Renaissance

RENEWABLE INTEGRATION & SUSTAINABILITY
IN ENERGY COMMUNITIES

This project has received funding from European Union's Horizon 2020 research and innovation programme grant agreement No 824342.

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Renewable Integration & Sustainability in Energy Communities

Public Webinar

Flexibility 2.1 - From Demand Response to Renewable Energy Communities

5th March 2021, 10:00 - 13:00 CET, GoToWebinar

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Consortium

Renaissance

Our partners

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Project Overview

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Renaissance will deliver a community-driven scalable and replicable approach, to implement new business models and technologies supporting clean production and shared distribution of energy in local communities

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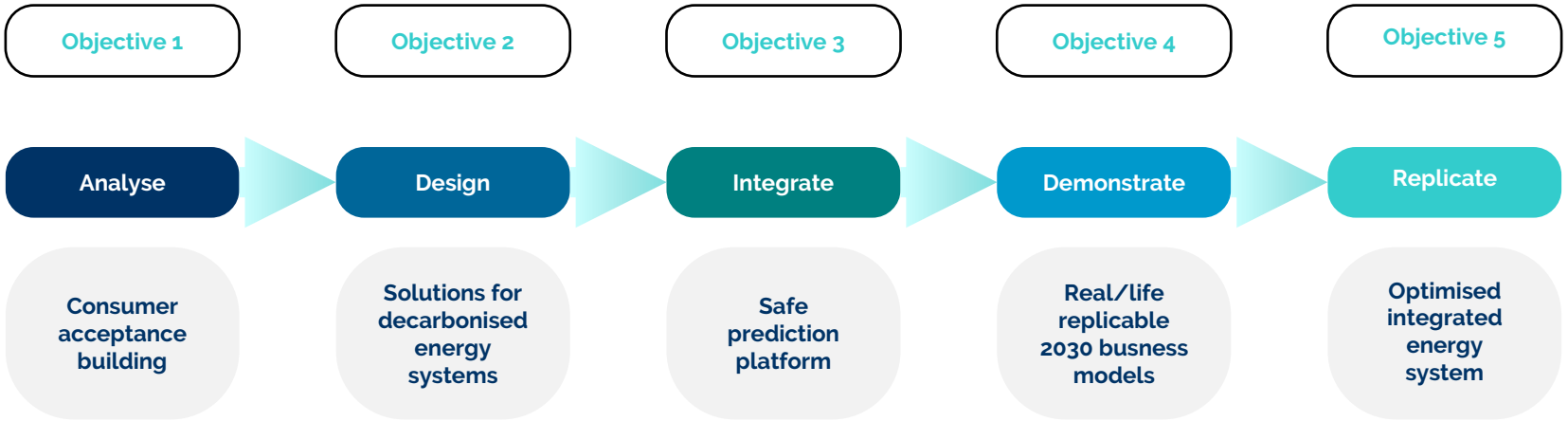
Objectives



