

How can the digital transformation support the workplace experience?

ISS indlæg på – Intelligent bygningsdrift



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Title: Head of Property Excellence

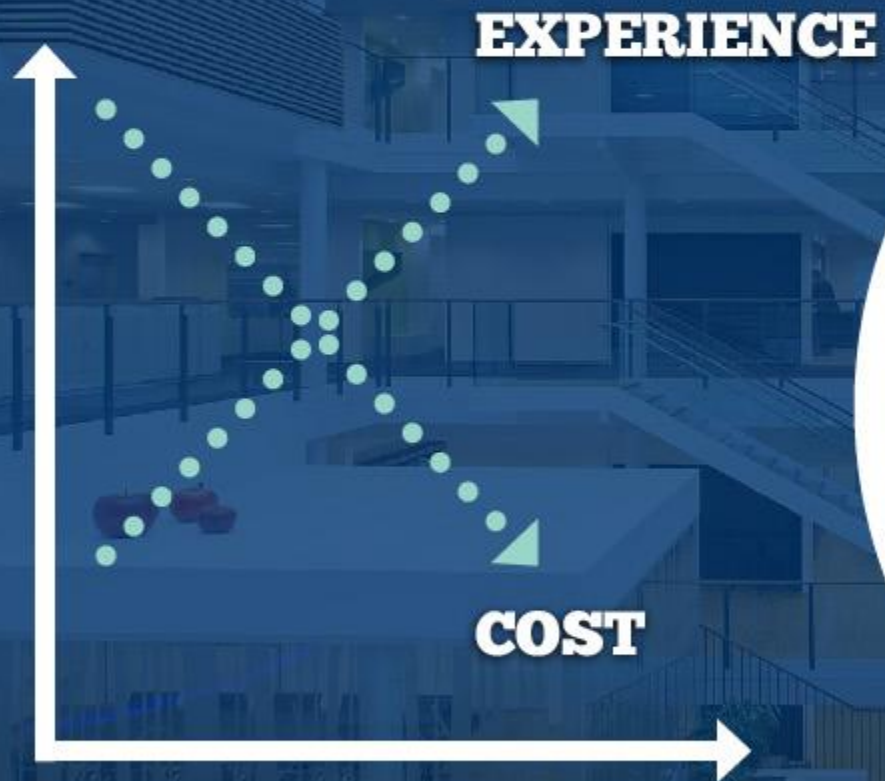
Opportunities for Digitalization

Connecting People with Buildings:

- Data Connectivity
– Real-time & Historical
- Data Insight
– Analysis & WO triggers
- Data Prediction
– Usage and workplace optimization



