Joining Forces to Boost AI Adoption in Europe

Artificial Intelligence: Horizon Europe & Beyond

2 July 2019 - Budapest – Hungary

Nuria de Lama, European Programs Manager, Atos
Board of Directors BDVA

A joint initiative by

BDV BIG DATA VALUE ASSOCIATION

eu ROBOTICS

Agenda

Vision and Process

Market Opportunities

The SRIDA: Strategic Research, Innovation & Deployment Agenda

"**Artificial intelligence will transform** many if not all branches of economic activity, …. The application of **AI will be key** to be able to turn personal health…"

Henk van Houten,

Chief Operating Officer, Chief Technology Officer, Philips

"**Robotics and Artificial Intelligence are key** enablers for offering solutions to many of our societal challenges, from demographic changes to sustainable production and healthy living…."

Peter Mohnen, CEO KUKA AG

Europe cannot miss the possibility to be disruptive in the development and adoption of leading Artificial Intelligence solutions … to be adopted inside and outside Europe."

Orazio Viele, CTO Engineering Ingegneria Informatica S.p.A.

""Artificial intelligence will shift the balance of power in the shortest possible time. … **Europe can and must be the pacemaker(s) for Industrial AI** …. in Europe the domain knowledge is available and **we have a powerful network** between SMEs, big companies, research institutes and government. …."

Dr. Roland Busch

Chief Operating Officer, Chief Technology Officer and member of the Managing Board of Siemens AG

""**Artificial intelligence will be an enabler for innovation and a core driver of productivity** and economic growth, enabling the "intelligent enterprise" through human-machine collaboration, and enabling humans to focus on higher-quality work. …**AI developments must respect European values** and legal standards in order to gain broad social acceptance on which the success of AI in Europe depends. ."

Dr. Juergen Mueller

Chief Technical Officer, Lead of the Technology and Innovation division and member of the Executive Board of SAP SE

"…. AI PPP that seeks to increase **value-creating collaboration between advanced research, universities and industry** *is of great importance for the development of the AI- and AI-based industry in Europe.."*

Professor Morton Irgens

CLAIRE , Vice Rector, Oslo Metropolitan University

"…. The challenge is for industry to harness that power. The **AI PPP will help achieve bringing together expertise in sensors and robotics, and realities of regulation and the need partnerships.** *….*

Professor Andrew Blake

Former Laboratory Director of Microsoft Research Cambridge and former Director of Alan Turing Institute and member of ELLIS

"…. An AI Public-Private Partnership would provide an important mechanism for **bringing key stakeholders from the research and industry communities together.** *…. We very much welcome an opportunity to collaborate with euRobotics and the BDVA in bringing many key capabilities within the European eco-system together to address the opportunities and challenges presented by AI."*

Professor Barry O`Sullivan

President of the European AI Association

Levers for achievement

- 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
- Facing and solving the AI challenges together!

*The Vision is to **boost** European industrial competitiveness and lead the world in developing and deploying value-driven trustworthy AI based on European fundamental rights, principles and values.*

The last six months…

MoU Signed
December
2018

Joint AI Vision
Paper
March 2019

European Commission
Communication on AI
December 2018
& April 2019

Joint AI SRIA
May 2019

Topic Groups

6th
June

Public Event
Brussels

Acknowledgements

Partnership Coordination Group

Chairs: Thomas Hahn (BDVA President) and Bernd Liepert (euRobotics President)

From euRobotics: David Bisset (Executive Director euRobotics), Renaud Champion (Primnext), Reinhard Lafrenz (Secretary General euRobotics), and Alessandro Saffiotti (Örebro University, Sweden)

From BDVA: Edward Curry (Insight), Laure Le Bars (SAP), Milan Petkovic (Philips), and Ana García Robles (Secretary General BDVA)

