SYNERGIES

Integrating Danish Energy Data Spaces with a European Platform

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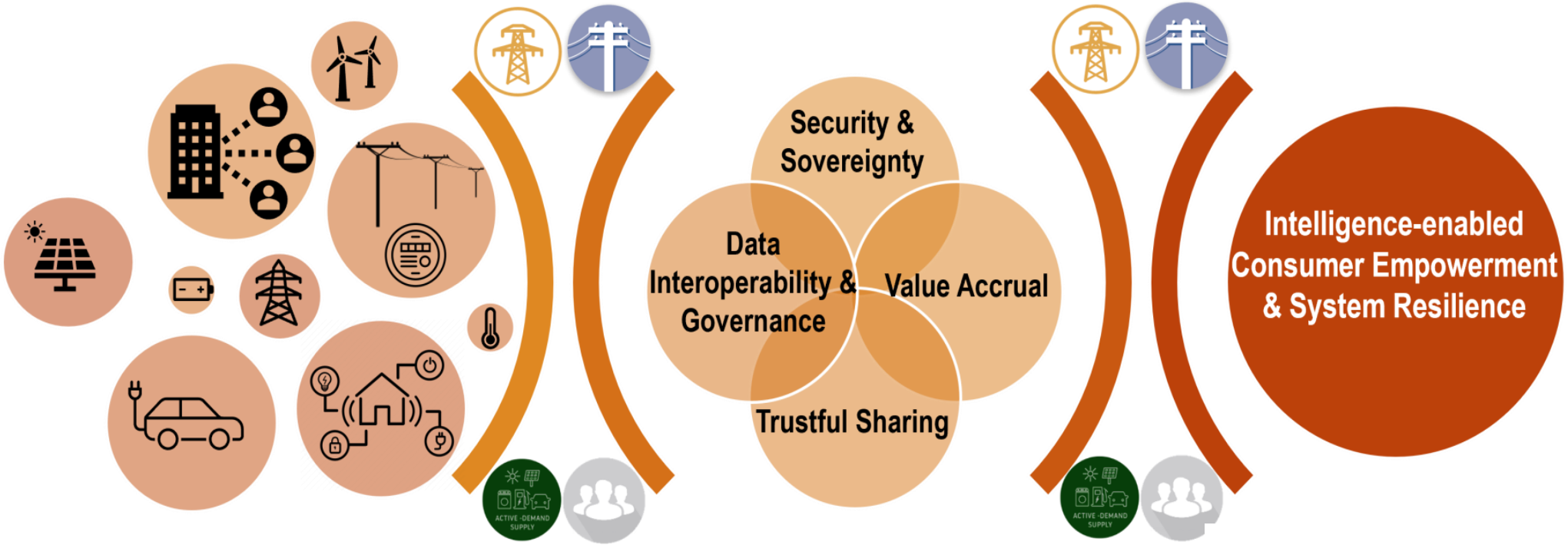
SYNERGIES

Shaping consumer-inclusive data pathwaYs towards the e**NERG**y trans**I**tion, through a reference **E**nergy data Space implementation

How can we create value for the consumers and the utilities?



