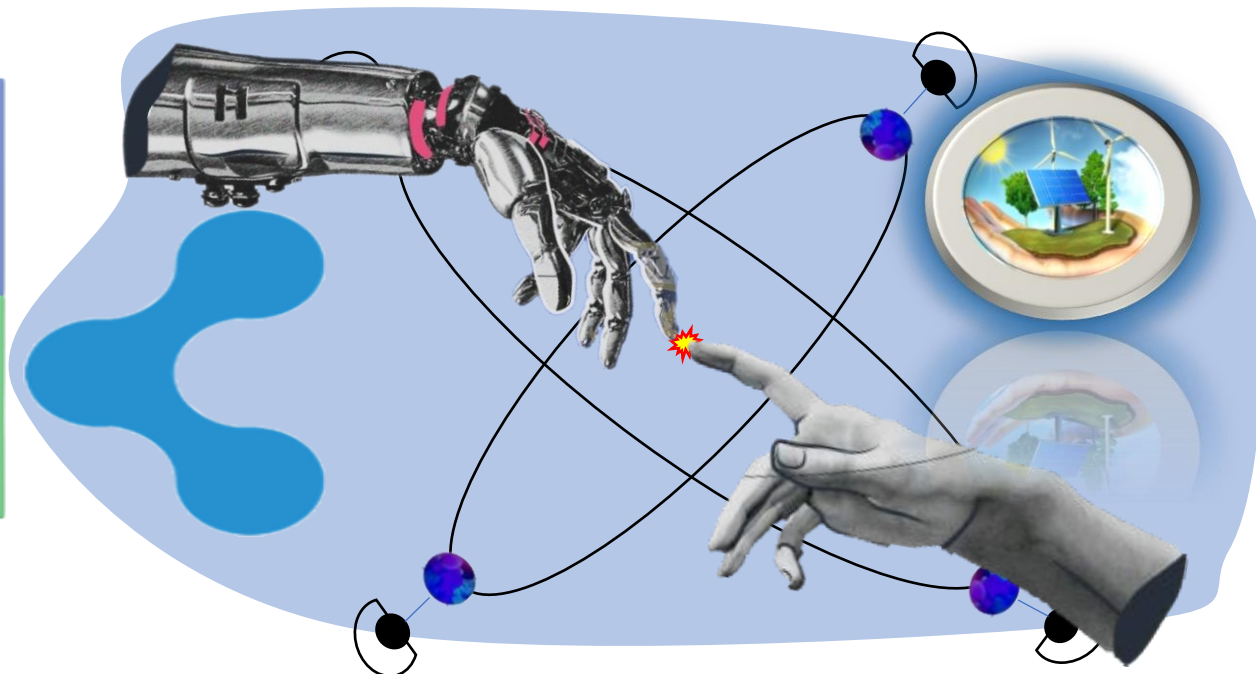
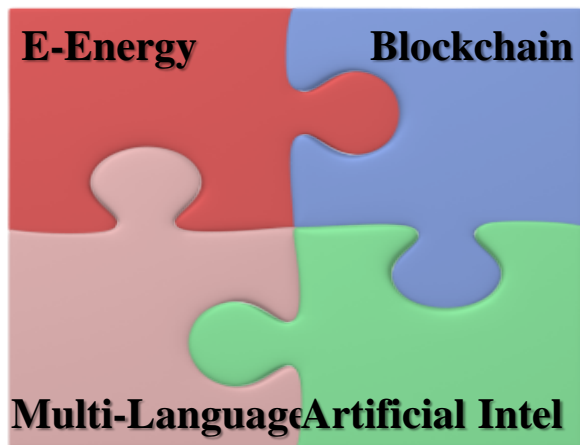




“BLOCKCHAIN AND ARTIFICIAL INTELLIGENCE BASED ENERGY EXCHANGING PLATFORM”



DLT4PED PROJECT PRESENTATION

Distributed Ledger Technology for Positive Energy Districts-DLT4PED's

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**“Research is to see what everyone else has seen
and think what no one else thought”**