Contributors

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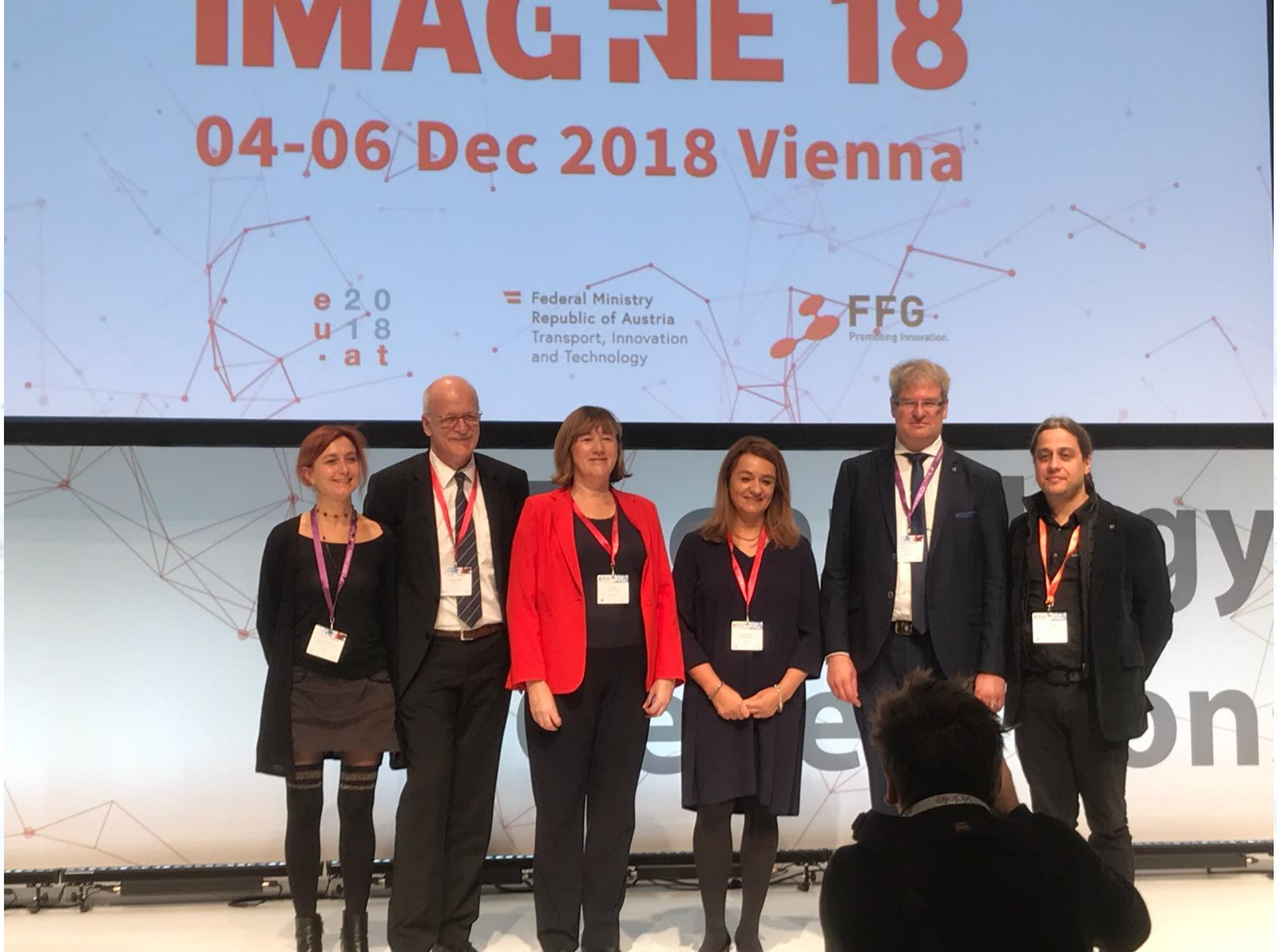
Members of the Board of Directors of BDVA (http://bdva.eu/board-members) and euRobotics (https://www.eu-robotics.net/eurobotics/about/board-of-directors)

Workshops

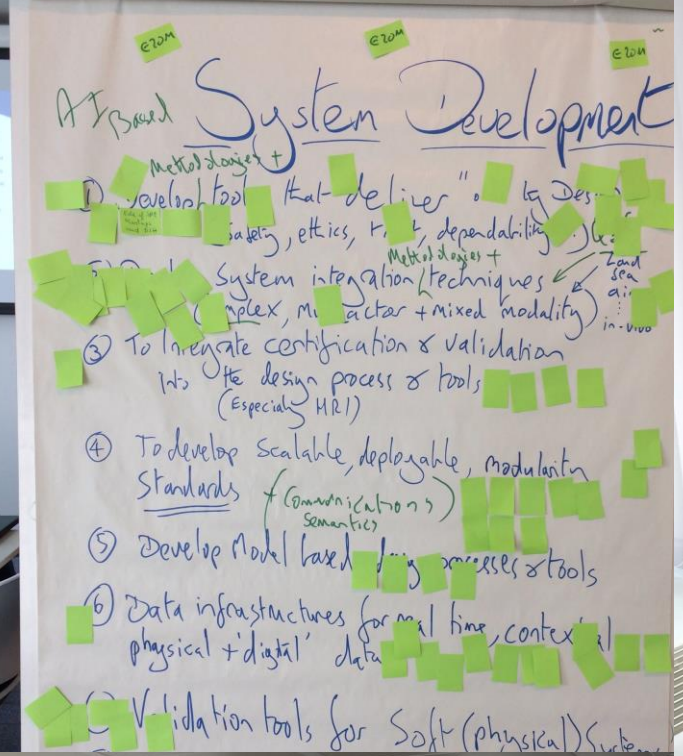
We are very grateful to the 200+ participants at the 6 workshops by BDVA and euRobotics held in Feb-May 2019:

