

Boosting Research for a Smart and Carbon Neutral Built Environment with Digital Twins – **SmartWins**



Data Spaces and Big Data for Industry 4.0

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CERTH SmartWins Training Sessions: Day4

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Agenda

- Introduction to Data Spaces
- International Data Space Association & IDS RAM
- Big Data & Data Spaces
- A framework for big data sovereignty: the European Industrial Data Space
- Alliances to promote Data Spaces



COMPANIES WANT TO LINK DATA WITHOUT REGRET



Interoperability
Data Exchange
»Sharing Economy«
Data Centric Services



Data Ownership
Data Security
Data Value



DATA SOVEREIGNTY

is the ability of a natural or legal person to exclusively and sovereignly decide concerning the usage of data as an economic asset.



Governance for data sharing

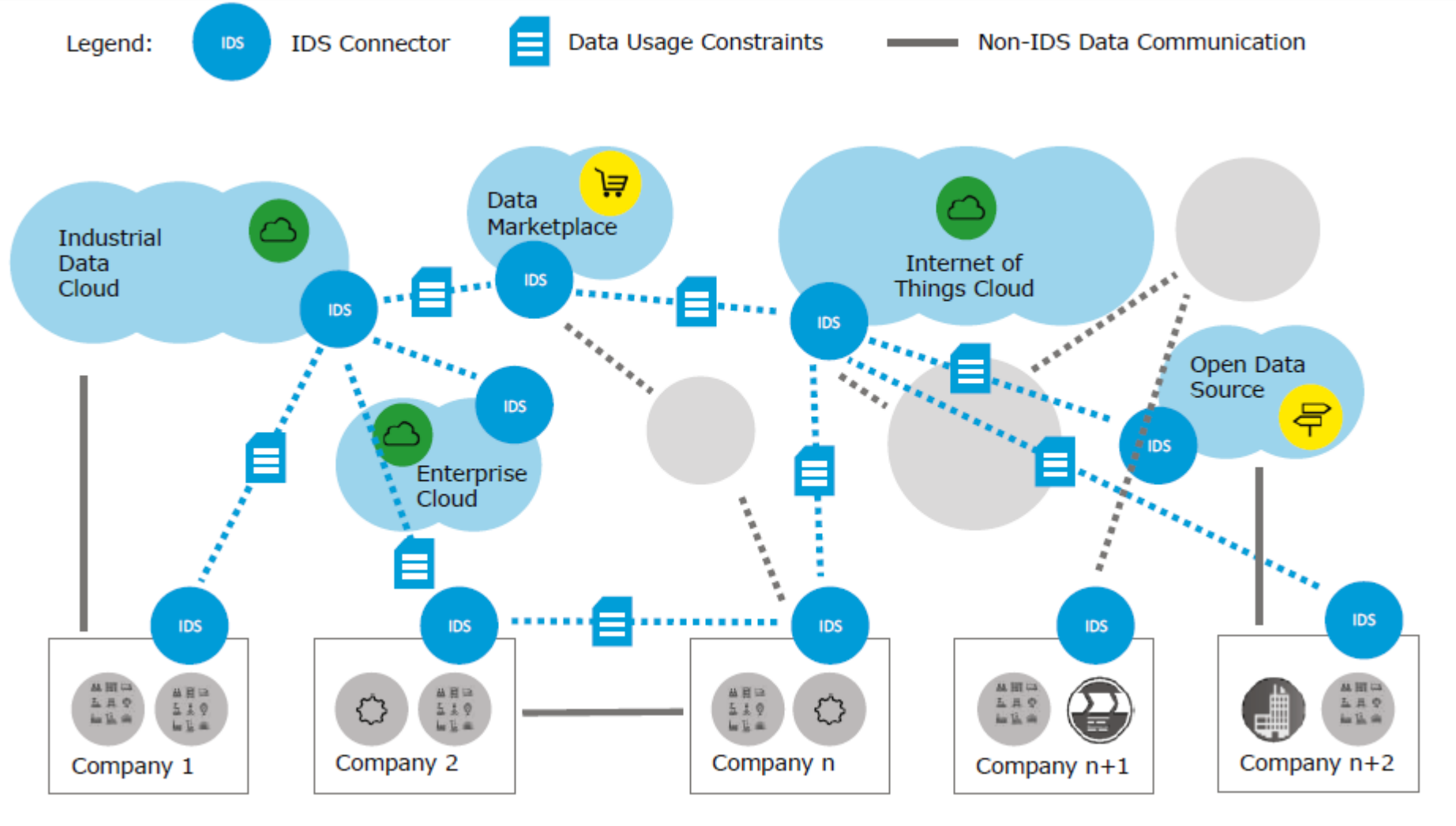
Defining usage constraints

