



## NHS Sustainable Solutions Conference



Welcome to the NHS Sustainable Solutions Conference!



24<sup>th</sup> September 2024  
15 Hatfields Conference Centre,  
London SE1 8DJ



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### NHS Sustainable Solutions Conference





## NHS Sustainable Solutions Conference



## Chair Opening Address



**Heidi Barnard**  
NHS Supply Chain  
Head of Sustainability



## NHS Sustainable Solutions Conference



## Keynote Presentation



**Alexandra Hammond**

Associate Director, Net Zero and Sustainable  
Supply Chain - NHS England



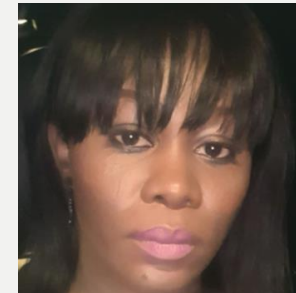
## NHS Sustainable Solutions Conference



## Net Zero Panel Discussion



**Dr Clare Winter**  
Head of Sustainability -  
Northumbria Healthcare  
NHS Foundation Trust



**Ms Mary Aladegbola**  
Senior Net Zero  
Technical Energy  
Lead - NHS England



**Jonathan Guppy**  
Sustainability Manager - South  
Central Ambulance Service  
NHS Foundation Trust



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Main Sponsor





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## Keynote Presentation



**Michael Crichton**  
Business Development Manager  
PoGo Charge





Road to Net Zero: Time to Take Charge

Michael Crichton

TOUCH TO START

Michael Crichton



**Michael Crichton**

Business Development Manager

e: [Michael.Crichton@pogocharge.com](mailto:Michael.Crichton@pogocharge.com)

t: 07971 005 040

PoGo Charge



# Agenda

Challenges

Decarbonisation

Benefits

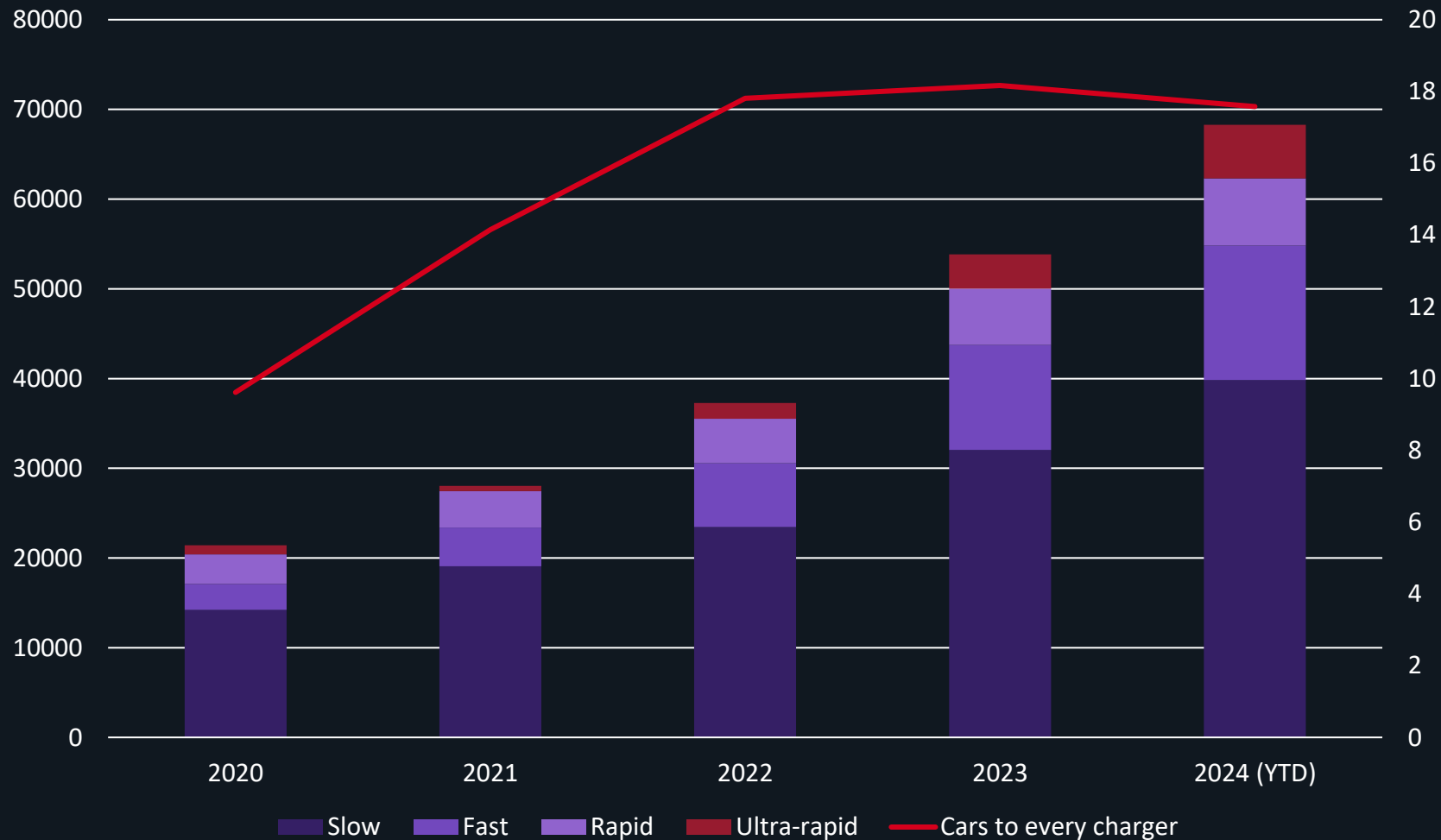
How many of you  
drive an electric  
vehicle?

Question

How many of you  
have ever used  
public charging?

Question

# Charging Market



Number of public UK charging points by speed

Source: Zapmap database. Updated: 31st August 2024

## Top 3 Challenges

POWER

TRAFFIC

ACCESS



## Top 3 Challenges

### POWER

Ultra-rapid charging units will have their own substation so won't impact any existing power supplies.

### TRAFFIC

### ACCESS

## Top 3 Challenges

**POWER**

**TRAFFIC**

Strategically placed chargers to ensure use by customers, not increasing traffic to site.

**ACCESS**

## Top 3 Challenges

POWER

TRAFFIC

ACCESS

Accessibility is a critical component of an EV installation – both physical (site design) and digital (payment options)

Carbon Offsetting  
Benefits

Decarbonisation  
Site Example

CO2  
Emissions  
saved

Delivering an  
estate wide Net  
Zero plan

Carbon  
offsetting

Decarbonisation  
Site Example

CO2  
Emissions  
saved

Delivering an estate  
wide Net Zero plan

Carbon  
offsetting

Delivering an  
estate wide Net  
Zero plan

Decarbonisation  
Site Example

CO2 Emissions  
Saved

# Decarbonisation Site Example: Public charging

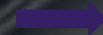
3 x 200kW  
Ultra-Rapid  
Chargers



54 Ultra Rapid  
Sessions  
Avg 1 hour

Monthly  
**117.16**  
tons CO2

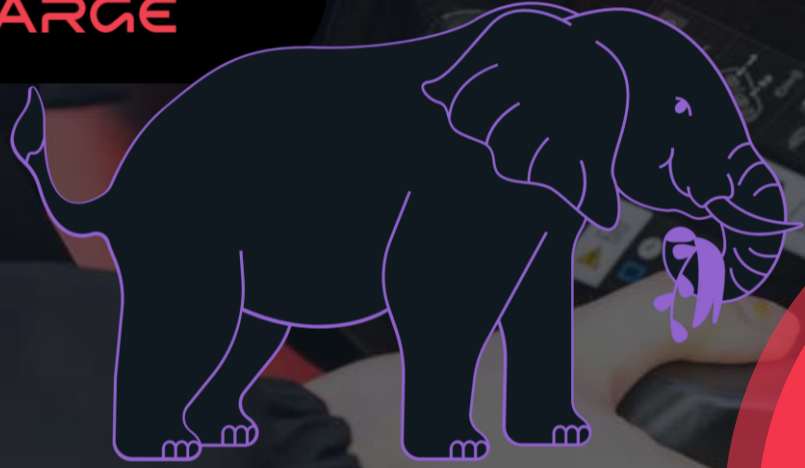
3 x 7kW AC  
Chargers



30 AC Sessions  
Avg 5 hours

Annual  
**1,405.9**  
tons CO2

10 Years  
**14,059.05**  
tons CO2



## Decarbonisation Site Example

2,583 Elephants  
equivalent of CO<sub>2</sub>e  
Saved/10 years

Monthly  
**117.16**  
tons CO<sub>2</sub>

Annual  
**1,405.9**  
tons CO<sub>2</sub>

10 Years  
**14,059.05**  
tons CO<sub>2</sub>





NET ZERO  
TARGETS

99%  
UPTIME

## Top 5 Benefits

FUTURE  
PROOF

FULLY  
FUNDED

GENERATE  
REVENUE

## NET ZERO

Reach your Net Zero targets by reducing CO2 emissions and supporting the UK's Net Zero targets.

99%  
UPTIME

FUTURE  
PROOF

FULLY  
FUNDED

GENERATE  
REVENUE

NET  
ZERO  
TARGET

FUTURE  
PROOF

FULLY  
FUNDED

99% UPTIME

Regulation stipulates chargers must be working 99% of the time to improve user experience.

GENERATE  
REVENUE

NET  
ZERO  
TARGET

99%  
UPTIME

## FUTURE PROOF

Best-in-class charging units that  
can be upgraded without  
requiring new charging units.

FULLY  
FUNDED

GENERATE  
REVENUE

NET  
ZERO  
TARGET

99%  
UPTIME

FUTURE  
PROOF

## FULLY FUNDED

PoGo Charge fund the full solution, from design through to install and maintenance.

GENERATE  
REVENUE

NET  
ZERO  
TARGET

99%  
UPTIME

FUTURE  
PROOF

FULLY  
FUNDED

**GENERATE  
REVENUE**

Additional revenue stream to  
maximise opportunity and value  
from every space.



Q&A



## NHS Sustainable Solutions Conference



# Refreshments & Networking





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## Chair Opening Address



**Heidi Barnard**  
NHS Supply Chain  
Head of Sustainability



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## Case Study...



**inenco**  
Better Business Greener World



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## NHS Sustainable Solutions Conference



## Case Study



**Beth Fleetwin**

Senior Account Manager - Inenco

# How to craft an effective Heat Decarbonisation Strategy



**inenco**  
Better Business Greener World



# Contents

- What is a Heat Decarbonisation Strategy?
- Opportunities and potential pitfalls
- Funding
- The importance of the right data

# What is a Heat Decarbonisation Strategy?

*An overarching strategy document detailing your knowledge of your sites, plantroom by plantroom, your identified gaps in knowledge, and your current action plan to decarbonise heat across your sites to meet your declared Net Zero targets.*



Data



Consulting



Strategy



Action



Reduction

# Opportunities

1. Increased understanding of your estate
2. Better informed backlog maintenance scheduling
3. Ability to spread costs over time and budget effectively
4. Optimise timescales for implementation to minimise costs
5. Knowing what you don't know, and risks to reaching Net Zero
6. Board signoff

# Potential Pitfalls

1. Unreliable data misinforming strategy
2. Failing to achieve targets in Action Plan due to gaps in knowledge or risks manifesting
3. Timescale issues with plant lifespan and availability of new technologies / enabling works

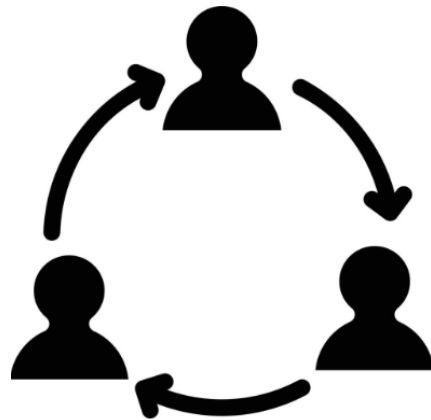


# Funding

**Low Carbon Skills Fund**



**Internally Resourced**



**Annually Budgeted**

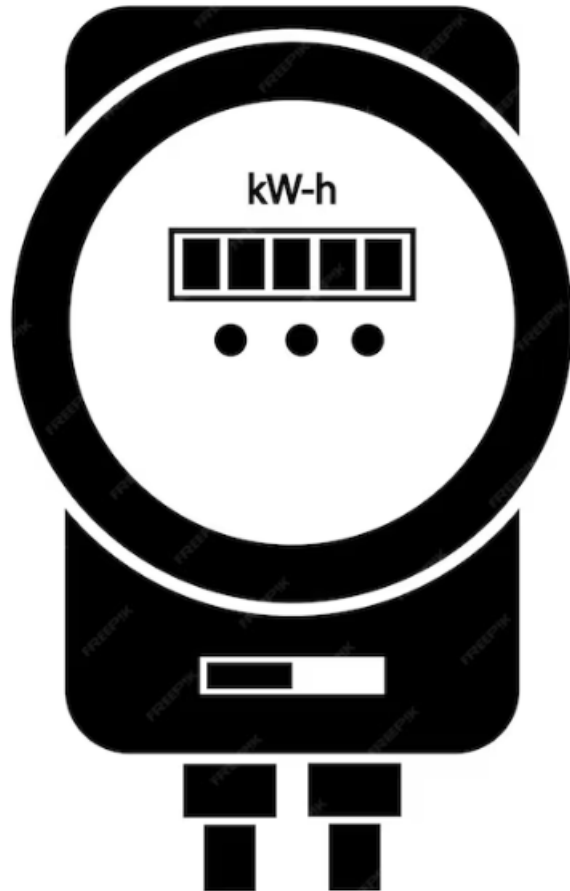


**Public Sector Decarbonisation Scheme**



# Data

## Sub-Metering



## HH Data Analysis



## Measurement & Verification



# Any questions?

Bethany Fleetwin

Senior Account Manager – NHS Specialist

07583 107241

[Bethany.Fleetwin@Inenco.com](mailto:Bethany.Fleetwin@Inenco.com)



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## Case Study

**EPSON®**



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## Case Study



**Taran Rai**

Corporate Sustainability  
Manager - Epson UK Ltd

September 24th 2024

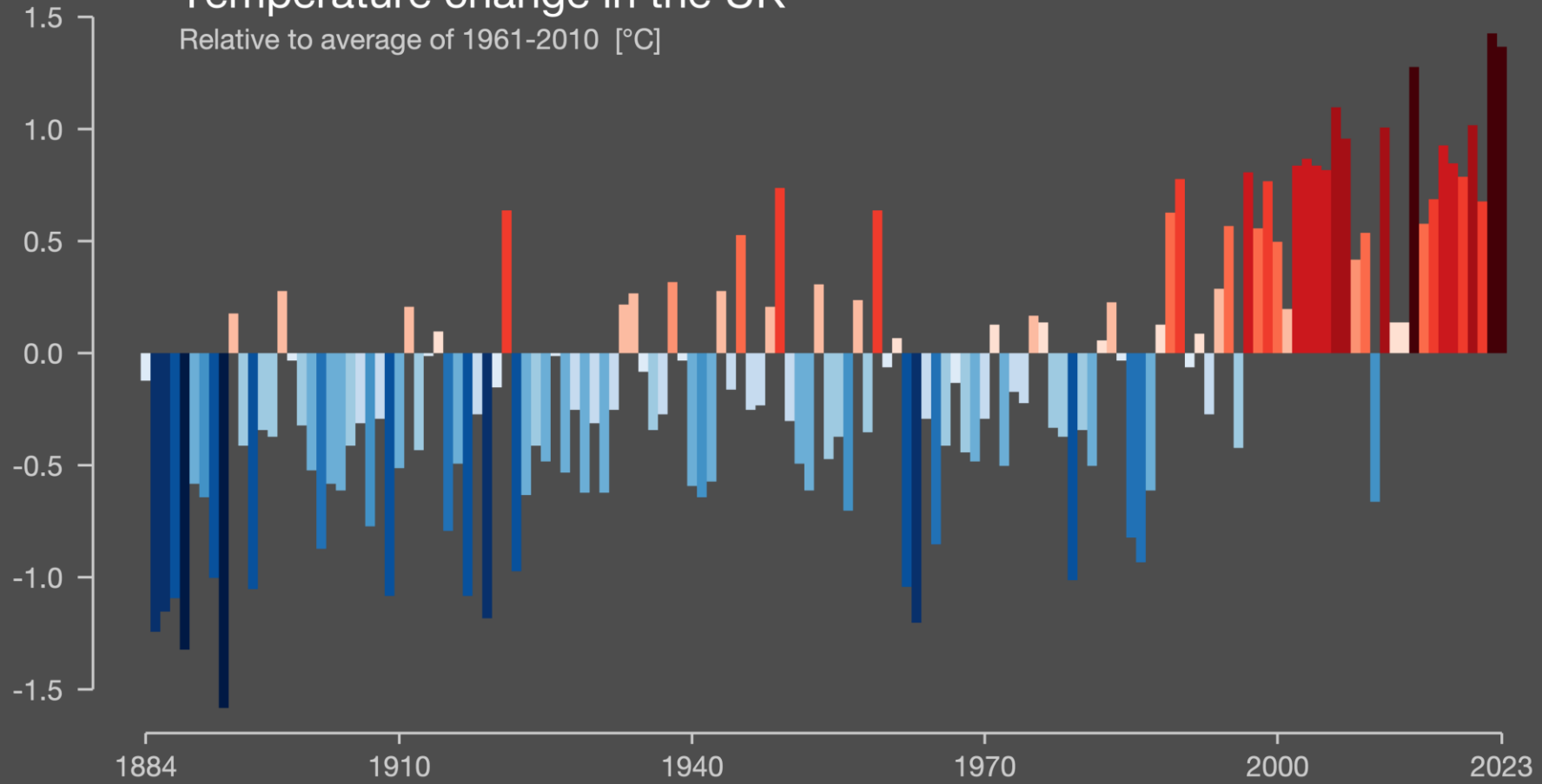
# Epson - Sustainability and Environmental Excellence

