

Swinburne University of Technology



Victoria's Future Industries - Construction Technologies

Swinburne discussion paper

Professor Ajay Kapoor
Dean of Engineering
Swinburne University of Technology
24 Wakefield Street, Hawthorn

25 September 2015

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Construction Technologies - Swinburne discussion paper

Introduction

Swinburne University of Technology (“Swinburne”) is pleased to make this submission to the Victorian Government’s Future Industries taskforce. We believe it is vital for Victorian business, industry, government and communities to have these discussions about how we grow or transition existing industries into new and emerging markets.

A strong construction industry will provide employment for individuals with diverse skillsets, and will provide an avenue for innovation through investment in research and development. This approach will ensure the sector has access to the most sustainable and optimal materials, and can develop efficient operating systems that facilitate global competitiveness for the future .

The Swinburne response focuses on the university’s areas of research expertise, expertise in higher education and vocational education in the construction sector , new initiatives, and our understanding of the market. Included are a number of recommendations for the consideration of the Victorian Government. We ask that you review this response in combination with Professor Jay Sanjayan’s participation in the Future Industries Fund Construction Technologies Workshop on September 8, 2015.

1. Question 1:

3. Question 4: What would be the costs and benefits of requiring the use of BIM on all significant public sector projects?

As outlined in the discussion paper, a number of overseas governments are mandating the use of BIM on government projects. Swinburne's Advanced Building Studies and Construction Engineering and Management recent consultation in the United Kingdom and Australia with government and industry has identified that a mandate alone is not sufficient to drive uptake.

There is a common misconception that BIM is a technology, however BIM should be considered a process that uses technology to collaborate when required. Hence, effective BIM implementation requires the adoption of a new process (i.e. culture change), with limited technical change.

BIM implementation will require regional collaboration networks that pave the way for a new style of working. While BIM standards and BIM tools must be created, the real work is in a cultural change that impacts work practices.

Based on Swinburne's Construction Engineering and Management and Advanced Building Studies research with governments and industry, the Victorian government's costs to effectively implement BIM would be to:

- x Establish a BIM Task Force to structure collaboration and determine BIM guides, protocols and tools
- x Educate the supply chain

The benefits for facility managers (asset owners) are only recently becoming more widely publicised, and as expected, improved access to data to accurately plan and manage a building or infrastructure asset is providing considerable savings – with a New Zealand educational institute reporting a ROI of 23% ¹.

5. Question 11: How can better industry and research collaboration be facilitated ?

The recent Innovation and Technology Voucher scheme for small to medium sized Victorian businesses (SMEs) provided an excellent platform for the development of industry research collaborations.

The voucher provided funding for a specific project, thus meeting an immediate research and development need, often with an industry partner who was unaccustomed to working with a research organisation. In many instances this was the start of a long-term relationship which generated bigger, more complex collaborations, thus developing innovative goods and services for the Victorian and Australian economies.

Recommendation Six

Swinburne recommends the Victorian Government invest in a program that encourages SMEs to engage with research partners for long-term collaborations. While some federal programs also seek to address this (eg: Research Connections), the Innovation and Technology voucher scheme provided a very accessible and effective model of collaboration.

Recommendation Seven

Another key recommendation is to develop international partnerships in digital learning environments that will attract foreign investment as to facilitate training and implementation of industry research particularly targeting BIM. Such a training and research centre will foster sustained job growth in Victoria and provide meaningful, productive industry partnerships.

6. Question 12: How can firms be encouraged and supported to develop and experiment with new processes to improve the efficiency of the building process?

Swinburne believes that organisations should be encouraged to participate in precompetitive collaboration, allowing industry to understand and share fundamental knowledge, such as optimal materials and best practice for safety and design efficiency.

The Australian Engineered Fasteners and Anchor Council (AEFAC) is an example of this. It is collaboration between industry and academia to improve the safety and reliability of structural fasteners in the Australian construction industry. Fastener failures can lead to loss of life, economic loss, and can stifle innovation by severely limiting the specification of products. Prior to AEFAC's formation, the anchor industry was self-regulated and without guidance from an industry body.

A fundamental means of achieving AEFAC's objectives is through the development and delivery of the Installer Certification Program. Combining theory and practical training with an assessment protocol, 40 installers have achieved certification to date, with many more expected to be qualified by the end of 2015. Through an online database, industry can identify a qualified AEFAC installer, ensuring that optimal fastener safety is achieved on a project.

Complimenting this training is the design of the AEFAC Standard for the selection, specification and application of anchors and fasteners in the construction industry. This is on schedule to be referenced in the 2016 National Construction Code and will provide deemed-to-comply solutions for the engineering industry.

Swinburne's involvement in AEFAC has resulted in the formation of a research team, the acquisition of an Australian Research Council Linkage Project Grant and recognition of this group as a leading Australian research facility in this area. Ongoing research and dev-19.2(r)-16.50.7()0.7(Et)-6.4(p)2.8

7. Question 15: Are there opportunities to increase materials innovation by providing information and advice on how to achieve a regulatory approval?

Swinburne believes there are opportunities in this area. The regulatory performance-based approach is not well understood by most practitioners and the National Construction Codes are very complex. This leads to the following problems:

It is too easy to obtain approval for an inferior product substitution for those who know (but not necessarily understand)3 s8ed

Swinburne thanks the following for their contribution to this paper:

Paul Sesta