

EMBRACING BIM: WHY BUILDING ENGINEERS HAVE MUCH TO CONTRIBUTE

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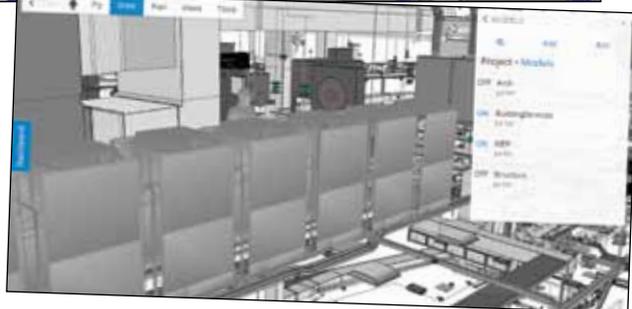


The advent of BIM is changing more than simply embedding 3D modelling into the traditional construction process. It is changing the relationship that different stakeholders have with a construction project, with the impact extending throughout the entire life-cycle of the resulting building. BIM is creating a growing expectation that key stakeholders and contributors to a project will be involved from day one of planning. This includes building engineers, who are tasked with designing and implementing critical elements and sub-systems.

Much of the early focus when adopting BIM was on the design process. The main change has been a more formal requirement for clash detection and the move to adopt 3D tools, which initially weren't up to the job. Federated models are now commonplace, allowing different service providers to quickly review the impact of their design on other services and the project as a whole.

It's true to say that, with BIM, building engineers are involved more collaboratively at the design stage – but the benefits are much greater than this. It is not simply that an efficient, seamlessly integrated sub-system design is now possible, and that clashes are quicker to find and resolve. In a BIM project, it becomes incumbent on building engineers to work with clients and their FM teams from the start. This ensures that KPI's for the lifetime operation of an asset are specified, and that sub-systems are designed in order to meet them. Whole-life costs relating to operation and maintenance (O&M) need to become a more important part of the design criteria for a project. There may be an unwritten expectation that building engineers will get on and do this; however, it is not something they can do alone. It needs to be done as part of a greater collaborative process – the whole reason behind BIM in the first place.

As the 2011 mandate to use BIM on government-funded projects by 2016 draws nearer, attention is starting to shift towards Government



Soft Landings (GSLs) and the handover of building data to clients. A BSI standard called COBie exists, stipulating how this data should be formatted. The idea behind COBie is to make for better interoperability and sharing of data to assist with the ongoing O&M of an asset, but COBie should be considered as the lowest common denominator.

GSLs and extended contractual warranty periods mean that maintaining a comprehensive set of data describing a completed asset will become essential.

Building engineers across all service types will be one of the biggest contributors of information to this dataset. BIM is forcing a requirement for an asset database that does away with the unsorted and un-catalogued mass of printed information of the past. This will provide owners and operators with sufficient information to maintain and operate their sub-systems. Effectively a digital asset will be created during the construction of a real-life asset and handed over at completion time. Sophisticated tools that allow asset information to be recorded from design, through to construction and eventual handover are few and far between, but they do exist. They facilitate the creation of a digital library of O&M information, fully linked back to a 3D model of the building. Such tools will become vital in providing the link between design information, as-built construction data and information required for O&M.

Important lessons can be learned from the pharmaceutical and manufacturing industries. When regulation forced the recording of certain critical information in those industries, it resulted in Board-level decisions that data should be treated and managed as a corporate asset. The result was a demand for better software systems for recording, cataloguing and referencing data that was fit-for-purpose and not simply adapted from older tools.

A similar change is likely to happen in construction as clients and their supply chains start to recognise the value of organised data. We can expect much more detailed consideration as to what information is required to help create and manage O&M programmes. Building engineers and M&E firms can assist the process by working closely with owners and operators to make sure the required data is delivered as part of the digital asset.

Choosing the right kind of system to make handover at completion as painless as possible is vital. The tools must be easy-to-use, allow easy recording and cataloguing of data in the office or on-site, and be referenced directly to a 3D model. Software-as-a-Service (SaaS) tools that allow access anytime, anywhere are highly recommended for this type of application.

BIM is here to stay and is already starting to change the way that construction data is recorded, organised and valued. For the BIM vision to be realised, the spirit of collaboration needs to be fully embraced by all project stakeholders and backed by an easy to use and robust technical solution.

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