Presented By  
Taranpreet Rai



# Temperature change in the UK

Relative to average of 1961-2010 [°C]





# Our global sustainability vision

**2008**



Established our global Environmental Vision 2050

**2018**



Revised Environmental Vision 2050

**2023**



Commitment to using 100% renewable electricity

**2025**

Epson 2025 Renewed Environmental Vision

**By 2030**

Reduce the total emissions of our products and services

**By 2050**

Epson aims to become carbon negative and underground resource free by 2050 to achieve sustainability and enrich communities

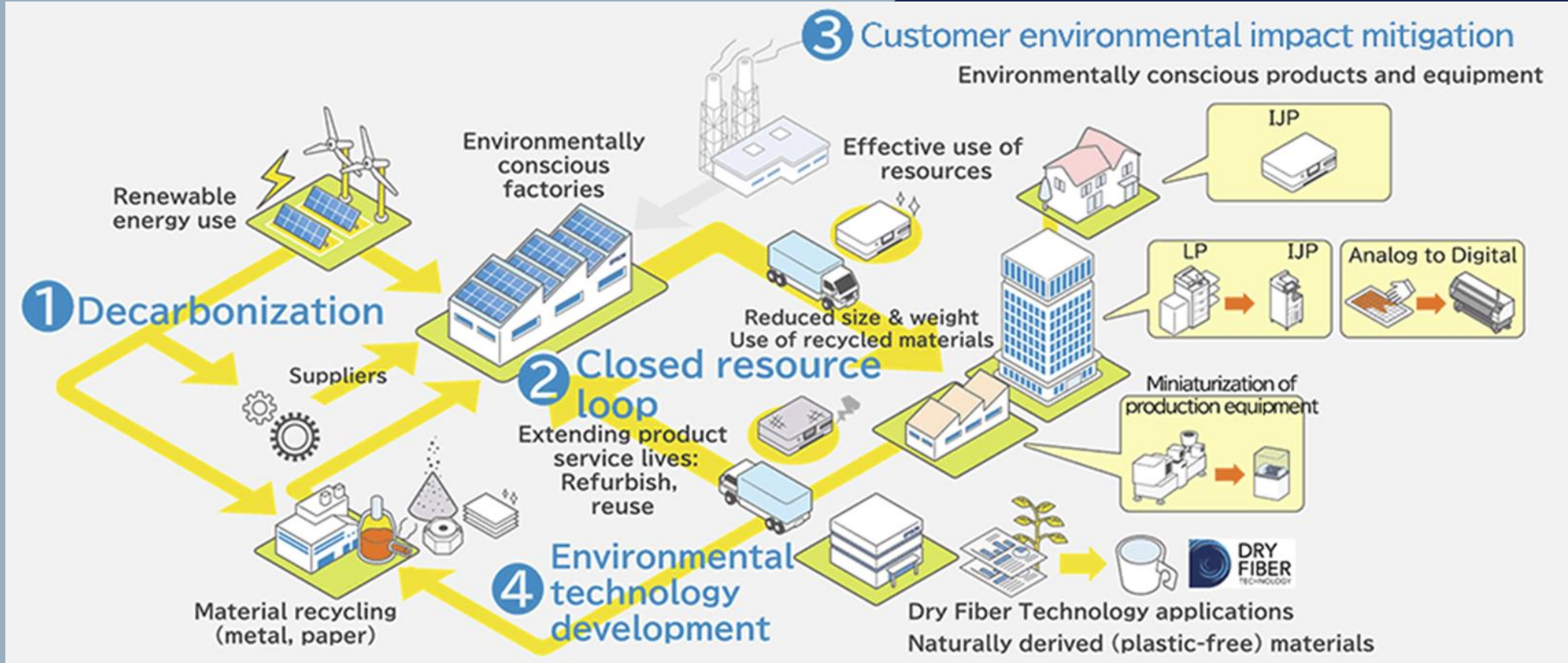
# Epson's 2025 Renewed Strategy

**PRINT IT AWARDS** 2023

PrintIT Award: Environmental Excellence

**EPSON**<sup>®</sup>

★★★★★ WINNER ★★★★★



# Epson 25 renewed



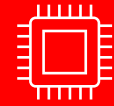
DECARBONISATION



CLOSED RESOURCE  
LOOP



CUSTOMER  
ENVIRONMENTAL  
IMPACT MITIGATION



ENVIRONMENTAL  
TECHNOLOGY  
DEVELOPMENT

# Epson 25 renewed



## DECARBONISATION

Understand the impact of our business activities under Scopes 1, 2 and 3 and introduce changes to optimise and reduce emissions

CLOSED RESOURCE  
LOOP

CUSTOMER  
ENVIRONMENTAL  
IMPACT MITIGATION

ENVIRONMENTAL  
TECHNOLOGY  
DEVELOPMENT

# Epson 25 renewed

DECARBONISATION



CLOSED RESOURCE  
LOOP

Adopt a circular economy  
by reducing the amount of  
waste produced, and  
recycling resources

CUSTOMER  
ENVIRONMENTAL  
IMPACT MITIGATION

ENVIRONMENTAL  
TECHNOLOGY  
DEVELOPMENT

# Epson 25 renewed

DECARBONISATION

CLOSED RESOURCE  
LOOP



CUSTOMER  
ENVIRONMENTAL  
IMPACT MITIGATION

Create products that support our customers as they continue operations whilst minimising their environmental impact

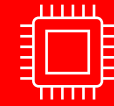
ENVIRONMENTAL  
TECHNOLOGY  
DEVELOPMENT

# Epson 25 renewed

DECARBONISATION

CLOSED RESOURCE  
LOOP

CUSTOMER  
ENVIRONMENTAL  
IMPACT MITIGATION



ENVIRONMENTAL  
TECHNOLOGY  
DEVELOPMENT

Innovate and work with our customers to co-create new solutions that can contribute to closing the resource loop



## THE GLOBAL GOALS



# The 17 Sustainable Development Goals

The Sustainable Development Goals (SDGs), are a set of 17 integrated and interrelated goals to end poverty, protect the planet and ensure that humanity enjoys peace and prosperity by 2030.

Epson Europe have become the first company in the industry to gain an international certification for alignment between our CSR systems and The Sustainable Development Goals

CSR Management System  
aligned with the Sustainable  
Development Goals  
**BUREAU VERITAS**  
Certification





# The Pillars and Strategies of Sustainability



# 100% Renewable Energy & Piezo Technology

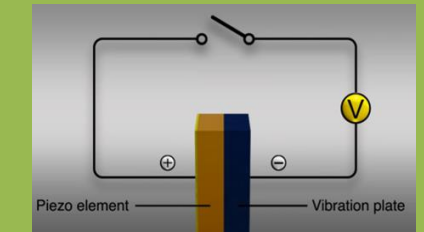
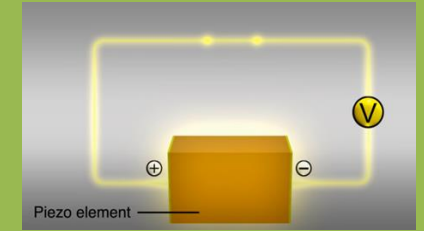
## Sustainable Infrastructure Development:

- Implementing energy-efficient systems in healthcare facilities.
- Integrating renewable energy sources for sustainable power supply.



## Epson Transitions to 100% Renewable Electricity at All Group Sites Worldwide

- Epson becomes the first in the Japanese manufacturing industry to fully transition to 100% renewables -



## Deliver Energy Efficiency:

- Help deliver energy efficiency to customers so sustainability goals can be achieved.
- Move away from non-renewables and prioritise the energy transition



Renewable electricity vs grid mix FY15-22 for Epson European regional headquarters (EU6)

From FY20, when our EU6 offices switched to 100% renewable electricity, our total electricity consumption reduced.



### Waste Reduction and Management:

- Strategies for minimising medical and non-medical waste.
- Promoting recycling initiatives and waste segregation practices.

**NHS**

### Epson 360:

- Optimise use of resource through a circular economy philosophy.
- Encourage circularity among stakeholders through accessibility and innovation.

**EPSON**

# Closing the Resource Loop



**Cartridge recycling**



**Cartridge - free printers**



**Extended Warranty**



**Marketing Guidelines**



**Use, Use, Reuse ideology**

### Eco-Friendly Procurement Practices:

- Sourcing environmentally friendly products and equipment.
- Establishing sustainable supply chain partnerships and policies.

**NHS**

### Sustainable Stakeholder Communication

- Work with stakeholders to implement sustainable practices within supply chains.
- Continuously measure sustainability performance to lead suppliers by example

**EPSON**

### ECOVADIS

We have achieved a Gold EcoVadis rating, falling in the top 1% of companies for Environment and Sustainable Procurement

### SUPPLIER ASSESSMENTS

Our suppliers complete self-assessments - we then engage with high-risk suppliers to help them improve through onsite verification and audits.

### RESPONSIBLE BUSINESS ALLIANCE

Epson is a member of the Responsible Business Alliance which promotes CSR in global supply chains. We have adopted the RBA's code of conduct and methodologies into our management practices.

### CONFLICT MINERALS ANALYSIS

The Epson Group Responsible Minerals Procedures Standard is a global internal survey programme conducted throughout our supply chain, ensuring that our products contain responsibly sourced minerals

# Sustainable Logistics



## Green Healthcare Operations:

- Reducing the carbon footprint of healthcare operations.
- Implementing eco-friendly transportation and logistics solutions

**NHS**



## Optimise Sustainable Logistics

- Measure and reduce carbon emissions within the supply and value-chain.
- Work with stakeholders to create innovative solutions.

**EPSON**

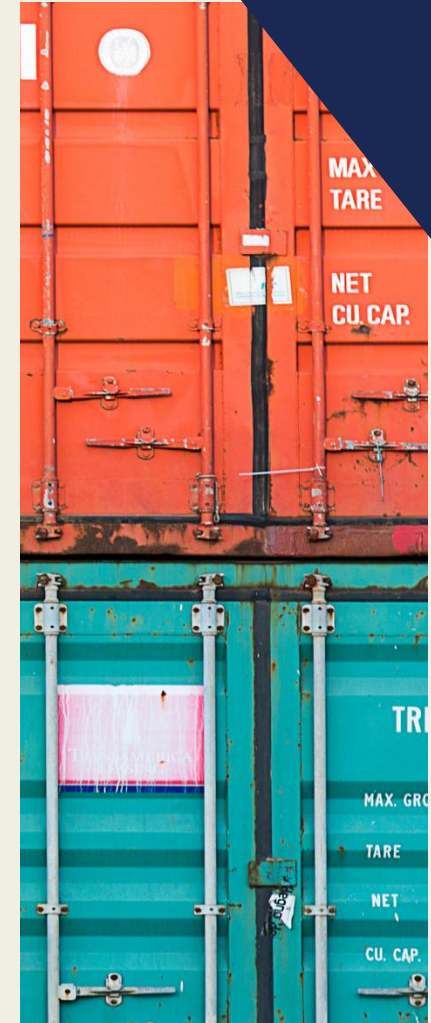
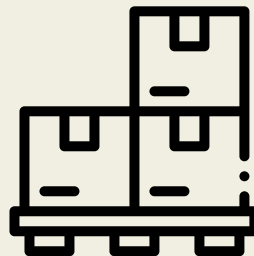
## Container Tracking



## Packaging Development



## Pallet Optimisation



## Earth Hour x Epson



### Promoting a Culture of Sustainability:

- Educating and engaging healthcare professionals in sustainable practices.
- Encouraging patient involvement in environmental conservation efforts.

**NHS**

### Achieving Business Responsibility:

- Advocating for Sustainability to encourage sustainable best practice and encourage stakeholder engagement.

**EPSON**

**60**  
EARTH  
HOUR

## Human Milk Foundation



**hmf**  
HUMAN MILK  
FOUNDATION

# THANK YOU



**Responsible Business Alliance**

Advancing Sustainability Globally



FTSE4Good



SCIENCE  
BASED  
TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

MSCI  
ESG RATINGS



CCC B BB BBB A AA **AAA**

CSR Management System  
aligned with the Sustainable  
Development Goals

**BUREAU VERITAS**  
Certification



**EPSON®**



## NHS Sustainable Solutions Conference



## Keynote Presentation



**Dr Rumina Önaç**

GP, RCGP Climate & Sustainability Lead (Humber & the Ridings), and Co-Chair of York & North Yorkshire Greener Practice - Old School Medical Practice, York





## NHS Sustainable Solutions Conference



## Case Study





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## Case Study



**Simon Hayman**  
Regional Director  
Equans UK & Ireland



## Achieving Net Zero

Equans Collaborative  
Approach & Preparing for  
Future Pathways for NHS PFI  
Contracts

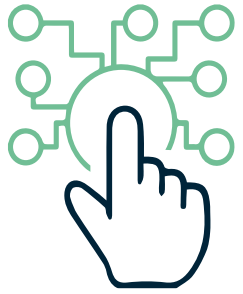
Simon Hayman

Regional Director, Equans UK & Ireland

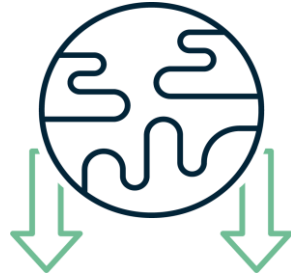


# Collaboration:

## Priorities



**Digitalisation**



**Decarbonisation**



**Climate  
Resilience/  
Adaptation**



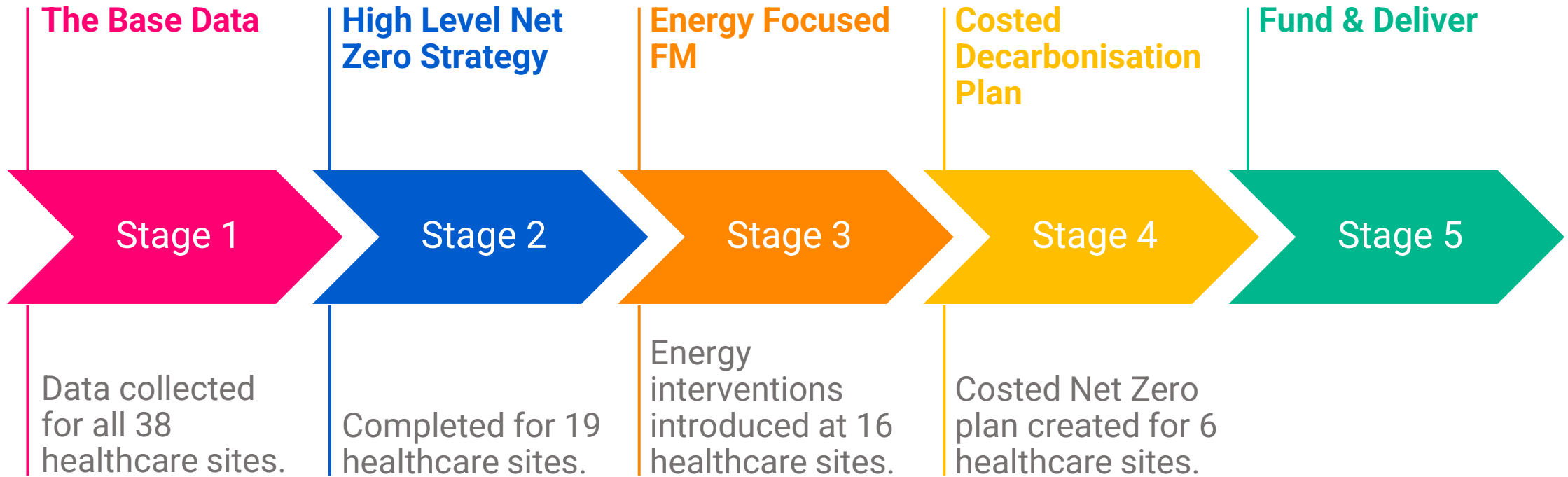
**Funding**



**Staff recruitment  
& retention**

# Decarbonisation of PFI Hospitals

EQUANS 5 stage strategy - encompassing the IPA's 5 stage strategy of  
*Data First / Know your Contract / Engage Stakeholders / Prioritise / Make a Plan*



