



The Standards People

IoT Conference 2023

InterConnect: 4 Years of experience on SAREF-based semantic interoperability

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InterConnect at a glance

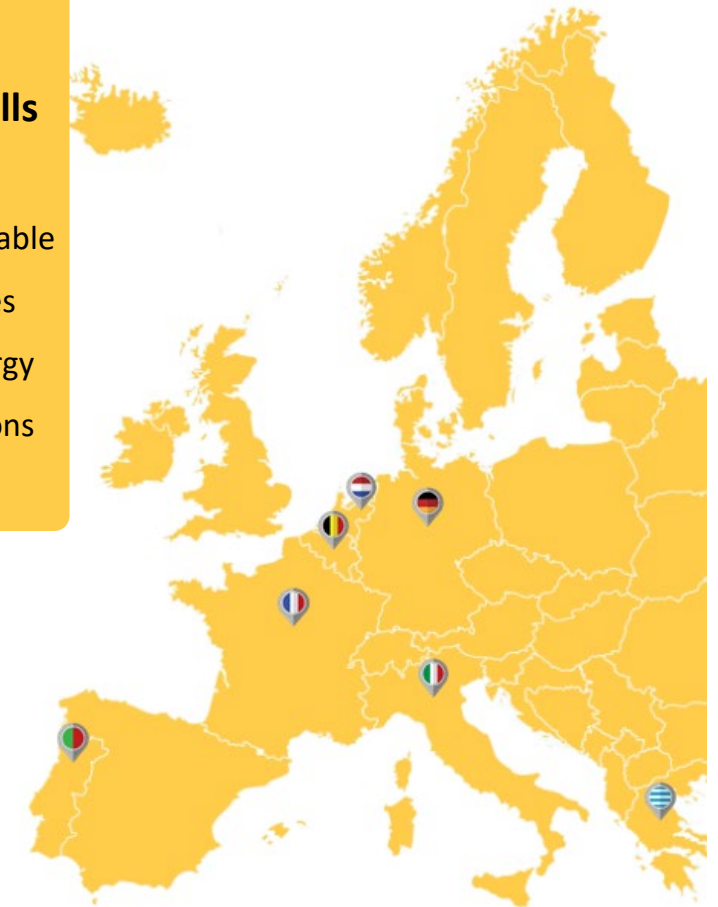
- H2020 Large Scale Pilot (2019-2024)
 - InterConnect gathers 50+ European entities to develop and demonstrate advanced solutions for connecting and converging digital homes and buildings with the electricity sector.
- Cross-domain semantic interoperability based on SAREF over several use-cases.
- Validation in 7 connected large-scale test-sites:
 - PT, BE, DE, NL, IT, EL and FR.

