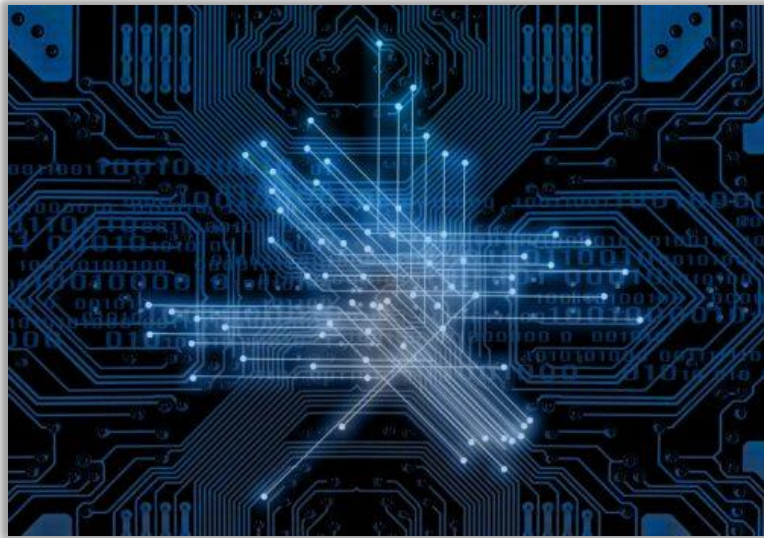


METABUILDING 1st GROW / HARVEST CALL : MEET THE WINNERS !



Unleashing the Innovation Potential of EU Construction SMEs

Construction + ICT Challenge



- Monitoring and managing building energy / comfort / health performance in buildings
- New BIM and digital tools for SMEs



METABUILDING Project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No. 873964. The sole responsibility for the content of this document lies entirely with the author's view. The European Commission and the European Innovation Council and SME Executive Agency (EISMEA) are not responsible for any use that may be made of the information it contains.

METABUILDING 1st GROW / HARVEST CALL : MEET THE WINNERS !

WellBIM

Monitor Air Quality and People to Improve Indoor Conditions

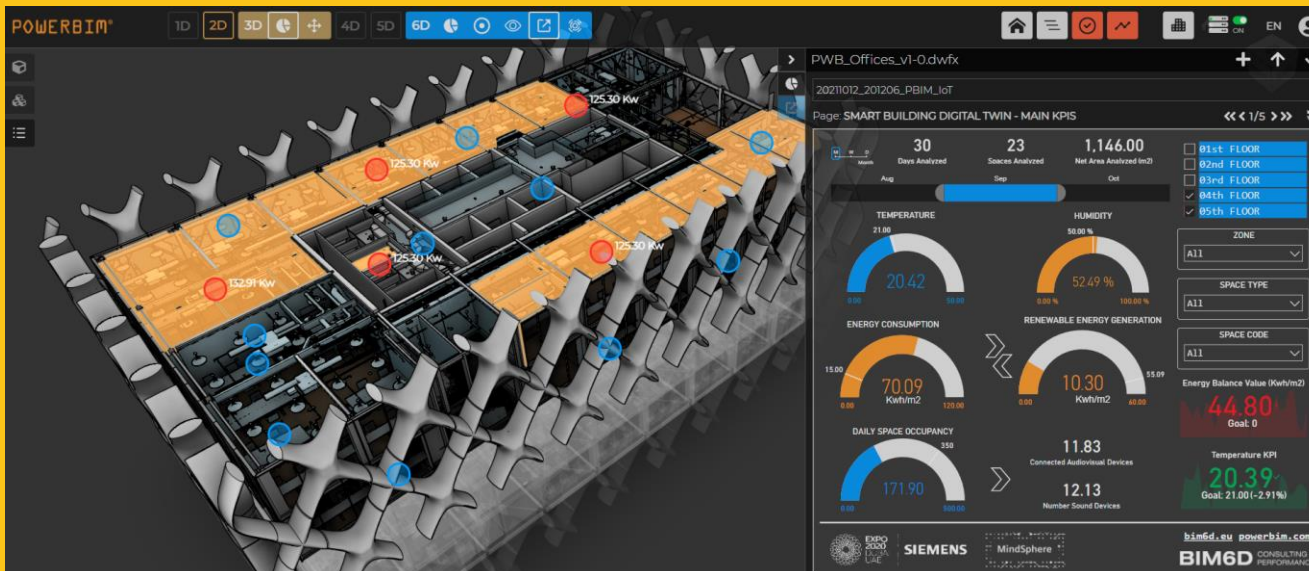
SECTORS INVOLVED : Construction · Digital Industry

BIM6D

SPAIN

SIA.architects

BELGIUM



“The main goal of WellBIM is to demonstrate that the use of Digital Twin will improve the comfort and indoor air quality of buildings, bringing to users valuable information.”