# Decarbonisation of PFI Hospitals

## Base Data



**£27M**  
annual gas spend (C 600 boilers)



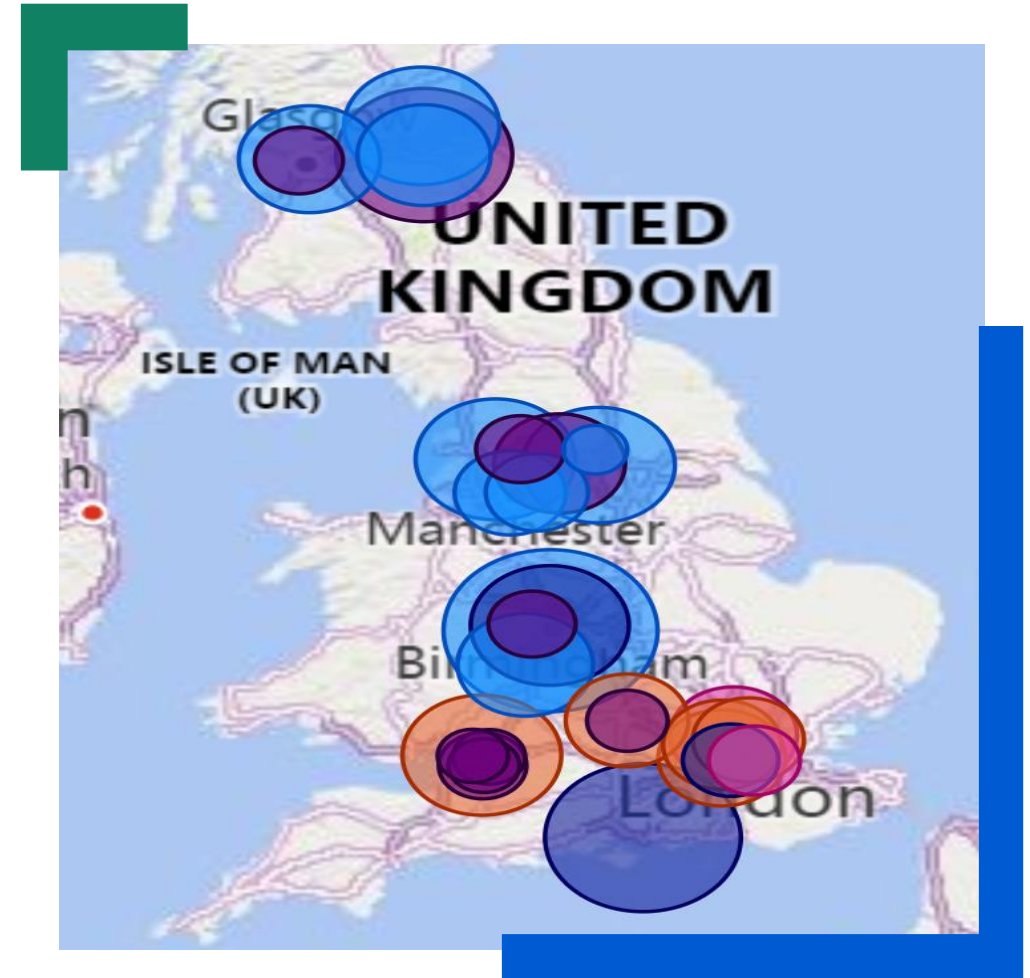
**150kt CO2e**  
Equivalent to Sheffield City Council's  
annual emissions



**£1.4B**  
Estimate to decarbonise



**7 Hospitals**  
2/3 of estimate



# District Heating Networks



Outline Business Case has been approved by OPDC Investment Committee and GLA.



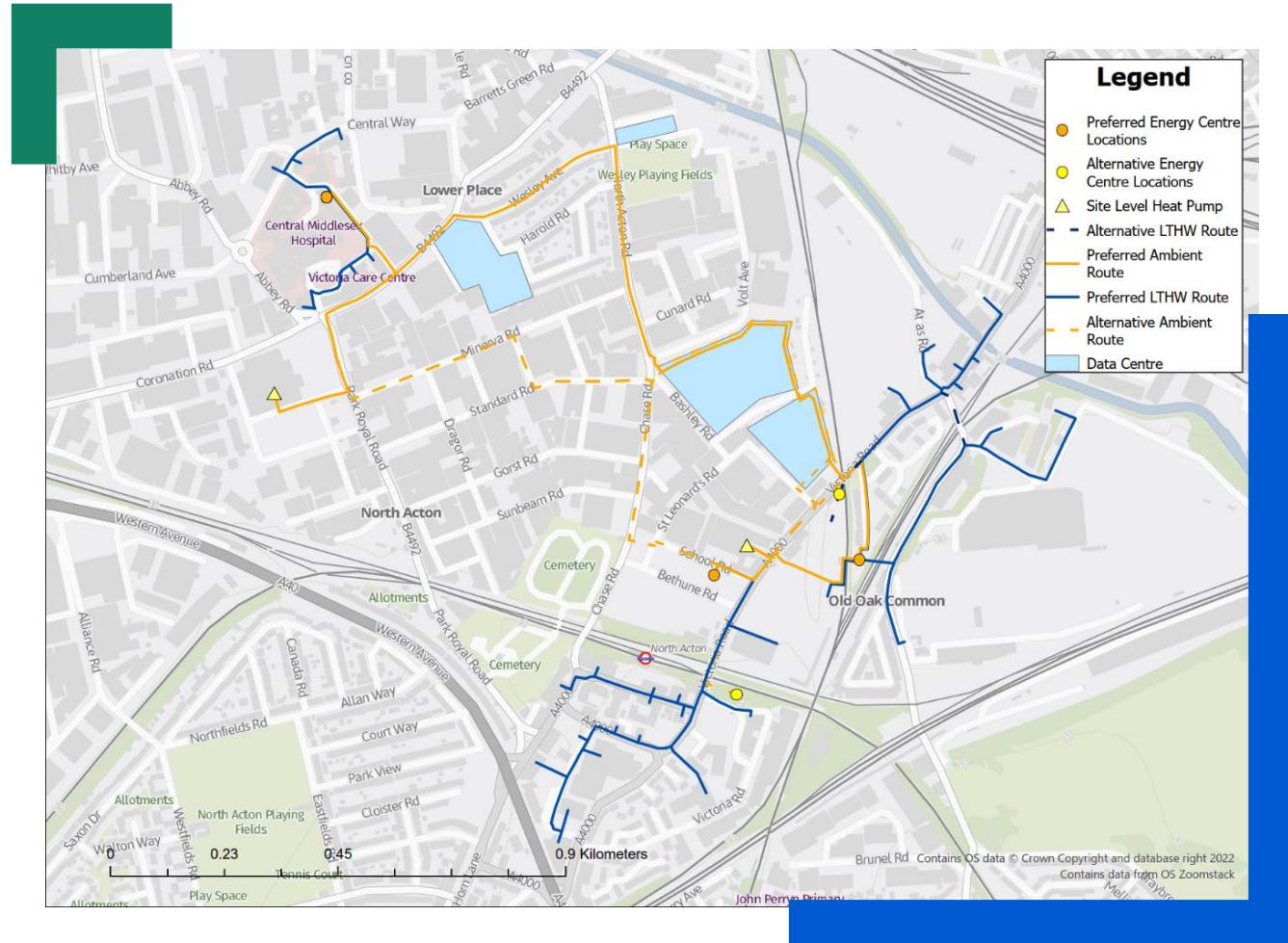
Application to Green Heat Network Fund successful, funding to commercialise and a contribution to construction awarded.



Procurement of a Development and Funding Partner has been launched and bids are now being evaluated.



Non-Binding Heads of Terms now agreed.





# Digitalisation

**Smart Hospitals:** Bouygues UK is currently constructing a cutting-edge eye care, research, and education centre in Camden called Oriel. Drawing on a decade of experience in delivering Smart Hospitals, Plan Group's lessons learned are being applied to ensure the successful delivery and integration of smart technology into this project.

**Leak Detection:** Analysing trends

**'Retro' BIM:** EQUANS is surveying existing Hospitals.

## Digital Landscape:

- Centralising the best of digital tools
- No one repository for FM Asset Data



# Integrated Renewable Energy

## Cambridge University Hospital

### Renewable Microgrid Power Purchase Agreement

Equans conceived, designed, developed and delivered a solar carport microgrid solution with a private wire connection to Addenbrookes Hospital.

A bi-directional Power Purchase Agreement between Cambridgeshire County Council and Cambridge University Hospital enables both parties to maximise revenues and reduce carbon emissions.

**2.3MW  
Solar Capacity**

**2km 11kV  
Private Wire**

**Rapid Future expansion of EV  
Chargers**

**Long-term Revenue to  
Cambridgeshire**

**Energy Cost Reduction to CUHT**



# Energy Saving Leaflet

**What:** Worked in collaboration with North Middlesex University Hospital to produce an 'Energy Guidance' leaflet

**Who for:** Key Workers

**Why:** To provide energy saving guidance at start of cost-of-living crisis

## Expected outcome:

- Raise Awareness
- Empower decision making
- Behavioural change



# Future Services: Post PFI

## Post PFI

EQUANS delivers sustainable facilities management through integrated facilities management and maintenance services to support the demands of your organisation and help you provide a safe and inspirational environment within workplaces and across local communities.

### Services



Facilities Management



Digitalisation

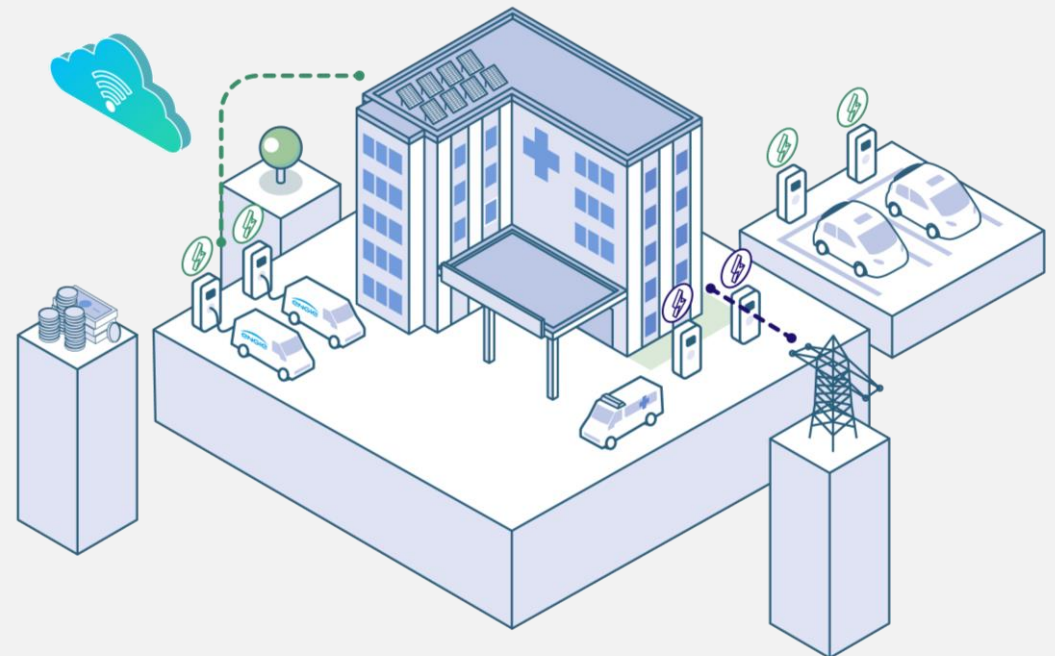


Climate



Staff

### Healthcare: 38 Hospitals managed

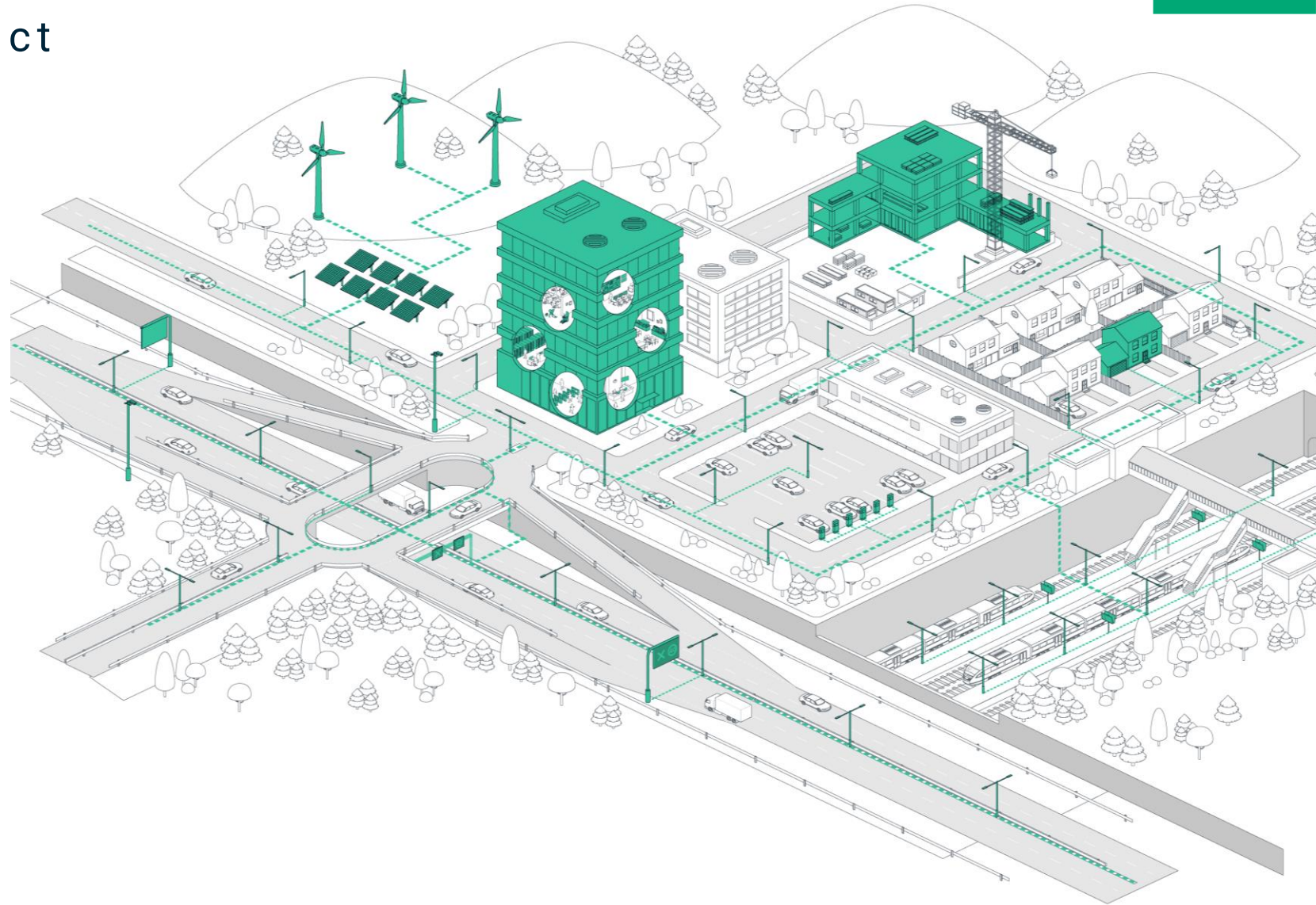


# SMARTR

## EQUANS in-house product

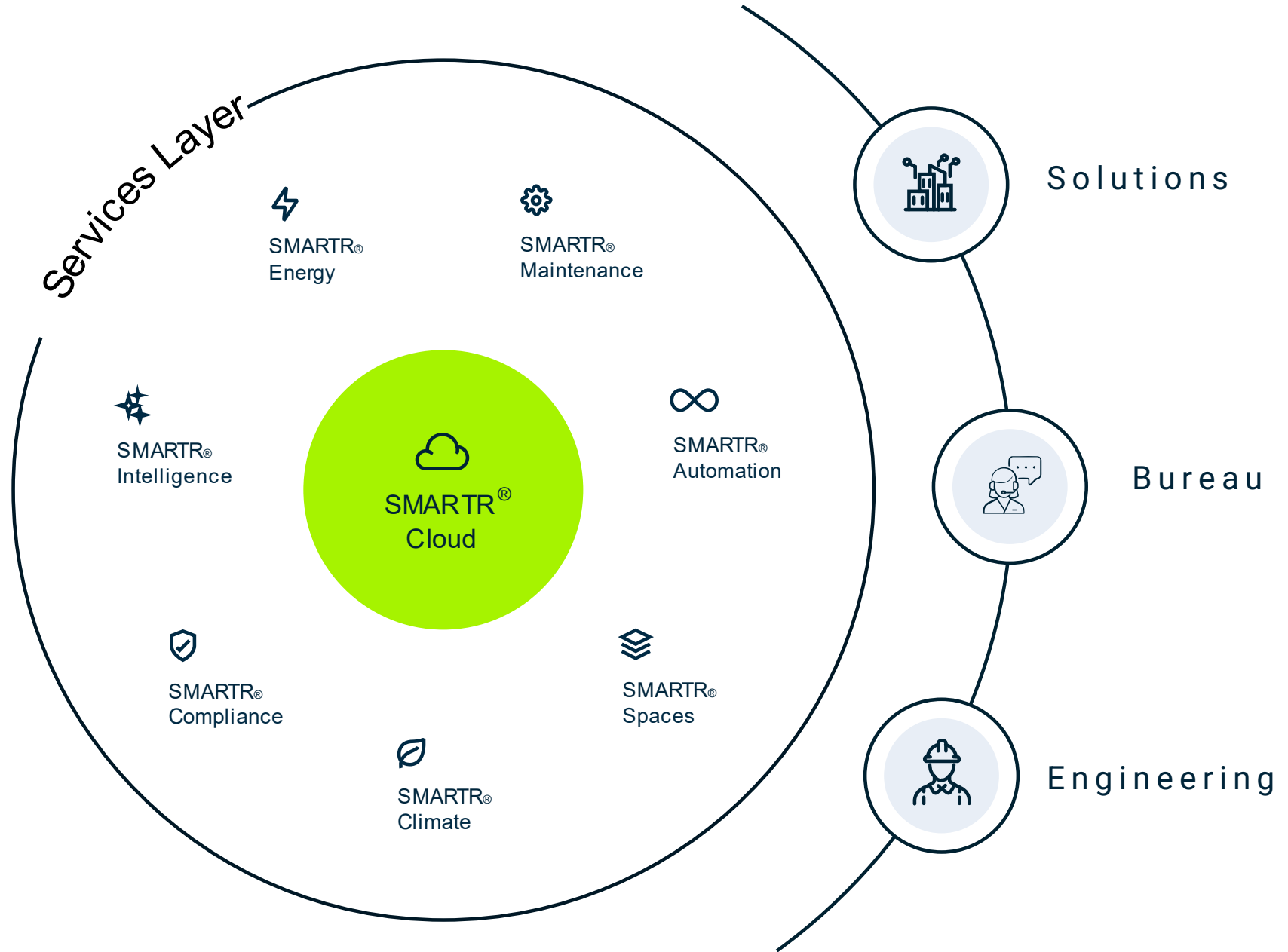
SMARTR forms the platform that both consolidates and optimises building performance, combines operational data to positively impact the NHS' goals, and positions a full suite of Healthcare solutions to the UK market.

