



OPEN DEI

InterConnect and OPEN DEI: the results
between H2020 projects cooperation

Alberto Dognini – RWTH Aachen University

OPEN DEI: How it Works

1 Ambassadors appointment

2 Definition of OPEN DEI ecosystem

3 Definition of working groups

4 Definition of supporting tools

5 WGs activities

6 Cross-domain activities

7 Creation of Task Forces

8 Implementation of TFs activities

Cross-domain: Task Forces

TF 1 Data Spaces

TF 2 Business Ecosystem

TF 3: Platforms, Pilots and Standards

TF 4: Business Impact

Domain specific: Working Groups

WGs Energy

WGs Manufacturing

WGs Healthcare

WGs Agrifood

Needs & requirements

Methods & models

Needs & requirements

Methods & models

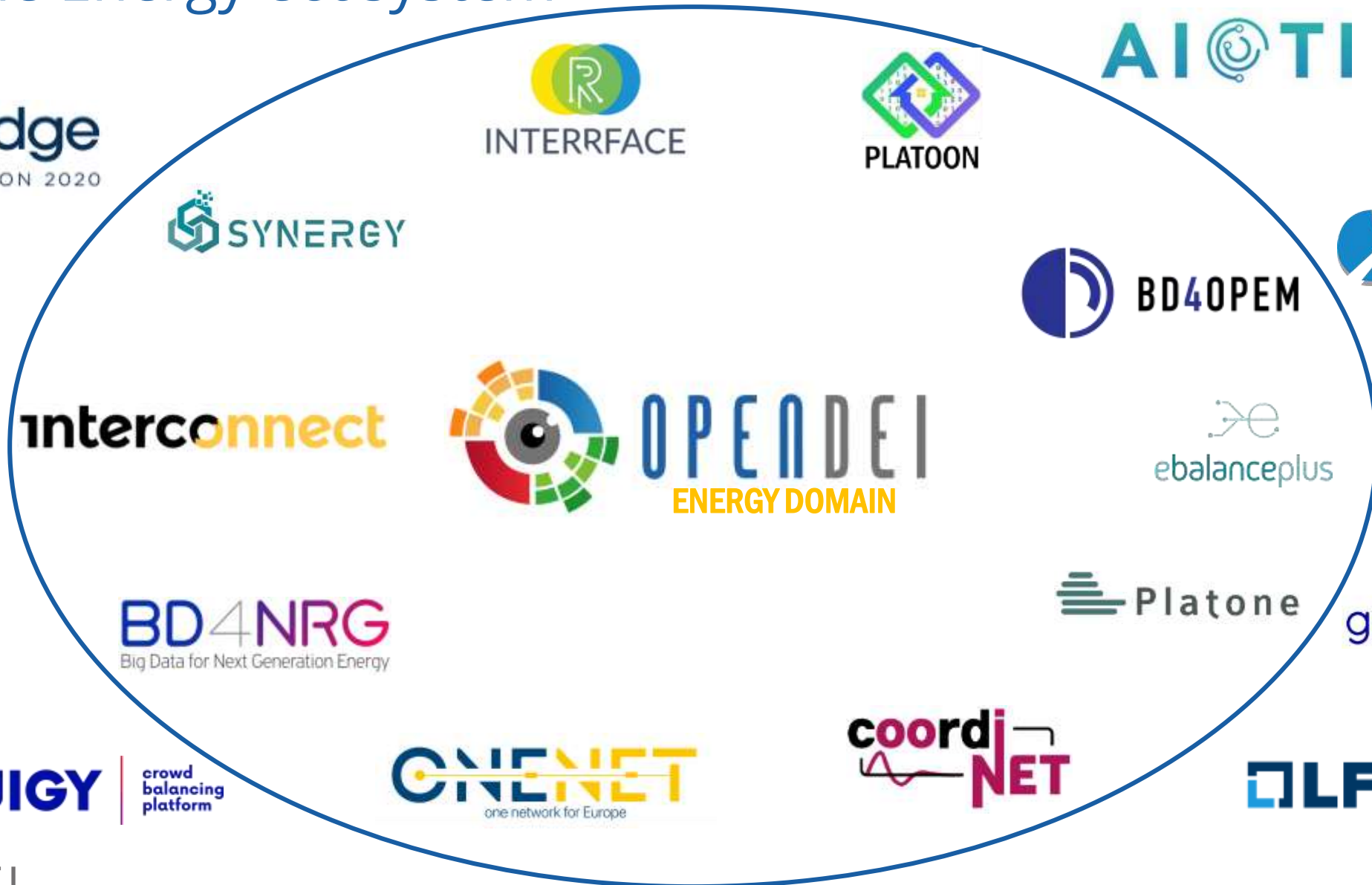
Coordination & Support: Digital Transformation