*Gregorio Saura
SIA. architects
BIM Manager*

*Fernando Morales
BIM6D
BIM & Digital Innovation Manager*

Main representatives



Fernando Morales
CEO, Digital Innovation Manager in BIM6D

- Architect / Bim Manager
- Expert in Sustainability and Energy Efficiency
- +15 years of experience
- +6 years specialized in BIM to DigitalTwin evolution and integrations

fernando.morales@bim6d.es



Frederic Gil
Smart Building Engineering Manager in BIM6D

- Senior MEP Engineer / Project Manager
- Expert in Sustainability / Energy Efficiency / MEP Systems
- +25 years of experience
- +6 years specialized in BIM projects and Smart Building

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Gregorio Saura
BIM Manager at SIA Architects

- Architect / BIM Manager
- +9 years of experience
- +6 years specialized in BIM projects and Smart Building

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FUNDED PROJECT BY CE



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BIM6D

 **SIA**
architects

THE COMPANIES

BIM6D Consulting & Performance
SIA Architects



-  **SAG. Administrateur. Architect. BIM Manager. BIM&BIG Data analyst. Recherche & Innovation.**
-  **BRE. BIM Coordinateur. Gestionnaire des Bibliothèques. Méthodologie**
-  **GOA. Architecte. BIM Expert. Infographiste**
-  **LIA. Architecte. BIM Expert.**
-  **VIL. Architecte. BIM Developer. C# Python.**
-  **MUL. Architecte. BIM Expert**



Avec le support du reste de collaborateurs de SIA

PARTENARIATS:



CLIENTS:



COMPANY:

SIA, Société Internationale d'Architecture, active au Luxembourg et la Belgique, depuis 1995. Aujourd'hui, notre nom est incarné par une équipe cosmopolite et multidisciplinaire de près de 50 professionnels issus des 4 coins du globe.

SERVICES:

- ARCHITECTURE
- BIM MANAGEMENT / AMO BIM
- BUSINESS INTELLIGENCE



The logo for WellBim features the text "WellBim" in a white, elegant script font. The text is centered within a circular graphic that has a light blue, hand-painted appearance with darker blue and black splatters around its perimeter. The background of the entire slide is a solid orange color.

