



THE 20TH INTERNATIONAL OPERATIONS & MAINTENANCE
CONFERENCE IN THE ARAB COUNTRIES

Smart Building Management Systems for Managing Workplace and Sustainability

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On Wednesday the 11th of Jan at 13:00

@ Crowne Plaza Riyadh RDC Hotel & Convention, Riyadh KSA

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OMAINTEC
20 YEARS



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The building sector represents...

Global Alliance for Buildings & Construction, 2020

35% Of the World Energy Consumption

38% Of the World CO2 emissions



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Maintenance Dependency

Reactive

Traditional

Always too late

5 Times more
expensive

Large risk

Proactive

Current

Often to early

80%+ random failures

Moderate risk

Condition

Smart Building

Just In Time

Optimal performance

No risk



Building Management (BMS) Diagnostic Tools

Analyze raw data from BMS Systems and multi-site IoT platform, constantly monitoring equipment to **proactively** address building inefficiencies.

Energy
Reduce energy consumption, cost, and emission

Comfort
Enhance occupant experience

Maintenance
Extend asset life and reduce cost of operation

Diagnostics

The Diagnostics module provides a prioritized, searchable list of identified faults and energy data.

Search Criteria [x]

View By: Select Building Group: View All, Select Building: Paris, Select Equipment Class: View All, Select Equipment Type: View All, Select Equipment: View All, Select Analysis: View All

Display Interval: Half Day, Daily, Weekly, Monthly

Date Range: *Start Date: 5-3-2019, *End Date: 5-3-2019

Filters: Notes Summary: [x], Results Only: [x], Tracking Code: [x]

Generate Data

Download Current Diagnostics Page

Download Full Diagnostics Results

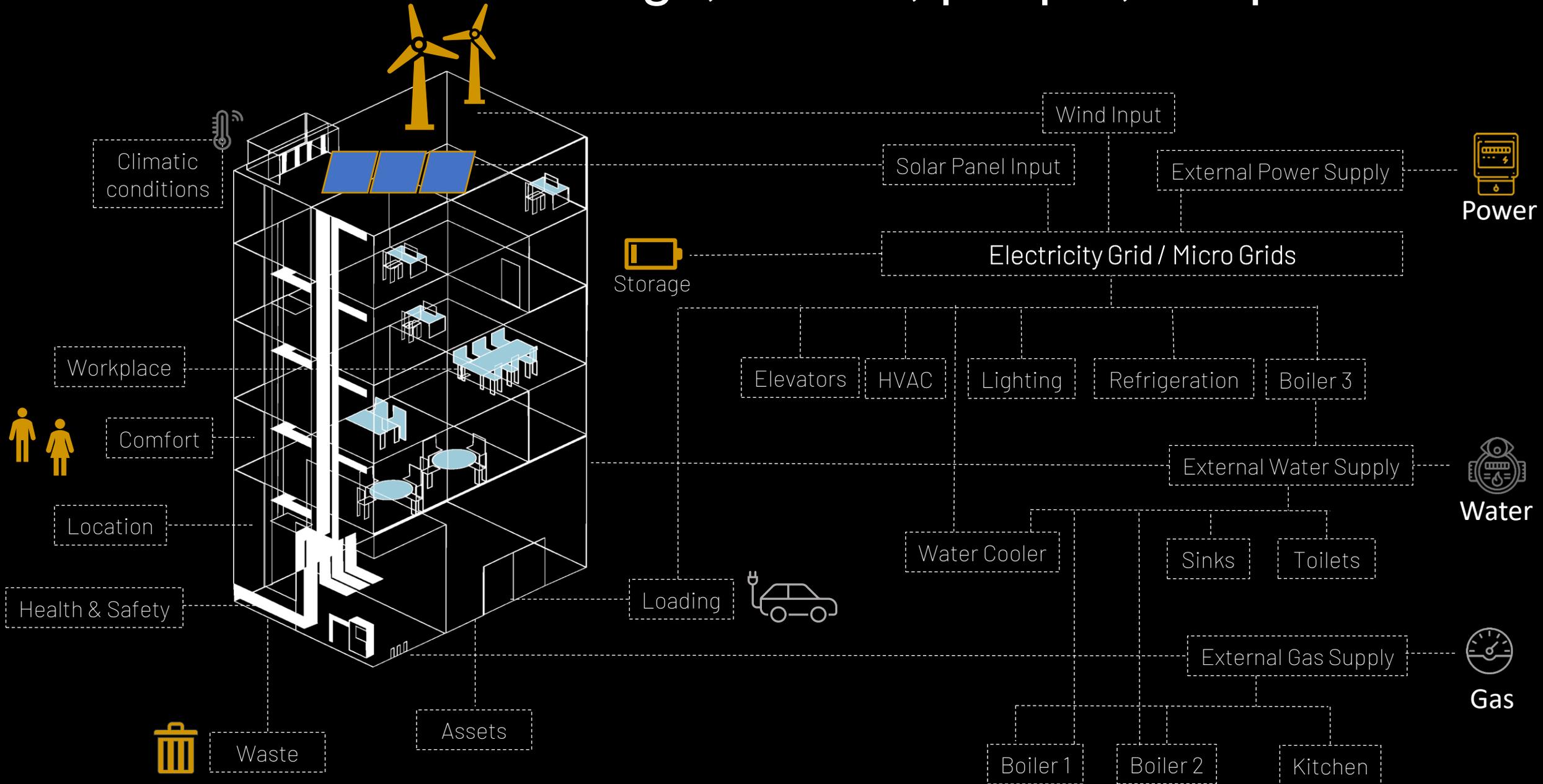
71 data records found for 5-3-2019 to 5-3-2019 in daily intervals.