SIF

DSOi

• Open Calls

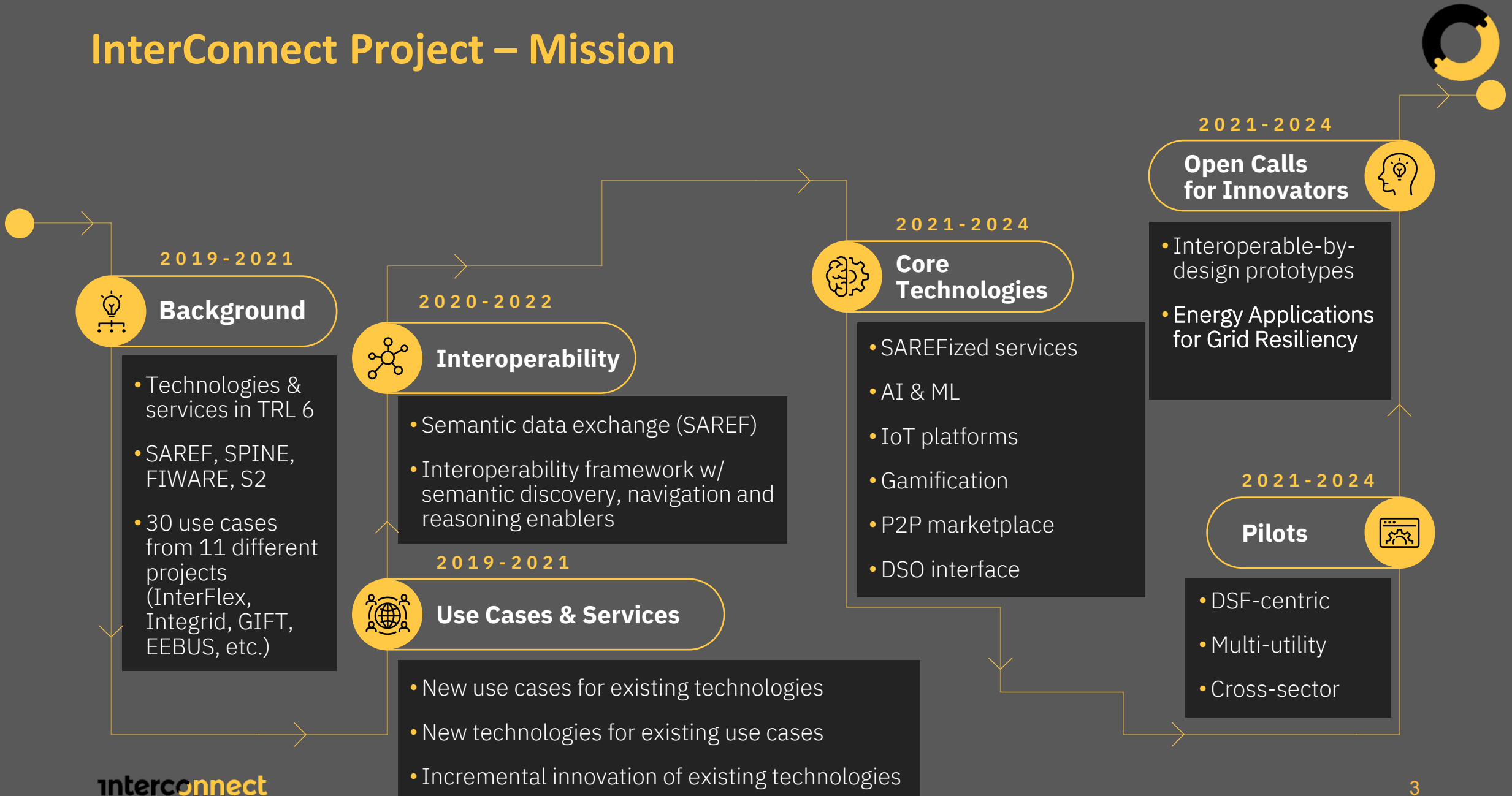
- OC1: Interoperable Prototypes
- OC2: Energy Applications



