Collective Intelligence for energy flexibility in existing buildings

COLLECTiEF

A smarter way to manage energy

Collective Intelligence (CI) enables buildings to act together using simple binary signals to optimise energy use, reduce costs, and increase resilience without centralised control. The COLLECTiEF system includes:

- **Low-cost Edge Device (BRiG):** Integrates legacy equipment and gathers local data
- **CI Coordination Layer:** Cluster-level optimisation through local cooperation
- **Human-Building Interface (HBI):** Real-time feedback for users and managers
- **Occupant Feedback (POE):** Feeds into adaptive comfort and control decisions
- **Secure & Scalable:** Minimal data transfer, maximum interoperability

CollectIEF Components

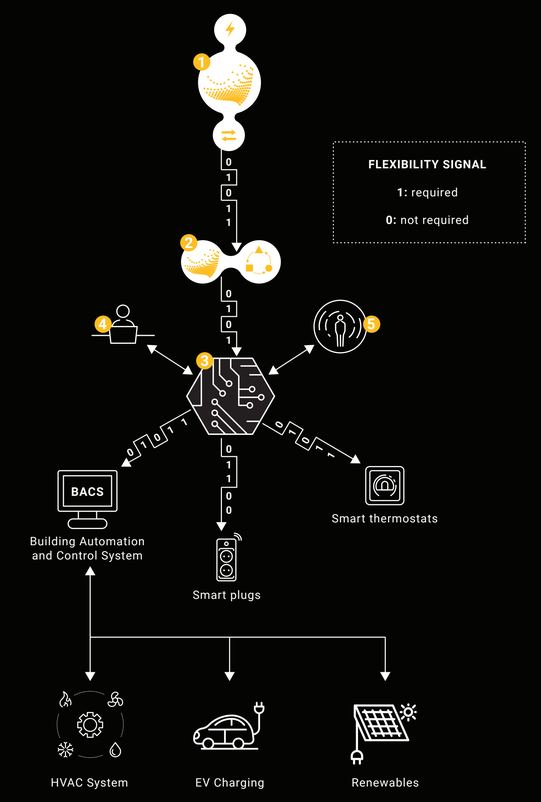
1 Supplier Node (CI-DSM, Noda Heat Network)

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

3 Interoperability platform (iGateway)

4 Building IoT operating system (Virtual)

5 Occupant-centric sensing unit (SphenSor)



Real buildings, real results

System tested in:

- Simulations
- Small-scale lab pilots (G2ELab)
- 13 large-scale demo buildings across 3 countries (Cyprus, Italy, Norway)

+1 SRI Level
Smarter, future-ready buildings

Up to 27% Energy Savings
Efficiency through smart control

Resilience Boost
Better performance in climate extremes

COLLECTiEF system

+52% Self-Consumption
Better use of solar and renewables

Demand Flexibility
Real-time load adjustment

+15% Comfort
Enhanced occupant wellbeing

Scaling up COLLECTiEF

The COLLECTiEF system is designed to be adopted beyond the project: retrofit-friendly, affordable, and future-proof.

- CI-based control system deployed in real buildings via low-cost edge devices
- Interoperable setup enabling retrofitting of legacy systems
- Live data collection to assess energy savings, comfort & flexibility
- User interface refined through feedback and POE insights
- Business models co-developed with stakeholders across Europe
- Training tools to support replication and uptake

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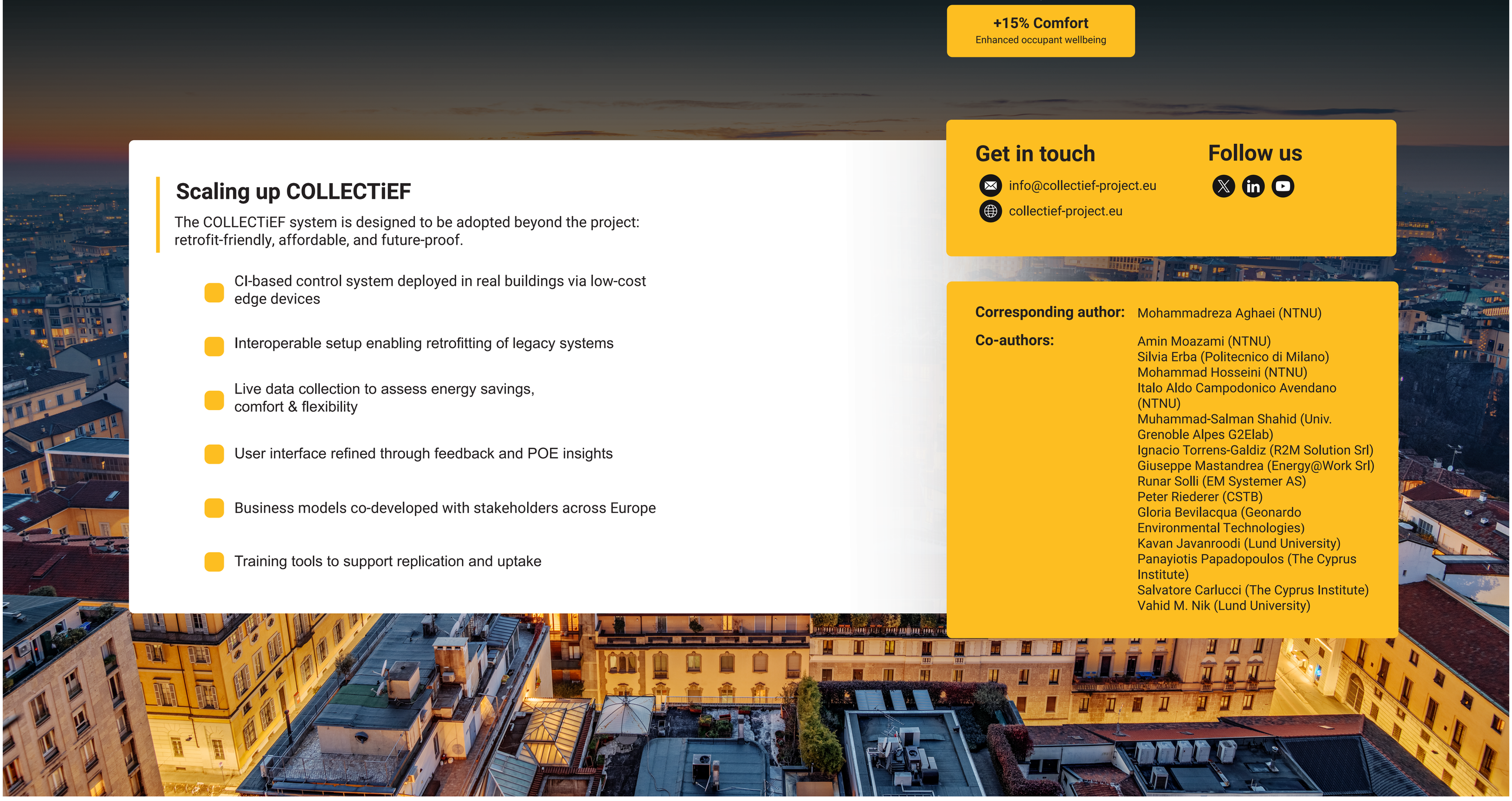

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