



ATKINS

Member of the SNC-Lavalin Group

Artificial Intelligence vs Building Energy Management Systems

The Importance of Comprehensive Commissioning

Agenda

- Introductions – The Atkins Building Technologies Group
- Artificial Intelligence in the Built Environment
- Exploring Data Sets
- The Centralised Monitoring System
- Commissioning - what could possibly go wrong?
- Q and A



John Green (Associate Director) - BTG Director

The Atkins Building Technologies Group was setup in 2021. John leads the group at Associate Director level and is based at our headquarters in Epsom. John reports to the Atkins Building Services Practice Manager for the South East Region.

Mal Stuthridge (Associate) BEMS Team Lead

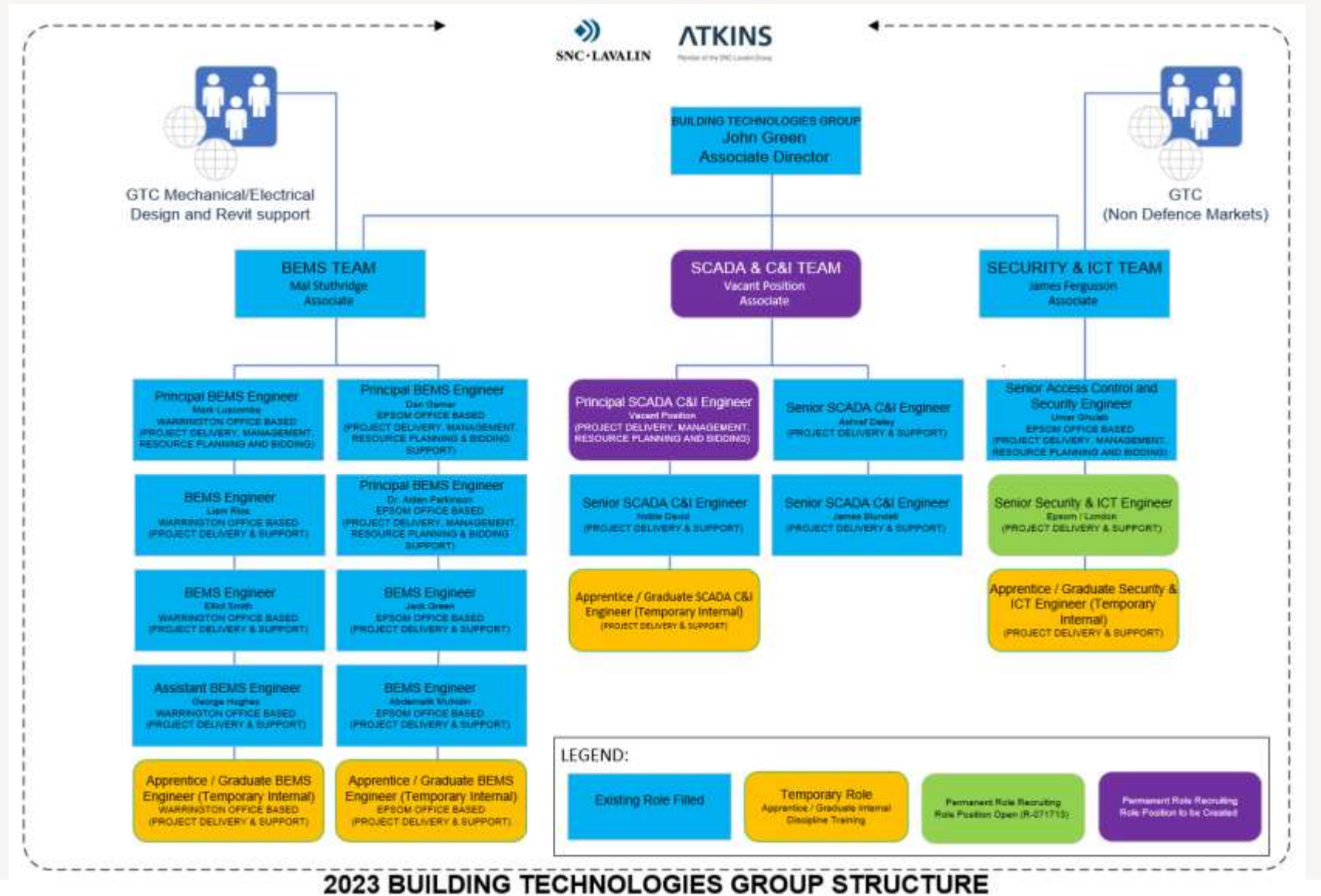
Mal was recruited early in 2019 to increase our capabilities in the North. Mal is based in our Warrington office, leads a diverse team of BEMS engineers and reports to John Green. Mal has worked in the BEMS controls industry since 1999.

