



# Evolution of Facility an Asset Management and MaintenanceTechnologies

Andreas Hadjioannou

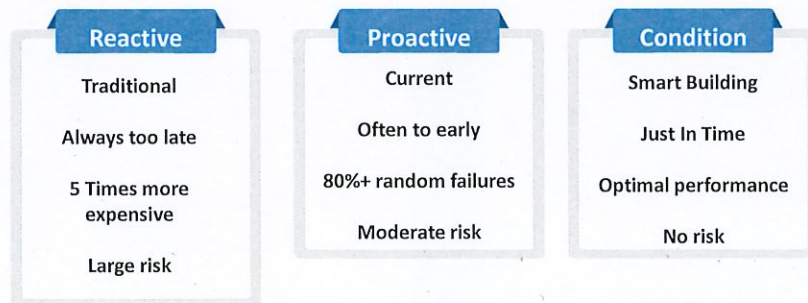
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1



## Evolution of Facility and Asset Maintenance Management Systems

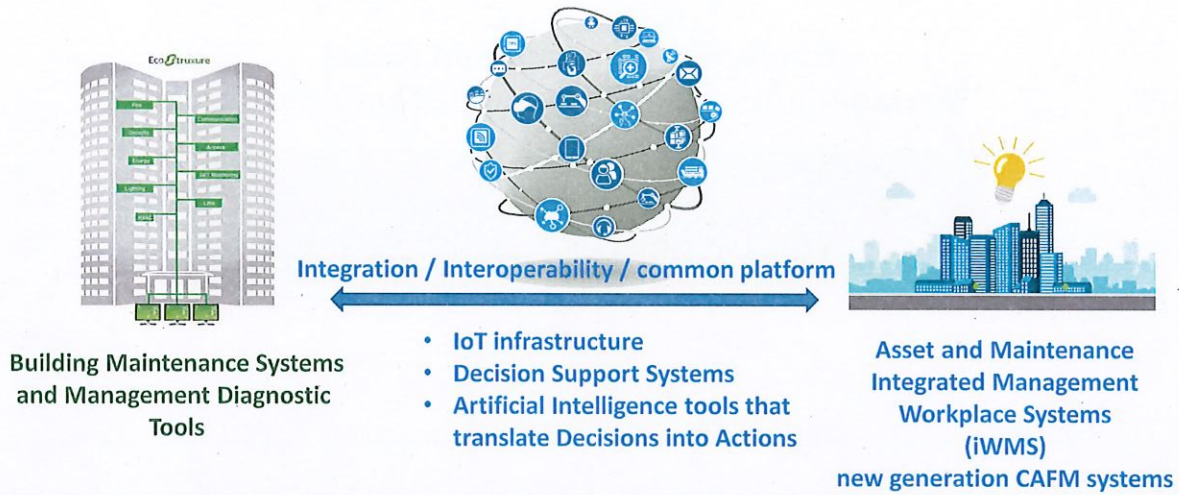


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2



## Components of Smart Buildings Technologies



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3

## Building Management (BMS) Diagnostic Advisor 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

BLISS	Equipment	Alarm	Start Date	Alarm Summary	2023	2022	2021	2020	2019
FA1	HVAC (VAV) Fan	AM2 Data	03/22/19	Unscheduled bearing and roller. Over-temperature. Check oil level.	1	0	0	0	0
FA1	HVAC (VAV) Fan	AM2 Data	03/22/19	Unscheduled bearing and roller. Over-temperature. Check oil level.	1	0	0	0	0
FA1	Chiller 2 (Cooling System)	Chiller Load	03/22/19	Unit has been off-normal. Supply water temperature is high. Check water flow. Check for air in the system.	2	0	0	0	0
FA1	AVR (VAV) Fan	AM2 Data	03/22/19	Unscheduled bearing and roller. Over-temperature. Check oil level.	1	0	0	0	0
FA1	AVR (VAV) Fan	AM2 Data	03/22/19	Unscheduled bearing and roller. Over-temperature. Check oil level.	1	0	0	0	0
FA1	AVR (VAV) Fan	AM2 Data	03/22/19	Unscheduled bearing and roller. Over-temperature. Check oil level.	1	0	0	0	0
FA1	AVR (VAV) Fan	AM2 Data	03/22/19	Unscheduled bearing and roller. Over-temperature. Check oil level.	1	0	0	0	0

