

SYMETRI

PART OF ADDNODE GROUP

THE DIGITAL TWIN REVOLUTION: TRANSFORMING ASSET MANAGEMENT WITH IMMERSIVE VISUALISATION

STEVE RUDGE & PÅL JANSON

SPEAKING TODAY



STEVE RUDGE

Technical & Delivery Manager

SYMETRI
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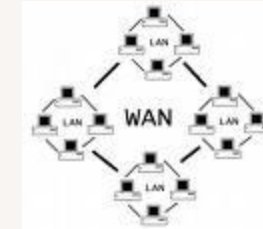
PÅL JANSON

Product Solution Manager

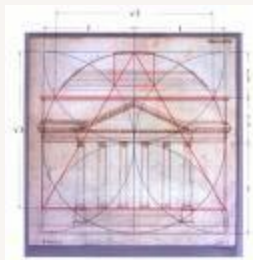
SERVICE WORKS GLOBAL
PART OF ADDNODE GROUP



WHERE HAVE WE COME FROM?



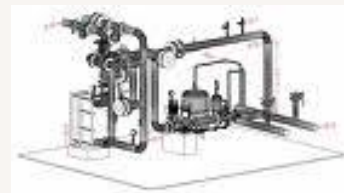
Manual Scheduling
Manual Collaboration
Constant Duplication
Zero Transparency
Limited efficiency



Computer Aided Drafting
Primarily 2D
Main frame driven
Limited Compatibility
Limited Collaboration
Reduced Duplication



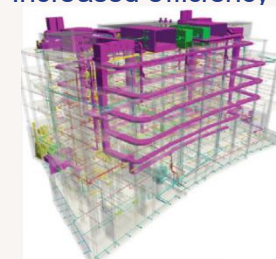
Computer Aided Design
Basic 3D visualisation
PC driven
Consultant Centric
Better Consistency
Limited collaboration



Computer Aided Design
Increased 3D modelling
Networked PCs - LANs
Project Centric
Increased Collaboration
Improved Co-ordination



BIM - Team Modelling
Project Centric
4D & 5D benefits –
time/cost
Total Transparency
Full Co-ordination
Increased efficiency

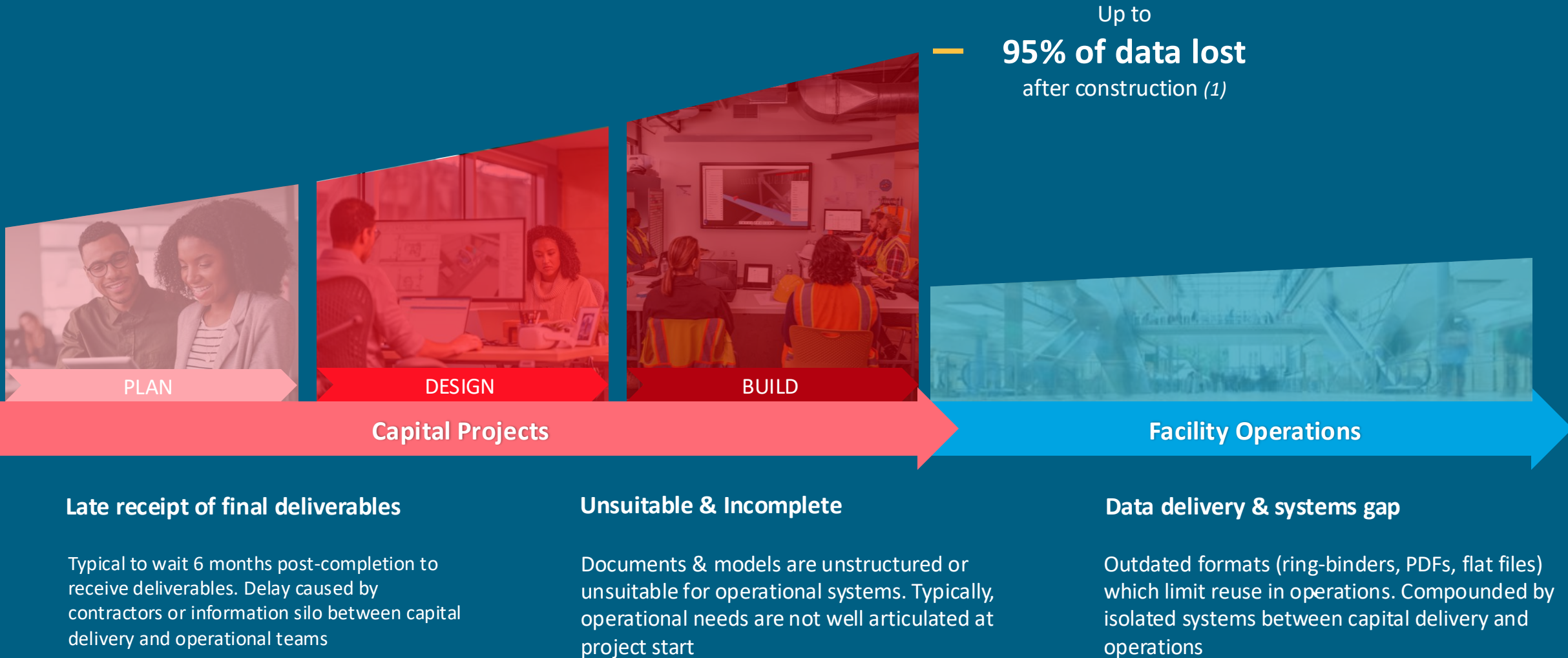


Information Focus
Cloud connected data
Analytics
Collaboration/Cloud
Digital Twin
AI



INFORMATION CAPTURE & HANDOVER

Data Volume and Value



WHAT DO YOU NEED TO MAKE THE BEST DECISIONS



Access to the right
data driven insights



Connected
Data



Repeatable
Standards



As- Built Data



Informed
Confidence

EIR & AIR DEVELOPMENT



Taking Control of Data



Operational Efficiency



Sustainability





AS-BUILT



Current scan

8 February 2023

08.02.2023 - As-built Verification first s...

18 / 19 open issues

[View issues](#)

Scans

1 total scans

Last scan was 2 years ago

[View all scans](#)

Scan frequency



F A J A O D F A J A O D F

Issues

18 / 19 open issues

No open issues assigned to you

[View all issues](#)

