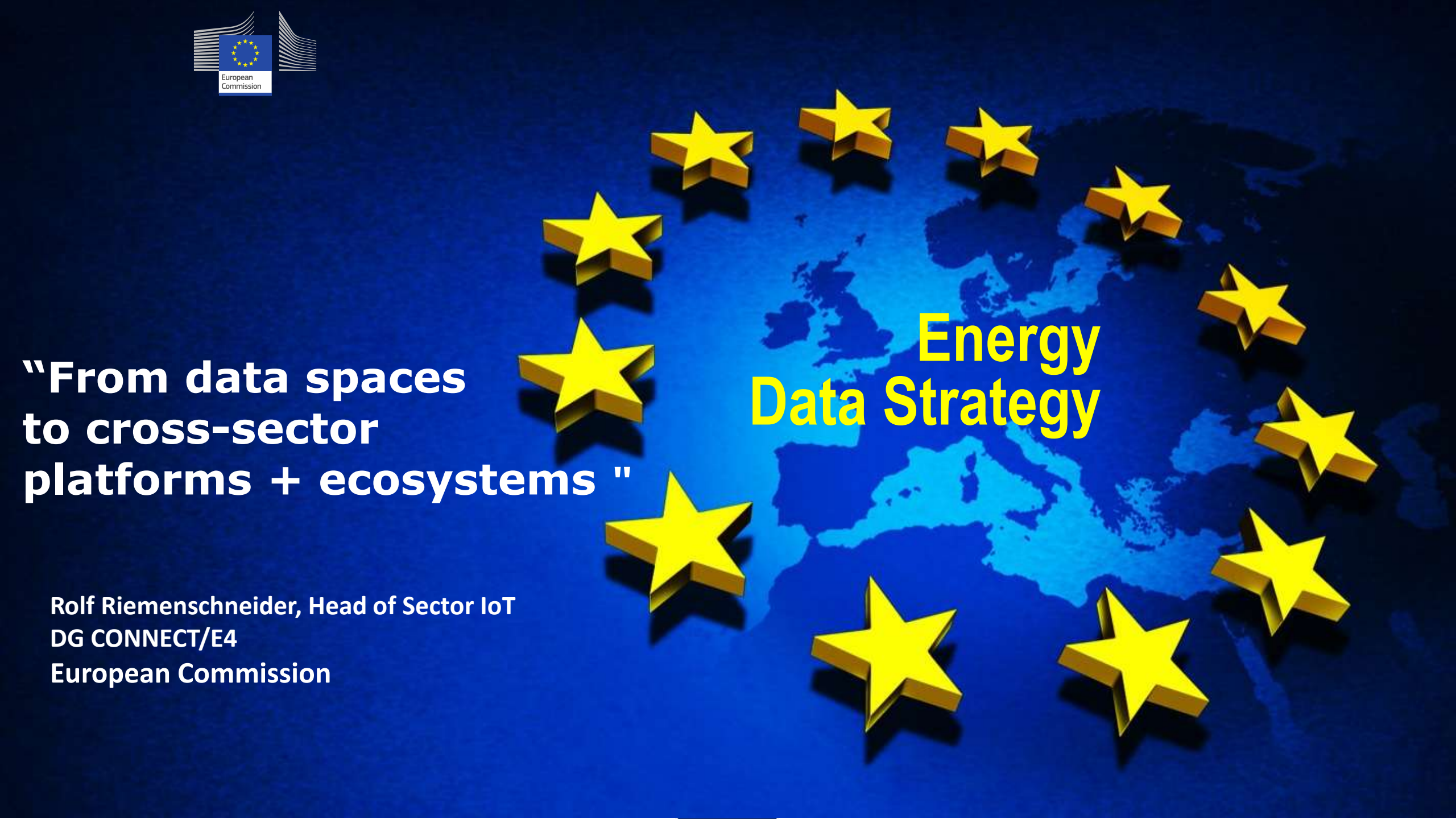


"From data spaces to cross-sector platforms + ecosystems "

Rolf Riemenschneider, Head of Sector IoT
DG CONNECT/E4
European Commission

Unlocking the potential of energy data: a political priority

Data Strategy

Establish a single market for data. Enable data sharing and establish fair and clear rules on data use and access.

