

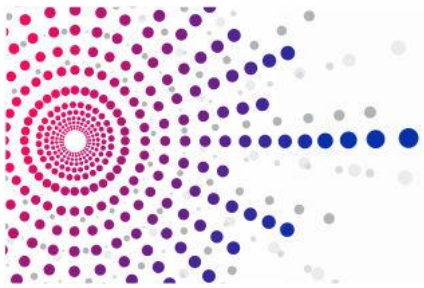


# Leveraging on energy-centered cross sector reference architectures towards an Energy Data Space

Massimo Bertoncini/Senior Innovation  
Manager – Digital Energy

Engineering Ingegneria Informatica

*Reference architecture for cross-border and cross-sector energy data exchange Webinar, 26<sup>th</sup> March 2021*



# BD4NRG Vision -> On the way towards a Common Energy Data Space



**Open Interoperable  
Data-driven  
Reference  
Architecture for SG**

Towards an  
European-level  
Energy Data Space  
within the  
framework of the  
**Common European  
Data Spaces EC  
policy**

Reqs and *Validation* compliant  
to GAIA-X, IDSA, FIWARE,  
BRIDGE,..., to design a  
**Common Energy Data Space**

**BDV**  
Energy WG  
Setup

DG  
CONNECT

EC Data  
Strategy

AI4EU

GAIA-X

European  
Commission

DG ENERGY

Clean Energy  
Package for All

bridge  
HORIZON 2020

ETIP SNET

ONENET

OLFENERGY  
FIWARE

INTERNATIONAL DATA  
SPACES ASSOCIATION

OPENDEI

WG2 Data  
Architectures for  
Smart Energy grids

BD4NRG  
Big Data for Next  
Generation Energy





# BD4NRG Reference Architecture – Zooming on Data Governance & Mgmt



- Leverages and reconciliates **IDSA, OpenDEI, FIWARE, SGAM, BRIDGE** cross-sector architecture
- standardized data gates relying on **SAREF , ETSI FIWARE Context Broker . NGS-LD, IEC CIM**
- incorporates enforcement policies mechanisms for **IDSA** and **GAIA-X compliant Data Access Policy Brokerage**, hence enabling Data Sovereignty
- Delivering a **IDSA-compliant decentralized sovereignty-preserving data access connectors** for
  - Trading off **data ownership vs management**
  - **Data access brokerage**
- **hybrid Data Sharing model** combining **off-chain IoT data with blockchain/DLT/smart contracts** for trading off speed and cost-effectiveness of a traditional distributed broker system with blockchain-based traceability