TECHNOLOGY-DRIVEN

BUSINESS-DRIVEN



The Energy ecosystem



InterConnect leading the OPEN DEI Energy WG1

1. From the proposed “Design Thinking Methodology” approach

Problem Framing

MANIFESTO:
envisioning the values provided by InterConnect

ECOSYSTEM MAP:
depicting pilot stakeholders, defining functionality, illustrating data flows

COUNTRY ANALYSIS:
investigating national contexts; learning from local peculiarities

Solution Design

USER PROFILE AND NEEDS:
identifying inspiring users; interpreting users' needs

SERVICE IDEA:
creating innovative services able to fulfill users' needs

SERVICE CONCEPT:
conceiving service journey; designing business model

Solution Development

EPIC AND USER STORIES:
detailing service concept in epic and user stories

HIGH LEVEL USE CASE:
translating EPIC and user stories in high level use cases

2. To the booklet of pilots in Energy domain



InterConnect leading the OPEN DEI Energy WG1

- 4 projects & 22 pilots:

interconnect



- Harmonised conceptual data framework to identify:
 - The value of B2B data platforms
 - Obstacles to data sharing in energy, across different sectors and services

INTERFACE - SLOVENIA, HUNGARY



Asset-Enabled Local Markets

Cooperation of an automated marketplace for local electricity transactions and an integrated asset condition management system

Enabling an automated P2P marketplace that incentivizes the participation of low- and medium-voltage-grid users based on the capabilities of the grids' assets

Distinctive Features

- The functional specification of an automated marketplace for local electricity transactions
- Adapted market mechanisms for small electricity volumes
- An integrated asset-condition management system (ACMS)

Why

The Pilot's motivations:

- Enable local energy communities
- Support congestion management in the DSO grid
- Improve supply reliability
- Provide flexibility and ancillary services to the DSO
- Increase the involvement of small non-controllable renewable generation, demand response, and storage
- Engage local P2P market transactions
- Increase amount of existing local PV generation

What

The Pilot's expectations:

- **Technical:**
 - Smart asset management relying on ACMS
 - Bids with locational information (grid connection point/circuit)
 - Baseline calculations relying on quarter-hourly metering data
- **Business:**
 - Validation of a market model that is automated and adapted for small electricity volumes in an intraday timeframe
 - Use of a dynamic network-user tariff (DNUT)
 - P2P marketplace taking into account DSO grid topology
 - Entry simplification of small RES, demand response, and storage

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INTERCONNECT - FRANCE

Business Model

- Enable customers to reduce their bills by providing a dynamic tariff, an automation system to optimise their behaviour to the tariff, and monitoring/information support
- The service provider enables customers to maximise the use of the local RES by automatically synchronising consumption with periods of renewable energy production
- Market: new energy roles for residents and the municipality as energy consumers/prosumers

KPIs Definition

- The proportion of households participating in the Pilot (% of enrolled households compared with the total households contacted)
- The proportion of implicated households pursuing energy management with the app from the beginning to the end of the project
- Customer energy awareness (the rise in customer energy awareness measured by the increase in the energy awareness index through a survey)
- Customer satisfaction index: measuring customer experience on the completion and ease of setting up IoT equipment
- Customer/Municipality economic impact (the difference between the average electricity bill before the project and the average electricity bill after the project)