Issues raised



F A J A O D F A J A O D F

Site issues status



F A J A O D F A J A O D F

8 February 2023

Map View Settings Refresh

Issues on this scan (8/19) ☒

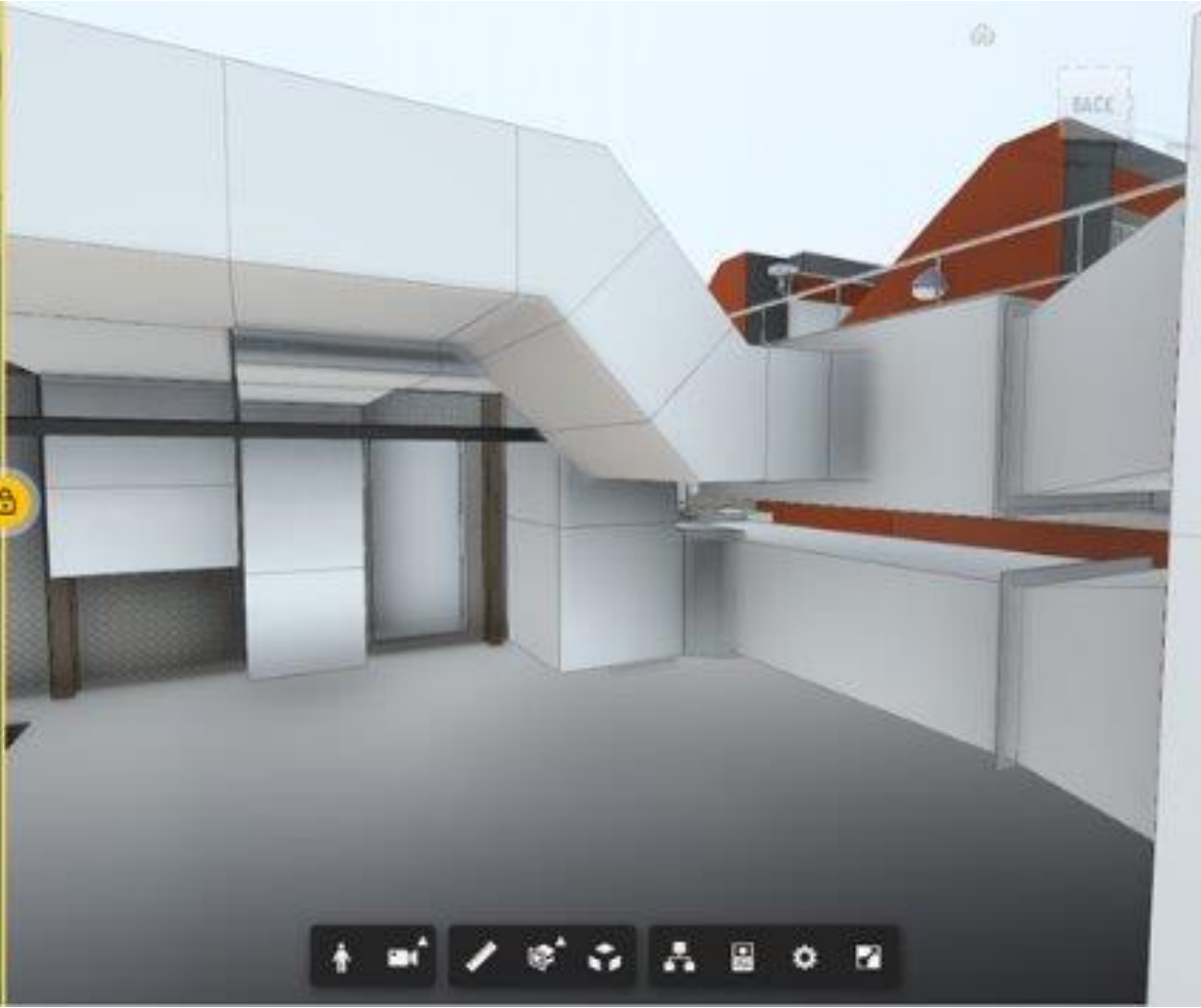
Show only issues ☐

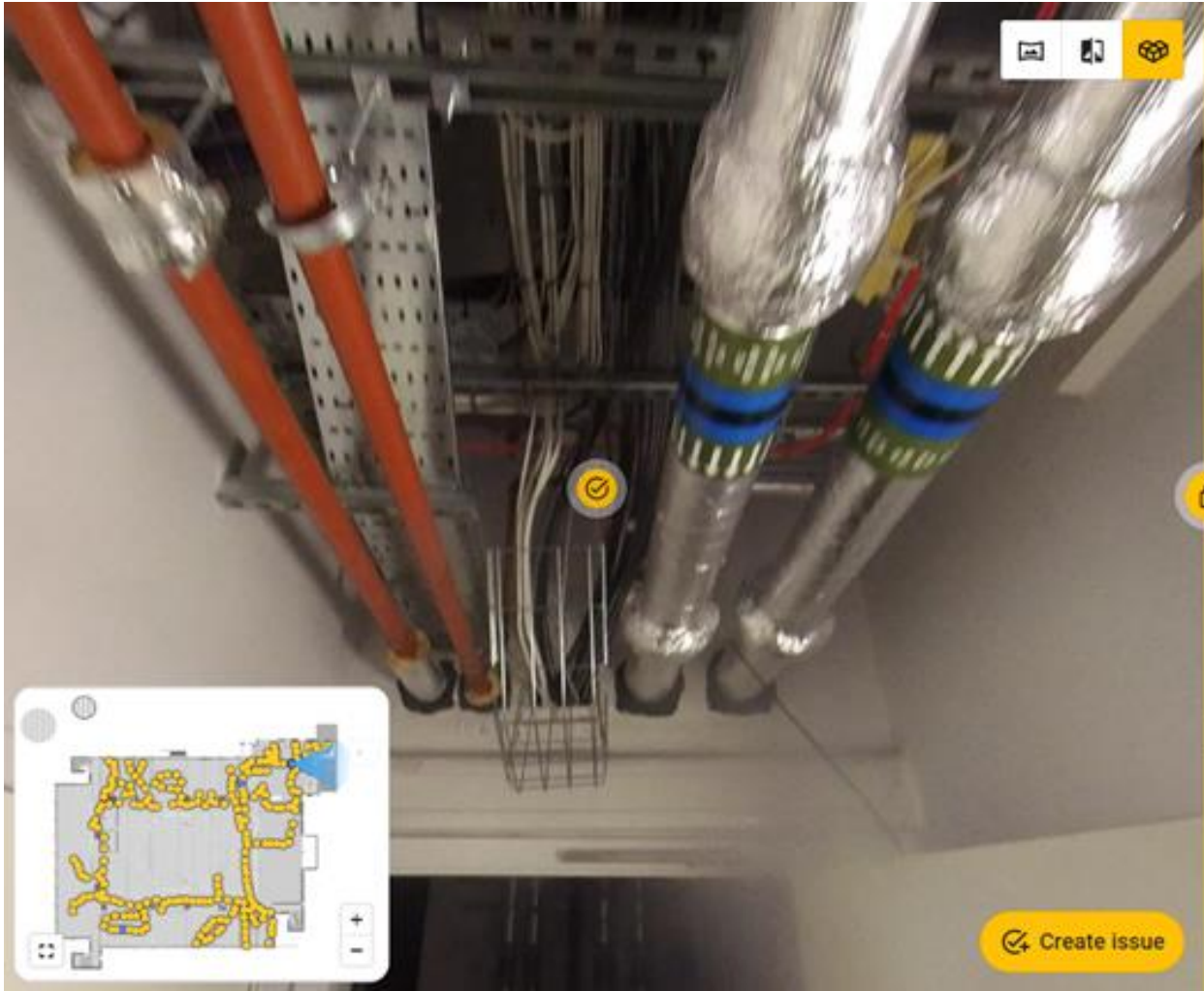
3 issue filters available

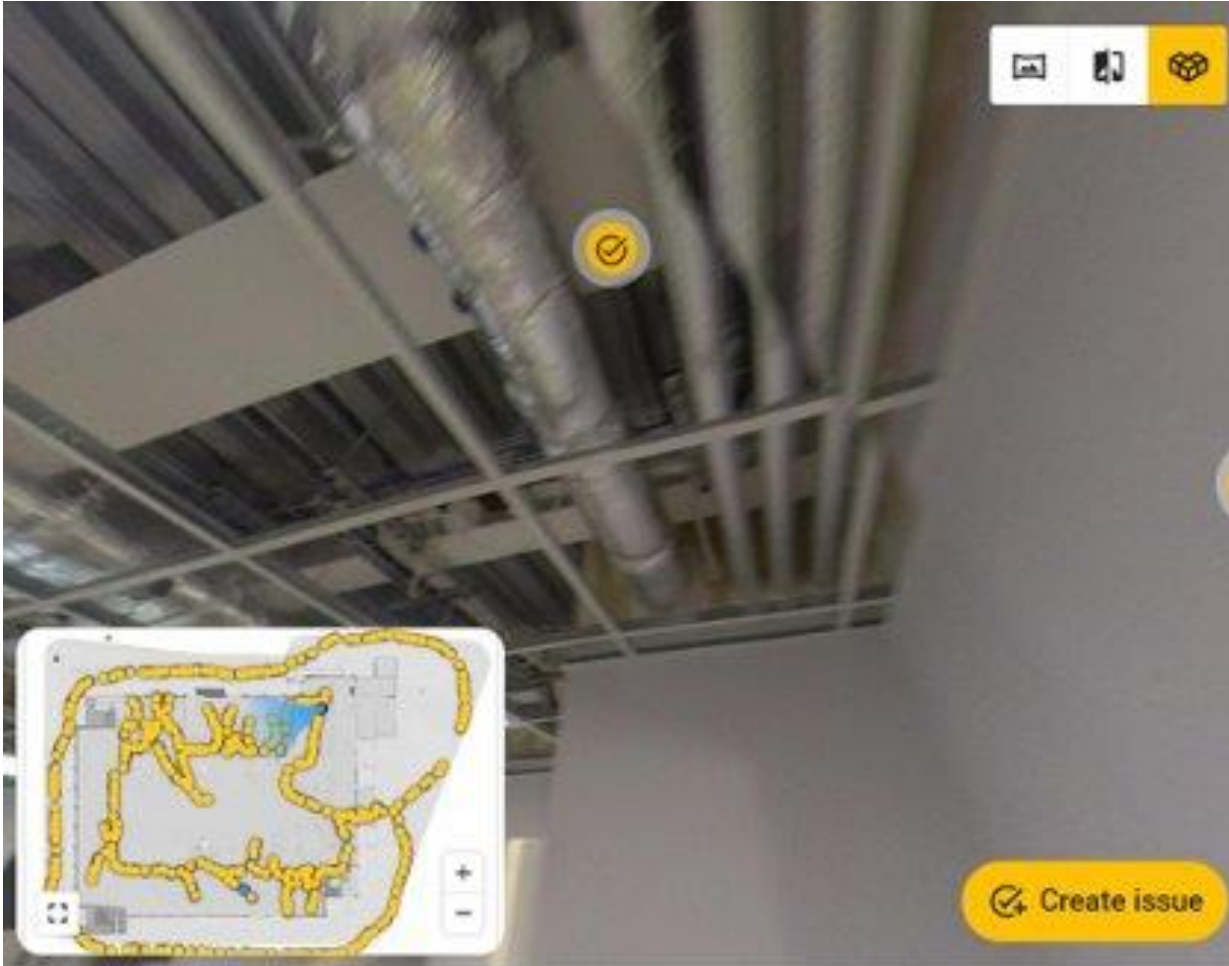
Floor
Level 0 (Ground Level)

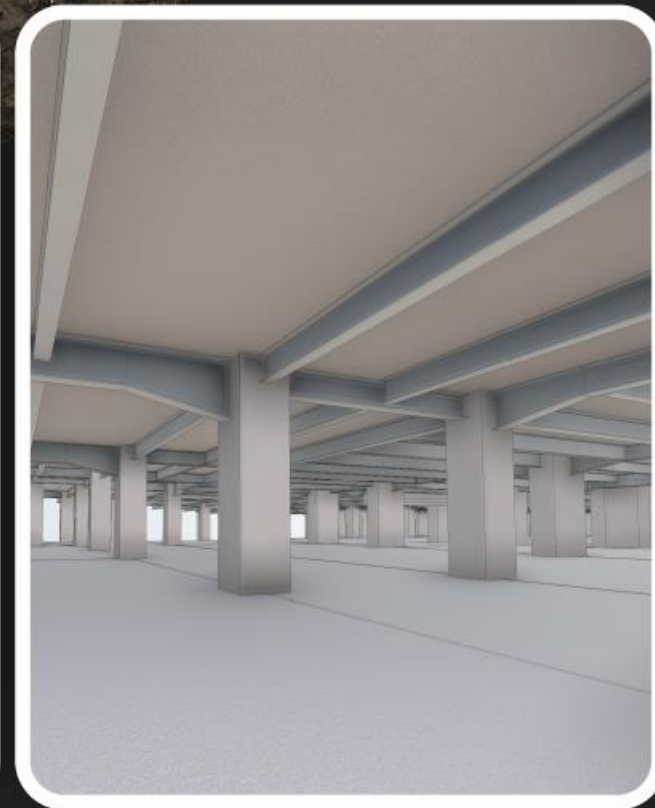


+
-



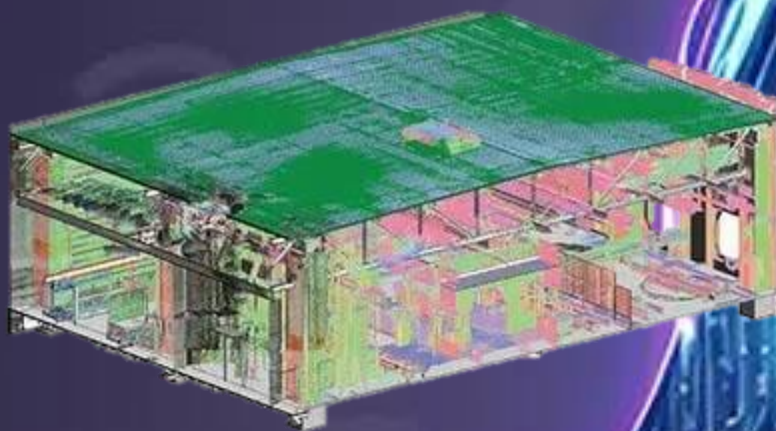




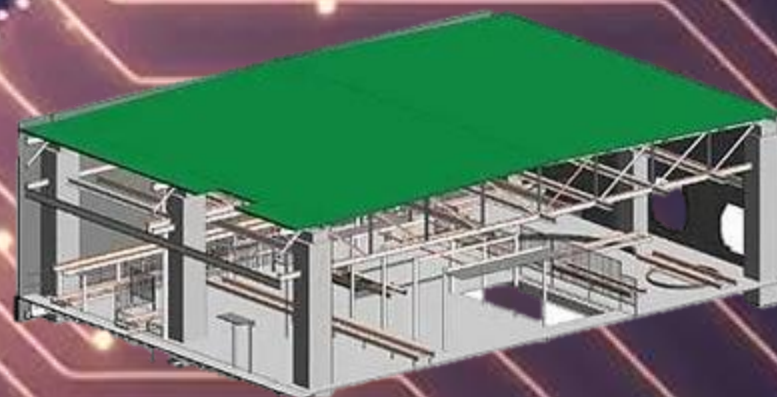


EXISTING ESTATE





AI



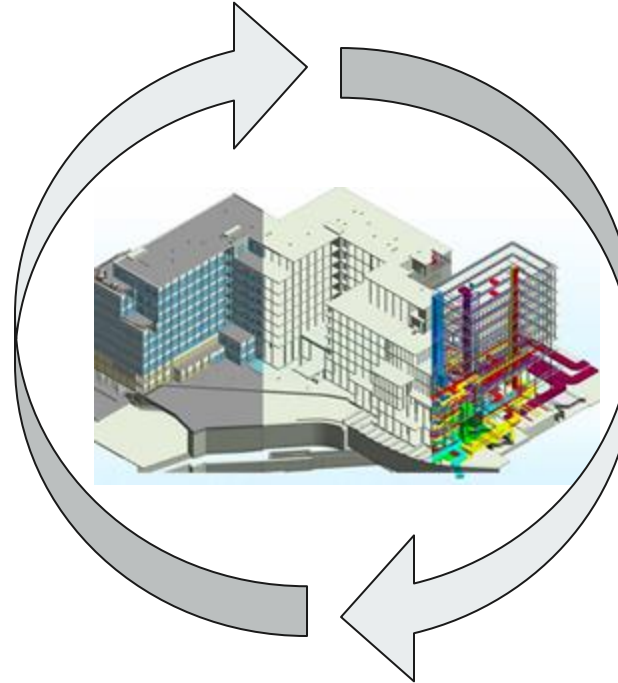
AssetAtlas, WorkOrder, and TwinViewer

AssetAtlas

Geo-tagged visual Assets



- Create, manage, search and navigate assets with **geo-tagged visual locations**
- **Access detailed asset information**, along with related tasks, annotations, and associated metadata



WorkOrder

Geo-tagged visual Tasks



- Create, manage, search and navigate work orders with **geo-tagged assets or space information**
- **Access related details** such as work order information, associated assets, and annotations



TwinViewer

CupixWorks on Mobile



AssetAtlas

- Manage assets with geo-tagged visual locations
- Search and navigate assets by map or space
- View details including tasks, annotations, and metadata

ACME Madison Elementary School

Struct-1023

Asset Status: Operating

High-Efficiency Heat Pump for Climate Control

L1. Electrical > L2. Distribution

[Summary](#) [Details](#) [History](#)

The Main Electrical Distribution Panel distributes power to various circuits throughout the facility and is equipped with protective devices like circuit breakers and fuses. It complies with the 2020 National Electrical Code (NEC), ensuring safety, reliability, and efficient operation of the electrical system.

