

How building information modelling could help transform the local construction industry

By [Bongani Dladla](#)

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Rapid advances in technology and a qualitative movement towards collaboration and information-sharing will undoubtedly shape the future of the South African construction sector.



Bongani Dladla, CEO of the CIDB

Building information modelling (BIM) is a powerful tool to accelerate this transformation and there are encouraging indications that it is increasingly being used to deliver cost-effective projects in both the public and private sectors.

The lingering feeling of malaise that is caused by global concerns about rising inflation and weaker economic performances, accentuated locally by the electricity crisis, will not continue indefinitely.

The construction sector is an important bellwether to gauge the health of the broader economy. Once there is an uptick in construction activity, it will inevitably lead to a resurgence in sectors such as manufacturing, retail, and the property sector.

The Construction Industry Development Board (CIDB) has a material interest in such developments. The entity plays a pivotal role as a regulator, a facilitator, and a catalyst for the creation of an inclusive construction industry which can be a primary contributor to a prosperous economy and social

inclusion.

It is, thus, important that the construction industry prepares and positions itself for a future in which information technology, digitisation, virtual and augmented reality are continuously shifting the boundaries. These developments present a unique opportunity to drastically reduce miscommunication and provide a link to the real world before construction commences.



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Very dynamic sector

Across the world, the construction sector is often unfairly associated with issues relating to low productivity, rising costs, poor quality and lack of information-sharing between project participants. However, it is also a very dynamic sector, known for its flexible ability to adapt, to innovate and to embrace new materials, technologies, and processes.

Projects are increasingly becoming more complex and the expectations of clients on issues such as the environment and the carbon footprint of construction activities continue to escalate.

It stands to reason that new-generation information tools that can streamline construction activities and link the expectations of clients with the outputs of contractors can assist to solve such issues.

BIM enables such collaboration. It creates and manages all information on a project throughout its entire life cycle – from initial design and planning, through construction, maintenance, and eventual decommissioning. Digital twin technology is also enabled by proper management of information during the planning, design and construction phase of infrastructure development.

It enables all participants in a project to communicate about each stage to share information, raise pertinent issues and solve any problems that might arise. Furthermore, it creates a virtual construction environment in which all the professionals and contractors can collaborate to ensure the successful delivery of a project.



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Clear benefits to using BIM

In practice, BIM establishes a virtual information model that is shared by the various disciplines within the design team, main contractors, subcontractors and client. Each professional contributes data which pertains to its specific discipline to create a shared model which serves as the basis for project management.

The benefits of BIM are clear and obvious. It results in faster and more efficient processes. It increases productivity, manages expectations, eliminates fragmentation, controls cost and reduces wastage. Moreover, it democratizes the value of information-sharing.

The adoption of BIM varies from country to country. In Europe, it has grown into a standardised tool in project management, and it is also becoming increasingly accepted in jurisdictions such as Singapore, South Korea and Malaysia.

Barriers to adoption

The global experience shows that the main barriers to the adoption of BIM pertain to low levels of awareness, perceived high initial costs associated with technology changes and training, and corporate culture resistance. However, this is changing as the industry becomes more aware of the immense benefits that can flow from cooperation between project participants and the sharing of information on accessible platforms.

A recent study, published by Cliffe, Dekker, Hofmeyr, notes that there has been an uptake in the utilisation of BIM in the local construction sector, primarily in the design phase. However, “it has yet to reach mass adoption across the construction phases”.

This situation might be changing for the better. University of Cape Town academic, Amanda Mtya, has highlighted the significant benefits that advancements in computational technologies and processes bring to higher levels of productivity, greater efficiency, and reduced lifecycle costs on projects. Mtya concludes that there is “a statistically significant relationship between the level of BIM capability and project performance”.



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Potential for national BIM mandate

There is, thus, a strong case to be made for the greater utilisation of BIM within the construction industry. In a recent study published in the *Journal of the South African Institution of Civil Engineering*, Stephan Calitz, noted that the South African government is the largest asset owner in the country, but it has not yet made BIM a requirement on all public projects. However, he concludes that “a national BIM mandate could be expected in the near future” in line with government’s efforts to promote digitalisation.

This will undoubtedly help to transform the local construction sector and have a downstream benefit for lower-grade contractors who participate in public-sector construction projects and acquire skills and experience which enable them to become primary contractors in future.

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