

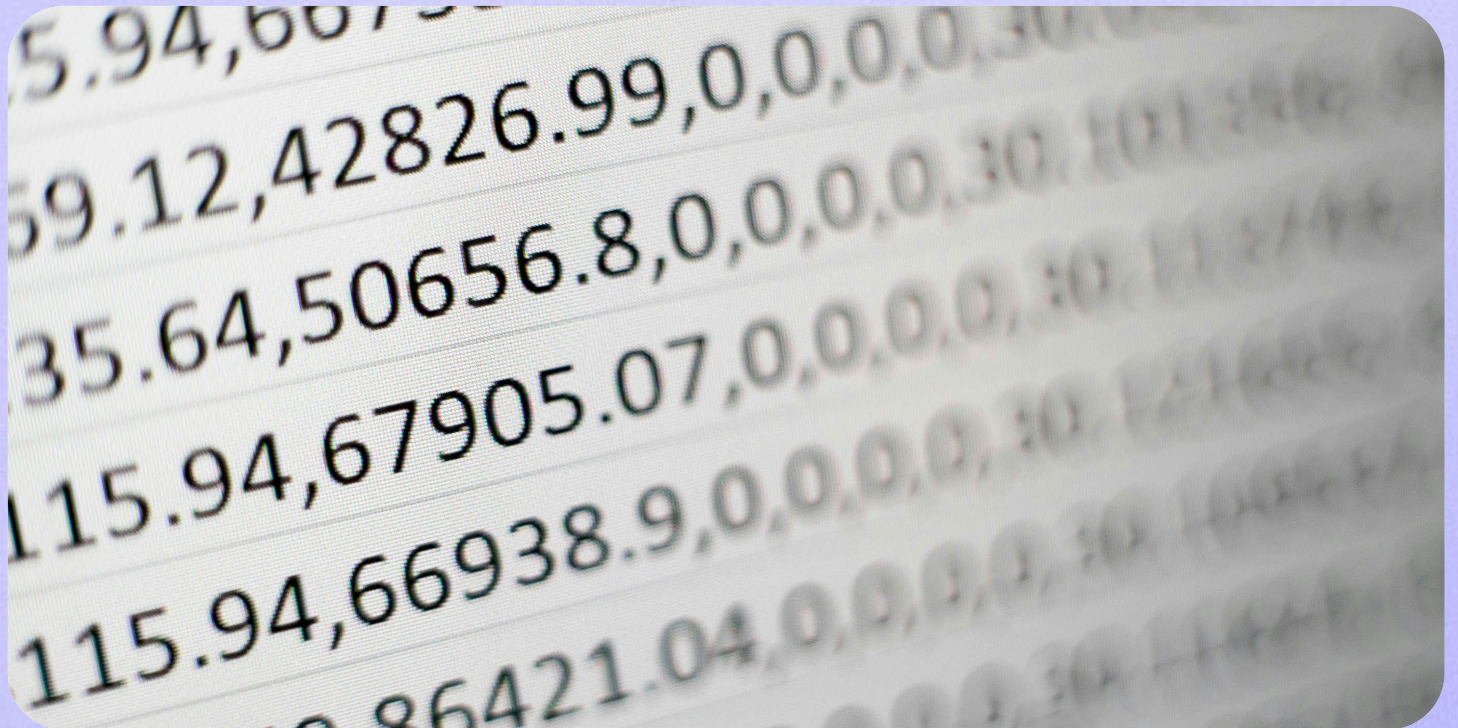
BuildON
Factsheet

Measurement & verification (M&V) methodology

A data-driven framework to quantify the real impact of smart building upgrades on energy, comfort and smartness.

LEAD PARTNER: EURAC RESEARCH

SEPTEMBER 2026



Discover more at



 BUILDON-PROJECT.EU

 [BuildON](#)

 [Buildon EU project](#)



Co-funded by
the European Union



Innovate
UK

WHAT IT IS

Building owners often struggle to prove whether smart building upgrades deliver the expected results.

The BuildON measurement & verification (M&V) methodology is a framework that combines established verification practices with data-driven modelling to quantify the impact of smart services.

It enables a before-and-after assessment of energy use, indoor environmental quality, flexibility and building smartness — evidence that supports compliance with the Energy Performance of Buildings Directive (EPBD) and with smart readiness indicator (SRI) reporting, and helps stakeholders make informed investment and operational decisions.

WHO BENEFITS, AND HOW



ENERGY SERVICE COMPANIES (ESCOS):

support contract performance assessment with transparent and auditable results.



BUILDING OWNERS AND PUBLIC AUTHORITIES:

gain confidence that investments deliver measurable value.



FACILITY AND ENERGY MANAGERS:

identify operational improvements and optimise building performance.



POLICYMAKERS AND PROGRAMME MANAGERS:

access consistent evidence to evaluate smart-building initiatives.