User Features

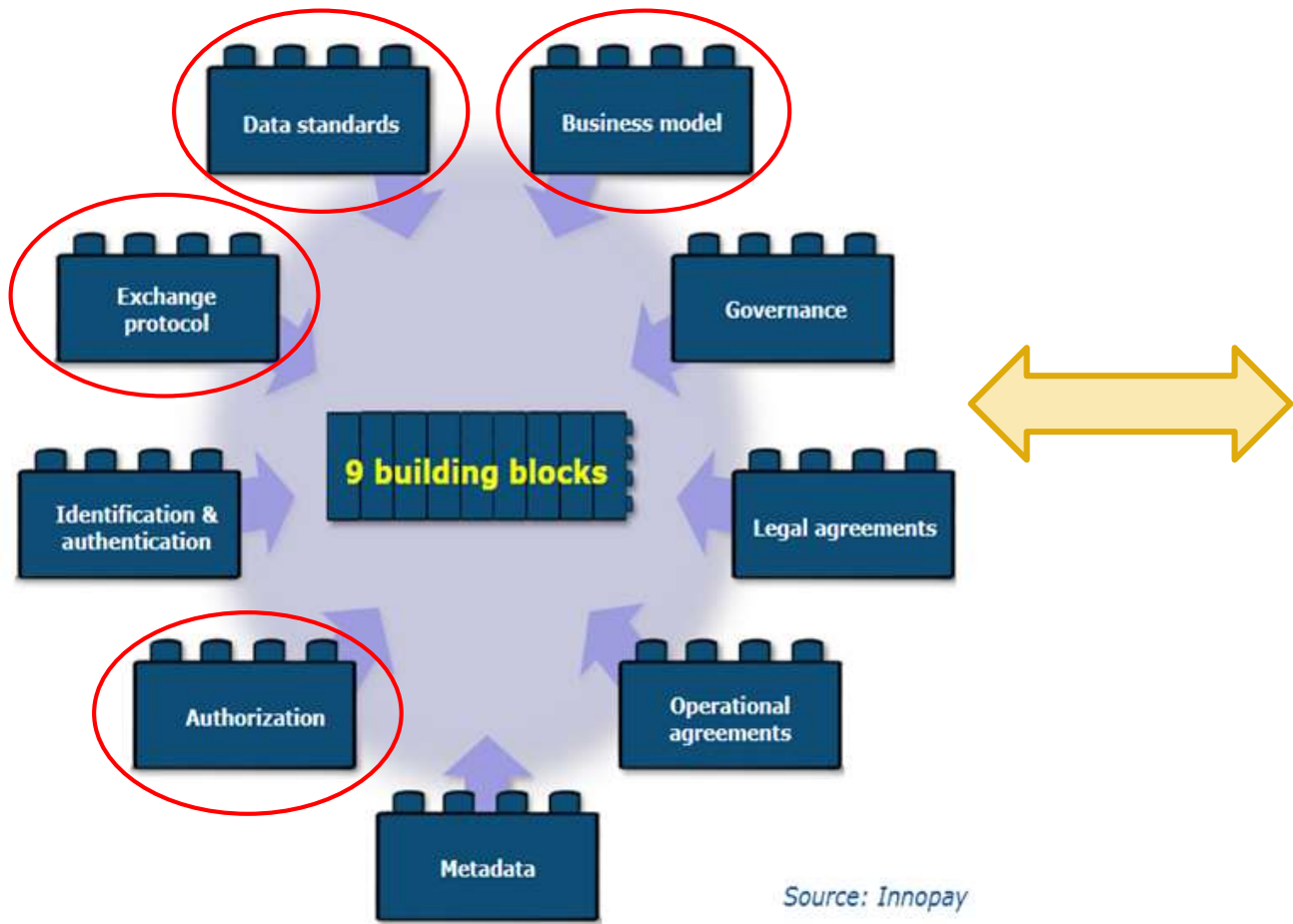
- Piloting the different devices remotely/locally using interoperable interfaces
- Remaining in control of the service
- Controlling the devices based on the renewable energy period/dynamic tariff period

