



INTERFACE

TSO-DSO-Consumer INTERFACE aRchitecture to provide innovative grid services for an efficient power system

InnoGrid virtual sessions

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About INTERFACE



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- Project Grant Agreement No. 824330
- Budget: 20.9 M Euro
- Grant: 16.8 M Euro
- Duration: 4 Years (end: December 2022)



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Challenge



- ✓ **Need to remove barriers in European power system** → unleash the potential of the existing and future resources to be an active part
- ✓ **Need to drive coordination through digitization** → demonstrate how markets and platforms enable energy actors to connect
- ✓ **Need to increase transparency and interoperability** → propose common concepts applicable to the whole of Europe
- ✓ **Need to bring the consumer to the center** → combine local markets and congestion management markets, with wholesale & balancing markets
- ✓ **Need to create new business opportunities** → promoting SMEs by empowering new participants in the electricity sector

Why now?



“On 30 November 2016 the European Commission presented a package of measures to keep the European Union competitive, as the clean energy transition seems to already affect the energy market globally. These measures put energy efficiency on the top rank, together with EU’s global leadership in RES and the need for consumers to be active and central players of the energy market of the future”

Clean Energy Package

“DSOs to cooperate with TSOs in planning and operating their networks and exchange all necessary information and data regarding, the performance of generation assets and demand side response, the daily operation of their networks and the long-term planning of network investments, so as to ensure the cost-efficient development and secure and reliable operation of their networks”

“TSOs and DSOs shall cooperate to achieve coordinated access to resources such as distributed generation, energy storage, etc. to support the needs of both distribution and transmission systems”

Directive on the internal electricity market

“With the growth of renewables, the increased interconnection of European grids, the development of local energy initiatives, and the specific requirements on TSO – DSO cooperation as set forth in the different Network Codes and Guidelines, TSOs and DSOs face new challenges that will require greater coordination”. “Customers and market participants will benefit from an enhanced cooperation between TSOs and DSOs”

General Guidelines for Reinforcing the Cooperation between TSOs and DSOs, paper published by ENTSOe, CEDEC, EDSO, eurelectric

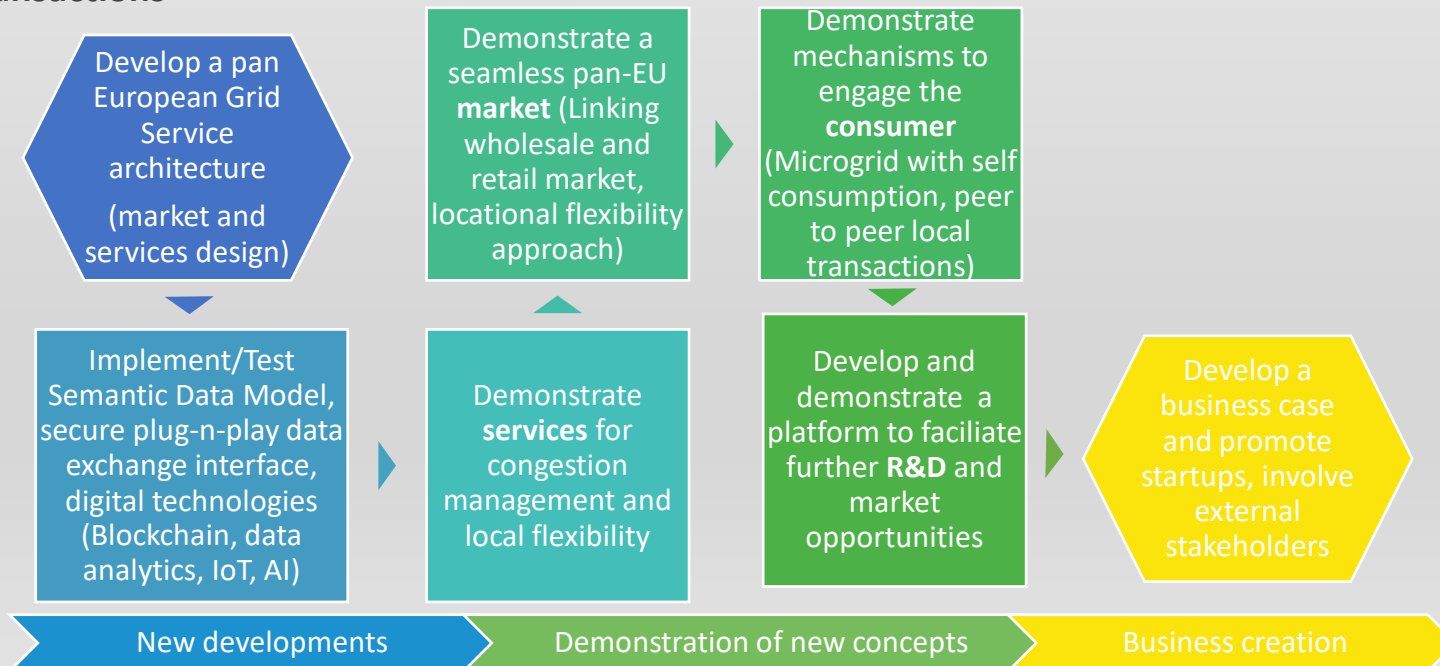
“The electricity grid, together with an appropriate consumer participation and an efficient IT and data exchange infrastructure, is a major enabler underlying European energy transition and the European economy”

