



int:net

Interoperability Network for
the Energy Transition

European Energy Data Spaces: what exists and what's coming?

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Motivation

Challenges in data exchange for the energy transition

Grid management

- **Goal: system safety and reliability**
- Need to match energy consumption (increasing) and generation (decentralized) in the grid:
 - Digitilization for remote control of system components

→ Need for reliable and quick exchange of large amounts of data

Sector coupling

- **Goal: increase efficiency and control**
- Coupling functionalities from traditionally separated sectors
- E.g.
 - Transportation
 - Smart cities (lighting, signalling, etc.)
 - Home (heat pumps, EV)

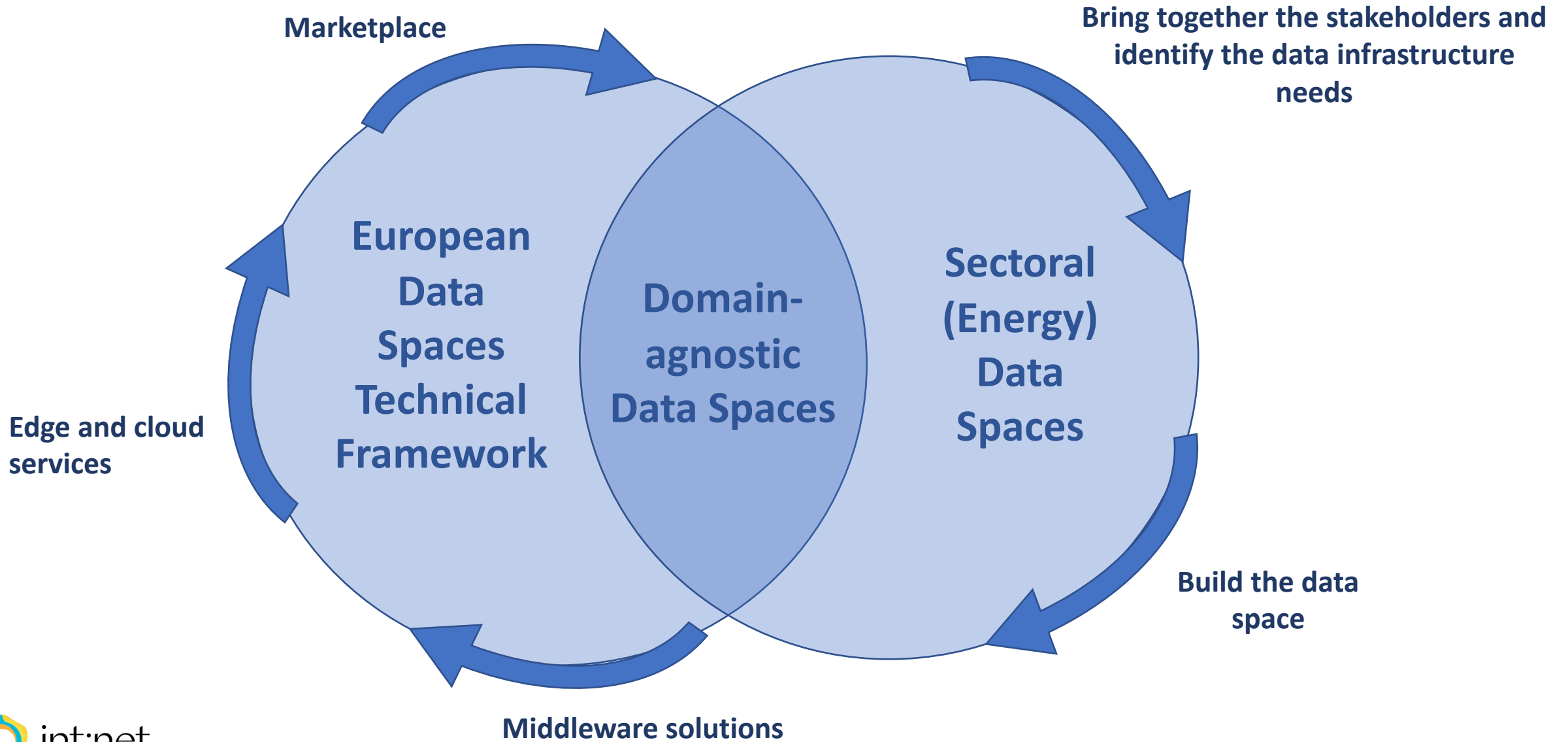
→ Need for exchange of heterogenous data