Albert Einstein

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Executive Summary

This project aims to provide a support service to citizen led initiatives that would integrate energy renovation of buildings and energy communities. The project provides

- technical assistance and coaching to support the development of models supporting renovation in conjunction with renewable deployment;
- provide evidence and indicators in order to raise awareness amongst existing Citizen Energy Communities (CEC) and Renewable Energy Communities (REC) about the value of energy renovations;
- monitor and support a strong transposition of provisions concerning CEC and REC, which should be an opportunity for Member States to strengthen the role of citizens in the energy transition;
- **develop a platform for sharing experience and models.** The service will **make use of pilot cases to strengthen community building and allow for scale up and replication of successful initiatives.**



“Due to **transmission** and **storage cost**, supply from **nearest** is the most **optimized** and **energy efficient** way. **Nearest is the Best**”
*Bülent ÇELİK

“**Open data** has been characterized as the oil of the 21st century. **Open, shared data** is **considered** the **oil** of **21st century**; in the **energy sector**, **shared, open data** can be a **game-changer** in the **rate of energy transition**, by helping **unleash** the potential of new **innovative technologies** and **business models/services/markets**.”
*Economics

“In an **interconnected world**, **regions** rely on each other to cope with **disaster**. That becomes much harder when **heatwaves** are **happening** in **many places at once**”
*The ekonomiks-Instagram

“Blockchain is the technology behind Bitcoin (not Bitcoin itself).” “Bitcoin is the first use case of the Blockchain technology.”
<https://nl.devoteam.com/expert-view/blockchain-its-origin-bitcoin-benefits-and-use-cases/#:~:text=Blockchain's%20origin&text=Bitcoin%20is%20only%20the%20first,and%20elusive%20person%20Satoshi%20Nakamoto.&text=sent%20directly%20from%20one%20party,going%20through%20a%20financial%20institutions%20%80%9D>

“Advanced Digital Technologies.” “Digital Revolution.”
“There are many **new technologies** **emerging** as we enter the **Digital Decade**, and they all have the potential to **transform** our lives. **Three key advanced technologies** for **Europe's future** are the **Internet of Things**, **blockchain** and **next generation Internet**.”
*EU Digital Strategy
<https://digital-strategy.ec.europa.eu/en/policies/advanced-digital-technologies>

“A **key enabler** to **innovation** in Europe and the World”
*EU Blockchain Forum
<https://www.eublockchainforum.eu/events/blockchain-key-enabler-innovation-europe-and-world#:~:text=The%20EU%20Blockchain%20Observatory%20and,the%208th%20of%20July%202022>

EU BLOCKCHAIN ECOSYSTEM DEVELOPMENT


https://www.eublockchainforum.eu/sites/default/files/reports/EU%20Blockchain%20Ecosystem%20Report_final_0.pdf

“Blockchain is the latest ‘disruptive innovation’.”
https://www.researchgate.net/publication/337176770_Blockchain_as_a_disruptive_technology_for_business_A_systematic_review

“Blockchain is **prioritized** and **the most significant Technology**.”
*Scientific and Technological Research Council of Turkey-TUBITAK.
https://www.tubitak.gov.tr/sites/default/files/21566/tubitak_cp2021.pdf