WellBim

THE PROJECT

<https://bim6d.eu/portfolio/wellbim-metabuilding-project/>

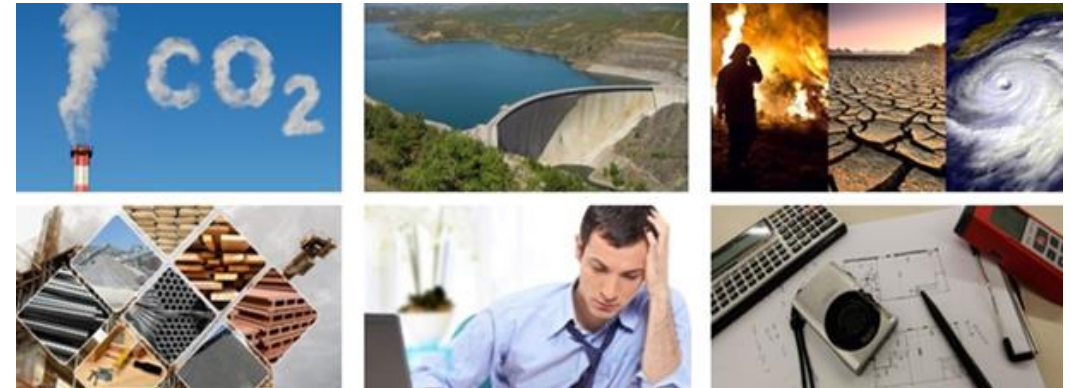
SUSTAINABILITY AND ENERGY



Level(s) Six macro-objectives

Level(s) European Framework for sustainable buildings

Level(s) indicators for POWERTWIN database	
Life cycle environmental performance	
1. Greenhouse gas emissions along a building's life cycle	1.1 Use stage energy performance (KWh/m ² /yr) 1.2 Life cycle Global Warming Potential (CO ₂ eq./m ² /yr)
2. Resource efficient and circular material life cycles	2.1 Life cycle tool: Building bill of materials (Kg) 2.2 Life cycle tools: Scenarios for lifespan, adaptability and deconstruction 2.3 Construction & demolition waste and materials (Kg/m ²) 2.4 Life cycle tool: Cradle to cradle Life Cycle Assessment (LCA) (impact/m ² /yr)
3. Efficient use of water resources	3.1 Use stage water consumption (m ³ /occupant/yr)
Health and comfort	
4. Healthy and comfortable spaces	4.1 Indoor air quality (ventilation, CO ₂ , humidity, concentration of pollutants) 4.2 Time out of thermal comfort range (% time out of range) 4.3 Lighting and visual comfort 4.4 Acoustics and protection against noise
Cost, value and risk	
5. Adaptation and resilience to climate change	5.1 Life cycle tools: Scenarios for projected future climatic conditions (2030 to 2050) 5.2 Increased risk of extreme weather events 5.3 Increased risk of flood events
6. Optimised life cycle cost and value	6.1 Life cycle costs (€/m ² /year) 6.2 Value creation and risk factors



**Improving indoor air quality
Improving thermal comfort and wellness**

AIR QUALITY VS OCCUPANCY

The impact of occupancy on air quality

SOURCE: 