Distributed Data Sources

SYNERGIES Energy Data Space

SYNERGIES Energy Services Marketplace

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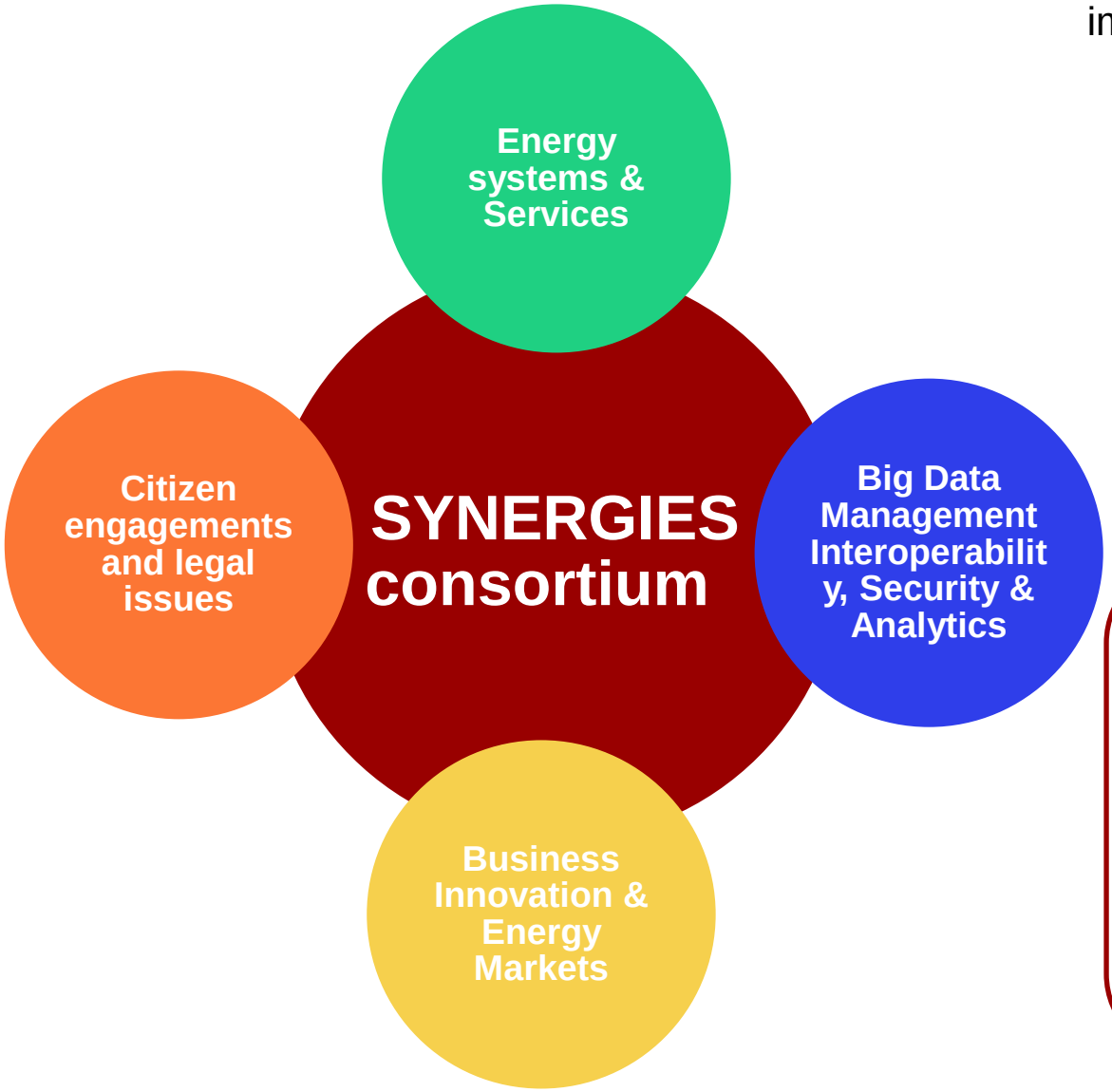
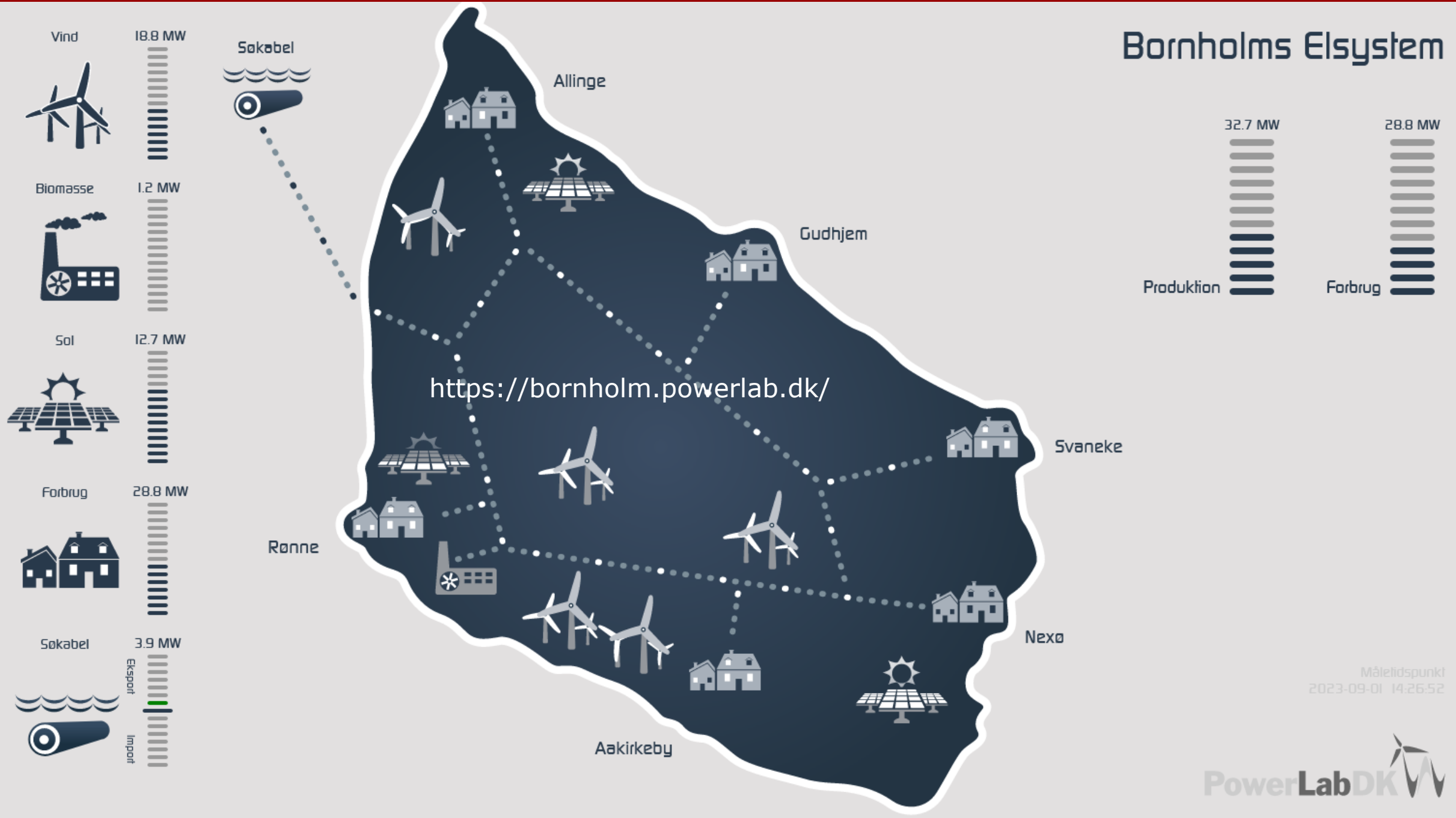


