

COLLECTIEF

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Collective Intelligence for Energy Flexibility



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Collective Intelligence for Energy Flexibility



- **15 partners**
from 6 European countries



- **4 Years**
June 2021-May 2025



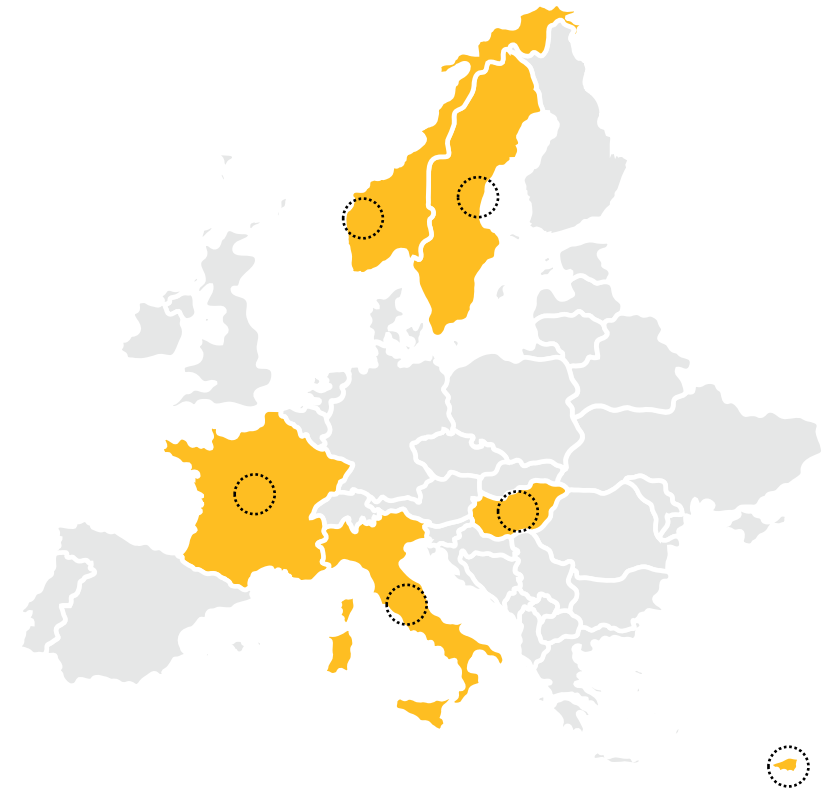
- **4 urban pilots**
to test our energy management system

Project Partners



The COLLECTiEF consortium

- Norwegian University of Science and Technology NTNU (Norway)
- Lund University (Sweden)
- The Cyprus Institute (Cyprus)
- Energy@Work (Italy)
- R2M Solution SRL (Italy)
- EM Systemer AS (Norway)
- NODA Intelligent Systems AB (Sweden)
- Geonardo Environmental Technologies Ltd. (Hungary)
- Scientific and Technical Center for Building (France)
- CETMA - Technologies Design and Materials European Research Centre (Italy)
- LSI Lastem (Italy)
- Ålesund Municipality (Norway)
- Teicos UE SRL (Italy)
- Virtual Manufacturing AB (Sweden)
- Politecnico di Milano (Italy)



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Why?



The challenge

- Climate change and extreme weather events can challenge **sustainable energy transition**, especially in urban areas.
- Demand side management is an effective approach for energy efficiency. However, **it is not easy to control the energy flow in urban areas** at a large scale since there exist complex interactions affected by urbanisation, user behaviour, climate etc.
- **Malfunctioning of buildings and energy systems can unease people's lives.** This is a serious concern in Europe as 75% of its building stock is not energy efficient.
- Most of the available solutions for the smart control of the energy flow are **expensive** and **need advanced IoT solutions.** This limits their large-scale application.
- To address both climate change mitigation and adaptation successfully, we should develop smart solutions that are **cost effective** and **computationally affordable.**

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What?



The solution

- The COLLECTiEF project **upgrades the smartness of existing buildings to a higher level** and creates a **collaborative network of a large number of buildings** providing grid flexibility while still ensuring the quality of service to the **end customer**.
- The COLLECTiEF methodology connects buildings, household appliances, and energy systems with a **minimum need for data transfer and storage**. We will achieve more accurate and **non-invasive environmental monitoring** through sensors **focusing on user needs**.
- COLLECTiEF uses **low-cost and open-source components** with cost-effective equipment available on the market such as smart plugs and smart thermostats to make our system **scalable across Europe**.
- The COLLECTiEF solutions can have direct applications for **energy management in “Positive Energy Buildings and Districts”**. We design a **smart, user-centric and user-friendly platform** to improve building management and **maximize energy saving**.

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How?



