

21 April 2017

Department of Infrastructure, Local Government and Planning

EMAIL: infrastructurepolicy@dilgp.qld.gov.au

Dear Sir/Madam

RE: Building Information Modelling – draft policy and principles for Queensland

Thank you for the opportunity to provide an initial response to the government’s proposed *Building Information Modelling - draft policy and principles for Queensland* (the draft policy).

Master Builders welcomes the government’s recognition of the important role of Building Information Modelling (BIM) in advancing efficiencies, productivity, innovation and safety performance within the construction industry in Queensland.

In general, Master Builders is supportive of using the government’s procurement policy as a way to drive the diffusion and adoption of the BIM technologies within the industry, subject to our comments below. It is well recognised that the construction sector in Australia, and also Queensland, are lagging behind the industry in many other countries who have already proceeded (and some are well advanced) down a similar path of driving diffusion of BIM through government policy.

Our understanding is that the draft policy is intended to be a high level document which will provide the framework and direction for further detailed strategies. We have, therefore, attempted to limit our comments to this higher level rather than the specifics. Our comments are itemised below, using the headings contained in the draft policy.

1. Introduction

We believe that a working definition of BIM is required in this high-level draft policy to ensure clarity. Our experience is that industry and practitioners’ understanding of what BIM is varies widely and the diversity of definitions creates confusion.

A good example of defining BIM for policy purposes can be found in the UK government’s Construction Strategy 2011 – 2015 and 2016 – 2020, where “levels” of BIM are identified, roughly based on complexity of technology and how far down the value chain the technology is adopted.

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Policy objectives in the UK are tied to a phased approach aimed at achievement of a desired level of BIM within a specified timeframe. This appears to be a sensible approach, specifically in the Queensland environment where the use and value of BIM at the end of the value chain (in asset management/maintenance) is less well developed.

2. Scope

The draft policy should acknowledge in its “Scope” that the construction industry operates in a national market and the intent is for the Queensland government’s initiative to align with national developments. There is a real risk that should the Queensland government’s mandate for BIM be out of step with the national market, this could lead to a reduction in national contractors and subcontractors competing for projects in Queensland. The resultant reduction in competition may then see BIM requirements driving costs up instead of resulting in savings. Inconsistency between State and Federal policy is likely to slow down adoption rates and lead to unequal diffusion within the industry.

We believe the scope of BIM application on government projects ought to be dictated by the evidence of value created. It is common in other jurisdictions for governments to mandate the use of BIM dependent on the nature of the project. There is now sufficient evidence available to suggest that value realisation through BIM is linked to project size and complexity, acknowledging that the return on investment is not universal for all projects. We would therefore caution against a policy approach that adopts a blanket mandate for all projects, regardless of size or complexity.

The current wording in the draft policy appears to be contradictory in that it provides for BIM to apply to “all new infrastructure assets” and also “smaller new projects....where cost effective”.

3. Objectives

We recognise that the deadline of 2023 for full BIM adoption is ambitious. We are also acutely aware of the Australian construction industry being a laggard in the adoption of BIM. To achieve the ambitious timeline, we recommend intermediate milestones be included in the draft policy to ensure a consistent drive and level of urgency is maintained through the change cycle.

It is also worth noting that other governments (UK, Netherlands, USA) have clearly quantified objectives relating to the percentage efficiencies and savings they are hoping to realise. Without clearly quantified targeted savings, it will be impossible for Treasury to evaluate the cost-benefit of the policy. This, in turn, will make it very difficult to ensure adequate funding for the direct and indirect costs associated with BIM implementation.

Successful change management resulting from technological innovation requires a significant investment in people, systems and processes. Investment in education and training, both for government employees and industry, will have to be significant in order to achieve the ambitious timelines set. Skills shortages and poor change management processes will lead to policy failure. Therefore, the draft policy should acknowledge these key success factors.

4. Audience and application

We would also recommend that the BIM policy be incorporated in the broader Queensland government's Infrastructure Plan, to ensure a holistic approach is followed across government departments/agencies.

5. Principles

5.1. Open

We support the use of Open BIM, but would like to see the policy provide high-level guidance on how this will be achieved. For example, does the government intend to mandate a specific BIM platform for use by government departments and agencies? How will this platform be selected, developed etc.?

5.2. Managed

We recommend that the policy identify principles to guide BIM information management by government departments/agencies. Our understanding is that PAS1192-2 may be suitable, especially since it is anticipated to become a global standard. BIM information management requirements will influence the BIM requirements placed on contractors at tender stage and should be consistent across government. In our view it cannot simply be left to the asset owners/maintainers to determine.