[#MEC](#), [#Electrical](#), [#Circuit Breakers](#)

Associated Work Orders (2)

TA	Incomplete	Completed
	Steam Engine's main Valve Checkup after replacement of the model Xavier 192	Steam Engine's main Valve Checkup after replacement of the model Xavier 192
Assignee: Jenny Bailly	Due Date: 12/30/2024	Assignee: David Johnson
CU	CU	CU

0 comments

Assets

Asset Name	Display Name	Description	Asset Status	Level	Work Area	Associated Work Orders	Work Order Progress
▼ L1. Electrical (2)		Building electri...					
▼ L2. Distribution (1)		Power distributi...					
▼ L3. Main Power (1)		Primary electric...					
✕ Main Panel	MP-01		Operating	1F	A-1	WorkOrder Title...	In Progress
▼ L2. Lighting (1)		Interior and ext...				Lighting LED Replai	Completed
▼ L3. Emergency Panel (1)		Emergency ligh...					
✕ Emergency Panel	High-Efficiency Heat P		Operating	1F	A-1	WorkOrder Title: Mi	In Progress
▼ L1. HVAC (2)		Heating, ventila...					
▼ L2. Air Handling Units (1)		Equipment for...					



WorkOrder



- Manage work orders with geo-tagged asset and space data
- Search and navigate work orders by location
- View details like related assets, annotations, and status

360 Imgs

AssetAtlas

BIM

OverNotes

Measure

Layers

Captures

20ft

Struct-1023

Hide Legend

Floor Installed 34%

Inspection Finished 23%

Paint Done 12%

Paint Done 12%

See Other Dates

Jun 12, 2024

Sep 4, 2024

Oct 24, 2024

Nov 12, 2024

Dec 31, 2024

2D

Work Area 2 Status In Progress There are 3 tasks

TASK ID: 2-2

TASK ID: 2-1

TASK ID: 2

Task ID 2-2

Work Area 2, Associated Assets (0)

Task (1) In Progress

Task Name: Security check

Due Date: 12/30/2024

Assignee: Jenny Bailly Facility Technician

1F

Mar 15, 2024

##Open

Capture Label

Work Area Name

Acme Construction, San Francisco Project, 24 Willie Mays Plaza, San Francisco, CA 94107, United States

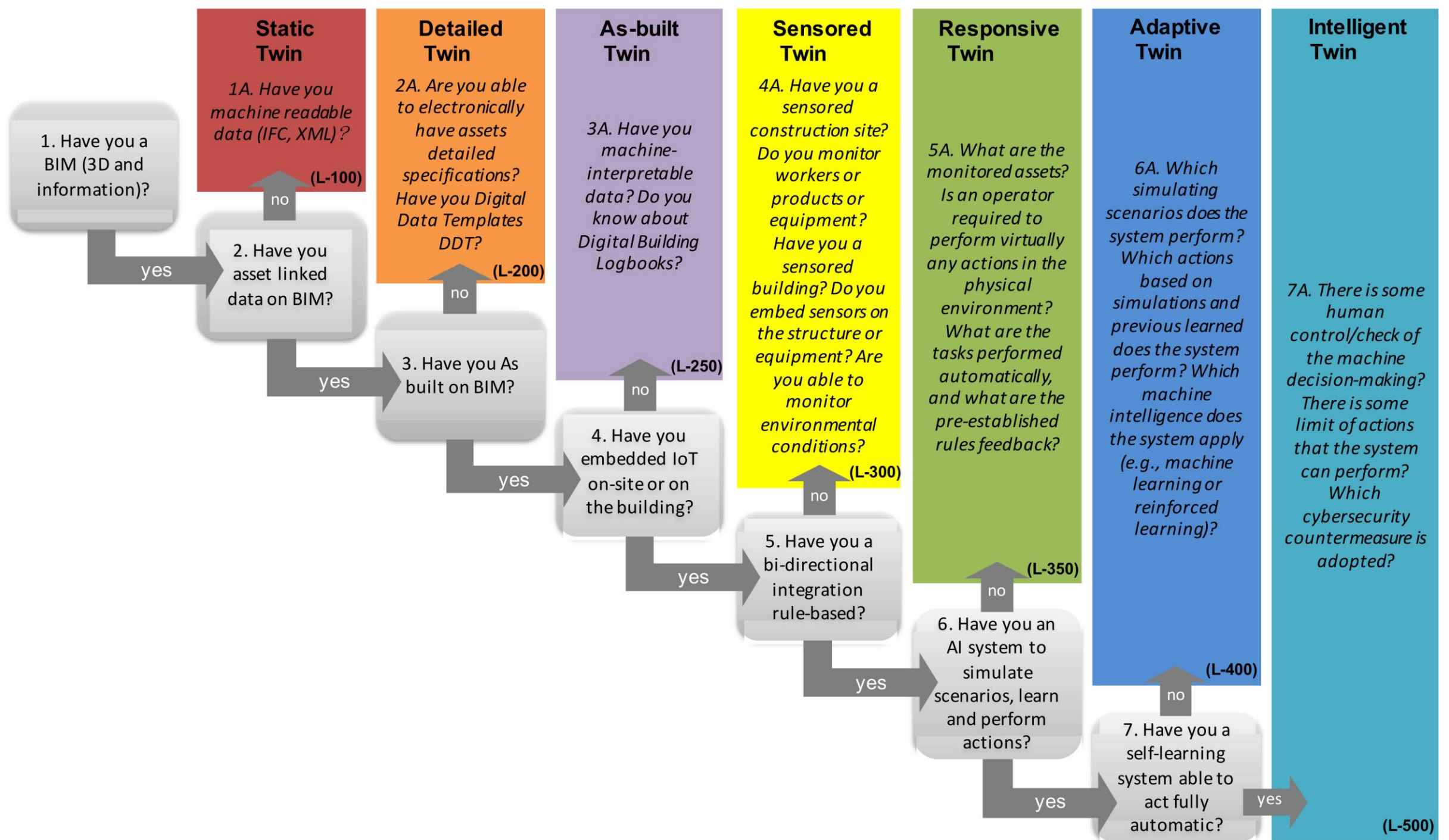
Help Privacy Terms

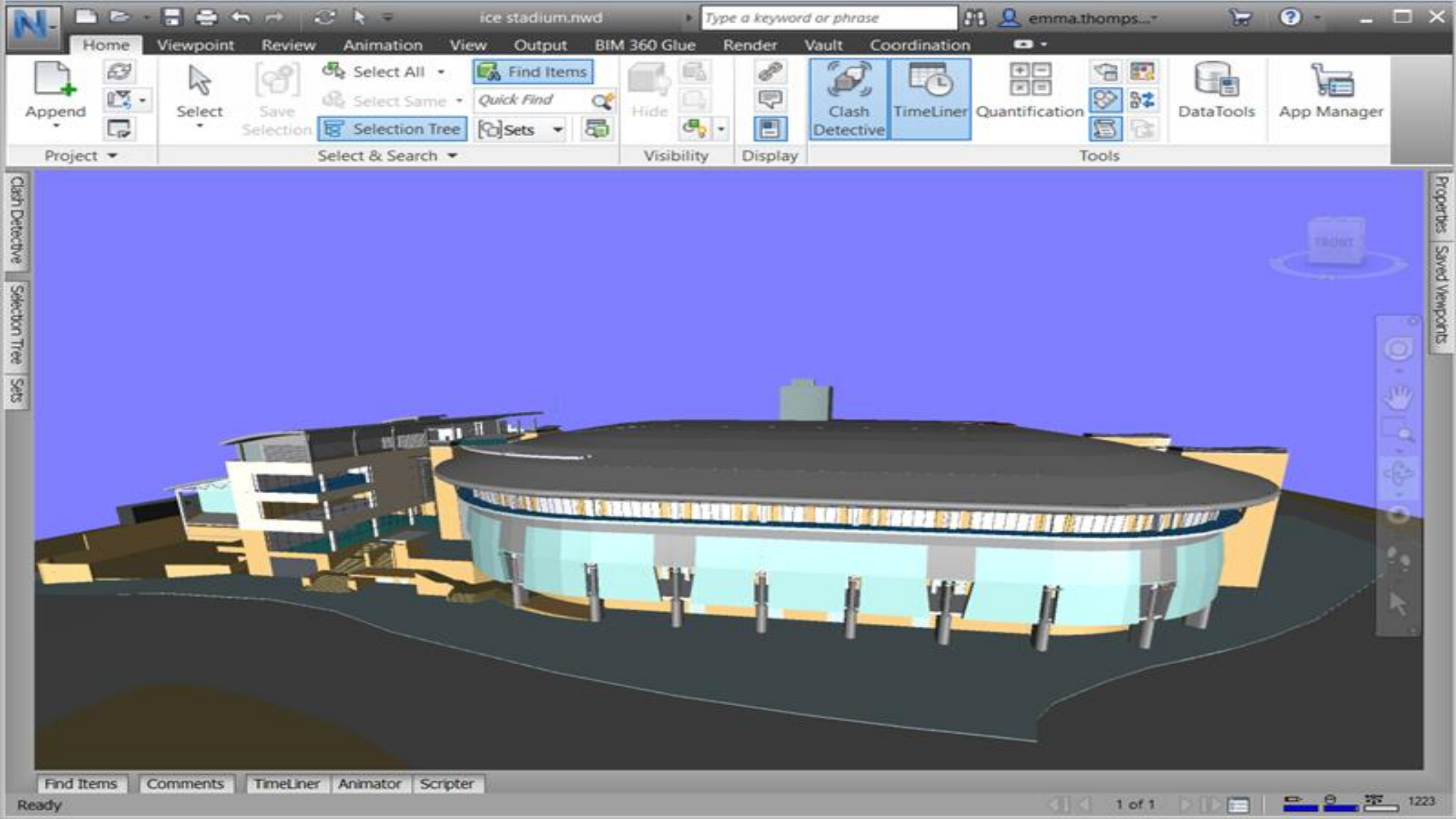


TwinViewer

- Access asset and work order information on your mobile device
- Supports offline mode for uninterrupted access
- Includes timeline and BIM comparison features enhanced with Augmented Reality



