- A system monitoring all traffic on Twitter in Real Time identifies this information as ‘interesting’
- An algorithm scans all information about this source from Twitter correlating also other sources and discovers the identity of the person and the position of the criminal act
- More algorithms are executed to determine that this is trustworthy information
- The identity of this person is discovered and leaked through the press. The safety of this person is compromised, with unforeseen consequences.

Such algorithms however are violating data protection and privacy directives.

If such algorithms were not allowed to operate on this data the person would have remained safe behind the hidden identity. However, the incident would not have been dealt with.

Privacy and Data Protection in Big Data – an example

Some conclusions:

- There will always be ‘good’ and ‘bad’ things hiding behind data
- There will always be ’good’ and ‘bad’ ways in dealing with this data
- Policies need to be the middle layer operating with great intelligence to allow the ’good’ and prevent the ‘bad’
- Easy?
  - Definitely not
- Possible?
  - Remains to be seen

Contacts

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PICASSO – EU/US ICT research, innovation and policy collaboration

IoT/CPS: key developments and relation with Privacy and Data Protection

Dr. Tariq Samad

Co-Chair of PICASSO Big Data Expert Group

ICT Policy, Research and Innovation for a Smart Society

www.picasso-project.eu

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IoT/CPS in PICASSO

- IoT/CPS is a broad area . . . PICASSO is not covering the entire space
- Specific topics of interest:
  - Large-scale systems, especially systems of systems
  - Industrial and closed-loop applications
  - Connection with “physics” is crucial—including safety-critical applications
- Many applications will be business-to-business
  - Privacy and data protection for businesses as well as workers
  - Pure consumer-facing “apps” of less interest
- Many forums for policy discussions in IoT, but few (if any) focused on the PICASSO scope

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Data Protection and Privacy for IoT/CPS—Some Issues

- If data integrity is compromised the impact can be well beyond effects on individuals' information
  - Public safety and security
  - Environmental safety
- Problems can manifest anywhere in the IoT/CPS data chain: sensor → communications → cloud → analytics → actuation
  - Data ownership and control may pass through multiple actors
  - Correlation and concurrence of information at an entity
- Policies for data protection and privacy can have favorable or unfavorable effects on society and industry
  - Behavioral methods to nudge individuals into collective actions
  - Personal and non-personal data

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Opportunities for Analysis and Guidance

- Further articulate issues of complex system governance and how they relate to privacy and data protection
  - For example, scenarios where laxity or severity of policies could lead to adverse or beneficial consequences (not necessarily respectively!)
- Protections for citizens as individuals and citizens as employees/workers
  - Is there and should there be a difference?
- Contrast between rules-based and principles-based regimes
- Many purported benefits of “smart society” technologies are contingent on data sharing
  - When should “opting out” be permitted if there is a potential for negative societal impact?
- Differences between EU and US policies and regulations
  - Is harmonization feasible or even desirable?
  - Off-shoring and trans-Atlantic data sharing

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An Opportunity for Further Discussion and Progress. . .

Trans-Atlantic Symposium on Technology and Policy for a Smart Society

Minneapolis, Minnesota, U.S.A.
June 19-20, 2017

Announcement and Call for Sessions
www.picasso-project.eu/symposium

Introduction and Scope

New developments in information and communication technologies (ICT) are global game-changers. At the vanguard of the revolution are innovations such as the 5G networks, big data, and the Internet of Things (IoT) / cyber-physical systems (CPS). This symposium, sponsored by EU and US organizations, will cover the spectrum from research assessments to commercialization opportunities to policy issues in these technologies, with particular focus on impacts for a smart society and related industry sectors. Over 100 attendees are expected.

The scope of the symposium includes the following topics:

- The landscape of relevant ICT projects and programs in the US and EU
- Project and activity highlights and recommended avenues for collaboration in 5G networks, big data, and IoT/CPS
- Applications to "smart societies," especially smart cities, smart energy, smart manufacturing, smart transportation, and other highly automated/autonomous systems
- Facilitating academia-industry collaboration, technology transfer, commercialization, and global impact across industries and society
- Policy aspects of ICT – including privacy, security, standardization, and spectrum – facilitating better collaboration across the Atlantic.

Who should attend?