Security



→ Data spaces aim to ensure fair, regulated, and efficient data exchange

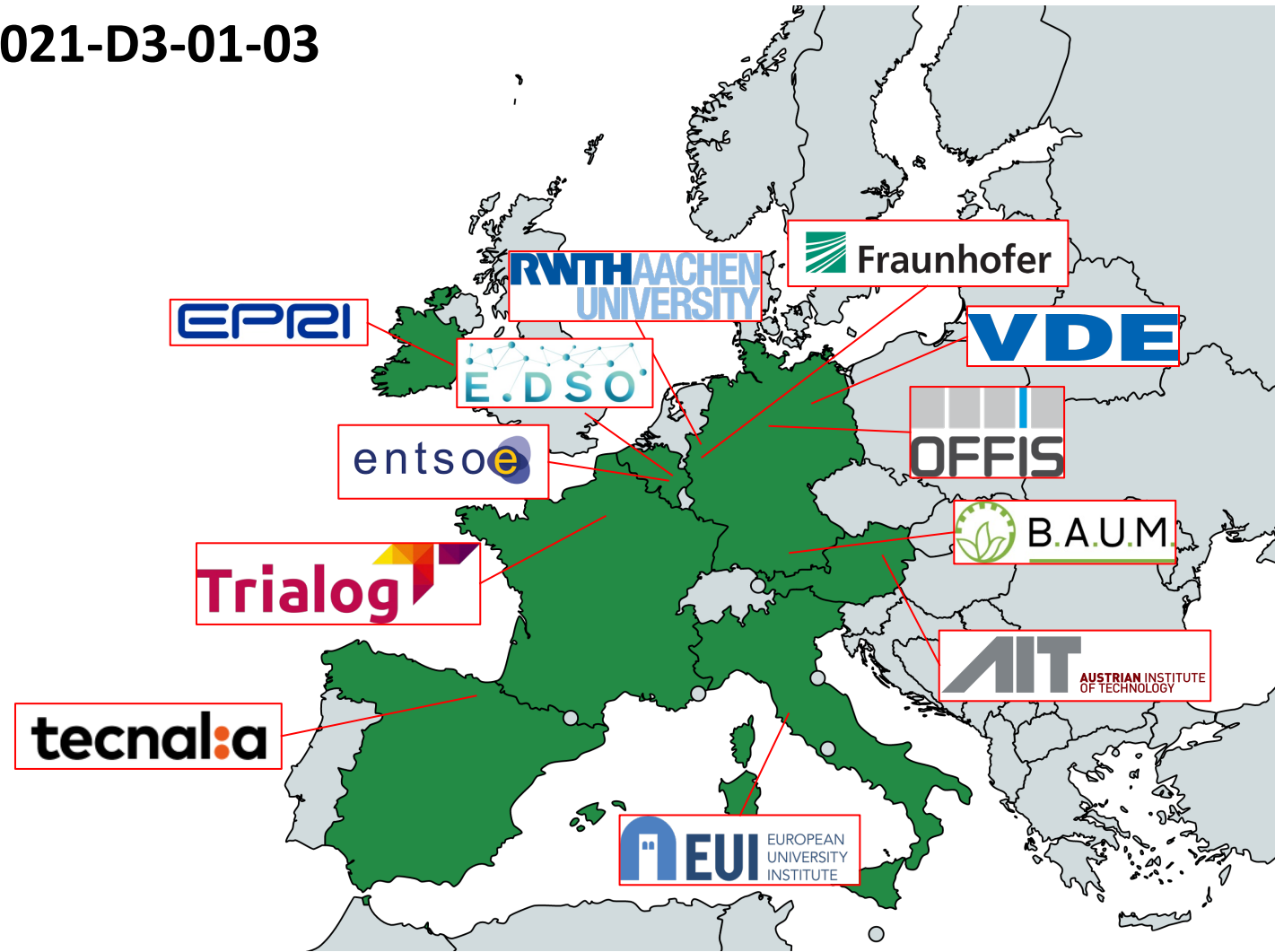
Key Aspects for Data Spaces Deployment