- The consortium has **22** partners from **11** countries with multi-domain expertise and interdisciplinary knowledge
- 3 **Demo-sites** are participating
- **Bornholm Island - Denmark** is one of the **Demo Sites**

Bornholm Island

Bornholm provides

- A model of the future 100% renewable-based energy system
- Second-to-none infrastructures, data collection and models
- **Live data** from assets including:
  - 60/10 kV power grid data
  - 29000 customer smart meter data
  - BOSS battery
  - Prosumer data
  - Heat pumps and district heating
  - 450 EVs and 75 public chargers


Bornholms Elsystem
Vind
18.8 MW
Søkabel
Biomasse
1.2 MW
Sol
12.7 MW
Forbrug
28.8 MW
Søkabel
3.9 MW
Eksport
Import
Allinge
Gudhjem
Svaneke
Rønne
Nexø
Aakirkeby
https://bornholm.powerlab.dk/
32.7 MW
Produktion
28.8 MW
Forbrug
Måletidspunkt
2023-09-01 14:26:52
PowerLabDK

The Danish Demo-Site

Data Asset Owners

TREFOR is the DSO

BEOF acts as the LEC operator

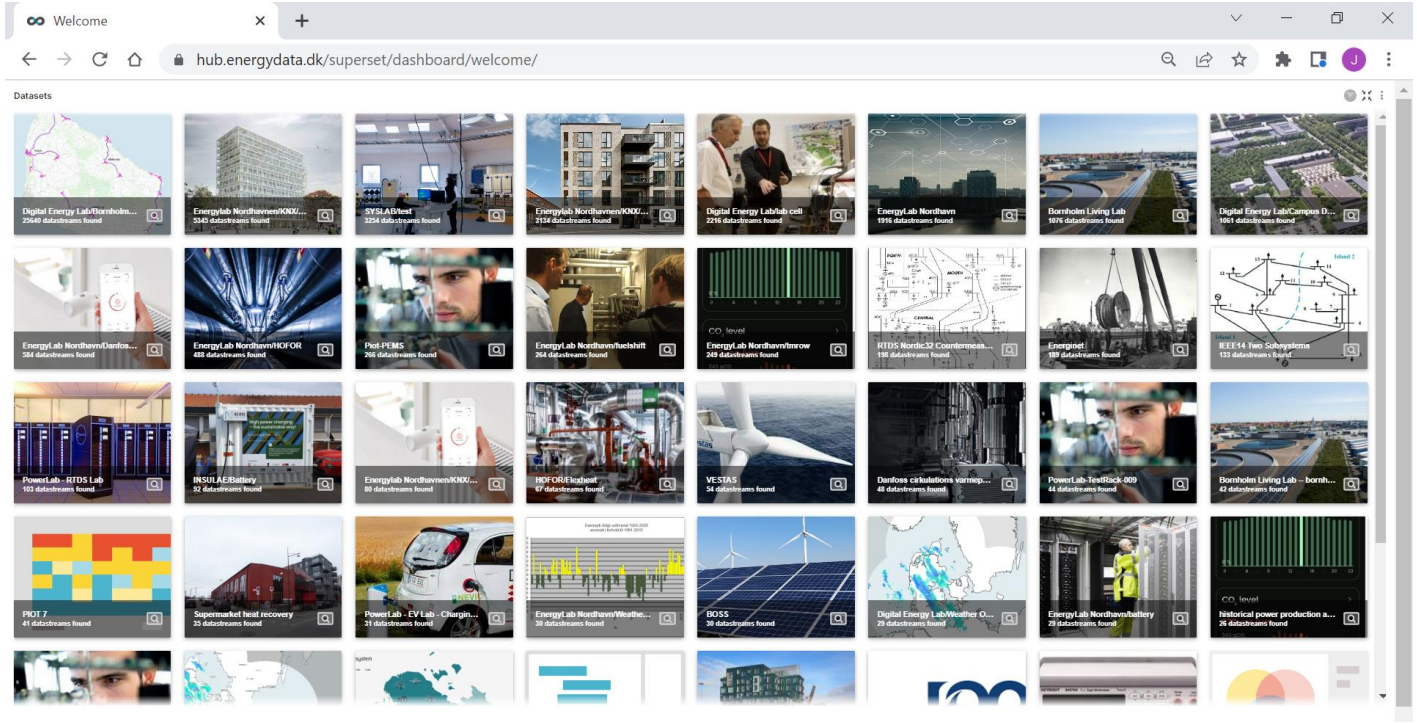
TREFOR

- Distribution System Operator (DSO)
- Power grid data i.e., network topology and power measurements
- Production and consumption smart metering data

BORNHOLMS ENERGI & FORSYNING

- Local Energy Community (LEC) Aggregator
- Chosen prosumer's (consumer/producer) smart meter data
- Prosumer with PV, Heat Pumps, EVs and Wind turbines

