

DELIVERING VALUE WITH BIM

A BUILDING INFORMATION MODELLING (BIM) MODEL IS CHARACTERISED BY A THREE-DIMENSIONAL REPRESENTATION OF A CONSTRUCTED ASSET BASED INFORMATION ABOUT THE ELEMENTS BEYOND ITS GRAPHICAL REPRESENTATION.



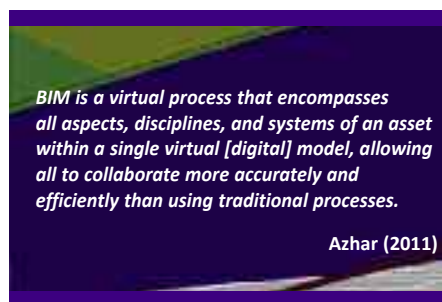
Here the term BIM refers to a 3D design and modelling technology and database that provides enduring and transferrable digital information for the design, construction, project management, logistics, and material requirements of built environment assets. BIM, also known as Virtual Design and Construction (VDC) or Digital Engineering, can be used to facilitate a wide range of tasks and processes across the life-cycle of a building or infrastructure asset.

In 2014, the Australian Sustainable Built Environment National Research Centre (SBEncr) published a series of recommendations based on extensive national and international industry research that could help Australia's transport infrastructure industry to develop a coordinated national strategy to implement BIM.

This proposal highlighted the key coordination and leadership role that could be taken by the Transport and Infrastructure Senior Officials' Committee (TISOC) and the Transport and Infrastructure Council. This followed recommendations by the Australian Productivity Commission in 2013 which highlighted that a more widespread adoption of BIM could enhance productivity across the industry and in turn have a positive impact on the cost structure of infrastructure projects.

TISOC members such as Department of Planning, Transport and Infrastructure in South Australia, Main Roads Western Australia and Queensland Transport and Main Roads have reported research and pilot projects into BIM requirements and procedures. Transport for New South Wales, another TISOC member, has also recently recommended that this body takes a leadership role in smart ICT design and planning of infrastructure standards. Over the past few years, Transport for New South Wales has been trialling elements of BIM on a number of projects, in collaboration with industry. It has also developed a long-term strategy to implement BIM across the transport sector and plans to establish a dedicated team to transform

business processes. The Victorian Government has also announced its own BIM pilot program with the *potential staged implementation of BIM across infrastructure projects in future* (Hayes, 2015). Talks among the ACIF/APCC¹ BIM Summit Group, formed by the leadership of these organisations and other such as buildingSMART Australasia, have also led to the decision of increasing their focus on infrastructure for future dissemination and advocacy actions.



A common concern among new adopters, especially small and medium enterprises (SMEs), is the initial cost of implementing BIM and its applicability to small infrastructure projects. A survey carried out in the US found that, due to their shorter duration, small projects present more opportunities to introduce the use of BIM and the smaller size of organisations is advantageous in driving higher levels of implementation. This survey showed that 67% of all BIM users report a positive return on investment (ROI) for BIM use in infrastructure projects and 38% of those firms measuring ROI considered sustainability as an important contribution to higher ROI. In Australia, over half of the firms that focus on infrastructure projects reported over 25% ROI from implementing BIM.

Current research by SBEncr, through its project *Driving Whole-of-life Efficiencies through BIM and Procurement*, aims to identify

and assess the added value of implementing BIM across a number of areas across and beyond financial measures. Outputs from this project will provide a base for organisations to improve their approach to implementing BIM and monitoring their progress towards fully integrated whole-of-life asset management systems for clients.

This project has carried out three exemplar case studies being published between July and October 2015 through its website – sbenrc.com.au. These include the New Generation Rollingstock Depot in Queensland (design focus), the Perth Children's Hospital in Western Australia (construction focus), and the Sydney Opera House in New South Wales (asset management focus). These cases focus on the benefits experienced, the tools used and potential metrics to measure these benefits as well as general lessons learned for managers and drivers for implementing BIM. Other outcomes include a BIM Value Realisation Framework and interactive online tool developed in partnership with NATSPEC to help managers create strategies to identify, evaluate and monitor benefit from BIM. The research will also map the skills required by certain trades to help knowledge providers close the skills gaps in this area.

The SBEncr team is developing all these outcomes in close collaboration with SBEncr's Core Partners: Aurecon, Curtin University, John Holland, Government of Western Australia, Griffith University, New South Wales Roads and Maritime Services, Queensland Government and Swinburne University; and Project Affiliate: Construction Skills Queensland. The team is also collaborating with influential national and international industry peak bodies such as the Australian Institute of Building (AIB), buildingSMART Australasia, Civil Contractors Federation (CCF), Civil Contractors New Zealand (CCNZ), Engineers Australia, International Facilities Management Association (IFMA), NATSPEC and Spatial Industries Business Association (SIBA). □

References

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¹ The Australian Construction Industry Forum (ACIF) and Australasian Procurement and Construction Council (APCC) established a BIM Summit group as a *knowledge hub to promote the better understanding of BIM activities underway and to avoid duplication of effort* (ACIF, 2013).