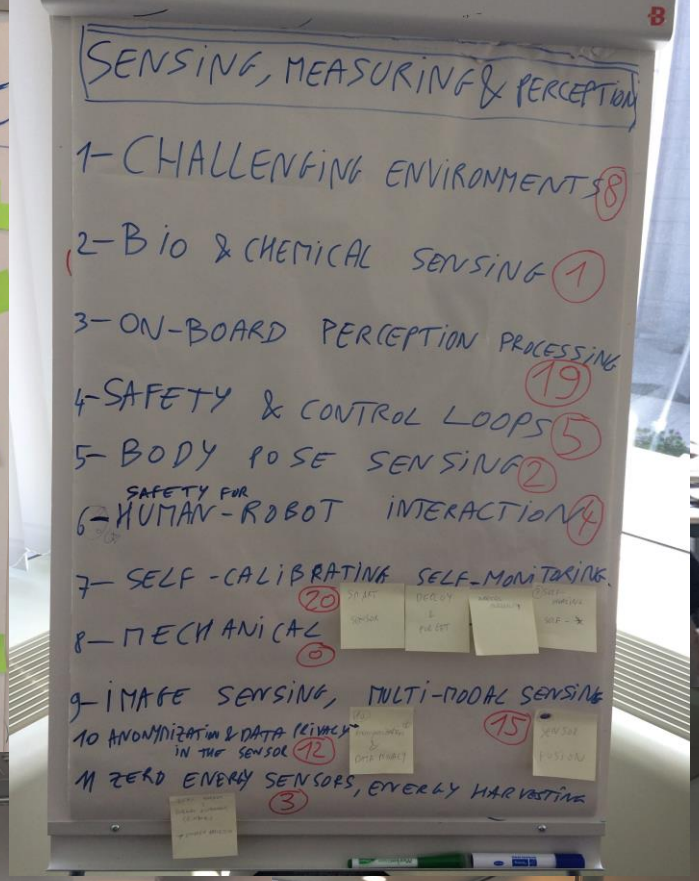
- BDVA workshop on February 27th (BDVA members and BDV PPP projects)
- Joint workshop on March 20th in Bucharest (public at ERF2019)
- euRobotics workshop on April 11th in Brussels (with BDVA participation)
- BDVA workshop on April 30th in Brussels (with euRobotics participation)
- euRobotics workshop on May 8th in Brussels (with BDVA participation)
- BDVA workshop on May 16th in Brussels (with euRobotics participation)

We are also very grateful with all additional contributions from members of the BDVA Task Forces and euRobotics Topic Groups.

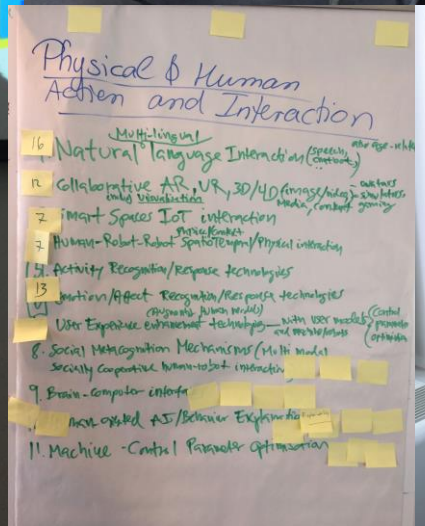

IMAGINE 18
04-06 Dec 2018 Vienna
e2018.at
Federal Ministry
Republic of Austria
Transport, Innovation
and Technology
FFG
Promoting Innovation.

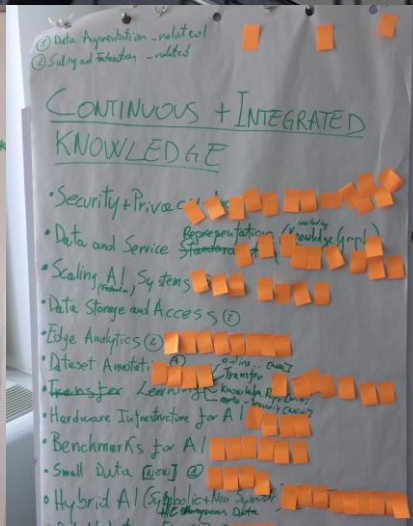

JW MARRIOTT


AI Based System Development
To develop scalable, deployable, modularity Standards
To integrate certification & validation into the design process & tools (Especially HRI)
Validation tools for Soft (physical)


SENSING, MEASURING & PERCEPTION
1- CHALLENGING ENVIRONMENTS 8
2- Bio & CHEMICAL SENSING 1
3- ON-BOARD PERCEPTION PROCESSING 19
4- SAFETY & CONTROL LOOPS 5
5- BODY POSE SENSING 2
6- HUMAN-ROBOT INTERACTION 4
7- SELF-CALIBRATING SELF-MONITORING 20
8- MECHANICAL 0
9- IMAGE SENSING, MULTI-MODAL SENSING 15
10 ANONYMIZATION & DATA PRIVACY IN THE SENSOR 12
11 ZERO ENERGY SENSORS, ENERGY HARVESTING 3


AI Value Chain


Physical & Human Action and Interaction
16 Natural Language Interactions
12 Collaborative AR, VR, 3D/4D
7 Smart Spaces IoT interaction
7 Human-Robot-Robot
13 Activity Recognition/Response technologies
8. Social Metacognition Mechanisms
9. Brain-Computer interfaces
11. Machine-Control Parameter optimization


CONTINUOUS + INTEGRATED KNOWLEDGE
Security + Privacy
Data and Service Standards
Scaling AI Systems
Data Storage and Access
Edge Analytics
Dataset Annotation
Transfer Learning
Hardware Infrastructure for AI
Benchmarks for AI
Small Data
Hybrid AI

AI Market Opportunities

Improved Healthcare Services

Solution

Transition to new care models, e.g. value-based healthcare

Value

- Personalised diagnosis
- New opportunities for intervention
- Improved surgery
- Better clinical decision making

