

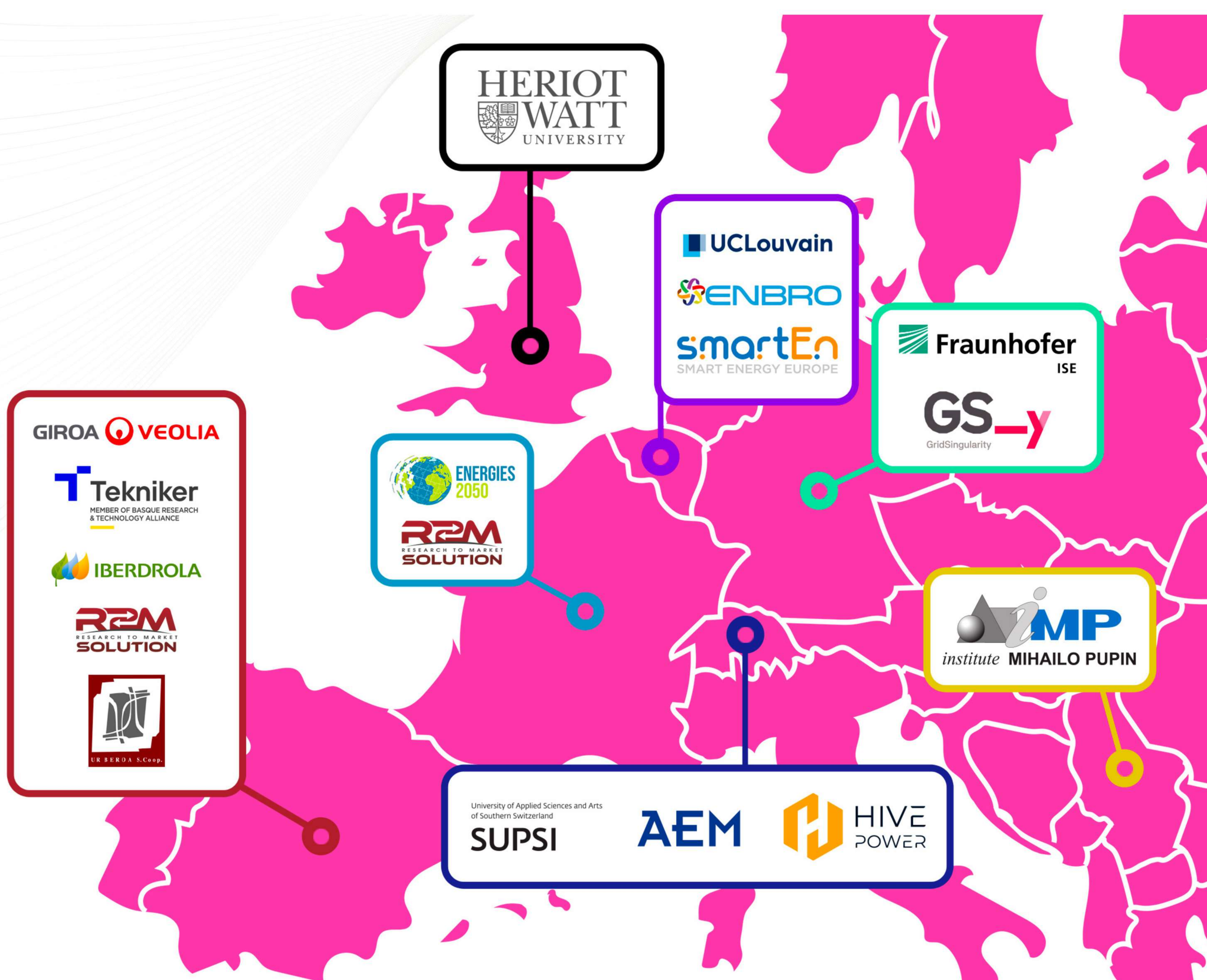


FEDERATED - "SYSTEM OF SYSTEMS" - APPROACH FOR FLEXIBLE AND INTEROPERABLE ENERGY COMMUNITIES

FEDECOM is a 48 months EU Horizon Europe funded project started on October 1st, 2022. FEDECOM is developing the technical and business ecosystem to demonstrate the advantages of energy sector coupling across European energy communities. Integrating the local energy systems across the federation of communities will bring economic benefits, improve grid stability and reliability, as well as reduce the overall carbon footprint.

OBJECTIVES

- Deploying a cloud-based solution for sector coupling, distributed generation and storage, high flexibility management and improvement of RES hosting up to 40%.
- Validating the solution in three pilots across diverse technical, market and climate contexts to demonstrate grid resilience, optimised local operations and unlocking at least 30% of demand side flexibility.
- Developing plans for the large-scale replication of the solution in three follower communities with a focus on impact assessment.
- Evaluating impacts on OPEX, CAPEX and overall value creation.



FEDECOM'S EXPLOITABLE RESULTS

The core result of FEDECOM is an ICT cloud-based platform enabling sector coupling, together with energy (e.g., electricity) and energy flexibility (e.g., excess storage capacity) trading. Thanks to its functionalities, the tool will support FEDECOM's main objectives: to couple renewable energy sources (RES), energy storage and power-to-X technologies available in the pilots (i.e. community assets) with the necessary know-how and ICT expertise, ensuring efficient, stable and reliable grid operation.