James Ferguson (Associate) ICT Team Lead

James is a Chartered Engineer who has experience in design, project management and assurance roles across the disciplines of electronic security, passive and active communications. James has a strong background in client-facing roles and has successfully delivered a variety of large and small projects for the private and public sector.

Graduates and Apprentices

The Building Technologies Group have access to additional resource through our graduate and apprentice programme.



2023 BUILDING TECHNOLOGIES GROUP STRUCTURE

Artificial Intelligence in the Built Environment:

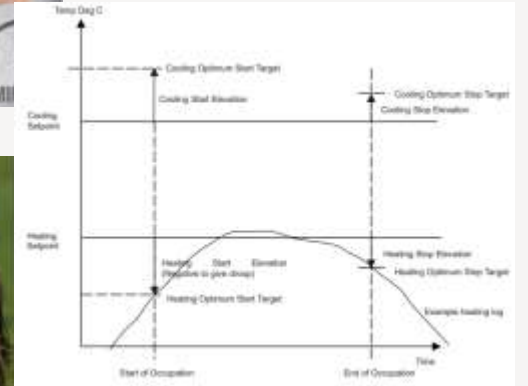
Artificial Intelligence already exists in a traditional Building Energy Management System

Optimisation

Warm Up Periods

Cool Down Periods

Intrinsic links to building occupancy time schedules



Algorithm = A set of rules used to obtain an expected output from the given input(s)



Artificial Intelligence in the Built Environment:

Artificial Intelligence already exists in a traditional Building Energy Management System

Proportional, Integral and Derivative Control – (PID Control Loops)

Temperature Control



Humidity Control



CO2 Control



Pressure Control



Demand Led Plant Control



Algorithm = A set of rules used to obtain an expected output from the given input(s)

Exploring Data Sets

Facilities: Coffee Shop, Restaurant, Gym

Journeys: Public Transport Timetables, Traffic Information, ANPR for Vehicle Parking

Building Data: Building Information Modelling (BIM), Common Data Environment (CDE), Fault Reporting, Wayfinding