**SMARTR**   
an offer from **EQUANS Digital**



# SMARTR

## Product Landscape







## NHS Sustainable Solutions Conference



# Lunch & Networking





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## Chair Opening Address



**Heidi Barnard**  
NHS Supply Chain  
Head of Sustainability



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## Case Study

**PENTAX<sup>®</sup>**  
**MEDICAL**



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## Keynote Presentation



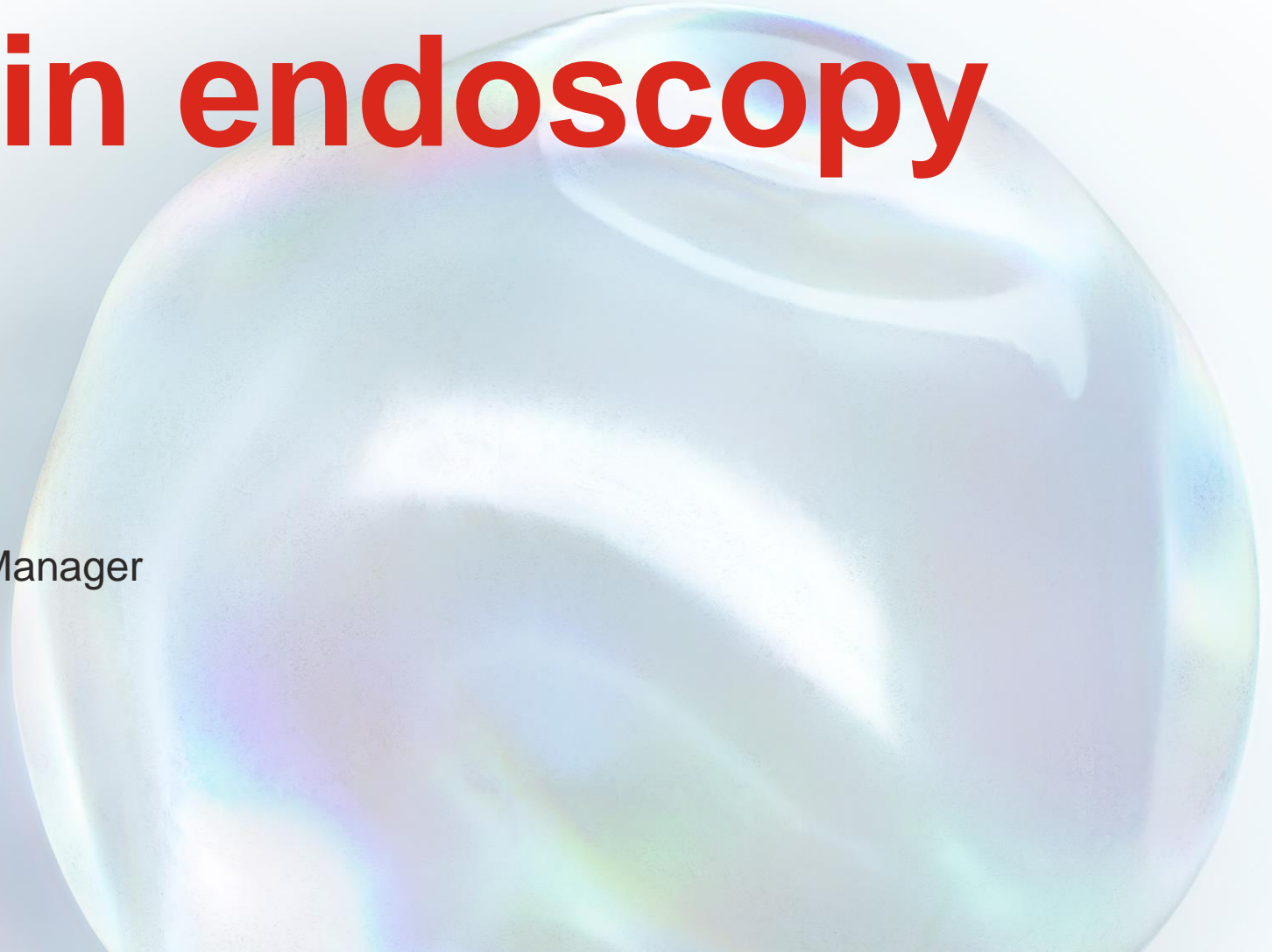
**Paul Whittle**  
Market Access Manager  
Pentax Medical UK

# PENTAX Medical UK

## Partners in endoscopy

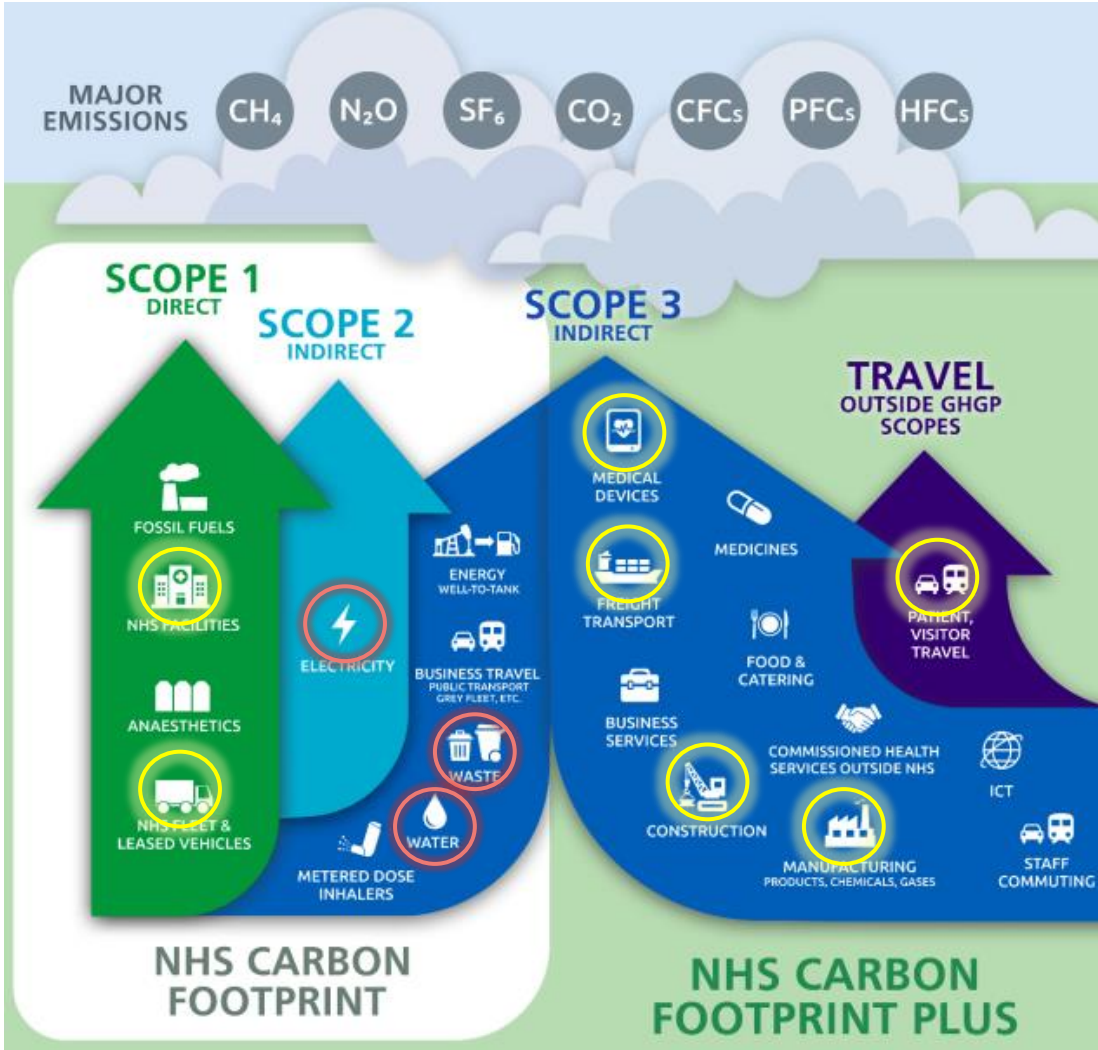
Paul Whittle  
Market Access & Communications Manager

[paul.whittle@pentaxmedical.com](mailto:paul.whittle@pentaxmedical.com)



# Suppliers or Partners

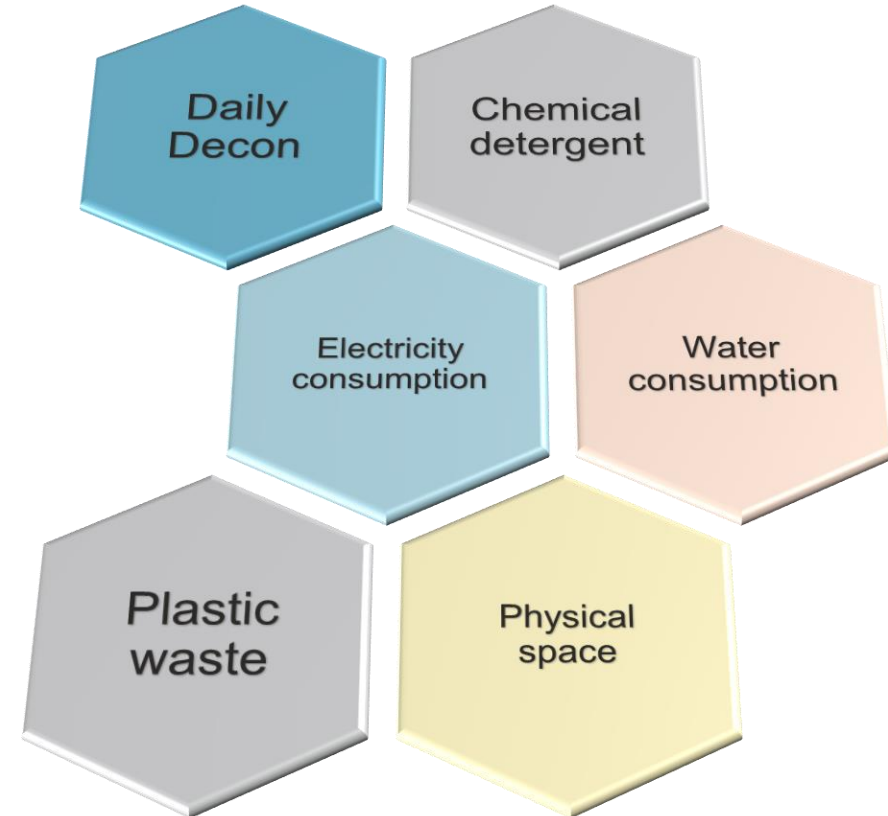
- APRIL 2023** — All contracts above £5 million will require suppliers to publish a CRP for their UK Scope 1 and 2 emissions as a minimum (building on PPN 06/21).
- APRIL 2024** — All suppliers will be required to publish a CRP, irrespective of contract value. Suppliers will need to include their UK Scope 1 and 2 as a minimum.
- APRIL 2027** — All suppliers will be required to publicly report targets and publish a CRP aligned to the NHS net zero target, for Scope 1, 2 and 3 emissions.



# Sustainable lifecycle of an Endoscope

Looking beyond the device

**PENTAX MEDICAL**  
**ARE INVESTING IN THE FUTURE**



**Value**  $\equiv$  **The Outcomes that matter  
To the people involved**  
**The costs**





# Smart disinfection of channel-less ENT scopes and TEE- probes in 60 seconds

Revolutionary solution based on UV technology.



D60

# REDUCE ENDOSCOPE DRYING AND STORAGE TO JUST 1-3 MINUTES



**PLASMATYPHOON+**  
POWERED BY PENTAX MEDICAL

**PENTAX**<sup>®</sup>  
MEDICAL

# AUTOMATED BRUSHLESS CHANNELS PRE-CLEANING IN JUST 2-7 MINUTES

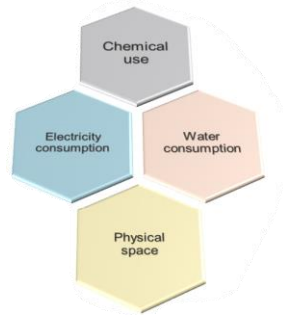


**AQUATYPHOON**  
POWERED BY PENTAX MEDICAL

# Partners in sustainability

UV Smart D60

A solution for channel-less scopes & TOE probes



## Environmental and economic impact of the D60 vs. traditional washer disinfector

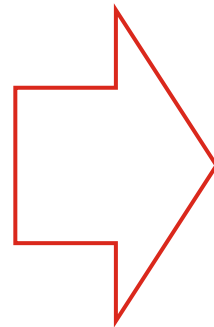
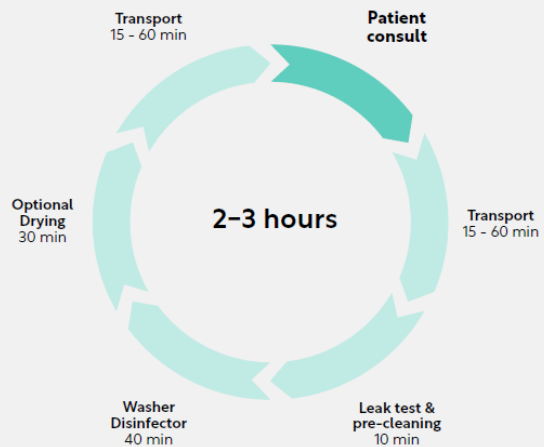
	Washer Disinfectors* – state-of-the-art	UV Smarts D60 – beyond-state-of-the-art
<b>Needs per cycle</b> (per endoscope)	Chemicals: <b>180ML</b> Water: <b>30L</b> Energy: <b>8,4 MJ</b>	Chemicals: <b>0ML</b> Water: <b>0L</b> Energy: <b>0,22 MJ</b>

≈ **95,6%**

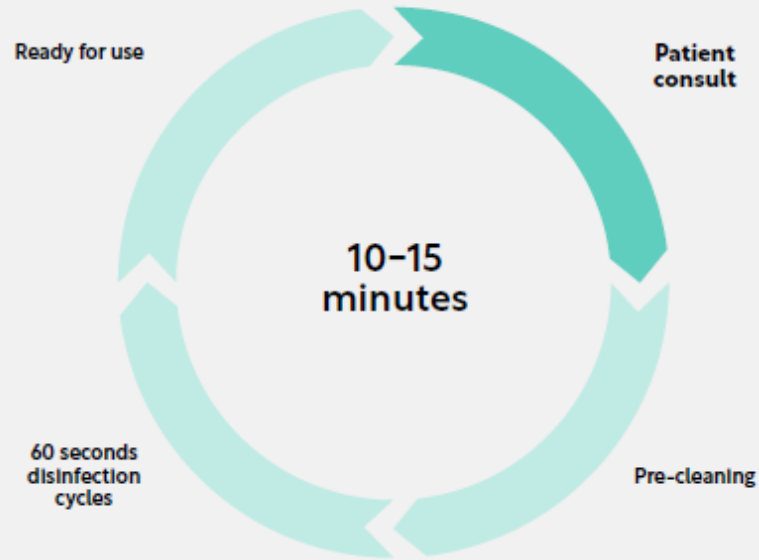
### Waste generation and resource use per device per year\*\*

<b>Chemicals</b>	<b>584L</b> of chemical waste per year	<b>0L</b> chemical waste per year
<b>Water</b>	<b>146.000L</b> of water used per year	<b>0L</b> water used per year
<b>Energy</b>	<b>30,66GJ</b> of energy used per year	<b>1,42GJ</b> of energy used per year

# The current situation



# The new workflow



## Save on

- » Time
- » Inventory
- » Accessories needed per cycle
- » Chemical refills
- » Water
- » Energy
- » Transport (when placed on the ward)