Trusted manipulation of data

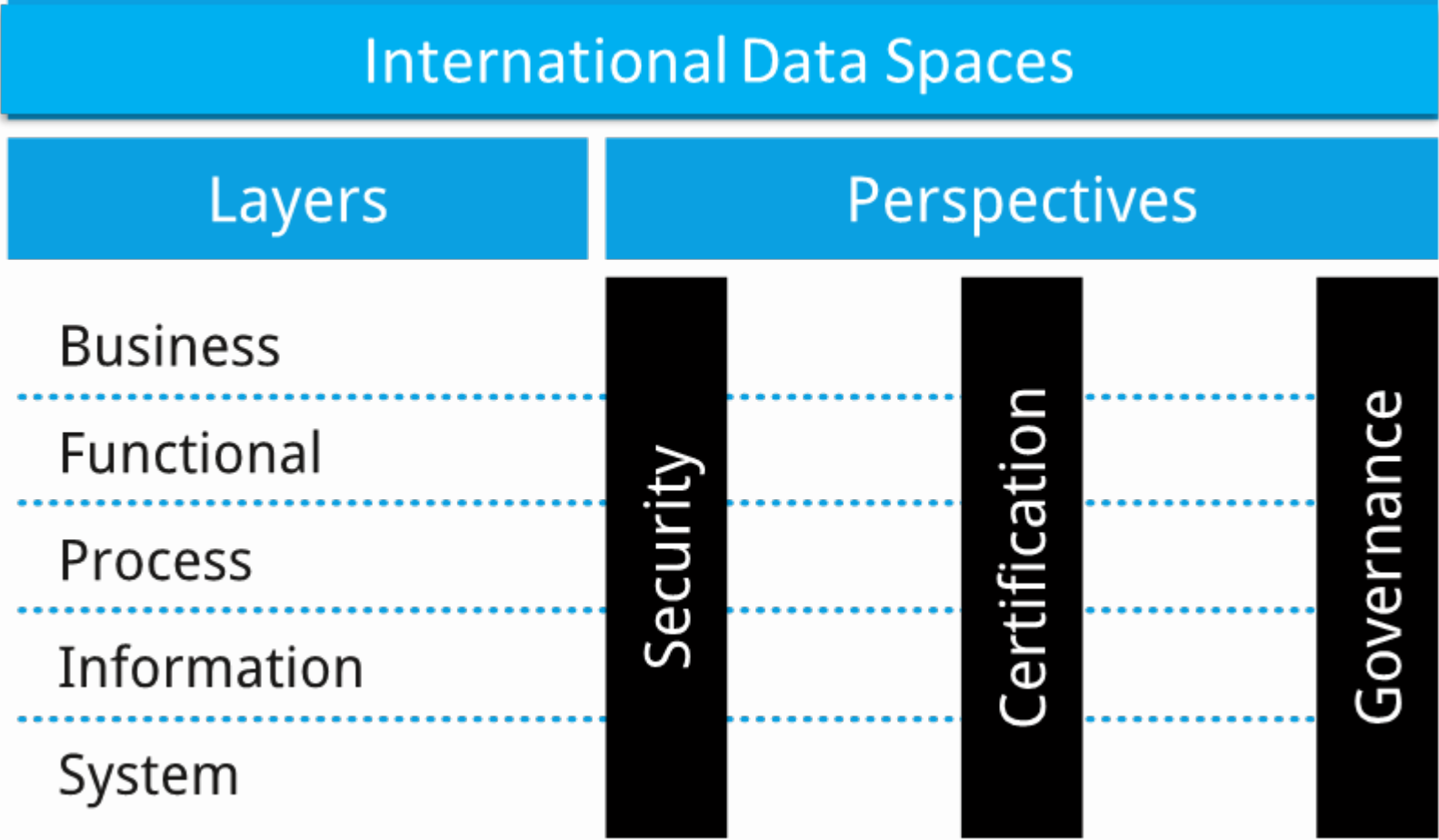
DATA SPACES

CLEANROOMS FOR A PROSPERING DATA ECONOMY

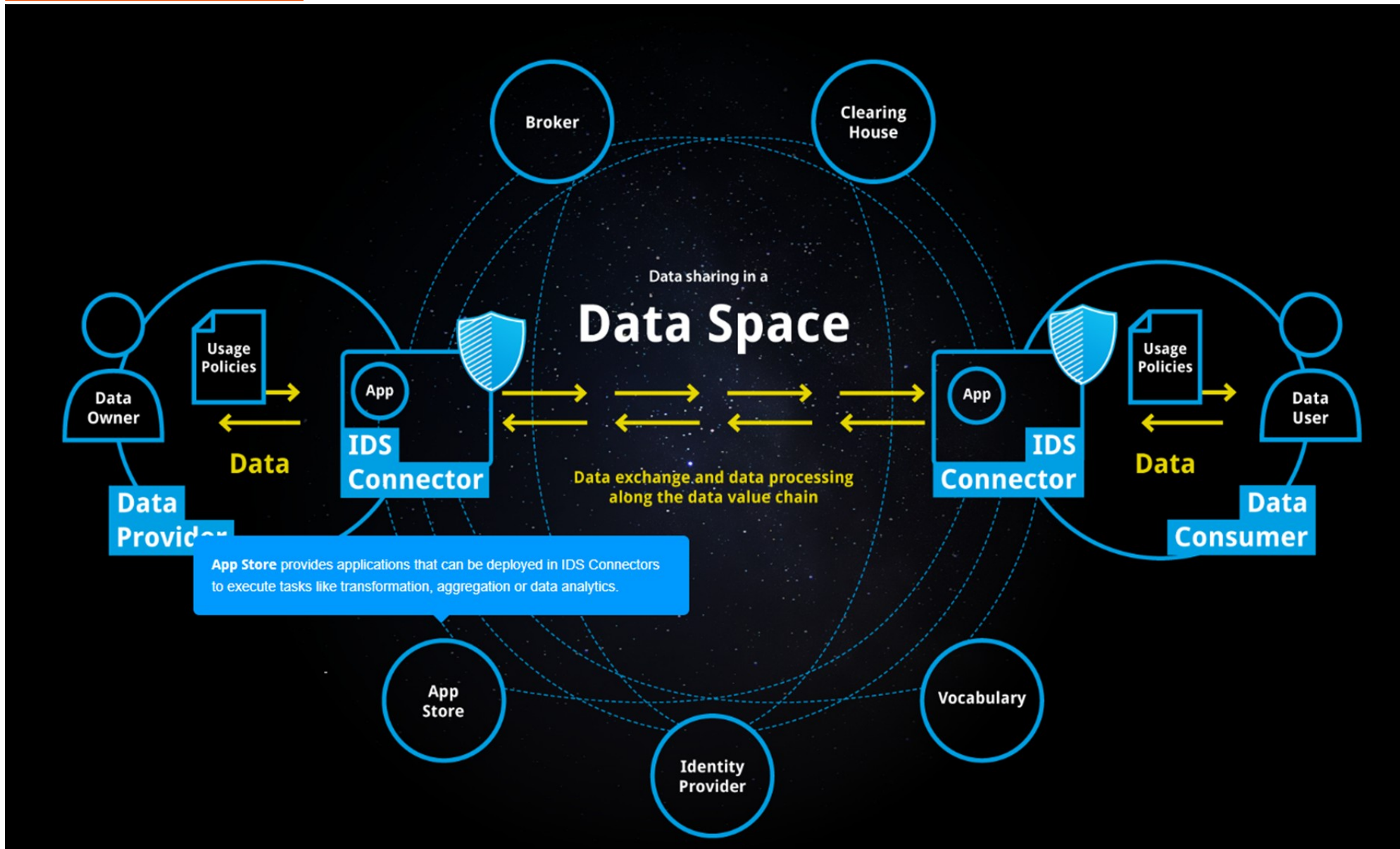
Industrial Data Space and Cloud Platforms



IDSAs Reference Architecture Model



IDSA Reference Architecture Model



Big Data and Data Spaces

Data spaces and big data are closely connected concepts that both revolve around the management, processing, and utilization of vast amounts of data

