



Australian  
Institute of  
Architects

# Australian Institute of Architects

Response to Queensland  
Government's Building  
Information Modelling –  
draft policy and principles  
for Queensland

## **Submission to**

Department of Infrastructure Local  
Government and Planning

**April 2017**

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## SUBMISSION BY

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## PURPOSE

- This submission is made by the Queensland Chapter of the Australian Institute of Architects (AIA) to the Queensland Department of Infrastructure, Local Government and Planning.
- At the time of this submission the President of the Queensland Chapter is Bruce Wolfe FRAIA.
- This paper was prepared by members of the Practice Committee for the Queensland Chapter Council.

## INFORMATION

### *Who is making this submission?*

- The Australian Institute of Architects is an independent voluntary subscription-based member organization with approximately 11,000 members who are bound by a Code of Conduct and Disciplinary Procedures.
- The Institute, incorporated in 1929, is one of the 96 member associations of the International Union of Architects (UIA) and is represented on the International Practice Commission.

### *Where does the Institute rank as a professional association?*

- At approximately 11,000 members, the Institute represents the largest group of non-engineer design professionals in Australia.

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## **Australian Institute of Architects Response to Qld Government *Draft policy and principles* for Building Information Modelling**

The Queensland Chapter of the Australian Institute of Architects (AIA) welcomes the Queensland Government's initiative to prepare Queensland for Building Information Modelling (BIM).

The AIA supports the Government's aims to:

- deliver efficiency in the procurement and management of buildings and infrastructure
- develop BIM capability across government agencies
- build the capacity of Queensland industry, ahead of any mandated adoption of BIM

### **Investigate and realise the perceived benefits of BIM**

Efficient delivery of building is a goal which the AIA shares with government. To realise *efficacy* of the Queensland response, suitable investment is required to build the capability and capacity necessary to deliver it.

The AIA supports an evidence based approach to identify ways in which BIM can successfully improve the procurement, design and management of buildings and other infrastructure. There is a need to determine how to attain policy goals. Suggested actions are:

**Delivery on time:** Identify resource implications of project planning and design in BIM.

**Reduced project risk:** A 360-degree review of project risk is necessary, if the benefits of BIM are to be realised. The allocation of risk from the use of BIM in integrated project delivery (IPD) needs to be defined and agreed by the various participants. The allocation of risk in the writing of standard BIM Management Plans and BIM agreements requires coordinated input from professional indemnity insurers and state government prior to commencement of any BIM projects in Queensland.

**Improved safety:** Automation of current safety assessment methods will not improve safety. New processes to facilitate design analysis and implement design responses are required. It is also necessary to encourage effective building management processes, including effective input into Safety in Design Reviews from facilities management at design stage. The adoption of these processes will involve increased assessment of the impact safety regulation, require active engagement by government agencies and will incur resource costs.

To Improve **built outcomes and reduce costs:** these are broad goals which may be achieved in many ways, e.g. Intensified BIM prototyping (i.e. more work on detailed design and increased analysis?). Savings in capital or procedural improvements through BIM may require commitment of increased resources in design fees and construction planning to realise them. Client agencies must also be prepared to become involved in a more transparent and lengthy design process.

Building information modelling requires intensive 'front-loading' of design and documentation resources earlier in the design process, which results in a higher consultant fees to be generated during concept, sketch and design development than contemporary design methods. The reference to 'reductions of cost' through BIM will mainly be delivered through

- increased analysis of design, constructional methodology and costs,
- the potential for reduction of changes in scope or detail during documentation and construction,
- better and more detailed understanding of the logistics to build the project and hence
- Reduced construction programmes.

**Improved asset management:** The use of BIM requires improved data management. Automating current practices will not improve asset management, if data is inadequate, obsolete or defective. Asset management is substantially influenced by the facilities management (FM) processes adopted by client agencies. More active BIM-based FM methods will increase the level of detail (LOD) *i.e. the content* required of the BIM model, by asset managers.

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### **The AIA supports an Evidence based approach to BIM**

The impact of BIM will be transformative. A commitment to implement BIM will require commitment to capability and capacity building, the full extent of which cannot yet be determined.

For this reason, the AIA supports the early use of pilot projects to evaluate the costs and benefits of BIM and to distribute the outcomes for industry review and comment.

### **Consistency**

The AIA supports the commitment to a consistent harmonised approach across jurisdictions.