Building	Equipment	Analysis	Start Date	Notes Summary	Tasks	Cost	E	C	M	Actions
Paris	AHU-8 (Air Handler)	AHU Coils	5-3-2019	Simultaneous heating and cooling. Over-aggressive freeze prevention.	1	55 €	10	0	4	
Paris	AHU-4 (Air Handler)	AHU Coils	5-3-2019	Simultaneous heating and cooling. Leaking cooling valve. Sensor error (low). Supply air temperature short cycling.	0	50 €	10	0	6	
Paris	CHWLoop-2 (Cooling System)	CHW Loop	5-3-2019	Low loop temp difference. Supply temp lower than setpoint. Flow sensor miscalibration. Supply/outlet temp mismatch.	2	50 €	10	0	5	
Paris	AHU-2 (Air Handler)	AHU Coils	5-3-2019	Leaking heating valve. Leaking cooling valve. Supply temp not tracking setpoint.	0	45 €	10	0	6	
Paris	AHU-8 (Air Handler)	AHU Fan	5-3-2019	No static pressure reset.	0	35 €	10	0	0	
Paris	AHU-4 (Air Handler)	AHU Economizer	5-3-2019	Heating on, economizer should be off. Stuck damper. Sensor error (low). Mixed air temp cycling.	0	17 €	6	0	6	
Paris	AHU-3 (Air Handler)	AHU Fan	5-3-2019	Fan on while unoccupied.	0	11 €	4	0	4	

IoT Infrastructure



IoT Focus: buildings, assets, people, footprint..



Traditional CMMS / CAFM focused on Asset and Maintenance Management



CAFM
Asset & Maintenance
Management



Real Estate and Property Managers started to require integration of Asset and Maintenance with their systems



**Real Estate
Management**



**CAFM
Asset & Maintenance
Management**



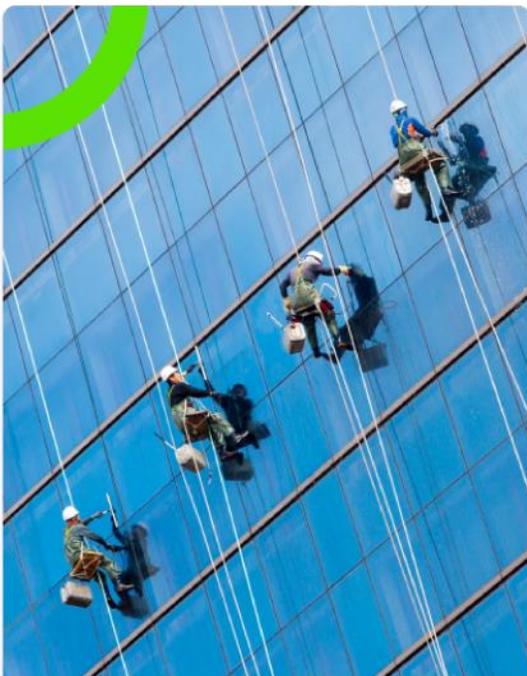
During COVID the demand of tightly integration of Property Asset and Maintenance Management with Space and Workplace Management increased



**Real Estate
Management**



**Space & Workplace
Services Management**



**CAFM
Asset & Maintenance
Management**



.... providing capability of managing the use and allocation of space in 2D

The screenshot shows a software interface titled "Spaces & workspaces". The main view is a 2D floor plan of the "14 *Watson Building / 02 Second" floor. The floor plan is color-coded by space type: green for corridors, yellow for family rooms, purple for offices, and blue for server rooms. A table on the right side of the floor plan provides a summary of the space types and their counts.

Space type	Count	Area (sqm)	Volume (m3)
14 *Watson Building / 02 Second	1	100.00	0.00
14 Family Management	11	100.00	0.00
14 IT - server room	1	100.00	0.00
14 Workspace management	10	100.00	0.00
14 Reception & Reception	1	100.00	0.00
14 Manufacturing	1	100.00	0.00
Total	25	100.00	0.00

The interface also includes a table on the left side of the floor plan, which lists the space details for the selected floor. The table has columns for Property, Property code, Floor/Floor Code, Space number, and Name.

Property	Property code	Floor/Floor Code	Space number	Name
14	02	02	2.01	Corridor
14	02	02	2.02	Restroom
14	02	02	2.03	Restroom
14	02	02	2.04	Restroom
14	02	02	2.05	Janitor room
14	02	02	2.06	Storage
14	02	02	2.07	Storage
14	02	02	2.08	Stairs
14	02	02	2.09	Lift
14	02	02	2.10	Storage
14	02	02	2.11A	Corridor
14	02	02	2.11B	Family
14	02	02	2.11C	Family
14	02	02	2.12	Office
14	02	02	2.13	Office
14	02	02	2.14	Office
14	02	02	2.15	Office
14	02	02	2.16	Office
14	02	02	2.17	Office
14	02	02	2.18	Office
14	02	02	2.19	Office
14	02	02	2.20	Server room

Login as SWM

... and 3D through a BIM model

Planon ProCenter : Accelerator

virtualit-test.planoncloud.com/home/BP/WebClient?29#SWM53_0000000656

Apps New Tab Maps Emirates NBD ENB Business NEW HellenicBank 1Bank LinkedIn Zoom Sign in Knowledgebase Pro...

