

## Large Scale Deployment of SAREF- Based Semantic Interoperability Solutions in InterConnect

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interconnect





# Objectives



Cross sector use-cases in buildings and grid



Large-scale piloting



Ecosystem for semantic interoperability adoption



Support Data Spaces

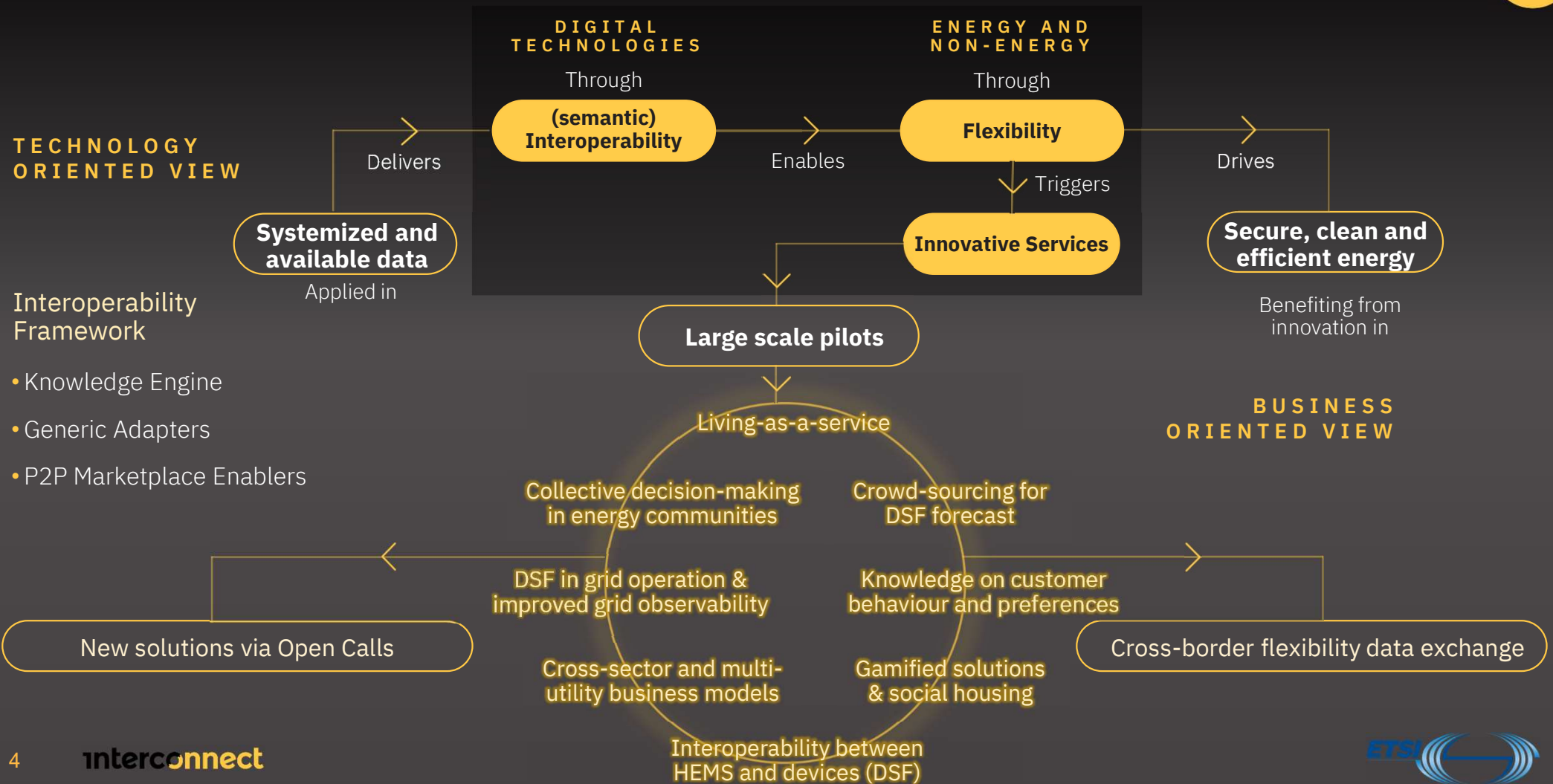


# InterConnect Project – Mission





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# InterConnect Semantic Proposition