It's not only about assets...
...it's really about people

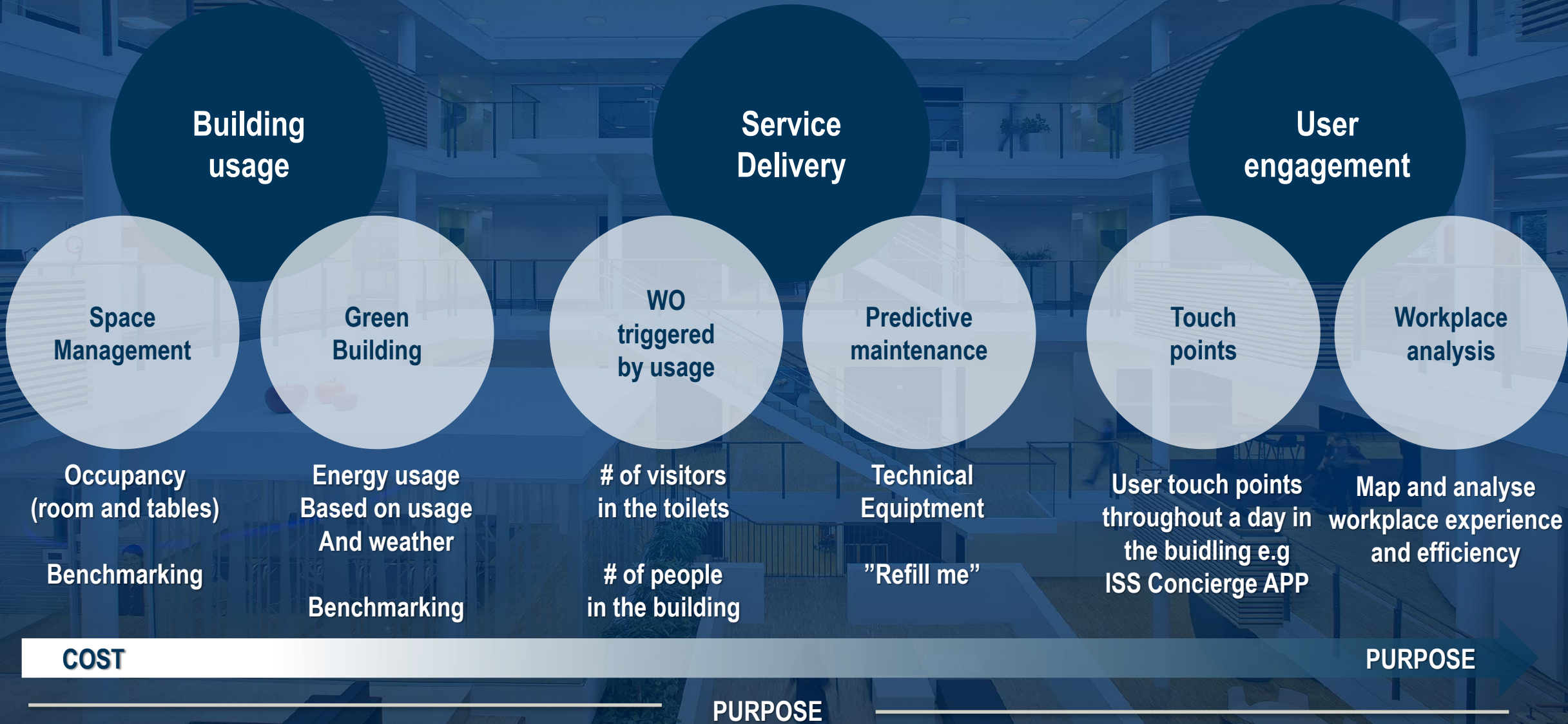


**INCREASED
USER EXPERIENCE**



EASIER COLLABORATION
HIGHER EMPLOYEE PRODUCTIVITY
LEARNING ENVIRONMENT
EFFICIENT WORKING ENVIRONMENT

Digitalizing the Workplace and Service Experience



COST

PURPOSE

PURPOSE

Digitalizing the Workplace and Service Experience



Current Smart Building Use Cases



Space Utilization



