

DEMYSIFYING DIGITAL: BIM

What is BIM?

The formal definition of Building Information Modelling (BIM) is the, “use of a shared digital representation of a built asset to facilitate design, construction and operation processes to form a reliable basis for decisions.”

BIM is used broadly to describe a range of project management activities. “Better Information Management” is a more appropriate definition, as the process can be applied to any asset to manage data over its lifecycle.

There is often a common misconception that BIM relates to a particular software, or the actual 3D model, rather than the process of managing project data.

Visualisation is a core aspect of BIM – making it easier to understand the project and key design decisions, regardless of engineering competence.



“The concept of BIM is in continuous flow and thanks to the integration with other technologies and methodologies, it is a key part of Industry 4.0. For example, the Digital representation of our assets can be linked to sensors to create the so called “Digital Twins”, a concept that is getting more attention lately as professionals can get real time information of performances.

Dr. Marzia Bolpagni, Associate Director – BIM, Mace

Definitions

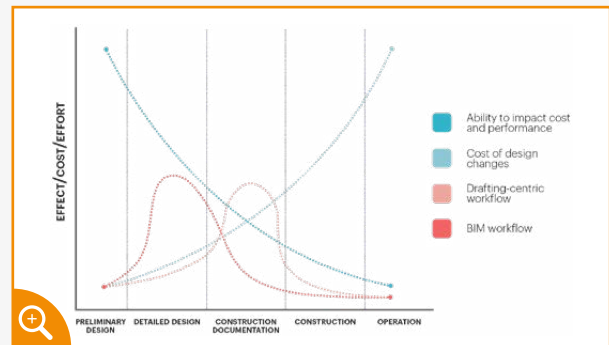
- **CDE, or Common Data Environment:** A key term for BIM, the CDE is an agreed source of project information that allows stakeholders to create, manage and use information through a structured process.
- **BEP, or BIM Execution Plan:** Answer to an EIR or Exchange Information requirements. Details how BIM will be implemented on the project, including standards and workflows.
- **AIM, or Asset Information Model:** A model that supports the management of an asset during the operational phase of its Lifecycle using graphical and non-graphical information.

Why is BIM important?

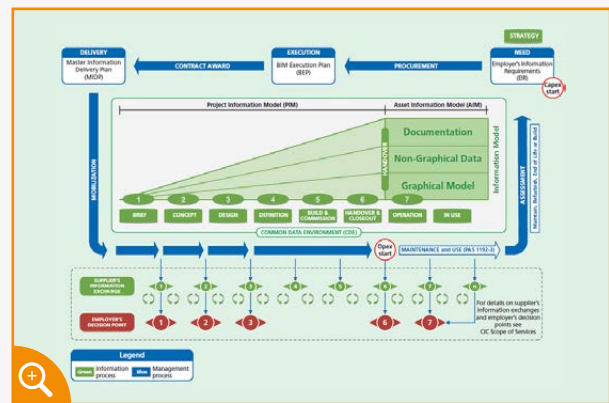
The philosophy behind BIM is to shift the bulk of design work back to the detailed design phase, where the ability to impact the design is high, and the cost of doing so is much lower. With traditional design and project management methods, an average of 30% of the entire cost is associated with rework. BIM facilitates a vast reduction of this waste and improved sustainability factors.

BIM supplies a number of opportunities for analysis of the design, the creation of a federated 3D model allows for spatial coordination and simulations that can highlight potential issues. Cost, time, and sustainability factors can also allow for the refinement of the plan and more effective project delivery.

One of the fundamental themes of BIM is collaboration, supported using a common source of information. By adopting this workflow, it makes communication between all stakeholders much more efficient. This includes a reduction in the amount of time spent searching for information, ending siloed tasks, or using out of date information.



Savings using BIM (MagiCAD)



The BIM information workflow

Looking ahead... what does the future hold?

BIM became a legal requirement for all public sector projects in the UK in 2016. The next evolution of BIM envisions a cloud based, fully cooperative, 3D model that is used at all stages of the project – from design to operation. This can be used by facility management to act as a digital twin of the real asset.

Artificial Intelligence technology may also be integrated to provide information on performance and schedule maintenance to extend the lifespan of the asset.

Key takeaways

- 1 BIM describes a range of information management activities.
- 2 Visualisation is a core aspect of BIM – making it easier to understand the project and key design decisions.
- 3 BIM facilitates a vast reduction in waste owing to a reduction in the need for rework.
- 4 The future of BIM could see the emergence of a digital model with real time information.