Service Concepts

Service data models

Knowledge Graphs

Semantic Interoperability

**FROM** Custom Interfaces and Specific Lifecycle Integration

2



**One-to-one Mapping**  
Data centred interfaces

1



**Syntactic Interoperability**

**FROM** Specific Data Model and protocol agreement

3



**Domain Knowledge Representation**

**THROUGH** Agreement for Common Domain Representation

4



**Knowledge Graphs**

**TO** Knowledge modelling

5



**One-to-many Mapping**

**TO** Knowledge Dissemination Interface

6



**Semantic Interoperability**

**UNTIL** Reasoning and Knowledge Discovery



Ecosystem Interoperable Services

ENERGY	NON-ENERGY
CROSS-DOMAIN	CROSS-PILOT

Interconnect Interoperability Framework

STANDARDS



IN LINE WITH

FIWARE	GAIA-X	IDSA
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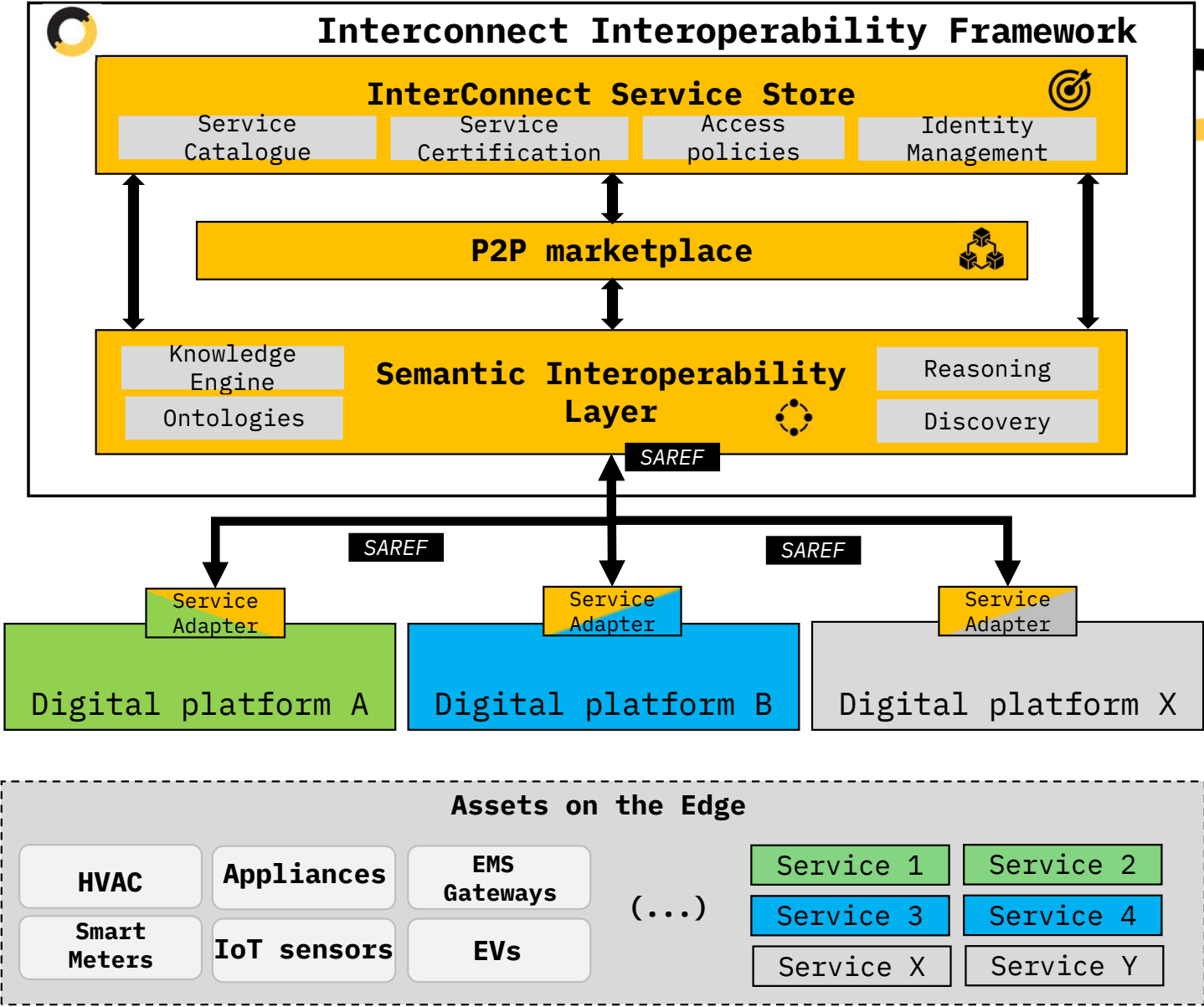
SEMANTIC INTEROPERABILITY BASED ON