Planon

Spaces & workspaces

TEST

Today SWM

Properties BIM University Filters Third Spaces Space details Workspace details

Spaces Floor attributes

No filter

Name Contains Search...

Property.Property code	Floor.Floor.Code	Space number
<input type="checkbox"/> Spaces (30)		
WW10	03	101
WW10	03	70
WW10	03	71
WW10	03	72
WW10	03	73
WW10	03	03
WW10	03	76
WW10	03	77
WW10	03	78
WW10	03	79
WW10	03	80

Count All None

BIM menu

3D BIM model of a building with a highlighted blue space on the ground floor. The model shows a multi-story building with a courtyard. A blue translucent box highlights a specific area on the ground floor. A 'BIM menu' is visible in the top left of the 3D view, and a toolbar with various navigation and manipulation tools is at the bottom.

Strategic Planning Scenarios – Workspace Allocation

Scenario ACCEPTANCE

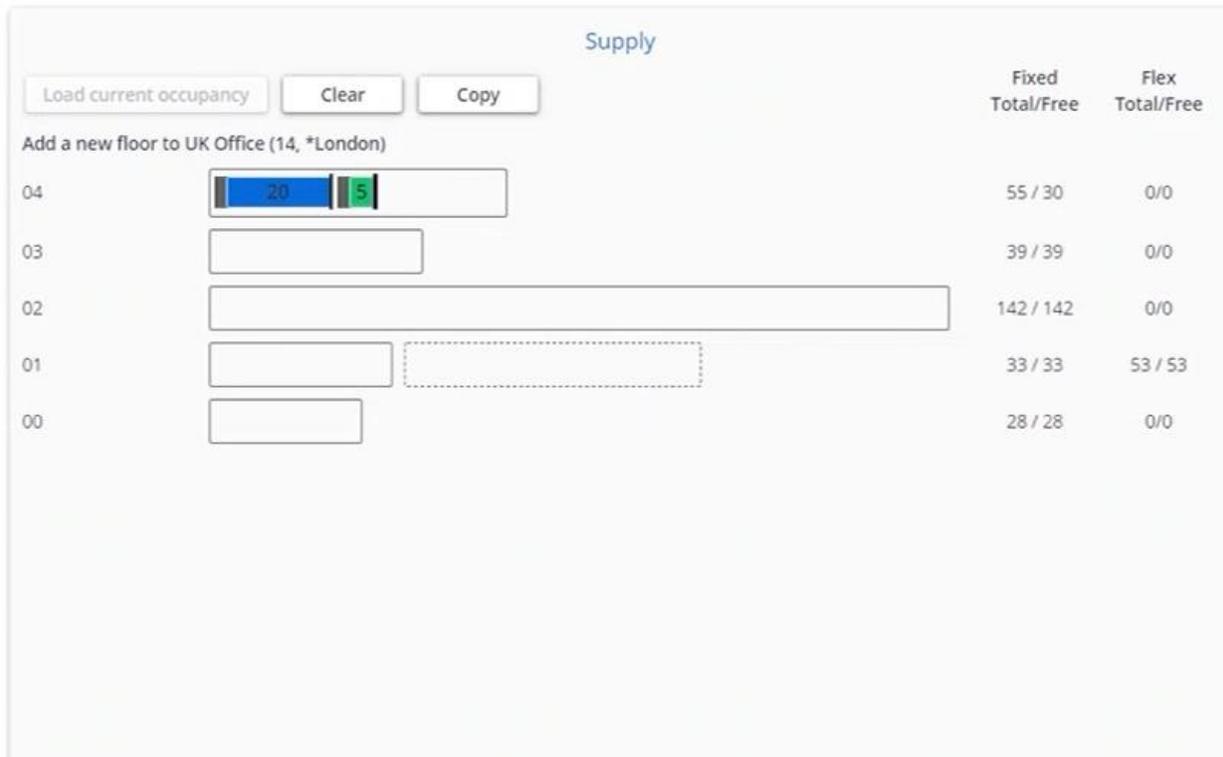
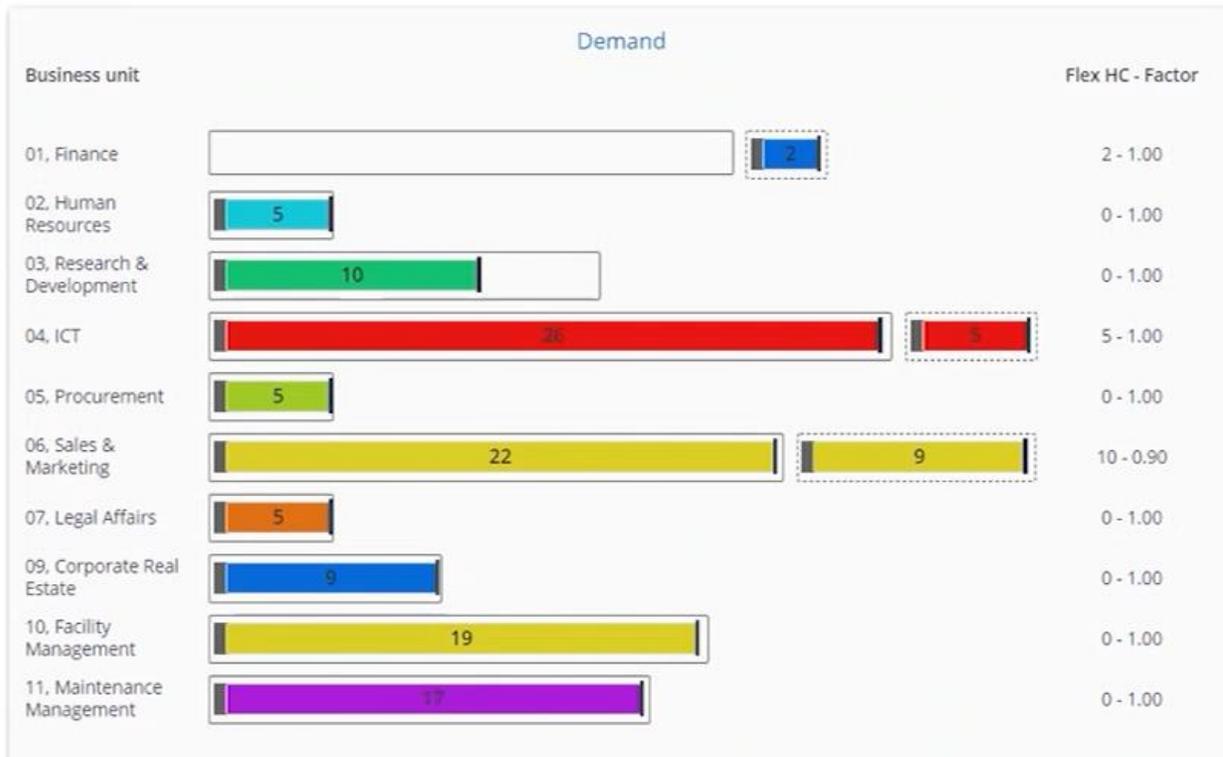
SSP Project SSP Scenario SCN_1, Scenario 1 Planboard - Linked pro...

