Data Sharing Spaces for Manufacturing in 2025: opportunities and challenges

BDVA

Smart Manufacturing Industry group

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DEI Stakeholder Forum, Madrid 15 Nov 2019

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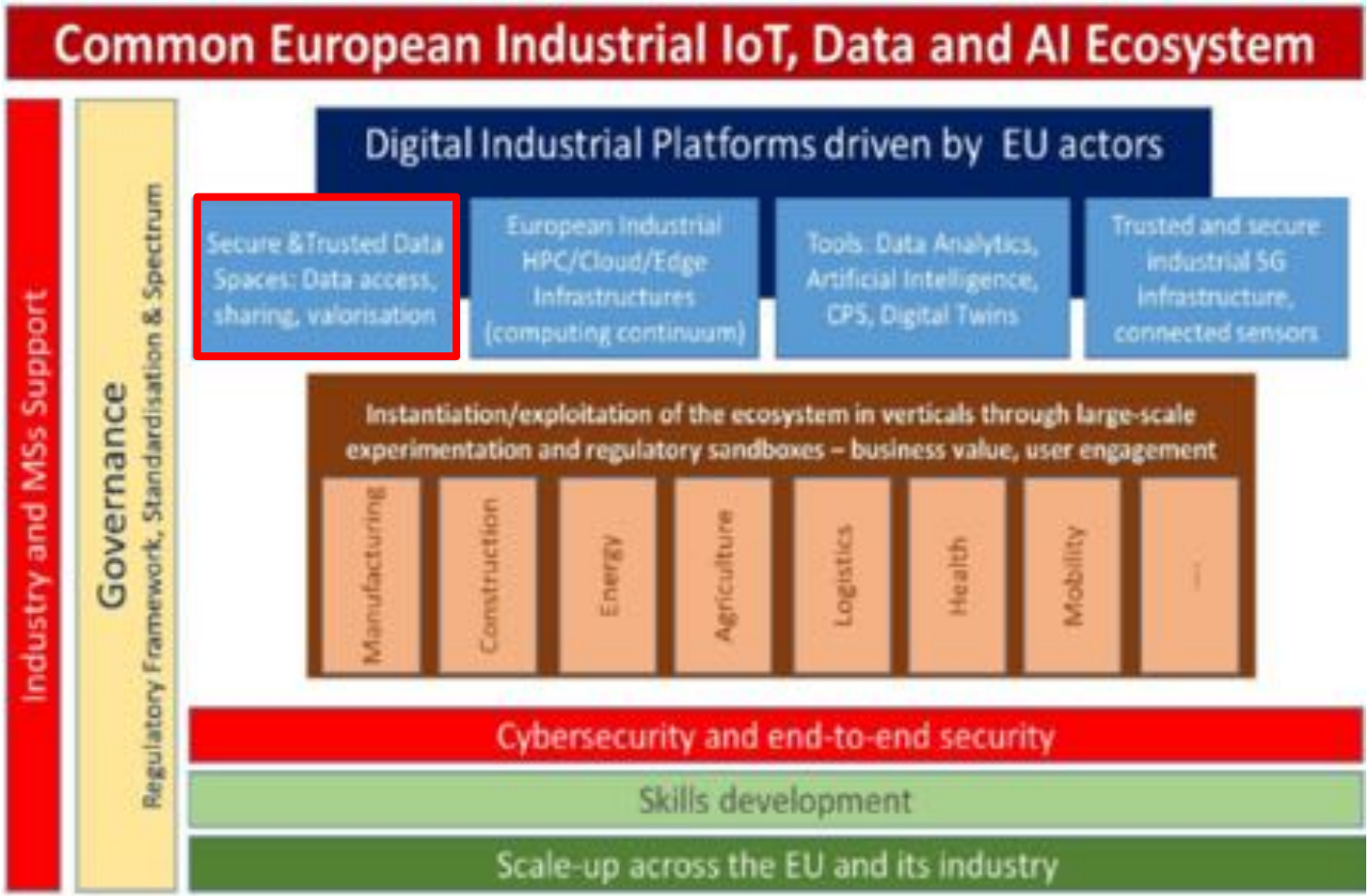
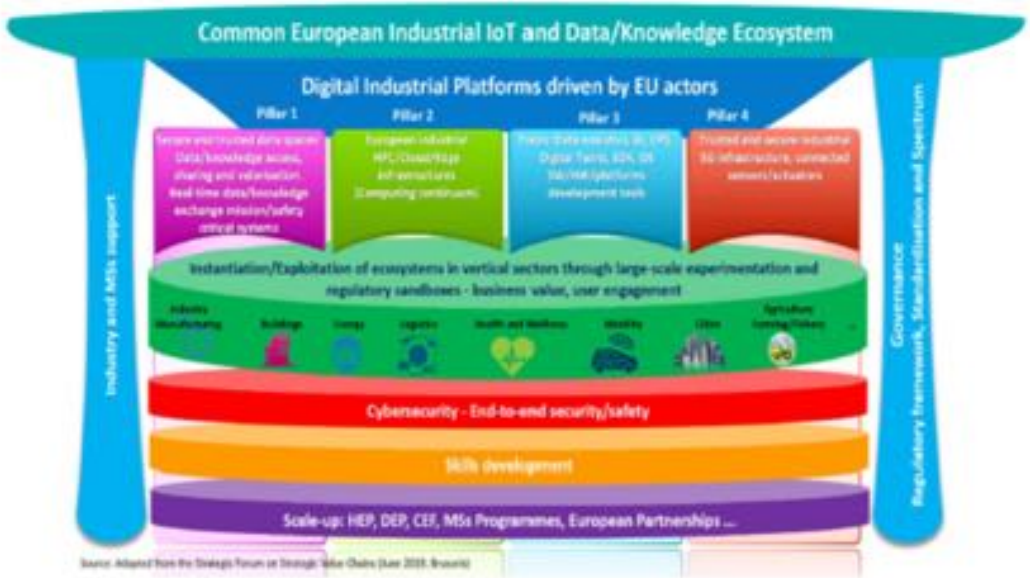
The Context: Industrial IoT in IPCEI