4

# IoT are devices that transmit sensor / meter readings to a FM related monitoring system

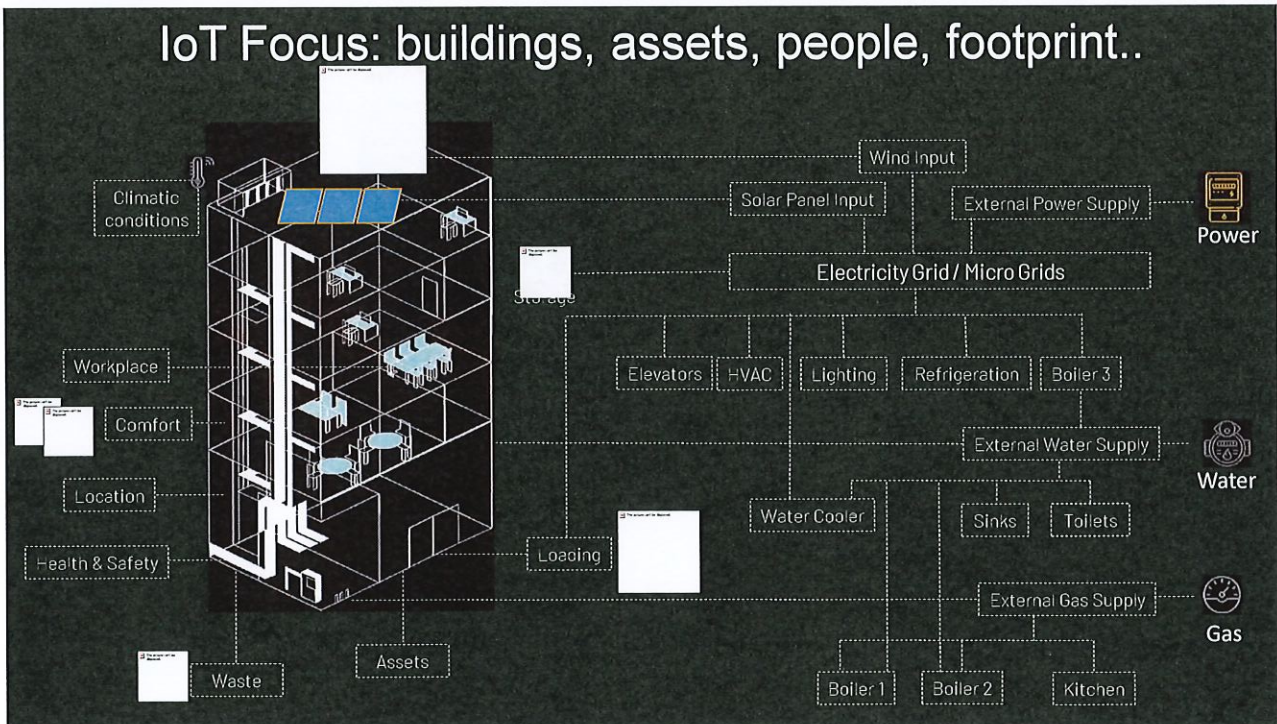
## IoT Infrastructure

Transform FM into smart FM

Efficient resource use and increased productivity (predictive maintenance, lower energy costs, optimize workplace capacity and utilization improve employee quality of life)