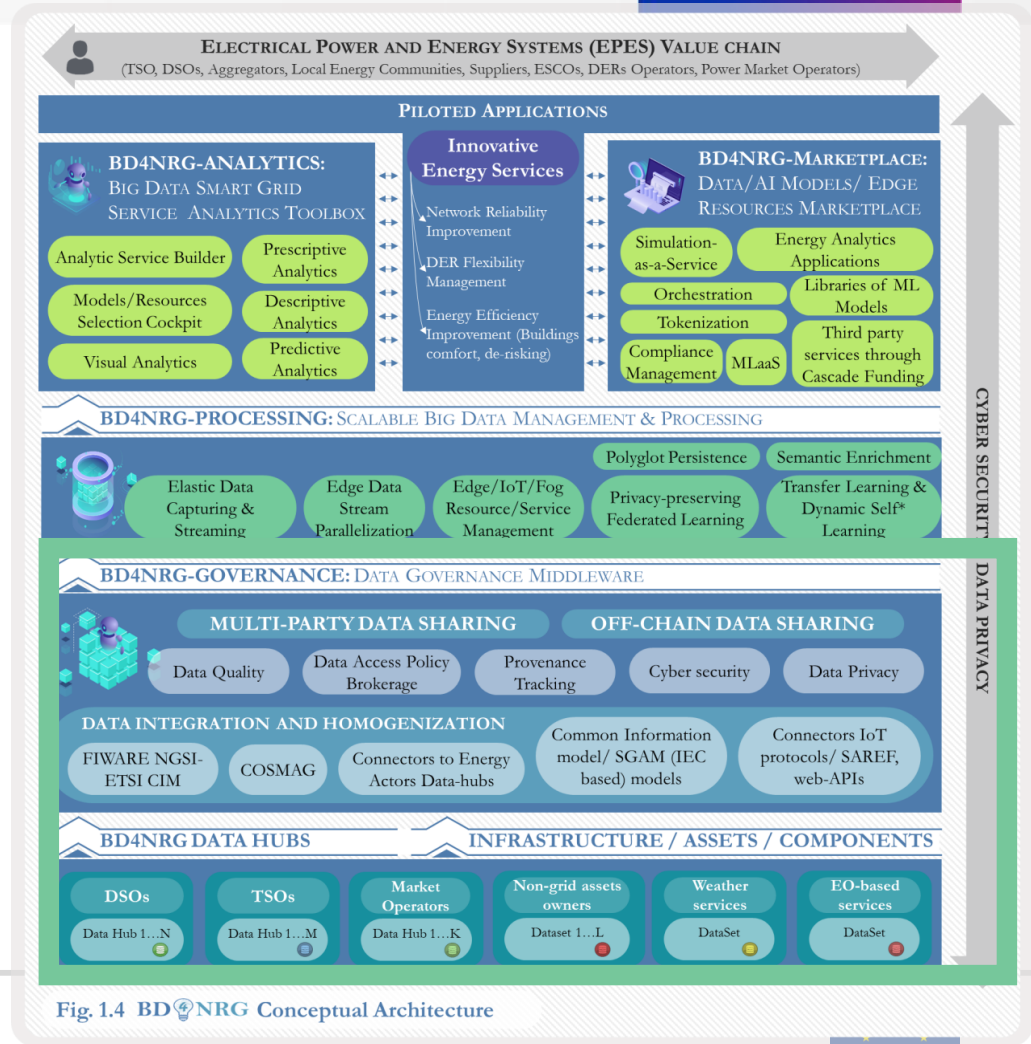
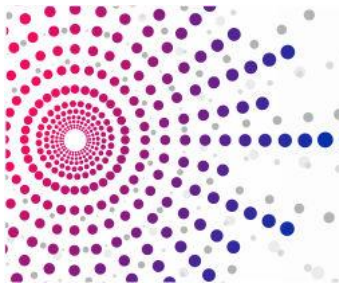