Avg seats occupied per hour over time

508 Peak occupied 988 Total seats



CO2 (ppm) over time

712.2 Average 1189.2 High 368.0 Low



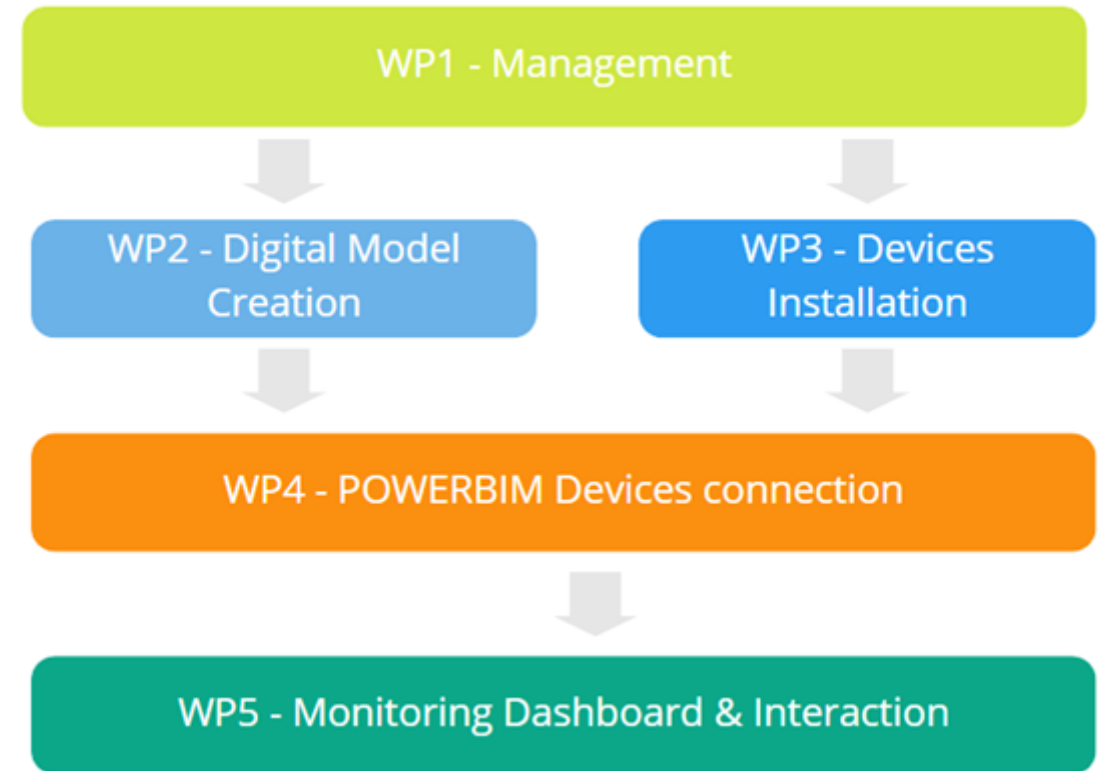
GOALS

GOAL 1

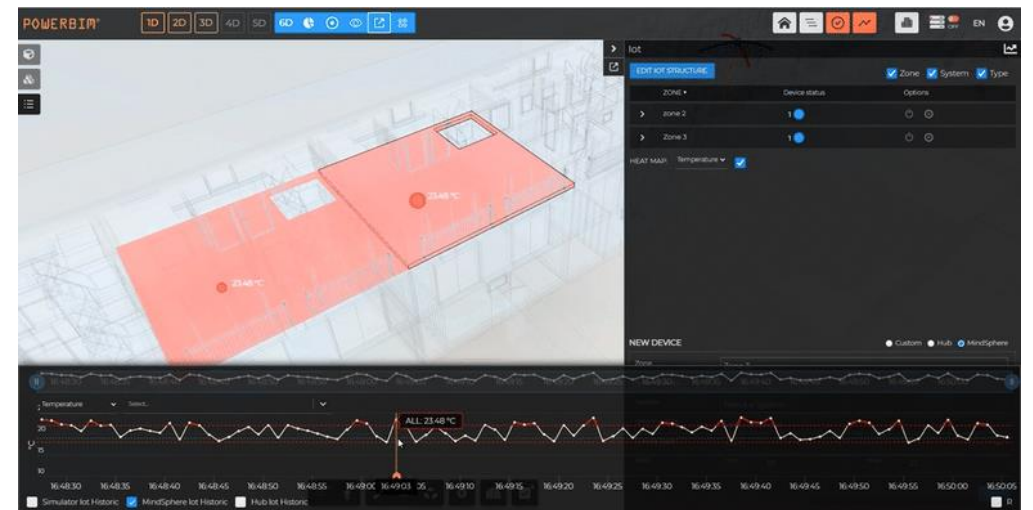
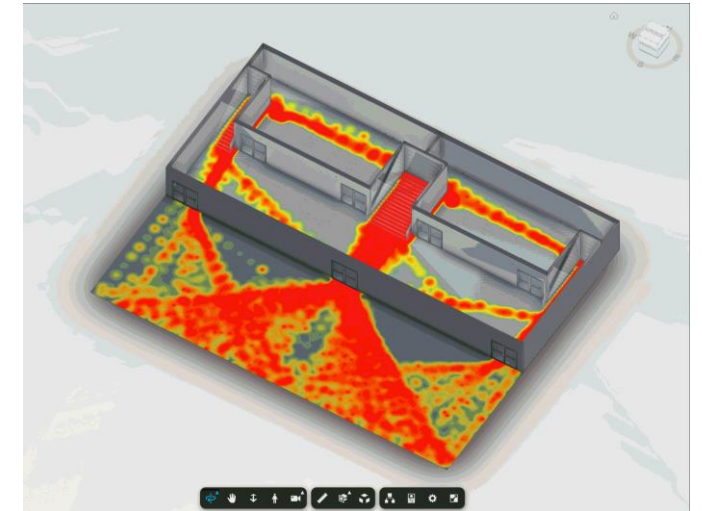
Connect all devices with digital twin on a federated information platform. Output:
1.1) Process map and methodology for IoT and Digital Models connection
1.2) Digital Twin of a test room in POWERBIM.

GOAL 2

Transform all federated data in real time into clear information for decision making at user level. Output:
2.1) Dashboards user-oriented
2.2) User interaction