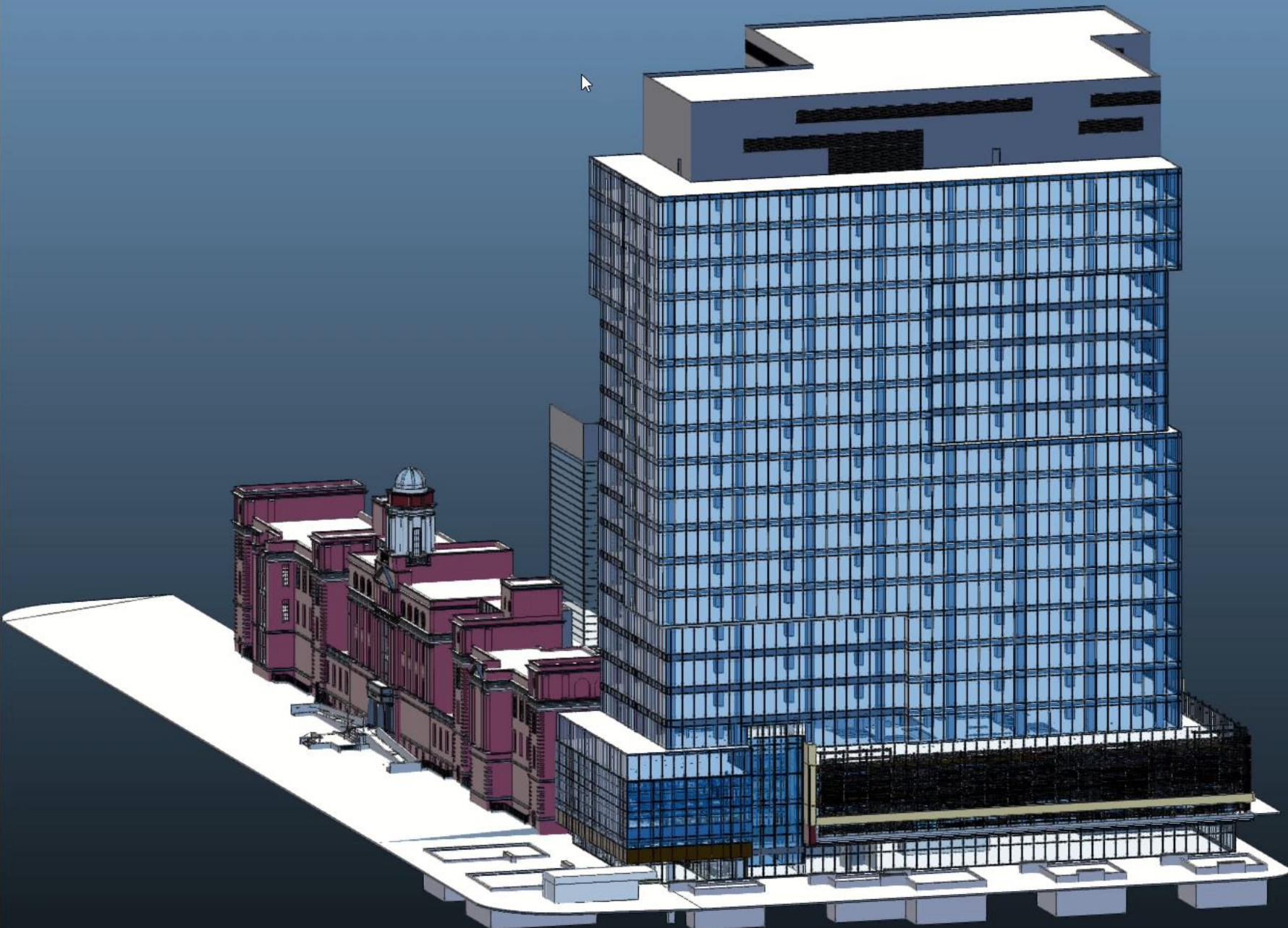






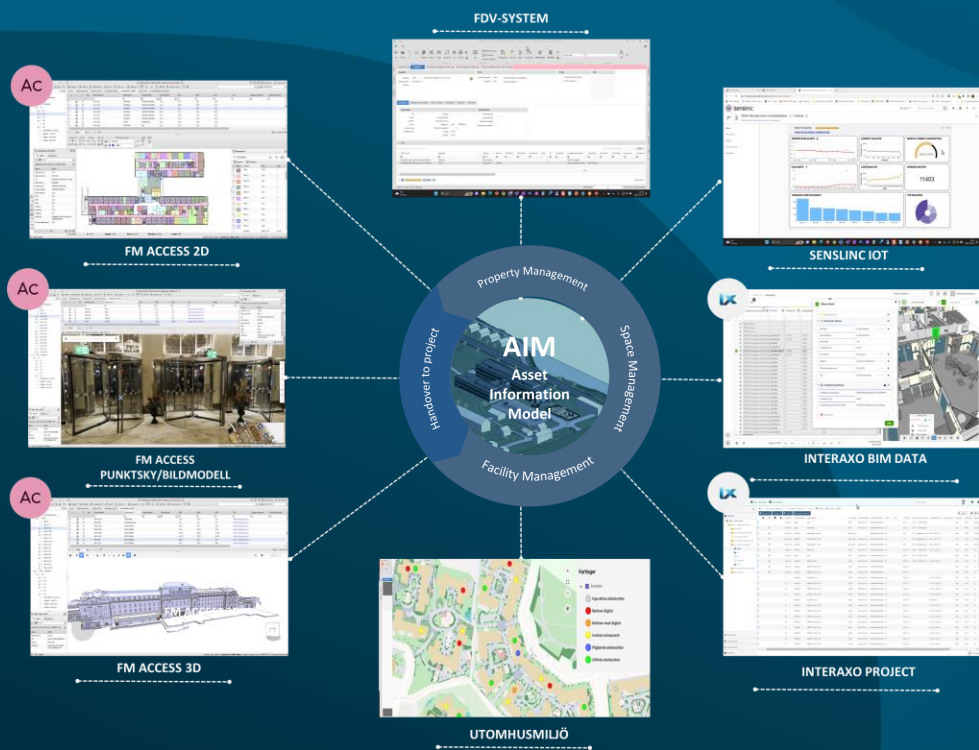
- Filters
- Assets
- Files
- Docs
- Systems
- Connections
- Spaces
- Users

- Streams
- History
- Inventory



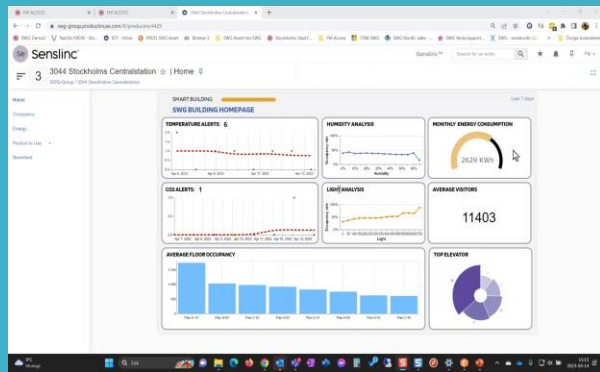
Navigation and tool icons:

- Home icon
- Camera icon
- 3D Viewport controls: Rotate (circular arrow), Pan (hand), Zoom (vertical double arrow), and a 'LEFT' directional button.
- Selection tools: Box select, Lasso select, and Ray select.
- Navigation tools: First angle view, Top view, Bottom view, and Isometric view.
- Other tools: A vertical ruler, a section cut tool, and a settings gear icon.

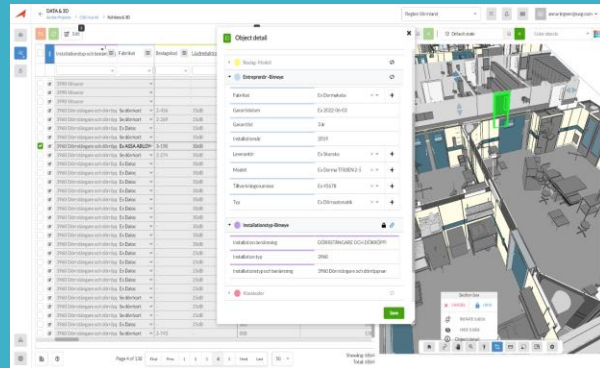


CONNECTED DIGITAL TWIN

FOR OPERATIONS AND MANAGEMENT



AI AND SENSOR DATA

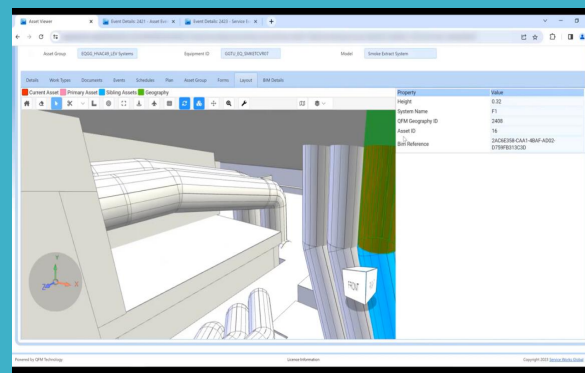


BIM IN CONSTRUCTION

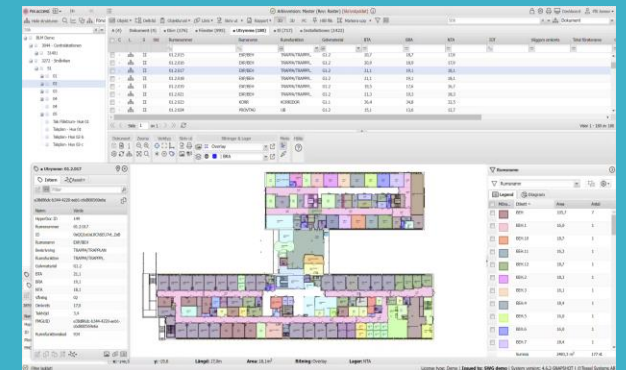
The screenshot shows a document management system interface with a list of documents. The table below represents the data shown in the interface:

ID	Document Name	Author	Created	Modified	Status
1	SDS.1.1 Lek- och idrottautrustning	SDS.1.1	2022-01-10	2022-01-10	Active
2	91 Lekplats kontroll	91	2022-01-10	2022-01-10	Active
3	Agård 01 Funktionskontroll	Agård 01	2022-01-10	2022-01-10	Active
4	Arbetsplan ToS Tillsyn och skötsel	ToS	2022-01-10	2022-01-10	Active
5	Prioritet B Tillsyn och skötsel	B	2022-01-10	2022-01-10	Active