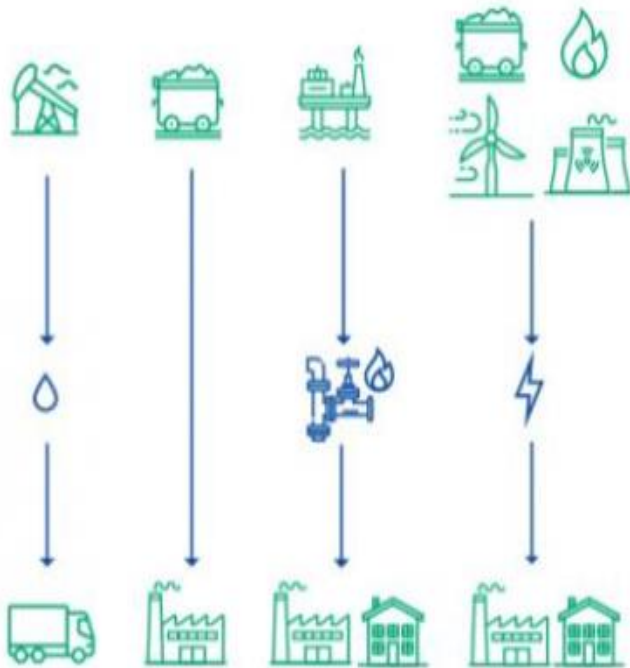
Distributed Ledger Technologies (DLTs), such as **blockchains**, are primarily **tamper-resistant** and **time-stamped databases**, They allow **multiple parties** to **record**, **verify** and **share** data on a **peer-to-peer** basis across a **network**, in **decentralized**, **synchronized** and **transparent** ways, **with limited human intervention** and **reduced intermediate steps**. Moreover, when **combined with specific automation attributes**, such as **smart contracts**, some DLTs support the execution of **complex procedures and agreements** with limited to zero requirements of external or internal human participation
*EU Research & Innovation Programmes Horizon Europe:
https://publications.jrc.ec.europa.eu/repository/bitstream/JRC121675/jrc121675_dlt4good_scanning_the_european_ecosystem_online.pdf

EU strategy on energy system integration

Follow  https://energy.ec.europa.eu/topics/energy-system-integration/eu-strategy-energy-system-integration_en

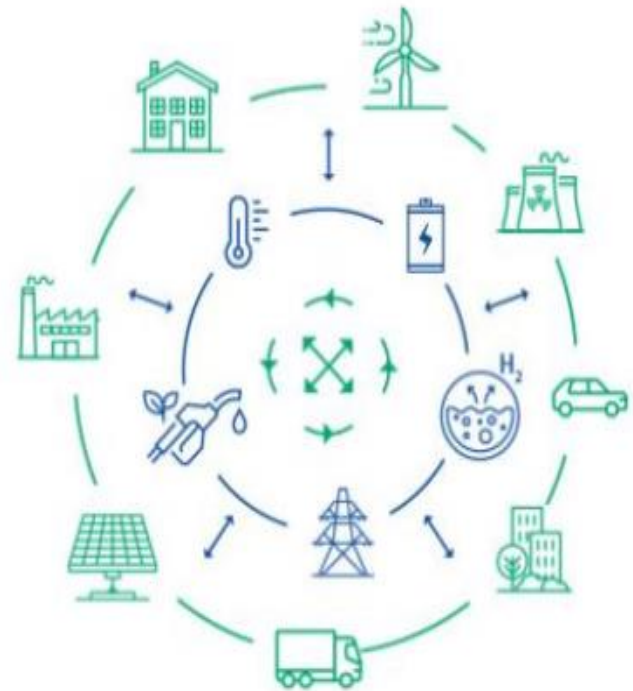
The energy system today :

linear and wasteful flows of energy,
in one direction only



Future EU integrated energy system :

energy flows between users and producers,
reducing wasted resources and money



Problem&Solution

DLT4PED

(E-Energy Trading Project)



PRODUCERS&CONSUMERS OR PROSUMERS

Regarding DLT4PED ; it is based on blockchain infrastructure and customized by ethereum DSM (distributed state machine) and more interesting and high impact on innovation. Outputs of project are;

