



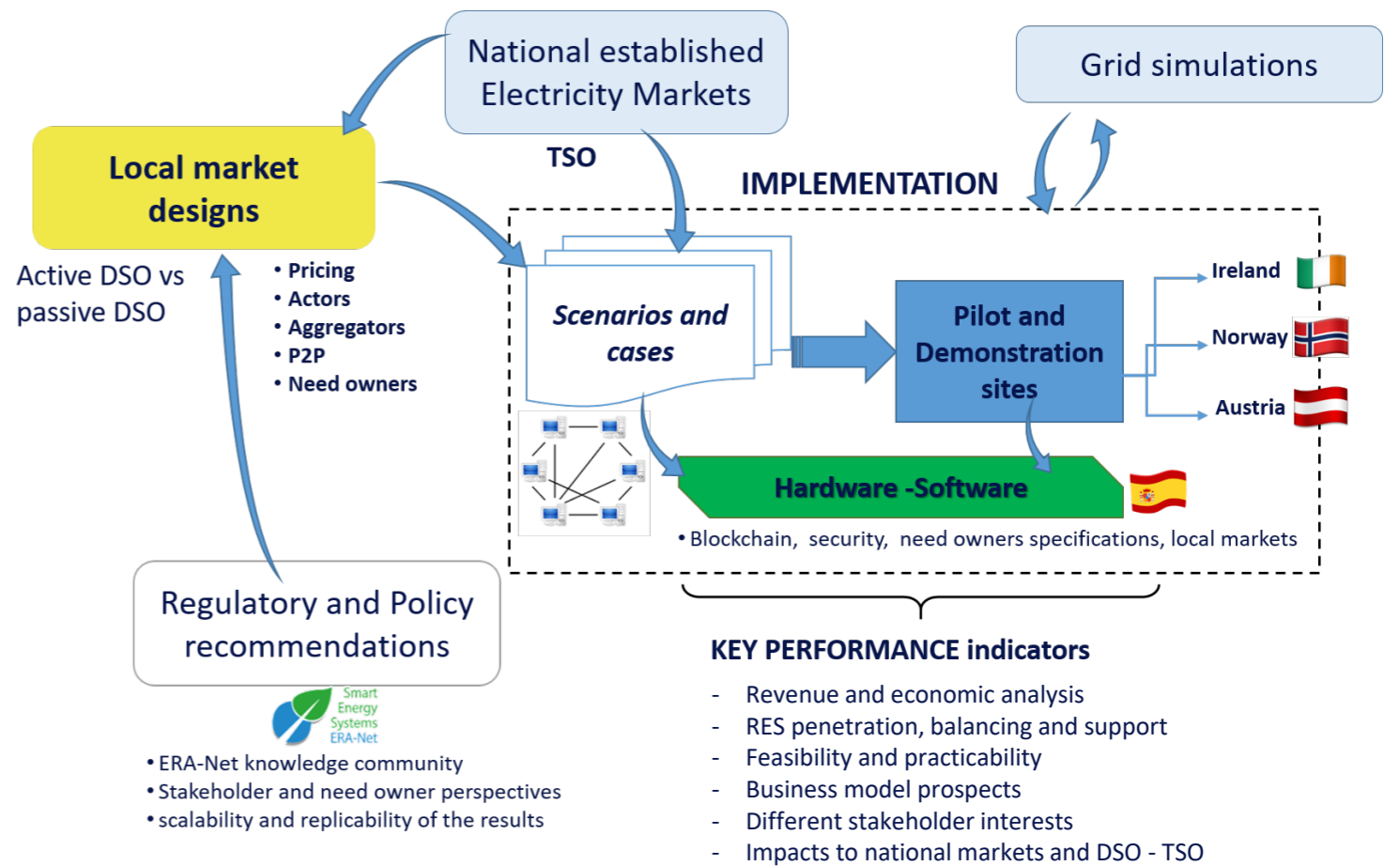
# Blockchain based Electricity trading for the integration Of National and Decentralized local markets