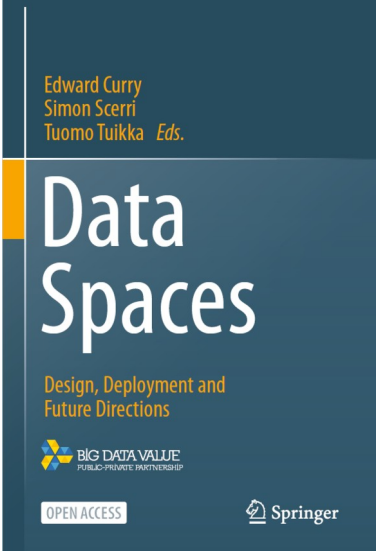
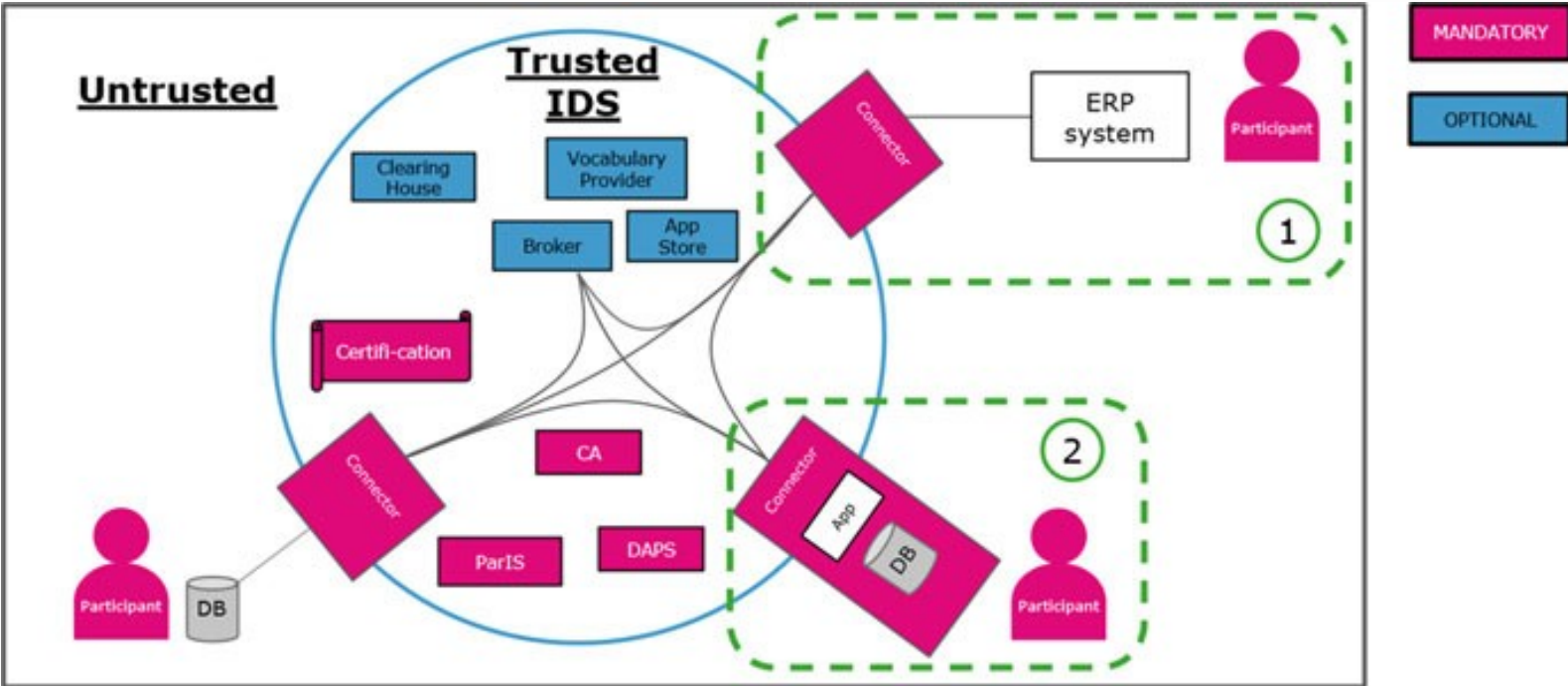
- **Big data** refers to datasets that are too large and complex to be processed using traditional data processing applications. Big data is characterized by:
 - **Velocity** is the speed at which the data is created and how fast it moves.
 - **Volume** is the amount of data qualifying as big data.
 - **Value** is the value the data provides.
 - **Variety** is the diversity that exists in the types of data.
 - **Veracity** is the data's quality and accuracy
 - (**Variability** refers to the inconsistency or unpredictability in the data flow)
 - (**Visibility** highlights the importance of understanding and having visibility into the entire data lifecycle)
- **Data Spaces** is a more abstract concept that refers to the virtual or physical environments where data resides, including databases, data lakes, cloud storage, and distributed file systems



Data spaces and big data are interrelated concepts that work together to enable the storage, processing, analysis, and visualization of large and complex datasets. Data spaces provide the infrastructure and environment for mainly sharing (and support managing) data, while big data technologies facilitate the extraction of insights and value from that data.