BIM + IOT + DATA INSIGHTS





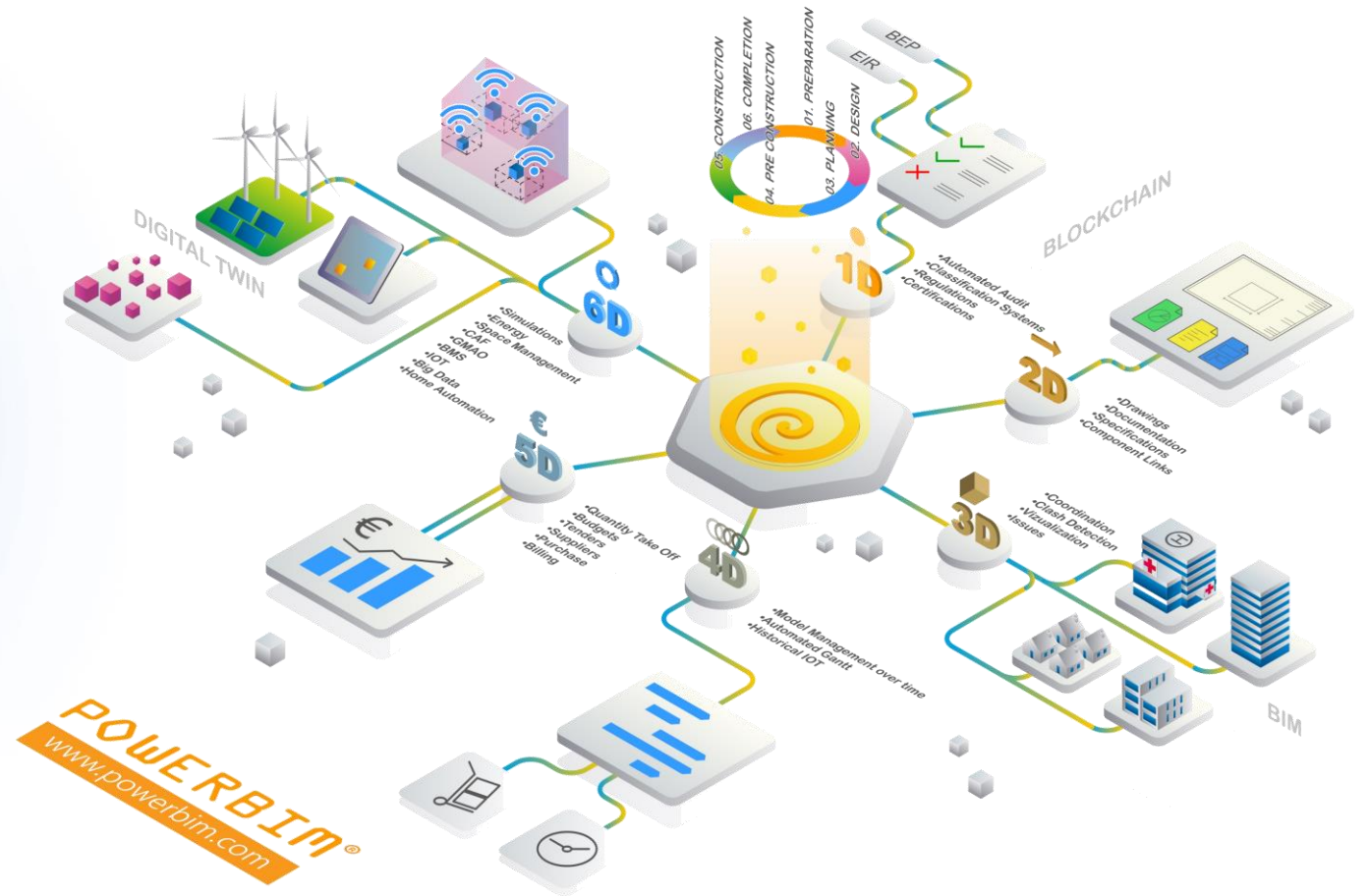
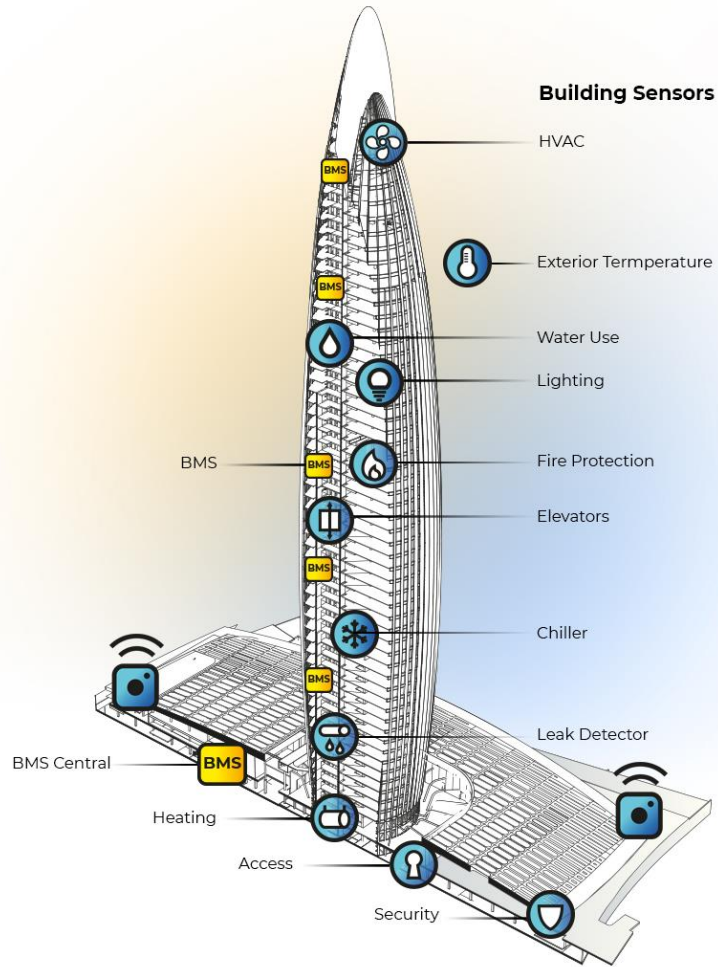
POWERBIM