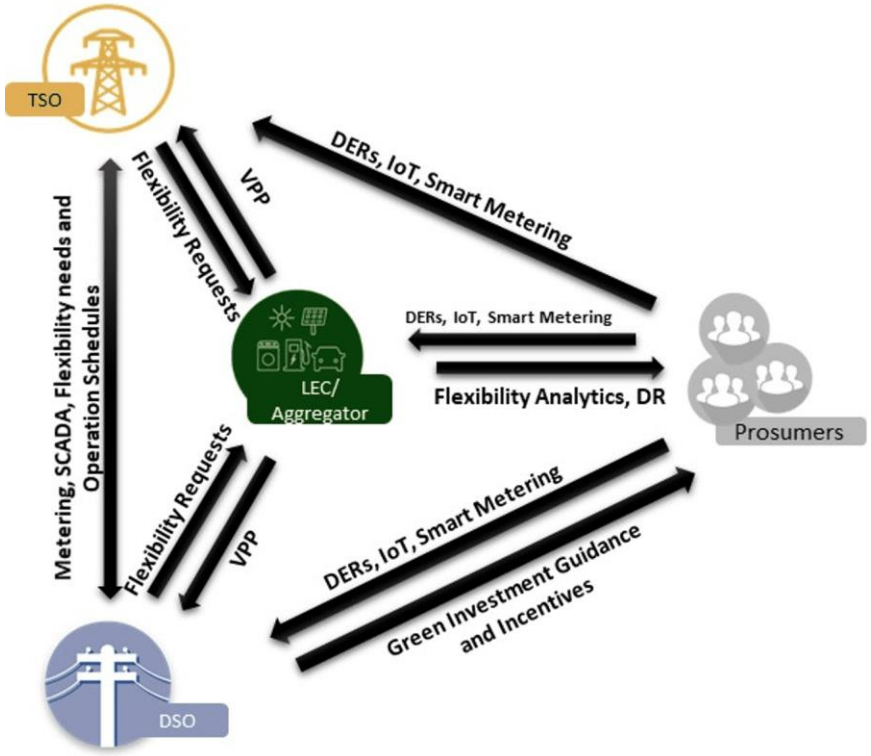
EnergyDataDK



- EnergyDataDK – Data warehouse with access to 40,000+ timeseries for research, demonstration projects and living labs
- Data from Bornholm includes: SCADA data mirroring TREFOR, BOSS data, e.t.c
- We provide a data pipeline from the Danish Demo-Site to SYNERGIES' "platform"
- The goal is connecting **EnergyDataDK** with European Data Platforms

