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



PÅL JANSON

Product Solution Manager





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





2010s

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



Late receipt of final deliverables

Typical to wait 6 months post-completion to receive deliverables. Delay caused by contractors or information silo between capital delivery and operational teams

Unsuitable & Incomplete

Documents & models are unstructured or unsuitable for operational systems. Typically, operational needs are not well articulated at project start

Data delivery & systems gap

Outdated formats (ring-binders, PDFs, flat files) which limit reuse in operations. Compounded by isolated systems between capital delivery and operations

Source: (1) Autodesk-FMI Report, Harnessing the Data Advantage in Construction



WHAT DO YOU NEED TO MAKE THE BEST DECISIONS



Access to the right data driven insights









Repeatable Standards

As- Built Data

Informed Confidence



EIR & AIR DEVELOPMENT



Taking Control of Data

Operational Efficiency

Sustainability

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AS-BUILT













EXISTING ESTATE







AssetAtlas, WorkOrder, and TwinViewer





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



TwinViewer CupixWorks on Mobile

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





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



Overview



- 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





Overview





- 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

















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CONNECTED DIGITAL TWIN

FOR OPERATIONS AND MANAGEMENT





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POINT CLOUD / 360-PICTURES



BIMVIEWER 3D

Construction projects – FM Building Lifecycle Management & ISO19650



	property Management	
Handover to project	AIM Asset Information Model	Space Management

Existing buildings – FM Building Lifecycle Management & ISO19650

Scan2BIM Plan2BIM





Case studies



Case study – digital asset management



Sp Jernhusen



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.





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
- Al
- Lifecycle Management
- Data driven maintenance (DDM)
- Intelligence based decision making

Accessibility

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

Plan2BIM

models with

Create smart 3D

correct geography







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.





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-todate

Action -> Scan2BIM

- Saved in various locations throughout the organization
 - Action implemented the AIM

SERVICE WORKS GLOBAL

SCAN2BIM

Fast-track to digital buildings Service Works Global Al services by

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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





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Scanned drawings,

PDF etc.,



PDF etc.



- 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.







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)











Arbetsorder



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Arbetsstatus

- ET Ej tillträde: 1
- FÅ Funktion återställd: 1
- GR Granskad: 1
- 📕 K Klar: 1

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- M Material saknas: 1
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Ny arbetsorder

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ROI FOR LIFTS

Finance	Sustainability	Accessibility
150 lifts	600 trips by service car	2 hours downtime/visit
4 visits/lift per year		Total downtime 1200 hours
600 visits		
370 £ /visit		
Total Cost £ 222 000/year		

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



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1	Jag är din Al-assistent
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GET IN CONTACT



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