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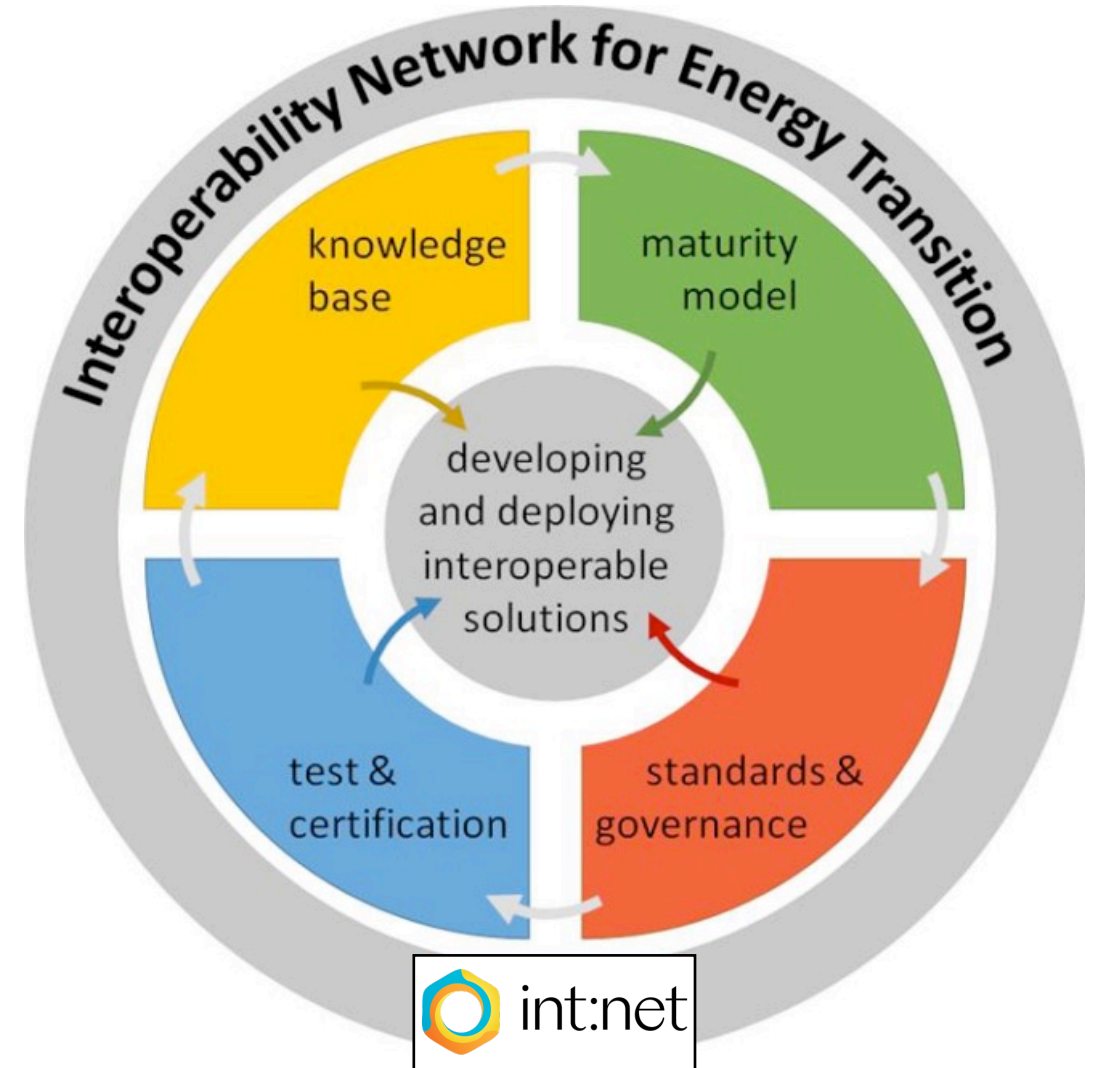
- **Horizon Europe call HORIZON-CL5-2021-D3-01-03**

