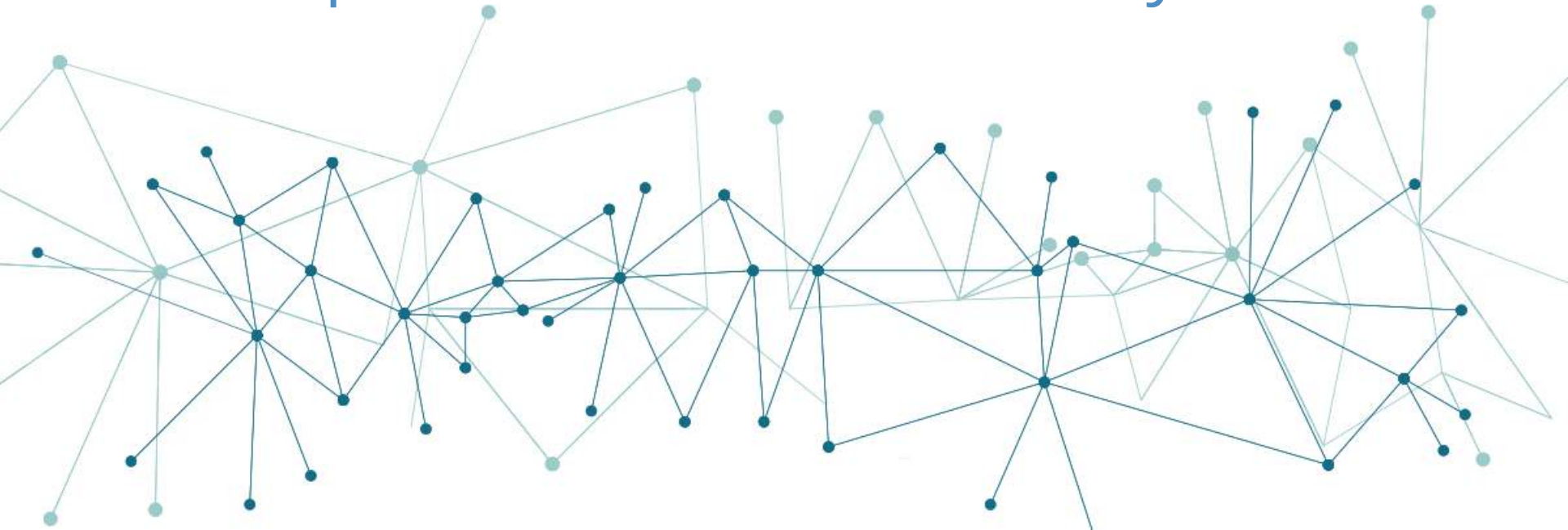# eDREAM

enabling new Demand REsponse Advanced, Market oriented and secure technologies, solutions and business models

A novel Blockchain based Demand response decentralized ecosystem

Project overview

- **Action: Horizon 2020 Research & Innovation programme**

- **Project length: 36 Months**

- **Coordinator: Engineering – Ingegneria Informatica SPA**

- **Partners: 10 - Italy, Spain, Greece, UK, Romania**

Project overview

Context

The European Commission strategic framework seeks for an improved and modernized European energy market, targeting to achieve secure, sustainable, affordable and decentralized energy networks.

Challenge

There are very few examples of the successful deployment of DRS technologies that consider VPP as well as decentralized approaches towards achieving a reduction in peak grid demand and real savings for final consumers.

Solution

eDREAM vision is for a novel near real time Closed Loop optimal blockchain based Demand response ecosystem

Impact

Boot the flexibility of energy users and the smartness of the grid, enabling a smooth integration of renewables, generating 10% emission savings demonstrated and 25% cost saving and energy reduction for customers.

eDREAM objectives

Develop innovative tools for demand response optimal programs design, including DR forecast, profiling, segmentation and load forecasting.

Investigate and develop scalable finer-grained technologies for enabling aggregators to optimally manage clusters of flexibility sources.

Investigate and develop novel blockchain applications for decentralized marketplace-driven management and control of DSO vs third party/aggregators interaction, closed Loop near real time DR performance and secure data handling.

Develop innovative and user-friendly Demand Response Optimization services tailored to energy customers.