interconnectproject.eu



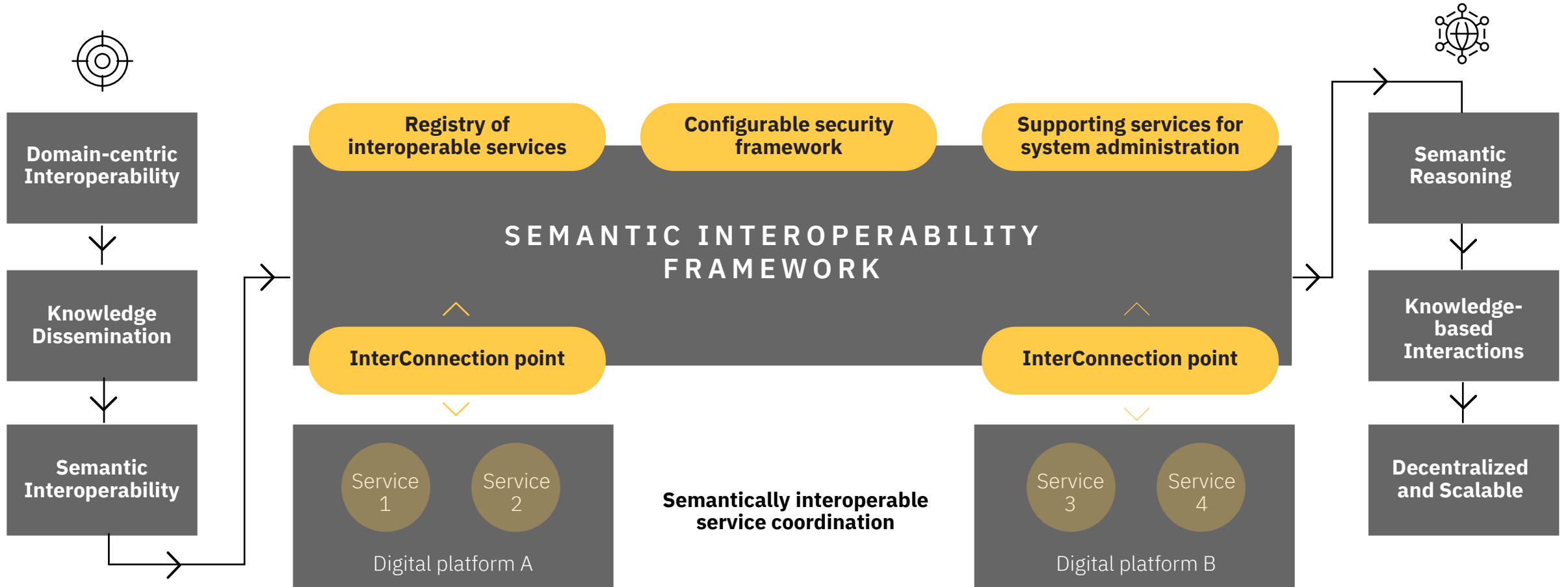
InterConnect Project – Mission



Interoperable frameworks

Innovative solutions to support data flows

Semantic Interoperability Framework



DIGITAL PLATFORMS AND SERVICES BECOME SEMANTICLY INTEROPERABLE

Services use the interoperable tools to publish & discover capabilities and are joint together to enable use case demonstration

Semantic Interoperability Framework



Developed over 3 years and deployed in the 7 large scale pilots (50 integrators) of InterConnect



The SIF utilizes SAREF-based ontologies, and it is offered as a framework so that integrators choose which components to utilize/deploy.



SIF components:

Knowledge Engine (as interoperability layer)

Generic and Service Adapters (for mapping legacy interface logic)

Service Store (as catalogue of all interoperable services)