- **Coordination & Support Action (CSA)**
- **Duration: 36 months**
- **Runtime: 01.05.2022 – 30.04.2025**
- **Consortium: 12 Partners**
 - 7 Countries
 - 1 Associated Partner
- **Budget: 5 M€**



Project objectives

- Consolidating a common knowledge base for interoperability activities on energy services in Europe
- Developing a comprehensive and accepted Interoperability Maturity Model (IMM)
- Deploying a framework for interoperability testing in a network of interoperability testing facilities
- Fostering a community network of standards and regulatory environment for a European interoperability ecosystem



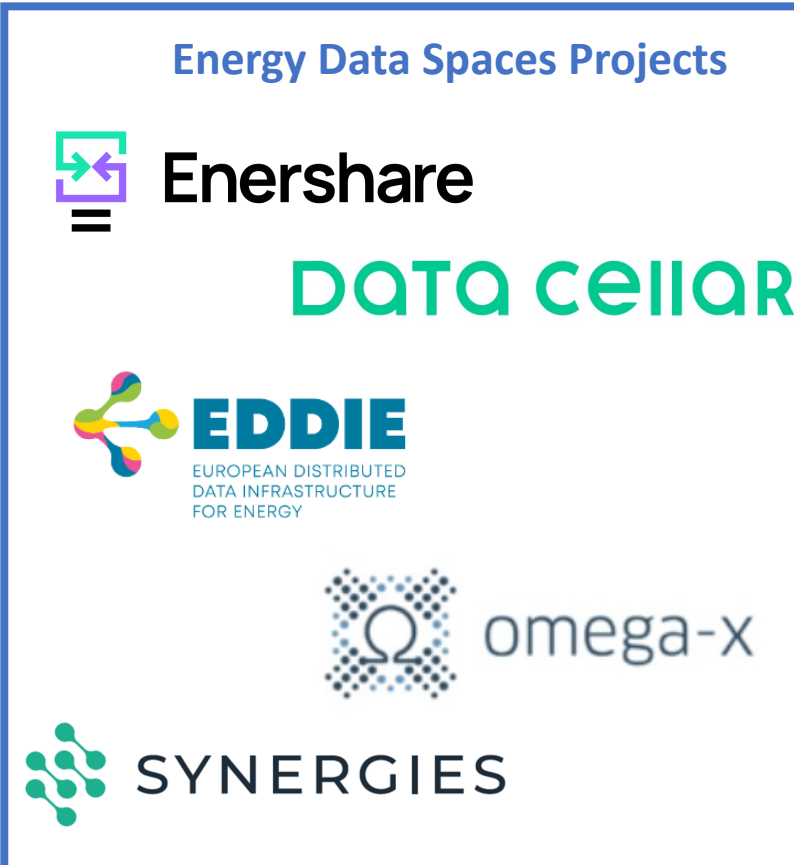
Project outcomes

- Standardized way of storing and making knowledge publicly available
- Tool to assess and increase, via IMM, the level of interoperability maturity in organizations
- Self-sustained and formally institutionalized distributed “network” of interoperability testing labs (living labs and digital innovation hubs)
- int:net community as formal institution (association) to be self-maintained in the long term



Energy data spaces projects cluster & ecosystem

Energy Data Spaces Projects



Enershare

DATA CELLAR

EDDIE
EUROPEAN DISTRIBUTED DATA INFRASTRUCTURE FOR ENERGY

omega-x

SYNERGIES



int:net
Interoperability Network for the Energy Transition



gaia-x



DATA SPACES SUPPORT CENTRE

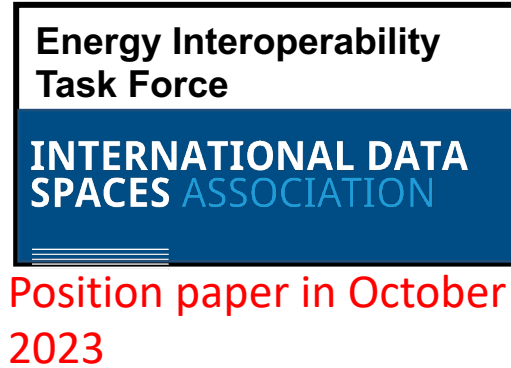
And other CSAs:



GREAT
Green Deal Data Space



PrepDSpace4Mobility



Energy Interoperability Task Force

INTERNATIONAL DATA SPACES ASSOCIATION

Position paper in October 2023



ETIP SNET
PLAN. INNOVATE. ENGAGE.