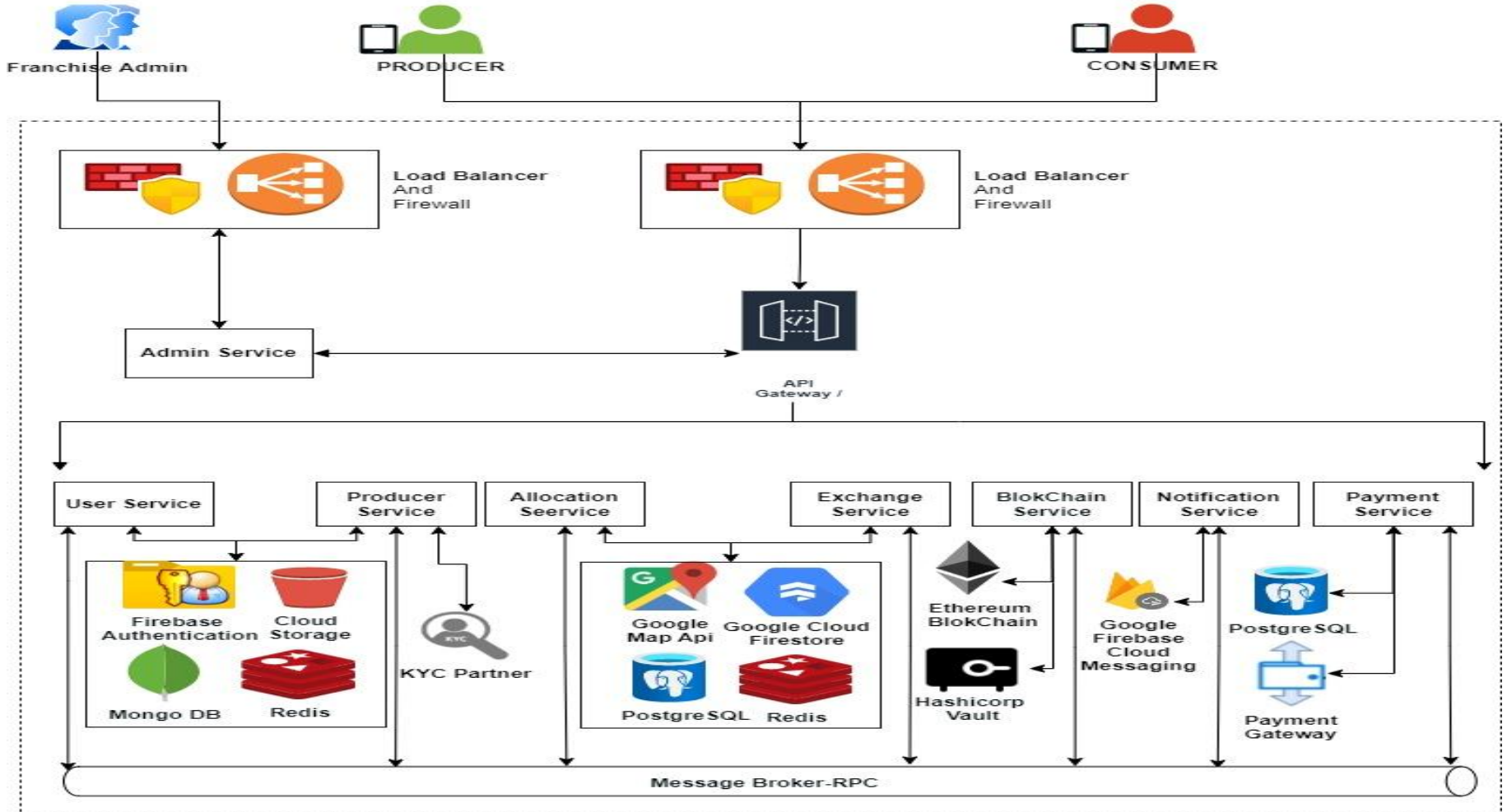
- Encourages citizen level solar-photovoltaic energy producing for own need and join Citizen Energy Communities (CEC)
- Sharing and exchanging energy with Neighborhood CEC or other Renewable Energy Communities (REC)
- Gathers CEC&REC on e-commerce (Energy trading) platform running on decentralized distributed ledger platform (Blockchain)
- Easily subscribes producers, consumers, and prosumers (both produce&consumes) search most efficient sellers, searched by consumers, make smart contract by one touch on platform or change your choice any instant of day.
- Between users swapping energy will be based on coin (this is CERECoin) and released ready to use
- Security, transparency, temper-resistance and other security requirements by using most emerging and ground-breaking/game changer tech.renovation Blockchain Tech. (As is stated in EU-HE programme official web site) by Decentralized Technology Solutions-DLT(Blockchain) and WEB3/Decentralized Applications-DAAP's Solutions

