



Meeting government policy objectives through the adoption of Building Information Modelling (BIM)

ENDORSED BY:



Australian governments would be better positioned to achieve policy outcomes by adopting Building Information Modelling (BIM) and related digital technologies and processes.

Industry Context.

In recent years governments at all levels across Australia, have committed to significant policy targets regarding public construction, emissions reduction, procurement transparency and value for money public assets. Yet achieving these targets remains a vexing problem for most jurisdictions because of the lack of adoption of transformative technologies that would enable such targets to be met. In some jurisdictions the disconnect between the policy targets and the mechanisms to achieve them are great, making them difficult to achieve.

However things do not have to be this way.



The technologies necessary for government to deliver on their local, state, national and international policy commitments in many instances already exists.



This is the case with BIM (Building Information Modelling) that conclusively shows in UK, Singapore, Norway and other countries to be a major public policy enabler. Specifically the adoption of BIM and other digital engineering technologies enables:

- Lower cost public buildings and infrastructure.
- Reduced carbon emissions from building and infrastructure.
- Delivery of public projects as promised (on time, on budget and to the expected standard).
- Transparency and accountability in government project decision making.
- Improved construction industry productivity and labour market improvements including safety.
- Improved operation and maintenance of public assets.
- Harmonisation of information across departments and agencies leading to better records and reporting associated with public assets.
- Removal of reliance on software houses now and in the future for Government organisations.
- Transitioning of workforces from obsolete industries (e.g. Australian car manufacturing and brown coal power generation) to 21st century digital industries.

The clear benefits of BIM in helping achieve policy targets have also focused consistently in Australian government reports and policy documents:

- Productivity Commission – *Inquiry Report into Public Infrastructure* – July 2014 (Recommendation 12.5).
- Infrastructure Australia – *Australian Infrastructure Plan – Priorities and reforms for our nation's future* – February 2016 (Recommendation 10.4).

- Queensland Government – *State Infrastructure Plan – Part B: Program* – March 2016 (Implementation Action 15 and Opportunity 10).
- House of Representatives, Standing Committee on Infrastructure, Transport and Cities – *Report on the inquiry into the role of smart ICT in the design and planning of infrastructure* (March 2016).

buildingSMART Australasia (bSA) advocates that all Federal, State, Territory and Local governments:

- 1** • Adopt collaborative BIM based on open standards for information exchange (commonly referred to as Open BIM) throughout the procurement of all public buildings and infrastructure from July 1, 2017.
- 2** • Establish performance measures to ensure that BIM is being used effectively on public projects and meeting set policy targets with reporting to the relevant Building or Infrastructure Minister of any failures in adoption.
- 3** • Establish a joint government and industry rapid-response taskforce (perhaps a function of the new Australasian BIM Advisory Board) to deal with any barriers to the adoption of full collaborative BIM that Governments might experience.
- 4** • Identify exemplar public projects that can be used to demonstrate the effectiveness of BIM adoption such that prospective private building owners and developers will understand the benefits of BIM services and products.

Industry aids to Government BIM adoption

bSA is a chapter of buildingSMART International and is able to bring considerable international experience to bear in support of the adoption of BIM.

bSA is a chapter of buildingSMART International and brings considerable international experience to bear in support of the adoption of BIM. To aid Government in any requirement for collaborative BIM being used throughout the procurement of all public buildings and infrastructure from July 1, 2017, bSA has detailed the following areas of work:

PROCUREMENT

Management of risk, intellectual property, insurance and warranty requirements for clients, consultants and constructors through new forms of procurement contracts that support collaborative, model-based procurement processes. – e.g. Department of Defence and new South Australian contracts being drafted.

PRODUCT DATA AND LIBRARIES

Easy access to building product manufacturers' certified information for use in all types of model-based applications through an Australian on-line BIM Products Library as recommended by the SMART ICT Report. Lead Industry Organisations: BPIC/NATSPEC/ALCAS

DATE EXCHANGE PROTOCOLS

Open standard data exchange protocols that will support collaboration and facilitate integration of the briefing, design, construction, manufacturing and maintenance supply chain throughout the entire life of a built facility. - Lead Industry Organisations: buildingSMART (bSA)



REGULATORY FRAMEWORK

Mechanisms for planners, local government and government regulatory bodies with integrated data of building and service system elements, land, geospatial and definition of human and related activities to measure and analyse performance of built form. - Lead Industry Organisations: ePlanning/SIBA

These national BIM adoption areas of activity are the result of stakeholder consultations undertaken at workshops conducted in March and April 2012 in Adelaide, Brisbane, Canberra, Hobart, Melbourne, Perth and Sydney attended by a broad cross-section of the Australian building and construction industry, and these results are just as relevant today.