Report on data spaces deployment

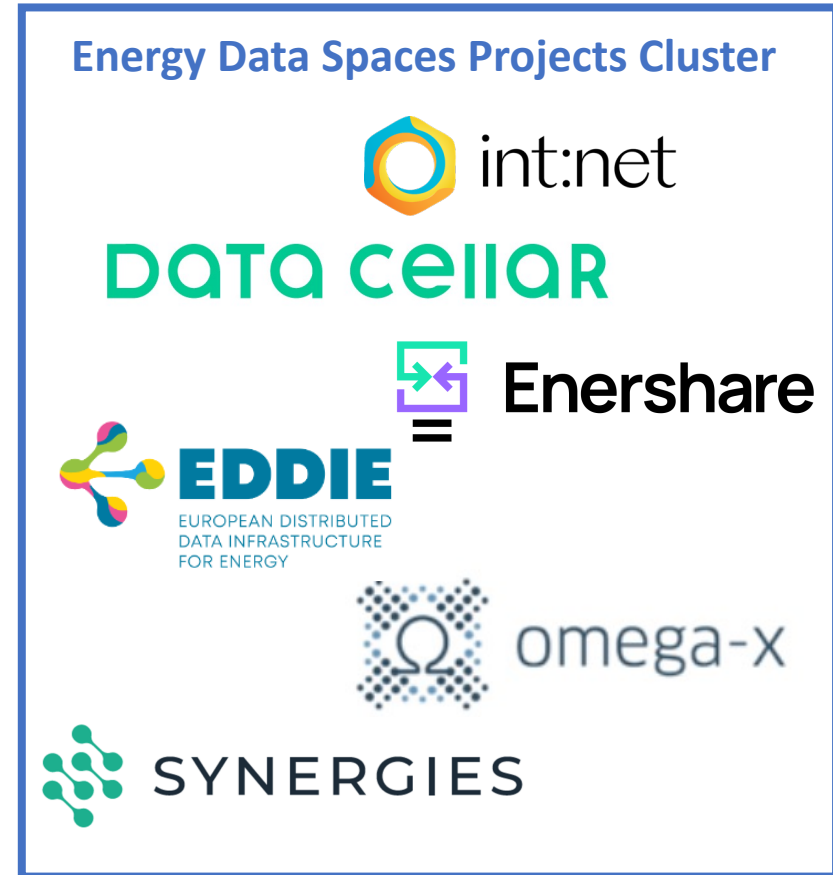


Data Management WG + other WGs

bridge

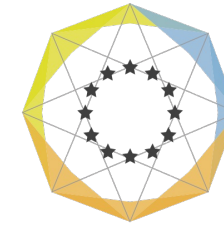
Objectives of energy data spaces projects cluster

- General objective: pilot innovative solutions to **prepare the ground and building blocks for deploying the common European energy data space.**
- Specific cluster objectives :
 1. Priority **use cases** including roles and scope of data sharing
 2. **Target data sets** (i.e. what data and metadata should be made available in the common energy data space) and the respective providers of data.
 3. **Common building blocks** (e.g. standardized market roles, identification and authentication arrangements, data traceability, data sharing and reuse arrangements)
 4. **Interoperability** requirements (e.g. data models and formats, open APIs, protocols)
 5. Key **data hubs/platforms** that should be federated.
 6. Drive consensus across key stakeholders on defining the **governance arrangements**, and (where appropriate) investment needs.

