

# Construction technology boom



By Dr Keith Hampson, CEO of the CRC for Construction Innovation

Recently, *Construction Innovation* held the second of its Clients Driving Innovation Conferences on Queensland's Gold Coast. More than 90 speakers from 11 countries spoke on themes such as sustainable construction, facilities management, safety, procurement, risk management and various other issues facing our industry.

Technology was also a major theme of the conference. We were privileged to have several international experts as speakers, including Professor Martin Fischer of Stanford University (US), Arto Kiviniemi from the Technical Research Centre in Finland, and Martin Riese and John Fraser from US company Gehry Technologies.

All these sessions were very popular among delegates. The level of knowledge about and interest in 3D CAD (computer-aided design) modelling compared to our first conference 18 months ago was staggering. Professor Peter Brandon

from the University of Salford (UK), who was one of many to also notice this interest, described the conference as a watershed moment for the uptake of this technology by the Australian construction industry.

If there is knowledge of and interest in this technology, the reluctance of executive-level construction management, which Professor Martin Fischer says continues to slow investment and uptake, can be overcome.

Take-up of technology like this is a complex issue. Finland's construction industry is a world leader in 3D CAD modelling and, as a result, it's very efficient and is able to attract and retain a young and highly skilled workforce. The sector also exports its technology and skills to the world. Arriving at this point only came after a decade of government and industry collaboration into applied research. It was a recession that drove this initiative in Finland, but in Australia we are well placed to embrace 3D CAD modelling without needing a crisis.

Construction Innovation and its industry, government and research partners are already doing this. Through

applied research projects like the Sydney Opera House Facility Management Exemplar project, we're creating 3D CAD model case studies. We are also creating software tools (DesignCheck, Automated Scheduler and Automated Estimator) that automate design checks against building codes, estimate the quantity and cost of construction materials, and schedule construction to improve productivity, reduce errors and delays.

Several Australian organisations are already using 3D CAD modelling, including Arup Australasia and Woods Bagot, and the Queensland Department of Public Works is currently making the transition. Department officials said at the conference they are already seeing productivity, teamwork and technology benefits. And they expect more.

US company Gehry Technologies (GT) is another pioneer of 3D CAD modelling and keen to share lessons learned. At the conference, Martin Riese detailed how GT used a 3D CAD model of a new 70-storey office tower in Hong Kong to meet the Swire Group's demands to produce a 10 per cent cost saving and ensure the project was finished inside

six months – actually, it was completed 10 days early.

The 3D CAD modelling also meant over 2,000 design 'clashes' were identified and remedied prior to building commencing. Martin is a strong believer in the future of construction sequence modelling.

Government agencies responsible for public buildings in the US and Finland now require tender designs to be submitted using 3D CAD models. Global construction giant Skanska is also switching completely to 3D CAD.

If that is not a compelling enough case, Martin Fischer provided another. His research leads him to conclude the only way we are going to attract (and retain) bright young people to our industry is to make it vibrant and dynamic, and the only way to do that is through technology like 3D CAD modelling.

The Cooperative Research Centre (CRC) for *Construction Innovation* ([www.construction-innovation.info](http://www.construction-innovation.info)) is a national collaboration of 19 industry, government and research partners focussed on creating technologies, tools and management systems for the property, design, construction and facility management sectors.