Technical Specifications

- Integration to energy telemeters by web services (*REST (JAX-RS)*),
- On Blockchain Network (Ethereum Net), smart contracts and service software,
- API's provide on-the-fly data for Blockchain Network (*Bridges*)
- Smart Management Assistant (powered by Artificial Intelligence)
- Energy Trading WebSite (E-Marketing WebSite)



DLT4PED TECHNICAL ARCHITECTURE



Solution-Product-Technologic Validation



STATUS QUO

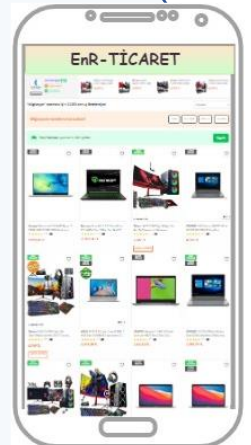
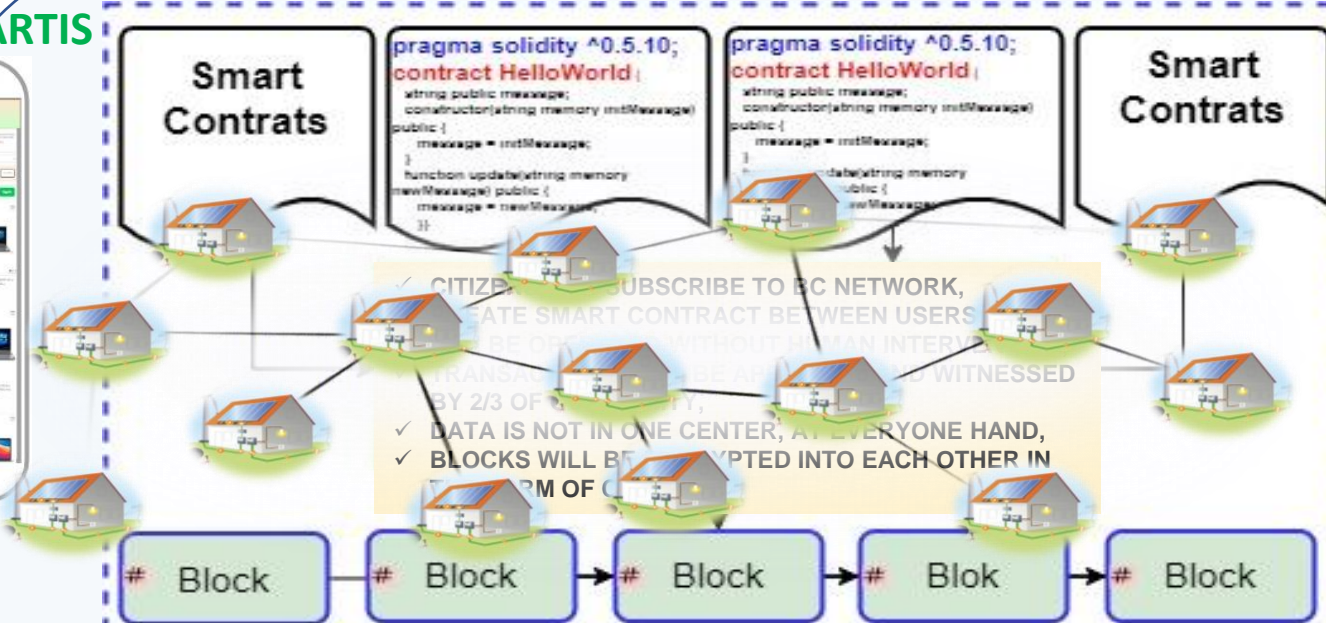
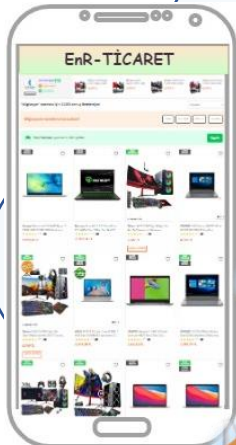