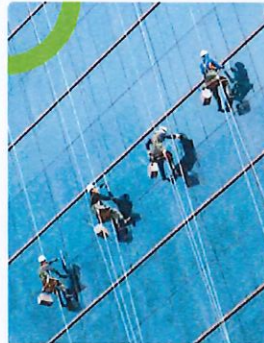
Plomin  
Building Connected Solutions

5



6

**Traditional CMMS / CAFM focused on Asset and Maintenance Management**



**CAFM**  
Asset & Maintenance  
Management

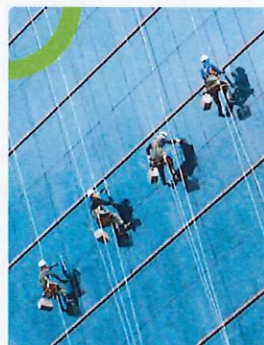


7

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



**Real Estate  
Management**



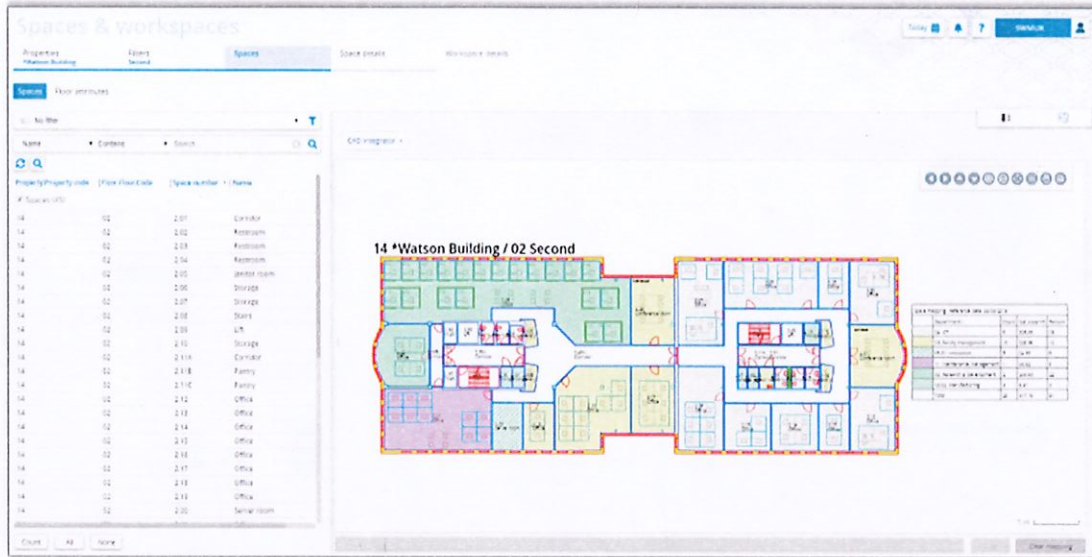
**CAFM**  
Asset & Maintenance  
Management



8



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



11

## Space Management and IoT



12

### ... and 3D through a BIM model

The screenshot shows the Planon ProCenter Accelerator web interface. The browser address bar displays `virtualit-test.planoncloud.com/home/BP/WebClient?29#SWM53_0000000656`. The main content area is titled "Spaces & workspaces" and features a "Spaces" tab. On the left, a sidebar lists navigation options such as "Home", "Agile workplace management", "BIM import & export", "Space planning", "Spaces & workspaces", "Flexible workspaces", "Meeting rooms", "Spaces & Moves Scenarios", "Personnel", "Assets", "Service desk", "BIM settings & templates", "Moves, adds & changes", "Occupancy & reservations", and "BIM data".

The central table, titled "Floor attributes", lists space data with columns for "Property/Property code", "Floor/Floor.Code", and "Space number". The table contains 20 rows of data, with the row for "WW10 03 73" highlighted. A "BIM menu" is visible above the 3D model on the right, which shows a perspective view of a building with a blue highlighted area on the roof.

