

# Building Information Modelling and collaborative construction



# How technology is transforming construction

For today's CEO in the construction industry, the drive for faster, more efficient delivery of infrastructure or building projects has never been more challenging. Efforts to improve efficiency are difficult in a market that is too often defined by low margins, aggressive procurement, skills shortages, uncertain work pipelines and complex supply chains.

In the construction and asset management industry the use of a Building Information Model which is shared by partners is becoming more and more commonplace. The adoption of Building Information Modelling (BIM) requires organizations and individuals to change the way they work. They must accept that traditional roles within the supply chain and client organizations may need to be redefined to successfully implement the new processes and information management requirements of BIM. However this approach offers multiple benefits including faster, safer and ultimately more efficient solutions for clients. As the construction industry is being revolutionized by the increasing adoption of BIM it's crucial that CEO's are aware of this opportunity and what it may mean for their organization.

92%

expect to be using BIM within three years, and 95% within five<sup>1</sup>.



In terms of BIM maturity, less than a third use one model through the life of a project, or produce a format independent model<sup>2</sup>.

BSI has played a key role in the development of BIM standards:-

- **BS 1192:2007+A1:2015** – Collaborative production of architectural, engineering and construction information. Code of practice.
- **PAS 1192-2:2013** – Specification for information management for the capital/delivery phase of construction projects using building information modelling. Pioneering the Building Information Modelling Standard.
- **PAS 1192-3:2014** – Specification for information management for the operational phase of assets using Building Information Modelling.
- **BS 1192-4:2014** – Briefing for design and construction. Code of practice for facilities management (Buildings infrastructure) Collaborative production of information. Fulfilling employer's information exchange requirements using COBie. Code of practice.
- **PAS 1192-5:2015** – Specification for security-minded Building Information Modelling, digital built environments and smart asset management.
- **BS 8536-1:2015** – Briefing for design and construction. Code of practice for facilities management (Buildings infrastructure).

As a Royal Charter company with 80 offices worldwide, we have a global reach to help any organization involved in the construction supply chain. This will help them to have robust supply chains, manage assets effectively, and operate efficiently.

# What is BIM?

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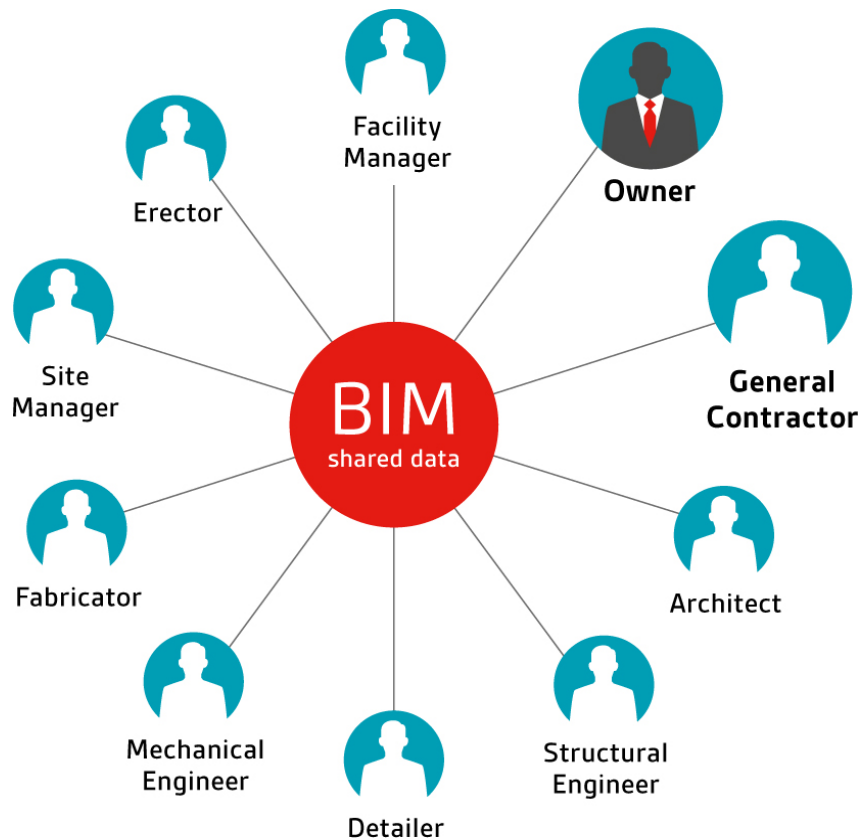
Building Information Modelling (BIM) is a collaborative way of working underpinned by digital technologies, which allow for more efficient methods of designing, delivering and maintaining physical built assets throughout their entire lifecycle.

In essence, BIM is the management of information through the whole life cycle of a built asset, from initial design all the way through to construction, facility maintenance, and finally de-commissioning. It can be used for a wide range of projects such as a new buildings or other infrastructure projects.

It's all about collaboration - between engineers, owners, architects and contractors in a three dimensional environment, and it shares information across these disciplines. BIM allows design and construction teams to

communicate about design and coordinate information across different levels that has been unseen before. This information remains with the project throughout its lifetime.

BIM is now becoming the standard of the construction industry. It is relevant for the majority of organizations working in the architectural, engineering, construction and infrastructure sectors, whatever their size, as well as contractor's clients who require their supply chain to use BIM processes and tools.



# BIM and its global context

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Megatrends such as demographics and urbanization have driven the need to adopt BIM, as has the need to transform and make construction more efficient. BIM is now at the heart of the future strategy for construction in many parts of the world.

Leaders from Europe's architecture, engineering and construction industry expressed their support of the European Parliament's decision to modernize European public procurement rules by recommending the use of electronic tools such as building information electronic modelling, or BIM, for public works contracts and design contracts.

- The adoption of the Directive, officially called the European Union Public Procurement Directive (EUPPD) means that all the 28 European Member States may encourage, specify or mandate the use of BIM for publicly funded construction and building projects in the European Union by 2016.
- In the use of UK, Collaborative 3D BIM will become mandatory for government projects in 2016.
- In the USA the General Services Administration (GSA) has mandated that buildings designed through its Public Building Service (PBS) use BIM at the design stage as a minimum. In the USA BIM adoption is currently estimated at being in the region of 70%\*.

\* *Constructionmanager.co.uk, March 2015*

- Singapore has one of the most advanced construction industries in Asia and a 2013 survey found 76% of firms were using BIM. In 2015 BIM becomes mandatory for new building projects over 5,000m<sup>2</sup>.
- Public sector BIM standards or requirements are already in place for Norway, Denmark, Finland and Sweden. BIM is in place for the Statsbygg government property agency in Norway. Finland's Senate Properties, a state-owned enterprise requires IFC/BIM in its projects and intends to have integrated model-based operation in future.
- In China, BIM has been included as part of its most recent National Five Year Plan and China is formulating a BIM framework.
- Brazil's National Department of Transport Infrastructure is embracing BIM in the hope of making 30% cost savings. Elsewhere in Latin America, Panama's ongoing project to add a new set of locks at either end of the Panama Canal has adopted BIM from the start, and a new airport for Mexico City will also use it.
- Dubai has had a BIM mandate since 2014 which applies to all buildings of 40 stories or higher, buildings of 25,000sqm, all hospitals, universities and public buildings.

The adoption of BIM by the construction and asset management industry requires organizations and individuals to embrace change and new roles within the supply chain. The BSI services outlined in this brochure address how building information modelling can be implemented within an organization and help you to demonstrate BIM capability down through to the supply chain and also BIM Level 2 Compliance to the 2016 UK mandate.