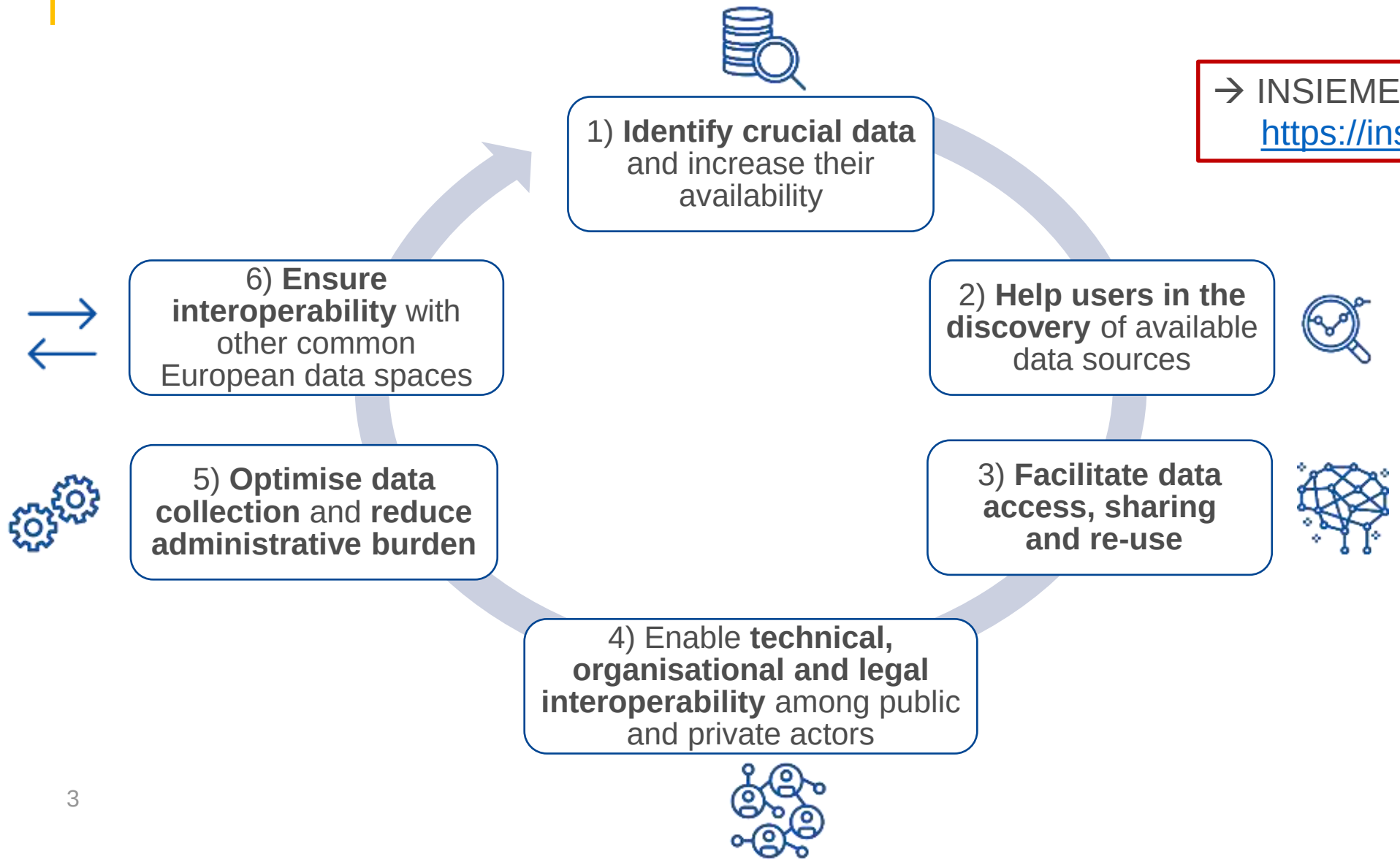
Digitalisation of Energy Action Plan

Support the deployment of **common European energy data spaces** and investment in digital energy infrastructure

AI Continent Action Plan

Apply AI Strategy to boost AI integration in strategic sectors
Address needs in computing, cloud and data infrastructures