ONTOLOGIES	GRAPH PATTERNS
KNOWLEDGE FEDERATION	

Interconnect Stakeholders

R&D
CONSULTANCY
MANUFACTURERS
ASSOCIATIONS
DSOs
RETAILERS
END USER

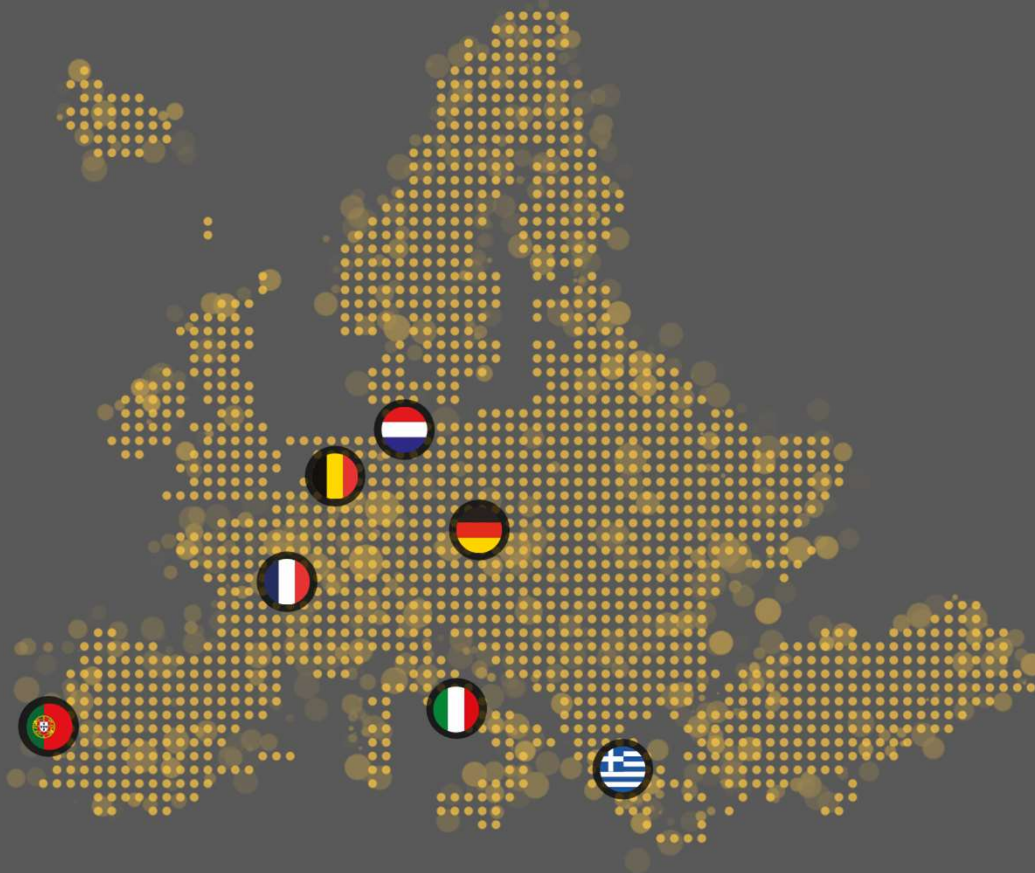
Security and privacy framework , Admin and Governance