Grid Features

- Flexibility manager for primary, secondary, and tertiary reserves

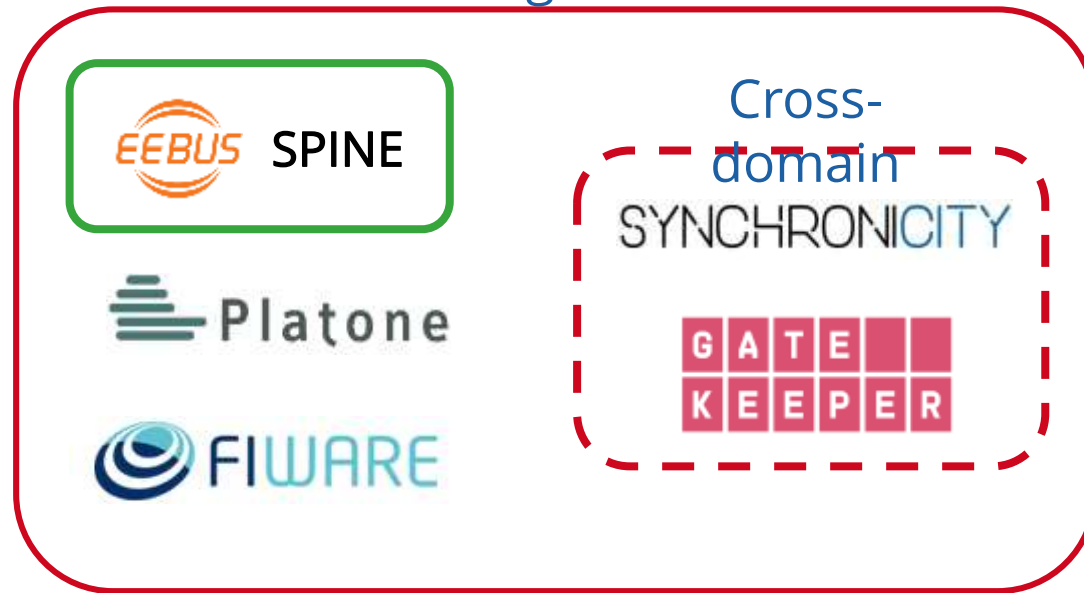
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Energy WG: "Architectures in Data Exchange Frameworks"



Source: Innopay

Data Exchange Architectures



European Energy Data Exchange Reference Architecture (DERA)



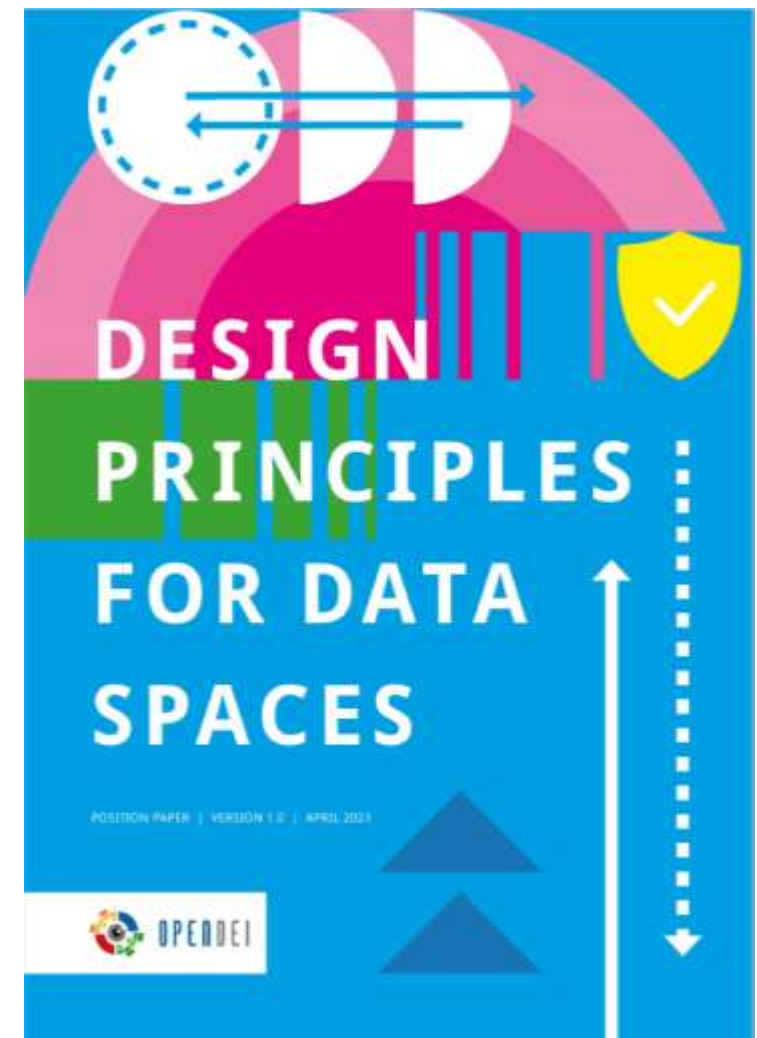
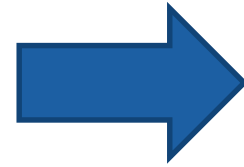
OPEN DEI Task Force 1: Design Principles for Data Spaces