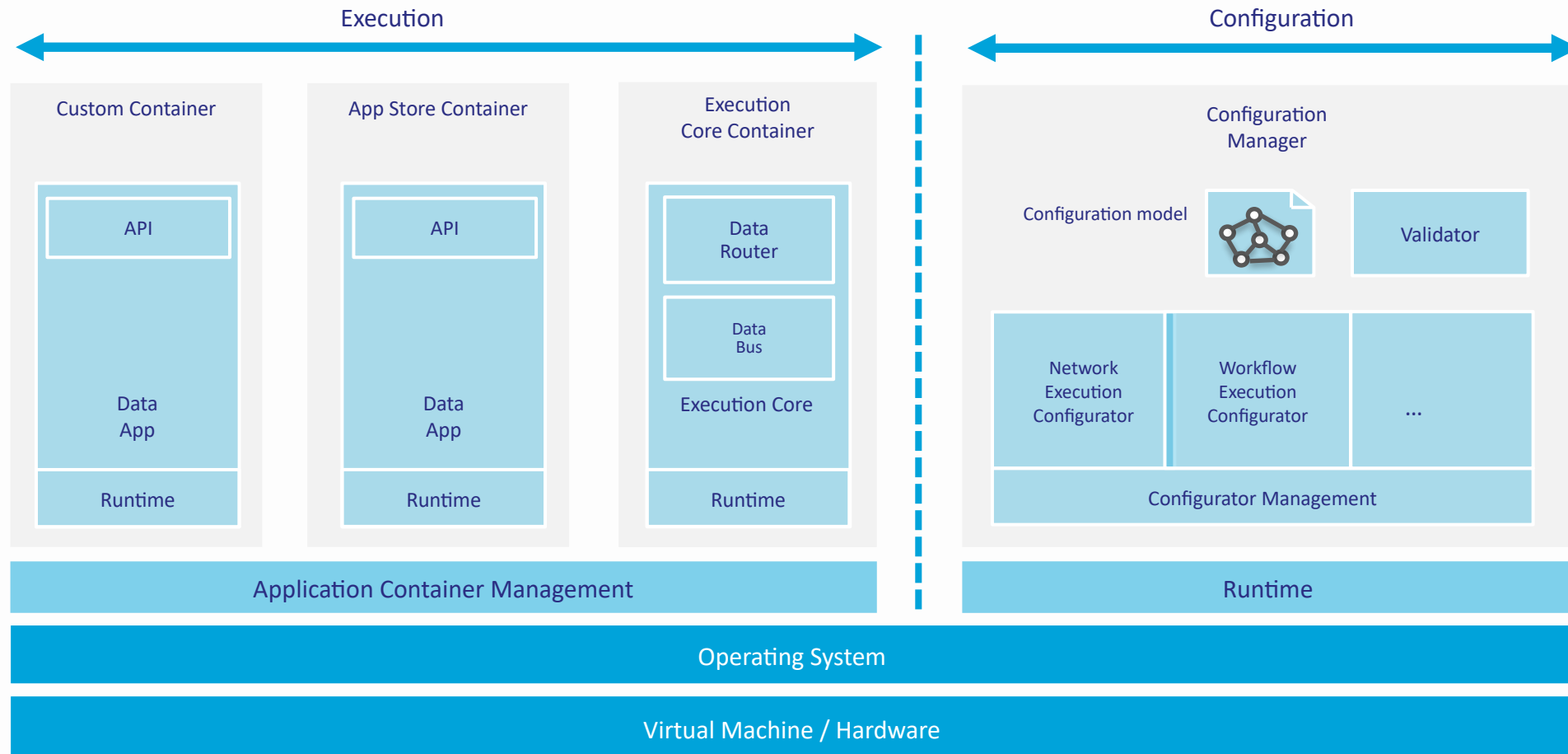
A framework for big data sovereignty: the European Industrial Data Space