Property/Property code	Floor/Floor.Code	Space number
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

13

### Access of information from Anywhere

The advertisement illustrates "Access of information from Anywhere" through three devices: a smartphone, a tablet, and a desktop computer. The smartphone and tablet screens show a mobile application interface with various icons and a calendar view. The desktop screen shows a Windows operating system with a "Room Finder" application window open, displaying a calendar and a list of rooms. A red box highlights the "Room Finder" icon in the taskbar.

14

## Planon Energy & Sustainability Management (E)

### Key capabilities



#### ESG Insights

Cockpit view with integrated perspective to improve sustainability performance



#### Data Monitoring

Energy, water, waste, commuting, indoor climate, emissions and costs



#### Objectives Management

Set objectives on portfolio, property, or asset level and track progress



#### Project Management

Support ESG initiatives with program and project management



#### Certifications

Facilitate green building certifications with document management and self assessments



#### Calculation Tool

Transform consumptions into GHG emissions and costs



15

## 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

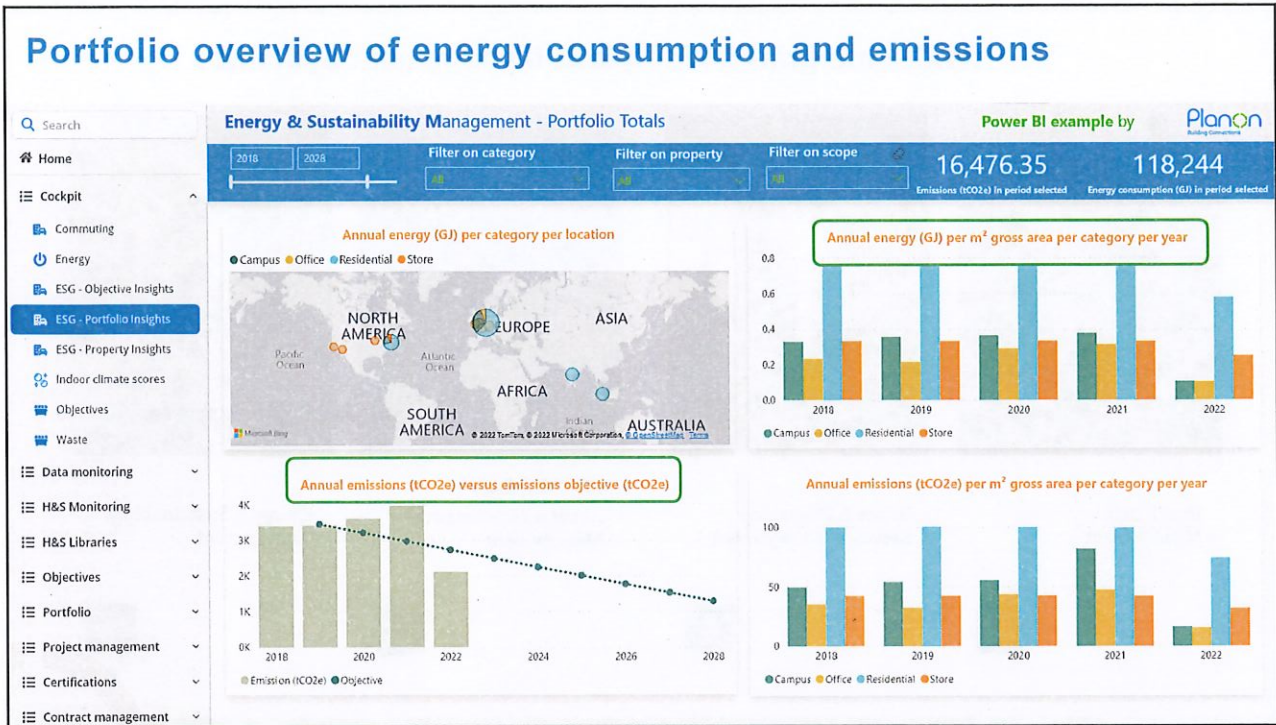
Set and reach objectives & find opportunities