Design Principles for Data Spaces

- 1 Data sovereignty
- 2 Data level playing field
- 3 Decentralised soft infrastructure
- 4 Public-private governance



 Technical Building Blocks  Governance Building Blocks



Source: OPEN DEI Task Force 1, Design Principles for Data Spaces – F

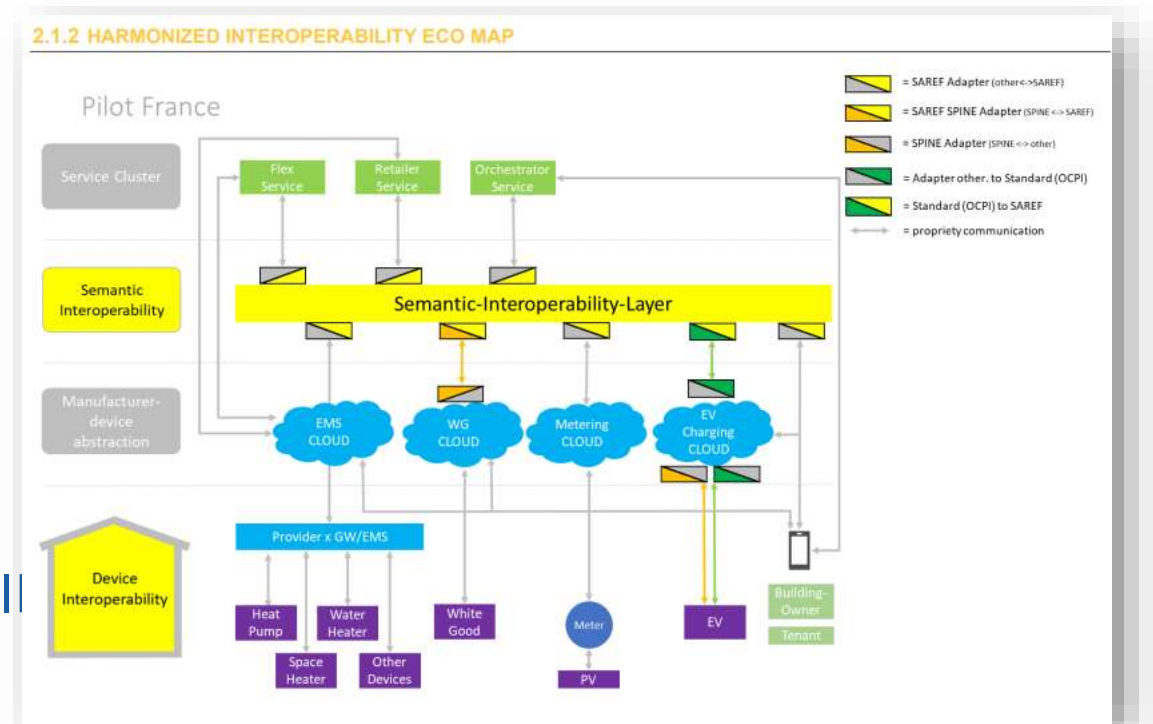


OPEN DEI Task Force 1: Design Principles for Data Spaces

Second iteration: assessment of Building Blocks for Data Interconnect



1. *The importance of building blocks*
2. *Components and Technologies:*
 - Interoperability. data models & formats
 - Trust. identity management
 - Data value. metadata & discovery
 - Data value. publications & marketplace
3. *Technical Reference Implementation:*
 - Semantic Interoperability Framework (SIF)



https://interconnectproject.eu/wp-content/uploads/2022/02/InterConnect_WP1_D1.1

OPEN DEI Task Force Task Force 3: Digital Platforms, Pilots and Standards

- Aligning Digital Platforms for DEI:
 1. Reference Architectures
 2. Interoperability Frameworks
 3. Topics of Interest for Federated Platforms:
 - Trustworthiness
 - Universal resource management
 - Digital twin and AI integration
 - Semiotic approach to support cyber physical systems
 - Interoperability approaches
 - Executable policies for digital governance



Abstract

The document represents the result of a Task Force on Digital Platforms, Pilots and Standards which aims at creating a framework to spur creative thinking, discussing and disseminating reflections and innovative proposals on the definition and the implementation of Reference Architectures, Interoperability Frameworks and Standards supporting the implementation of next generation European digital platforms in the four basic industrial domains: Manufacturing, Agriculture, Energy, Healthcare.