Use cases, Interoperable Services, Standardization



# Demonstrations



## Greece:

1000 households  
(150 with PV)

## France:

250 households  
20 tertiary  
buildings  
1 school

## Portugal

250 households  
12 non-  
residential  
buildings

## Netherlands

200 apartments  
EV charging  
infrastructure

## Germany

50 households  
15 hotels

## Belgium

636 households:  
51 buildings  
and 60 EV  
charger  
stations  
Science park +  
EV chargers

## Italy

480 social  
apartments



# Interoperability in practice #1

Example use case provided by the Dutch pilot





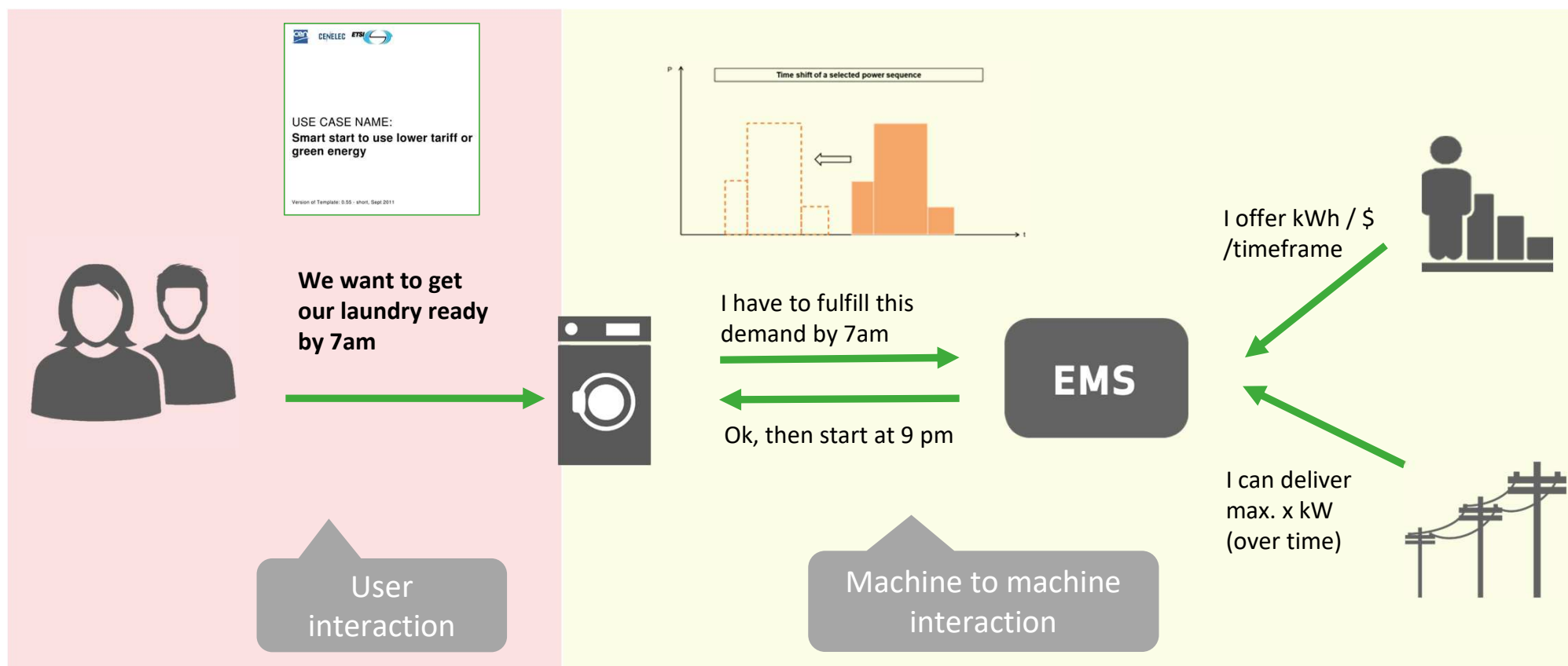
## Residential buildings use case

- Example use case provided by the Dutch pilot in Eindhoven, NL
  - 22-storey building
  - 160 apartments
  - Equipped with smart appliances and smart sensors
- Video available by
  - Ronnie Groenewold (Volkerwessels iCity)
  - Jorrit Nutma (TNO)