powerbim.com

TECHNOLOGY

DIGITALTWIN ECOSYSTEM FOR INTERIOR
COMFORT WELLBEING IMPROVEMENT

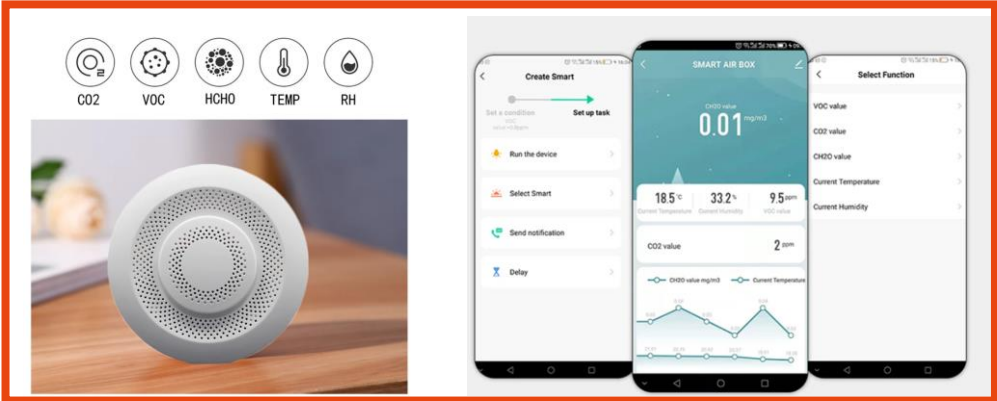
POWERBIM



IoT DEVICES AND INTEGRATION



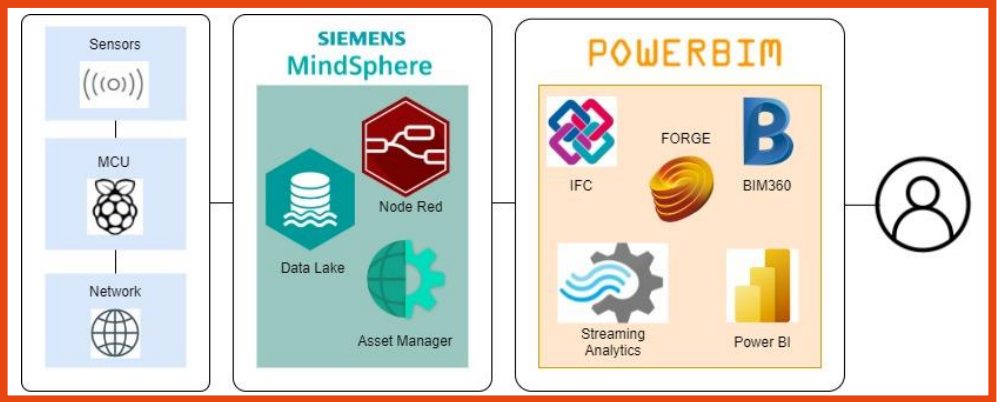
OCCUPANCY SENSORS



AIR QUALITY AND COMFORT DATA SENSOR