Today REMUK

Linked properties Planboard

* SSP project	UK_HC. Long term planning UK operation		* SSP location	UK_LON. London		<input type="radio"/> Colouring based on adjacency
* Scenario	SCN_1, Scenario 1		* Period	2022, 2022		<input checked="" type="radio"/> Colouring based on Departments

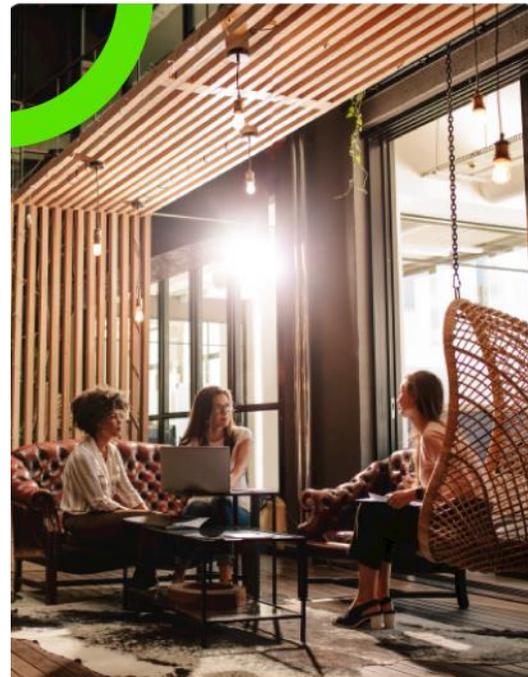
Refresh all



iWMS: Integrated Workplace Management Systems



**Real Estate
Management**



**Space & Workplace
Services Management**



**CMMS / CAFM
Asset & Maintenance
Management**



**Energy & Sustainability
Management**





Real Estate Management

Usage of portfolio data



Space & Workplace Management

Usage of utilization data



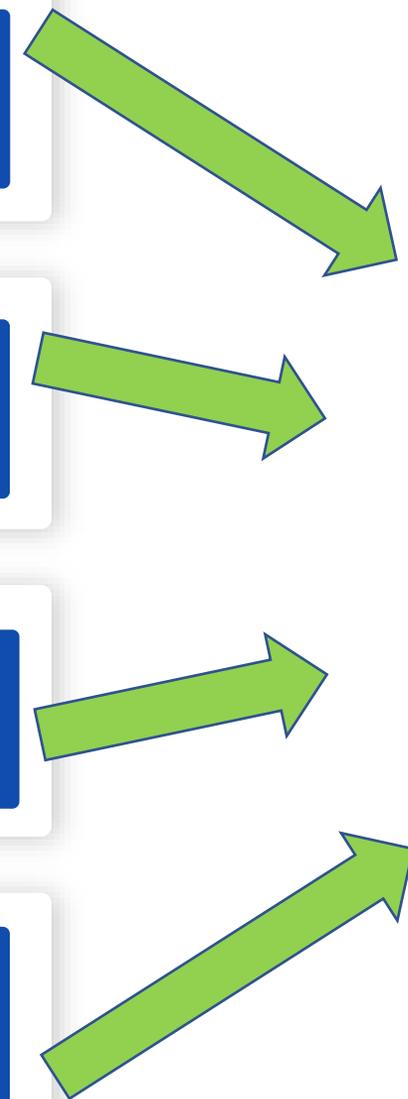
Asset & Maintenance Management

Offering of people centric services



Integrated Services Management

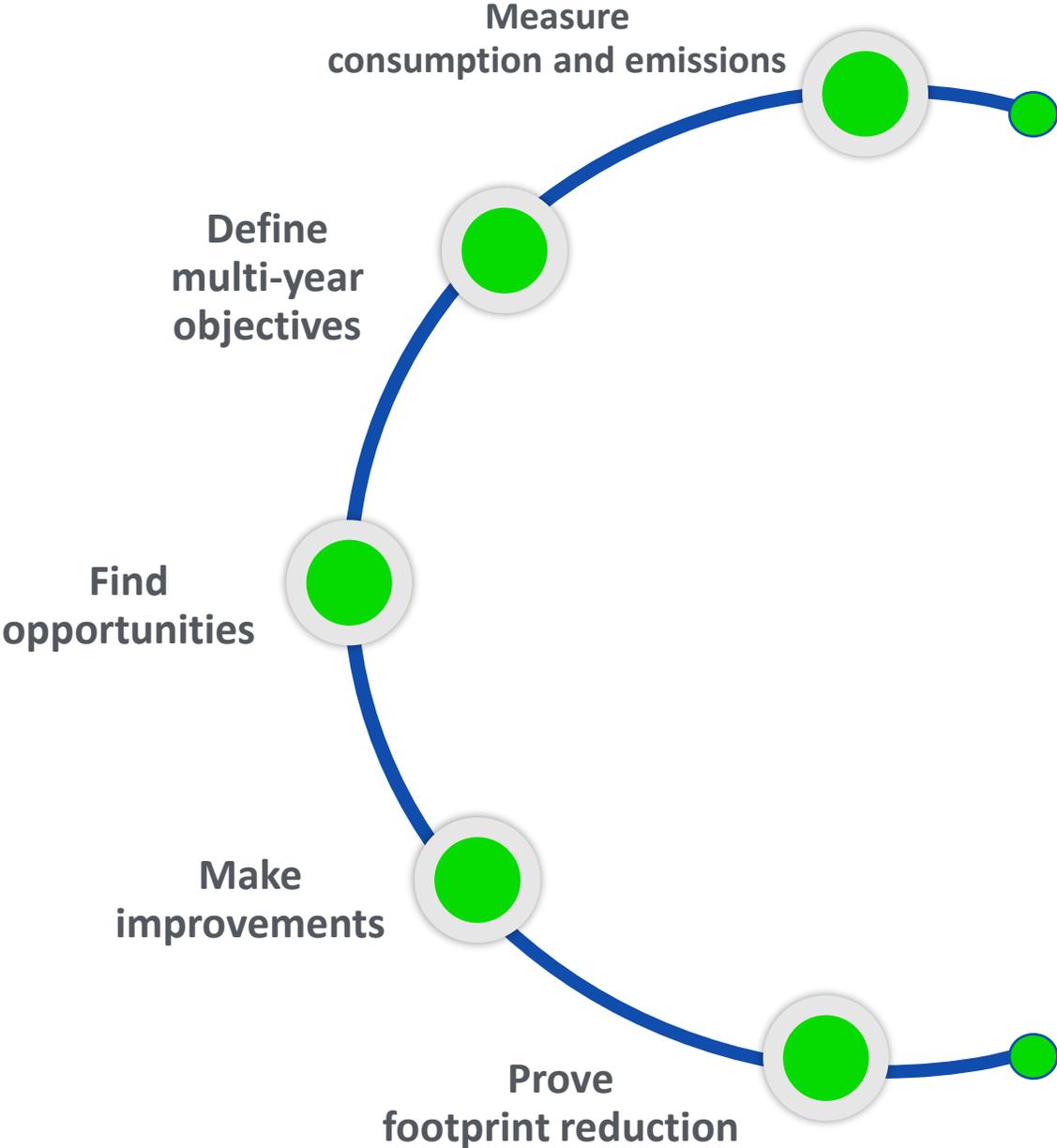
Insight into contract and vendor data



Energy & Sustainability Management

Obtain insight into and report on energy consumption and CO2 emissions.

Realize your Environmental Social and Governance (ESG) ambitions in the built environment, and prove footprint reduction.



Energy & Sustainability Management provides the capability of setting your ESG Objectives, Measuring and Collecting info, reporting, monitoring and improving

