Building Management System data

Dynamic sensor data

Static BIM data

Physical Twin

Sense

Ingest

Act

Classify

Optimise

Digital Twin

Refine

Decide

Building Vision: NetZero by 2030

Lift 3b
Currently: Fl. 2
Operational: Yes

Occupancy
Lighting: On
Temperature: 18C

Challenges in classifying:

- Deciding what data is necessary to accomplish business goals.
- Automating the data collection and classification that are currently manual. This is currently work in progress.

Challenges in acting:

- Deciding what actions to take requires close collaboration with asset managers to ensure that the actions undertaken have the desired effect and reqiores close collaboration between asset managers, digital twin developers and key stakeholders.

Challenges in deciding:

- Building Management Systems have long provided data about building performance to decision-makers. The challenge is optmising that data - whether that's curation to provide the right data at the right time, or modelling to provide informative predictive data - to enable better decisions.
- Currently, digital twin developers are working with asset managers to understand their information needs. That way, they can create systems that enable better informed decisions.
- An area for future development is to demonstrate the real-world economic benefits of digital twins.

Challenges between classifying and refining:

- Making data in very different formats and frequencies interoperable.
- In this digital twin, data sources are inter connected through a refinement process into smaller 'data ponds'. These are aggregated over several iterations.
- Currently, this requires a great deal of intervention from the researchers. A future goal is to automate this process.

Challenges in optimising:

- Optimisation of the physical and digital twins is an ongoing, iterative process. Getting the right people and processes in place to ensure resource and responsibility for it is a challenge that needs to be met in order to develop the digital twin.

Challenges in refining:

- Picking out the data that is relevant and useful from the data lake created at the classification stage is a key challenge.
- This could function much more robustly and automatically in the future.
- Digesting and processing the huge volume of data available to building managers at this point is a challenge, but the value of getting it right is that the right data is seen at the right time.