This first-of-its-kind event will be of interest to the following in particular:

- ICT R&D leaders in industry, academia, and government seeking to understand the current status of technologies and research priorities
- Entrepreneurs and managers seeking to match technologies with customer needs in smart-society sectors, nationally and globally
- Policy makers seeking informed dialog on how we can make global progress on harmonized approaches to ICT-related policy issues
- Government representatives seeking to identify new international collaboration and program opportunities
- Engineers and scientists seeking information on upcoming funding opportunities for collaborative research and development
- And all those interested in enhancing their international networks for future collaborations!

Organizing Committee

Chair: *Tariq Samad*, Univ. of Minnesota, US
tsamad@umn.edu

Co-chair: *Svetlana Klessova*, Inno TSD, France
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Margot Bezzi, APRE, Italy

Eva Fodil, Inno TSD, France

Topic leads

5G Networks:

Gerhard Fettweis, Tech. Univ. Dresden, Germany

Amitava Ghosh, Nokia, US

Big Data:

Nikos Sarris, Athens Technology Center, Greece

David Belanger, Stevens Institute of Technology, US

IoT/CPS:

Sebastian Engell, Tech. Univ. Dortmund, Germany

Tariq Samad, Univ. of Minnesota, US

Policy:

Maarten Botterman, GNKS Consult, The Netherlands

David Farber, Carnegie Mellon Univ., US

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Haydn Thompson, 1HHINK Wireless Technologies, U.K.

(list in process)

TECHNOLOGICAL LEADERSHIP INSTITUTE

PICASSO

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Trans-Atlantic Symposium on Technology and Policy for a Smart Society

Minneapolis, Minnesota, U.S.A.
June 19-20, 2017

Announcement and Call for Sessions
www.picasso-project.eu/symposium

Symposium Structure and Output

The symposium will comprise a combination of plenary sessions and parallel tracks and sessions. Opening and closing plenary sessions will set the stage and capture outcomes, respectively. Additional plenary sessions with keynote addresses and discussions will also be held. We expect 3-5 parallel activities during the remainder of the program.

Attendance at the symposium will be at minimal or no cost to participants. Breakfasts, lunches, and refreshments during both days will be covered.

Symposium organizers and selected other participants will prepare a summary report after the symposium, to be delivered mid-September, 2017. This report will include recommendations and action plans. The target audience will include leaders in industry, academia, and government agencies.

How can you participate?

We invite groups and individuals to organize sessions and tracks related to the scope of the symposium. These can be used, for example, to showcase achievements of the participating groups, to further scientific, policy, and business priorities, and to discuss opportunities for collaboration.

- Symposium sessions can consist of presentations and/or panel discussions and can be one or two hours in duration.
- Symposium tracks can be organized for half-day or longer durations and can include multiple (sequential) sessions.

The symposium organizers are available to discuss ideas. Interested groups can contact the symposium chair and co-chair directly.

Organizer and Host

PICASSO

Symposium Organizer: PICASSO project

The symposium is organized by the PICASSO project, funded by the European Commission. PICASSO brings together prominent EU and US specialists. Key project objectives are reinforcing EU-US ICT collaboration in pre-competitive research in key enabling technologies related to societal challenges of common interest—5G Networks, Big Data, Internet of Things and Cyber Physical Systems—and supporting EU-US ICT policy dialogue.

For more information on PICASSO, visit http://www.picasso-project.eu/.

TECHNOLOGICAL LEADERSHIP INSTITUTE

Host: Technological Leadership Institute

The symposium will be hosted by the Technological Leadership Institute (TLI) at the University of Minnesota. TLI is an interdisciplinary center developing local and global leaders for technology-intensive enterprises. TLI's Management of Technology program is the oldest such program in the US. Visit http://www.tli.umn.edu for more information.

The symposium venue is the university's Twin Cities campus in Minneapolis/St. Paul. The Twin Cities are the hub of a major metropolitan area known for its vibrant economy and quality of life.

PICASSO EU-US ICT collaboration

http://www.picasso-project.eu/2016/06/10/may-2017-picasso-trans-atlantic-symposium/

Consortium

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Technische Universitat Dortmind (TUDO), Germany

THHINK Wireless Technologies Limited (THHINK), United Kingdom

Athens Technology Center (ATC), Greece

Agency for the Promotion of the European Research (APRE), Italy

Honeywell International INC (HON), United States

GNKS Consult BV, (GNKS), The Netherlands

Technische Universitaet Dresden (TUD), Germany

Florida International University, (FIU), United States

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More on Picasso

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