Improved Energy Efficiency

More than 200 GB of sensor data from ≈ 7.800 wind parks

Use of Reinforcement Learning

Early detection of divergent behavior

Value

Approx. **1-3% increase of annual energy harvest**

Source: Common research project ALICE with Siemens, IdaLab GmbH, TU Berlin

Improved Availability of Trains

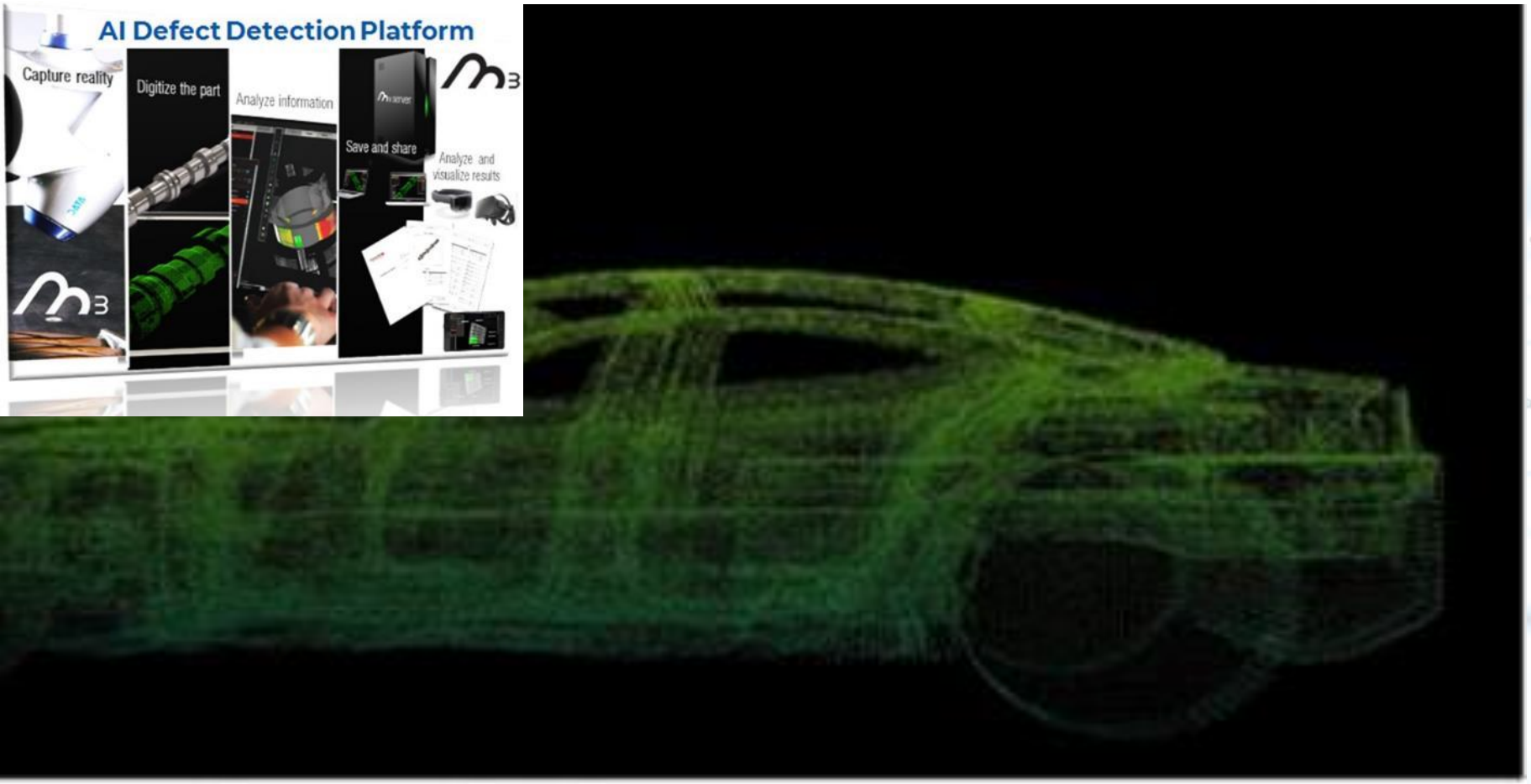
Solution

Analytics on sensor data of critical components for predictive maintenance

Value

- **On-time rate of 99.9%**
- Due to high reliability **60% passengers switched from aircraft to train**