The solution

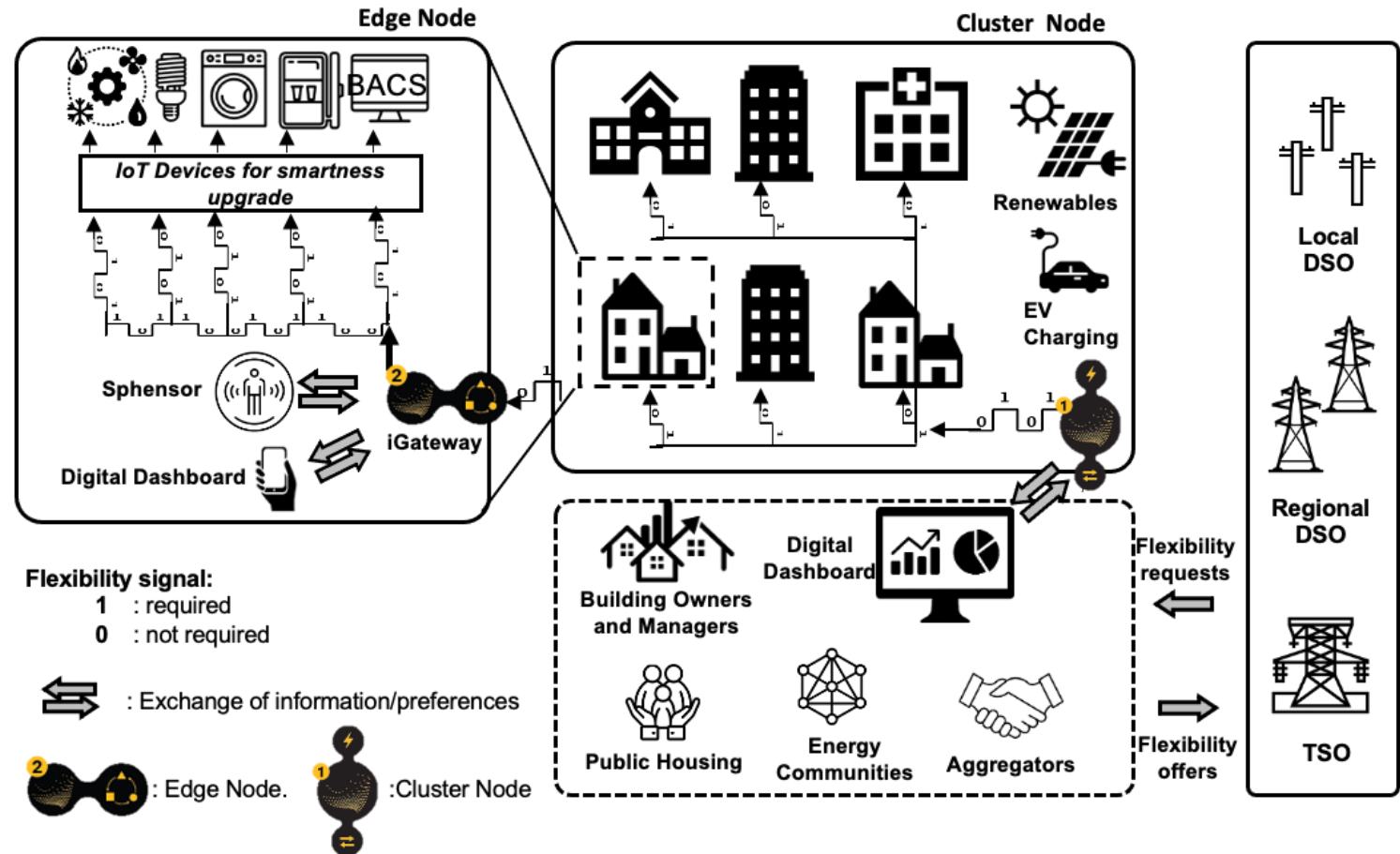
We use **Collective Intelligence** to smart up existing buildings and their legacy equipment and improve their **energy performance** and **climate resilience**.



COLLECTiEF How?



Edge & Cluster Nodes



COLLECTIEF How?