The different exploitable results of FEDECOM will enable the following functionalities and integrate them in a single platform geared towards aggregators, ESCOs, energy communities' managers:

- Monitoring of data generated by energy assets of energy communities: e.g., thermal behaviour and energy loads of buildings, storage system status, generation of electricity from installed RES, potential energy flexibility of each asset, etc.
- Monitoring of the status of the local grid both with the purpose of suggesting an improved short term distribution grid (i.e., low and medium voltage) management strategy and to support long-term planning of the distribution grid.
- Orchestration of all modules/functionalities to propose optimised scenarios for the optimal usage of energy assets in a community, unlocking economic and energy savings while supporting grid infrastructure management.

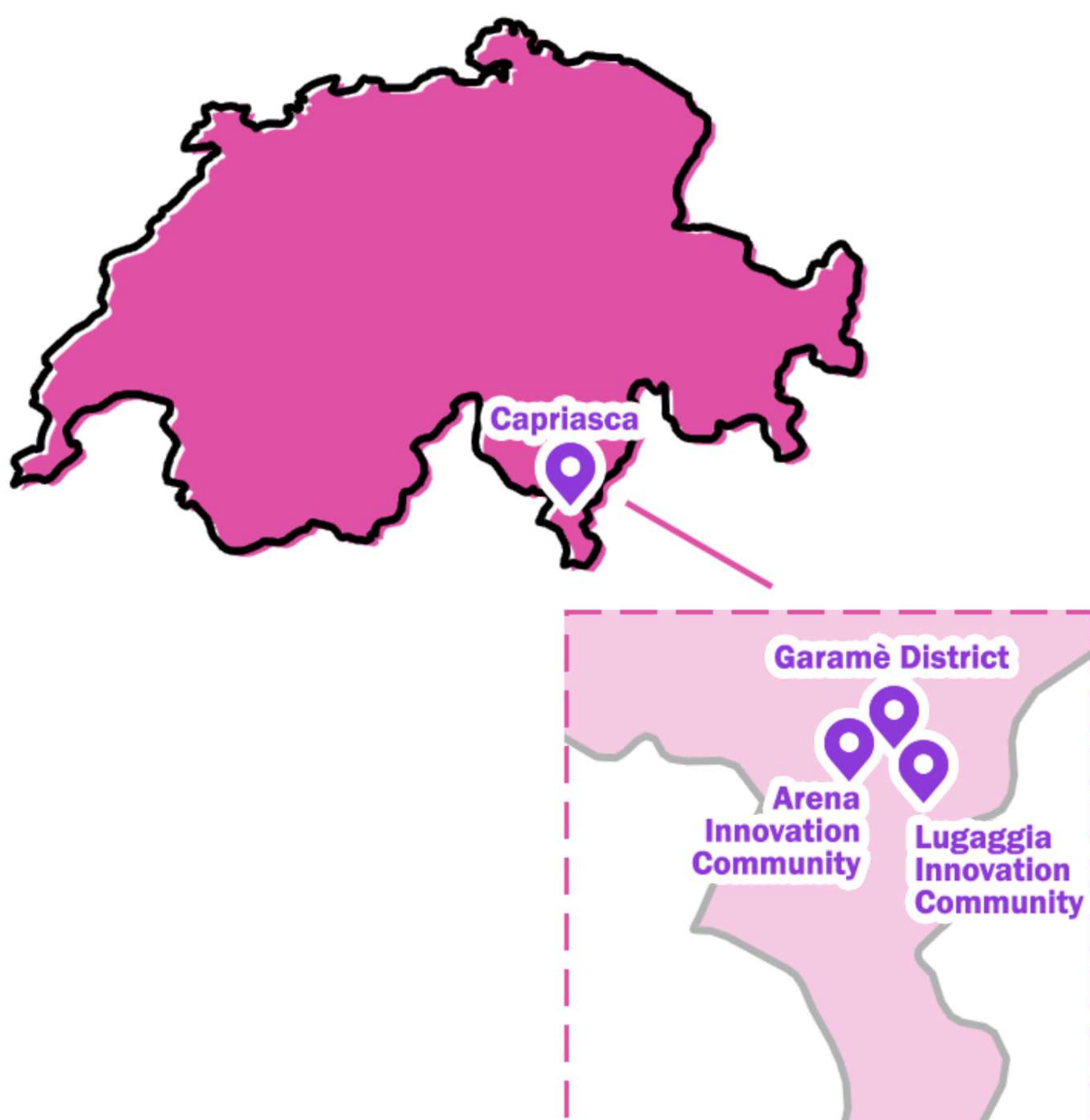
In particular, the final aim of the platform will be to facilitate intra- and inter-community peer-to-peer energy and energy flexibility trading, using a blockchain-based local marketplace, with smart billing and energy certificate issuance.

PILOTS

Virtual Green H2 Federation *Spain*




Residential Hydropower Federation *Swiss*



Cross-country e-Mobility Federation *Benelux / Netherlands*



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