Link: www.energydata.dk

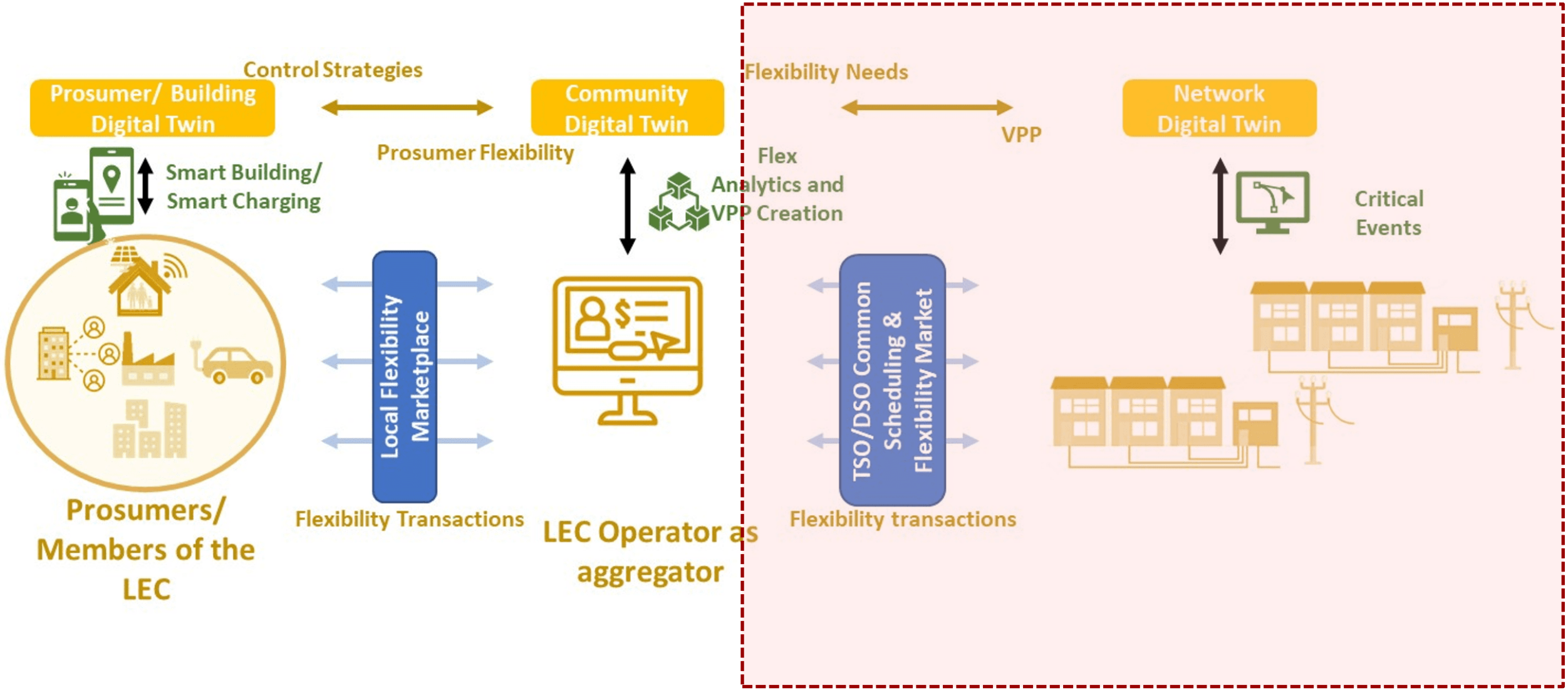
Danish Demo-Site: Demonstration Cases



How can we create value for the consumers and the utilities?

- Proactive Flexibility-Aware Network Management
- Data-driven network asset management and predictive maintenance
- Dynamic Virtual Power Plant configuration and Consumer-Centric Demand Response
- Local Energy Community Self-Consumption Optimization
- Consumer Empowerment through Flexibility transactions at local level