MCU - RASPBERRY PI AND GATEWAY



DIGITALTWIN ECOSYSTEM

BIM STANDARDIZATION

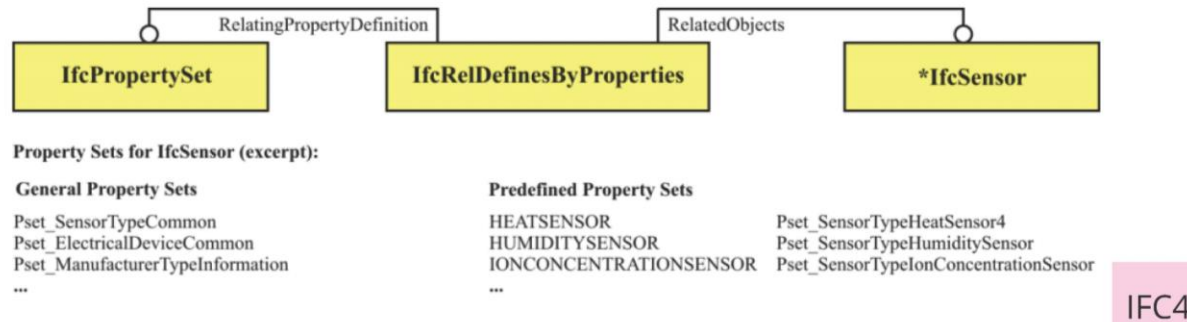
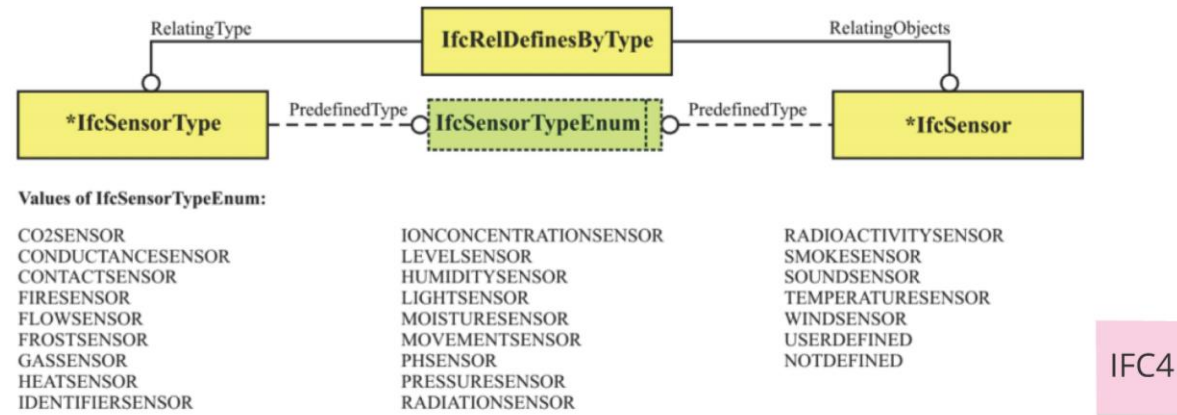
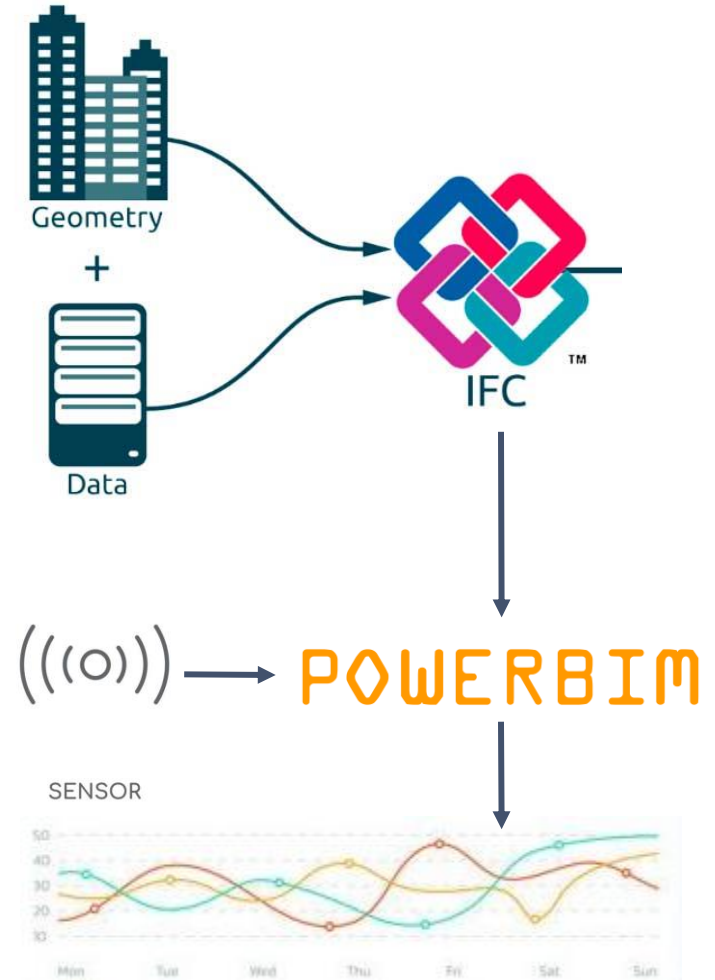
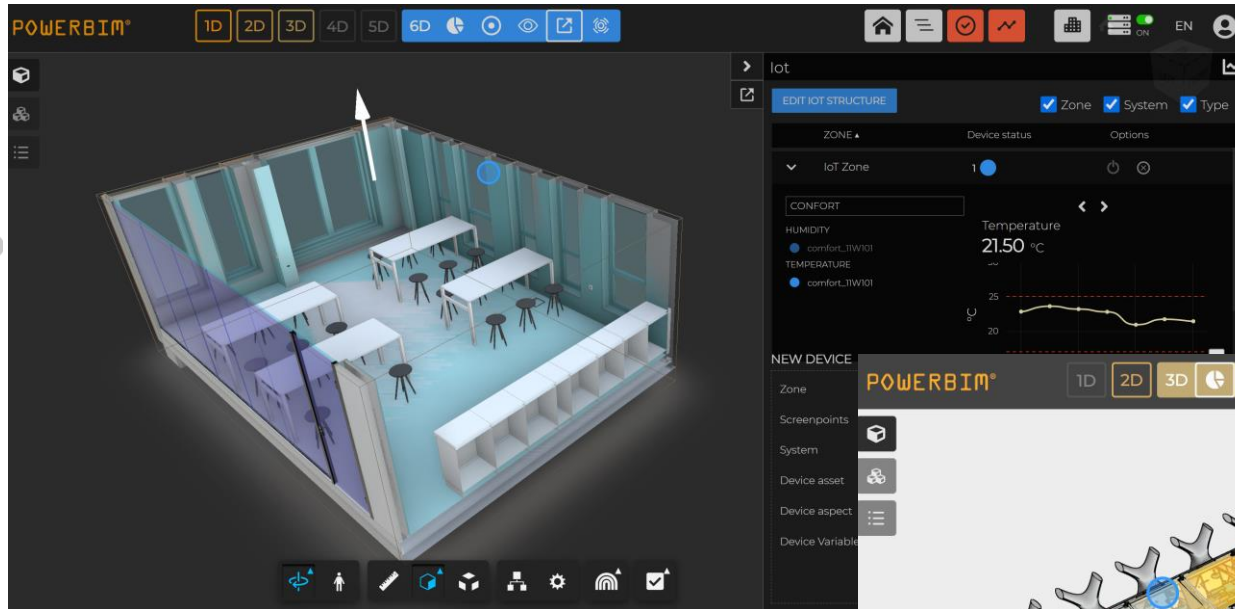