Corporate ESG Strategy

Define ESG activities for
the Built Environment



Report & Disclose

Analyze insights



Comply or Explain

Live up to regulatory requirements of
Governments and Accounting Boards



Measure & Collect

Capture and Compile data

- Connect assets, devices, data sources
- IWMS as a single source of truth

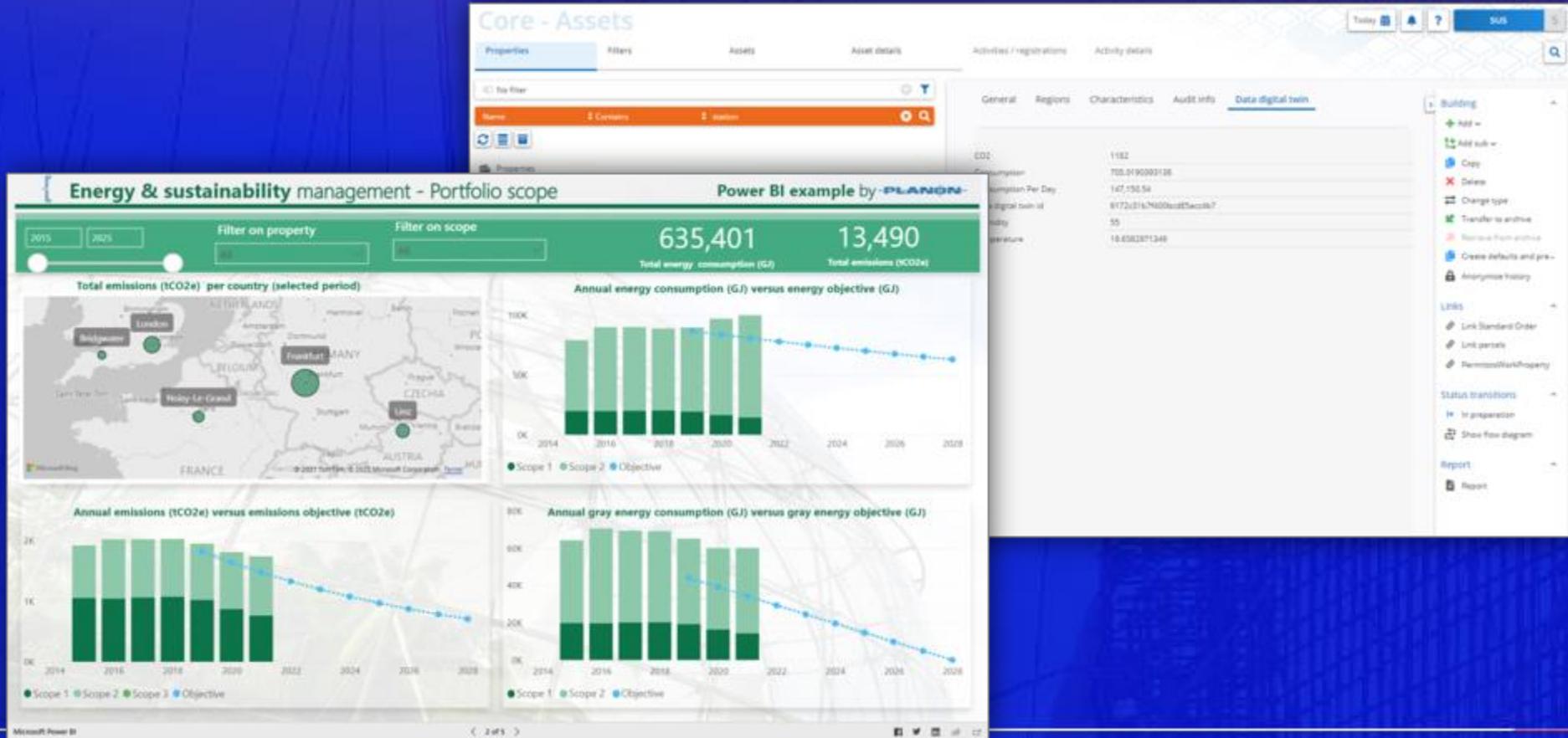
Improve & Monitor

Set and reach objectives & find opportunities

- Run and audit improvement programmes
- IWMS as a single pane of glass

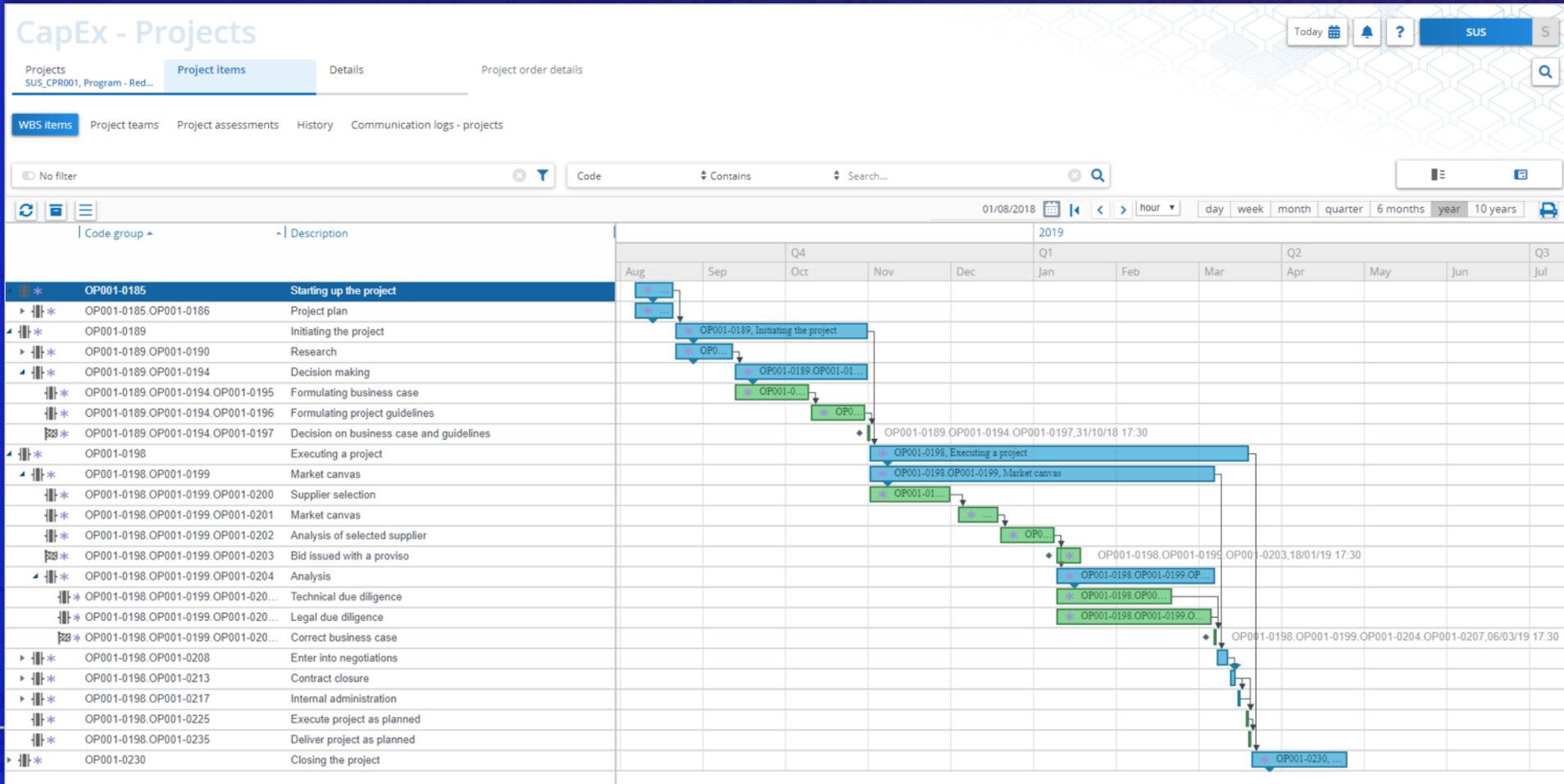


Allowing you to produce reports and dashboards by Energy Data Capture providing Energy Monitoring against objectives / targets



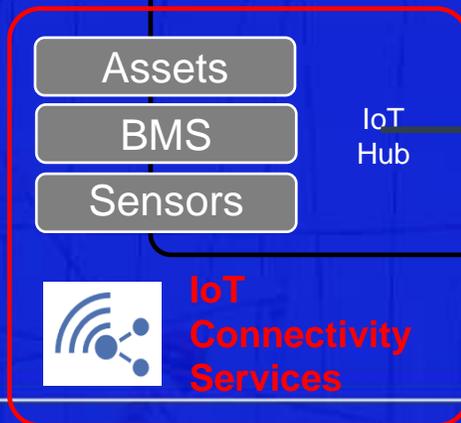