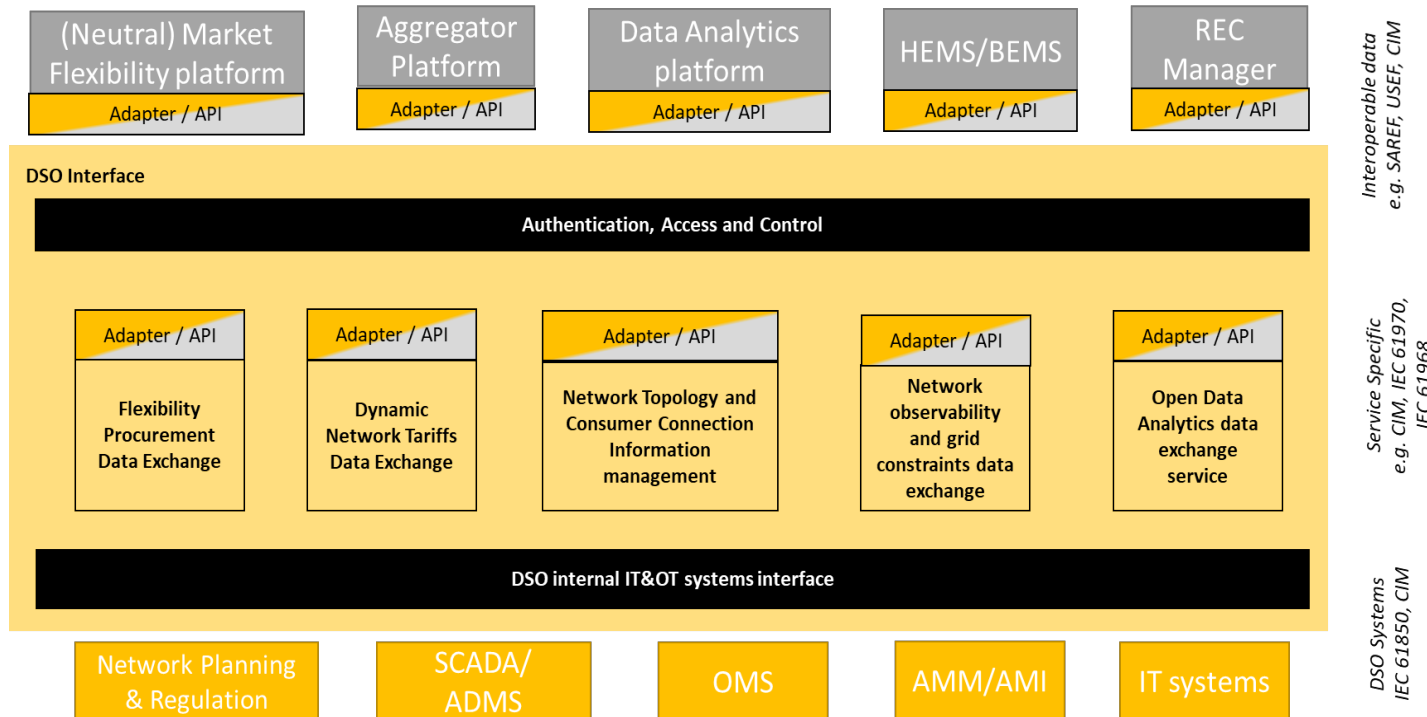
P2P marketplace enablers

Set of support tools for streamlining the integration process.



DSO Interface

DSO Interface High-Level Architecture



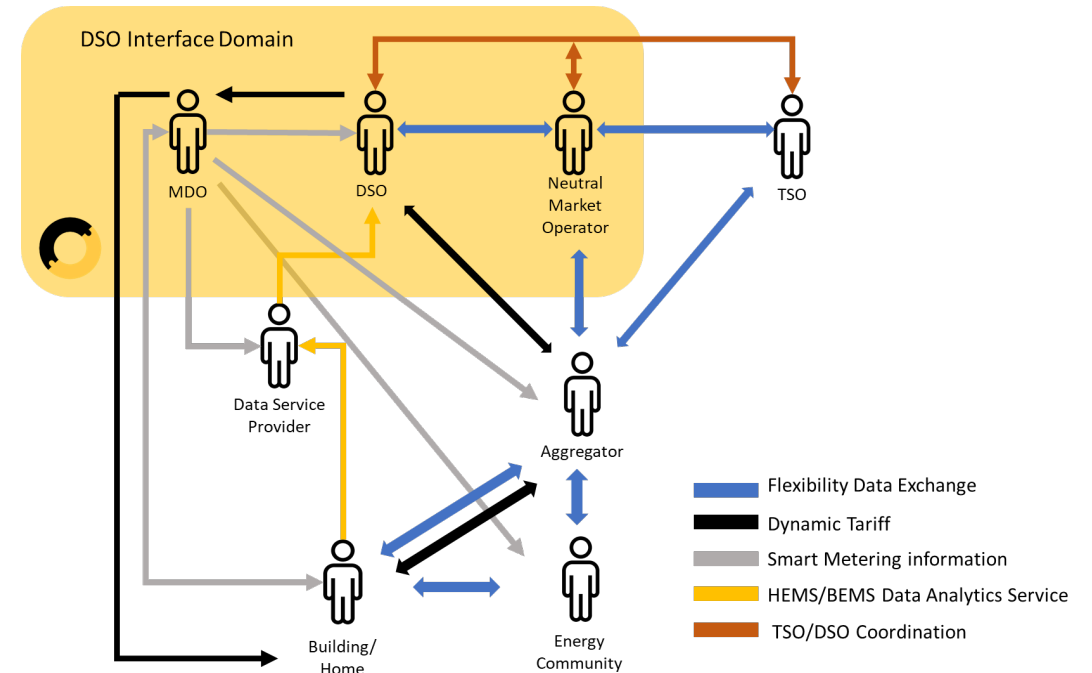
DSO Interface is composed

- InterConnect generic adapter(s), providing the interface between DSO's core-services and external stakeholders within IFA.
- DSO Interface data exchange and management services platform, responsible for the data management, aggregation and the necessary data translations between interoperable data and specific data formats e.g., CIM, IEC 61850.
- Interface towards internal IT and OT systems and authentication and access control mechanisms.