Footfall Counting



Snow Metering



Restroom Utilization



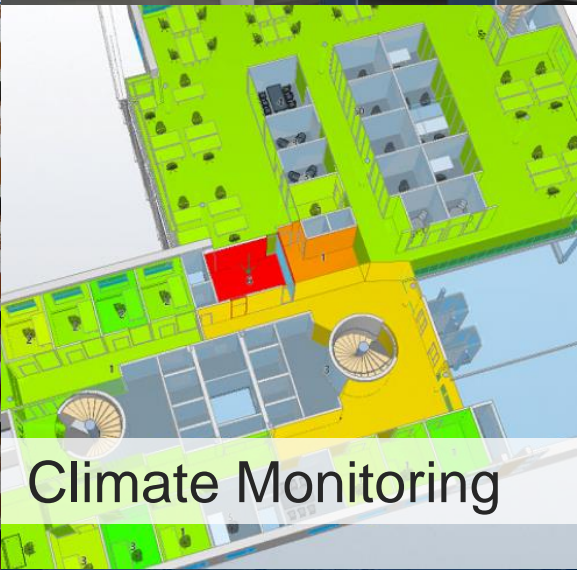
Recycle Monitoring



Predictive Maintenance



Lite Surveillance



Climate Monitoring



*We are taking
our own medicine:*

**Sensors
installed
everywhere**

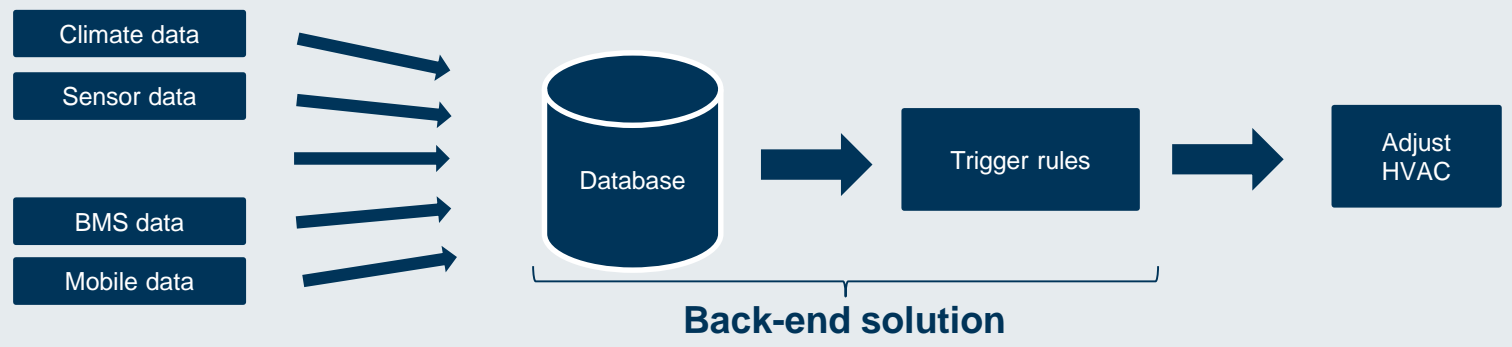
At the ISS HQ

**What is the
technology
behind**

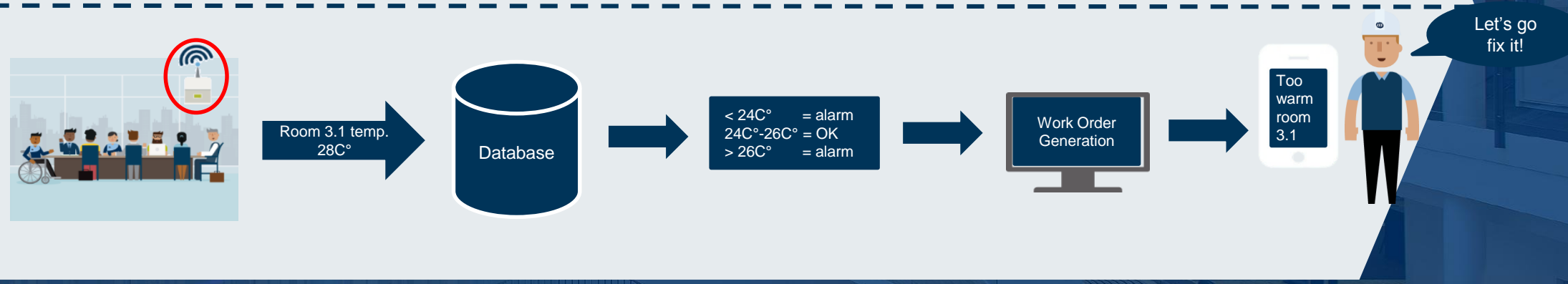
Back-end solution for an IoT connection to FMS