DTU Role in SYNERGIES



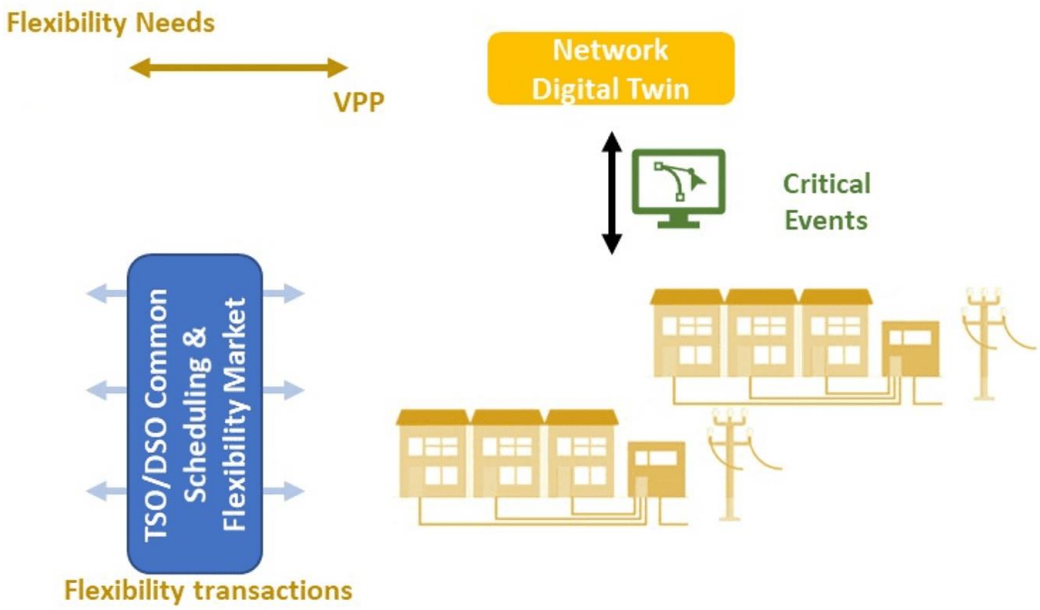
DTU Role in SYNERGIES

Real-time Digital Twin

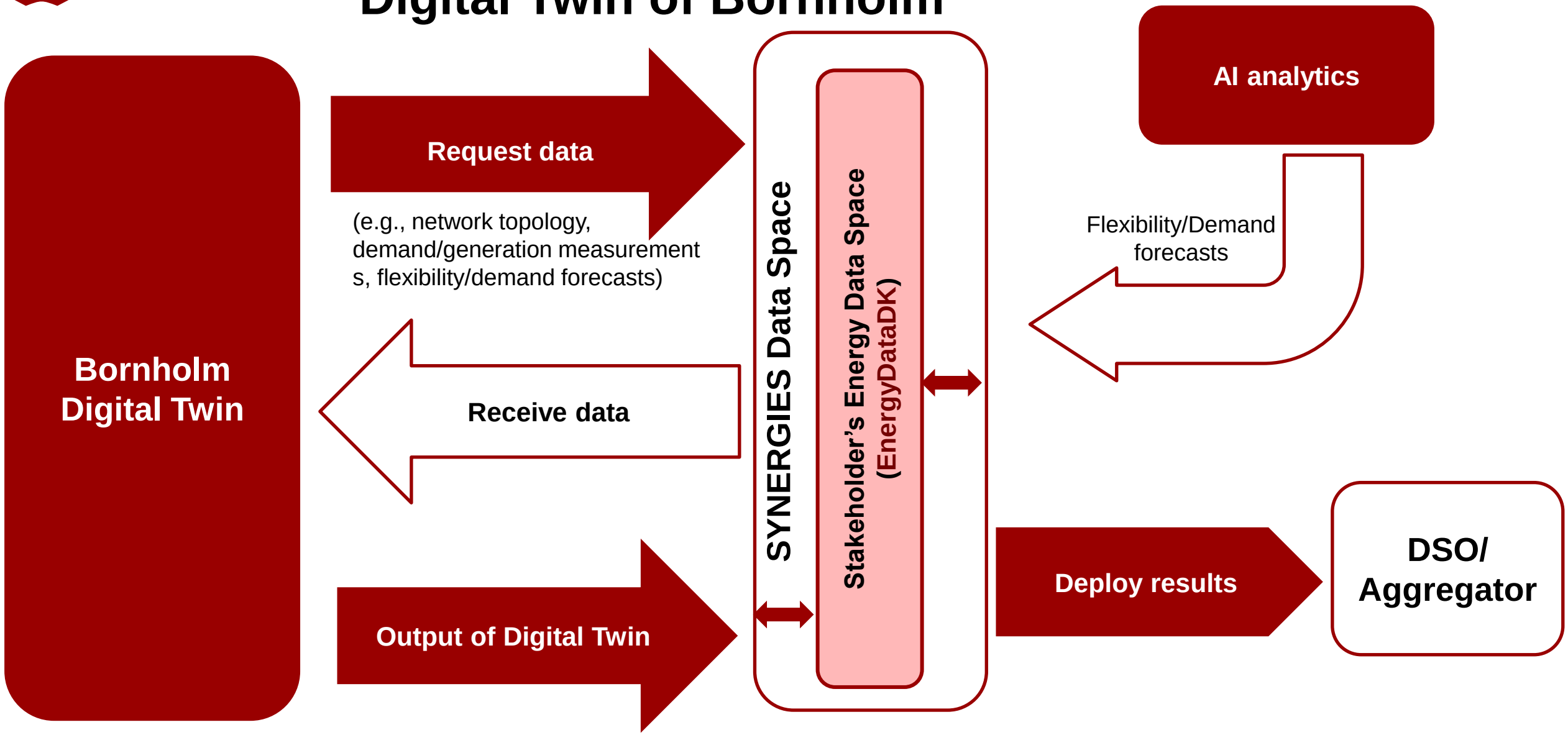
- Develop a high-fidelity, data-driven and fine-grained representation of the Bornholm distribution grid
- Role: Network Congestion and Voltage Violations Identification and Management