Figure 2: Mapping of sensor information in IFC version 4 using property sets



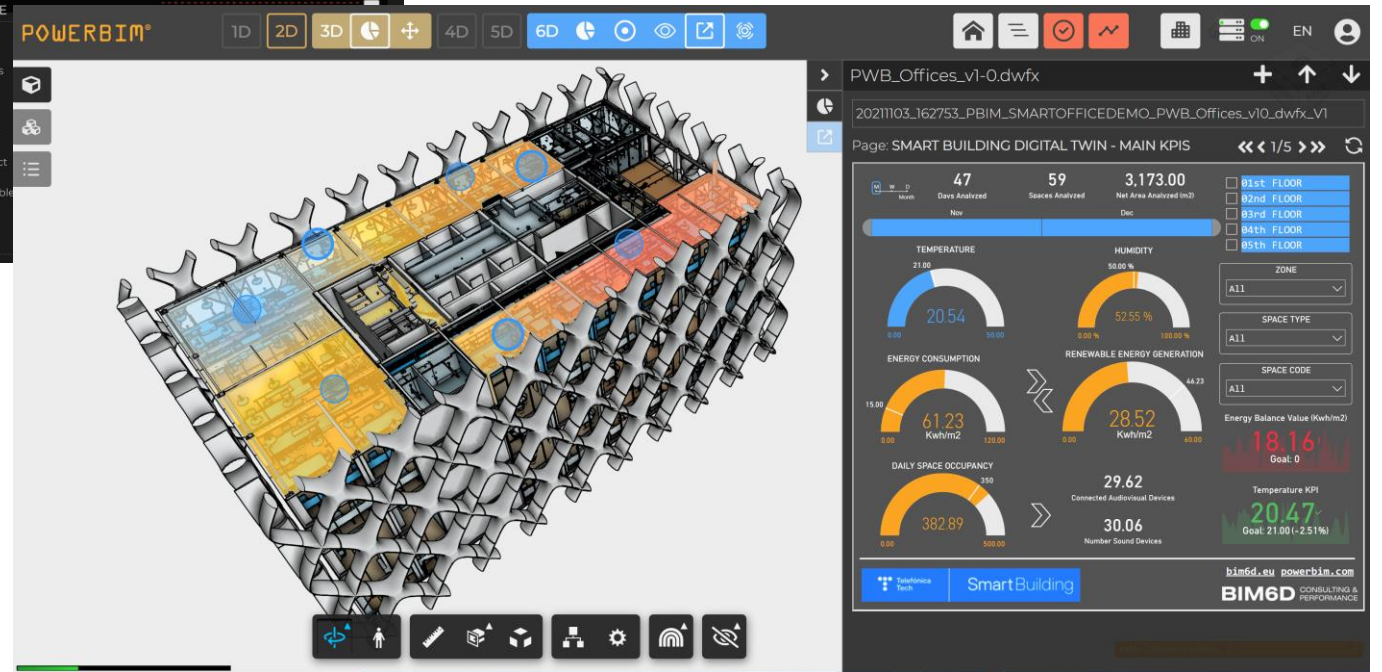


<https://vimeo.com/692271728>

WELLBIM PROJECT – WORK IN PROGRESS

VIDEO OF SMART BUILDING DIGITALTWIN

<https://vimeo.com/676671182>





Thank you for your kind attention

Project :

www.metabuilding-project.eu



Platform :

www.metabuilding.com



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