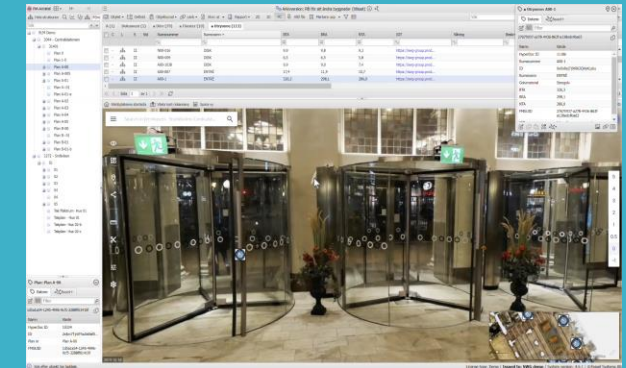
DOCUMENT MANAGEMENT IN CONSTRUCTION



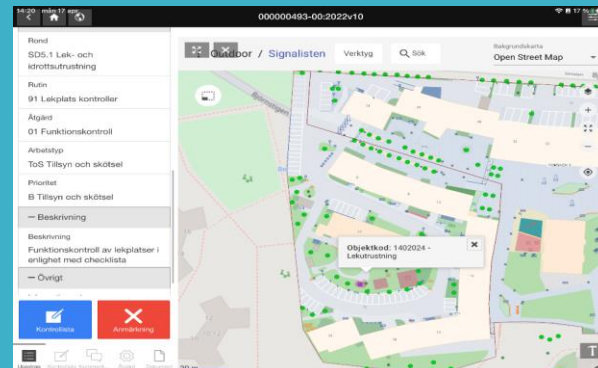
QFM CAFM



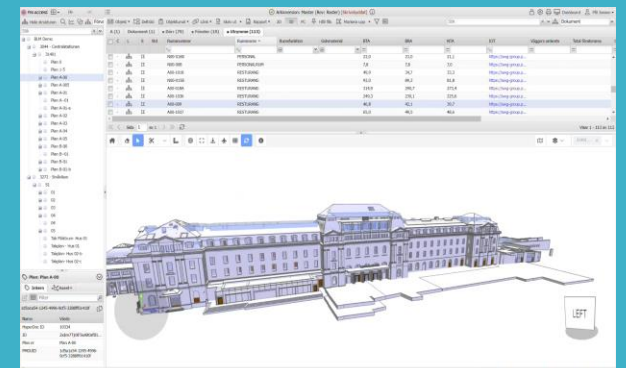
2D SPACE MANAGEMENT



POINT CLOUD / 360-PICTURES



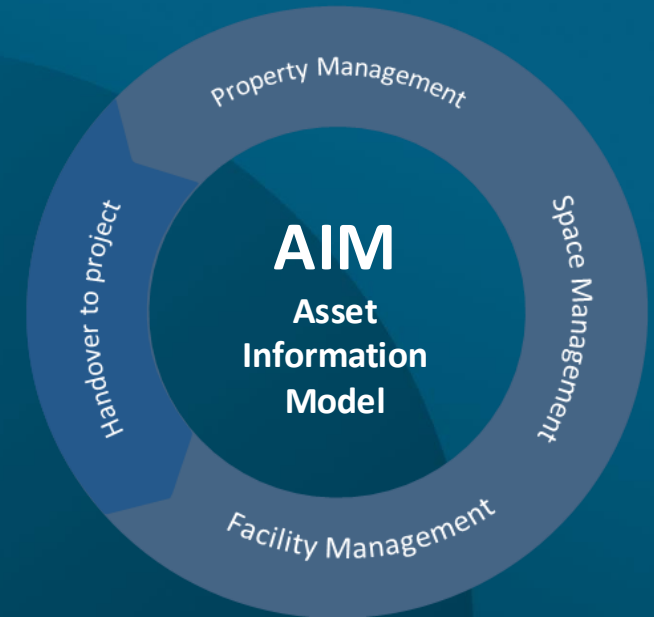
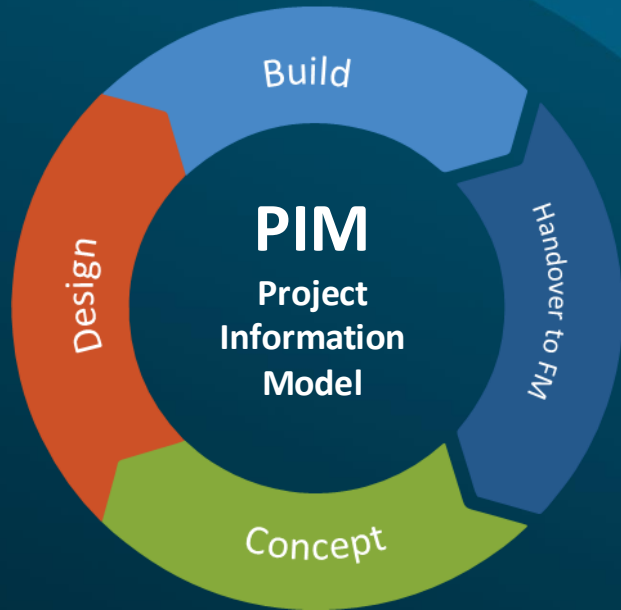
OUTDOOR ASSETS / GIS



BIMVIEWER 3D

Construction projects – FM

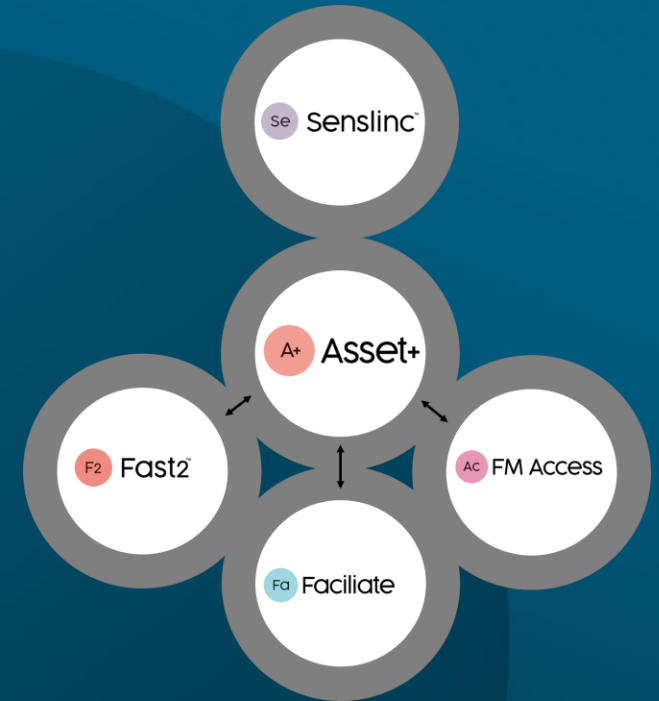
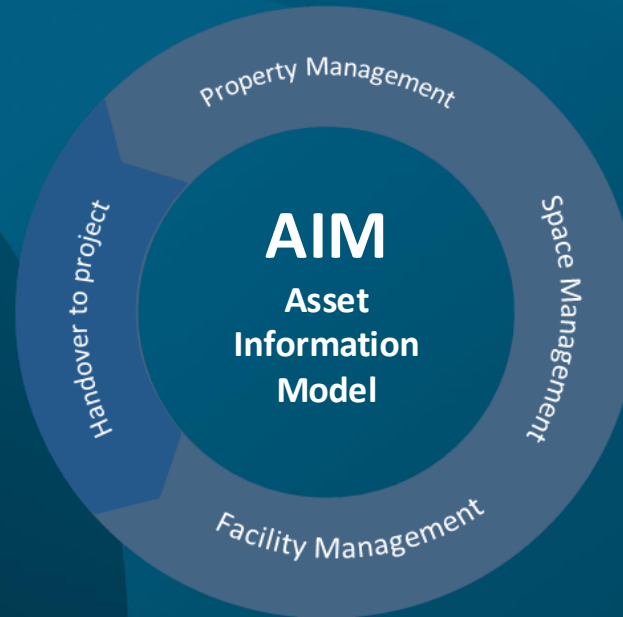
Building Lifecycle Management & ISO19650



Existing buildings – FM

Building Lifecycle Management & ISO19650

Scan2BIM
Plan2BIM





Case studies

Case study – digital asset management



In brief

Jernhusen own 143 properties and 670.000 sqm with a market value of SEK 21.3 billion.

Jernhusen is wholly owned by the Swedish state.

Jernhusen is a Swedish public limited company with its registered office and head office in Stockholm.

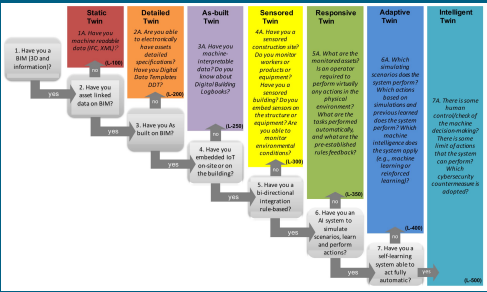
While we mainly own property related to the railway system, such as stations, maintenance depots and cargo terminals, we also own a number of office buildings close to our stations. And one hotel.

We have 166 employees.

The company was founded in 2000/2001 when Statens Järnvägar was incorporated. The new company, Jernhusen, acquired real estate valued at approximately SEK 6 billion.

This is Jernhusen

Jernhusen owns real estate related to the Swedish railroad system and railway infrastructure at our train depots and cargo terminals.



Connected Digital Twins

- IOT & sensors
- AI
- Lifecycle Management
- Data driven maintenance (DDM)
- Intelligence based decision making



Asset Management

Assets that need to be maintained are synchronised to the CAFM system.

Inventory of assets.



Scan2BIM

Create smart 3D models from PC and add 360 pictures



Plan2BIM

Create smart 3D models with correct geography

Accessibility

All building information
available in one place,
accessible to everyone
in the organization.
Scanned drawings,
PDF etc.,



Background at Jernhusen:

- Poor control over their drawings.
- Uncertain if the drawings were up-to-date.
- Saved in various locations throughout the organisation.
- Looking for a CAFM system with support for BIM.
- Ownership of their own their data.
- Wanted original BIM-models to be able to hand out for renovation projects.

Accessibility

All building information available in one place, accessible to everyone in the organization. Scanned drawings, PDF etc.,

Plan2BIM

Create smart 3D models with correct geography

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Inventory of assets.

Connected Digital Twins

- IOT & sensors
- AI
- Lifecycle Management
- Data driven maintenance (DDM)
- Intelligence based decision making

Actions:

- Poor control over their drawings
 - Uncertain if the drawings were up-to-date
- Action -> Scan2BIM
- Saved in various locations throughout the organization
- Action – implemented the AIM





SERVICE WORKS

PART OF ADDNODE GROUP



10:48

VIEWER

Ver: Master (Rev: Test se...)