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Objectives

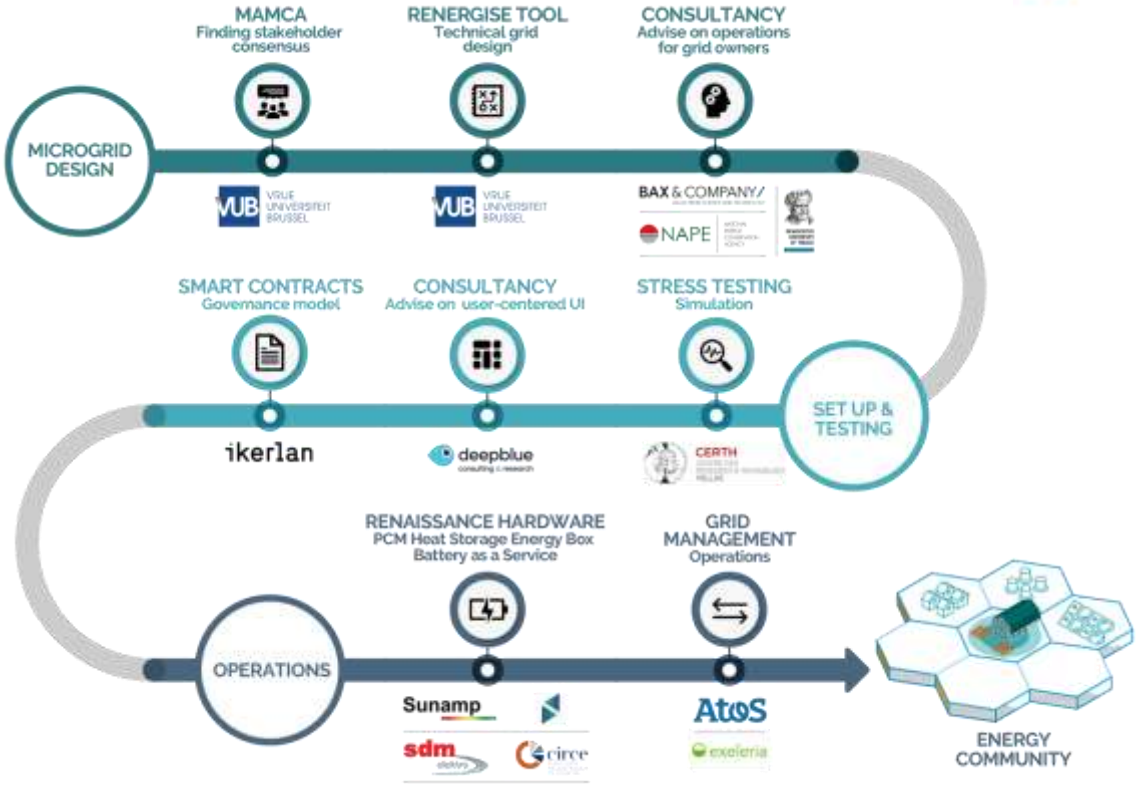
1.Analyse

2.Design

3.Integrate

4.Demonstrate

5.Replicate



16/03/2021

Read more...

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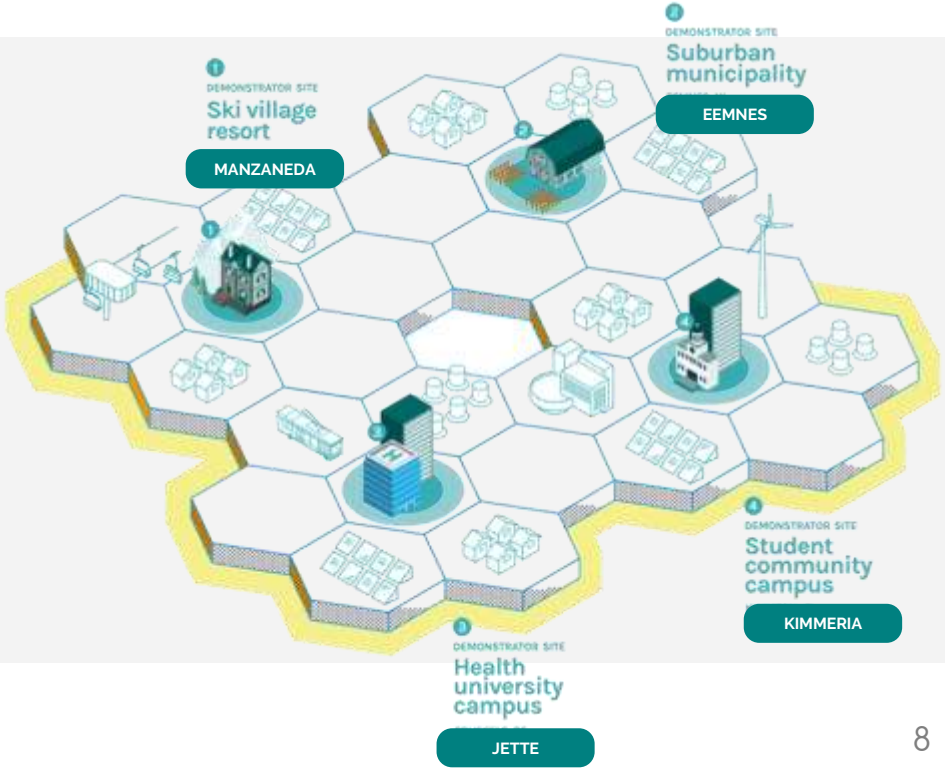
Pilot sites

In order to validate RENAISSANCE outcomes, their application will be demonstrated in real-life pilots in Belgium, Greece, Spain and The Netherlands.



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Pilot sites

Each site represents **different end-user groups**, integrates **different combination of energy vectors** and **faces diverse challenges** when it comes to design of local energy systems.