Common European data space
– Harmonisation of Data Exchanges across systems



→ INSIEME Energy Data Space
https://insieme.energy/

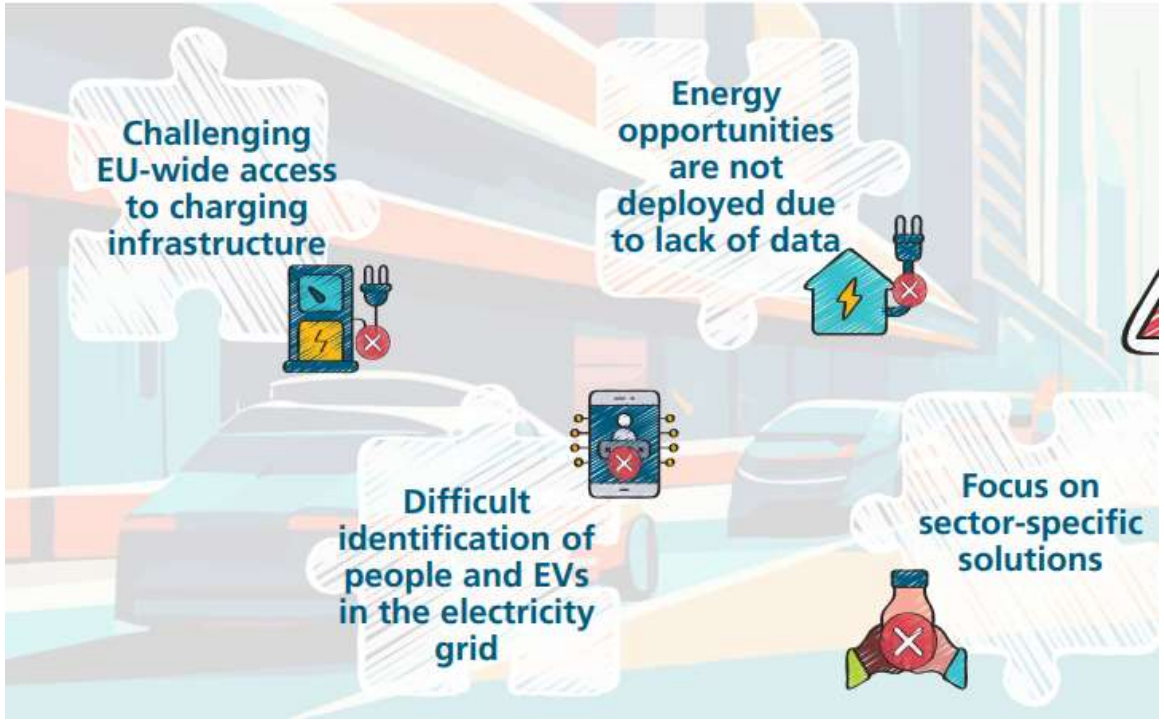
European Commission

A bright future – in “theory”

Courtesy: API4AI – *7 Key AI Trends Transforming the Energy Industry in 2025*

Lack of cross-sector orchestration

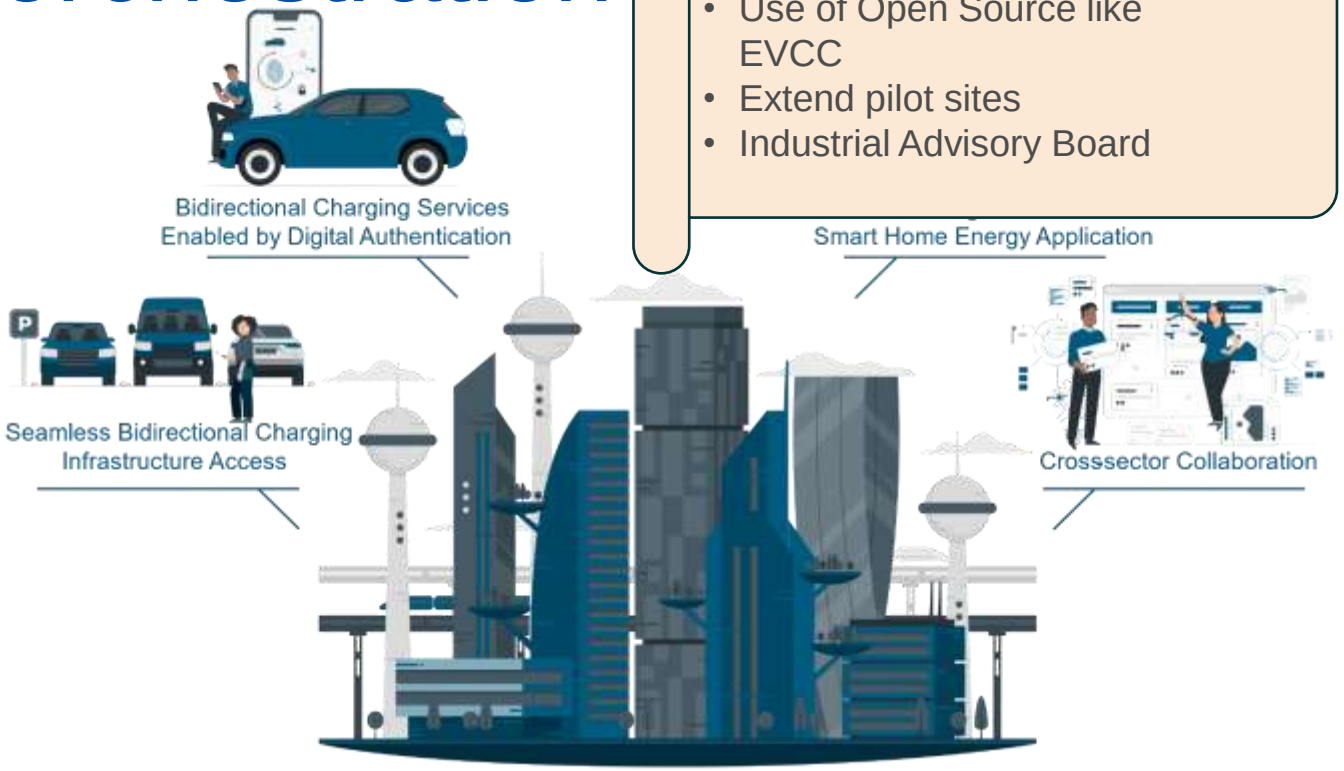
Challenges



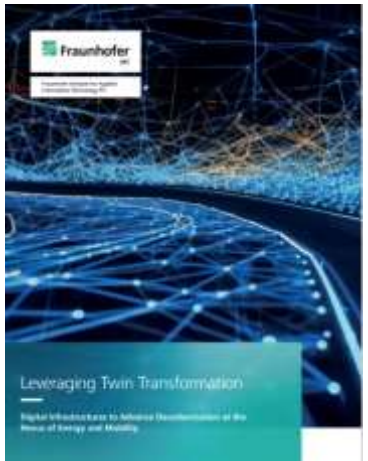
Pilot Project O-CEI

- Use of Open Source like EVCC
- Extend pilot sites
- Industrial Advisory Board

Opportunities



Study Report by Fraunhofer FIT, May 2024 *<<LEVERAGING TWIN TRANSFORMATION DIGITAL INFRASTRUCTURES TO ADVANCE DECARBONISATION AT THE NEXUS OF ENERGY AND MOBILITY >>*