5.3. Effective

The amount of coordination required between stakeholders including government, industry, technology providers, education providers and research institutions to successfully implement BIM by 2023 will require government to create a centralised body to coordinate the change process. We recommend the draft policy provide for the establishment of a BIM Steering Committee or similar to ensure effective roll-out of strategies and to provide a feedback platform for stakeholders.

We welcome the use of asset-specific standards but are concerned with the use of the NATSPEC National BIM Guide. Government should seek feedback from the early BIM adopters on the appropriateness of the NATSPEC framework, specifically those constructing lineal infrastructure as our understanding is that NATSPEC may not be fit for their purposes.

We equally welcome the government's intent to advance the use of BIM in the regulatory areas of workplace health and safety. Safety in design and improved communication, facilitated by BIM, between all parties involved during the design and construction phase will enable better safety outcomes. Again, a BIM Steering Committee should ensure representation from stakeholders with expertise in workplace safety.

Though we welcome the use of Employer Information Requirements (EIRs) to provide minimum BIM requirements to industry, it should be left to industry participants to determine the manner in which they intend to meet the EIRs. The use of EIRs should therefore strike a balance between sufficient guidance and not being overly restrictive.

5.4. Supported

Again, we would recommend that a BIM Steering Group, or similar, be created to guide and coordinate the roll-out of BIM in government departments and agencies.

We recommend the draft policy provide for the establishment and funding of a Centre of Excellence. Highly successful training centres in Hong Kong and Singapore, as well as Crossrail UK's Cross Information Academy, can serve as examples of how this can be successfully achieved. In these jurisdictions, the government training facilities have evolved and expanded to include broader industry, especially small and medium sized enterprises (SMEs). Government assistance with training has resulted in accelerated adoption amongst SMEs and fosters consistency in understanding and approach to BIM technology amongst the different stakeholders.

6. Implementation and alignment of principles

We welcome the proposed use of pilot projects and would like to see a wide spectrum of projects, both in terms of size and complexity, as pilot projects. It is especially important that at least one pilot project is a small project (less than \$5 million in value) and include contractors who are new adopters of BIM technology. The draft policy should clearly state that measures of success need to be developed for pilot projects and the projects' evaluation should be based on these.

It is not clear from the draft policy which government department/agency will have carriage of communications strategy, training strategy etc. Clear roles and accountabilities should be specified at a high level.

The policy should state how the implementation of BIM will be aligned with the government's overall procurement approach, specifically as it relates to cost factors. For example, will lowest price continue to be sole determiner of tender success, or will a cost premium be allowed for to build BIM capacity?

The policy does not clearly articulate cost-benefit considerations by government and how the initial up-front cost to industry will be distributed through the value chain. buildingSMART, in its submission to the Productivity Commission Infrastructure Inquiry in April 2014, made a strong case to show that the impediments to the adoption of BIM cannot be overcome by the market without assistance from government.

In countries well advanced in BIM technology diffusion, such as Singapore, Finland and the UK, significant government resources were expended to develop and maintain the infrastructure that facilitates BIM adoption. These governments invested in training, developing national standards, BIM libraries and direct subsidies/incentives to industry to increase the pace of change. Master Builders strongly encourages the government to utilise its fiscal policy to provide incentives for BIM implementation.

It should also be borne in mind that many contractors in our industry are under-capitalised and operate on very low profit margins which inhibit their ability to invest in BIM technology. In the

short term, if they do not regularly work on government projects (and thus the regular usage of the technology is not confirmed), they are likely to conclude that there will not be a sufficient return on their upfront investment and as a result will not adopt BIM technology for longer term benefits. This could delay diffusion of BIM technology despite the government's best intentions. This in turn reduces the pool of qualified tenderers to uncompetitive levels. Less competition will not yield greater value for money for public sector investment. Government assistance in the short to medium term should eliminate this unintended consequence of mandating BIM.

Conclusion

In addition to our comments above, the following also need to be considered:

- BIM adoption will require significant changes to the procurement models and contracts used by government. Legal issues such as intellectual property rights, the risk associated with an integrated approach to design and construction, resultant insurance and warranty requirements are all critical considerations.
- The technological maturity of the supply chain will be a critical success factor for BIM diffusion. Head contractors will require their sub-contractors and suppliers/fabricators to be "BIM literate". The majority of subcontractors will be SMEs, which poses significant and unique adoption challenges.

Lastly, we are seeking clarification from the government on the following: Has the draft policy been costed by Treasury; and has a cost-benefit analysis been conducted on the implementation of the policy?

Regards,



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