



Where Are We Now?



Deliverables

Deliverables available to view on website

- D1.1** Methodology for determination of virtual sensors for comfort
- D1.2** Methodology for determination of virtual sensors and meters for flexibility
- D2.2** Automation of dynamic building simulation model calibration and ROM generation
- D6.1** Review and analysis of market conditions
- D6.2** Review of regulatory framework



Demo Sites Update

Demonstration in Operational Efficiency

Helix Building
(West of Scotland Science Park, Glasgow, Scotland)



Helix Building is an office building, one of the structures of the West of Scotland Science Park, a research center located outside of Glasgow city centre.

Country Crest
(Rathmooney, Lusk, Co Dublin, Ireland)



Country Crest is a company founded in 1993, born with the aim of growing and pre-packing fresh potatoes for the retail sector.

Demonstration in Retrofits

ASP della Carnia 'San Luigi Scrosoppi'
(Tolmezzo, Udine, Italy)



ASP della Carnia, the San Luigi Scrosoppi building is a residential care facility for the elderly and disabled which has a capacity of 166 beds in Udine, Italy.

World Trade Center
(Grenoble, France)



The World Trade Center is a business and congress center inaugurated and located in the heart of the Europole district of Grenoble.

Progress to Date on Demo Sites

Baseline Survey Questionnaire

A questionnaire was developed to collect occupant's feedback regarding thermal comfort, indoor air quality and lighting comfort. The survey was issued across the 4-demo sites. The plan is to issue the survey several times across the project to capture feedback on the iBECOME service deployment

Digital Twin Development

The iBECOME project is utilising calibrated building energy models, also known as digital twins, for measurement and verification purposes to capture the performance of the services deployed as well as deploying the energy and comfort optimisation services. Work in this period has seen the development of the digital twins for the demo sites as the baseline data was made available.

iBECOME Services

Initial work is under way to define the individual use case for each of the iBECOME services that will be deployed on each demo site in the following area:

- Energy-Comfort Optimisation
- Measurement and Verification
- Fault Detection
- Predictive Maintenance
- Demand Response



iBECOME Business Model Development



Regulatory Framework

A full review including laws, regulations, codes and standards was carried out during the period of M1-M18. This is imperative as the iBECOME virtual building management systems (vBMS) product offering will transcend several domains (energy systems and data platforms) from several perspectives services, customers, providers, business models and it requires a multi-stakeholder collaboration.

The review focused on the following areas

- Energy efficiency in buildings
- BMS communication protocols and standards
- Data privacy and cybersecurity



Market Analysis

The iBECOME vBMS product is targeted as a software as a service product for the smart building market which has an estimated Compound Annual Growth Rate (CAGR) 19.4% achieving a value of 166,5 billion \$ in 2025.

A Market review was carried out in order to provide an actionable set of insights on the potential market for the vBMS platform. The review incorporated identifying the target market, understanding the competitive landscape, key functionality requirements and adoption barriers.



Target Markets

The target market analysed consists of small and medium-sized buildings where usually BMS solutions are not present due to cost and complexity barriers. In fact, in those buildings, smart thermostats appear more economically reasonable. From the literature, it emerged that the investment in a BMS system typically ranges between 14,5 and 72,5/m2 and has a payback period between 3 and 5 years. The maximum lifespan associated with energy-efficient equipment can reach 15 years, however additional costs due to BMS upgrading should be considered.



Competitive Landscape

32 current market competitors of iBECOME vBMS and their business models have been investigated. It emerged that the most common service offered include an integration of comfort and energy optimization with target user referred to facility managers and facility owners and adopting mostly the Software-as-a-Service business model.

The Team



iBECOME

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