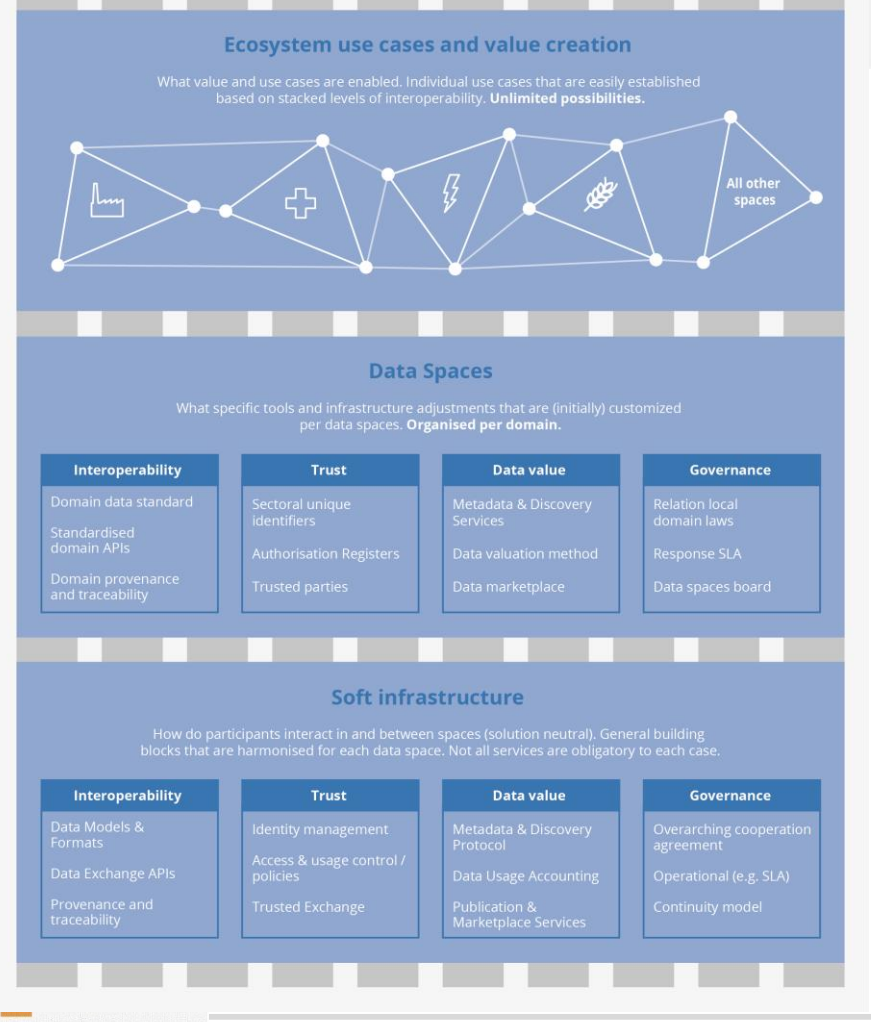
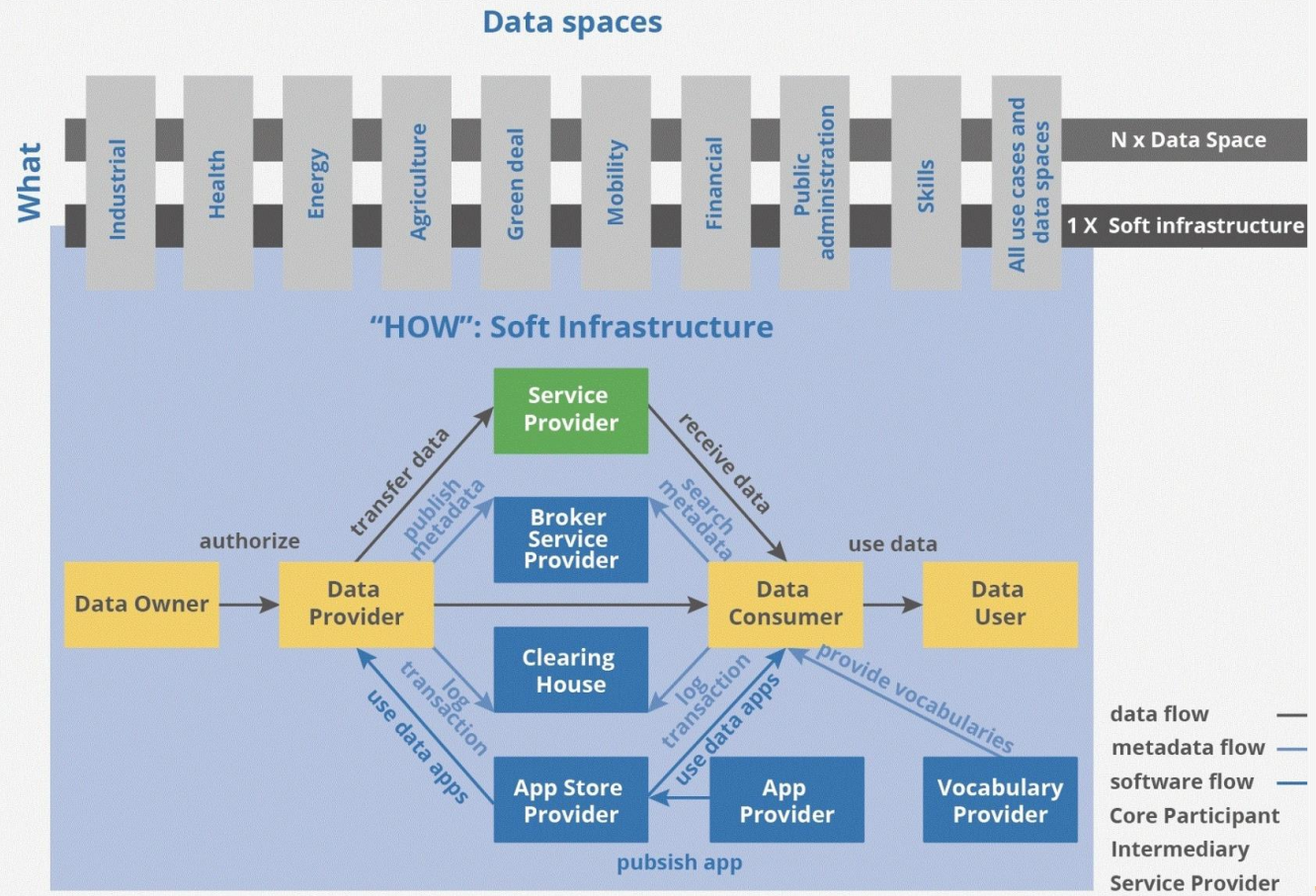
Fig. 1.4 BD4NRG Conceptual Architecture