### **The need to Review and consult on BIM requirements.**

A public plan for **consultation** with industry is required in order to work collaboratively with building professions and suppliers in order to generate:

- **reliable** 'open BIM' software
- BIM Management Plans and detailed specifications for BIM models
- cooperative models of professional practice
- viable commercial risk sharing; and
- fair and robust commercial agreements and consultant procurement strategies

It is unclear whether the NATSPEC National BIM Guidelines are the best basis for BIM in Australia. American or British practice provides working examples, which have not yet been properly evaluated for local adaptation.

BIM scheduling of design costs will require intensive data input into models at a level which currently exceeds the resources allocated to any traditional design process or current government capital works program.

### **"Open BIM" is necessary to promote consistency and inter-operability**

Open BIM is welcomed, but is a concept that currently needs contractual definition and, detailed technical realisation.

To guide future planning for mandated BIM in Queensland, active government engagement is necessary. Implications which may not have been considered by government include the need for:

- certification of 'approved' proprietary BIM software, suitable for use as 'Open BIM' on Qld Government projects
- working with international software companies to bring propriety software into conformance with Qld Government requirements.
- transparent procurement and assessment tools to evaluate BIM capability, to evaluate BIM tenders and to assess BIM deliverables.
- "easy and efficient accessibility of BIM data" will require widespread training of asset managers and clerical support staff, not only design professionals.

### **Plan and develop the capacity and skill of local industry.**

The 2023 timeframe for BIM implementation is reasonable only if specifications for BIM documentation, supporting consultant and construction contracts and product supplier agreements can be completed prior to mandated BIM requirements for Qld government projects.

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Industry and client expectations must also be grounded in experience from real-world pilot projects, not mythology derived from software marketing. Current AIA member experience suggests that the potential of BIM software is still evolving, but clearly the potential of BIM is currently far in advance of the BIM contracts available to attain it.

Experience also suggests that even institutional clients often find that the cost of BIM documentation currently exceeds the financial resources they are prepared to commit in order to realise it.

### **Upgrade building data and asset records management**

An area where government is likely to derive benefit from BIM is in asset management. It is important to recognise here, that in BIM the management of embedded *information* is as important as more visible changes to design representation.

If the benefit of BIM is to be delivered, there must be a commitment to invest sufficient resources to build the systems necessary to generate, integrate, maintain and retrieve massive amounts of project data.

This is an area in which the AIA has unique experience to lead investigation into the development of new design processes.

### **Responsible Agency for BIM implementation**

Under the proposed policy, relevant BIM expertise will be developed and maintained by individual agencies. A coordinated and consistent Qld government response, suggests the need for leadership and consistent management to ensure:

- the BIM capability of any agency
- consistency in the creation of BIM project plans and BIM deliverables
- records management consistent with any proposed Qld BIM Management Plan.

### **Summary:**

**BIM requires a completely new methodology.** The impact of BIM will transform procurement, design, construction and building management. Mandatory adoption of BIM requires intense generation, coordination and retrieval of building information, which will substantially exceed the volume and intensity necessary for traditional construction documentation and existing procurement and asset management techniques.

The development of capability in the broadest sense is necessary to capture the perceived benefits of BIM. The legal and commercial framework necessary to support BIM is embryonic. Development of new contracts for design consultants in conjunction with industry supported BIM management plans is necessary.

### **Recommendations**

The AIA welcomes Qld government leadership in BIM, and offers support to this initiative. In order to achieve the stated policy goals the AIA recommends:

1. Detailed public plan for the consultative development of BIM capability.
2. Close involvement with the AIA and ACA, Engineers Australia, Universities and product suppliers to define viable BIM methods for Queensland. Including
  - BIM protocols ,
  - BIM Data Transfer Protocols and Specifications,
  - BIM Management Plans and
  - Legally robust and commercially viable consultant contracts, BIM management plans and BIM model specifications, construction contracts, product specifications and supplier agreements.
3. AIA representation is sought on the Queensland BIM Working Group by the AIA and the ACA for architects and other professional advisory groups, including engineers and construction law professionals.
4. Investigation of incentives for Qld industry participants who invest in technology and capability development, to maintain and reinforce the software development by international software suppliers that will be responsive to local requirements.

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As a leading profession in design and construction, the AIA is ready to provide insight and practical advice about design processes and the administration of construction contracts. The skill and experience of the AIA can be utilised to provide experienced input into the technical, training and commercial requirements of this exciting transformation of design and construction practice.

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