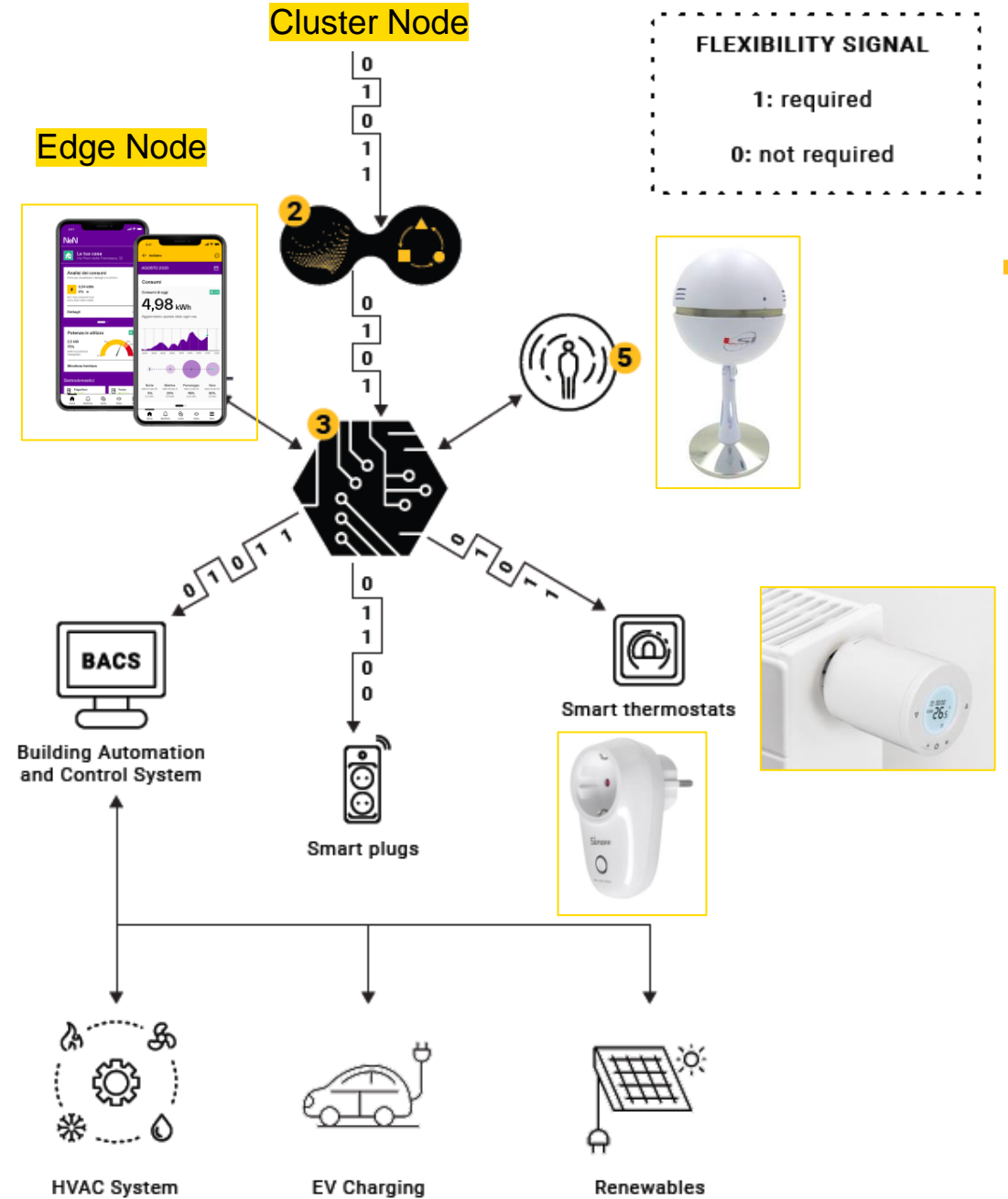
1 Supplier Node (CI-DSM, Noda Heat Network)