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

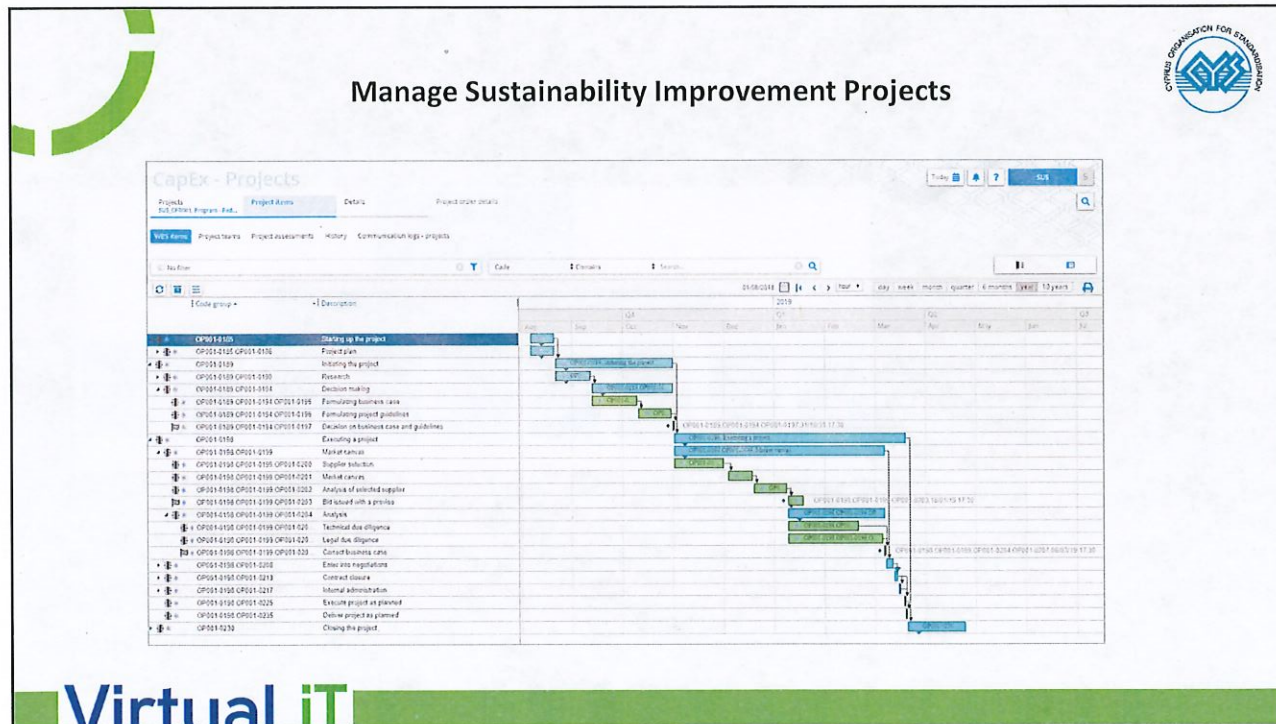
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16