Thermal Comfort: User Information, System Adjustments

Contract Performance: Reported Fault vs reaction times

Resolution: Maintenance Ticket reporting and audits, critical asset monitoring

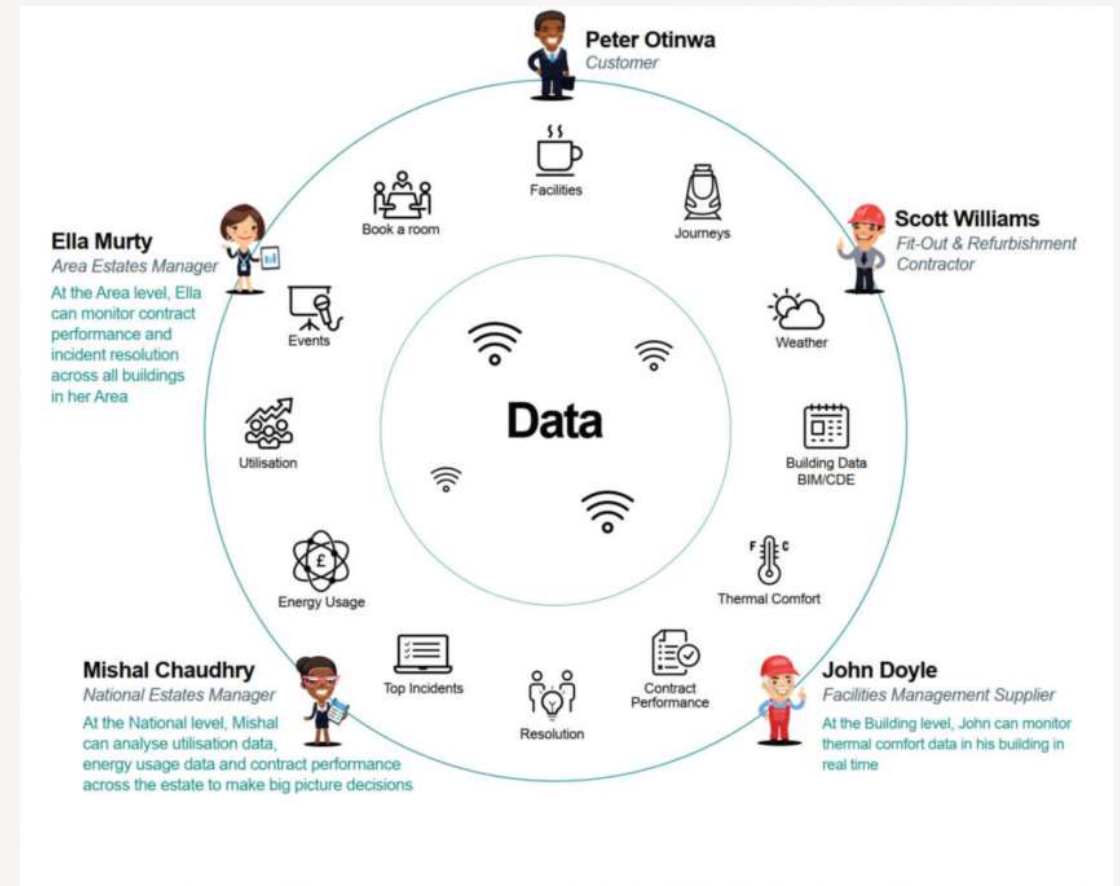
Top Incidents: Emerging plant issues

Energy Usage: Consumption Data, Abnormal Energy Use

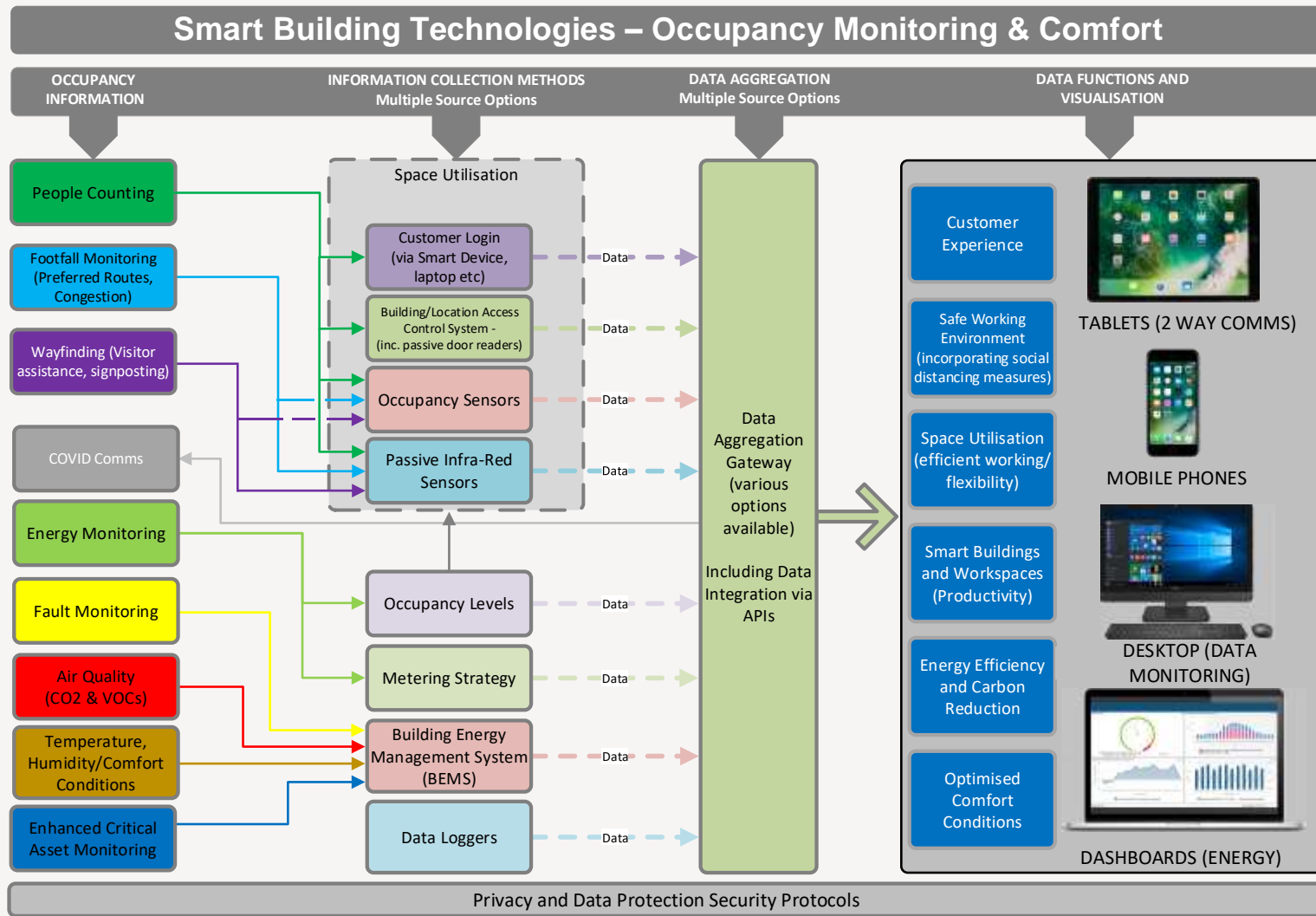
Utilisation: Space Management, Occupancy Optimisation