**PENTAX**  
MEDICAL



### DRYING



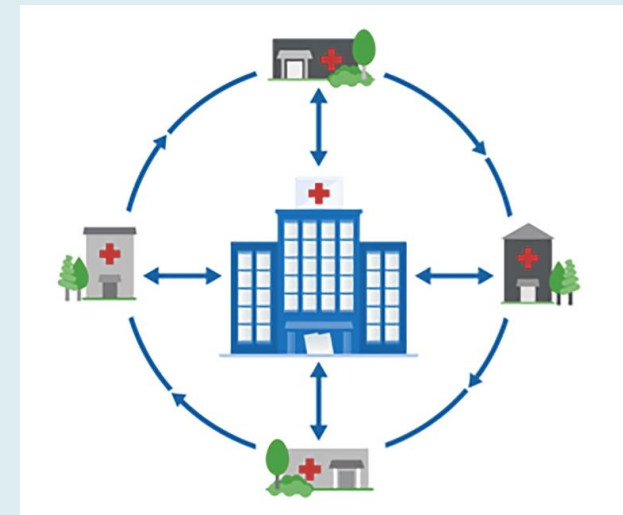
Ultra-fast and complete drying of endoscope channels in 1- 3 minutes

### STORAGE

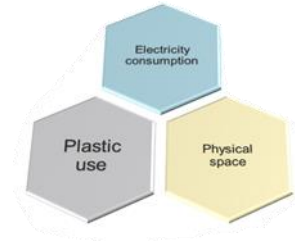


Active storage of endoscope in a single-use PlasmaBAG in just 5s

**PENTAX**  
MEDICAL



# Sustainability and efficiency of PlasmaTYPHOON+ & PlasmaBAG



**PENTAX**  
MEDICAL



Reclaim valuable space with each PlasmaTYPHOON+ *replacing up to 6 drying cabinets*

Reducing your *energy bill and Carbon footprint* by up to *4.25 tonnes of Carbon* per drying cabinet per year

Scopes are completely dry in just 1 – 5 minutes, ready for immediate use or *stored for up to 31 days* in the PlasmaBAG

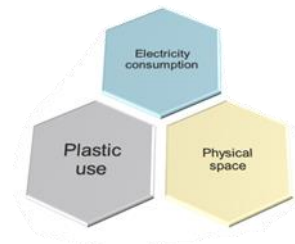


The current PlasmaBAG is *carbon neutral*, while the next generation will be produced with *80% recycled polyethylene* and hold the German eco-label '**Blue Angel**'





Health  
Innovation  
**Wessex**



**PENTAX**  
MEDICAL

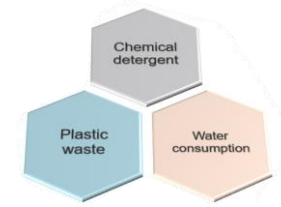
kWh **22 times lower** than the cabinet

**64% less** single-use plastic waste was generated

approximately **2,628kg less** waste per year

Actual savings to the decontamination unit  
in FY23-24 was **£107,856.59**

# Partners in sustainability



**PENTAX**  
MEDICAL

AquaTYPHOON™

## Smart technology effectively removes residues

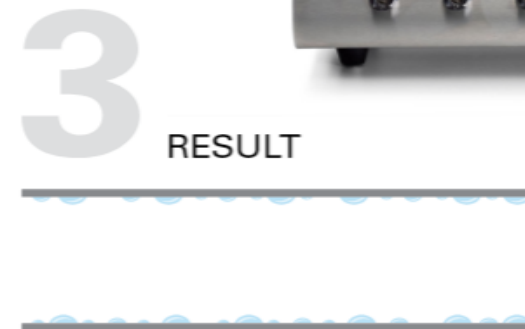
The AquaTYPHOON technology combines only air and water in the fully automated process for brushless pre-cleaning of all endoscope channels, even the non-brushable ones.



In the AquaTYPHOON, water is introduced in a pulsed manner into the turbulent flow of medical air.



In the endoscope, highly turbulent two-phase fluid flow creates a strong shear stress that eliminates residues from the channel walls.



Afterwards, the endoscope channel is free of residues.

# Caring for the environment

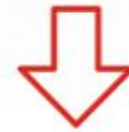
PENTAX Medical supports the UN Sustainability Development Goals. AquaTYPHOON is one example of our continuous journey to sustainability:



**AquaTYPHOON reduces water consumption** compared to standard manual pre-cleaning procedures.



The patented process uses water and air only, which **eliminates the need for chemical detergents** as well as **single-use brushes, syringes and other waste.**



**70–89%**  
less water  
consumption <sup>1)</sup>



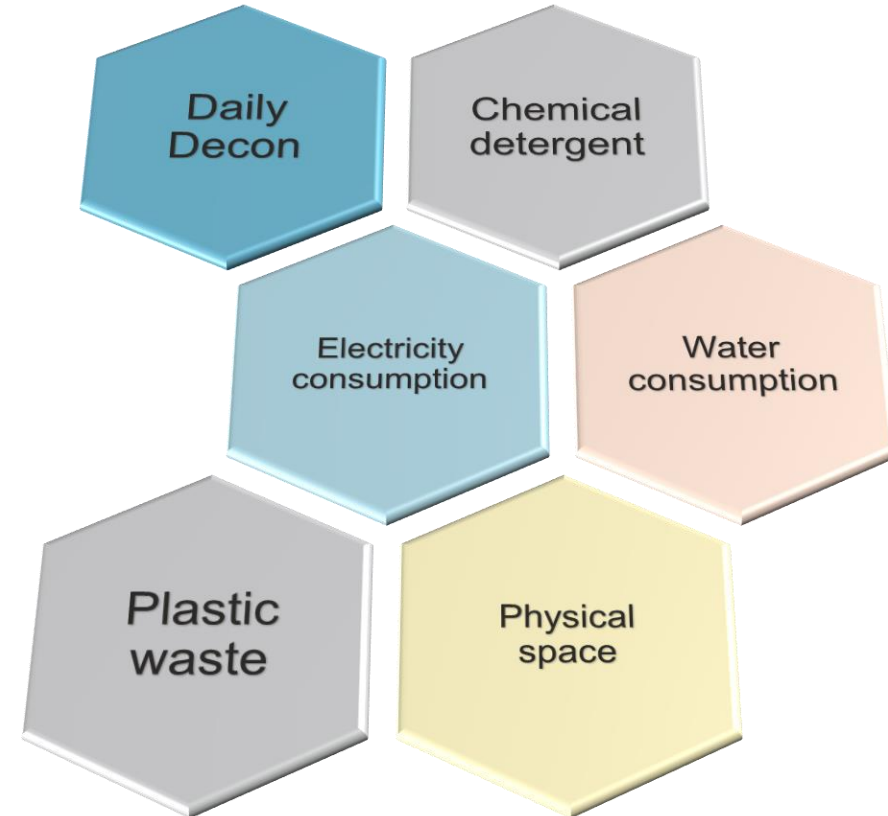
**>99%**  
waste  
reduction <sup>2)</sup>



# Sustainable lifecycle of an Endoscope

Looking beyond the device

**PENTAX MEDICAL**  
**ARE INVESTING IN THE FUTURE**







## NHS Sustainable Solutions Conference



## Keynote Presentation



**Ben Jeeves**

Associate Chief Clinical Information Officer, AHP  
professional Lead, Advanced Practice  
Physiotherapist - Midlands partnership NHS  
University Foundation Trust



# BUILD IT AND THEY WILL COME

BUILDING A GREENER NHS

24.09.2024



# BACKGROUND

**Associate CCIO**

**Clinical Safety Officer**

**Advanced Practice MSK Physio**



# BENEFITS REALISATION

THE THING WE NEED MORE OF

- A difficult thing to do
- Under measured
- Under resourced
- Not (always) resourced fully



# GREEN

- Delivering 'Net Zero'
- The NHS Carbon Footprint: For the emissions we control directly, net zero by 2040
  - 80% by 2028-2032
- The NHS Carbon Footprint Plus: For the emissions we can influence, net zero by 2045.
  - 80% by 2036-2039





# THE HOW?

- New models of care
  - The virtual ward
- Our transport and Travel
- Our innovation
- Our values and governance
  - Do you know your organisations net zero lead?
- Cultural shift





# CARBON REDUCED VIRTUAL WARD

---

- Reduced milage
- House keeping
- Food chain
- Supply chain
- Less PPE
- Reduced waste
- Pharmacy
- Carbon costs
- Milage disbenefit?
- Additional equipment needs
- Additional I.T equipment
- Network infrastructure
- Data storage



# CARBON COST OF I.T EQUIPMENT

- Laptop and screen
  - 778kg CO<sub>2</sub>e (85% manufacturing & shipping)
- Laptop and dual screen
  - 928kg CO<sub>2</sub>e (85% manufacturing & shipping)
- Screen 602kg CO<sub>2</sub>e +/- 129kg CO<sub>2</sub>e
- Laptop 315kg CO<sub>2</sub>e +/- 65kg CO<sub>2</sub>e
- Dock 35.74 -40.95kg CO<sub>2</sub>e
- Dictaphone 68.88kg CO<sub>2</sub>e



# CARBON COST OF I.T EQUIPMENT

- Carbon Reduction Strategies
- Carbon Reduction Devices



**SWITCH IT OFF**



**"Embrace the power of benefits realisation, for in it lies the alchemy to turn intentions into triumphs and ambitions into accomplishments."**

CHAT GPT 2023



# WHAT SHOULD YOU HAVE?





# A DEFINED BENEFITS MANAGEMENT APPROACH

PRINCE 2

# BENEFITS MANAGEMENT APPROACH



## Scope

- What is in scope of benefits management?
- What are you setting out to measure?
- Can it be measured?
- SMART

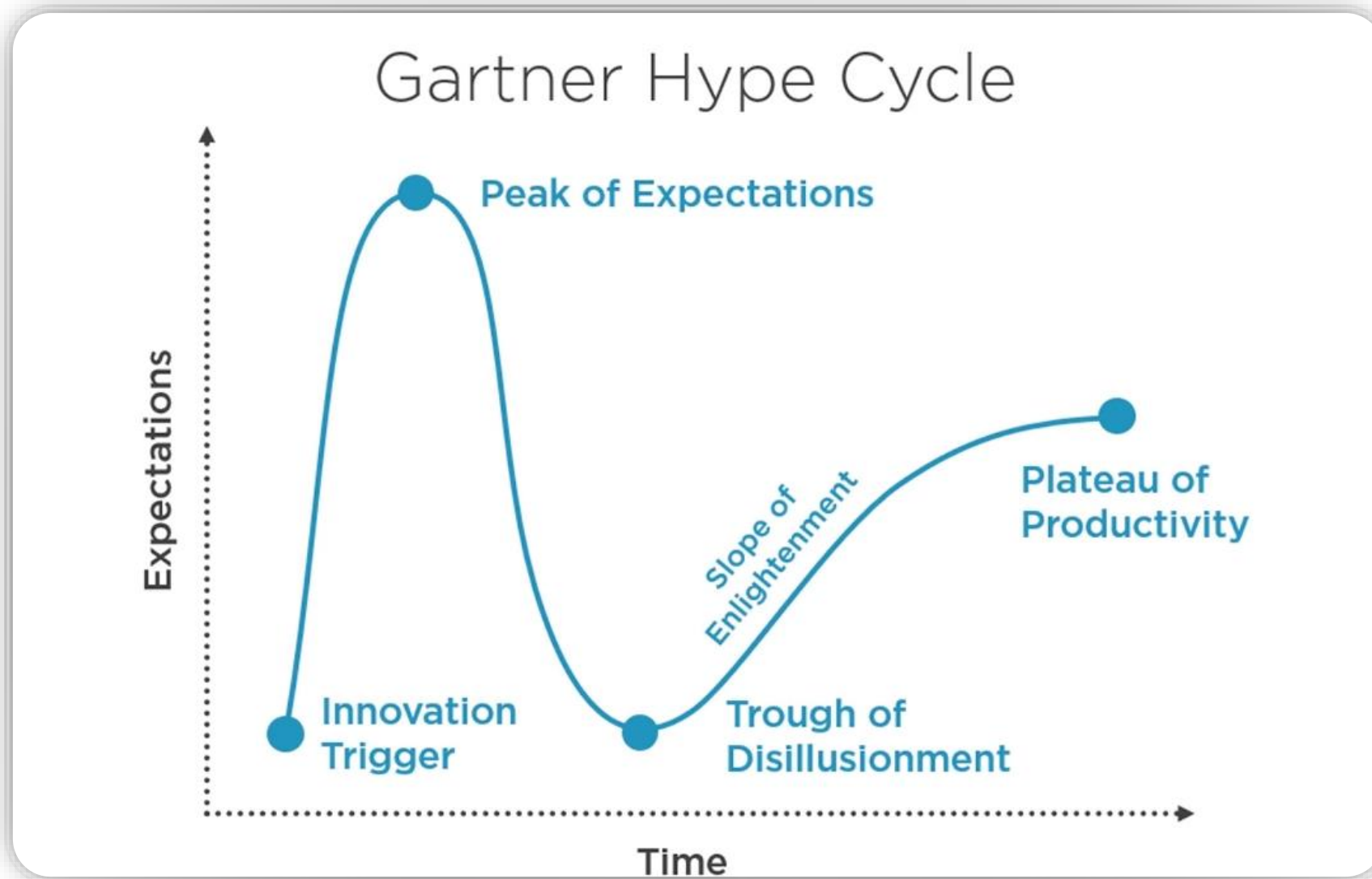


## Categories

- Cash releasing
- Non-cash releasing
- Environmental/ public/ societal
- Quality

