CASE STUDY 1:

DEVELOPING BIM & INFORMATION MANAGEMENT CAPABILITY

IN A FACILITIES MANAGEMENT ORGANISATION

Keywords: FM, Asset Management, Asset Information Management, BIM, Digital Information Management, AIR (Asset Information Requirements), CAFM, AIM (Asset Information Model)

The Situation:

Skanska Facilities Services (Skanska FS) was the facilities management (FM) arm of Skanska (a multi-national construction company).

Skanska FS was capturing large volumes of asset information from its portfolio of FM contracts. The business saw an opportunity to analyse the data, generate insights, and highlight areas for business improvement.

However, a quality check of the asset information revealed several critical issues:

- Non-standardisation of asset inventories
- Non-standardisation of how assets installed in a building were categorised
- Non-standardisation of how assets were uniquely tagged (identified) in buildings
- Non-standardisation of the IT systems used to store asset information

These issues meant that no reliable analytics could be carried out on a project, nor could similar projects be compared with each other. No reliable insights could be gathered, which meant that no business improvement initiatives could be identified.

The wider Skanska business had decided to adopt BIM and digitalisation as a new way of working on infrastructure projects. All divisions, including Skanska FS, were instructed to implement BIM.

BIM at the time was focused on improving efficiencies in design and construction by using 3D modelling technologies. But 3D models weren't helpful to the FM business at the time. Instead, the FM teams were still grappling with the basics, such as trying to receive good-quality asset inventories at building handover!

So, what was BIM supposed to look like in an FM business?

How could BIM benefit FM teams?

The answer laid with the 'I' in BIM - Information! BIM would be used to improve the quality of asset information captured for handover to FM teams.

The Solution

BIM processes were used to improve the quality of the asset information. The FM teams needed to focus on defining their AIR – **Asset Information Requirements**.

The FM teams often complained of receiving poor-quality asset inventories from construction teams after buildings had been constructed. The teams complained that the inventories didn't capture all the assets in the building, which they would only discover when they carried out their first round of maintenance activities. The teams also complained that the asset information handed over sometimes wasn't up-to-date, as assets could be swapped out of a building at the last minute before the building was handed over to the FM teams.

Conversely, the construction teams complained that the FM teams had never bothered to communicate the information they needed, so construction would just give FM what they thought FM wanted!

As the BIM Lead for Skanska FS, I held many consultations with FM teams working on projects all over the UK, plus asset lifecycle fund managers and clients to help shape the AIR. The final draft of the AIR included:

1. A standard asset inventory template, which detailed all the information that needed to be captured for every type of asset.

2. A standard method of categorising assets into asset types (E.g., mechanical, electrical, HVAC, etc.).

3. A standard asset coding (tagging) protocol, which was used to uniquely identify every asset that was installed in a building.

4. A standard bar-code labelling protocol, which allowed maintenance engineers to use mobile devices to scan bar-code labels affixed to the asset (which would display more detailed information about the asset that they were preparing to service or repair).

Defining the AIR was a significant and positive step in clarifying the information that the FM teams needed. The new AIR document was a shock to the construction teams, as the level of asset information they needed to generate and deliver to Skanska FS had doubled in scope and detail.

Outcomes

1. The AIR was applied to all new **Design-Build-Operate** projects where Skanska FS would be managing buildings post-construction. The quality of asset information handed over to the FM teams improved significantly, and the FM teams could mobilise their contracts much more quickly and smoothly.

2. Collaboration between the design, construction, and FM teams improved significantly too. FM teams received regular draft asset inventories prior to building handover, which they would check during walkarounds of a new facility that was reaching the final stages of construction. This resulted in fewer unknown assets being discovered when building maintenance activities commenced.

3. When Skanska FS took over building management contracts from outgoing FM providers, the AIR document was given to building surveyors to carry out fresh asset inventories and building condition surveys. The surveyors used information capture templates provided by Skanska FS, which enabled smooth upload of asset and condition information to the asset management IT systems.

4. Setting out the organisation's AIR and new internal asset information standards allowed Skanska FS to completely overhaul its asset management IT systems. The business eventually selected a new standard **CAFM (Computer Aided Facilities Management) system**. Every CAFM deployment on a project had a standard system configuration to align with the organisation's new asset information standards, resulting in all digital asset information from every project being stored in the same format.

5. Having high-quality digital asset inventories stored in a standard format enabled FM teams to overlay the information with high-quality operations and asset performance data. This allowed meaningful data analyses to be conducted, which generated insights about operational and asset performance, and allowed the organisation to identify where to focus its business improvement initiatives.

6. A governance strategy was also developed to ensure the consistent capture, storage, management, and sharing of digital asset information from the CAFM solutions, in line with UK PAS 1192-3 guidelines *(Note: PAS 1192 has now been superseded by the new ISO 19650 international BIM standard).*