Distrubution of Service Operators-DSO's

INTERNET



STATUS ARTIS

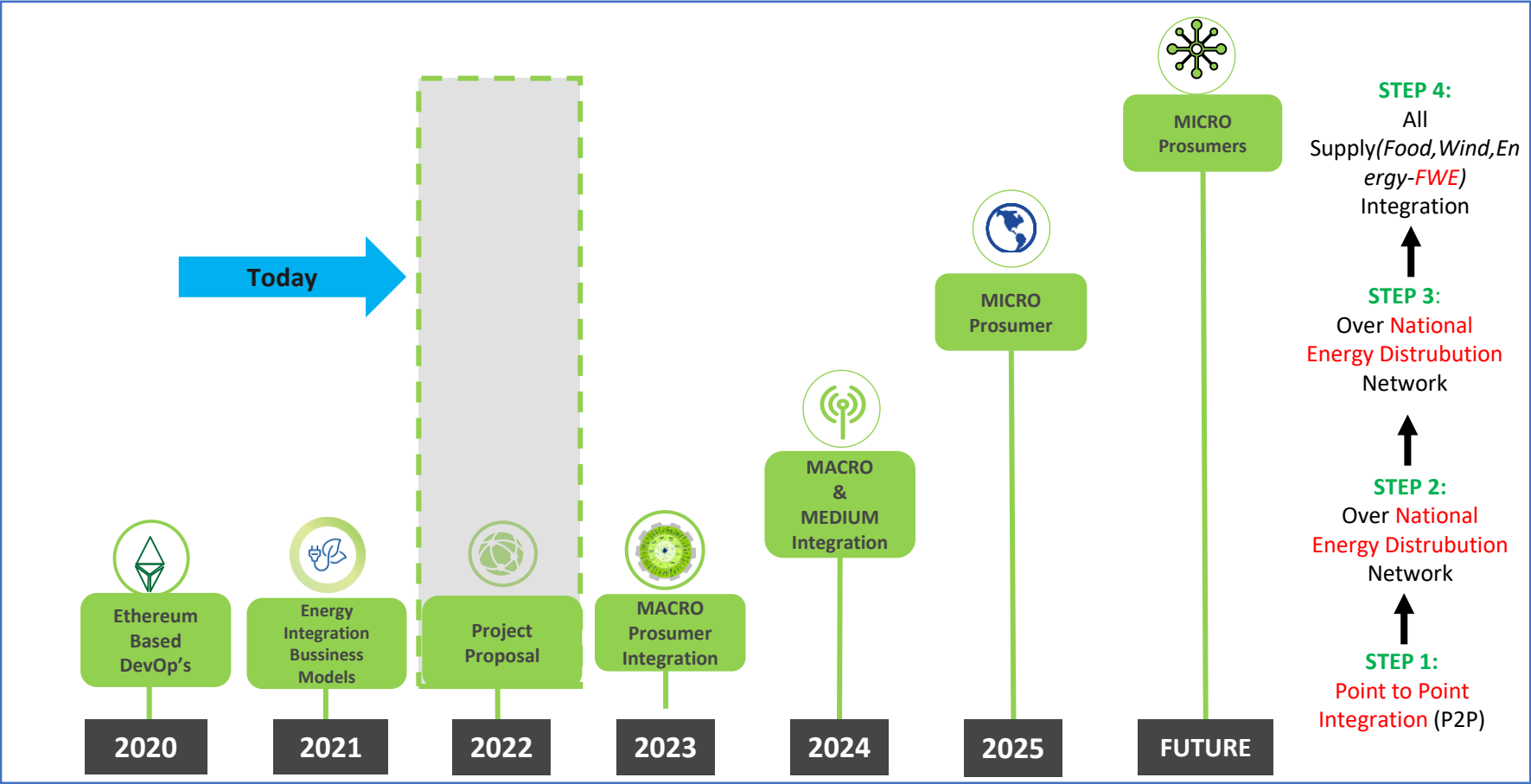


Energy E-Commerce

Blockchain Network Software

INNOVATION

Road Map



Our R&D/ICT Companies

- Software capability each with #>30 Computer/Software engineers building centralized&decentralized apps for governmental and private sectors in all sectors

Interested in Calls;