2 End-User Node (CI-DSM, NODA Building)

3 Interoperability platform (iGateway)

4 Building IoT operating system (Virtual)

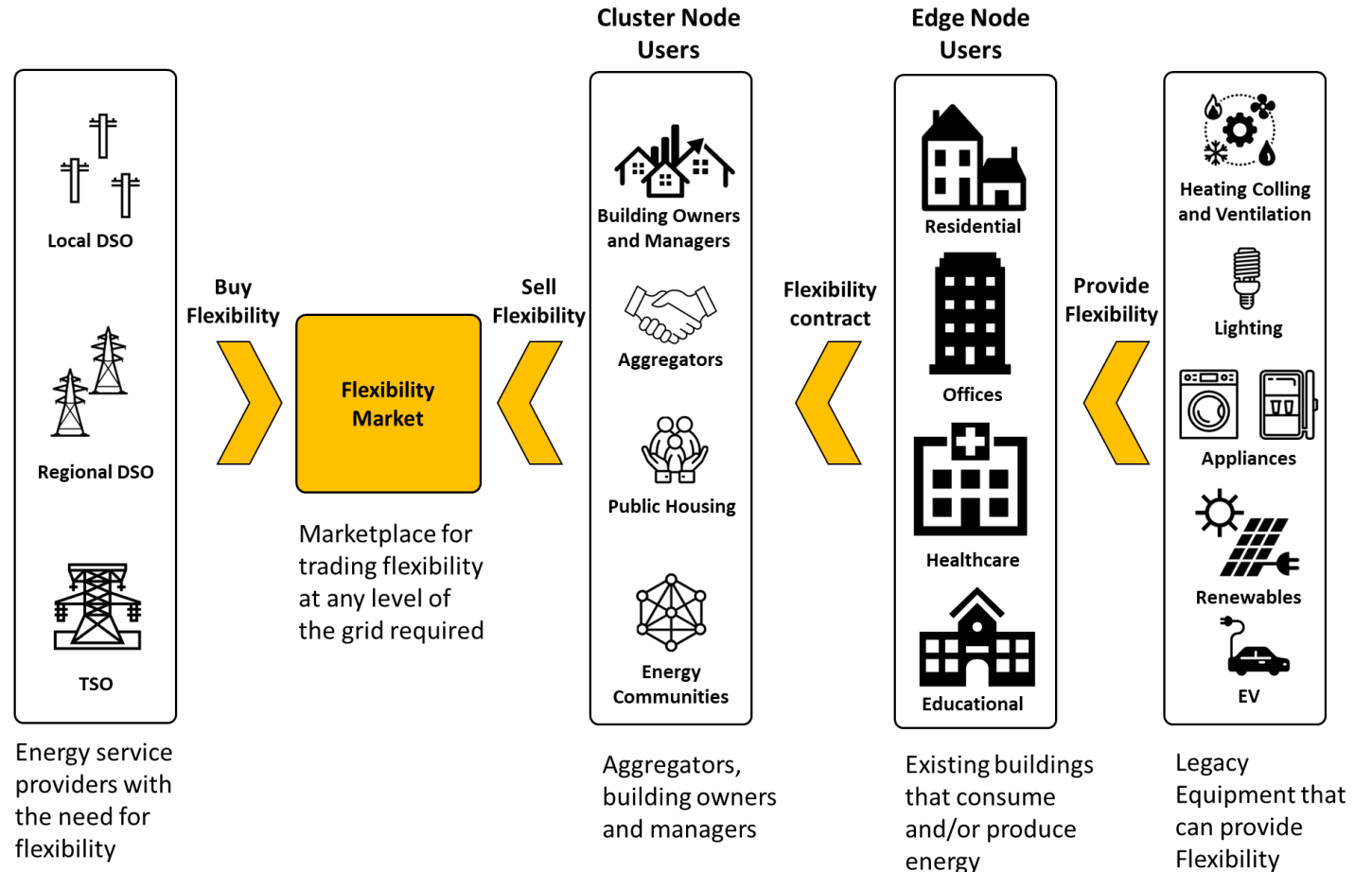
5 Occupant-centric sensing unit (SphenSor)



COLLECTiEF How?



Business Model



Our Pilots



Ålesund



Milano



Grenoble



Nicosia



Our Pilots



Ålesund – 7 Buildings



3 schools, 2 healthcare center, 1 sport center,
1 medical center

Milano – 3 Buildings



3 residential buildings

Our Pilots



Grenoble - 1 Building



1 Living lab (G2Elab)

Nicosia – 3 Buildings



3 campus buildings

The benefits



Upgrade the smartness level of existing buildings:

16%

On average reduce the primary energy use

0.2-3 €/m²

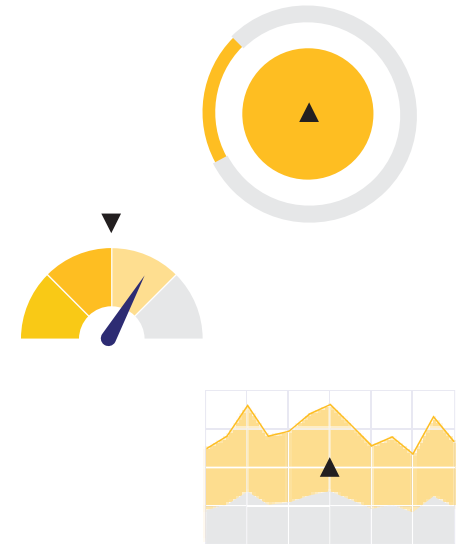
annual energy cost savings

15%

Increase user satisfaction

24%

Increase the demand flexibility



Collaborate with us!



Join our group of key partners

and help us steer COLLECTiEF impact

Fill in the [typeform](#), become our associated partner.

We offer:

- Visibility on our project website
- Early access to our solutions
- Invitation to co-create with us and hear your opinion
- ..much more!

Get in touch!

Project email: info@collectief-project.eu

Website: www.collectief-project.eu

Follow us!



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