Webbplats: Jernhusen - Stockholms
Centralstation_DEMO

Rot



Roter dörr 1 Waterfront

Realtiddata Roter dörr 1
31401 Stockholm C Stationshus Övre Hallen • 2



Roter dörr 2 Waterfront

Realtiddata Roter dörr 2
31401 Stockholm C Stationshus Övre Hallen • 2



Rotating door 2

31401 Stockholm C Stationshus A • 0

Klar

"Rot"

Roten

Rota

q w e r t y u i o p å

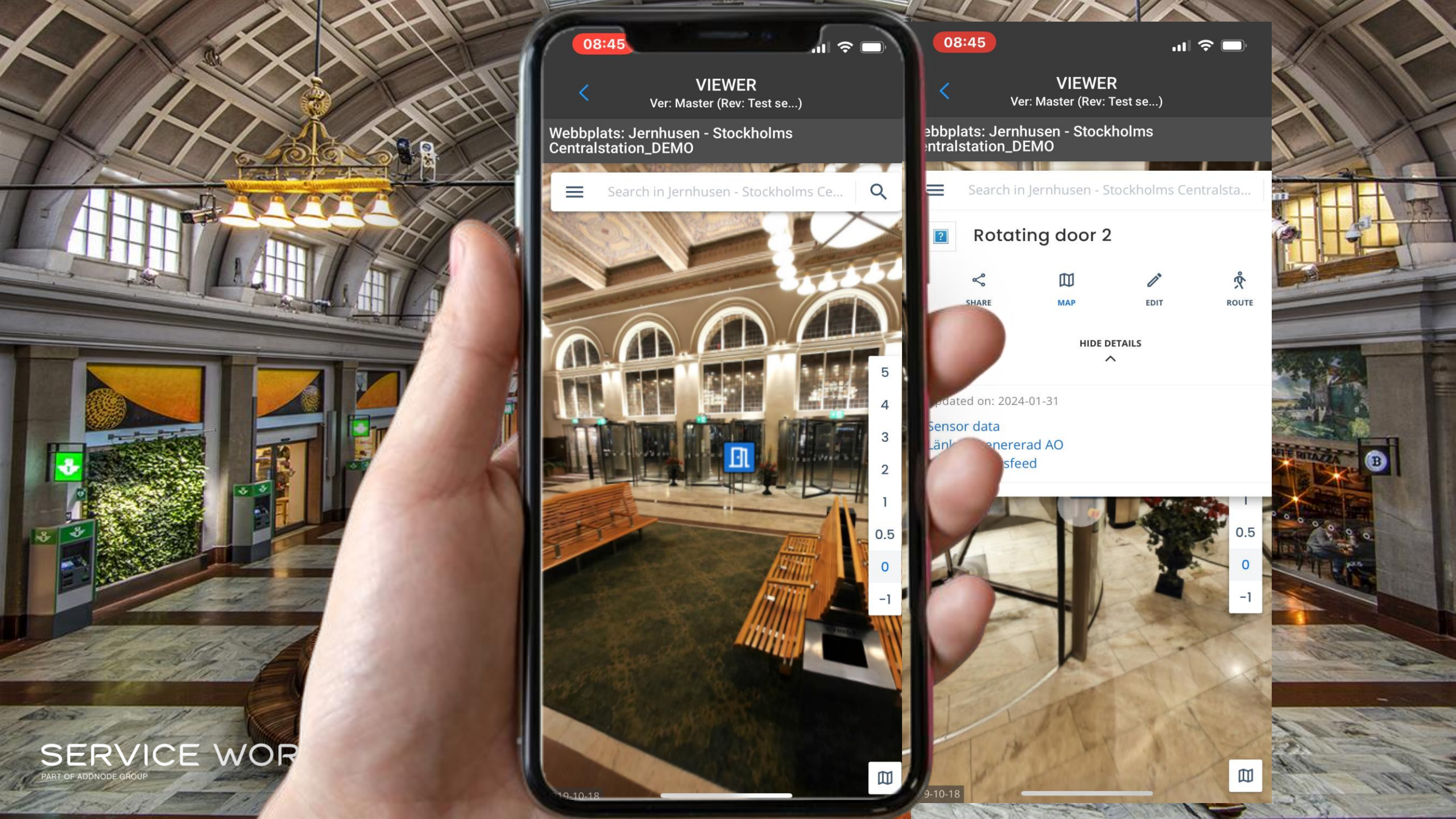
a s d f g h j k l ö ä

z x c v b n m

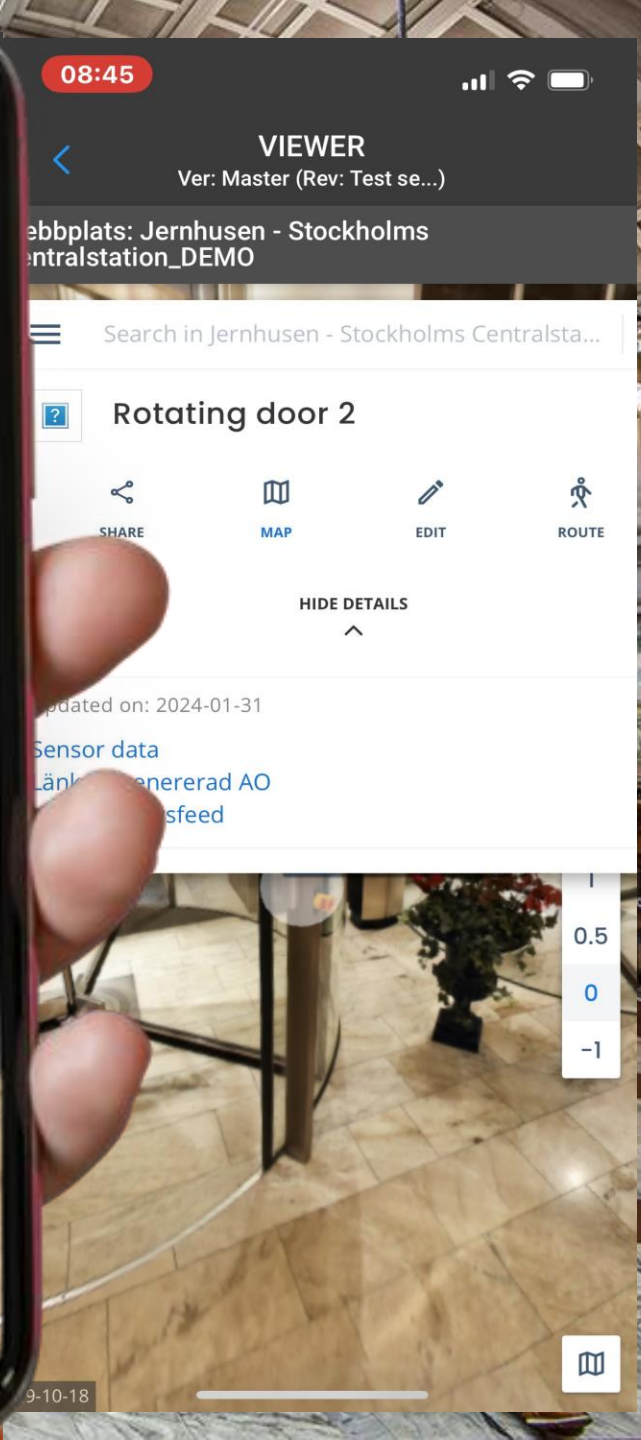
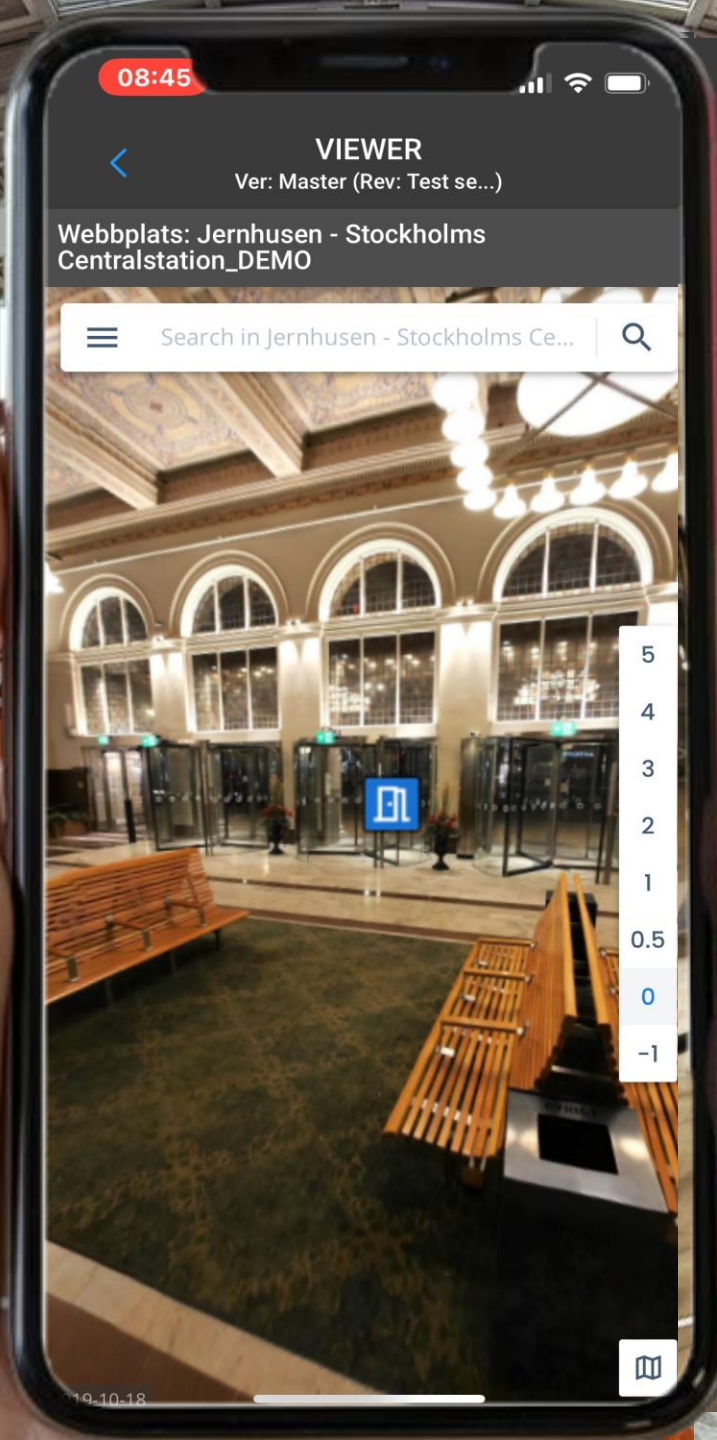
123 mellanslag retur

SERVICE WORKS GLOBAL

PART OF ADDNODE GROUP



SERVICE WORK
PART OF ADDNODE GROUP



Connected Digital Twins

- IOT & sensors
- AI
- Lifecycle Management
- Data driven maintenance (DDM)
- Intelligence based decision making

Asset Management

Assets that need to be maintained are synchronised to the CAFM system.
Inventory of assets.