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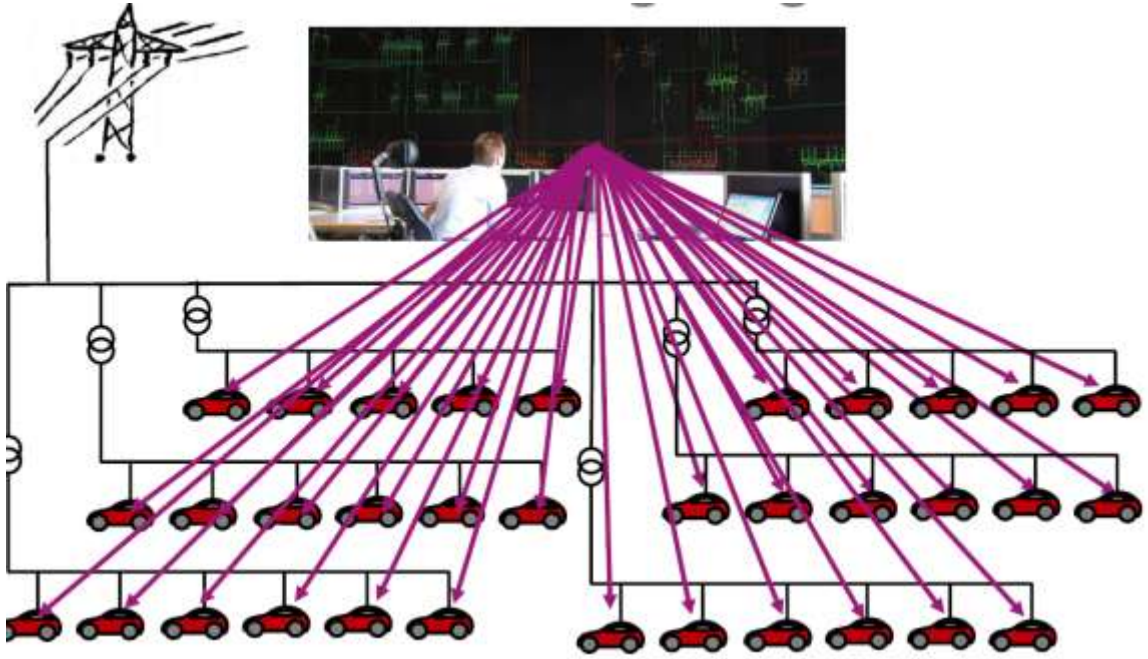
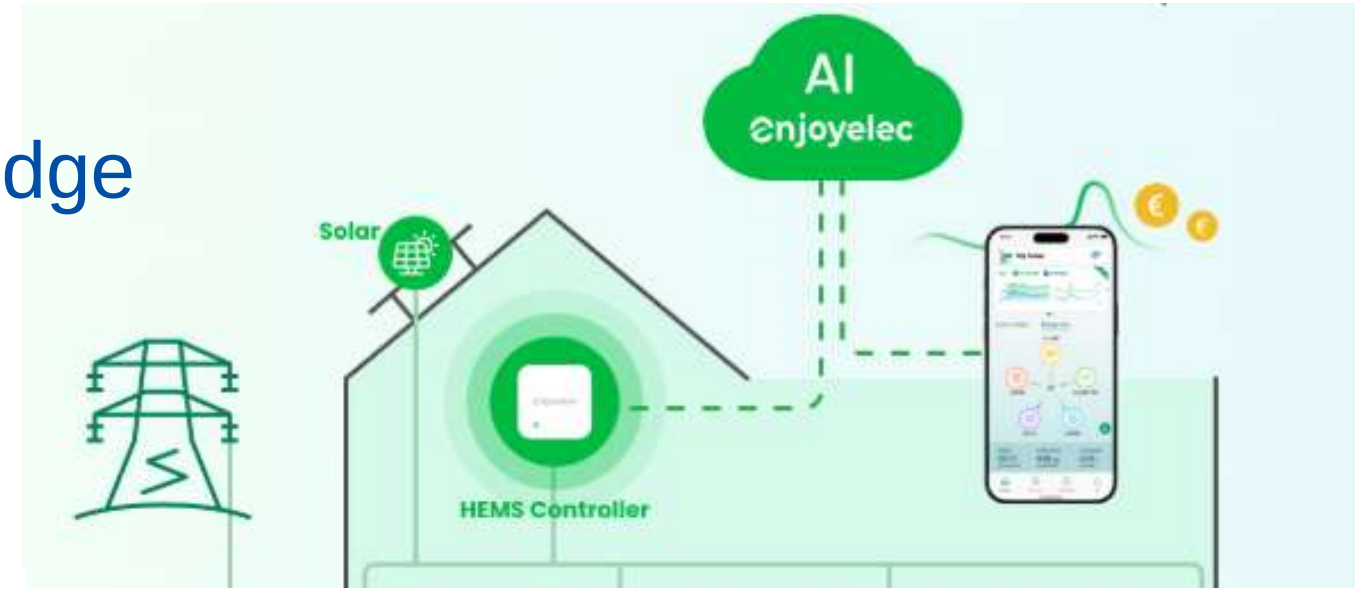
Swarm Intelligence at the Edge