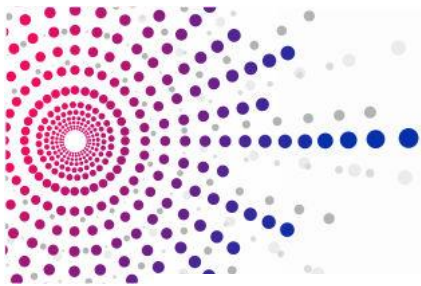


# IDSA – Design Principles for Data Spaces

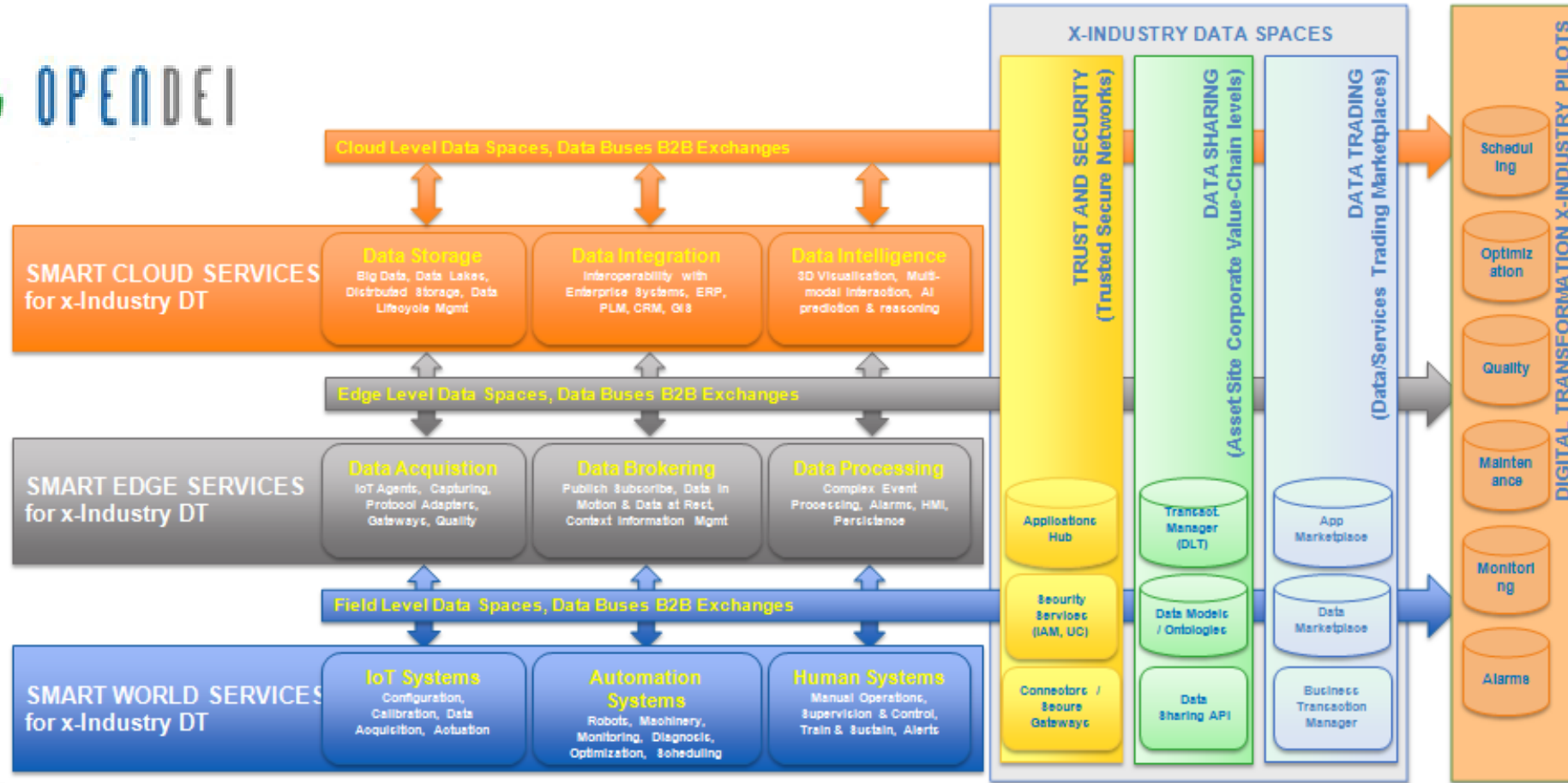


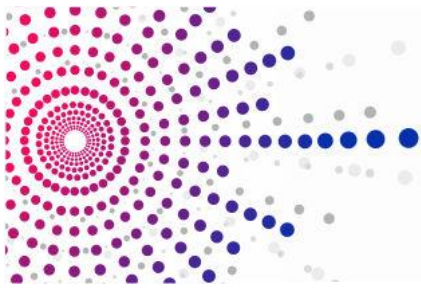
Industrial Health Energy Agriculture Green