Increase Productivity in the Digital Factory



Solution

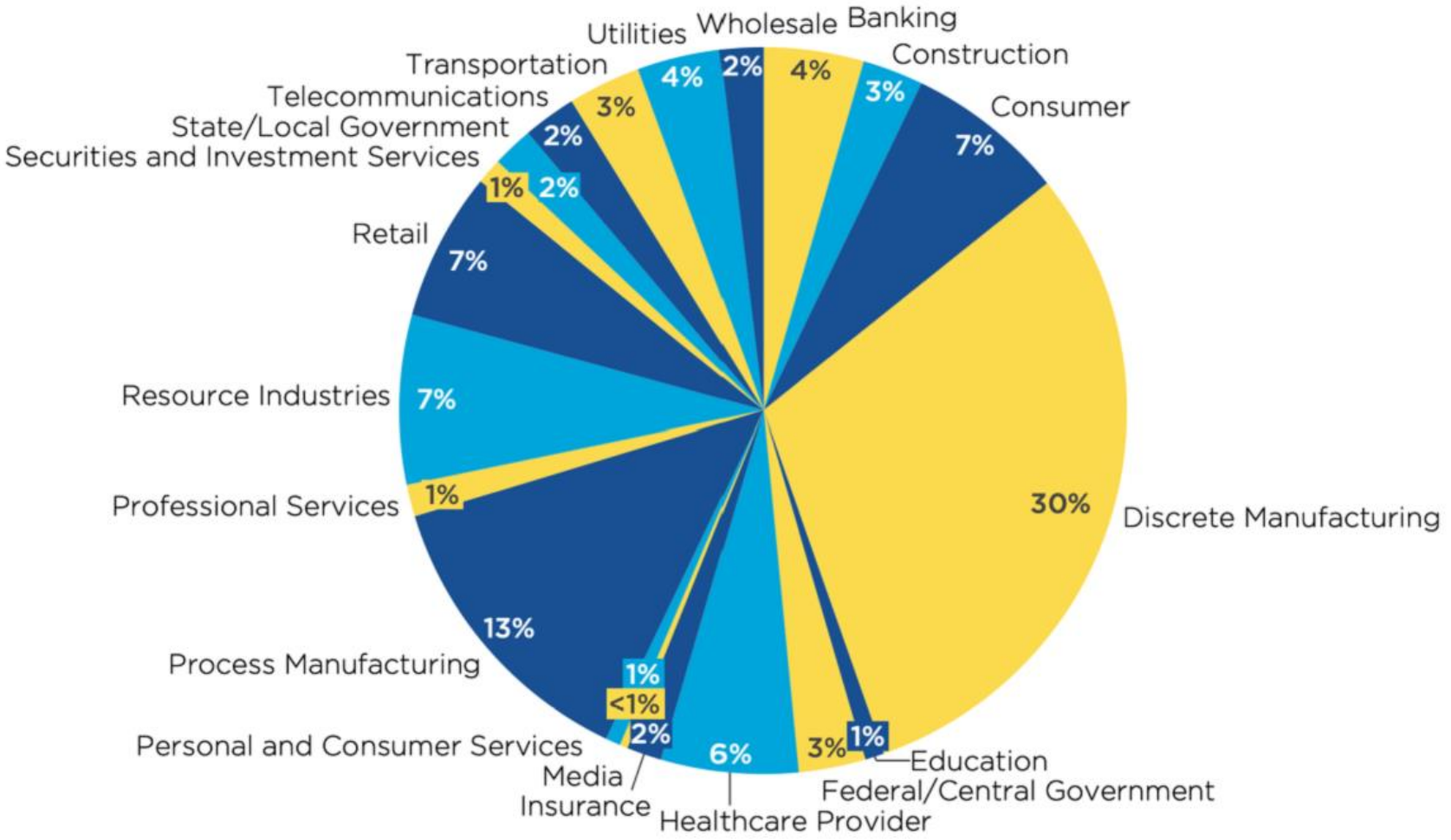
Reduced Failure Rate in Digital Factory by predictive defect detection in the stamping process (End of Line); based on 3D high density data set from simulation

Value

- 50% less quality control time
- Less product rejection
- Faster defect detection