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International role models

***The United Kingdom (UK)
Government recently announced
that BIM is now a minimum
required by government
from 2016.***

Their chief construction adviser, Paul Morrell, has identified BIM as one way that government can deliver better value for the UK taxpayer. In his view, using BIM will lead to significant innovation and integration across the supply chain. Furthermore, his guiding statement is that BIM is not about a specific technology or product, but a process to give clients all the data that is of use to manage the facility after hand over.

The United Kingdom is expecting to achieve a 20% reduction in procurement costs for government buildings compared with traditional practice through the introduction of its requirement for full 3D collaborative BIM to be used on government building procurements.

Other overseas jurisdictions that already require the use of BIM for government building procurements include the United States, Norway, Finland and Denmark. Western European countries such as Sweden, the Netherlands, France and Germany are investing heavily in infrastructure related BIM.

In our region, China, South Korea and Singapore have taken steps to achieve BIM implementation through a planned approach. For example, the Singaporean Government is well into applying a mandate for BIM, offering incentives to those willing to be the early pathfinders towards a goal of increased industry adoption, and ultimately full BIM submissions.

DEFINITIONS

— BIM (Building Information Modelling) is generally regarded as a process whereby a full 3D digital prototype of a planned facility (whether that is a building, piece of infrastructure or an urban precinct) is created during the planning and design stage and then maintained and updated throughout its life cycle to facilitate design collaboration across all disciplines, coordination during the construction and delivery phases, with handover of the as-built model to support on-going asset management and operation of the facility.

— Open BIM is a term used to describe the same process when the digital prototype is structured in a non-proprietary, open-standard format and the associated processes are supported by industry-standard tools for managing information exchange between proprietary software tools and open access to standardised object libraries that host manufacturer's product data.



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The role of buildingSMART AUSTRALASIA (bSA)

buildingSMART provides the worldwide chapter network, plus the necessary technical and process support, to develop open standards that support both your information work flows and those of other businesses you deal with.

buildingSMART Australasia (bSA) is the body tasked with driving the uptake of Building Information Modelling (BIM). bSA's mission is to work with key industry and government leaders to develop, maintain and facilitate the use of open BIM standards, collaborative processes and integrated practices. We are committed to ensuring the improved exchange of information between software applications used in the construction and infrastructure industries in Australia and New Zealand.

bSA's objectives are:

- Improve the policy and regulatory environment for the adoption of common specifications for sharing construction data.
- Facilitate the sourcing of practical information to the industry about common specifications for sharing data.
- Promote common specifications for sharing data to create synergy among the languages of the building and construction industries leading to interoperability of the industry's information systems.
- Help integrate the industry into the global electronic market and improve productivity of the design, construction and operation process in Australasia.
- bSA works to fulfil these objectives by gathering and supplying practical and current industry information on behalf of bSA stakeholders and other organisations and companies that follow bSA through various means. This industry-wide approach to responding to technology, policy and regulatory issues, helps to ensure that Governments are informed of potential opportunities in the building industry and are provided with appropriate industry-considered recommendations.

This Industry Recommendation is endorsed by the following buildingSMART Australasia Members:

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| — Autodesk Australia | — Information Quality | — Bentley Systems International | — John Holland |
| — Arup | — DCTech | — Zuuse | — Master Builders Queensland |
| — Masterspec — Construction Information | — Sofoco Pty Ltd | — NZ Transport Agency | — Investa Office Management |
| — BRANZ | — MWH Global | — CIMIC Group (EIC Activities) | — Lend Lease Building |
| — Hansen Yuncken | — Architectus | — Laing O'Rourke Australia | — BIM Consulting |
| — Aconex | — Exactal Technologies | — NZ Ministry of Business, Innovation and Employment | |
| — Mitchell Brandtman | — Norman Disney & Young | | |
| — 12D Solutions | — Cadimage Group (Graphisoft NZ) | | |
| — Architekton | — AECOM Australia | | |



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