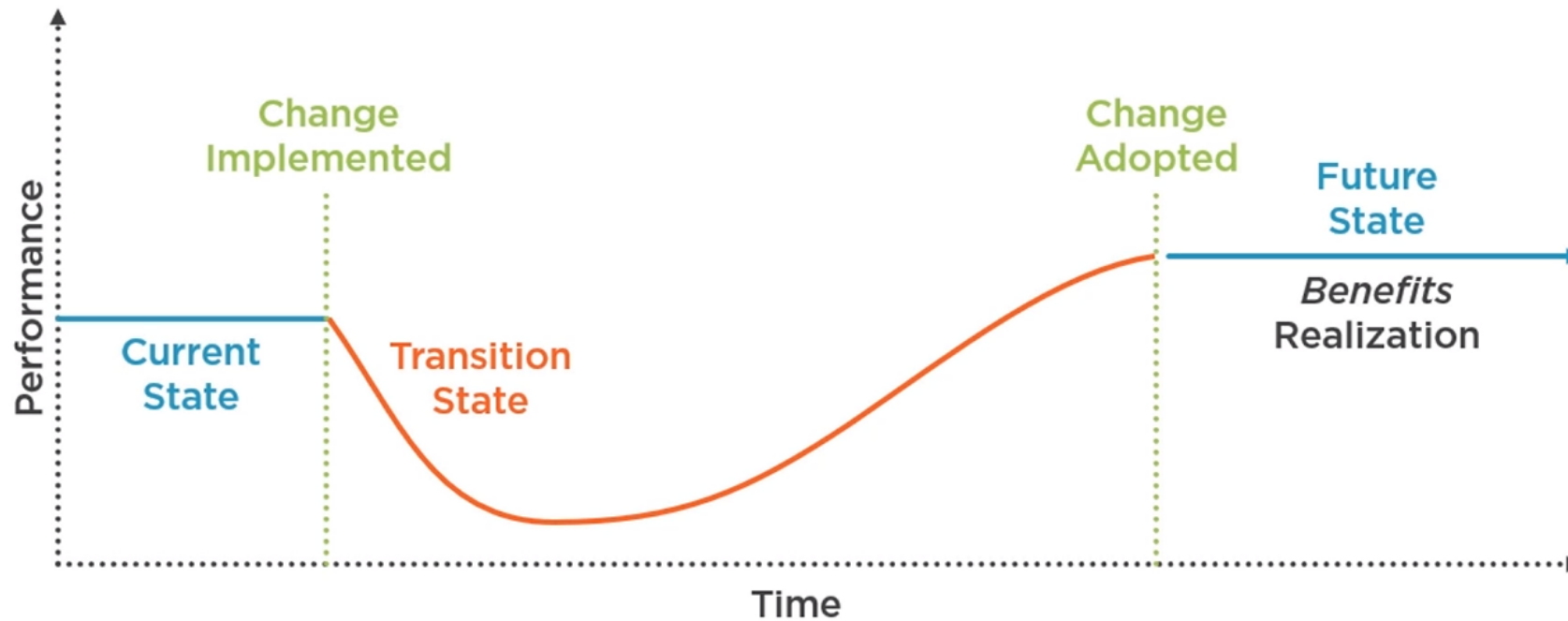


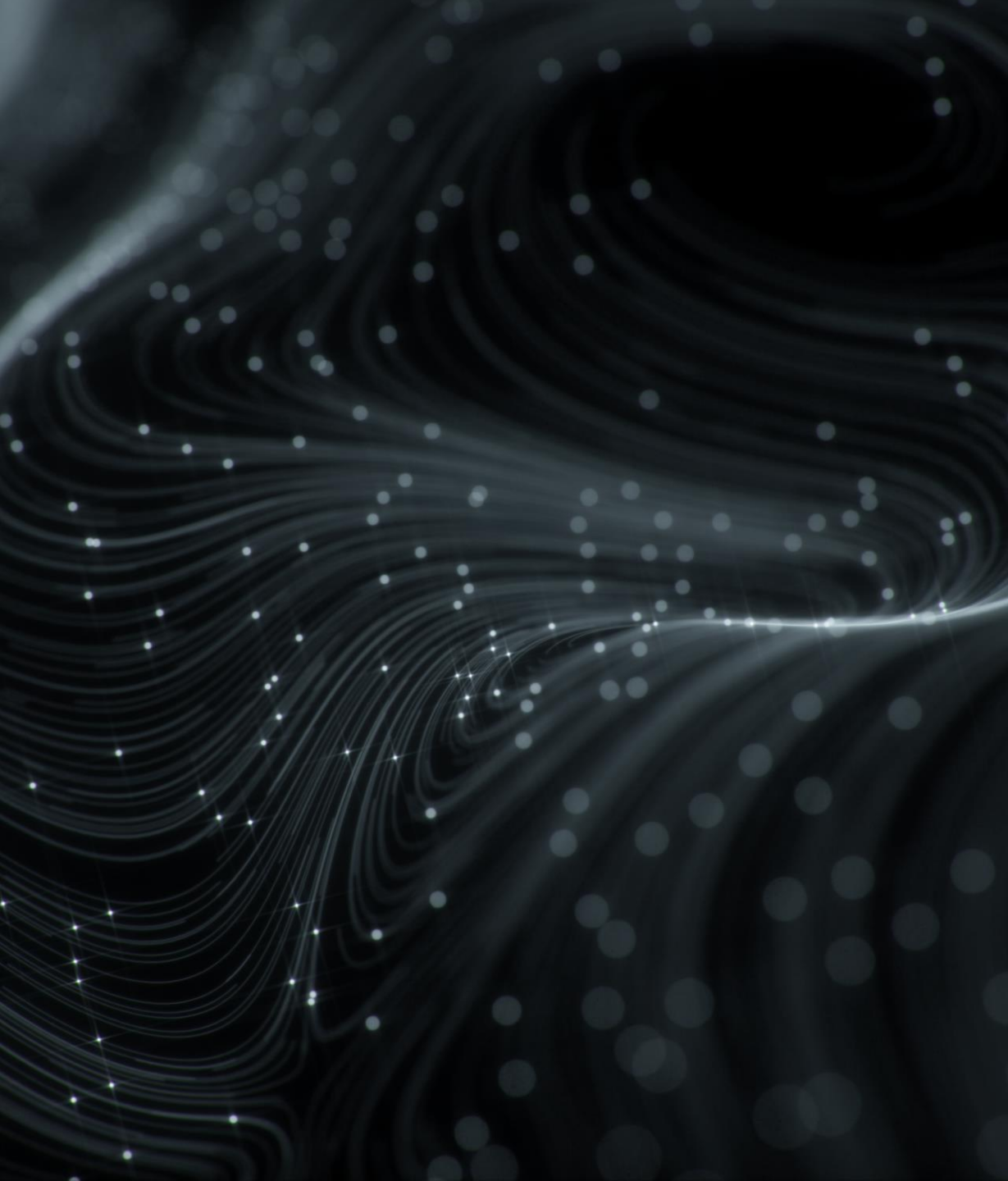
# THE WHEN



# THE WHEN

## The Transitional Process





# THE WHY

## ACCOUNTIBILITY AND TRANSPARENCY

Good governance.

## CONTINUOUS IMPROVEMENT

Because.

## QUALITY ASSURANCE

Has the “project” delivered?

## DATA INFORMED DECISIONS

Has it worked?



**“The only way to do great  
work is to love what you do”**

**Steve Jobs**

# THANK YOU



[ben.jeeves@mpft.nhs.uk](mailto:ben.jeeves@mpft.nhs.uk)



[@BJEEVES](https://twitter.com/BJEEVES)



[Ben Jeeves](#)





## NHS Sustainable Solutions Conference



## Case Study





**Slido**

**Please scan the QR Code on the screen. This will take you through to Slido, where you can interact with us.**





## NHS Sustainable Solutions Conference



## Case Study



**Matt Griffiths**  
Health Sector Director  
Kier



**James Franklin**  
Digital Twin Project Director  
Kier





# Digital Twins

---

## for healthcare buildings

The solution to our net zero carbon vs high quality care challenges?

Matt Griffiths, Health Sector Director

James Franklin, Digital Twin Project Director



# Digital Twins for Healthcare Buildings

- **Introductions**
- **About Kier**
- **What is a Digital Twin?**
- **Case study**
- **Application and benefits for the NHS**
- **Next steps**



Kier  
**40**  
**years**  
Delivering  
Healthcare  
Facilities



**NHS**

---

# Intros



## James Franklin

Digital Twin Project Director



James leads the implementation of operational Digital Twins at Kier, delivering innovative lifecycle benefits to clients. His expertise lies in integrating cutting-edge technology to enhance operational outcomes and streamline processes.

Having worked as a housekeeper at his local hospital, Matt now leads the health sector for Kier construction nationally. Previously in design and preconstruction management he has worked on all types of healthcare facility and has a passion for delivering better facilities for staff and patients.

## Matt Griffiths

Health Sector Director





---

# About Kier



# About Kier Construction

- UK coverage from 23 offices – regional business with National strength
- £2bn projects per year across all sectors
- All project sizes from >£1m to over £200m
- Expertise in development, design, build and FM
- Core business is construction in the public sector – Tier 1 supplier to government



# Kier Construction in Healthcare

 **£1.3bn**  
Completed over  
the last 5 years

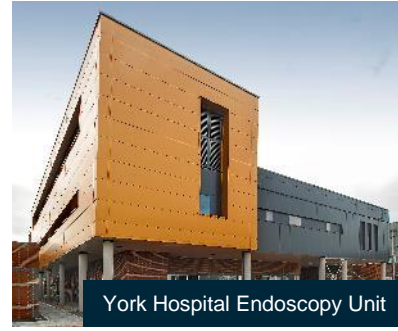
 **139**  
Projects

 **70**  
Acute Hospitals

 **7**  
Community  
Hospitals &  
Health Centres

 **7**  
Healthcare  
Laboratories

 **15**  
Mental Health  
Facilities



---

# What is a Digital Twin?





# Smart Assets

vs

# Digital Twins

## An example at home:

Google Nest doorbell

Google Home speakers x4

Hive thermostat

Smart plugs

Smart lights

Wifi Cat Flap

Eufy Garden Camera



Google Nest doorbell

Google Home speakers x4

Hive thermostat

Smart plugs (ALL)

Smart lights (ALL)

Wifi Cat Flap

Eufy Garden Camera

+ other systems....



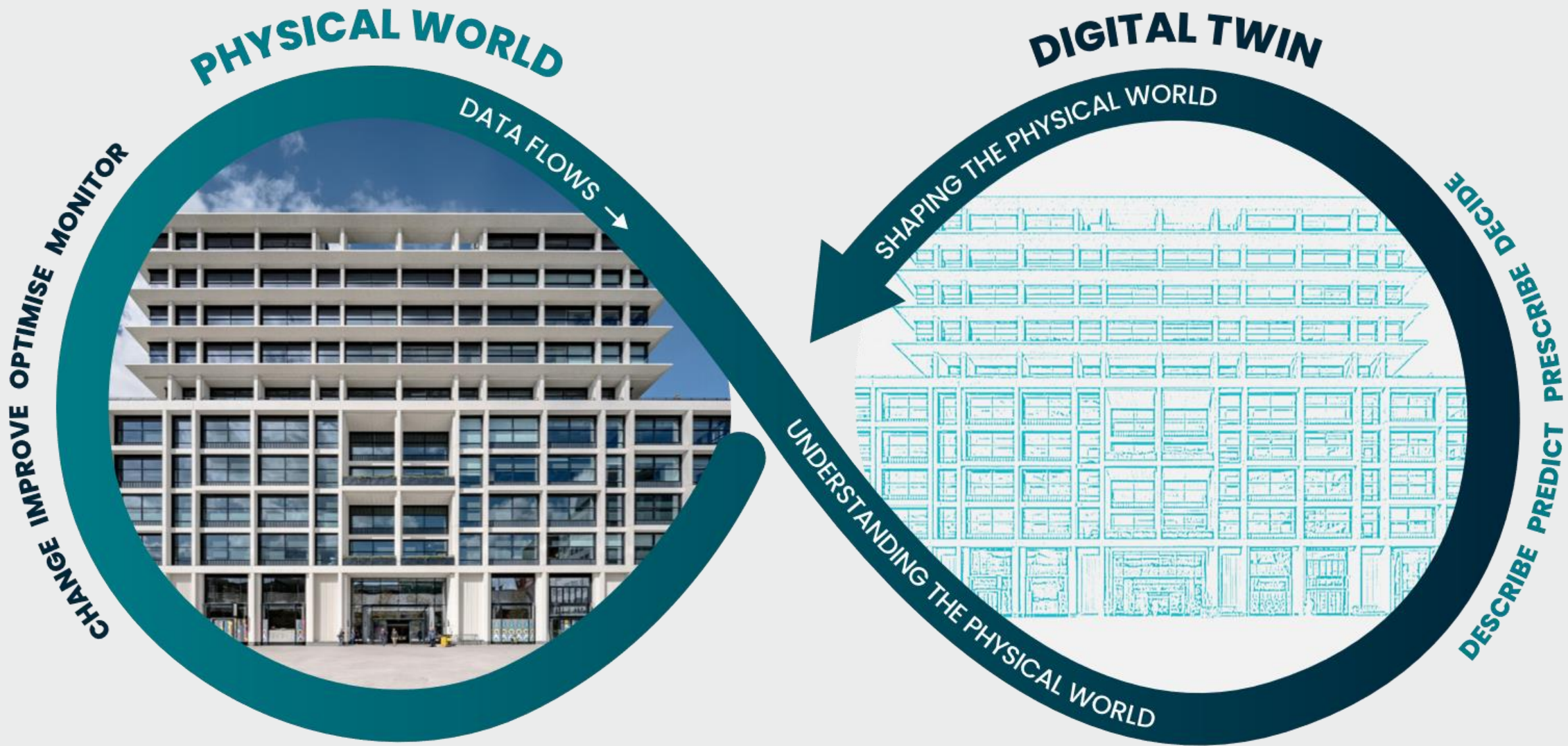
## Digital Twin Platform



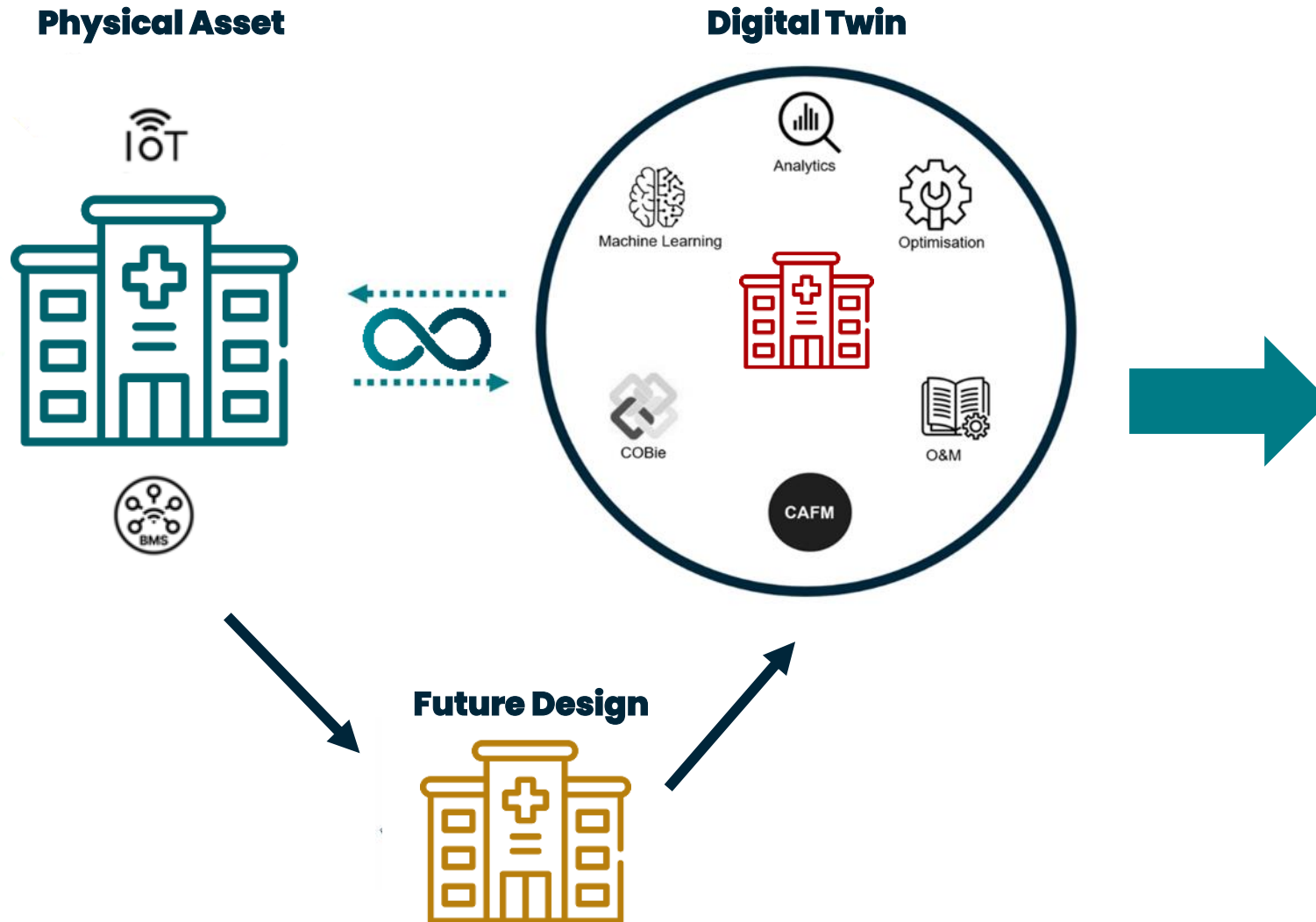
Automation

Learning

Intelligence



# Smart Hospital enabled by a Digital Twin



## NHS Benefits

1. Operational Efficiency
2. Sustainability and Energy Management
3. Enhanced User Experience
4. Proactive / Predictive Maintenance
5. Data Transparency
6. Cost Efficiency
7. Asset/patient tracking
8. Space/bed utilisation
9. Behavioural data

# Digital Twins on a scale

**NHS**  
Milton Keynes  
University Hospital  
NHS Foundation Trust

  
Ministry  
of Justice

 KIER

**NHS**  
New Hospital  
Programme

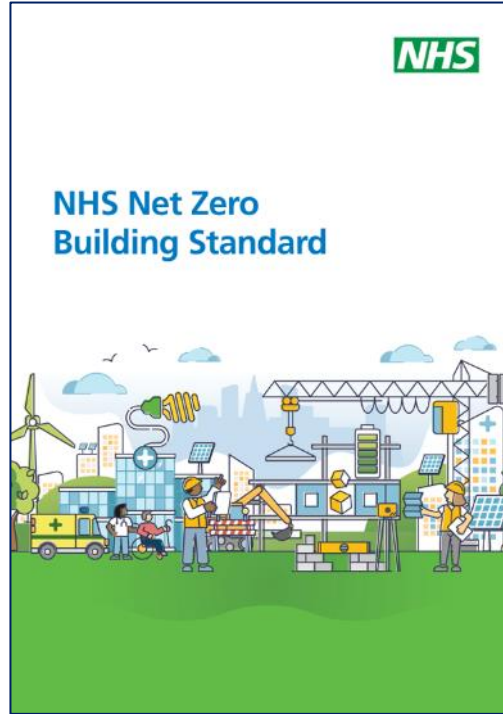
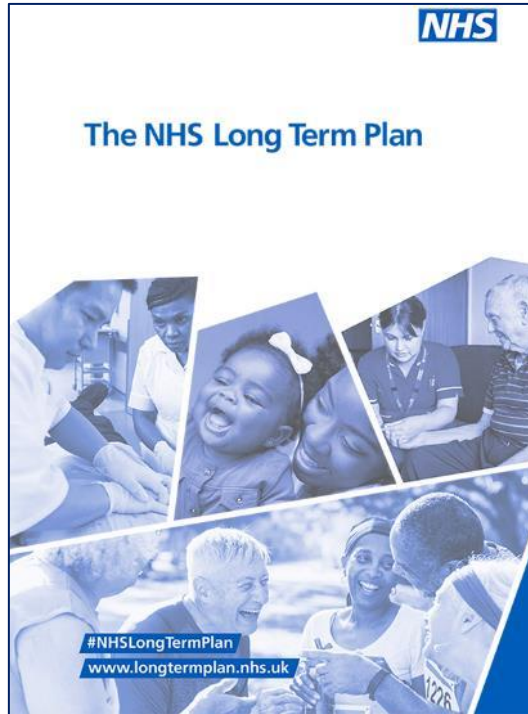


Basic models or digital plans  
Focused / single purpose  
Integrate existing data  
Manually interpreted

Full 3D digital model  
Maximise systems twinned  
FM and operational  
Automated intelligence