Events: Facilities Management engagement of fit out contractors

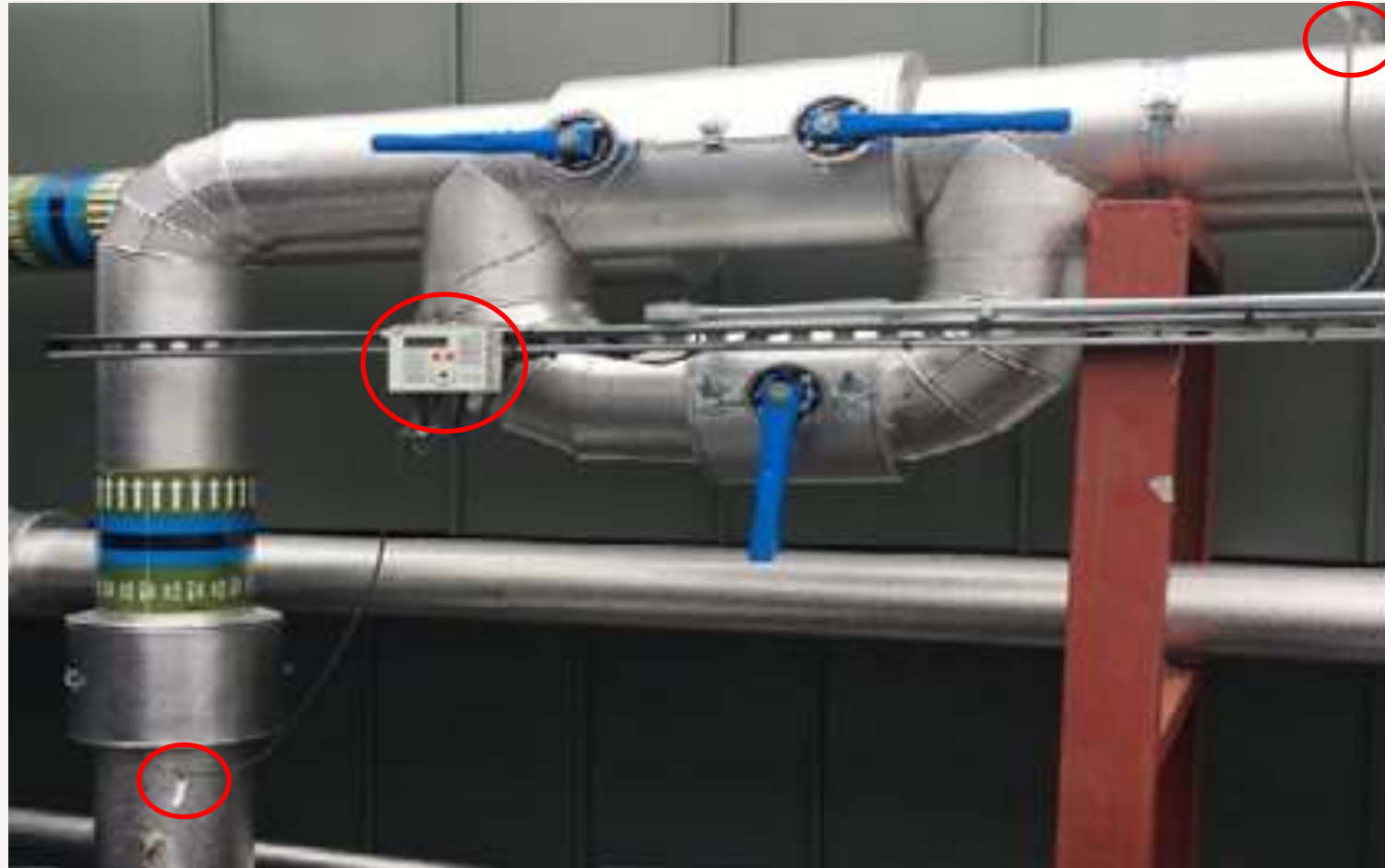
Room/Desk Booking: COVID-19 Indoor Environmental Quality, Space management/Energy Management