Being released
soon

OPEN DEI & InterConnect: joint events



“Data Spaces: common data models for Energy, Home, Mobility”

“Energy Architectures in Data Exchange Frameworks”

Round table on “Operational Digital Platforms”



CEF Operational Digital Platforms for Energy and Mobility Sectors

3 March 2022, 14:30-16:00

REGISTER AT: WWW.OPENDEI.EU



“Data Governance on Data Spaces”



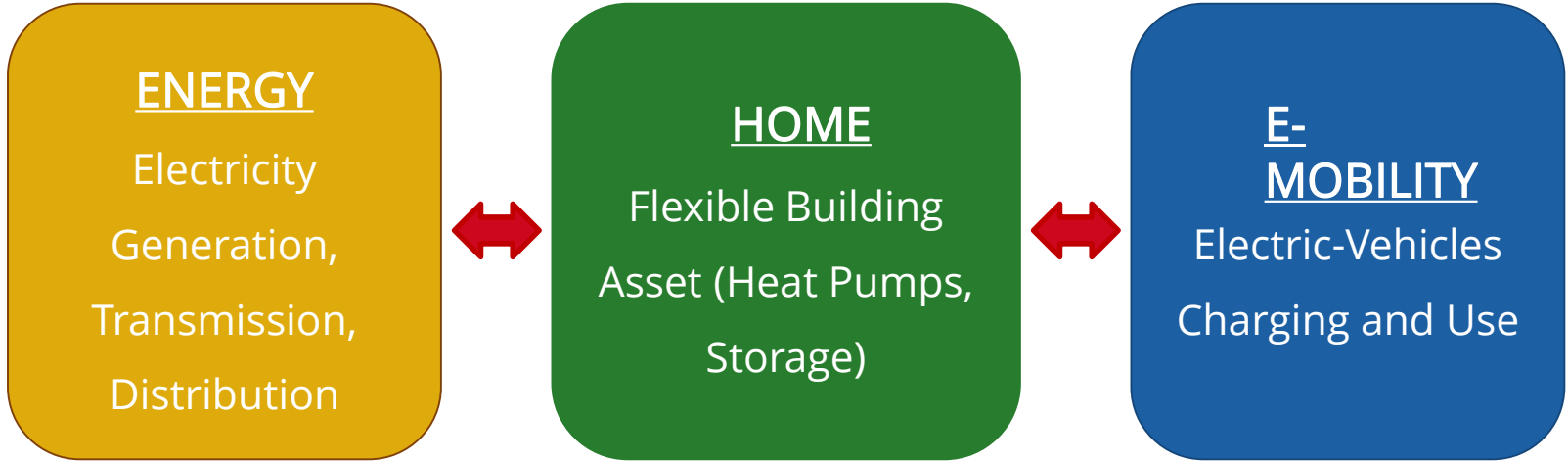


New Position Paper: "Data Spaces for Energy, Home and Mobility"

Massive Decentralisation and Digitalisation of Energy System



Interconnection of Data Exchange among:



Available on:

opendei.eu/resources





Content of Position Paper “Data Spaces for Energy, Home and Mobility”

ENERGY

1. CIM for Power System Reference Architecture
2. Ontologies in Common Data Models (PLATOON project)
3. SmartDataModels initiative (FIWARE)
4. Data Space based on Digital Twin entities

HOME

1. One system for communication of DSO and IoT devices:
EEBUS + OpenADR gateway
2. Standardised interoperability via SAREF

E-MOBILITY

1. Challenges:
 - a. Building blocks for open data ecosystem
 - b. Role and responsibilities of market actors
2. EEBUS use cases defines data models and functionalities via SPINE



Conclusions

- New use cases lead renovation and enhancement of traditional reference models:
 - New components (communication, information, function...)
 - Different role of building blocks
 - Cross-domain data exchange
- Implementation of effective data spaces opens new business models
 - to be founded on data sovereignty, trust and governance

And, further collaboration planned for the next months:

- SAREF-ETSI workshop (December 2022)
- OPEN DEI Impact Assessment and Portfolio Analysis of IoT Solutions
- Second iterations of Task Forces