

# Interoperable platforms and data exchange for energy services: practical experience from the BRIDGE projects

Vincenzo Croce & Massimo Bertoncini (Engineering Ingegneria Informatica)|  
ELSA|

Utility week – Vienna – 06/11/2018

# ELSA

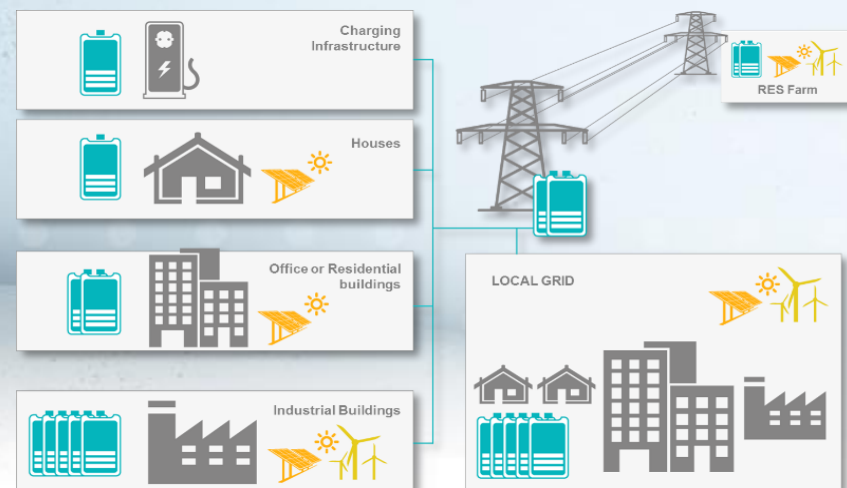


- ELSA combines **2nd life battery storage with local district-scale and building-scale ICT-based Energy Management Systems**
  - low-cost, scalable, modular, interoperable and easy-to-deploy battery energy storage system
  - **Storage-enhanced Interoperability** at level of commercial players (e.g. aggregators via OpenADR storage-oriented enrichment) and at level of grid network operators (e.g. DSO via IEC81850 storage-oriented enrichment)
- ELSA brings **distributed storage** solutions to maturity
  - enabling storage integration into the smart energy system of the future and their financially-viable commercial use.



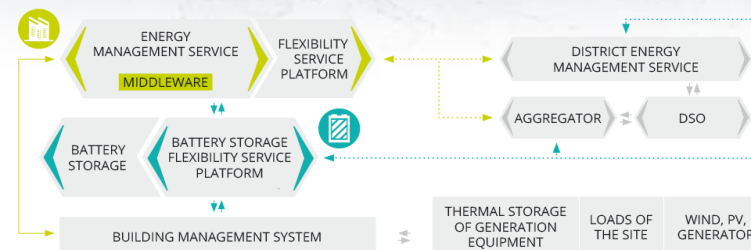
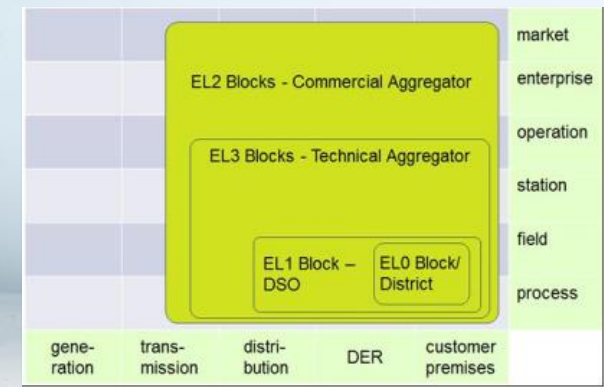
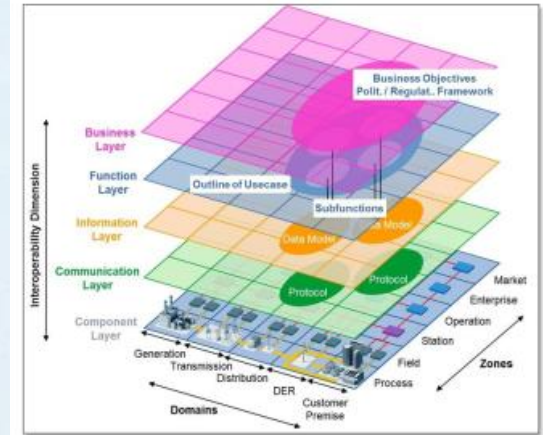
# Data in your project

- ELSA manage data for different actors:
  - DSO for district power profile management and ancillary services
  - Aggregator for district flexibility optimization
  - Prosumer for resource optimization (Storage, buildings, PV, etc..)



# Architecture and platform

- ELSA implemented a modular architecture that can be deployed according to specific customer needs, ranging from :
  - building infrastructure for smart building
  - Distributed smart buildings infrastructure
  - Residential district
  - Centralized district resources coordination via negotiation
- The whole architecture fully compliant to SGAM model

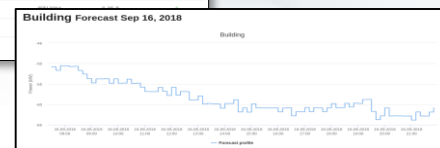


# Business model

- **"Storage as a Service" business model and "servitization" service delivery model**, which shifts the cost from CAPEX towards OPEX
  - **Redesign of market mechanisms, value chain and business models towards "storage servitization"**, through the introduction of a new stakeholder, the **energy storage service provider**
- **multi-functional storage business model**, in which some of the services will be combined either in horizontal way (same storage service mix at any time) either in vertical way (storage service mix changing in different time intervals)
- **Service delivery model in ELSA**
  - Joint venture among some partners for a complete battery packs provision
  - ICT provider Partners exploiting the different ICT infrastructure deployments for specific customized solution



H2020 Horizon Dealings				
Created At	Start Date	Duration	Incubation	Status
Jun 5, 2017	Jun 5, 2017 12:34:51 PM	PT120M	0.22 K	✓
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# Consumer involvement and benefit

- Consumers involvement along a variety of pilots to support a number of use case for grid service provisioning:
- are involved at different level in different use cases, ranging from:
  - Direct consumer engagement-> Residential flats/apartments owners and tenants for local RES usage maximization and investment optimization
  - Indirect consumer engagement
    - Building-scale-> Building Owner for building energy resource optimization, costs reduction, CO2 emission reduction, investment optimization
    - District-level-> Local Community-Engagement as co-owner of battery storage to support DSO flexibility needs
  - Consumer benefits
    - Financial benefits as community-scale storage owner to provide flexibility services to aggregators and/or grid operators, with a view to reduce the carbon footprint of local electricity distribution
    - Local community-scale involvement in storage ownership to support optimized electricity provisioning
    - Community-level social acceptance of storage via early involvement in storage local hosting decision-making

# Regulation

- EU-level Regulation still lacks on the need for capturing the “value” of storage as one of alternative options to grid reinforcement and stabilization
  - Need for defining effective ways for rewarding storage service providers
- **Appropriate market design and regulation** will determine the ability to monetise storage services
- Granularity of bids too large, preventing a large number of storage resources to participate in flexibility markets
- Services liberalization still ongoing in different countries

# Next frontier

- To further investigate on storage as a flexible resource to participate to **P2P energy and/or flexibility trading** at DSO level by leveraging on advancements on DLTs, blockchain and smart contracts, as effective ways to increase consumers' engagement, achieve fairer energy prices and reduce administrative burden for flexibility procurers and reduce costs of transactions
- Novel business models and use scenarios for DSO-owned and/or –operated storage to support ancillary service provisioning to TSO

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