Boost 4.0
BIG DATA FOR FACTORIES

AI Opportunities exist across sectors



S R A D

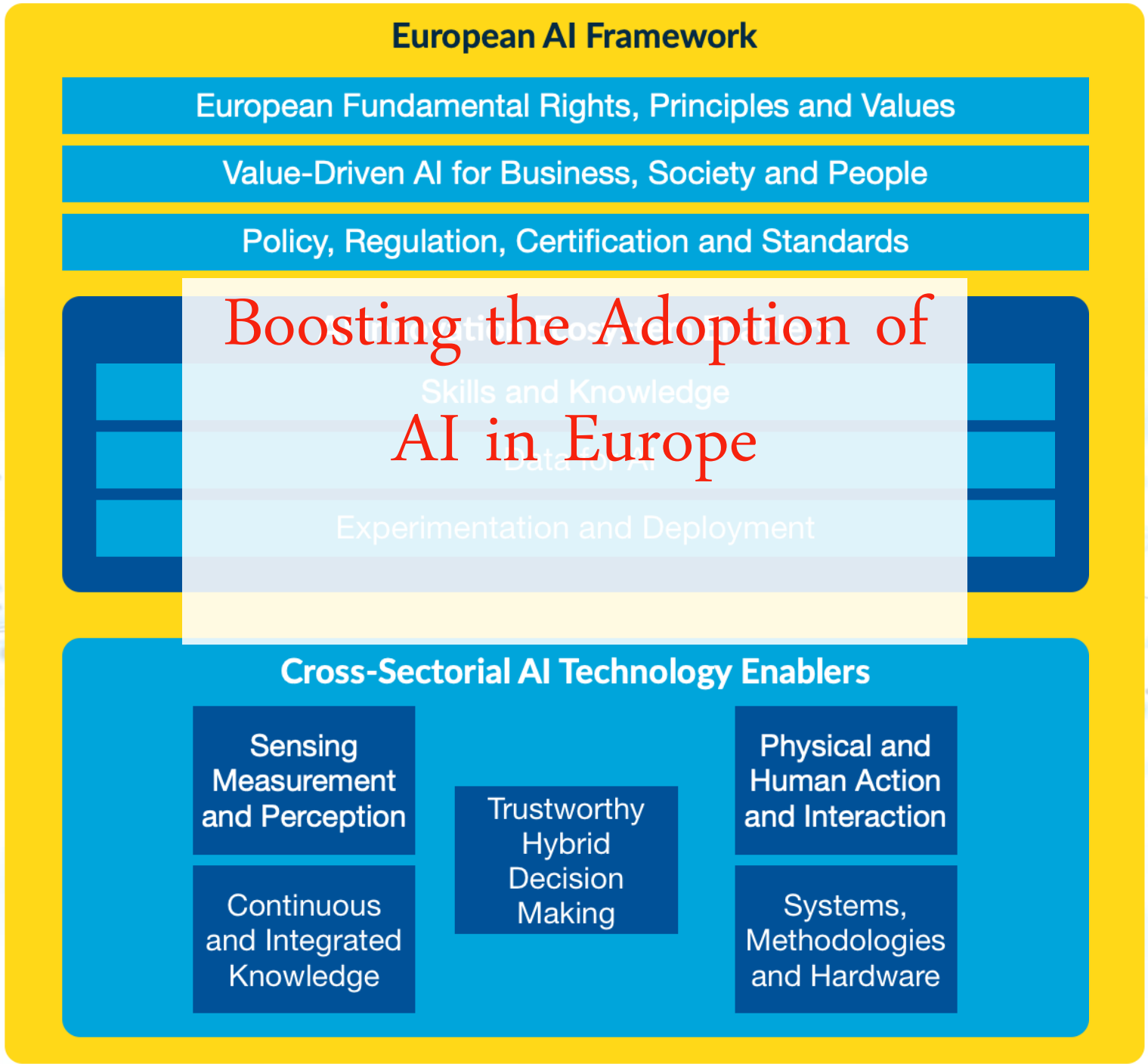
Strategic

Research

Agenda

Innovation

Deployment



Boosting the Adoption of AI in Europe

Adoption Challenges

EU private investment environment

Skills and Know-How

Societal Trust in AI:

Research Landscape

Digital Single Market

Complex Technological Barriers

AI Policy and Regulation

Access to AI Infrastructure

Complexity of AI in Industry and Public domain:

Adoption Challenges

EU private investment environment

Skills and Know-How

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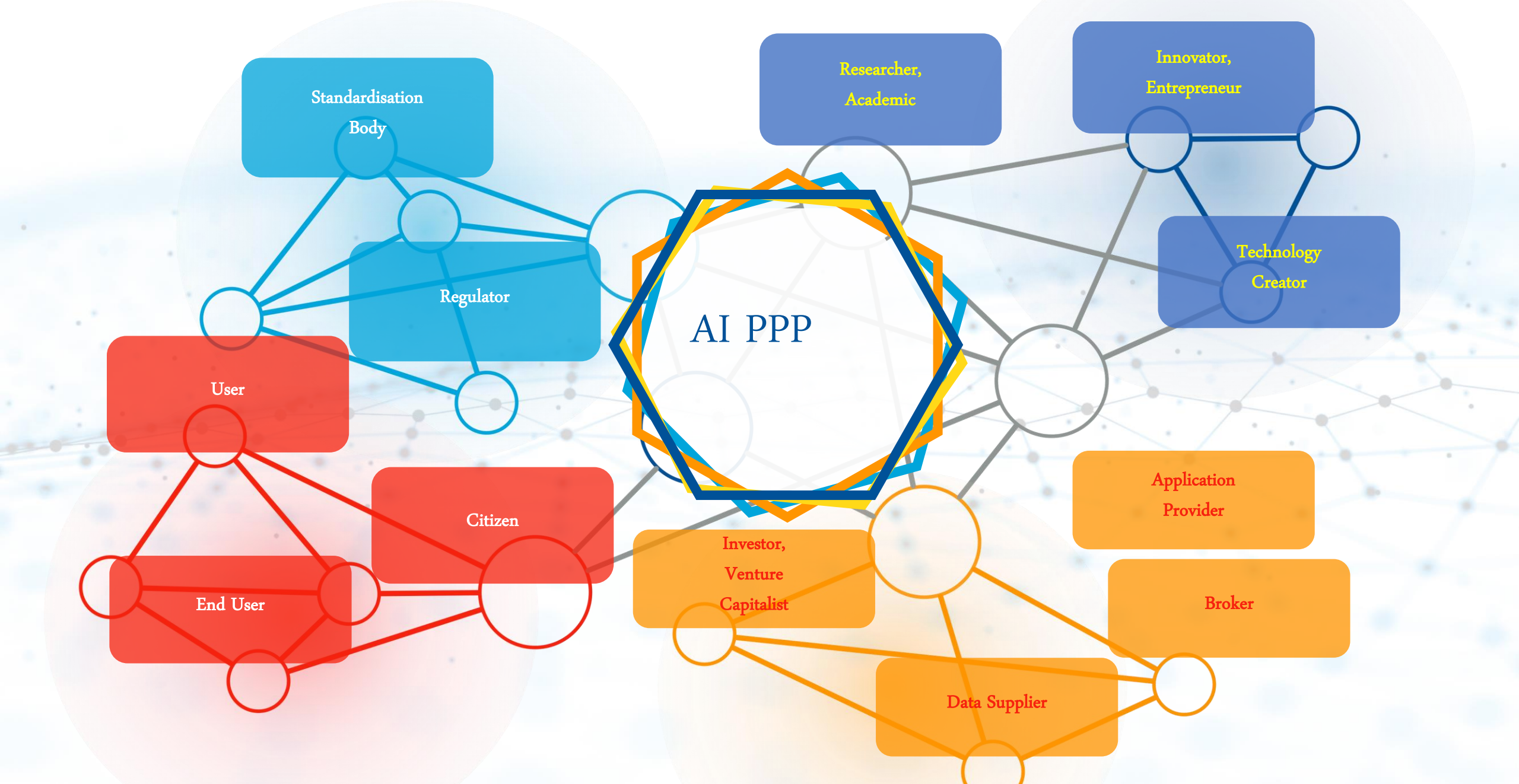
Access to AI Infrastructure