- *today*

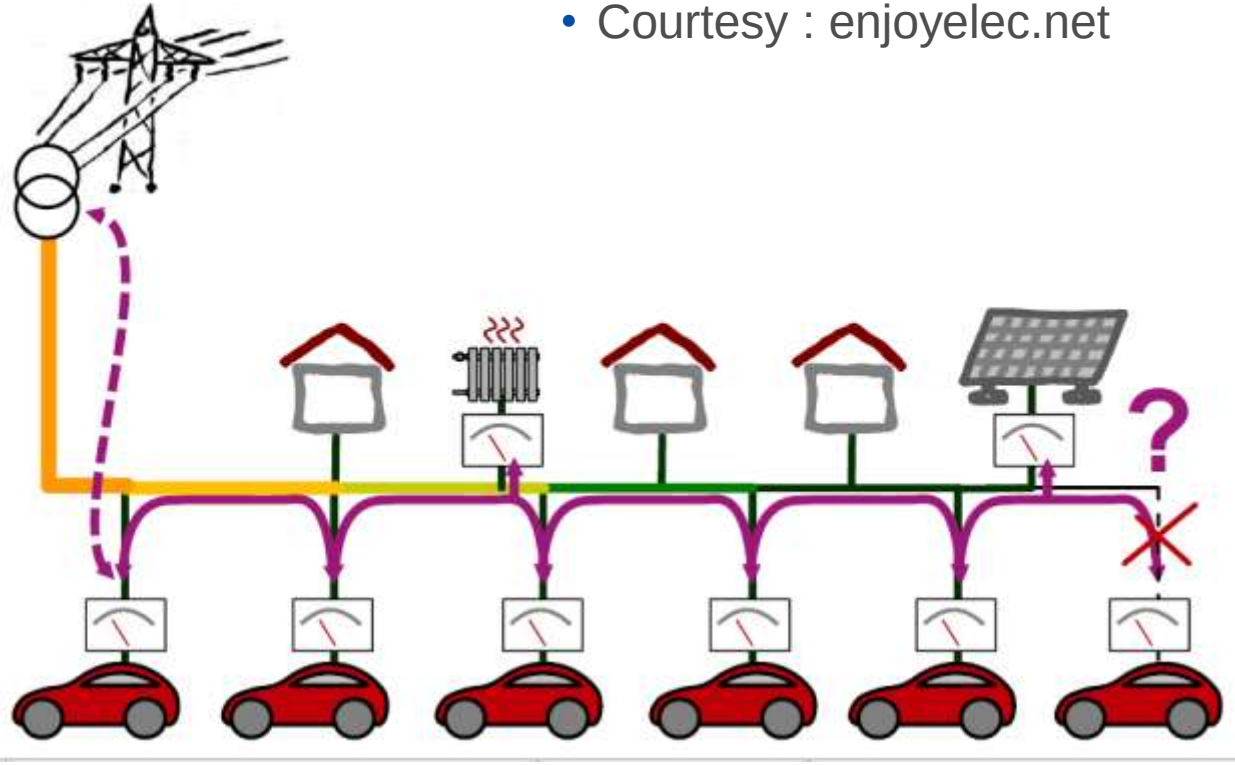


- Courtesy : E. Waffenschmitt



- Courtesy : enjoyelec.net

- *tomorrow*

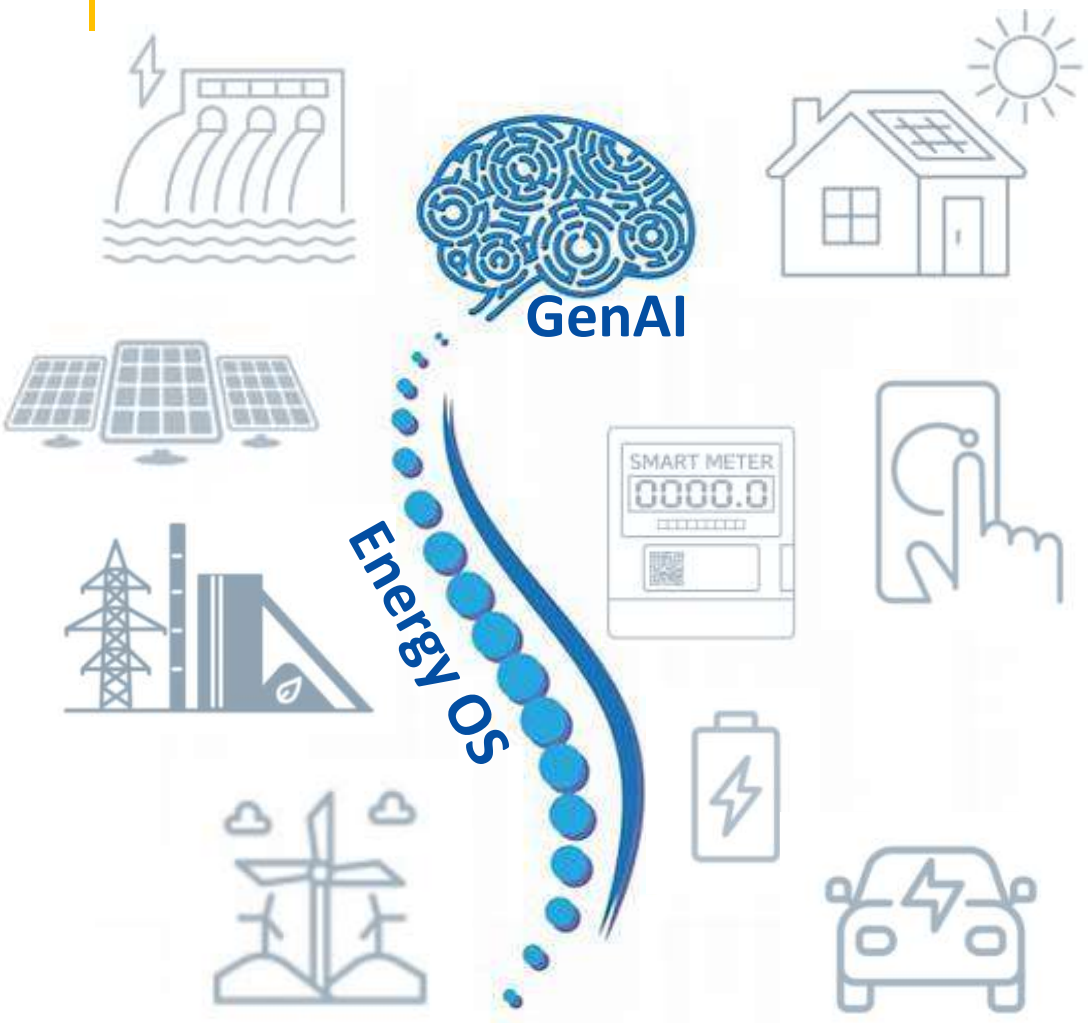


Impact of an Energy orchestrator (KPMG)

- **Navigating utility transformation**
  → in an era of tech disruption, climate uncertainty, and AI innovation

Courtesy: KPMG The Energy Orchestrator: [Redefining the Future of Utilities]

Towards a digital spine as an Orchestrator powered by GenAI



The power of GenAI + Data:

- Scenario generation & simulation
- Time series forecasting
- GenAI Decision-making models

Digital Twin → Energy Data Space

Better supply – demand side optimisation:

- Harness flexibility - shave peaks
- Increase security of supply
- Reduce carbon footprint
- Lower energy prices

Open platforms:

ecosystem – market place – standards – piloting

Horizon InfoDay on 06 May

A digital platform model necessary beyond interoperability

Standardise

Open APIs

OSS Building blocks

Use cases

Aggregate Data

Apps

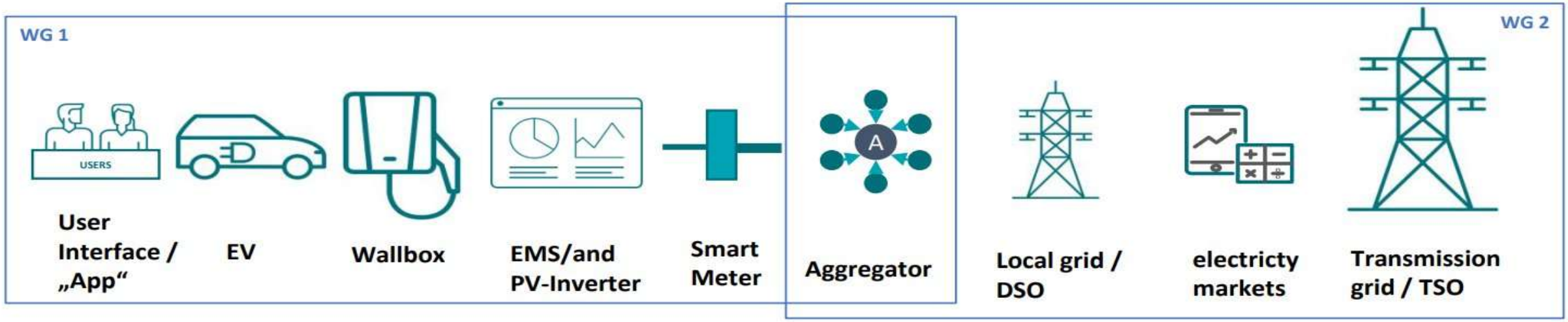
Smart charging ranks among the main use cases in fast rising cross-industry IoT use cases

Landscape Report (2023):
Energy and flexibility data models and interoperability across the sectors energy, mobility and buildings

Bidirectional Charging:
A Level Playing Field across the Value Chain

Different Actors need to talk…

- Urgency: From 2028, available *interoperable and standardised solutions for V2H and V2G*, provided that the relevant standards are determined by then and regulatory in place [National Centre for Charging – DE, 2024]
- Requires a high-level abstraction (similar to the CEN/CENELEC S2 standard)
- *Cross-Sector Dialogue* as a baseline for interfering the two camps at the (data) aggregator level



→ Press release: Coalition of the Willing for Bidirectional Charging by BMWK

D4E – Expert Group → Network Code / Smart Charging

Regulated Signals

- **Flexibility Information System** (central)
  - Asset registration, easy on-boarding of bidirectional charging equipment
  - Flex service provider / aggregator registration
- Trading on **Wholesale Markets**
- **Explicit Flexibility**
  - In emergency situations , e.g. §14a in DE
  - Industrial assets, solar parks etc.