KEY FEATURES

- Creates accurate pre-intervention energy baselines from monitored building data.
- Measures the actual savings achieved after smart technology deployment.
- Assesses impacts on indoor environmental quality alongside energy performance.
- Evaluates building flexibility and demand-response capabilities.
- Supports comparison of performance before and after interventions.
- Generates evidence for investment evaluation and reporting.
- Accommodates different monitoring configurations and data availability.

HOW IT WORKS

The methodology connects with building monitoring systems through the BuildON universal building application programming interface (API).

Data from sensors, meters and external weather sources can be integrated into a cloud or on-premises environment, working with heterogeneous building automation systems while ensuring interoperability across different technologies and vendors.

It uses machine learning models for baseline energy modelling — including linear regression, decision trees, ensemble methods and multi-layer perceptron (MLP) neural networks — **together with automated feature selection** based on weather data, occupancy patterns and time-based variables, and statistical outlier detection. **Data exchange is secured** via HTTPS, with role-based access control enforced through keycloak authentication, governed by the BuildON interoperability framework's security layer.

TOWARDS THE MARKET

The methodology is not yet fully market-ready: further **improvement, validation and user-interface development** are needed, with an estimated **two years to market**. The intended business model is an **M&V consultancy service for ESCOs and building operators**, delivering standardised, contract-ready verification that measures improvements from specific interventions, isolating their impact from external factors.

Replication potential is high, thanks to its flexible data requirements and compatibility with different building sectors: the methodology has already been demonstrated across multiple European pilot sites representing diverse operational and climatic conditions.

VISUAL OVERVIEW

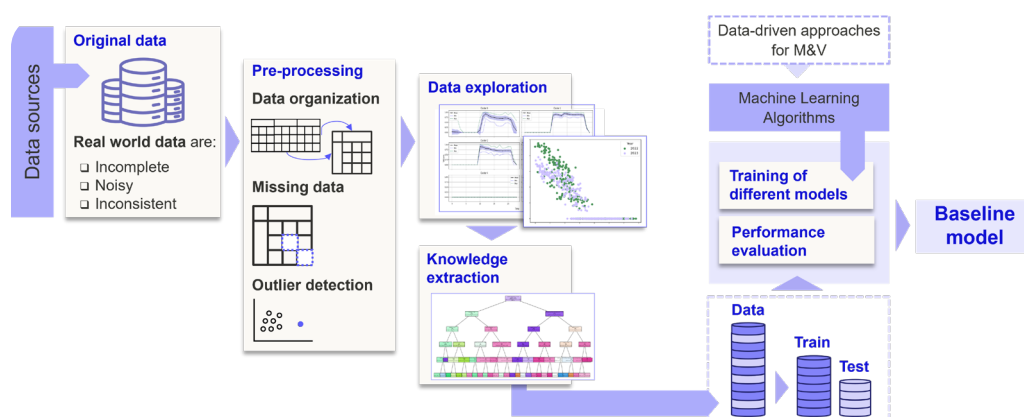


Figure 1. General framework for baseline model definition.

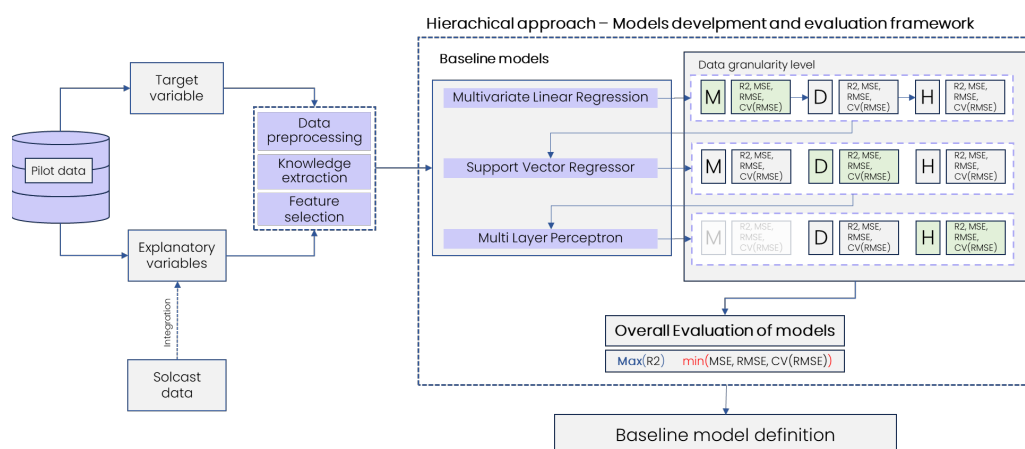


Figure 2. Approach used to select the appropriate baseline model.

MORE DETAILS ARE AVAILABLE IN ZENODO AT THIS LINK:

[HTTPS://ZENODO.ORG/COMMUNITIES/BUILDON](https://zenodo.org/communities/buildon)

Discover more at



BUILDON-PROJECT.EU

BuildON

Buildon EU project

Co-funded by the European Union

Innovate UK