European Council Conclusions (21 – 22 March 2019)

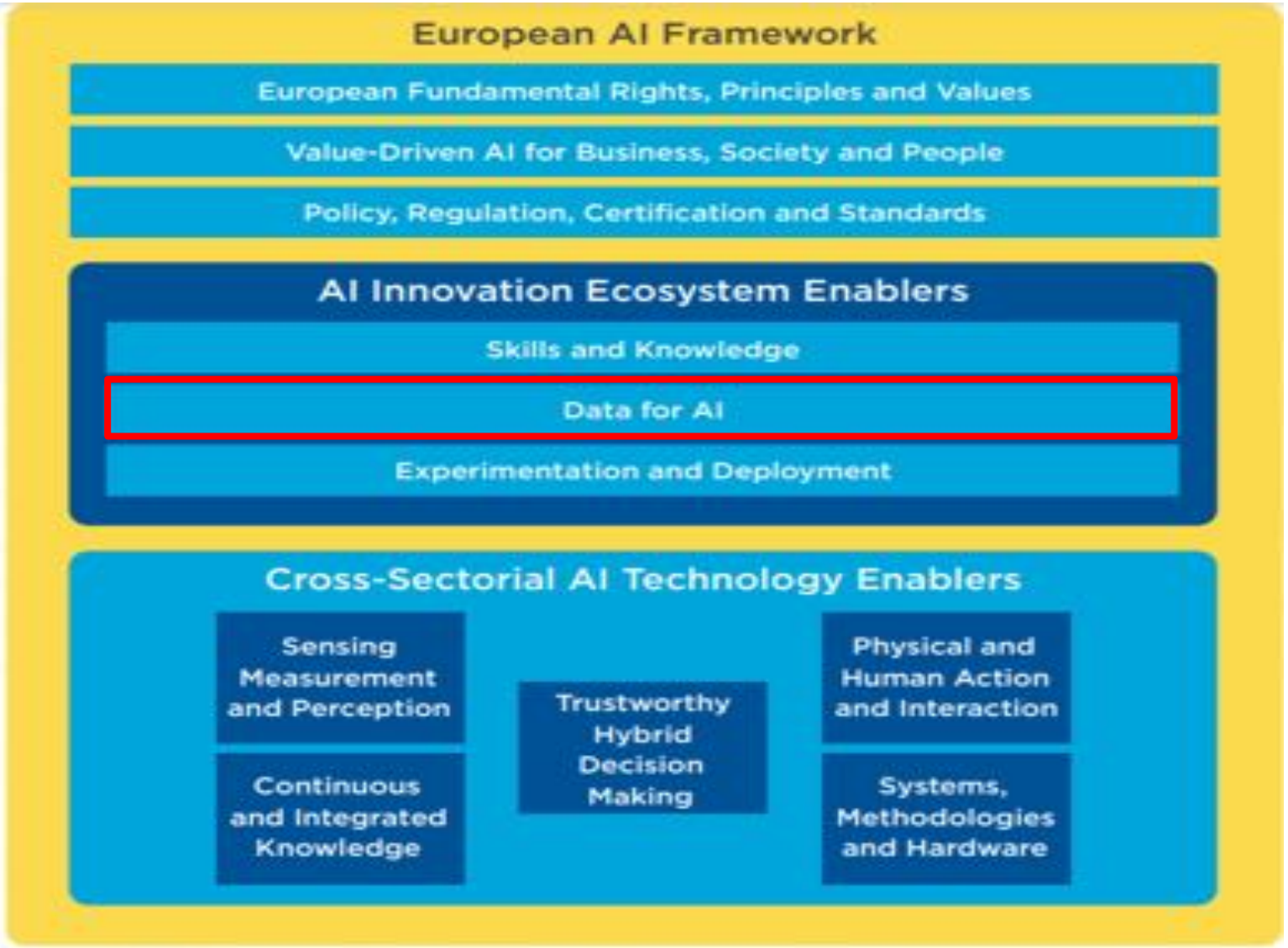
"The EU needs to go further in developing a competitive, secure, inclusive and ethical digital economy with world-class connectivity. Special emphasis should be placed on access to, sharing of and use of data, on data security and on Artificial Intelligence, in an environment of trust."