17



18

## iWMS: Integrated Workplace Management Systems



**Real Estate Management**





**Space & Workplace Services Management**





**CMMS / CAFM  
Asset & Maintenance Management**





**Energy & Sustainability Management**




19

## Bundle Planon Solutions with ISO41001

**Standard Clauses of ISO 41001:**

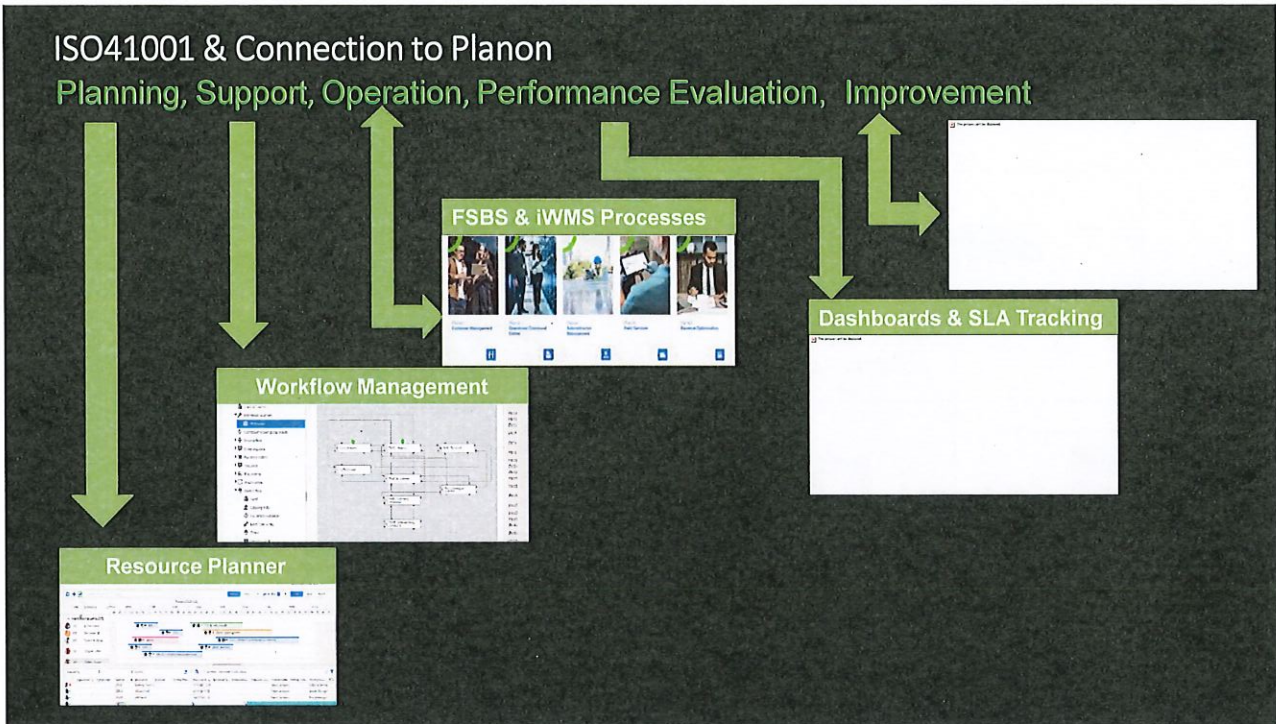
1. Scope
2. Normative References
3. Terms and Definitions
4. Context and Organization
5. Leadership
6. Planning
7. Support
8. Operation
9. Performance Evaluation
10. Improvement



Clauses 6 to 10 are met by Planon in the following way...