	ENERGY VECTORS	END-USERS	SCOPE
MANZANEDA, SP	Solar PV panels E-mobility Storage	Public services Local Households Local Businesses	Increase RENEWABLE ENERGY SOURCES uptake in local grid
EEMNES, NL	Solar PV panels E-mobility Storage	Local Households Rural farms Local businesses	Regulatory exemption to launch a prosumer-driven market
JETTE, BE	Solar PV panels Co-generation Storage	Public services - Hospital Student dwellings	Improve micro-grid reliability and optimise demand/response
KIMMERIA, GR	Solar PV panels Wind turbines Thermal Biomass Storage	Public services - University Student dwellings	Lowest-as-possible operational costs through gamification

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Global replication

RENAISSANCE will also test the replicability of its approach under market conditions in 10 sites across the globe (India, US, Poland, France, UK, etc.) through Virtual Demonstrators.

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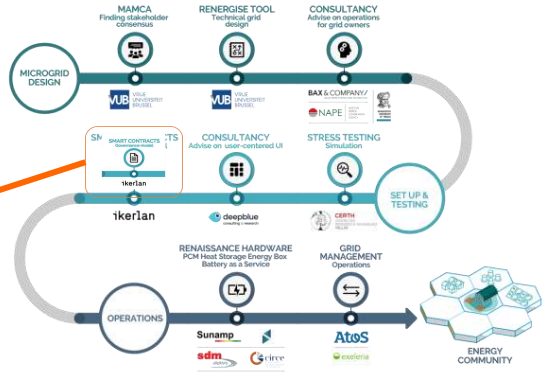
Project Objective No 3. Integrate



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Integration

- ✓ Based on a secure, interoperable and scalable blockchain architecture the RENAISSANCE platform will be developed to interconnect all existing demonstrators' energy vectors into a unique decentralized multi-vector energy services market where consumers/prosumers will interact and perform financial actions defined by smart contracts, which limits are established in real time
- ✓ The platform will regulate the energy service trade market dynamically and transparently ensuring effective operations at minimum cost. At the end of this phase, the set of solutions provided will be used to simulate additional scenarios of energy interactions and help identifying those barriers hindering energy island potentials

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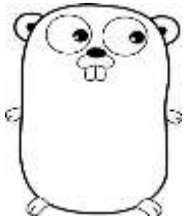
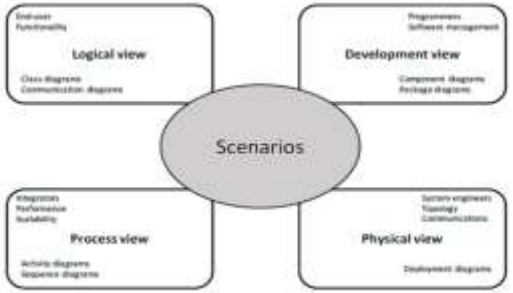
Smart contract – How?

- ✓ Open source Blockchain technology selection (HYPERLEDGER FABRIC)
- ✓ Golang open-source programming language
- ✓ Design architectural model selection

HYPERLEDGER FABRIC



GOLANG



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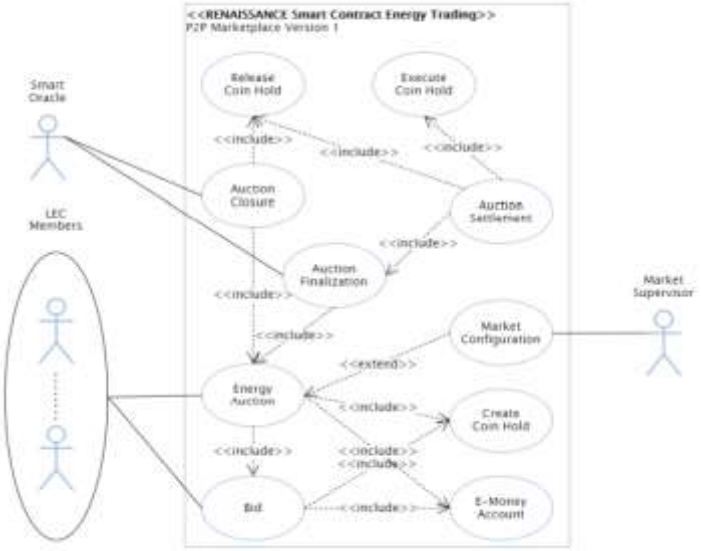
P2P Marketplace Contract (Version 1) - Example- Ability of LEC members to directly trade energy among them

'WINNER'

- ✓ The bidder submitted the most competitive price is the winner
- ✓ If a bidder submits bit equal to the auction's closing price, she is automatically declared as winner
- ✓ There can only be 1 winner



'Auctions with no bids'

If no LEC member declares interest (no bids), the auction has to be closed

'COMPETITIVE PRICE'

Bidders can see the status of their bids (winning or not) and can update their bid with a more competitive one.

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Thank you for your attention

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