deal Mobility Financial Public administration Skills All data spaces





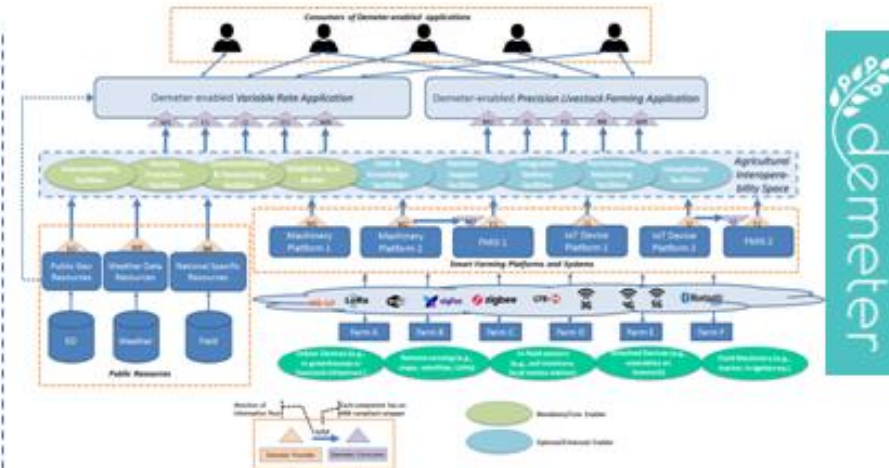
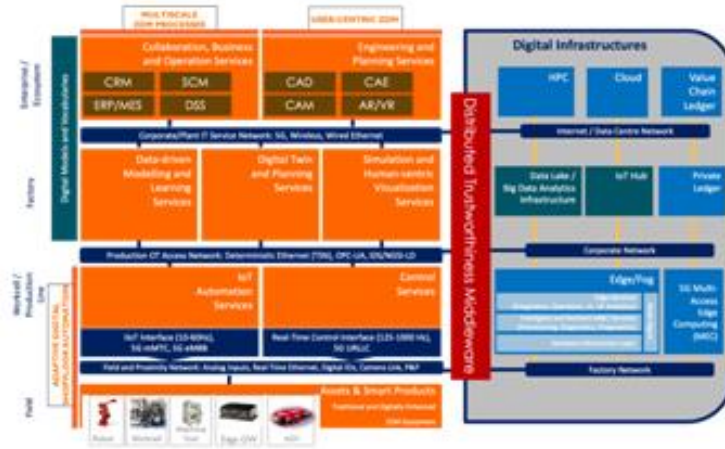
# OPEN DEI cross-domain Reference Architecture Framework