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20



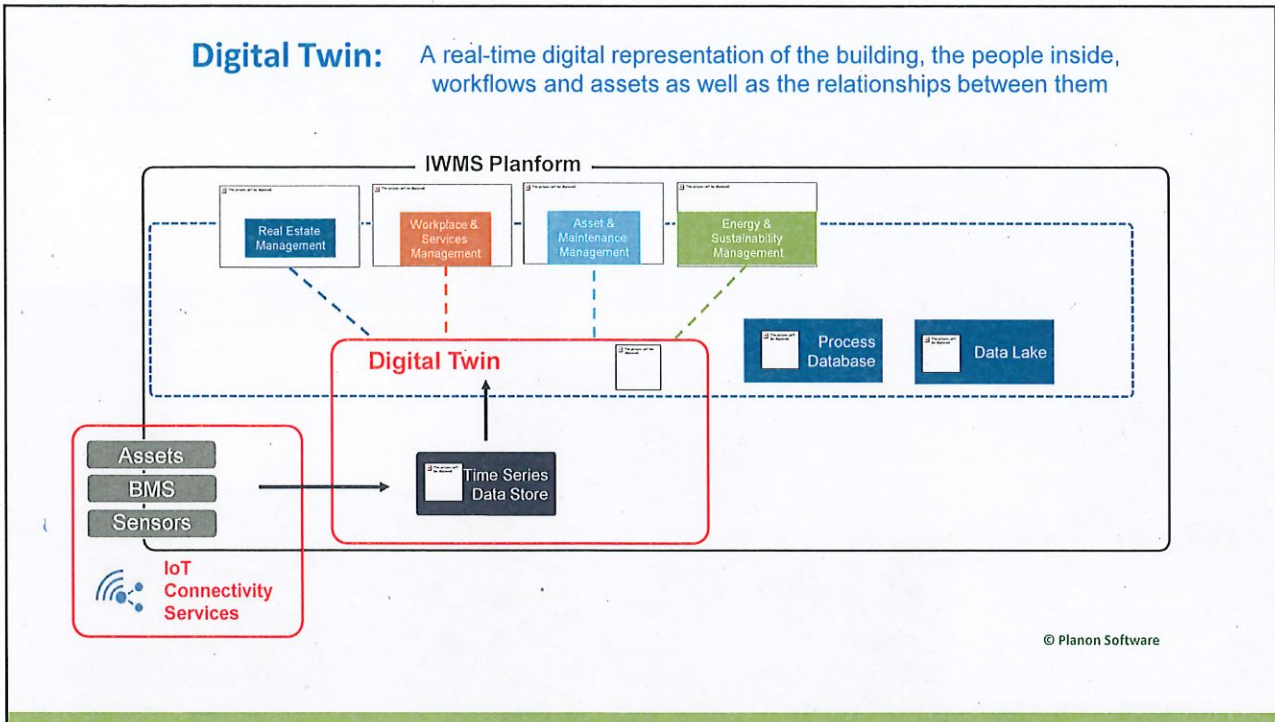
21

## What's next?

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CENTRE ORGANISATION FOR STRATEGIC IT

22



23

### Digital Twin – preview of content

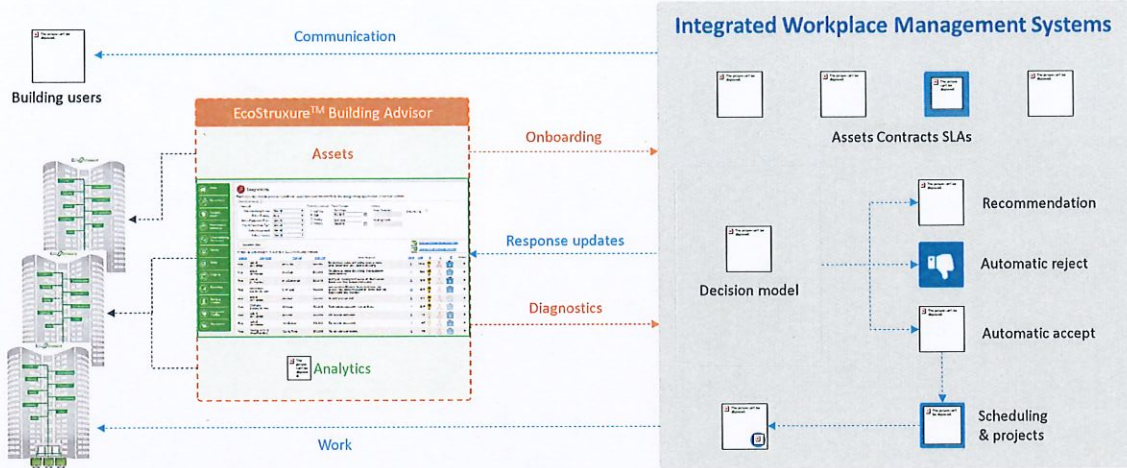
**Digital Twin-Information: current condition**