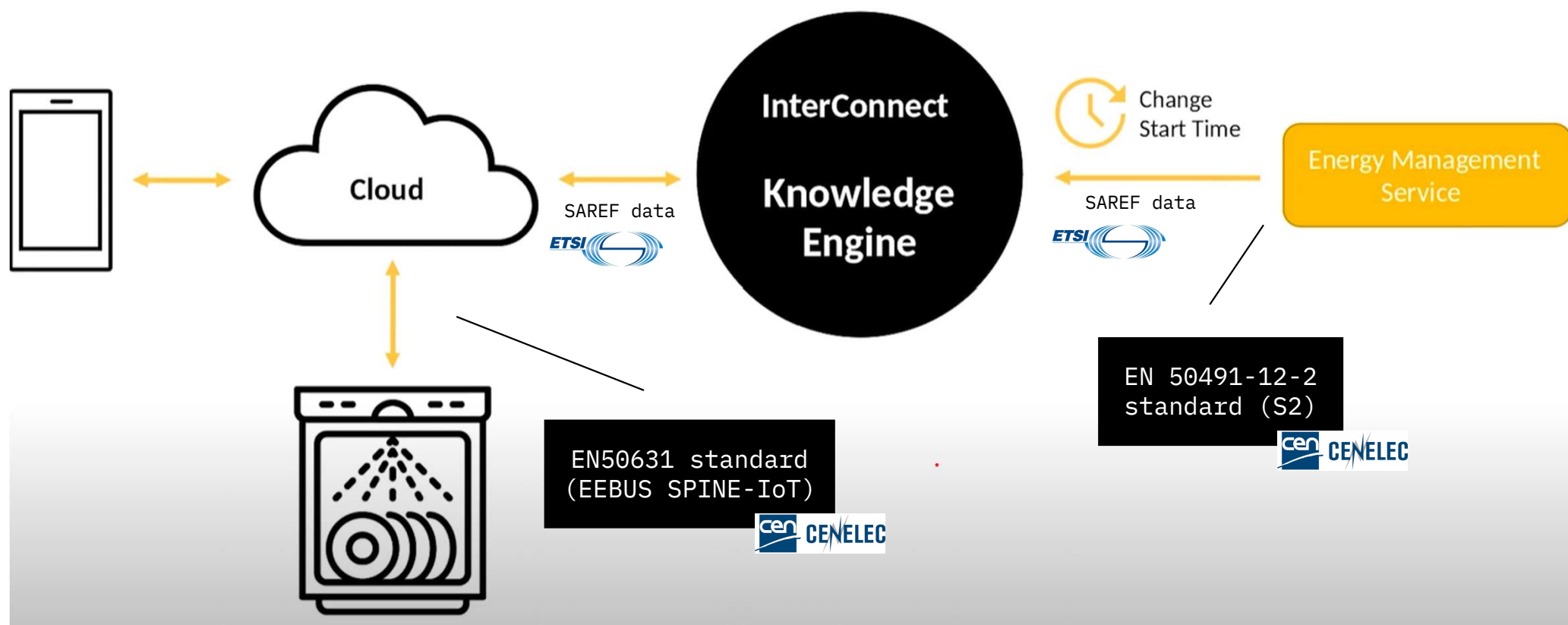
# Use case: users allow smart appliances to offer flexibility managed by an Energy Management System