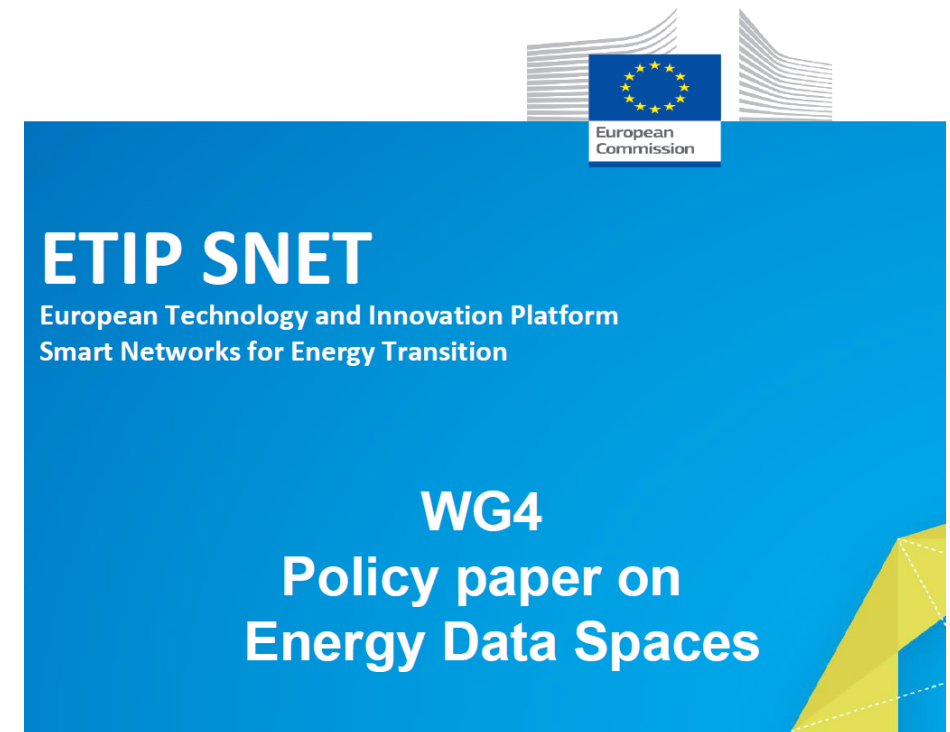


ETIP SNET report on Energy Data Spaces

- Scopes of the policy paper:
 - Assessment of the current status of evolution of Energy Data Spaces
 - Policy and regulation recommendations to facilitate the large deployment in Europe
- int:net coordinates with the Energy Data Spaces HEU projects: (i) the key challenges and (ii) the policy and regulation recommendations
 - Survey to collect also external inputs



ETIP SNET
PLAN. INNOVATE. ENGAGE.

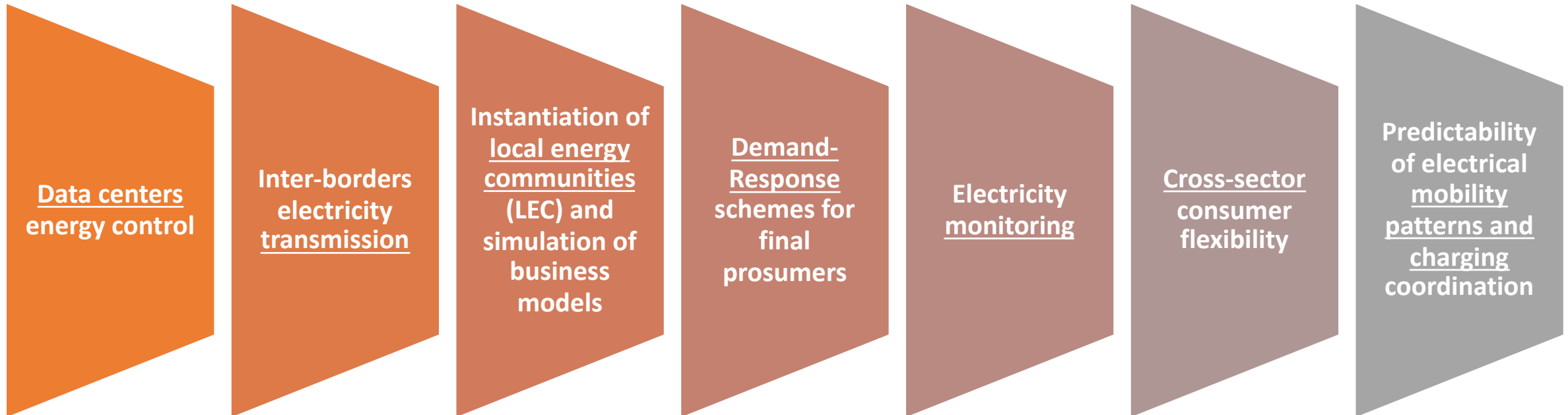


Use cases from the ETIP SNET report

Main categories:



Some of the addressed use-cases:



Foster harmonization of mechanisms, ontologies and standards

Most of the functionalities are covered by existing various data models: effort in aligning them

Federation of data spaces in the ecosystem

Interoperability of different (sub-)data spaces and dockerized services and applications

Regulation for the functioning of data markets.