Manufacturing Industry



The Context: the AI PPP SRIDA: Data4AI



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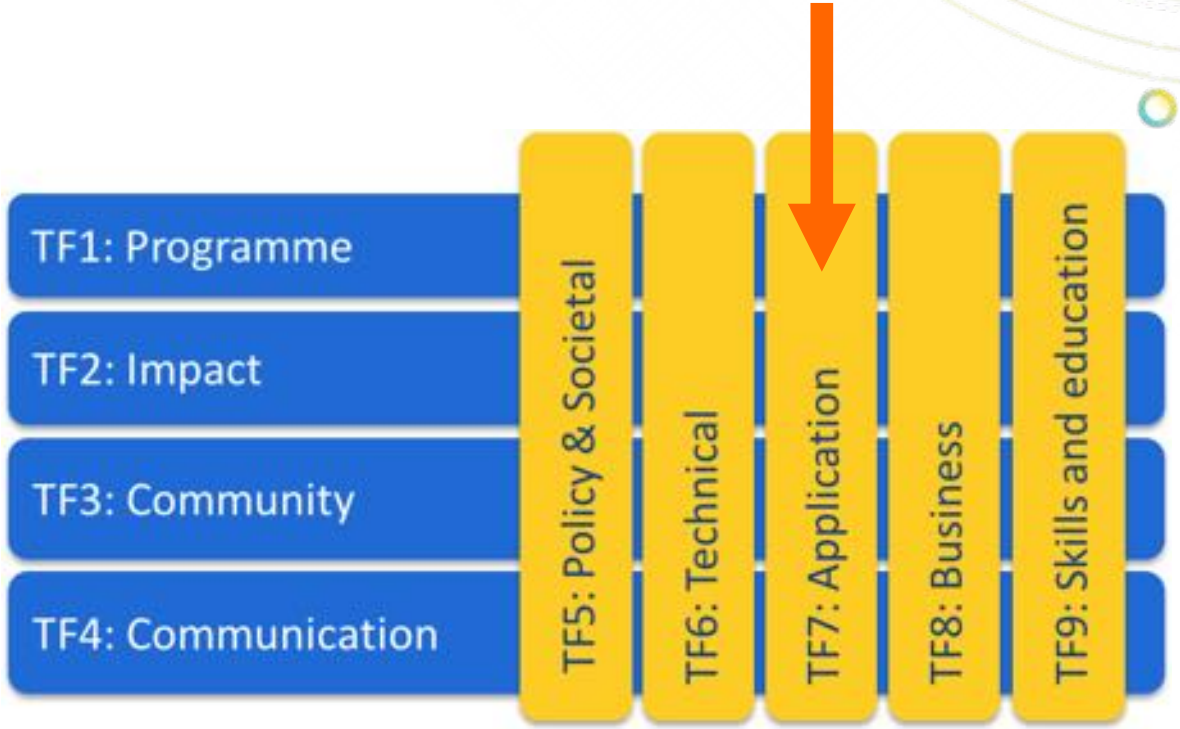
The BDVA Smart Manufacturing Industry

To exchange views and learn from each other experiences, on what activities are running in EU and within the different countries.

To identify present and future challenges to be addressed and to provide input for policy-makers at EU and member states level.

80+

subscribed



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SMI Discussion Paper v1

A discussion paper on Big Data challenges for BDVA and EFFRA Research & Innovation roadmaps alignment

Version 1, 2018

The FOF background is materialized by its validation business scenarios of Smart Factory, Smart Product and Smart Supply Chains as projected to 2025 by the Connected Factories *personas*.

Developed in 15 months with workshops at BDVA Summits and BDVA Activity Group meetings.