# Digital Twins respond to the need



**Modernisation**

**Interoperability**

**Efficiency**

**Energy  
Cost  
Time**

**Improving care**

---

# Case Study

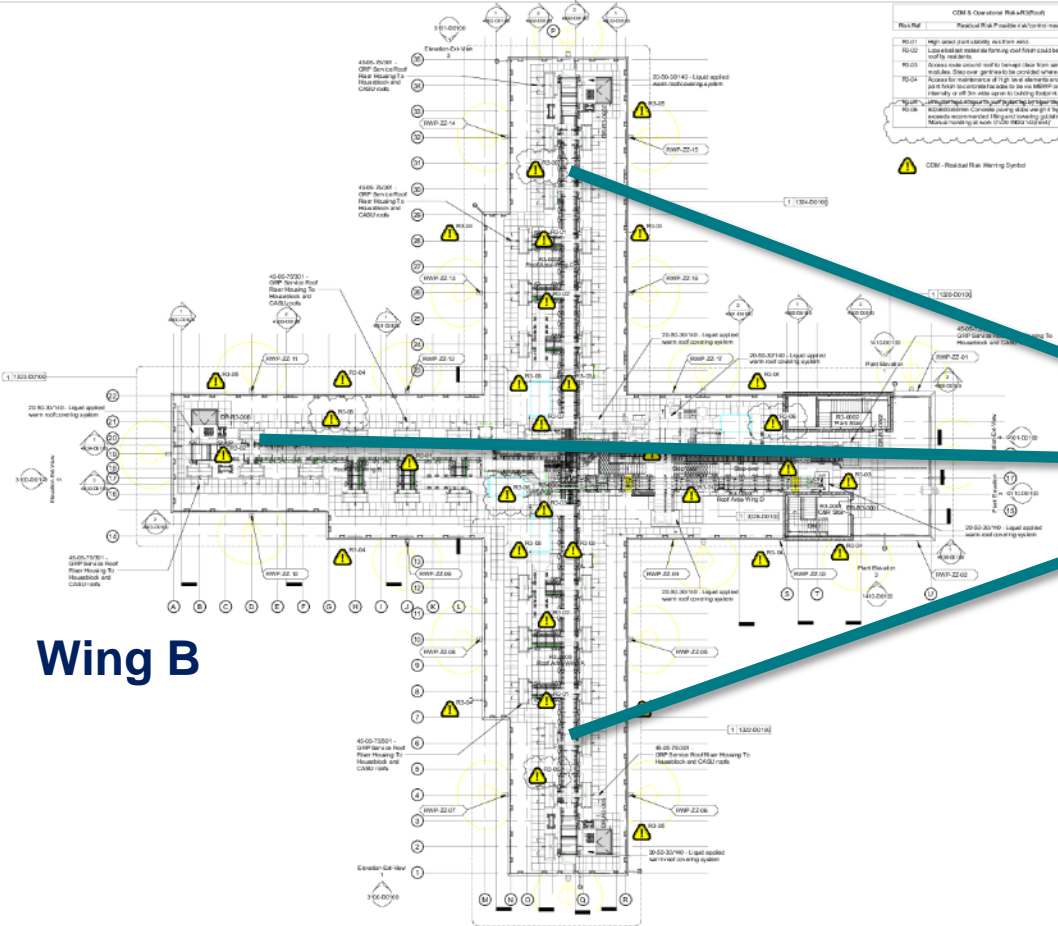


# HMP Five Wells



# Wing C

# 'Live' Data



# Wing B

# Wing A

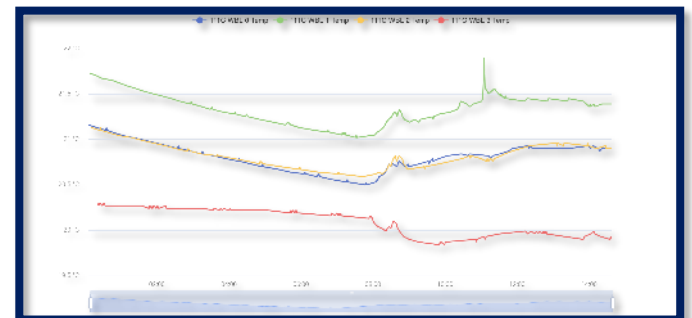
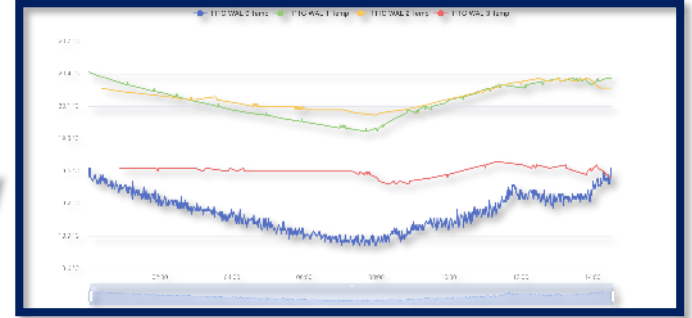


BMS

Wing A

Wing B

Wing C

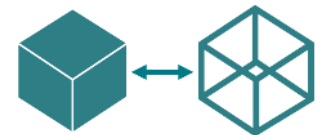


Level 1 Level 2 Level 3 Level 4

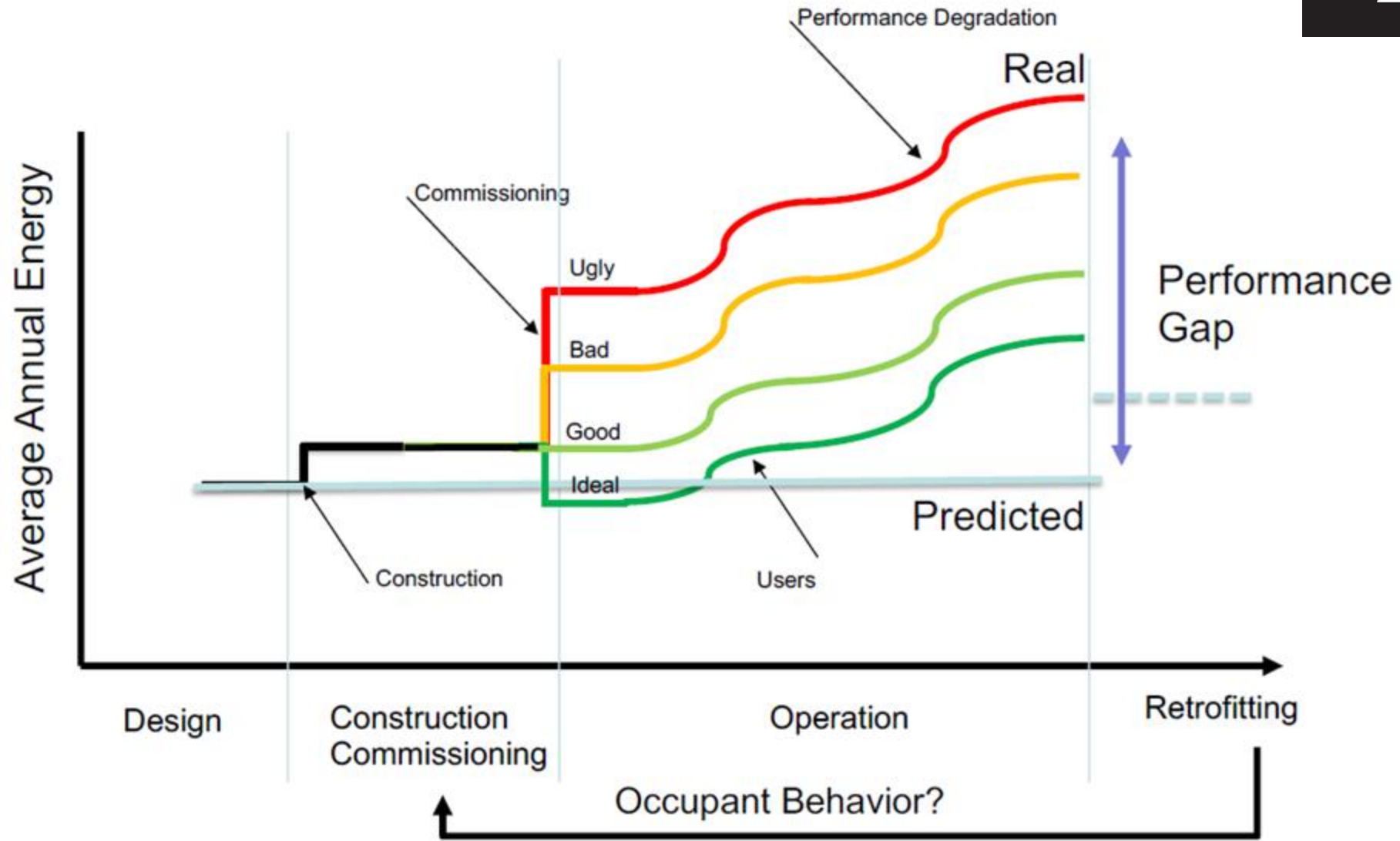


## SIG Mission Statement

*“To research and feedback on ‘Digital Twin’ technology implemented on MoJ property, with a focus on energy-use reduction in lifecycle operation within a secure environment, aligned with sustainability goals and the net-zero agenda.”*



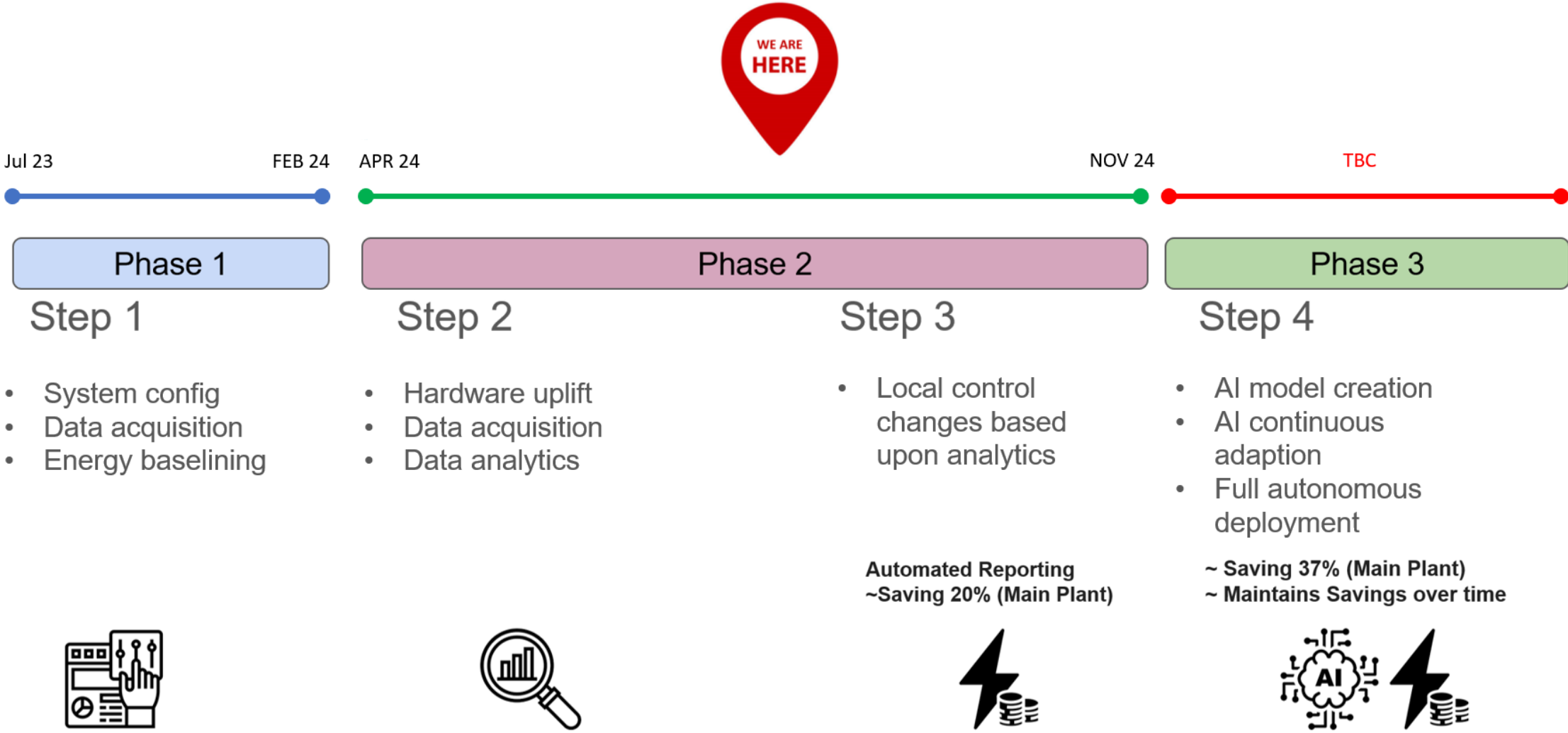
*Over 50 members....*



# Sensors



# HMP Five Wells – Stages of work



# Accessing information about mechanical equipment 2

The screenshot displays the gliderbim software interface. On the left is a dark sidebar with navigation options: RFIs, Import, Changes, Verification, Register, Browse Data, Browse 3D, DMS, Plan of Work, and Export. The main area is titled 'Phase 1 MVP' and 'Information Model'. It features a search bar and a table of deliverables. The table has columns for ID and Name. The first row is highlighted in light blue. Below the table is a '+ Add new Deliverable' button. To the right, a detailed view for 'PFG-0017-34690 DELIVERABLE' is shown, including a 'View in PoW' button, a 'DATA' section with various attributes, a 'DOCUMENTS' section with a message 'No documents are associated with this asset.', and a 'LINKS' section with an 'Edit' button. The bottom of the interface shows a copyright notice '© 2015-2024 Glider Technology Ltd' and a 'CHT ME COMPRELOADER' label.

ID	Name
02cb1066_00LJu0Khf7xQrkNBjLH_tq	PFG-0017-34690
<a href="#">+ Add new Deliverable</a>	
02cb1066_00LJu0Khf7xQrkNBjLH_tq	PFG-0017-34690
02cb1066_02r0RXUNvBGh90e6LI909G	PFG-0017-34551
02cb1066_02r0RXUNvBGh90e6LI909I	FLT-0017-34008
02cb1066_02r0RXUNvBGh90e6LI909x	PFG-0017-34550
02cb1066_02r0RXUNvBGh90e6LI90AC	PFG-0017-34552
02cb1066_02r0RXUNvBGh90e6LI90An	PFG-0017-34843
02cb1066_02r0RXUNvBGh90e6LI90Bd	PFG-0017-34553
02cb1066_02r0RXUNvBGh90e6LI90Be	VLV-0017-34227
02cb1066_02r0RXUNvBGh90e6LI90C_	VLV-0017-34138
02cb1066_02r0RXUNvBGh90e6LI90D2	PFG-0017-34467
02cb1066_02r0RXUNvBGh90e6LI90DH	PFG-0017-34558
02cb1066_02r0RXUNvBGh90e6LI90D0	VLV-0017-34139

**PFG-0017-34690 DELIVERABLE** [View in PoW](#)  
ID: 02cb1066\_00LJu0Khf7xQrkNBjLH\_tq

**DATA**

Name	PFG-0017-34690
CreatedBy	info@glidertech.com
CreatedOn	2020-01-14
TypeName	PipeFitting_CONNECTOR_Type10
Space	Level M1
Description	Pipe, tube and fitting products
ExtSystem	Autodesk Revit 2018 (ENU)
ExtObject	IfcFlowFitting
ExtIdentifier	02cb1066_00LJu0Khf7xQrkNBjLH_tq
SerialNumber	n/a
InstallationDate	2021-11-04
WarrantyStartDate	2021-11-04
TagNumber	tbc-client
BarCode	tbc-client
AssetIdentifier	tbc-client

**DOCUMENTS**

No documents are associated with this asset.

