

Emerging Building Information Modeling/Management Technologies used in the Building Design Industry



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Executive Summary

In Australia today, building designers are in high demand and this demand continues to grow. The industry is currently undergoing a period of transition and discourse is taking place regarding what skills will be needed to ensure demand from the marketplace is met. Central to these discussions is the issue of Australian building designers increasingly looking to extend the scope of their practice by tendering for overseas projects. The notion of a global economy is fast becoming a reality for industries in Australia and the AEC (architectural, engineering and construction) industries are poised to leap into this economy. Australian building designers will need to have the capacity, skills and knowledge to compete and/or collaborate with leading local and international architectural practices to be part of this global economy, and more so, be adequately positioned to ensure continued innovative development in the Australian marketplace. Designers will need to explore and engage in process innovation, afforded by advances in technology (ie BIM systems) to better manage systems and adopt effective delivery process for building design and documentation, to provide clients with what they want and more so, what they expect.

The Fellows' current observation of the Australian context suggests that the industry is still faced with delivering a rapid response to clients and developers in a competitive market both locally and internationally which is demanding new forms of cooperation and communication through advanced design-build models, more sophisticated forms of internet project management and teaming models. BIM systems and the skills to fully utilise their potential will make our local industry competitive and viable.

The aim of the Fellowship was to provide the opportunity for Di Giangregorio and Goss to develop a comprehensive understanding of how others throughout the world are responding to, and implementing, the emerging building information and modeling systems that are now available for the design and documentation of building projects. With the study tour including visits to Singapore, Dubai, London, Greece and Venice - Italy, Di Giangregorio and Goss:

- Scoped the various systems that are being used in the design and documentation process for building projects, together with the degree of connectivity and integration with consultants to the project, such as engineers.
- Identified and assessed various approaches being employed by individual architectural/building design practices looking in particular for innovative solutions and best practice.
- Liaised with professional associations to gauge how they are responding to the knowledge development requirements and training needs relating to BIM systems for the architectural and building design profession that they service with continuing professional development programs.

The investigation was conducted using the following methods:

- Contacting and interviewing aligned and comparable building design professional associations, practicing architects, building designers and training providers engaging with BIM systems.
- Viewing the application and implementation of BIM on current, live projects in Singapore, Dubai and London.
- Attendance at the 2006 eCAADe (Education and research in Computer aided Architectural Design in Europe) conference titled 'Communicating Space(s)', at the University of Thessaly, Volos, Greece, with a view to engaging with, and learning from leading practitioners, academics and trainers from around the world.
- Attendance at the 2006 Architectural Biennale in Italy to view and gain a perspective of the world practice and the positioning of BIM systems on a truly international level.

Executive Summary

The challenge was to establish, develop and implement a model of training that would be best practice and produce world standard graduates who will be both experts and leaders in using building information modeling/management systems for the building design and documentation industries. The Fellowship experience identified the need to:

- Provide a direction for curriculum revision and development for building designers at TAFE/VET institutes and promote and deliver professional development training for practitioners in industry.
- Create a momentum for implementing change at the National Curriculum Forums and through industry representative bodies to lead toward implementing integrated practice strategies and BIM training frameworks.
- Source funding to implement transitional development from current programs with the intent to pilot BIM training.
- Lobby for the development of a research practicum laboratory to further investigate and develop a best practice approach for the paradigms embracing BIM frameworks.
- Participate in national forums exploring BIM technologies for AEC industries.
- Investigate programs to engage in a sabbatical of industry release for Fellows who have participated in this study.

Following an overview of the international Fellowship experience, the report identifies a series of activities to be undertaken to optimise knowledge transfer and concludes with a comprehensive series of recommendations pertaining to Government, industry, the business sector, professional associations, education and training providers, the broader community and the ISS Institute.