Complexity of AI in Industry and Public domain:

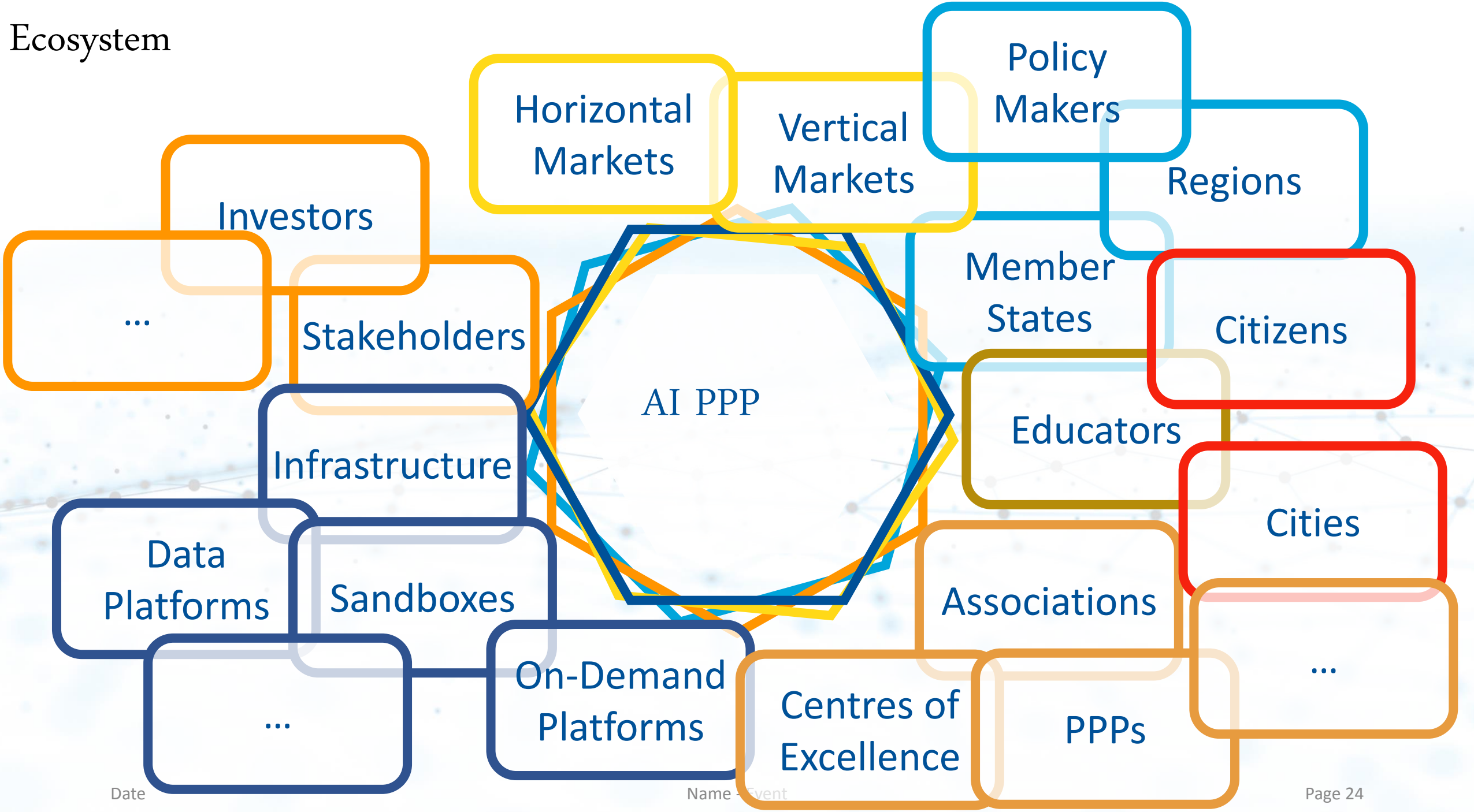
Overcoming these challenges requires collective action from all stakeholders working together in an effective AI Innovation Ecosystem