European Industrial Data Space Building Blocks



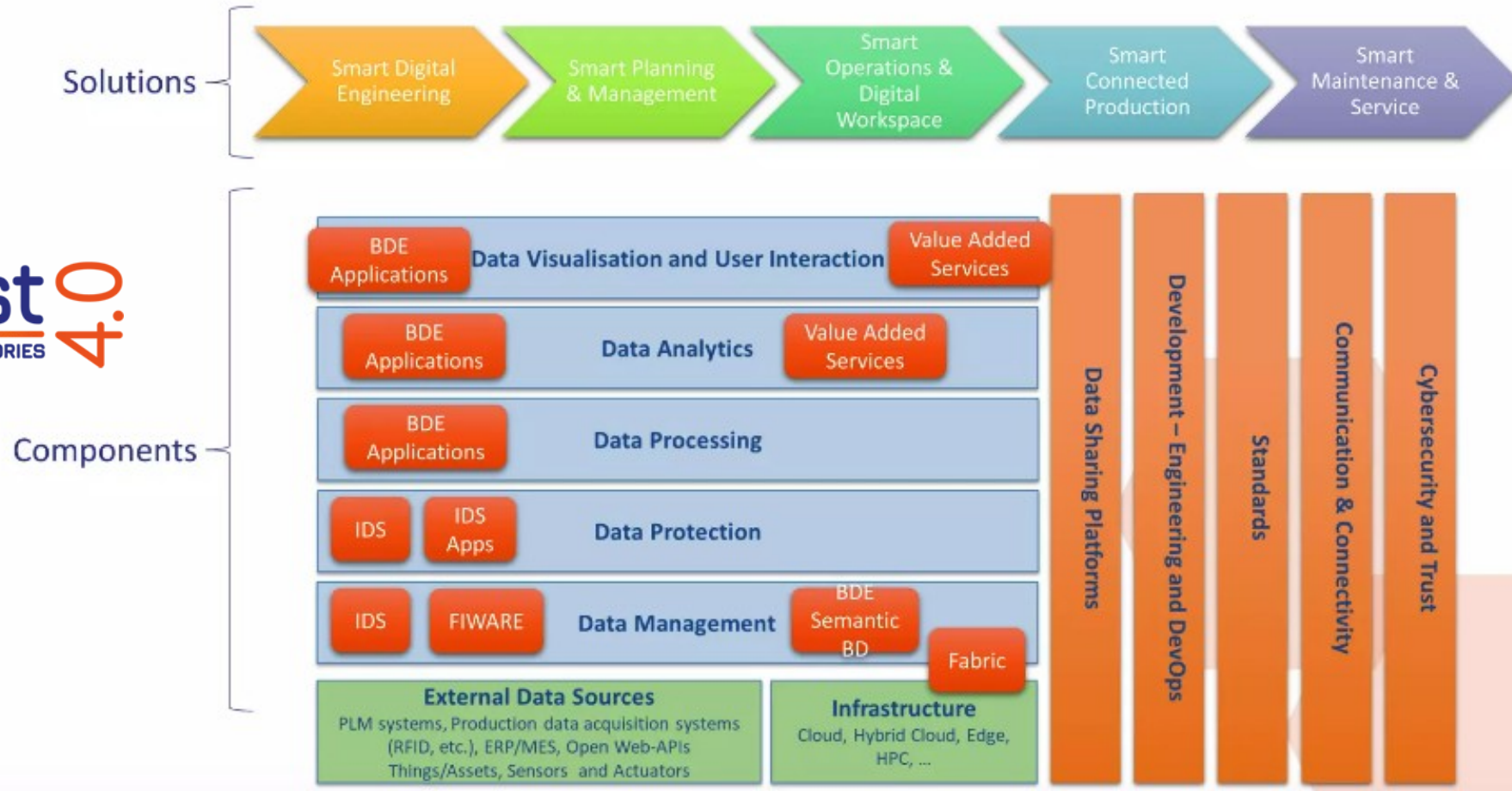
Big Data Value has published books related to Data Spaces