Manage Sustainability Improvement Projects



iWMS systems fully integrate with IoT systems

IWMS Platform



Digital Twin – preview of (future) content

The screenshot displays a digital twin interface for a room reservation. The interface is divided into several sections:

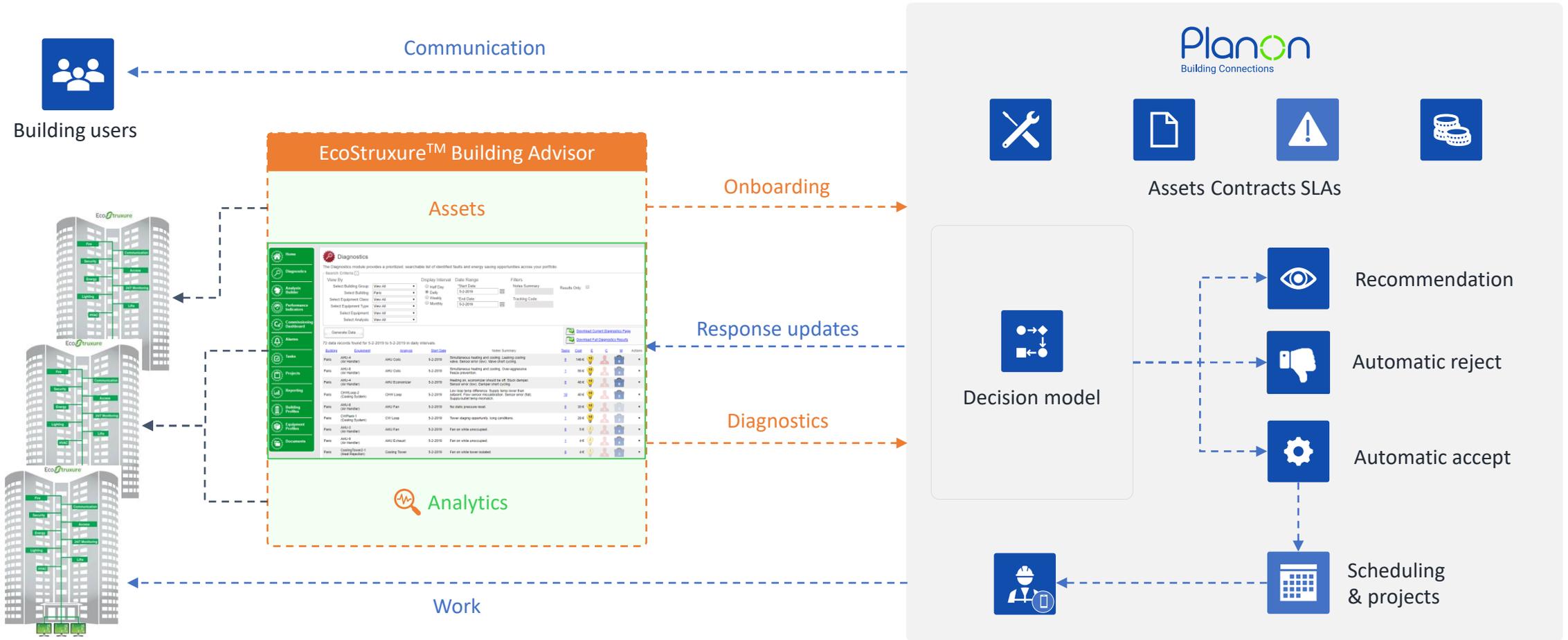
- Left Sidebar:** Contains navigation elements including 'Home', 'TSI Group', and 'TSI'.
- Top Bar:** Features a search bar, 'Page title', and user information (Today, NORTH, profile picture).
- Main Content Area:** Shows a list of 'Base assets' under the filter 'Code Contains'. The assets include room reservations and book spaces.
- Dashboard (Right):** A collection of data cards and controls, highlighted by a red box. The cards display: 'Connected' (Connection 1 week ago), '85%' (Humidity 1 week ago), 'On' (Light 1 minute ago), '19°C' (Temperature 10 minutes ago), '65' (Total people 10 minutes ago), '19.5°C' (Average temperature 1 week ago), '418ppm' (CO2 4 weeks ago), '34' (Rooms 3 minutes ago), and 'Occupied' (Occupancy 5 minutes ago). Below these are controls for 'Turn light on/off', 'Set temperature' (15° to 25°), and an 'Update' button.
- Historic Behavior Chart (Bottom Left):** A line chart titled 'Humidity' showing humidity levels over a week. The chart is highlighted by a red box. The data points are: Mon 14/02 (80%), Tue 15/02 (85%), Wed 16/02 (80%), Thu 17/02 (90%), Fri 18/02 (76%), Sat 19/02 (80%), and Sun 20/02 (85%).