Stimulated by the AI PPP

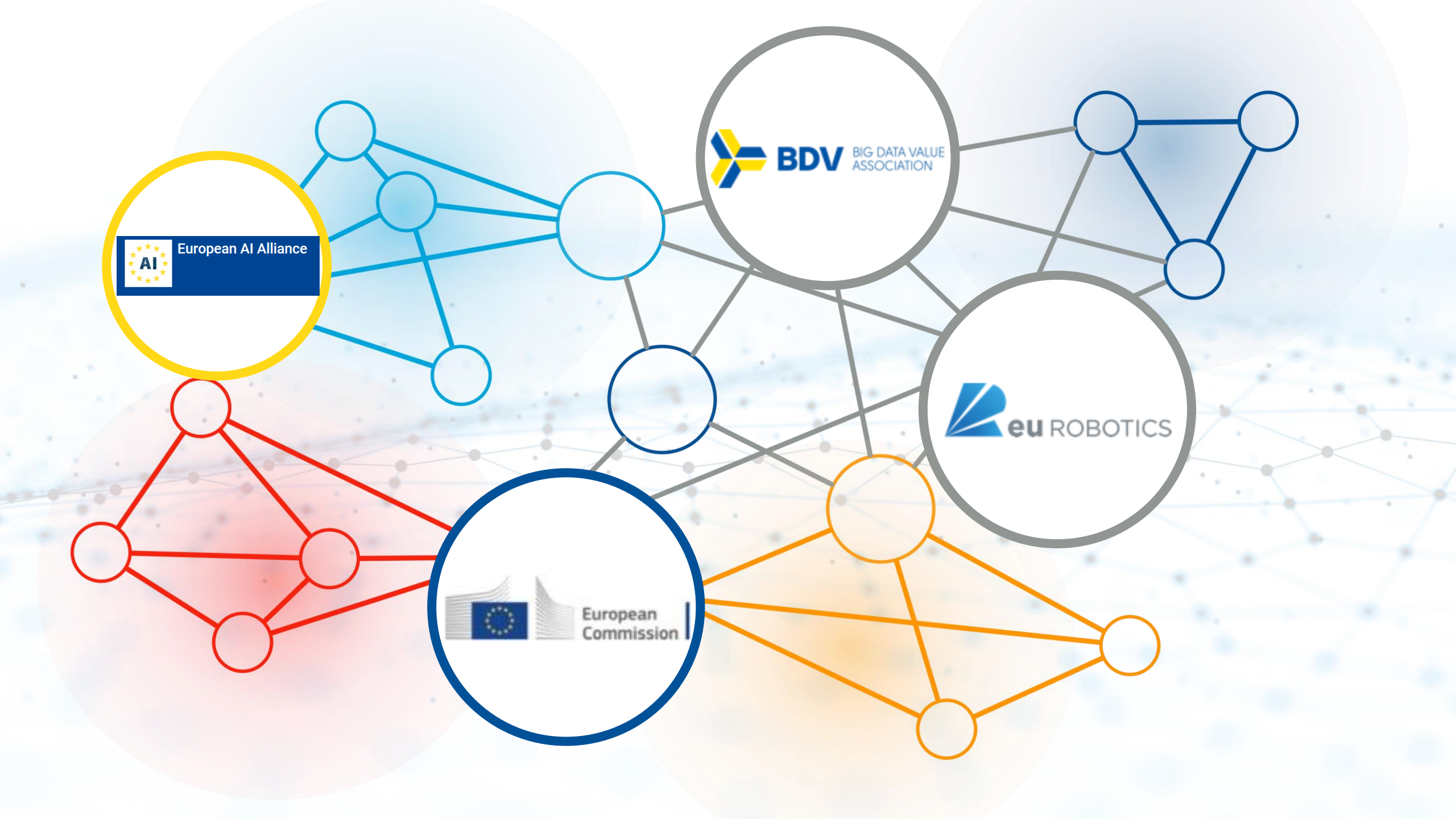
Stakeholders



Ecosystem


Horizontal Markets
Vertical Markets
Policy Makers
Regions
Investors
...
Stakeholders
Member States
Citizens
AI PPP
Infrastructure
Educators
Cities
Data Platforms
Sandboxes
Associations
...
On-Demand Platforms
Centres of Excellence
PPPs


Join Forces
WA1: Mobilising the European AI Ecosystem
Research Communities
Horizontal Partnerships
Vertical Partnerships
Regional, National & European Initiatives
Boost Academia-Industry collaborations
WA5: Promoting Research Excellence
Jointly Implement the SRIDA
Promote Collaboration
Promote Excellence
Align Industry & Research
AI PPP
Open and Inclusive
Build a strong AI Skill Pipeline
WA2: Skills & Acceptance
Understand requirement
Promote career path
Engage with Citizens
Promote Diversity
Build trust in AI and create a level market
WA4: Guiding Standards & Regulation
Promote standards
Engage with regulators
Promote sandboxes
Promote guidelines
Communicate with policymakers
Stimulate industrial investments
WA3: Innovation & Market Enablers
Aligning with end users Monitor Innovation
Promote experimentation
Connect to infrastructure
Connect to finance


AI
European AI Alliance
BDV
BIG DATA VALUE ASSOCIATION
eu ROBOTICS
European Commission

Implementing the AI PPP

- Get Involved in the Open Consultation
- Objective: bring together stakeholders from the European AI Innovation Ecosystem to achieve consensus on the way forward

- Get in contact with us by
  - Join in our events
  - Engage the Associations
  - Send us an email

    joining-forces@ai-ppp.eu

Stay tuned and have your say

Download the SRIDA:

http://www.bdva.eu/downloads

https://www.eu-robotics.net/eurobotics/about/downloads

Contact:

joining-forces@ai-ppp.eu

www.eu-robotics.net **www.bdva.eu**

BDV BIG DATA VALUE ASSOCIATION

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EUROPEAN
BIG DATA VALUE FORUM
14-16 OCT, 2019 - HELSINKI

- European Big Data Value Forum (EBDVF) is the main annual event for BDVA and central for the European AI & Big Data communities
- We expect 600+ participants and 50 exhibitors
- Top keynotes: Director General Roberto Viola, EC, Chair of Board Risto Siilasmaa, Nokia, Executive VP Norbert Gaus, Siemens
- 90+ speakers in 20+ sessions
- Registration and sponsoring at http://ebdvf.eu

Thank you!

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