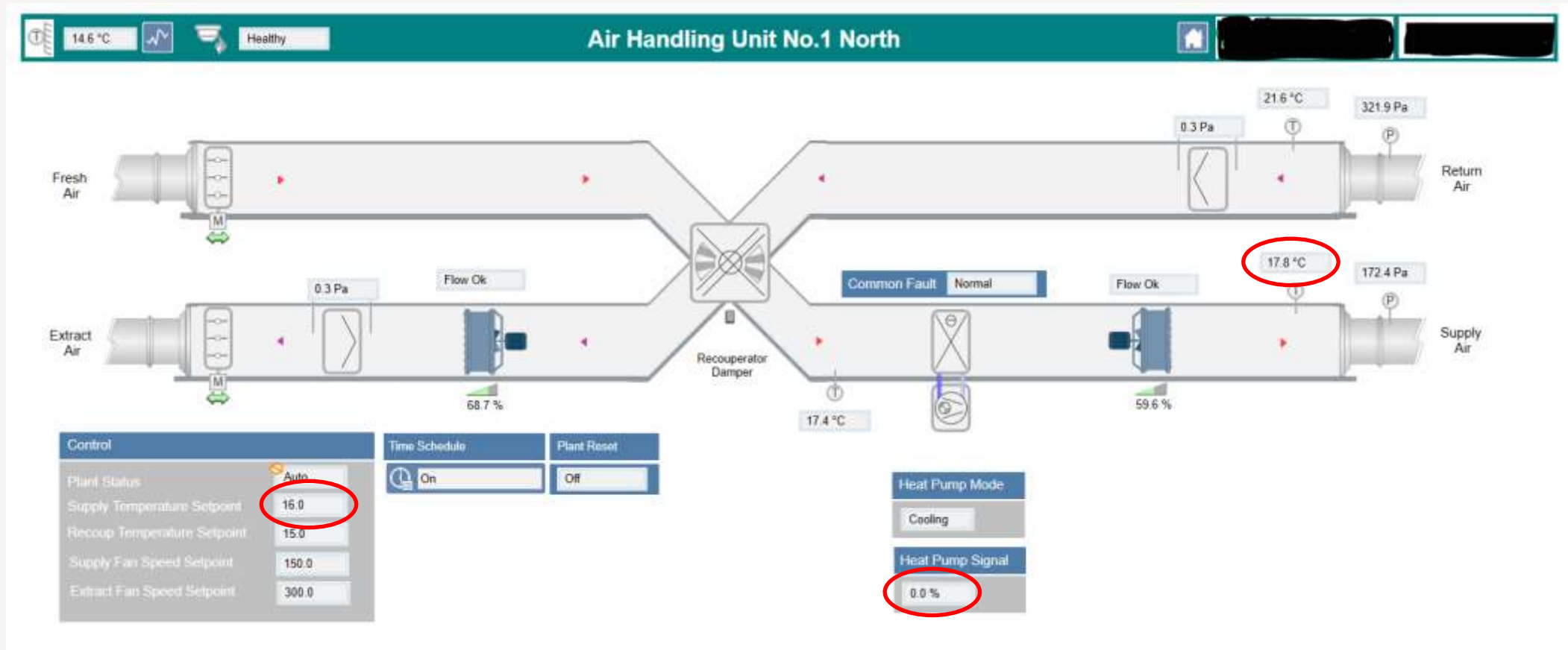
The Centralised Monitoring System



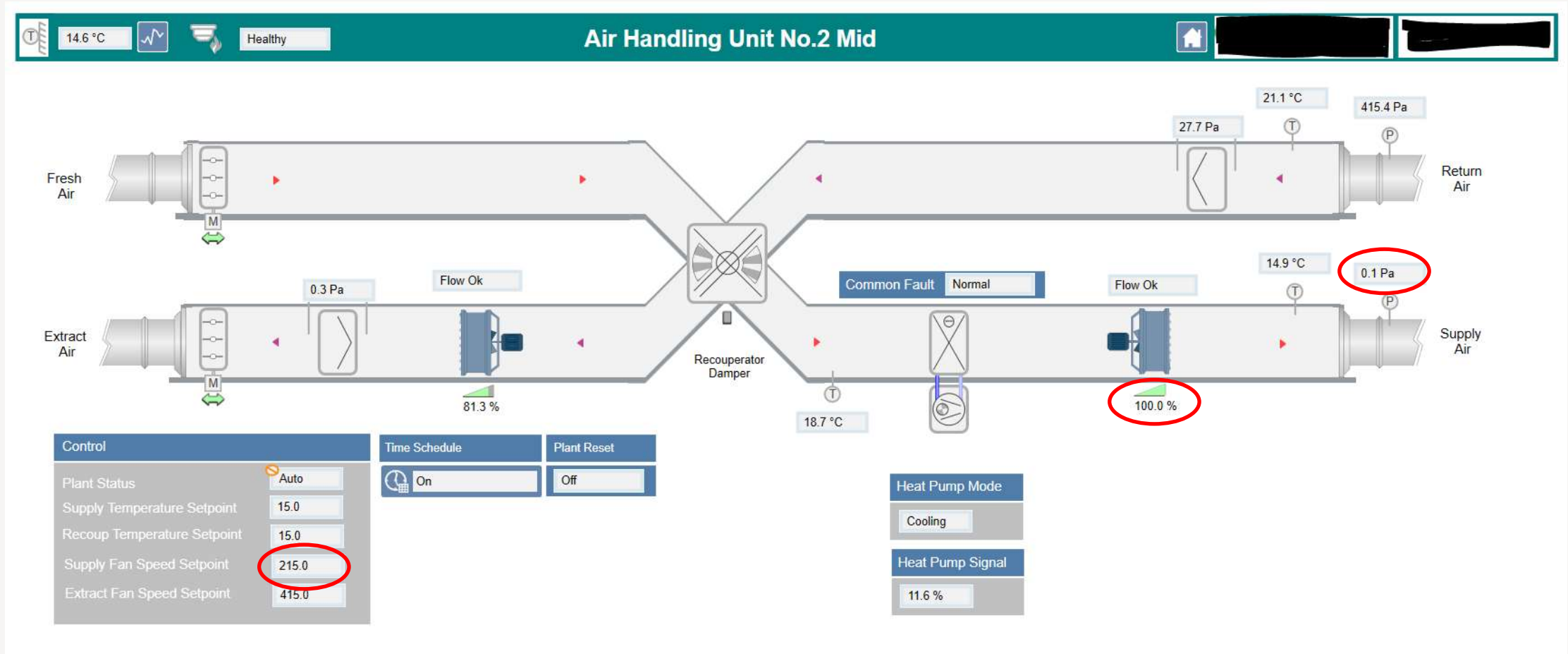
Commissioning – What Could Possibly Go Wrong