- Accessibility to smart meters data (EU directive 2019/944 to be put in place)
- Differences among member states → common minimum regulatory framework

Long term maintenance of data spaces

Measures for risks, e.g. abandonment of a key actor

Data valorization challenges: seamless incentive mechanisms and data markets covering B2B and B2C scenarios

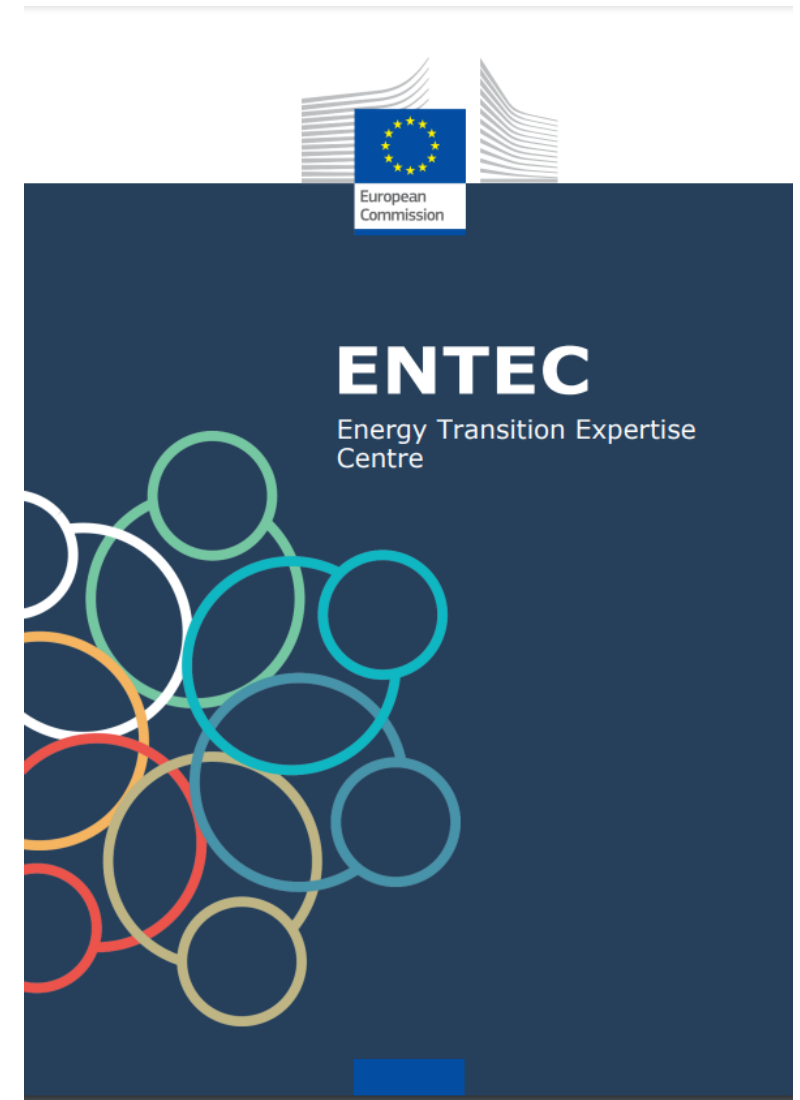
Monetary and non-monetary, social sciences and humanities (SSH)

EnTEC activities:

- Outline emerging trends and topics for the energy transition
- Exploratory and in-depth studies on selected topics
- Workshops and stakeholder conferences (with representatives from business, politics, regulatory bodies and academics)

From December 2022: study on Energy Data Spaces

- To be published in (around) October 2023
- As contributors:
 - Fraunhofer ISI, Fraunhofer IEE, Fraunhofer FIT
 - TNO