Paper available at:
http://www.bdva.eu/downloads

SMI Discussion Paper v2

Ch.1 Market and Trends Analysis

Ch.2 Smart Manufacturing in Digital Europe: a Data perspective

- Evolution of Data-driven Manufacturing scenarios
- Prioritization of BD Grand Challenges in the three scenarios

Ch. 3 Alignment with other Research and Innovation Agendas

- Industrial IoT Standards and Data-driven IIOT Strategic Value Chain
- Robotics R&I Data-driven challenges
- Artificial Intelligence Data-driven challenges

Ch. 4 Data-driven Smart Manufacturing: non-technical challenges

- Regulatory, legal and ethical Challenges
- Innovation and new Business Models Challenges
- Skills framework, development and recognition

Ch. 5 Disruptive Trends towards Digital Europe

- RAMI 4.0 Asset Administration Shell
- **Data Sharing Spaces**
- Digital Twins

Towards a European Data Sharing Space

Enabling Data Exchange to unleash full AI potential

Simon Scerri
Irene Lopez de Vallejo
Tuomo Tuikka

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BDVA POSITION

- **Paper V.1 published April 2019**
- **V.2 in progress!**
  - Include feedback and input from external communities, projects, etc..

- **Contents:**
  - Opportunities (10-years)
  - Foreseen Challenges (10-years)
  - **Recommendations**
  - Annexes: Prominent Examples from Existing Technical Landscape

http://www.bdva.eu/downloads

BDVA POSITION: *Terminology*

- **Data Spaces**
  - Ecosystem of datasets, models, data sharing contracts and specialised management services
  - **Data Engineering** approach to optimize data storage and exchange mechanisms
- **Data Platforms**
  - Architectures and repositories of interoperable hardware/software components
  - **Software Engineering** approach: creation, transformation, evolution, curation, exploitation of data in Data Spaces
  - Industrial/Persona Data Platforms continue to largely follow different paths
- **Data Marketplaces**
  - One-stop-shop for providers and consumers to meet, match and trade data, algorithms,..
  - Operate on top of **Data Spaces and utilize sharing/exchange provided by Data Platforms**

- **Prominent Examples from the Current Technical Landscape**
  - **Business:** IDSA, IIC, OceanProtocol, DataMarketAustria, IOTA, ...
  - **Citizens:** MyData, DataCoup, Aurora, HubOfAllThings, Int. Human Accounts Network, ...
  - **Science:** EOSC, Zenodo, EUDAT, DataVere, German National Research Data Infra., FAIR
  - **Government and Public Bodies:** EU-ODP, Hackdeoverheid, Semantic Interoperability Framework, Connecting Europe Facility, FIWARE

BDVA POSITION: *Recommendations*

…for successful Development, Implementation, Adoption of a European Data Sharing Space that: *allows new and existing* ***vertical, cross-sectoral, personal*** *and* ***industrial*** *data spaces to* ***interoperate;*** *offers* ***services and experimentation*** *opportunities to all stakeholders; promotes* ***European values…***

1. Create Conditions for development of a trusted European data sharing framework

- **EU policy makers** to align local/national strategies to realise framework for exploitation by industry
- **Member States** to showcase evidence-based benefits for diverse EU stakeholders
- Critical matters: **Data rights management/Sovereignty/Usability/Governance**

2. Incorporate data sharing at core of data lifecycle (for greater access to data)

- Data life-cycle management strategies that **natively incorporate data sharing events and transactions**
- Include **interoperability, security, quality, privacy and ethics by-design**

3. Support EU businesses to safely embrace new technologies, practices and policies

- Facilities and environments offering **safe testing and de-risking of new business and innovation models**
- Existing mechanisms (DIHs, i-Spaces) + New instruments (e.g., **European-wide Regulatory Sandboxes**)

4. Assemble EU-wide digital skills strategy to equip workforce for new data economy

- Revisit educational policies holistically to **reskill workforce** and prepare professionals for **dynamic careers**
- Strategies to re-define or develop **new jobs and abilities** (e.g., judging bias, assessing liability).

AGENDA (10:00-11:15)

Introduction and State of Play (BDVA SMI Subgroup 5')

Data Sharing Spaces for Manufacturing in Horizon Europe and Digital Europe (Arian Zwegers EC 5')

Market analysis and trends of Big Data / AI for Manufacturing (Giorgio Micheletti IDC 10')

The BDVA SRIA and AI PPP SRIDA: what for Manufacturing Industry? (Thomas Hahn, BDVA 10')

Data4AI in Autonomous Factories: scenarios and opportunities (Oscar Lazaro INNOVALIA 10')

Data Sharing Spaces for Manufacturing (Sergio Gusmeroli POLIMI 10')

Data- and AI-enabled new Business Models in Manufacturing (Jon Kepa Gerrikagoitia IDEKO 10')

Q&A Discussion (15')