



BIM based fast toolkit for Efficient rEnovation in Buildings

This project has received funding from European Union's H2020 research and innovation programme under grant agreement N. 820660.

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TRL 6 validation in three residential social and private demo sites: Italy, Poland and Finland.



BIM4EEB

BIM based fast toolkit for Efficient rEnovation of residential Buildings



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Start: 2018

Partners: 15 (UE)

Coordinator: PoliMi

Funded: European Commission

Programme: Horizon 2020

Budget: 7M €

End: 2022

Renovation through a smart **BIM-based smart toolkit** supporting:

- designers in designing and planning;
- construction companies to efficiently undertake their work;
- service societies to provide proper renovation solutions.

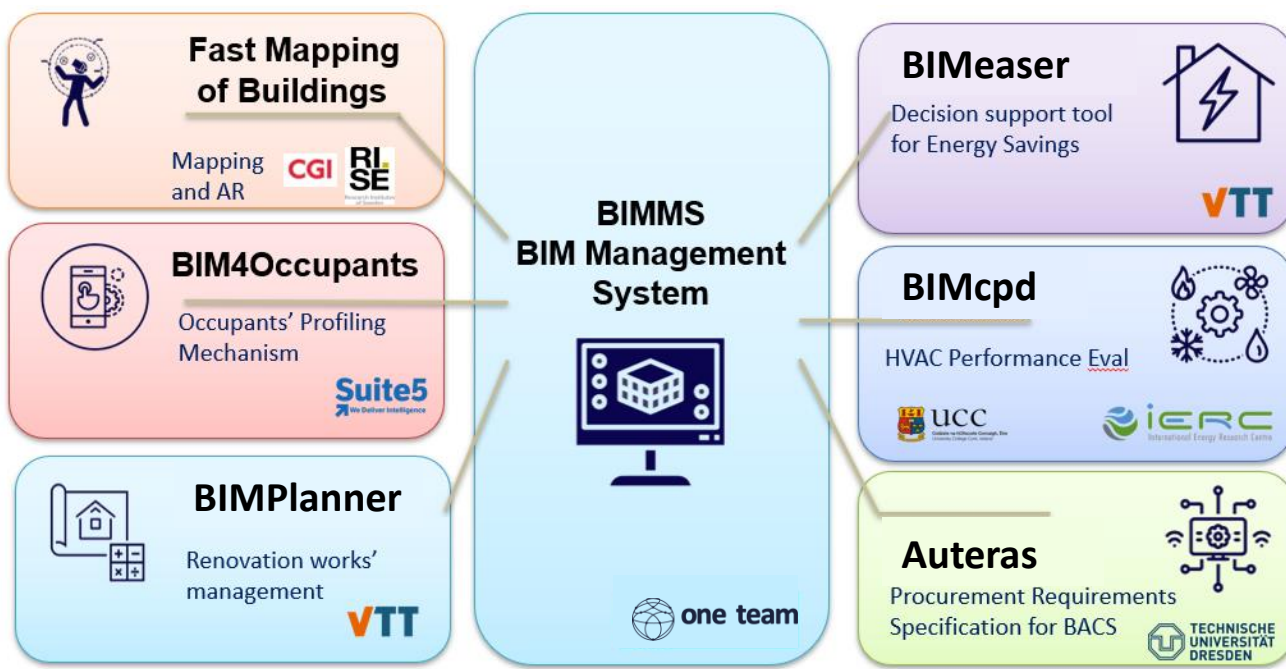
One Team developed the **BIMMS**, a CDE gathering BIM models, documents and live data.

Toolkit supports (i) design phase and (ii) owners to manage assets.

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IFC Viewer - ConstructionDellaBirona_SITE

Sensor Data

date	value	UM	type
13/01/2022 17:35:06	721	ppm	carbonDioxide
13/01/2022 17:35:06	26	%	Humidity
13/01/2022 17:35:06	50	dB	soundPressureLevel
13/01/2022 17:35:06	22	C	Temperature
13/01/2022 17:05:19	709	ppm	carbonDioxide
13/01/2022 17:05:19	26	%	Humidity
13/01/2022 17:05:19	44	dB	soundPressureLevel
13/01/2022 17:05:19	21.9	C	Temperature
13/01/2022 16:36:27	751	ppm	carbonDioxide
13/01/2022 16:36:27	26	%	Humidity
13/01/2022 16:36:27	21.9	C	Temperature
13/01/2022 16:36:23	72	dB	soundPressureLevel

BIMMS main functionalities:

- IFC BIM Viewer & IoT data (Samsung SmartThings & Netatmo);
- user different roles (designers, occupants & public authorities);
- ISO 19650 compliant – workflow status, document classification, versioning and history, check-in/out (resource lock) system;
- resource management;
- RDF resources, ontologies and linked (also geo-linked) data, including ICDD data container and SPARQL endpoint;
- REST API (also for external services).

Wikidata - 11 Henryka Dąbrowskiego Street in Chorzów

Map Application - Elements located geographically around the point

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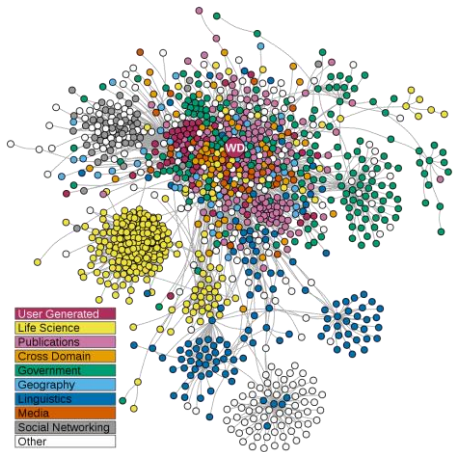
Digital Building Logbook:

- common repository of relevant building data with UIs within BIMMS;
- **MySQL db** (table) structure to store and visualise general, admin, construction and operational info;
- **fields** with role-based permissions depending on user: enabled/disabled editing or visualisation. Info shared within construction sector, among building owners and occupants, public authorities and institutions.

The screenshot displays the BIM4EEB Digital Building Logbook interface. On the left is a navigation sidebar with icons for Home Page, Roles and rules, Resource management, Logbook Data List, and BIM models. The main content area is a form titled 'General and administrative information' with the following sections:

- General and administrative information**
- Building construction information**
- Building Energy Performance**
- EPC general information**
- Energy use**
 - Energy use for heating Wh
 - Energy use for cooling Wh
 - Energy use for ventilation Wh
 - Energy use for domestic water heating Wh
- Primary energy**
- Delivered energy**
- Emissions**
- Thermal Comfort**
- Visual Comfort**
- Acoustic Comfort**
- Energy needs**
- Building Operation and Use**
- SMART information**

Other fields visible include: Name of the building, Other destinations (if any), Building permit ID (Amnesties), Last renovation (partial or general) year, Cadastre ID (Cadastral sheet, C), GIS coordinates, Longitude DD, Height above the sea level m, and Max number of occupants.



Within new TRL 8 project (BuildON)...

Data exchange functionalities between tools, DT and SRI through user-friendly interfaces (maybe SQL or GraphDB structure). **Data collection process** simplified, exploiting BIM models for automatic feeding and updates and link with external dbs or sources (consumption notification, maintenance tasks or alerts).

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one team

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