DSO Interface

- Based on the SIF
- Semantic GW between DSO systems and market entities, with the primary objective of
 - defining communication models between DSO's and market parties for the purposes of enabling demand side flexibility services
 - open data sharing
 - enhanced network observability



Contributions

Experience from applying semantics to actual applications

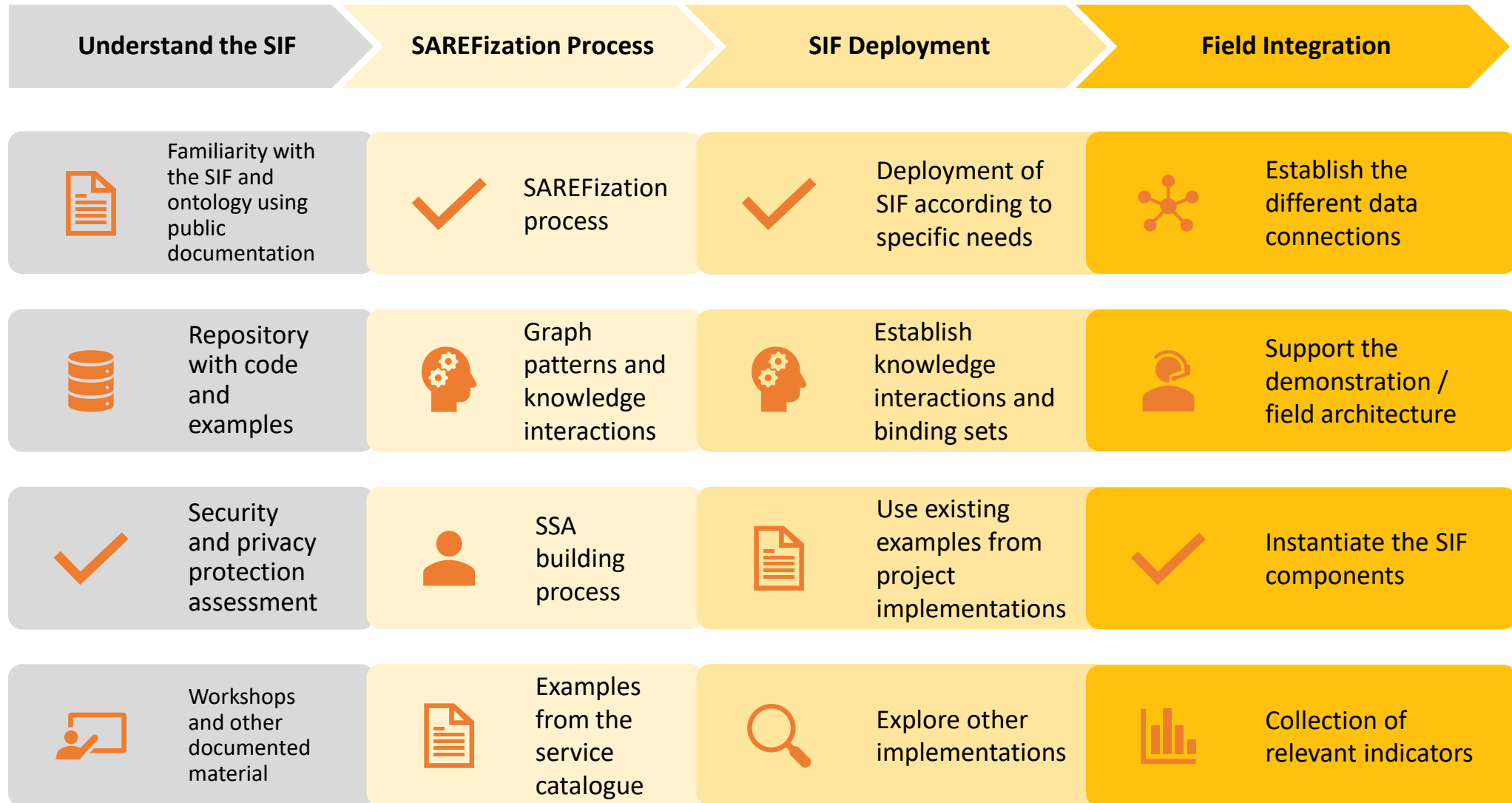


Contributions over 4 years

Interoperability framework operational	DSO interface concept for standardized DSF products & DSO data-centric services	Centralized pool for optimal local energy sharing
66 SAREF-ized services (flex, config, forecast, measurements & control)	112 Use Cases 166 APIs 864 parameters	Social innovation strategies & consumer behavior-centric deep learning
Semantic-based interaction to handle heterogeneous data from equipment and services	Contribution to standardization activities in ISO/IEC, AIOTI, etc.	User-centric approach for market uptake of services, enabled by interoperability
Reference architecture with technology and device-agnostic ecosystem	SAREF contributions to ETSI SmartM2M	Cross-sector services , e.g., e-mobility in supermarkets (PT), municipality (FR), multi-utility (BE)