## OBJECTIVES

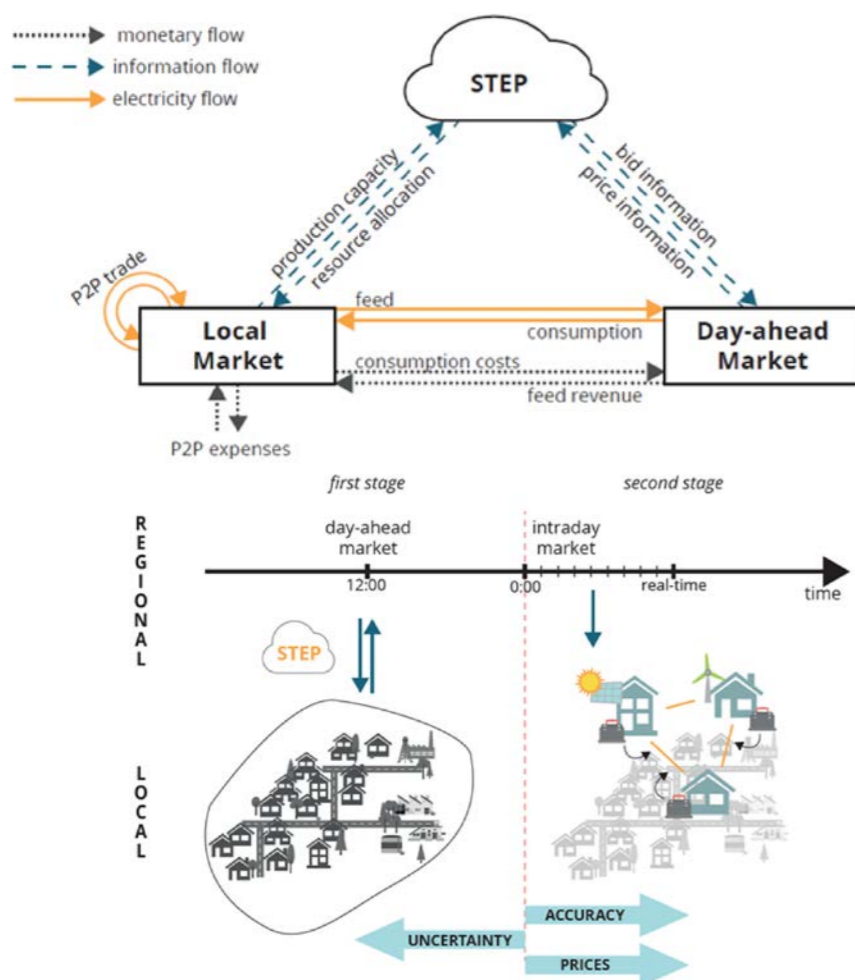
Blockchain technologies will open new paradigms to design electricity markets and to develop new business models for the integration of local-to-regional markets, definition of local flexibility markets for end-user batteries and demand response, and Peer-to-Peer (P2P) electricity trading for con-/prosumers. BEYOND will implement local-to-regional market designs for the combination and synergies of these features. This is especially relevant as the rules and business case on how to sell or buy electricity locally, is in its early stages for local-to-regional markets.

- Blockchain technologies will open new paradigms to design electricity markets and to develop new business models for the integration of local-to-regional markets,
- Define local flexibility markets for end-user batteries and demand response, and Peer-to-Peer (P2P) electricity trading for con-/prosumers.
- Understand the interaction of local-to-regional market designs for the combination and synergies of these features. This is especially relevant as the rules and business case on how to sell or buy electricity locally, is in its early stages for local-to-regional markets

## WORK PLAN



## LOCAL ENERGY MARKETS



Two-stage market structure for a microgrid community participating in the day-ahead market and adjusting its commitments in the intraday operations

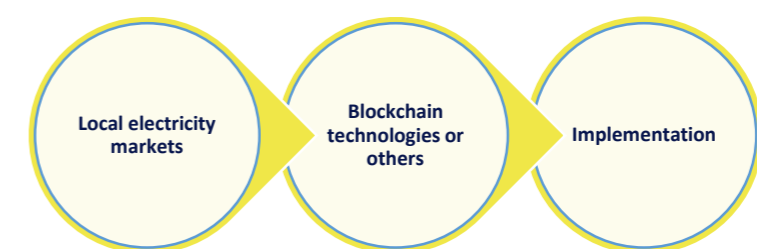
## BLOCKCHAIN

A **digital ledger** formed by a continuously growing list of records which are linked and secured using cryptography. The ledger is distributed in a peer-to-peer network.

BEYOND will focus on the development of **smart contracts**. These computer programs, run in blockchain, emulate the logic of contractual clauses. They can be used to exchange value in a transparent and automatic way.

BLOCKCHAIN IN BEYOND:

- Prove that blockchain-based technologies are a viable technology to setup a trading platform.
- Setup bidirectional communication platform between electricity markets and a community of con/prosumers that engage in P2P trading.
- Achieve data standardization and interoperability across different regions, sectors.
- Market clearing algorithms based on the market design defined in the project



## WORK PACKAGES

WP1: Identification of requirements

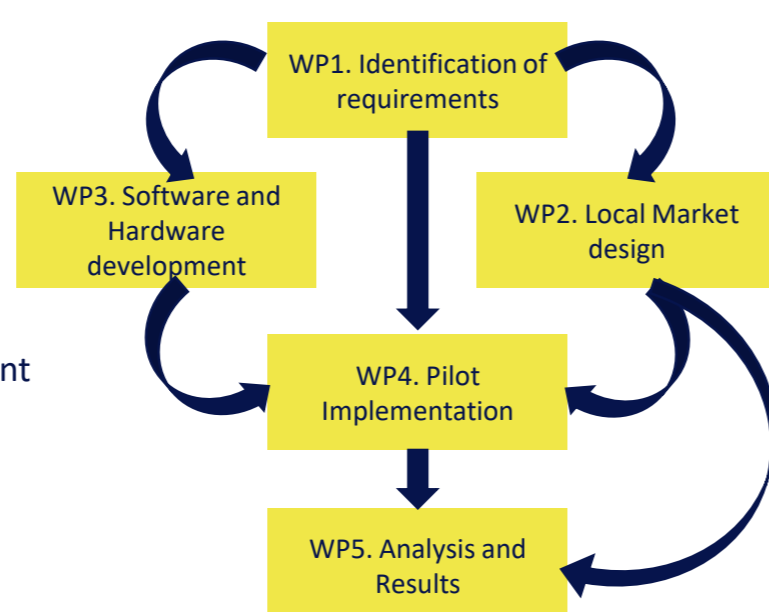
WP2: Local Market designs

WP3: Software and hardware development

WP4: Pilots implementation

WP5: Analysis and results

WP6: Project Management and Dissemination



## CONSORTIUM



This project has received funding in the framework of the joint programming initiative ERA-Net Smart Energy Systems' focus initiative Integrated, Regional Energy Systems, with support from the European Union's Horizon 2020 research and innovation programme under grant agreement No 775970