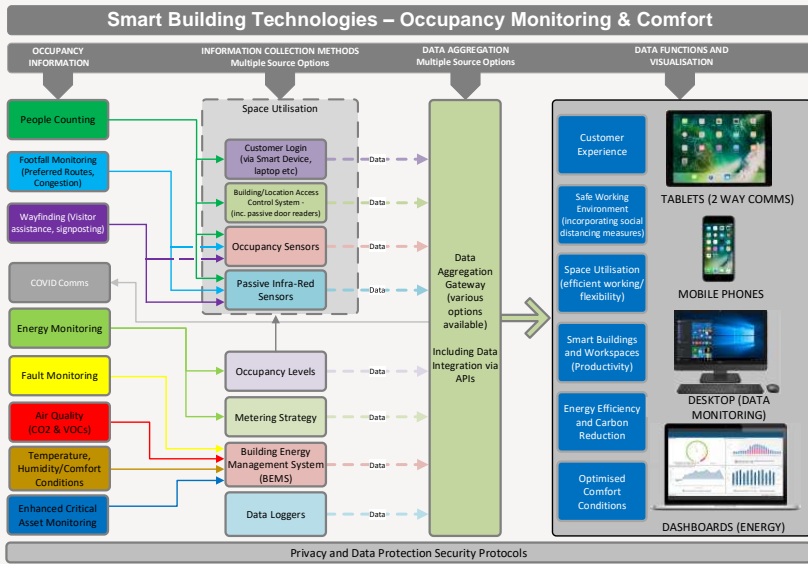
Commissioning – What Could Possibly Go Wrong



Commissioning – What Could Possibly Go Wrong



The Future of Artificial Intelligence in our Buildings



AI can make predictions using specific information

AI can run scenarios and forecast the end result



Any Questions?



*Our values are the essence of our company's identity.
They represent how we act, speak and behave together,
and how we engage with our clients and stakeholders.*

SA**F**E**T**E**T****Y**

We put safety at the heart of everything we do, to safeguard people, assets and the environment.

IN**T**E**G**R**I**T**Y**

We do the right thing, no matter what, and are accountable for our actions.

CO**L**L**A**B**O**R**A**T**I**O**N**

We work together and embrace each other's unique contribution to deliver amazing results for all.

IN**N**O**V**A**T**I**O**N

We redefine engineering by thinking boldly, proudly and differently.

