AI4CITIES

Accelerating carbon neutrality

BEE
Building Energy Efficiency
Eeneman
Energy made smarter
UNETIQ
Metropolia
University of Applied Sciences

BEE Consortium

Eeneman Oy (Finland)
- Smart Energy Company
- Building Integrations & Controls
- Virtual Power Plant

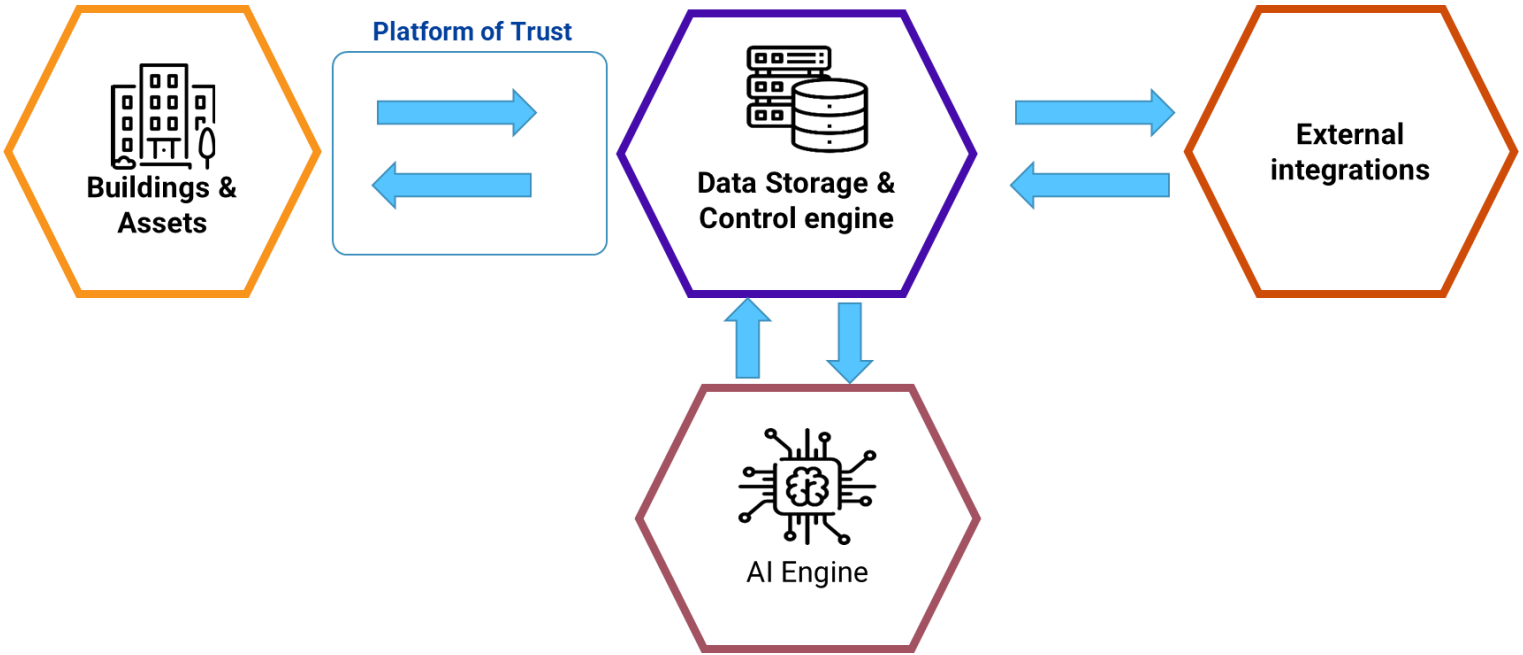
Unetiq GmbH (Germany)
- Artificial Intelligence Agency
- Building Usage Forecasts
- Control Optimization

Metropolia UAS (Finland)
- Smart Building Campus & Data Provider
- Emissions & Savings Calculations
- Prototyping Lab

- 30+ integrated systems
- 30+ measurements

Väre Energy
E2M

BEE Solution



Addressed Challenges

Forecasting external and internal parameter changes

Peak energy usage shifting to renewables

Proactive optimization of building control

Estimating building inertia, reactivity and occupancy

⬇ 15%
Energy Consumption Reduction

⬇ 15%
Emissions Reduction

⬆ 100%
User Comfort

Phase 1 Learned Lessons

- Abundant, yet unorganized data
- Multiple formats and languages
- Different services provide same data in different formats
- Crucial to organize and arrange data
- Buildings are very inefficient, yet so much data about them is available.
- High saving potentials reside within building data

Phase 2 Plans

- Utilize Platform of Trust to work with data.
- Train an AI algorithm to forecast building behaviour
- Simulate control parameters for Metropolia campus
- Test and provide a lab demonstration at Metropolia campus
- Plan a roadmap for further testing the prototype

Phase 2 Challenges

- Bring a prototype to a real lab environment.
- Balance between full-on testing and staying within lab boundaries.
- Combine multiple data sources into one data frame
- Asymmetric setups of rooms, floor areas, buildings.
- Design the solution in a scalable fashion