AI analytics tools

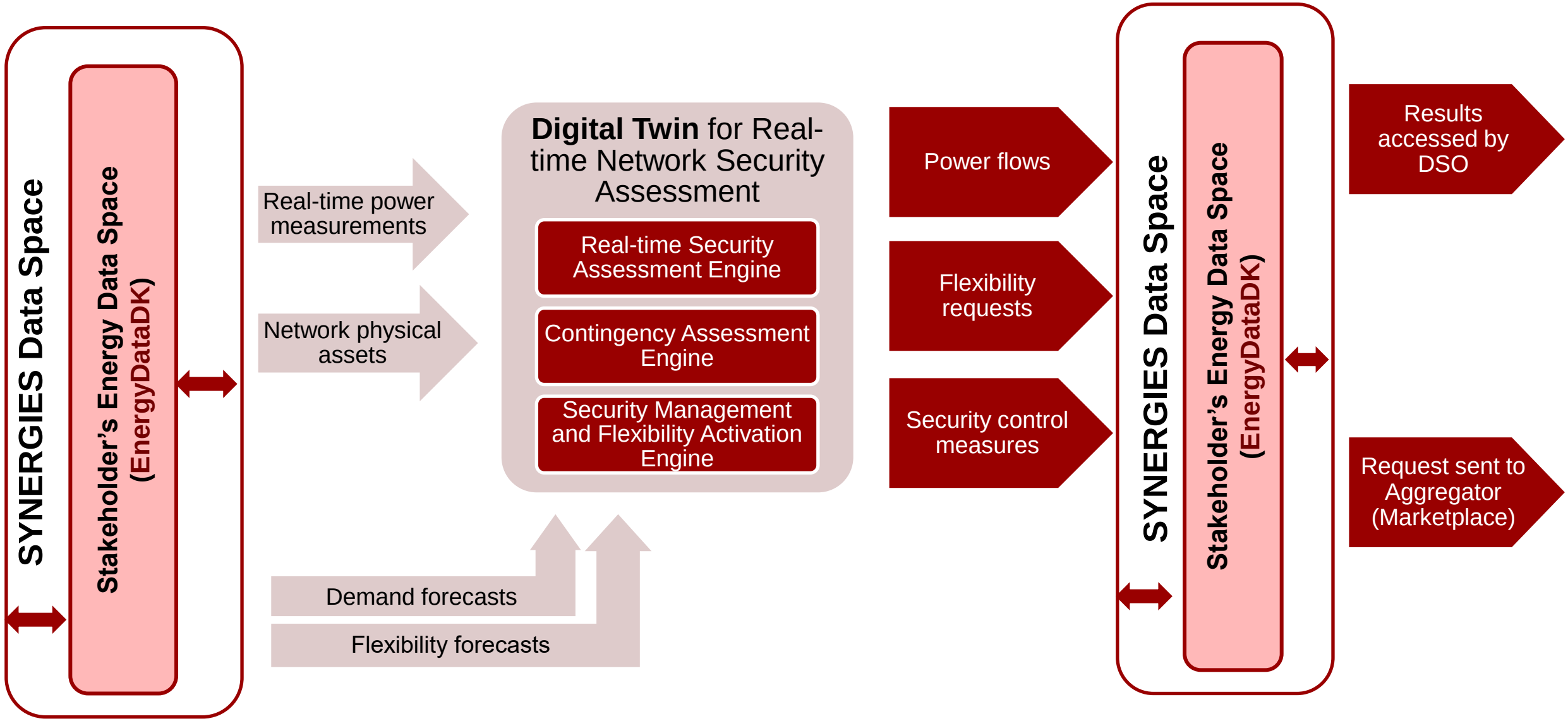
- Develop AI analytics tools for Real-time Digital Twin
- Goal: demand, generation, and flexibility forecasting including network constraints
- Contribute to the development of hybrid physical/ML models



How we use the Energy data space for our Digital Twin of Bornholm



Components of the Digital Twin



Thank you for your attention!

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www.energydataspaces.eu

/synergies-energy-data-spaces

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