Scan2BIM

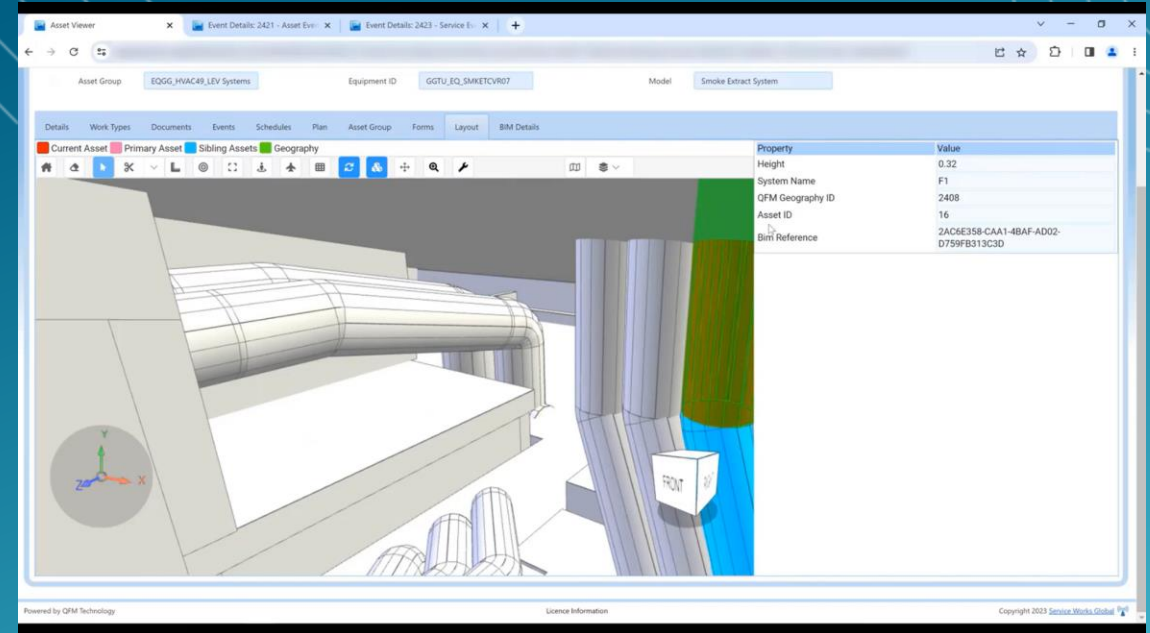
Create smart 3D models from PC and add 360 pictures

Plan2BIM

Create smart 3D models with correct geography

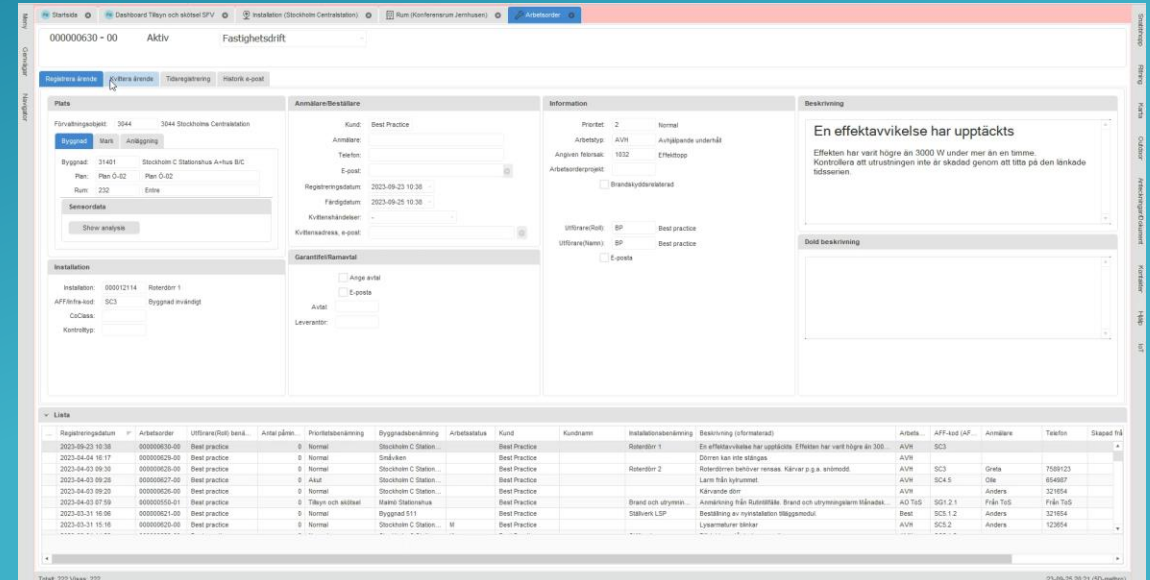
Accessibility

All building information available in one place, accessible to everyone in the organization. Scanned drawings, PDF etc.,



Actions:

- Looking for a CAFM system with support for BIM and Digital Twin
- Connected the AIM to CAFM
- Wanted to own their data
- Wanted original BIM-models to be able to hand out for renovation projects
- Managed ALL data in the AIM



Accessibility

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Plan2BIM

Create smart 3D models with correct geography

Scan2BIM

Create smart 3D models from PC and add 360 pictures

Asset Management

Assets that need to be maintained are synchronised to the CAFM system. Inventory of assets.

Connected Digital Twins

- IOT & sensors
- AI
- Lifecycle Management
- Data driven maintenance (DDM)
- Intelligence based decision making

CONNECTED DIGITAL TWIN

FOR FACILITIES MANAGEMENT



Accessibility

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Plan2BIM

Create smart 3D models with correct geography

Scan2BIM

Create smart 3D models from PC and add 360 pictures

Asset Management

Assets that need to be maintained are synchronised to the CAFM system. Inventory of assets.

Connected Digital Twins

- IOT & sensors
- AI
- Lifecycle Management
- Data driven maintenance (DDM)
- Intelligence based decision making

- Workshops with service providers and technicians.
- Identify the maintenance objects that fail the most and cause the most disruption in operations.
- Deployed sensors and used BMS and connected them to asset register.
- Collect and analyse data in our IOT-plattform.
- Define thresholds.
- Design appropriate dashboards.
- Integrate with the CAFM system for automatic work orders, visualisation and more.

Accessibility

All building information available in one place, accessible to everyone in the organization. Scanned drawings, PDF etc.,

Plan2BIM

Create smart 3D models with correct geography

Scan2BIM

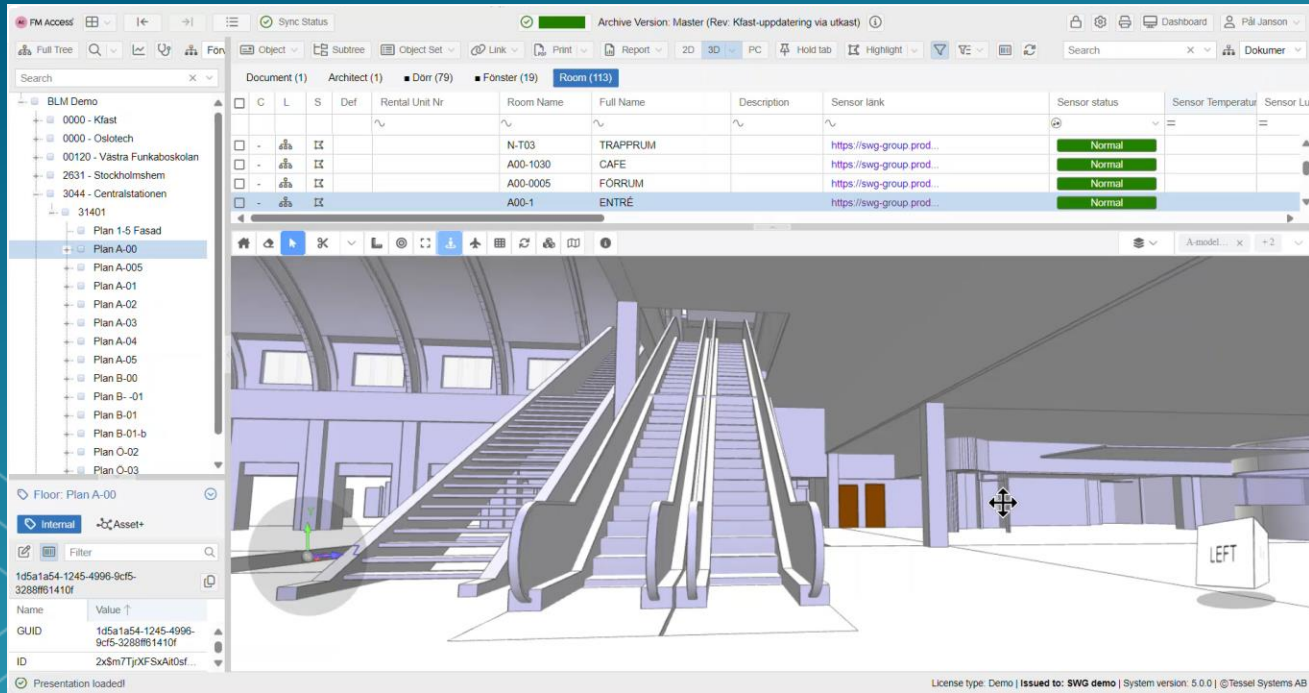
Create smart 3D models from PC and add 360 pictures

Asset Management

Assets that need to be maintained are synchronised to the CAFM system. Inventory of assets.

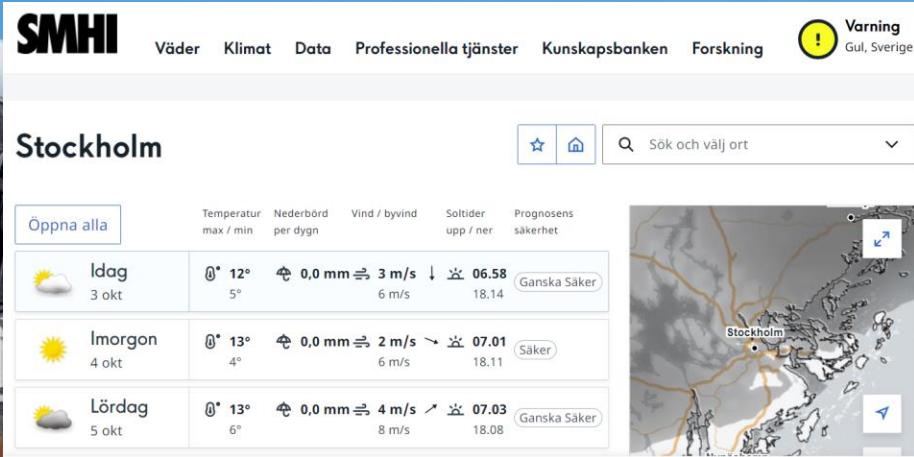
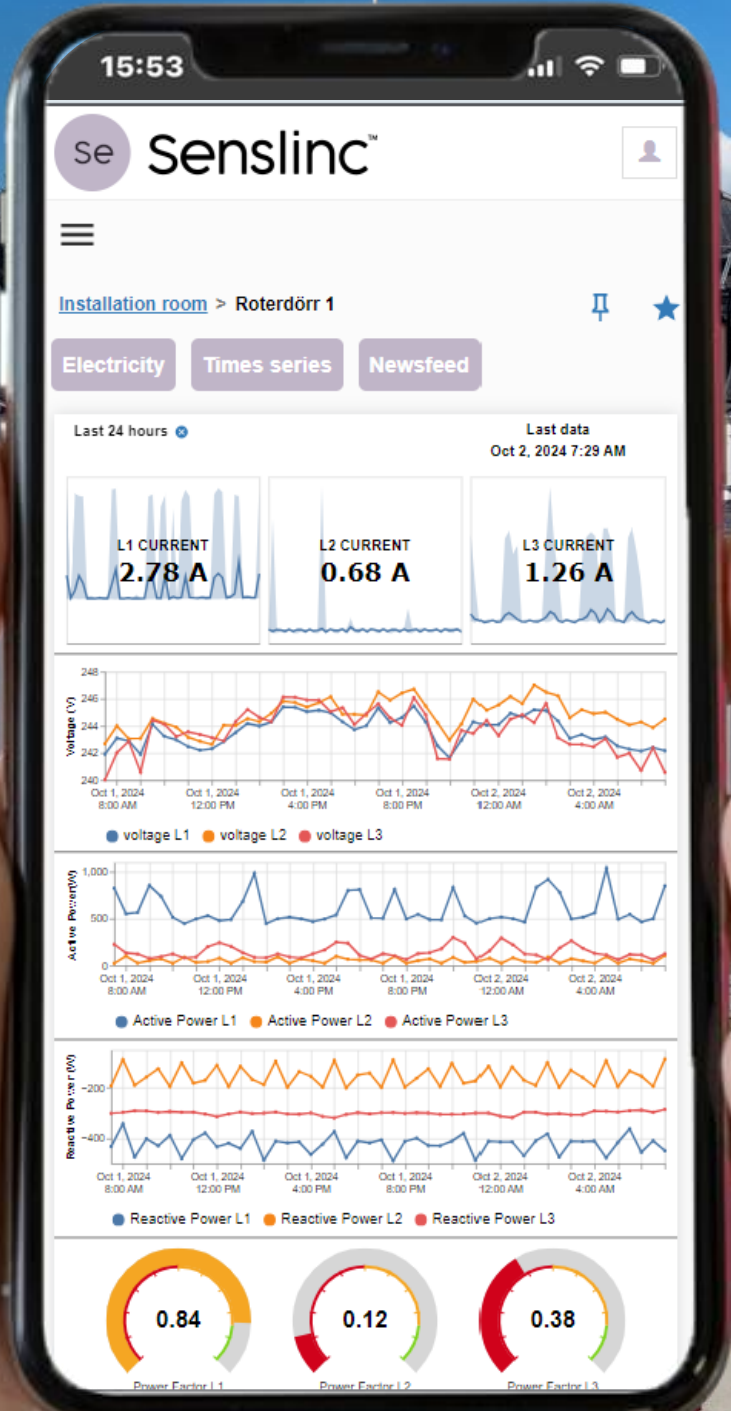
Connected Digital Twins