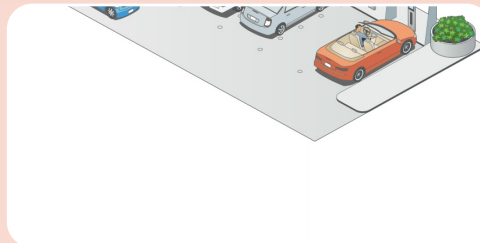
EnTEC: Energy Data Spaces



Consumption and metering



Virtual Power Plants and Aggregation



Smart charging and Vehicle-2-grid



Smart residential flexibilities

Key priorities of policy recommendations addressed in the report:

Electricity Market Regulation

Standardisation

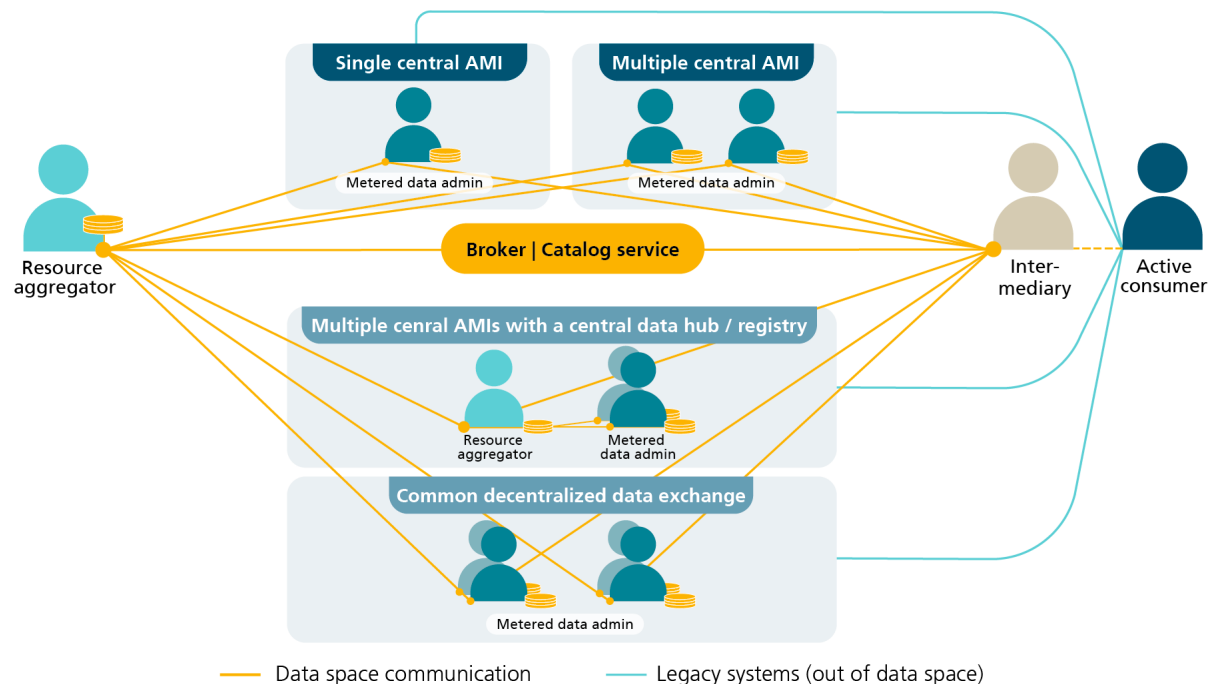
Data Access

Trust

Proposed implementation plan for data space development:

- 1 Define initial user stories and understand business motivation of key participant
- 2 Define and establish data space framework
- 3 Make data asset discoverable
- 4 Develop and provide processes to solve pain points
- 5 Extend data space features in iterative process

Example of data asset discoverability for the use case on smart metering data:



How to get involved in the process

- int:net is very much interested in national level initiatives. Please get in touch with me to report about experiences in Denmark.
 - It is important to develop standards that are accepted all over Europe
 - It is important to have consensus on the certification process
- The ETIP-SNET paper is an open paper. If you are interested in contributing we are always open for comments and suggestions
 - Feedback from industry particularly relevant
 - If you have in mind a use case for Energy Data Space, it is really important to share it



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News and material from int:net project:



<https://intnet-project.eu/>



<https://www.linkedin.com/company/int-net-project/>



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