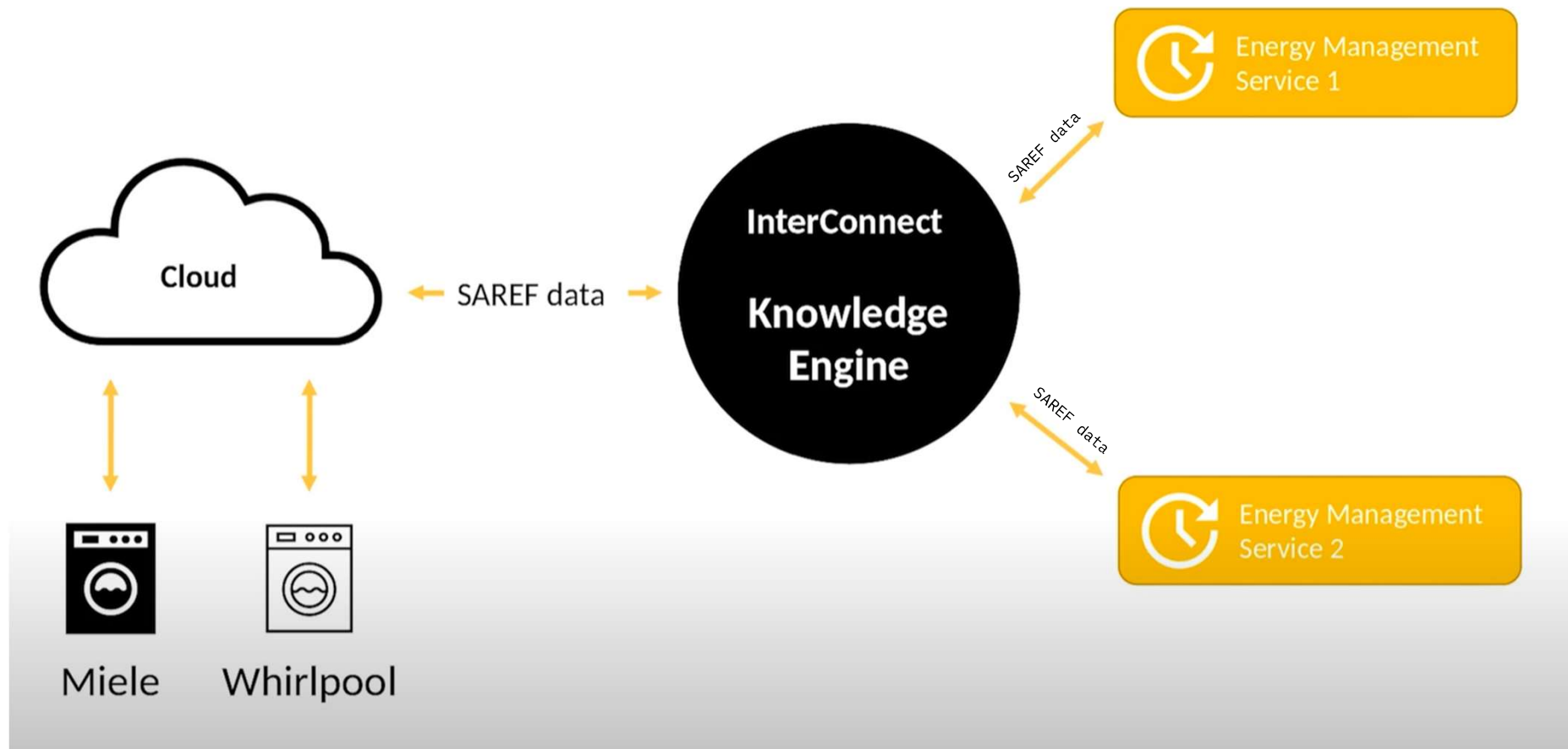


# Interoperability plug & play: different standards





# Plug & play Energy Management Service





# Interoperability in practice #2





Example use case provided by the Portuguese pilot



## Commercial buildings use case

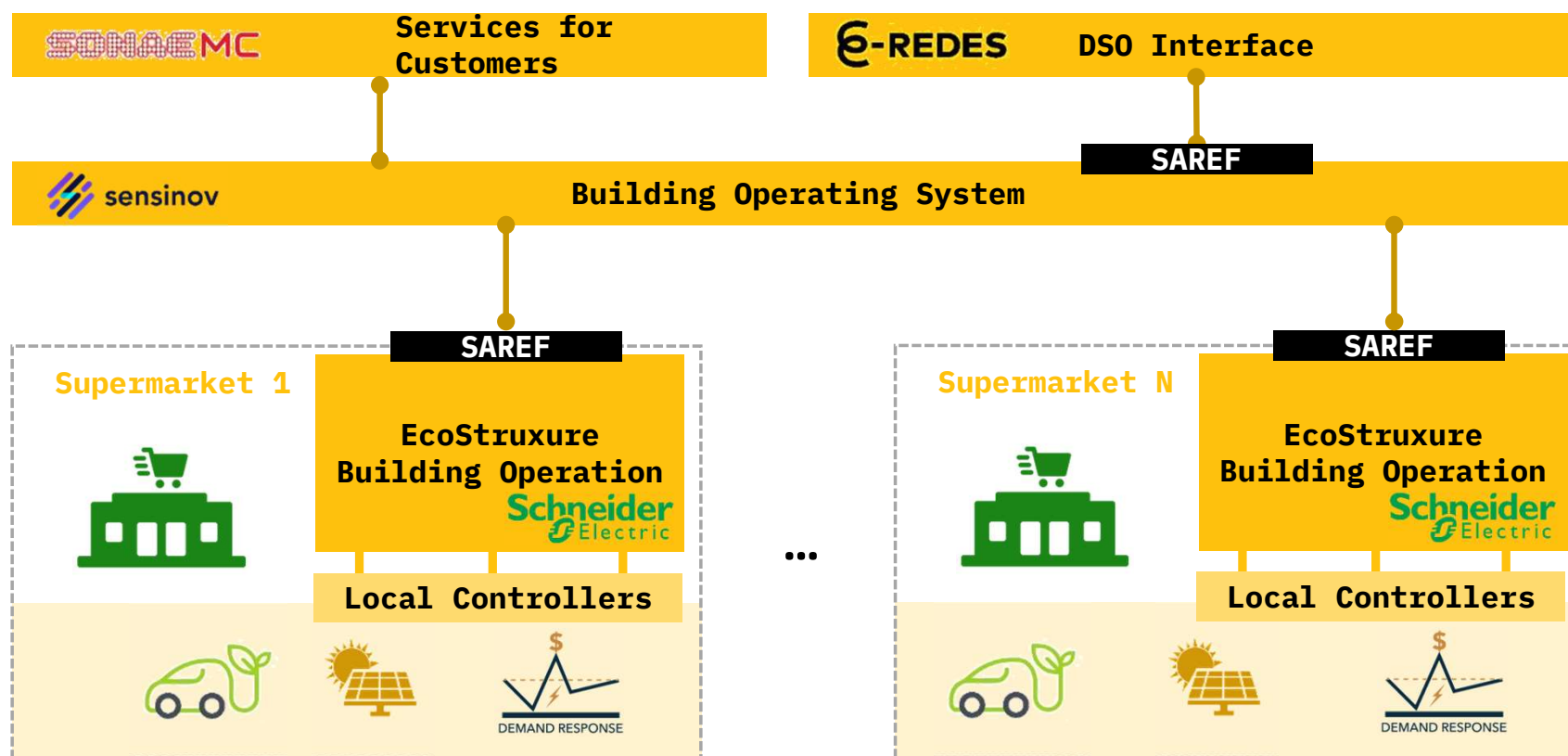
### Green supermarkets (PT): motivation



-  Exploit demand side flexibility from supermarkets
-  Meet energy sustainability goals: 100% on-site renewable energy
-  Supply flexibility in the framework of Directive (EU) 2019/944
-  Boost interoperability and data-driven energy optimization
-  Monitoring and control of consumption remains limited
-  Design a cost-effective IoT platform for food retail