- IOT & sensors
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- Intelligence based decision making



Type of assets:

- Elevators (api to Kone)
- Escalators (sensors)
- Sea water pumps – for cooling system (sensors)
- Integration to Siemens Desigo BMS – 1000 data points
- Room Sensors
- Entrance doors (sensors)





12:09

Arbetsorder



Arbetsstatus

- ET Ej tillträde: 1
- FÅ Funktion återställd: 1
- GR Granskad: 1
- K Klar: 1
- M Material saknas: 1
- P Arbete pågår: 1
- S Startat: 7
- : 13



Ny arbetsorder



Hantera

ROI FOR LIFTS

Finance

150 lifts

4 visits/lift per year

600 visits

370 £ /visit

Total Cost £ 222 000/year

Sustainability

600 trips by service car

Accessibility

2 hours downtime/visit

Total downtime 1200 hours

We assume that visits can be reduced by 10% using sensor data



Total cost savings
£ 22 200/year

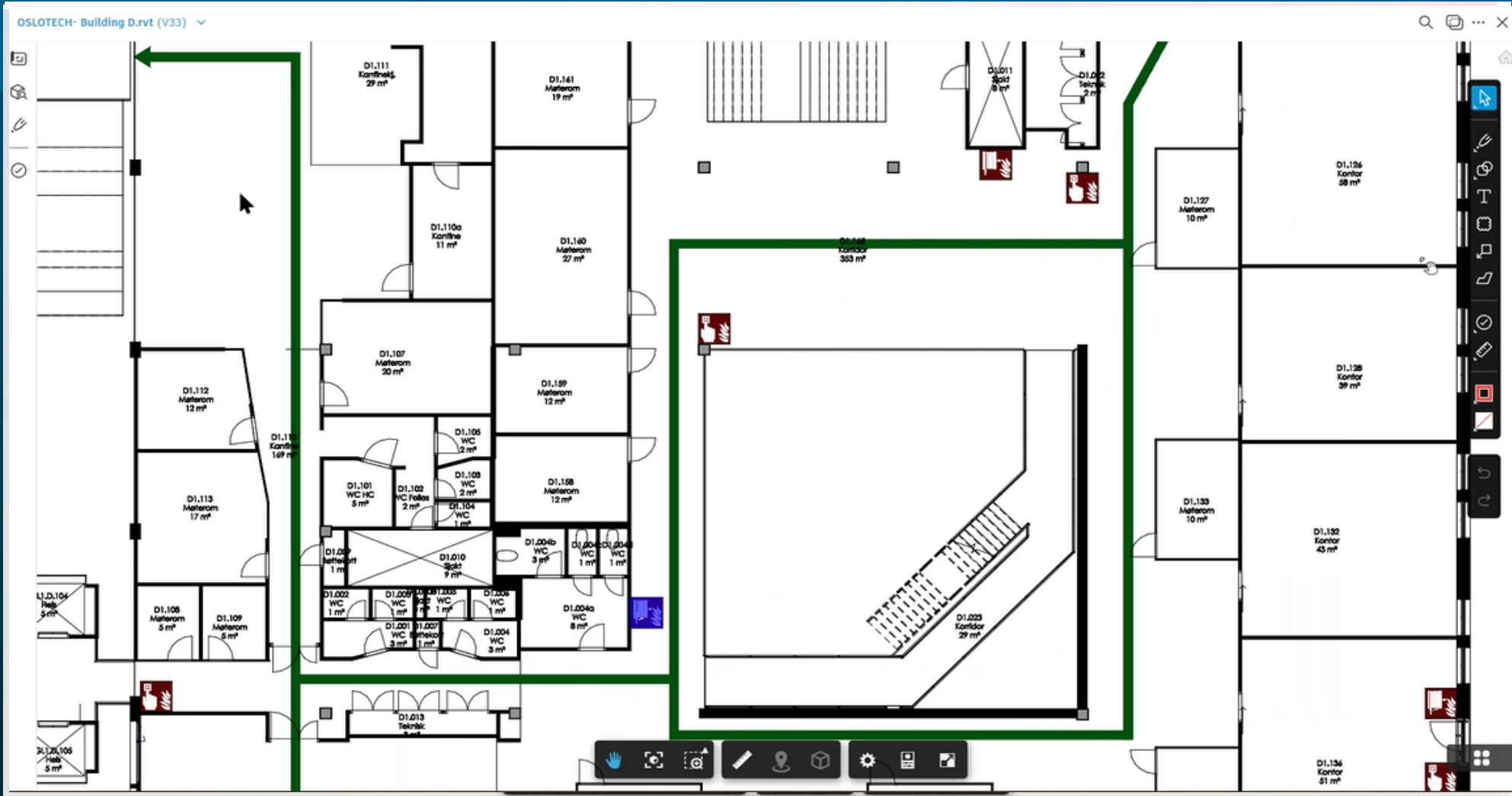


60 journeys by service car
can be avoided

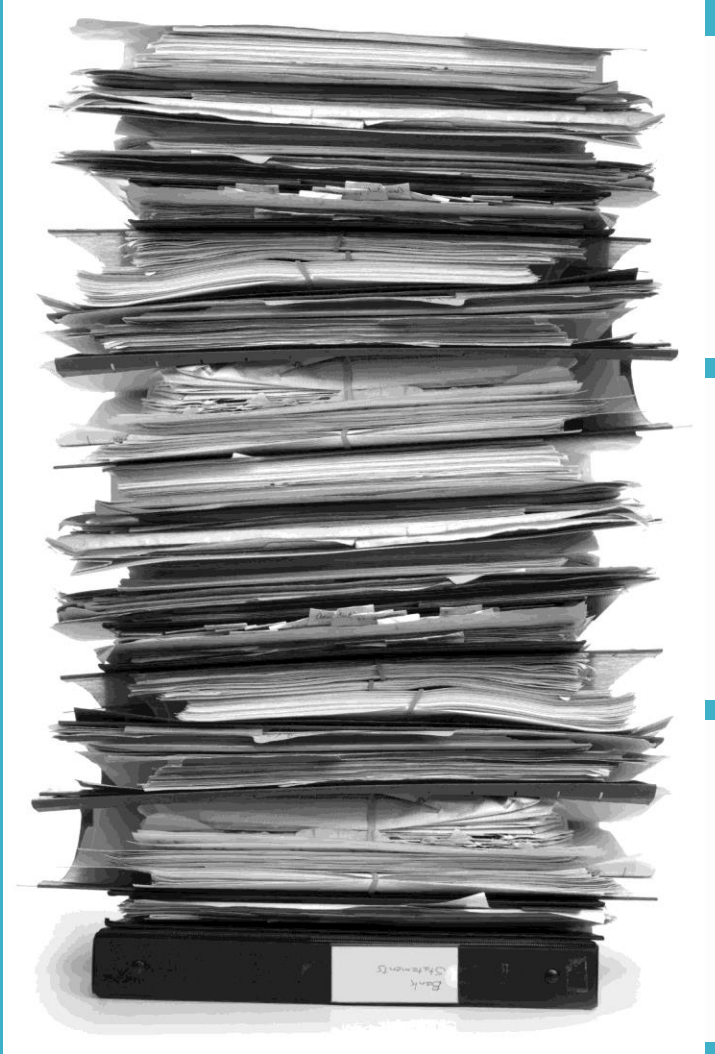


Downtime is reduced by **120 hours**

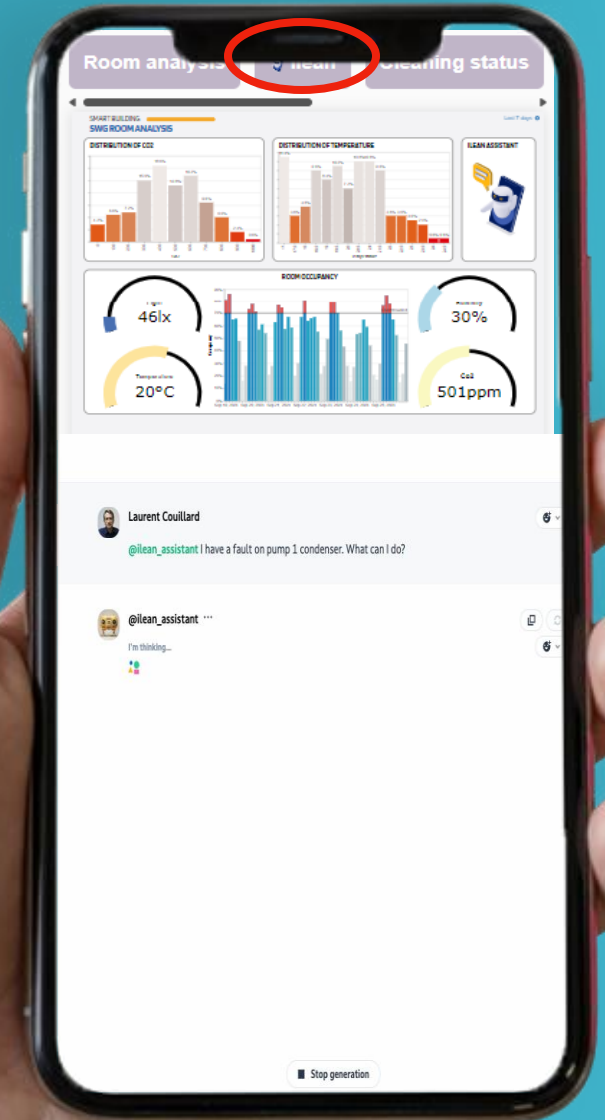
fmAI Plan2BIM and Digital Twin in Norway



fmAI - automated operating instructions



Generative AI
Chat and talk
Use IOT





[kfast-senslinc](#) > Domaren 3



 Assistant Bygg

Documentation

Jag är din AI-assistent

Du kan ställa frågor till mig om utrustning och jag föreslår lösningar. Jag svarar på engelska för tillfället, men snart på ditt språk



Can you share the final advice for wet rooms?



How to lubricate smoke evacutaion fans?



Powered by  InUse

 ...slinc.productinuse.com



GET IN CONTACT



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DIGITAL TWIN GUIDANCE

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our experts!