Flow for Integration



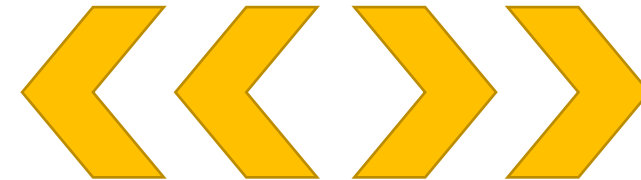


Interoperability for Energy Applications

- Demonstrate that EU is ready to use technologies to help mitigate the impacts of the energy crisis
 - Potential savings to one's energy bill
 - Empower consumers to make measurable impact
 - Help maintaining grid stability (shave peaks)
- Interoperability as a key factor in connecting services and stakeholders
- Pass signals from the grid side to consumers:
 - When is it the best time to consume?
 - How to use available flexibility?



Grid Operator

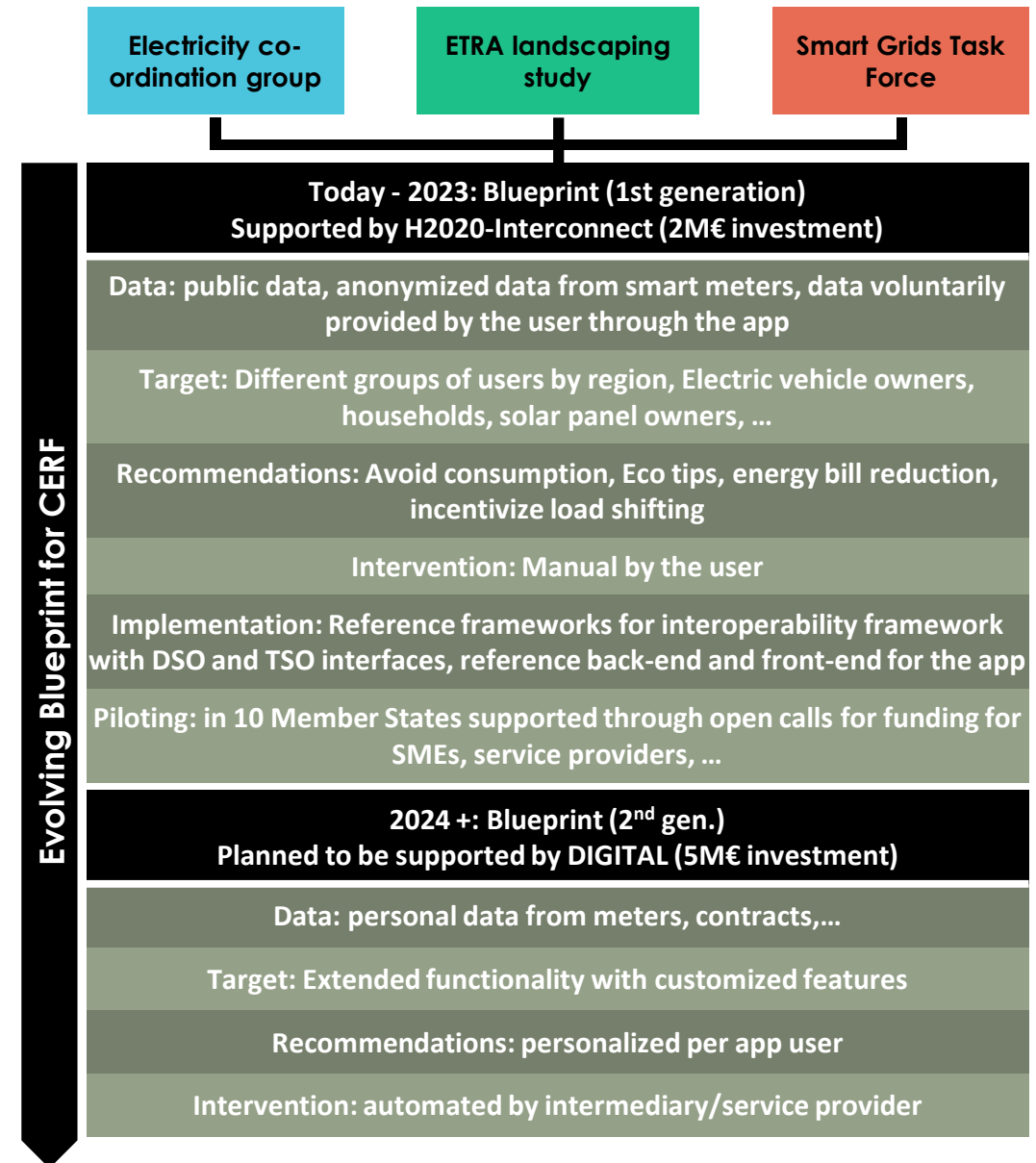


End User

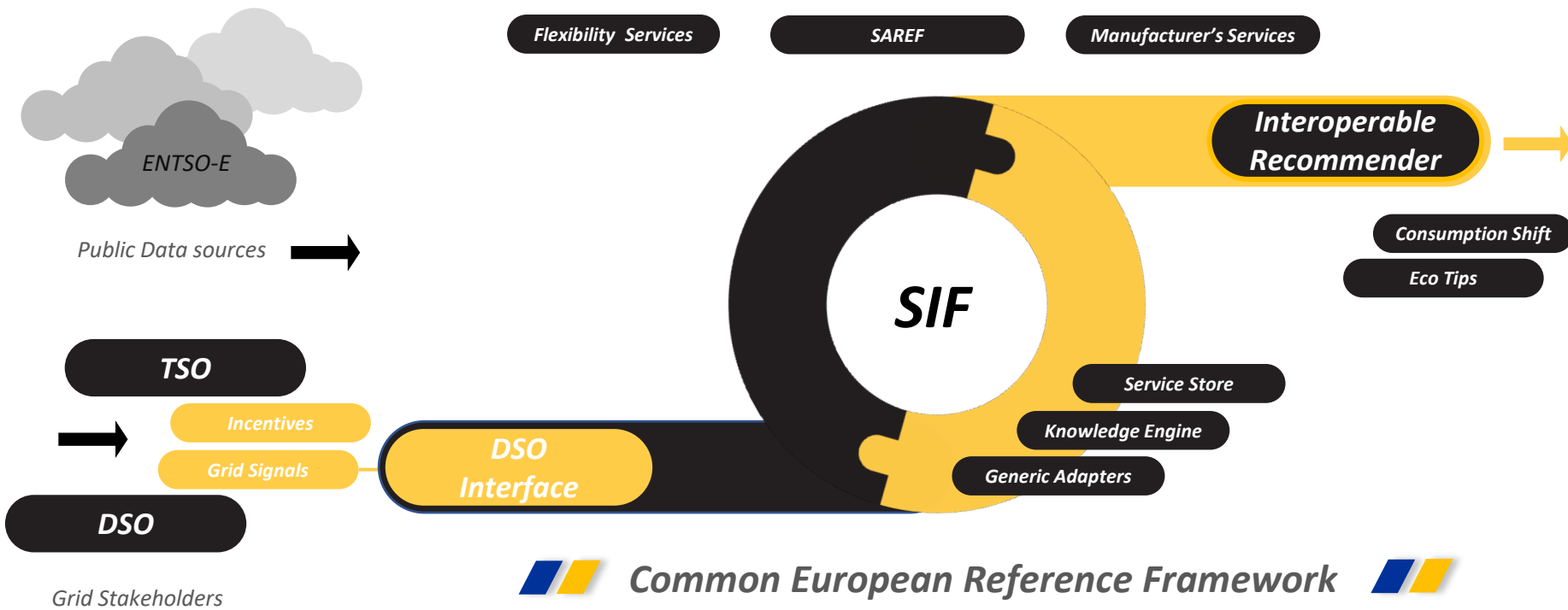
From a blueprint to the next generation of Common Energy Reference Framework



- Digitalising the energy system - EU action plan.
- ETRA landscape study on energy platforms and consumer applications.
- Smart Grids Task Force EG3 - Towards a Common European Reference Framework for Consumer Applications.



A new use-case for interoperability: Energy applications for grid resiliency



interconnect

interoperable solutions
connecting smart homes,
buildings and grids

FINANCING



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PROJECT CONTACT

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DURATION

01/10/2019 to 31/03/2024

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