The way towards an AI PPP and its horizontal partnerships

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A joint initiative by

BDV - BIG DATA VALUE ASSOCIATION
euROBOTICS
The journey...

MoU Signed December 2018

Joint AI Vision Paper March 2019

Joint AI SRIA May 2019

European Commission Communication on AI December 2018 & April 2019

6th June

Public Event Brussels

18th September

Joint AI SRIA Sep 2019

AI PPP Application

20/10/2019
Adoption challenges = Collaboration

- Skills and Know-How
- Research Landscape
- Complex Technological Barriers
- Access to AI/Data Infrastructure
- EU public-private investment environment
- Societal Trust in AI
- Digital Single Market
- AI Policy and Regulation
- Complexity of AI in Industry and Public domain
- Standards
- Testing

Horizontal cooperation with other technical PPPs

AI Research communities and initiatives
Horizontal Partners

- EuroHPC
- ETP 4 HPC
- 5G IA
- NESSI
- EPoSS
- ECSO
- ARTEMIS
- emva
- EurAI
- Aeneas
- AI4EU
- CLAIRE
- Humane AI
  Human-Centered Artificial Intelligence
Horizontal Partnerships Impact on all Work Areas

WA1: Mobilising the European Ecosystem
- Join Forces
- Research Communities
- Horizontal Partnerships
- Vertical Partnerships
- European Initiatives

WA2: Skills & Acceptance
- Build a strong AI Skill Pipeline
- Understand requirements
- Promote career path
- Engage with Citizens
- Promote Diversity

WA3: Innovation & Market Enablers
- Stimulate industrial investments
- Aligning with end users
- Monitor Innovation
- Promote experimentation
- Connect to infrastructure
- Connect to finance

WA4: Guiding Standards & Regulation
- Build trust in AI and create a level market
- Promote standards
- Engage with regulators
- Promote sandboxes
- Promote guidelines
- Communicate with policymakers

WA5: Promoting Research Excellence
- Boost Academia-Industry collaborations
- Jointly Implement the SRIDA
- Promote Collaboration
- Promote Excellence
- Align Industry & Research

Join Forces
- Research Communities
- Horizontal Partnerships
- Vertical Partnerships
- European Initiatives
Our panelists

- **Michael Malms** / ETP4HPC (Editor in Chief of SRA ETP4HP)
- **Natalie Samovich** / AIOTI (Chair of the AIOTI Steering Board)
- **Reinhard Lafrenz** / EuRobotics, (Secretary General euRobotics AISBL)
- **Thomas Hahn** / BDVA (President of BDVA)
- **Alexey Kirichenko** / ECSO (Co-chair of the ECSO SWG6.1)
- **Alexandros Kaloyxlos** / Smart networks & 5G (5G IA’s Executive Director)
- **Jan Lohstroh** / ECSEL (Secretary General of the Artemis IA (Artemis IA is one of the 3 industry association who are member of ECSEL))
AI as a key enabler for B5G networks

Application Areas
- Smart mobility
- Industry 4.0
- eHealth
- Smart cities
- Media
- Education

AI for policy and control functions, network management (smart connectivity), AI as a service

Enhanced networking & computing solutions, Artificial Intelligence, High Performance Distributed Computing, Cyber Security

5G IA & NetWorld 2020 work together for a proposed Smart Networks and Services partnership.
The European Cyber Security Organisation (ECSO) is the European Commission’s partner in implementing the contractual public-private partnership (cPPP) on cybersecurity, established in 2016, an independent voice of the European cybersecurity stakeholder community.

High goal: to protect (in a sustainable way) our nations, industries / economies, citizens and institutions from damaging cyber-attacks while respecting our European Values.

Cybersecurity view at AI: (i) an enabler to anticipate, detect and counter threats; (ii) systems to be protected from attacks; (iii) a potential cyber weapon.

Expertise needs to be shared to ensure relevance of requirements and optimal choice of approaches.
..the 3 questions for the panel…

- Why is AI important to your organization?
  
  ➢ “HPC in a digital continuum”: simulation & modelling from centre to edge
    
    Complex workflows with Machine Learning*:
    
    ▪ in the application for enhanced scientific discovery
    ▪ in the IT infrastructure to improve performance (e.g. scheduling, opt. use of memory hierarchy, etc)
    ▪ at the edge to manage data volumes
  
- Why is the cooperation with other horizontal communities of importance?
  
  ➢ HPC is (ONLY) ONE element in the workflow loop
    
    ▪ Tomorrow’s problem solution need concerted effort & expertise (digital twins, aut. vehicles, etc)
  
- What is the expected value of cooperation?
  
  ➢ “Complete” solutions through synchronized work programmes & pooling skills
  ➢ Increased effectiveness of R&I in Europe, tangible results, commercial exploitation

* David Keyes: “Leveraging the continuum”, speech at HPC and Big Data session, BDVA-Forum 2019
There are many associations and funding programmes with quite some overlap.

Topics like Cyber-Physical Systems, Embedded Intelligence, IoT, AI, Big Data, etc. are not to be seen as isolated orthogonal topics, but as different, inter-related viewing angles on the complex systems that we are building today and tomorrow.

Fragmented funding comes from:
- EU (H2020/HEU): partitioning of subjects? How to manage complexity? cPPPs and iPPPs?
- EU and EU member States (tri-partite funding in iPPP (ECSEL-JU)) for transnational projects
- Eureka member States for transnational projects
- National funding schemes for national projects

Associations should cooperate to complement their SRA’s (are there forgotten areas for Europe?)
- The Lighthouse Initiatives as started in ECSEL are a good start to cross-connect key projects and SRA’s in specific application and technology areas.
THE PERSPECTIVE OF AIOTI:
IoT as a significant cross-sector technology, driving developments forward that require interoperable environments and platforms

- 5G Internet of Things/Industrial Internet of Things (IoT/IIoT)
- Edge computing and Artificial Intelligence (AI) including at the edge
- Cloud infrastructures
AIOTI MOONSHOT MISSIONS

- Digital transformation
- IoT enabled data & services marketplaces
- IoT for climate neutrality
- Sustainable and resilient IoT
IOT enabled MARKETPLACES

TOWARDS IOT MARKETPLACES

STAGE 1
IoT Infrastructuralisation

STAGE 2
Data generation and integration of other internal data sources

STAGE 3
Analytics and the demand for external data

STAGE 4
Cross-leverage: buy, sell and provide data and services leading towards marketplaces participation

TECHNOLOGY

IoT platforms

Data lake, open data, integration platform as a service (Ipaas), edge computing

Application proliferation: dashboards, automation, AI, predictive maintenance

IoT-enabled data marketplaces, blockchain, DLT, cross-domain services within data driven economy

CHALLENGES

Investment, prioritisation, new business models

Interoperability, new business models, internal processes and skills, trust and privacy

Organisation transformation, ecosystem based value chains

Societal challenges, new ecosystem based value chains, new modes of operation

AI to create value: Holistic view needed!

Maintenance and Inspection
Huge demand in public and private: Energy, Transport, (process) industry, ...

Value creation
Use of (semi-)autonomous technology, partly in hazardous or remote locations
Addressing lack of M&I in many infrastructures

Impact
Safety, environmental, and economical

Collaboration with different stakeholders across Europe

Openness and inclusiveness to bring European knowledge together

Joint strategy leveraging European strengths and unique selling points to be developed

Focused approach to be fast with high impact
euRobotics - Embodied AI

Example:
Maintenance and Inspection robotics
Huge demand in public and private: Energy, Transport, (process) industry, ...

Image Source: Aeroarms project
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**Join Forces**
Thank you!

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