**Digital Twin-Controls**

**Historic behavior**

24

... iWMS integrates with BMS, BMS Diagnostic Advisor Tools and IoT infrastructure  
**How do they work Together?**



25

**Optimization AI: Maximizing performance of BMS controls**



- **Dynamic control** of HVAC set points and schedule to reduce energy usage and improve comfort
- **Continuous improvement** of buildings' digital twin utilizing advanced machine learning
- **Leverages BMS data** as well as weather forecasts, energy-tariffs, and occupancy
- **Native integration into BMS** offers facility teams transparency on AI actions & control
- **SW connectors** simplify deployment, without IT overheads & eliminate Edge gateways



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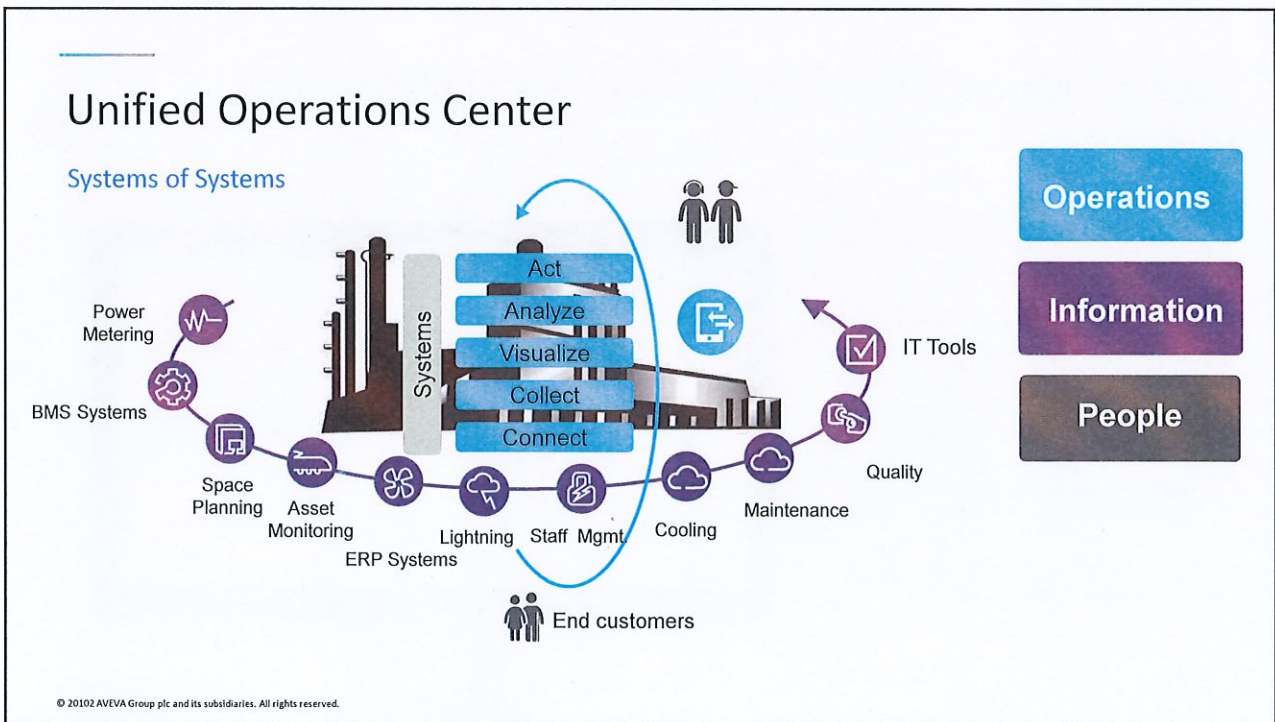


26



Unified Operation Center

27



28

## Objectives of FM Smart 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**.



29



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30