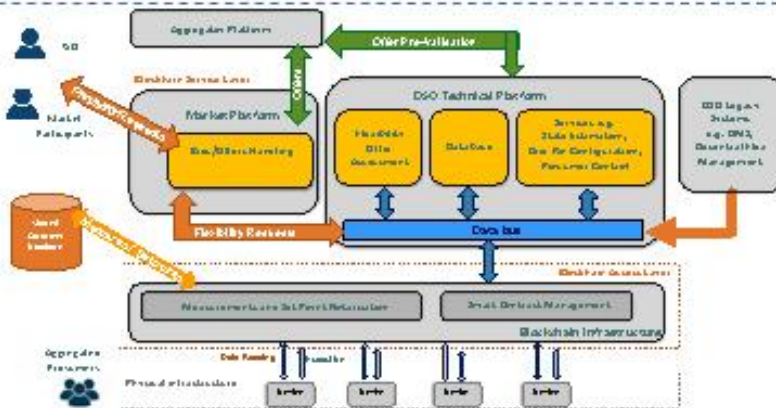
# OPEN DEI Referene Architecture Framework vs sector-specific projects

QUALITY

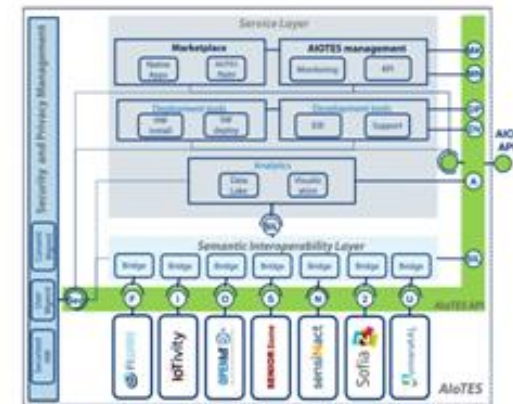


demeter

Platone  
PLATFORM FOR OPERATION  
OF DISTRIBUTION NETWORKS



OPEN DEI

