AIB Policy on Building Information Modelling (BIM)

Summary

The professionals that Australian Institute of Building represents are key stakeholders in the implementation of Building Information Modelling (BIM). AIB supports the widespread adoption of BIM in Australia as a means of increasing efficiency in the building and construction industry. The AIB believes that the uptake of BIM is likely to be increasingly employed by larger firms in the building and construction industry, and will eventually become the norm in the industry and employed by all sectors.

BIM is an approach that is increasingly being recognised as the key to progressing integrated project delivery in the building and construction sector, and is increasingly being employed by stakeholders including designers, clients, manufacturers and constructors throughout the industry. The significant advantages of BIM will preclude the need to mandate its use.

Background

Despite the current common misconception that BIM is a fully developed computer software program, it is actually "a process involving the generation and management of digital representations of physical and functional characteristics of a facility. The resulting building information models become shared knowledge resources to support decision-making about a facility from earliest conceptual stages, through design and construction, through its operational life and eventual demolition." (1) The concept of BIM has been around for over 20 years, and while the process is being increasingly adopted there are still a number of issues that need to be sorted out before the process can be considered as fully operational and available for adoption universally. Some of the key issues concern the adoption of a universal language and nomenclature; the development of universally acceptable compatible computer software or a means of enabling compatibility of software or the acceptance of universally accepted software; IP ownership to name a few.

Despite these issues, governments of many countries now require that submissions for infrastructure projects be made using building information modelling (BIM) technologies. These currently available resources – which can further create simulated environments in virtual reality (VR) and augmented reality (AR) – are becoming integral to developing a holistic vision.

Benefits of BIM

It has been estimated that accelerated widespread adoption of BIM could have boosted Australia's Gross Domestic Product by 0.2 points in 2011. (2.)

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The benefits to be achieved by the adoption of BIM are widely recognised and include:

- Managing building information using a building information model can lead to substantial cost savings, from design and construction through to maintenance. (6.)
- The model saves time and waste on site, and extra coordination checks are largely unnecessary. (6.)
- The information generated from the model will lead to fewer errors on site caused by inaccurate and uncoordinated information. (6.)
- When all members of the construction team work on the same model, from early design through to completion, changes are automatically coordinated across the project and information generated is therefore of high quality. (6.)
- Information Technology (IT) is an integral part of today's commerce, and transferring information from designers to the producers/constructors is an example where, with the availability of modelling software, the tools are in place. (6.)
- Reduced uncertainty. (1)
- Improved safety. (1)
- Early identification of problems before they arise. (1)
- Simulating and analysing potential impacts;
- Ability of subcontractors to provide early input increasing opportunities for pre-fabrication or pre-assembly off-site. (1)
- Minimising waste on-site (*Research has suggested that the construction industry wastes approximately 30 per cent of its efforts due to coordination errors, incorrect materials and labour inefficiencies.* (1.)
- Products can be delivered on a just-in-time basis rather than being stock-piled on-site.

The Future

Issues surrounding ownership, intellectual property and copyright are of concern to some sectors of the industry, and will need to be addressed. Building owners are increasingly seeing the provision of a fully completed BIM as a deliverable at the project handover to the client, however, exactly what the deliverables entail and who is responsible for these deliverables is rarely well articulated in the project request for proposals or construction contracts. Resolving the responsible entity for the hosting and management of the BIM model also needs consideration, noting that the carriage of the model requires considerable discipline, resources, and IT infrastructure. In addition to the above the AIB advocates that in order to address specific barriers to the adoption of BIM the following key issues also need to be addressed:

- Agreed standards and guidelines;
- Interoperability of software;
- Agreed regulatory framework;
- Appropriate education, training and skills development for industry participants including major clients/building owners; and
- Clear communication addressing information failures. (3.)

These issues need to be resolved in a consultative and systematic manner, and the appropriate legislation provided, prior to the widespread uptake of BIM.

Successful BIM implementation necessitates having appropriate clauses regarding BIM written into contracts including clear and thorough technical specifications regarding the basis for the model development and exchange. Project conditions must at a minimum clarify the following:

- The project guidelines and contracts in relation to BIM.
- Building standards.
- The ownership of deliverables and associated intellectual properties.
- Risks and insurance implications that could be encountered. (4.)

AIB advocates establishing a series of non-vendor specific customised BIM software packages compliant with any relevant current or future Australian Standards, and minimum model standards and requirements for suppliers, including workflows specific for construction sector. Standards Australia will need to monitor the need for BIM standards over coming years.

Actions

- AIB will continue to distribute BIM information, and information on BIM seminars to members;
- AIB will endeavour to be involved in the development of BIM protocols and standards;
- AIB accredited building/construction management courses will require the inclusion of BIM;
- AIB will promote BIM careers in Australia; and
- Progress the further implementation of BIM in Australia, by continuing the commitment to consult with Government, key industry stakeholders and software developers. These stakeholders will be consulted to encourage the establishment of a series of non-vendor specific BIM software packages compliant with Australian Standards.
- AIB will work with other professional institutions in the construction industry to see a similar understanding progress through the professions. This should include combined CPD events and potentially multi-institution sanctioned guiding documents.

Sources

1.) Smith, Deke (2007). "An Introduction to Building Information Modeling (BIM)". *Journal of Building Information Modeling*: 12–4. http://www.wbdg.org/pdfs/jbim_fall07.pdf

2.) (The Allen Consulting Group (2010: X), "Productivity in the Buildings Network: Assessing the Impacts of Building Information Models")

3.) http://www.bimmepaus.com.au/libraries/resources/related_white_papers/BIM%20Policy%20Feb%202011.pdf

4.) http://www.bimjournal.com/2011/10/managing-process-people-technology-and-policy/

5.) (Brown, Kerry (Ed.), 2008:16, "BIM: Implications for Government", CRC Construction Innovation, Commonwealth of Australia.)

6.) NBS http://www.thenbs.com/topics/bim/articles/bimInConstruction.asp