Back-end Solution
IoT connection to FMS

Process



Example



High level technical solution

Publisher

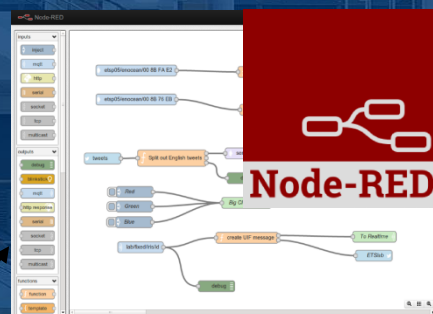
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Publish

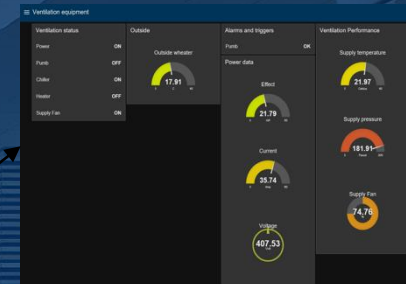


MQTT messages



IBM Bluemix

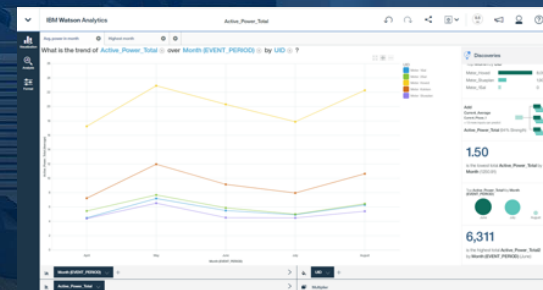
Subscribe



Live dashboard



Watson Analytics



MOTION DETECTION



ISS Cloud

MQTT messages

Workorders

- Request
- Preventive
- Proactive
- Reactive
- Project

BMS

Energy

Indoor climate

Occupancy

ISS Dashboard – Predictive Maintenance



Ventilation equipment

Ventilation status	Outside	Alarms and triggers	Ventilation Performance
Power: ON	Outside wheater: 17.91 °C	Pumb: OK	Supply temperature: 21.97 °C
Pumb: OFF		Power data: Effect: 21.79	Supply pressure: 181.91 Pa
Chiller: ON		Current: 35.74 Amp	Supply Fan: 74.76
Heater: OFF		Voltage: 407.53 Volt	
Supply Fan: ON			

Temperature

Temp chart

Co2 level

Gauge: 400 units

chart

Occupancy

The room is: Available

Occupancy over time

Temp Difference

Gauge: 0.15 units

Ti Sensortemp

Temperature

Pressure

Magnetization

Humidity

Room Comfort

Room temperature: 24.1 Celsius

24 hours history

Spacetemp condition: Ideal temperature

Room Comfort

Temperature

Gauge: 23.2 Celsius

24 hours history

Co2

Gauge: 600ppm

24 hours history

HVAC

Supply, Return and Floor Temperature

To be situation

- **Monitoring (live dashboards):**

- Asset health
- Alarms

- **Control (historical data analysis):**

- Energy Consumption
- Uptime

- **Optimization (triggers):**

- Reduce asset break down and increase asset life time with correct service
- Reduce unnecessary service deliveries
- Proactive service and repair before asset breakdown
- Automatic service registration in FMS (TRIRIGA)



What's going on?

What happened?