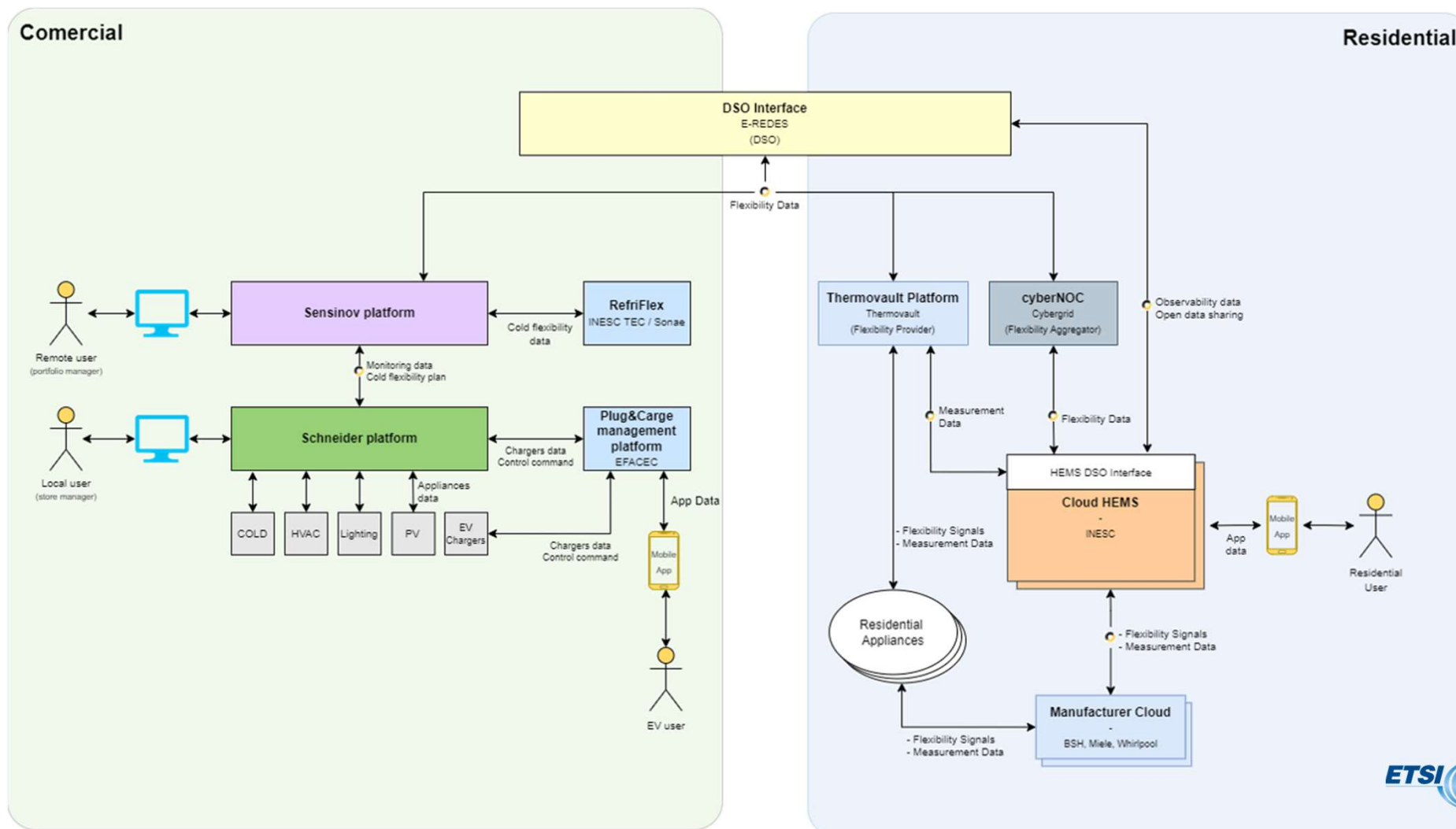


## Commercial buildings use case Green supermarkets (PT): architecture for semantic practice





## Commercial buildings use case Green supermarkets (PT): the bigger picture





# interconnect

interoperable solutions  
connecting smart homes,  
buildings and grids

## FINANCING



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## PROJECT CONTACT

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## DURATION

01.10.2019 / 30.09.2023

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