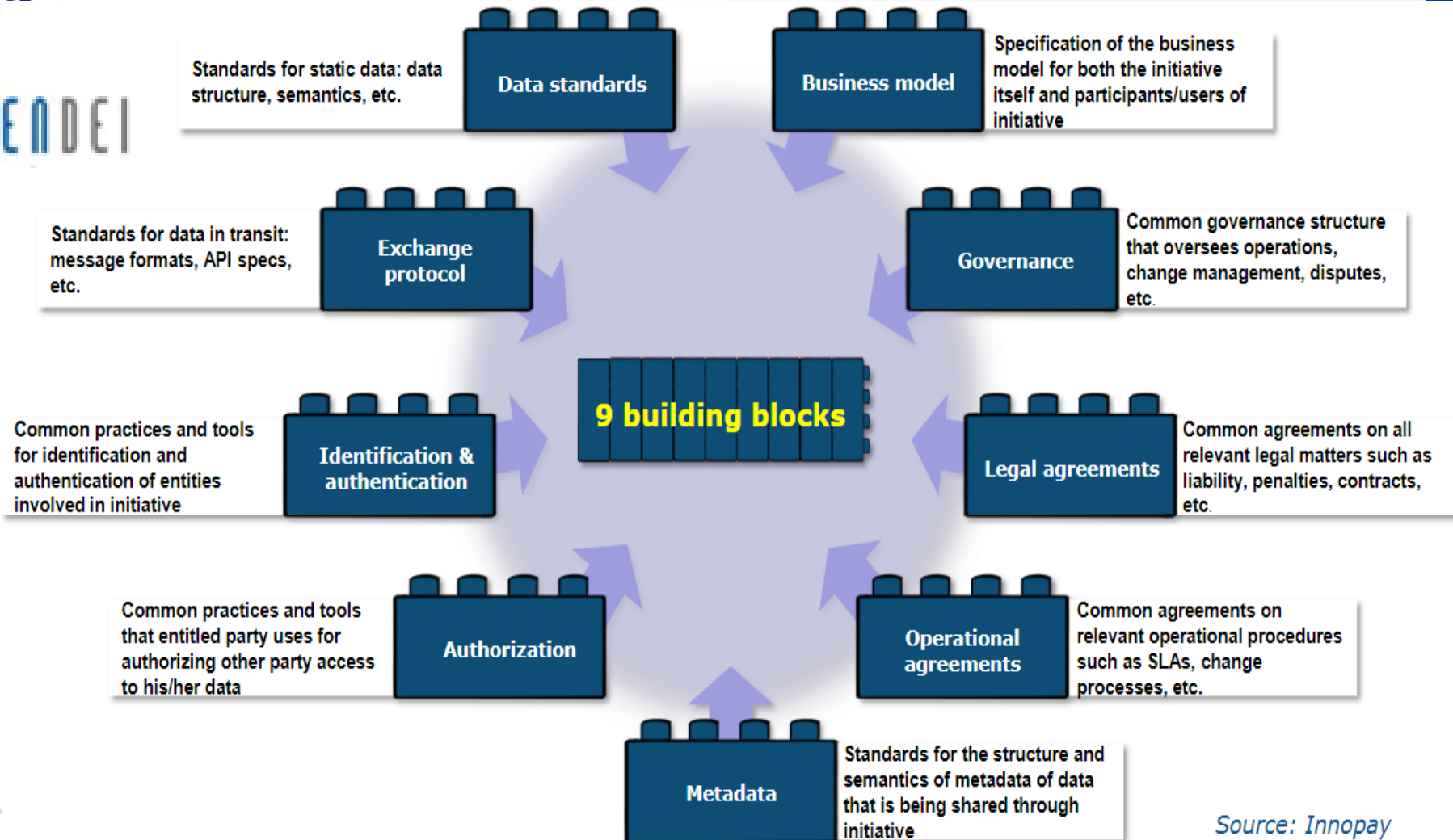


ACT2WAGE  
PROJECT

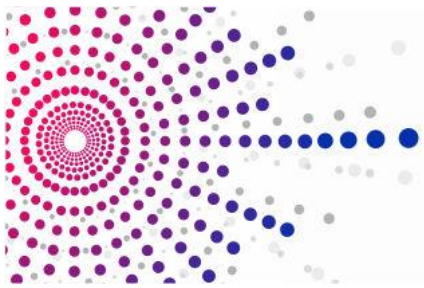




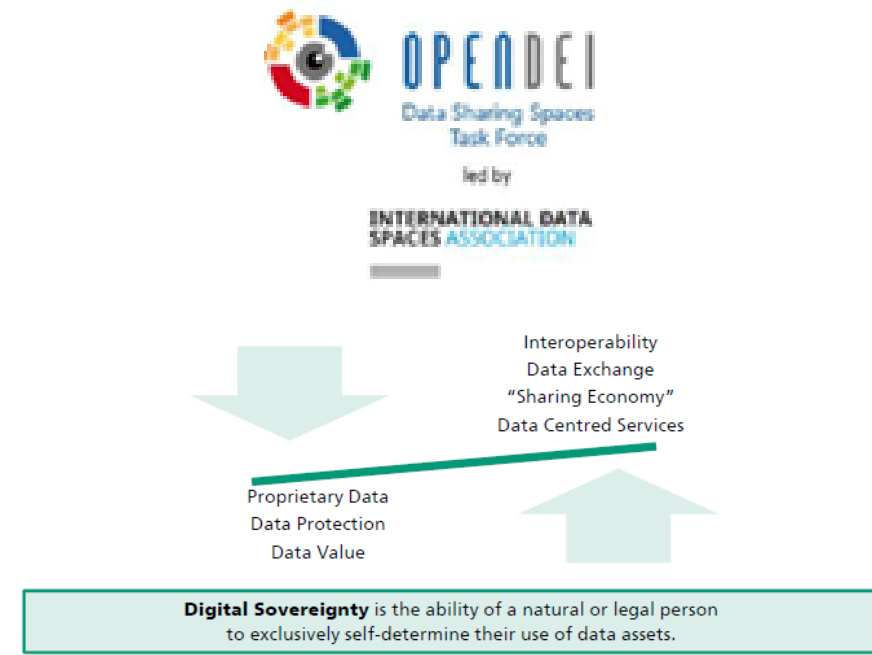
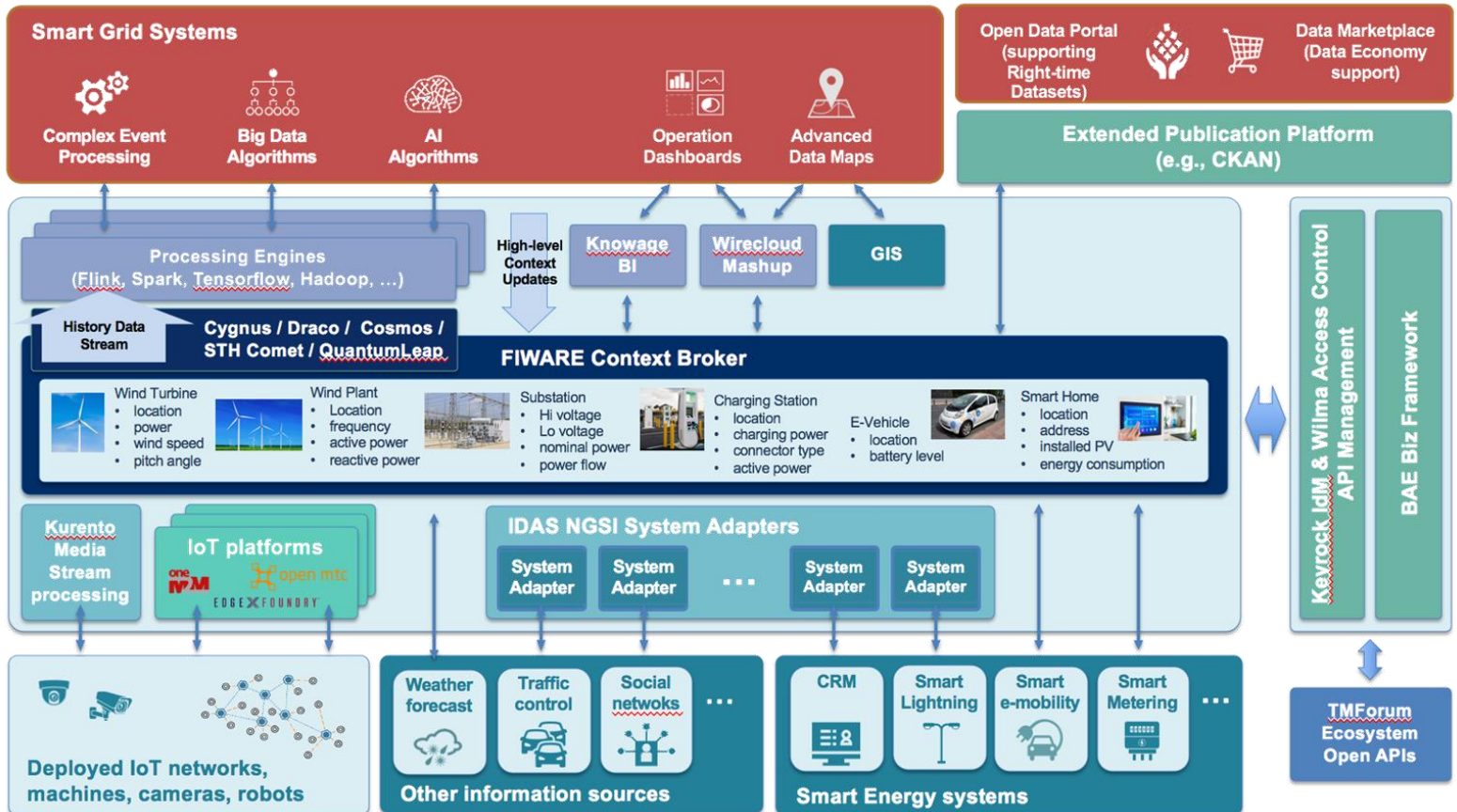
# OPEN DEI Data-driven cross-sector building blocks



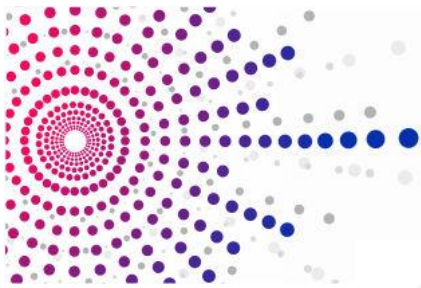
Source: Innopay



# Leveraging on and Aligning with FIWARE Smart Grid Vertical Reference Architecture and IDSA Design Principles for Cross-sector Data Sharing Spaces







# Mapping and alignment with BRIDGE cross-sector data architecture