Thema Report, ENTSOE, 03-2017

INTERRFACE vision



- ✓ To **design a Common Architecture** (Interoperable pan-European Grid Services Architecture - IEGSA) that will connect actors and markets in a transparent, non-discriminatory manner
- ✓ To **drive collaboration in the procurement of grid services** by TSOs and DSOs, and to create strong **incentives to connected customers**
- ✓ To integrate small scale and large scale assets to **increase market liquidity for grid services** and facilitate **scaling up of new services**
- ✓ To **define and demonstrate standardised products, key parameters, and the activation and settlement process** for energy services
- ✓ To **promote state-of-the-art digital technologies** (IoT, blockchain, etc.), in order to engage end-users into the **next generation electricity market transactions**



Demonstrators



INTERFACE demonstration trials will be executed in **three main pillars:**

- ✓ **Pillar 1:** Congestion Management and Balancing Issues
- ✓ **Pillar 2:** Peer-to-peer Transactions
- ✓ **Pillar 3:** Integrated Retail and wholesale market

Demonstrators



Demo Area 1:

Congestion Management and Balancing Issues

- DSO and Consumer Alliance (Centralized Energy Management system for microgrids)
- Intelligent Distribution Nodes (Grid Services Management system for flexible LV/MV Networks)
- Single Flexibility Platform (Exchange Platform for distributed flexibilities in end-to-end electricity networks)

Demo Area 2:

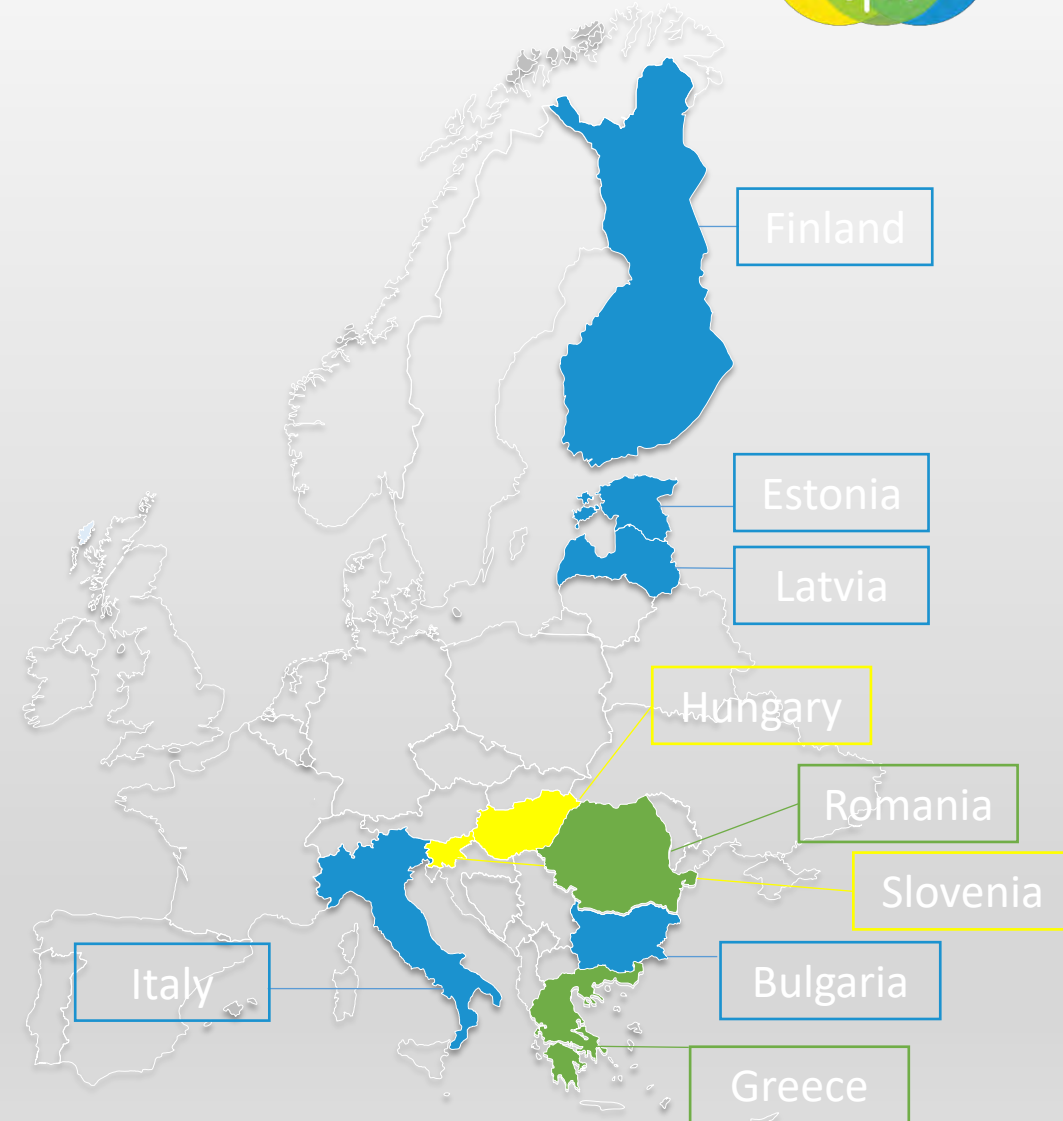
Peer-to-peer Trading

- Asset-enabled Local Markets (Microgrid Local Electricity Markets using the assets capabilities)
- Blockchain-based TSO-DSO flexibility (Market Platform with Smart Contract and smart billing)

Demo Area 3:

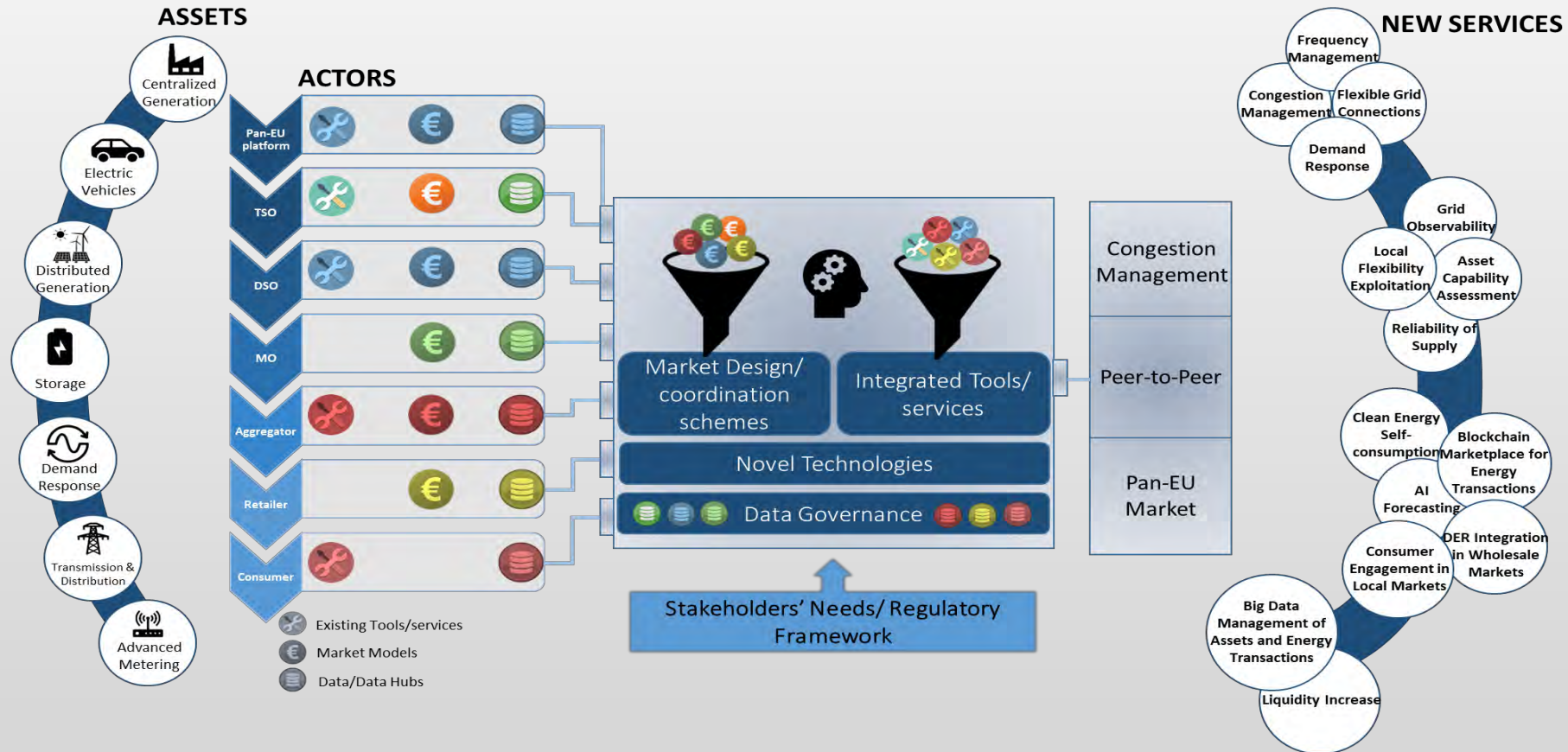
Pan-EU clearing Market

- DERs into Wholesale (A retail-to-wholesale Market approach for DERs' integration)
- Spatial Aggregation of local flexibility (A EUPHEMIA-based Market Platform to engage local flexibility resources)



INTERRFACE product

Interoperable pan-European Grid Services Architecture (IEGSA)