Historic behavior

Digital Twin-Information:
current condition

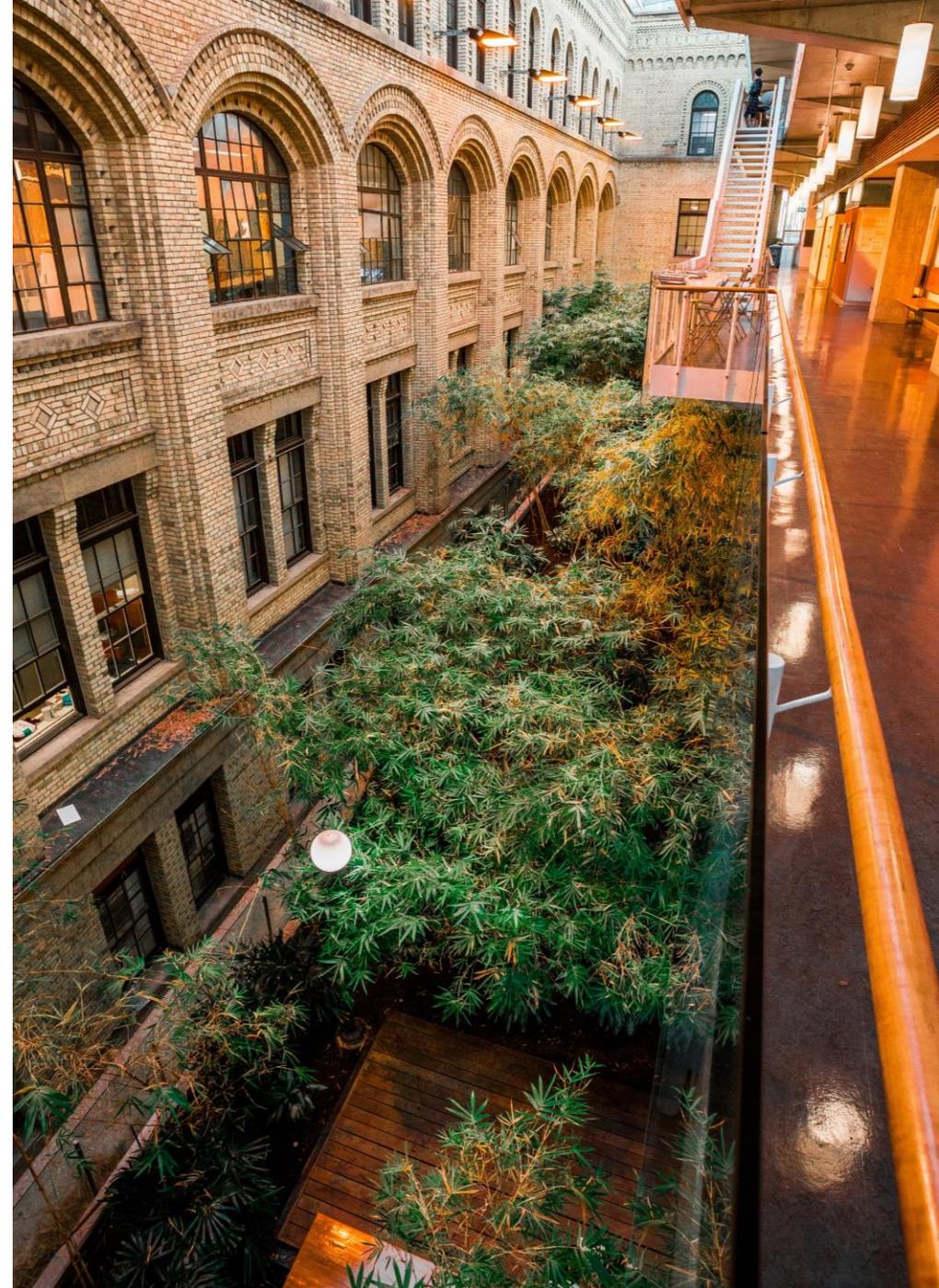
Digital Twin-Controls

Smart Building Management Systems are integrated BMS comprise of Diagnostic Tools, IoT and iWMS How do they work Together?



Objectives of Smart Building Technologies

- Connecting **buildings, people and processes**, by eliminating data silos and aligning solutions into one shared information platform.
- Empowering all building stakeholders with **actionable and meaningful insights**.





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THANK YOU!

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