Validate the developed technology on a number of use cases and two demonstration sites.
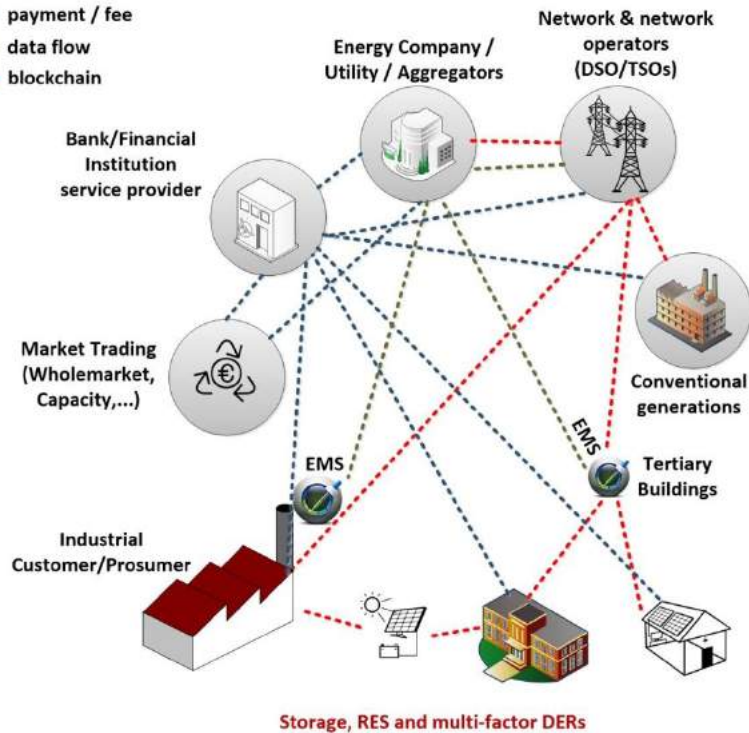
Research and validate innovative market design and business models to support prospective commercialisation of the developed and validated eDREAM tools and technologies.
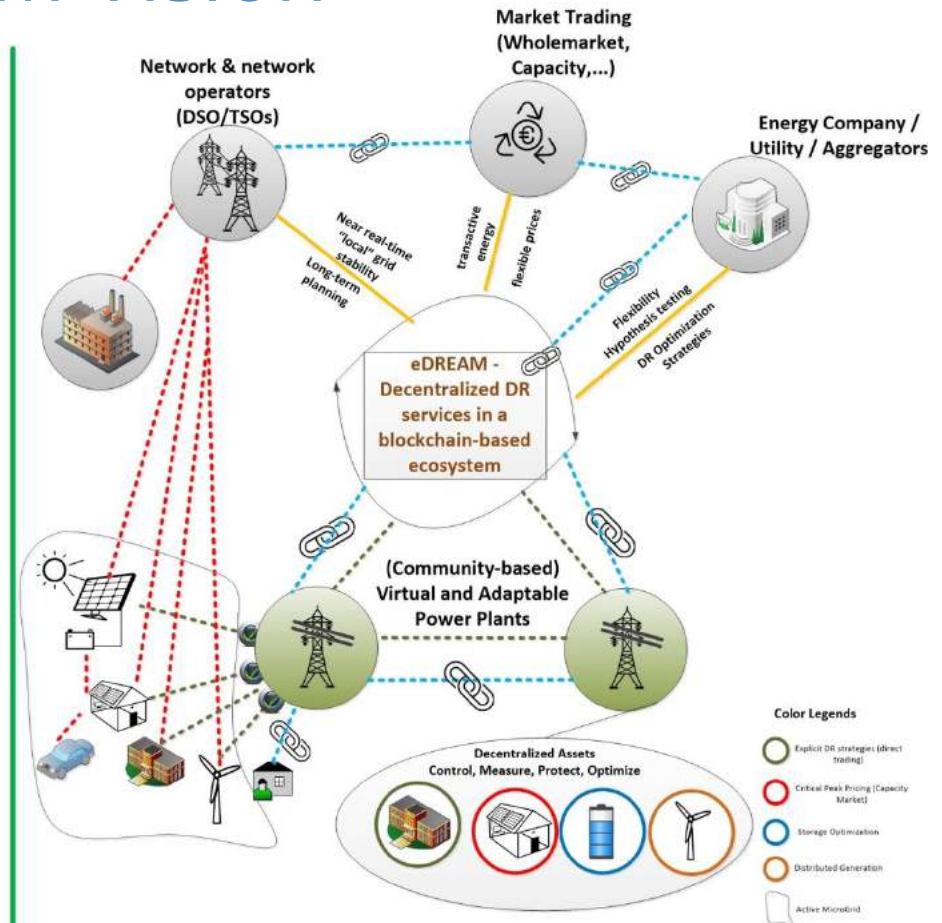
eDREAM vision is for:

❑ a novel near real time Closed Loop optimal **blockchain based Demand Response ecosystem**,

❑ where **Distribution System Operators (DSO) and Aggregators cooperate** within a novel yet appropriate market framework,

❑ with **a view to exploit to the largest possible extent the flexibility potential** of a large variety of heterogeneous third party stationary and movable load assets,

❑ while **keeping system reliability within prescribed limits** and preserving continuity and security of supply.

eDREAM Vision

Traditional processes in the current Energy Market

Envisioned Concept for Closed-Loop, Secure and Optimized DR in a decentralized manner
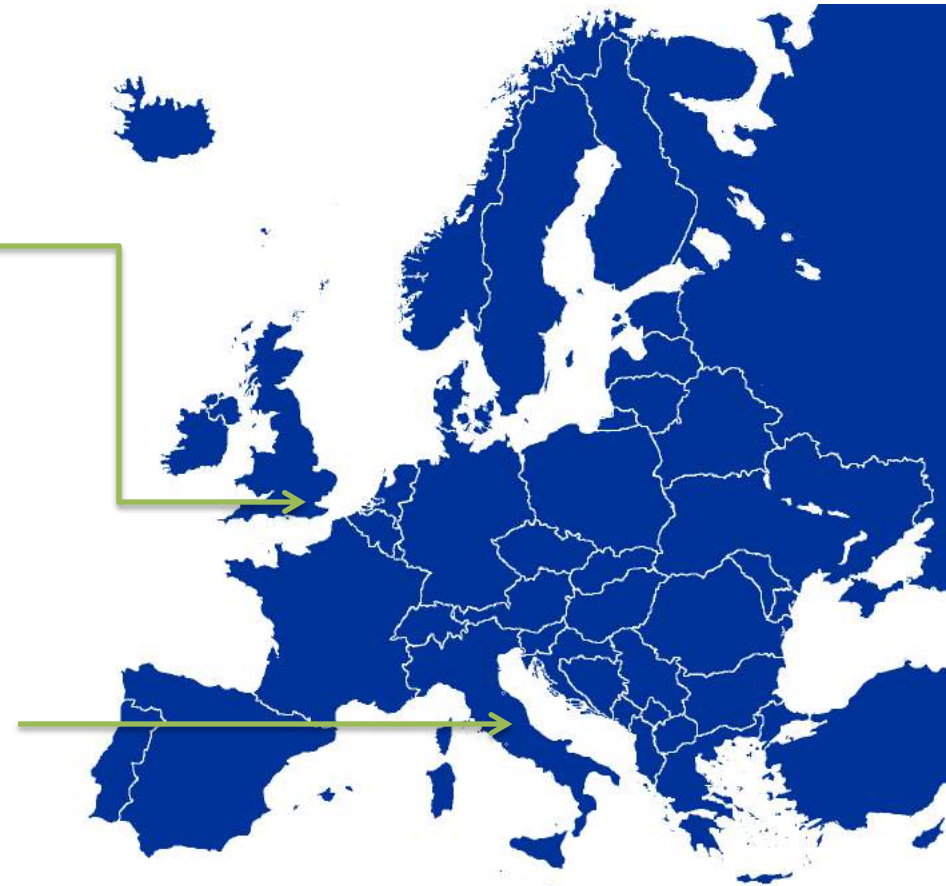
eDREAM pilot use cases

Pilot case UK
- Aerial DR potential;
- Customer Segmentation and Clustering;
- DR Strategies Assessment;
- Community-based Virtual Power Plants.

Pilot case Italy
- Secure blockchain driven control of LV;
- Blockchain DR verification and financial settlement;
- Flexibility Analysis of Distributed Generation and Energy Resources (storage, V2G and G2V);
- Active Micro-Grid for DSO system flexibility service.

Project consortium

Find out more
www.edream-h2020.eu

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