**LINKS** [Edit](#)

CHT ME COMPRELOADER

© 2015-2024 Glider Technology Ltd

# What's next.....



Ministry  
of Justice



HMP Five Wells – Houseblock C – Phase 2

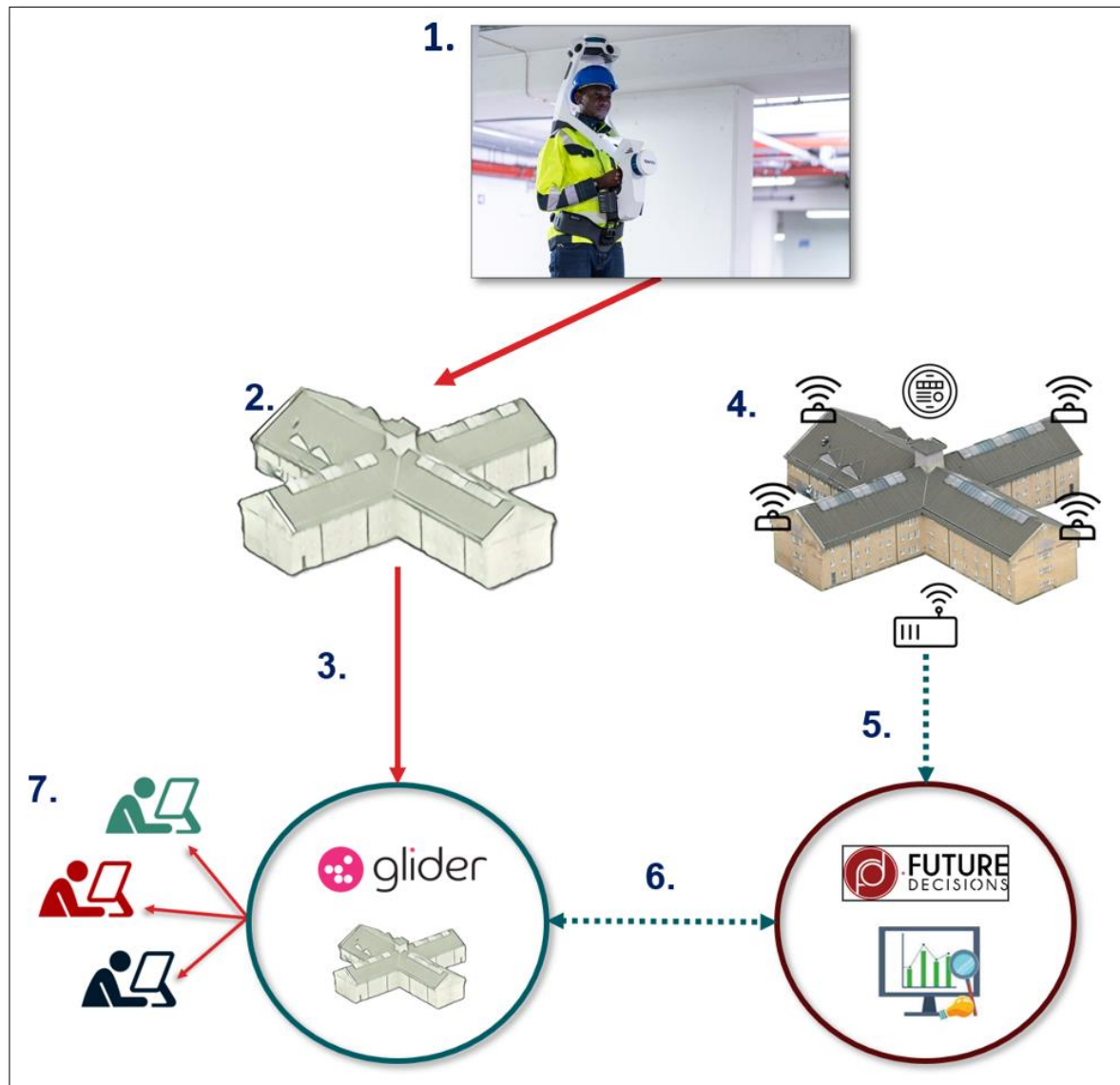


HMP Elmley – Houseblock 2 – Phase 1



HMP Fosse Way – Houseblock 1 – Phase 1

# HMP Elmley in focus



- Work from a blank sheet of paper
- Low-tech building
- Digital Twin
- Create energy benchmark
- Operational efficiency
- Conditional survey



# Layering data



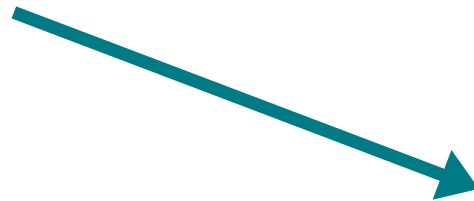
Incidents / temp



Incidents / air quality



Incidents / visits



- Safer environment
- Improved rehabilitation
- Reduce cost related to incidents



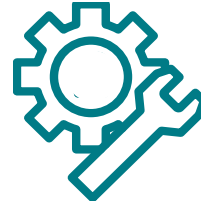
# Layering data – FM



Data-informed approach to nuisance calls



All information instantly available



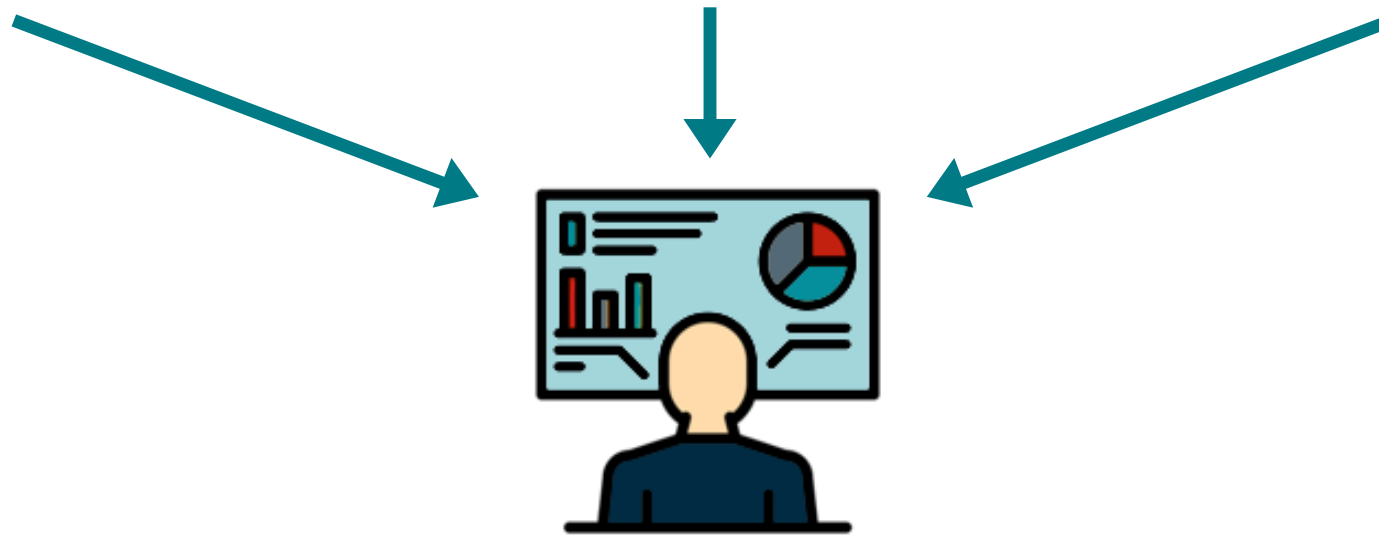
Data-informed site work (visit once)



Enhanced understanding of asset performance



Predictive maintenance

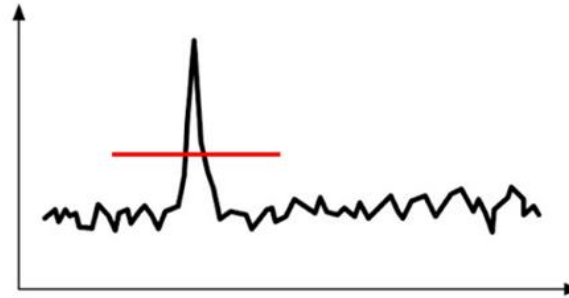


# Layering data – FM – predictive maintenance

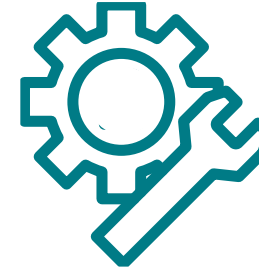
Air handing unit



Trigger point



Work order



- Reduce maintenance costs
- Reduce resource requirement
- Reduce downtime/outages
- Increase asset lifecycle

---

# Applications & Benefits for the NHS



# Applications for the NHS

There is **25,000,000m<sup>2</sup>** of occupied floor space across the **existing NHS estates**

The total costs of running the NHS estate were **£12.4 billion**

The total energy usage from all energy sources across the NHS estate was **11.2 billion kWh**  
This is a decrease of **1.65% per cent** since 2021/22.

[NHS productivity](#) is a key focus area

The total cost to **eradicate backlog** was **£11.6 billion**

This is an increase of **13.6 per cent** since 2021/22

## How would creating digital twins benefit the NHS?

- **Reduce energy (cost and carbon ↓)**
- **Reduce maintenance demand**
- **Improve patient experience**
- **Staff productivity**
- **Enables digital transformation**



## Suggestions to our pathfinder:

- **Prevent over ventilation**

Use demand-based ventilation to high energy use areas such as hydro pool and changing spaces using presence sensors

- **Maintain better temperature & air quality**

Environmental sensors for staff and patients spaces, analyse historic data and understand causes of adverse events

- **Staff / Equipment asset tracking**

Monitor where equipment is live in therapies spaces with lots of shared equipment. Increased privacy and productivity.

- **Reduce maintenance costs**

Intelligent maintenance that is resource efficient by using sensors that monitor when maintenance is needed – i.e. AHU filters



---

# Next Steps

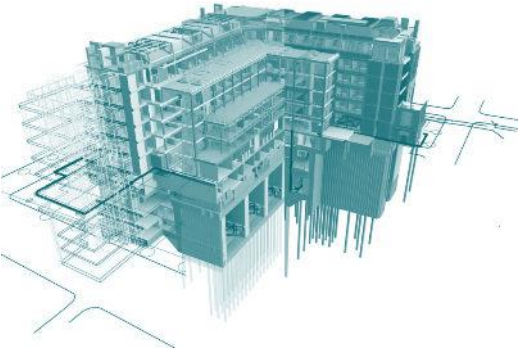


# Ingredients

Bought-in client



Digital Model



Building intelligence



Funding





# Discuss your buildings with us

## **James Franklin**

Digital Twin Project Director



[James.franklin@kier.co.uk](mailto:James.franklin@kier.co.uk)

## **Matt Griffiths**

Health Sector Director



[Matt.griffiths@kier.co.uk](mailto:Matt.griffiths@kier.co.uk)

---

# Conclusion



# Summary

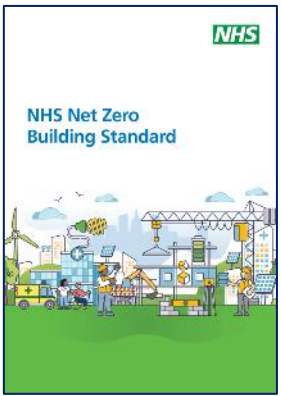
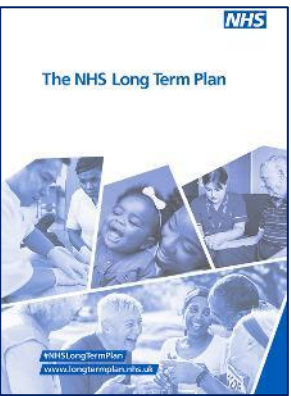
**Digital Transformation**

**Net Zero**

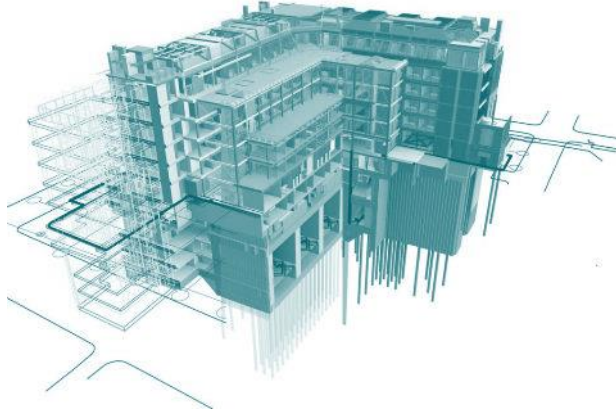
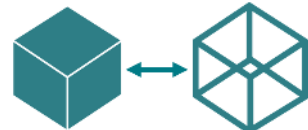
**Maintenance**

**People**

**Efficiency & Productivity**



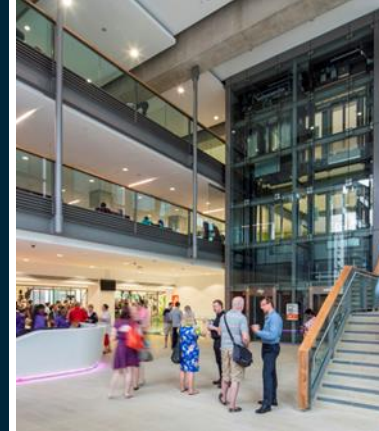
**Building Digital Twins**





---

# Thank you





## NHS Sustainable Solutions Conference



## Keynote Presentation



**Kristen Green MCIPs**  
Head of Sustainability - Crown  
commercial Service

**Power to your  
procurement**

# **Sustainable Public Sector Procurement: *Good for Business?***



**Crown  
Commercial  
Service**

**Kristen Green**  
Head of Sustainability

# Topics for Discussion

Who is Crown Commercial Service (CCS) and what is our role?

Sustainable Procurement - the buyers perspective

Partnering with our supply chain

Why sustainability is more than just a “tick box” exercise

# Our results 2022/23

Our reach across the public sector to deliver policy

**£31 billion**

spend through our commercial agreements

**£11.5 billion**

from the wider public sector

**£19.5 billion**

from central government

**£3.8 billion**

commercial benefits

**20,000** customers

**c3,000** suppliers with spend



# What is Sustainable Procurement



# Sustainable Procurement

“Procurement that has the most positive environmental, social, and economic impacts on a whole life basis”

“Organisations purchase in a way that favours suppliers and products that create positive outcomes for our planet and the global community”

*ISO 20400*

## SUSTAINABLE DEVELOPMENT GOALS



# What do we mean by Environmental Sustainability?

**Carbon Net Zero**

**Circular Economy**

**Climate  
Adaptation &  
Mitigation**

**Nature Recovery**

- Climate Change Act 2008
- 25 Year Environmental Improvement Plan
- The Paris Agreement
- Procurement Policy Notes
- Government Buying Standards

# Sustainable Procurement

Think about the reuse, repurpose and recycle options for your purchases once the contract is over to reduce materials sent to landfill.

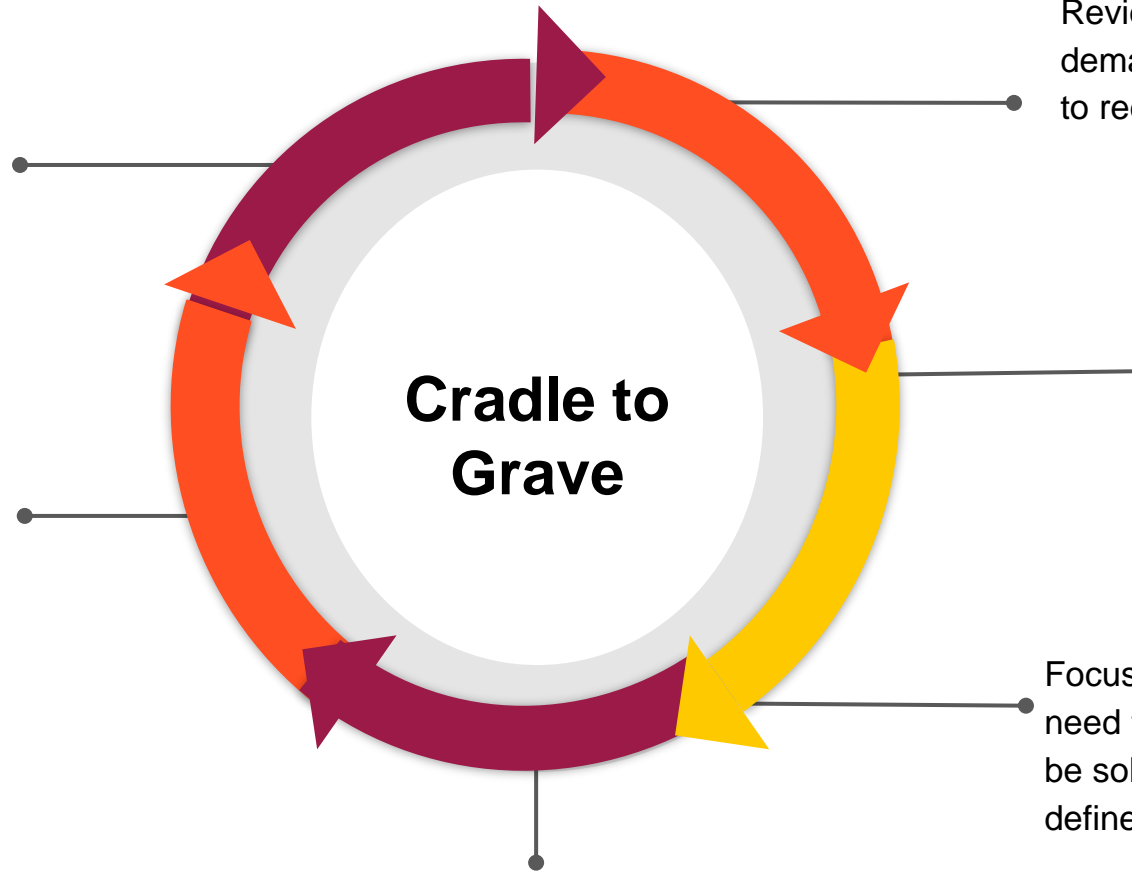
Implement regular SRM and contract management to unlock sustainability during delivery

Ask meaningful quality questions and back up with metrics in your T&C's

Review your needs and consider demand reduction or destruction to reduce impact

Engage with the market and collaborate on your specification development to unlock innovations and new ways of working

Focus on the outcomes you need to achieve / problem to be solved opposed to overly defined requirements



# Sustainability Value Chain

## Customer Value



Facilitate, stimulate and maximise environmental sustainability value through commercial delivery.

## Policy Delivery & Enablement



Influencing and delivering large scale environmental policy change through government supply chain

## Market Development



Understand, support and influence development of supply chain sustainability capability and capacity.

## Product & Service Enhancement



.Enhancing and embedding environmental sustainability into the heart of new agreements and service models.

# Supply Chain Collaboration

The Public Sector can't achieve it's Net Zero aspirations on their own





# Partnerships v Transactional

- Not about **red tape or creating barriers**
- **Working together** to find the solution
- **Long term commitments** over short termism
- **Progress** over perfection
- Utilising supply chain **expertise**
- Encouraging **innovation** and doing things differently

# Why should suppliers care?

**Sustainable efficiencies can lower operating costs**

**Sustainability is attractive market differentiator for buyers**

**Reduces and mitigates against climate related risks**

**Sustainable companies have increased talent attraction / retention**

**Sustainable practice required to survive long term**



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**Power to your  
procurement**

**Thank you**



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