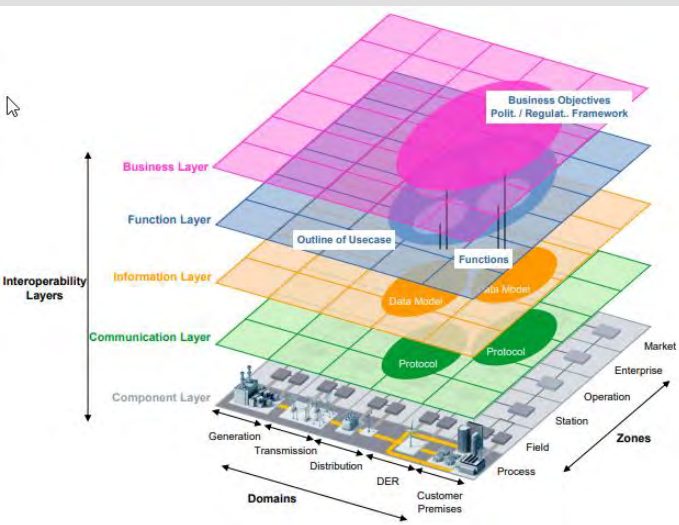
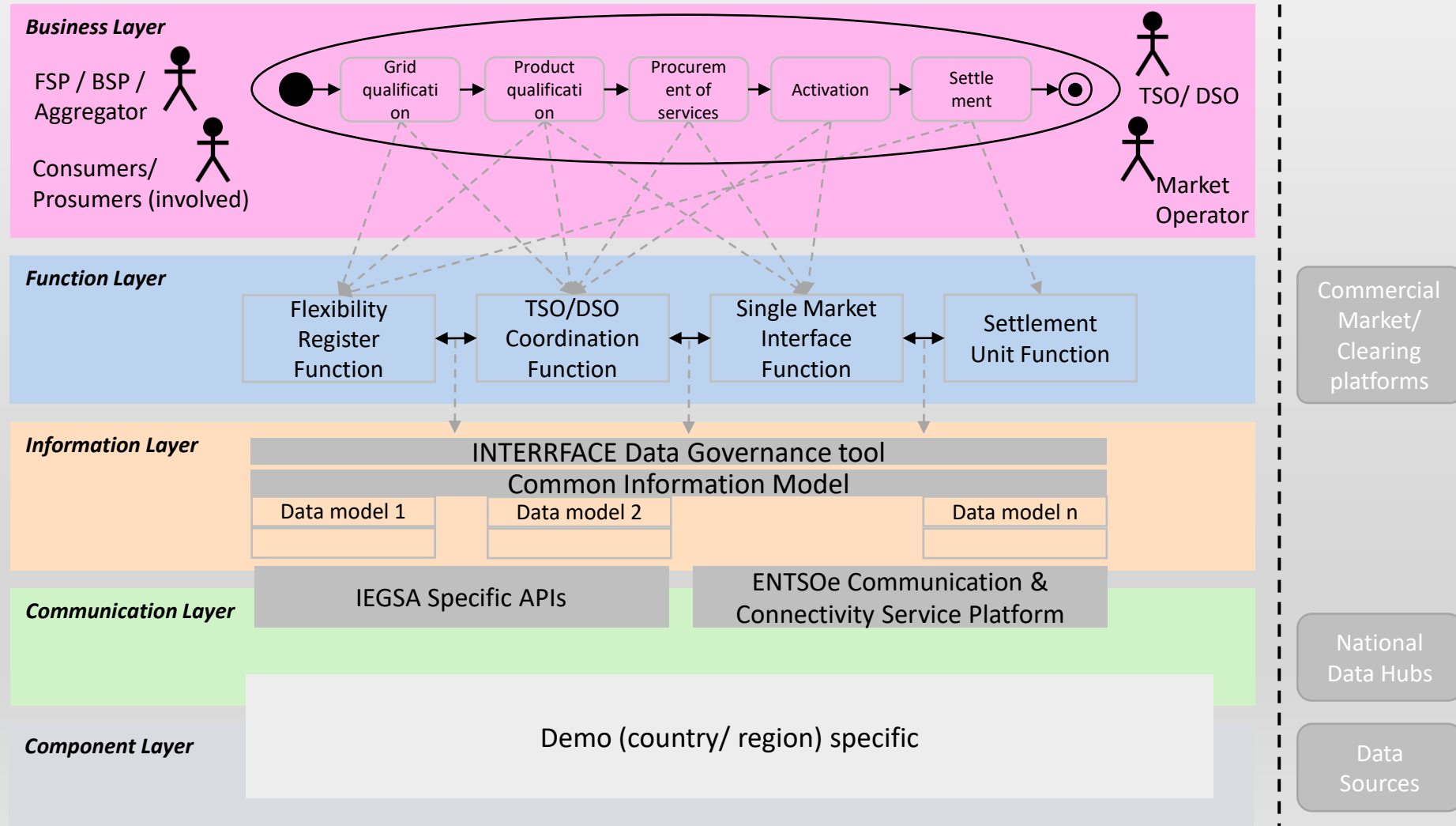
“An open architecture for sharing data among all participants in the electricity system value chain (customers, grids, market), from local, regional to EU level. It will enable TSOs, DSOs and customers to coordinate their efforts to maximise the potential of distributed energy resources (DERs), demand aggregators and grid assets, so as to procure energy services in a cost-efficient way and create consumer benefits”

INTERRRFACE product

Interoperable pan-European Grid Services Architecture (IEGSA)



to act as the **interface** between the power system and the customers and allow the **seamless and coordinated operation** of all stakeholders to use and procure **common services**.



SGAM structure by CEN-CENELEC-ETSI

The Partners



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Thank you very much for
your attention!!

Questions?