- Calls:
 - ✓ **Horizon Europe-HE**
 - ✓ **European Innovation Council-EIC**
 - ✓ **Connecting Europe Facility (CEF)**
- Missions :
 - ✗ 1. Cancer
 - ✓ **2. Adaptation to Climate Change**
 - ✗ 3. Ocean Seas and Waters
 - ✓ **4. Climate Neutral and Smart Cities**
 - ✗ 5. Soil Health and Foo
- Key Strategic Orientation:
 - ✓ **A,B&C**
- Impact Areas(Destinations)
 - ✓ **1-10**
- Cluster
 - ✗ CLUSTER 1 (Health)
 - ✗ CLUSTER 2 (Culture, Creativity and Inclusive Society)
 - ✗ CLUSTER 3 (Civil security for society)
 - ✓ **CLUSTER 4 (Digital, Industry and Space)**
 - ✓ **CLUSTER 5 (Climate, Energy and Mobility)**
 - ✓ **CLUSTER 6 (Food, Bioeconomy, Natural Resources, Agriculture and Environment)**

Can offer partners in the following domains ;

- ✓ **Service innovation (AI, blockchain, cloud, big data, quantum, etc.)**
- ✓ **Hardware (sensors, actuators, IIoT, IoMT, etc.)**
- ✓ **Information technologies (data analytics, processing back end, interfaces, front end)**
- ✓ **Data Modelling& Integration (software/hardware), communication technologies (speech processing, chatbots, ASR/TTS, NLP/NLU, AI, sentiment analysis, emotional computing, contact centers, tele-systems)**
- ✓ **Learning & training, standardization, communication / dissemination / marketing, business development, consultancy, project management**
- ✓ **Smart City&Energy Integration Solutions**

Especially adaptation and Implementation on European Standards

- ✓ **CEF:Digital Connection Europe Facility Standarts**
 - *The Context Broker is based on a European standard, NGSI-LD, guaranteeing cross-border and cross-sector interoperability*
- ✓ **Blockchain standards and Implementations**
- ✓ **Better Decision-Making Process**
- ✓ **Community and visibility**
- ✓ **Data modelling &I ntegration**
- ✓ **Interoperability standards and Implementations**



HORIZON EUROPE

TÜBİTAK

Name:

Company: **Eclipse Smart Technologies (planned to be established as Spin-off)**

Type of the company: R&I , ICT,Software

Interested Call Topic
HORIZON-CL5-2022-D3-02-01: Digital solutions for defining synergies in international renewable energy value chains
HORIZON-CL5-2022-D3-02-02: AU-EU Energy System Modelling
HORIZON-CL5-2022-D3-02-07: Renewable energy incorporation in agriculture and forestry

Mail: abcelik@gmail.com

Short info about your company/your research areas

We are active in the following domains:

- service innovation (AI, blockchain, cloud, big data, quantum, etc.)
- hardware (sensors, actuators, IoT, IoMT, etc.)
- information technologies (data analytics, processing back end, interfaces, front end)
- integration (software/hardware), communication technologies (speech processing, chatbots, ASR/TTS, NLP/NLU, AI, sentiment analysis, emotional computing, contact centers, tele-systems)
- learning & training, standardization, communication / dissemination / marketing, business development, consultancy, project management.

What you can offer to other delegates

(which expected outcomes of the related call you can serve/ what you can do for the scopes of that call)

- Software capability with >30 Computer/Software engineers building apps for governmental and private sectors in all domains
- Information Communication Technologies-ICT
 - Artificial Intelligence , learning and optimization smart platforms
 - Smart city solutions IOT integration and Decision Support Systems
 - Data Modeling and Software Integration
 - Distrubuted Ledger Tech-Blockchain based new trending WEB3 technology support
 - In-House, Out House ICT support

What you would like to recieve from other delegates

(which type of partners do you think you may need for that call)

- Smart City and Energy positive partners in all domains
- Smart PED enabled Construction Companies
- Energy Carrier Companies facilitating sharing energy and carrier infrastructure
- All Researchers from academia on Renewable Energy and Environmental Engineering