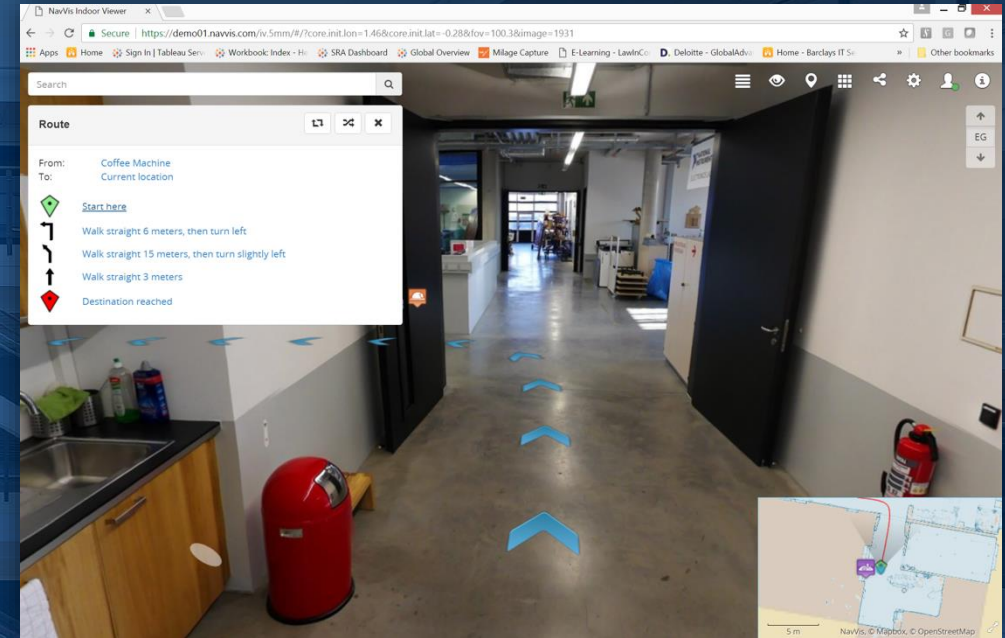
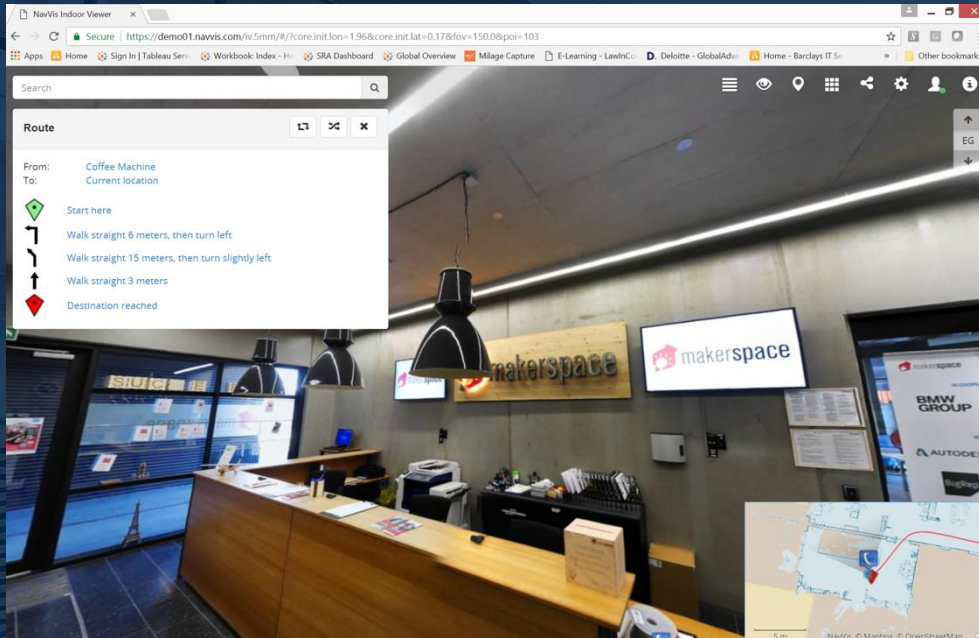
Lets fix it!



Technology innovations

Something for the future – internal building navigation

ISS HQ



- A potential solution to support way finding navigation at large sites
- For new employees or visitors who are unaware of a sites layout
- Visiting or site based FM delivery staff carrying out service tasks

- Future design would allow a user to raise a task directly from the 360° Visualization
- Link IWMS data to specific assets in the map so that service teams can access historical data from one view, rather than switching systems



**Building
*usage***

**Service
delivery**

**Productivity
and user
satisfaction**



Thank you for your attention!

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