Market Signals

- **Decentralised Governance model**
  → communities, virtualised power assets, e.g. VPP
- **Implicit Flexibility**
  → signals, aggregated attributes
- **STF/CoW: Blueprint for Smart Charging**
  → Common architecture of syntax
  → Sharing of identified set of data points via standardized communication protocols.
- **IEA Task 53 liaison**

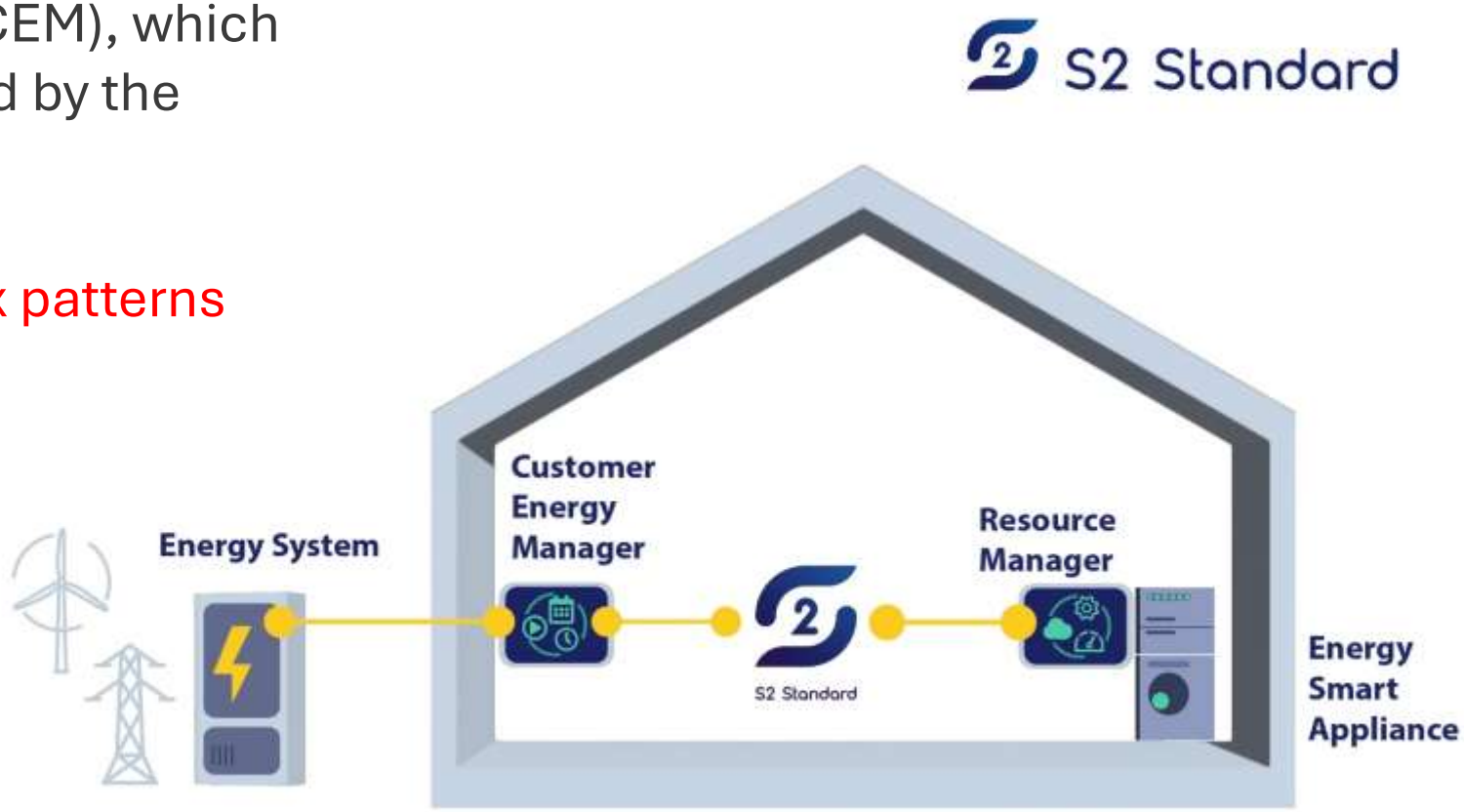
European Commission

CEN/CENELEC S2 Standard

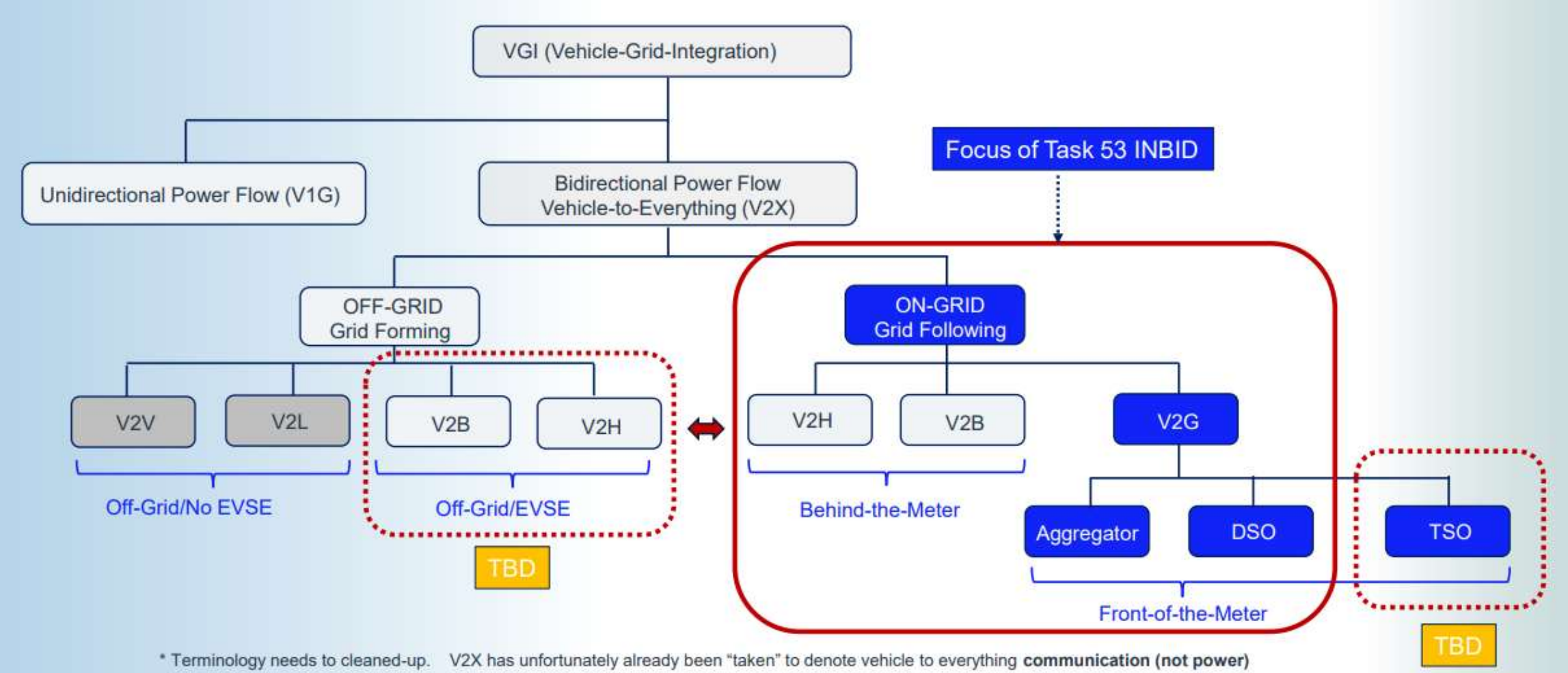
Customer Energy Manager and Resource manager

In S2, there are two entities that communicate with each other:

- The **Customer Energy Manager** (CEM), which orchestrates the flexibility provided by the appliances in the building
- The **Resource Manager** define flex patterns
- They communicate via **S2**



IEA Task 53 – Partitioning of Smart Orchestration



Challenges for X-Sector Standards

Industrial evidence:

reinforce market pressure

* standardisation of assets
- Involve SMEs, start-ups
- Feedback through an ecosystem (training ☺)

Diverse approaches

Across different domains

→ Level playing field

→ Abstraction, Virtual Objects

Avoid asymmetric regulation

→ align with parallel regulatory developments

Interoperability

* infrastructures and technical Interop requirements
* Need of Minimal Interop Mechanisms (MIMs)

Open source to benefit from enhanced collaboration with SDOs.

Global adoption

requires an international dialogue / benchmark

→ *Joint Workshop with Task 53 V2GLeaders.com*

THANK YOU

Useful links:

- ***Cloud-Edge-IoT Portal*** *– see www.EUCloudEdgeIoT.eu*

- **Digital Europe Programme**:
  https://digital-strategy.ec.europa.eu/en/activities/work-programmes-digital

- **CEF Digital: Operational Digital Platforms**:
  https://digital-strategy.ec.europa.eu/en/news/cef-digital-operational-digital-platforms

- OpenDEI: **Design Principles Data Spaces**
  → **https://design-principles-for-data-spaces.org/**

- **Data Space Support Center -** https://dssc.eu
  - Mobility Data Space https://mobilitydataspace-csa.eu
  - Energy Data Space – Background information

- ***V2G Workshop -Task 53 standardisation***
  20 Nov. 2025 in Brussels → **https://v2gleaders.com/**