Architecture of an EIDS Connector

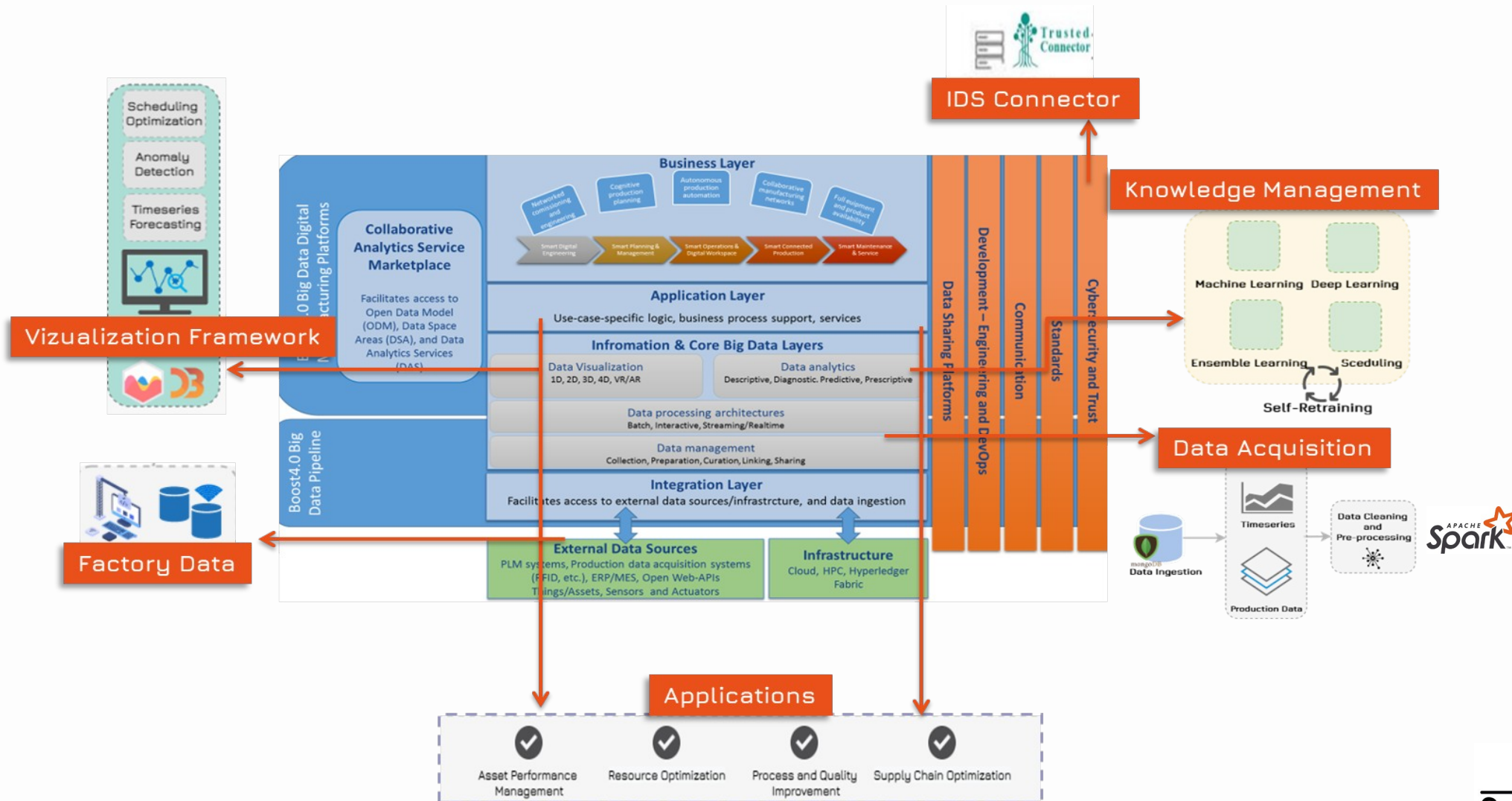


BDVA RA and BOOST 4.0 Approach to Enable EIDS

Boost 4.0
BIG DATA FOR FACTORIES



BOOST 4.0 Architecture & CERTH Cognitive Analytics Platform



The Data Spaces Business Alliance & Data Space Support Center



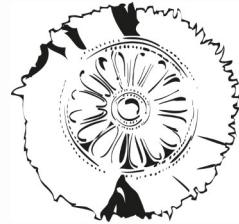
Common framework, based on existing architectures and models, leveraging each other's efforts on infrastructure and implementations to make data spaces happen.



Data Spaces Support Centre want to contribute to the creation of common data spaces, that collectively create a data sovereign, interoperable and trustworthy data sharing environment, to enable data reuse within and across sectors, fully respecting EU values, and supporting the European economy and society.

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Project Partners



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