

# LIPS2015 Barcelona

## Lean in Public Sector Construction Conference

### Session 5\*

## Australian Status: LEAN, BIM and IPD

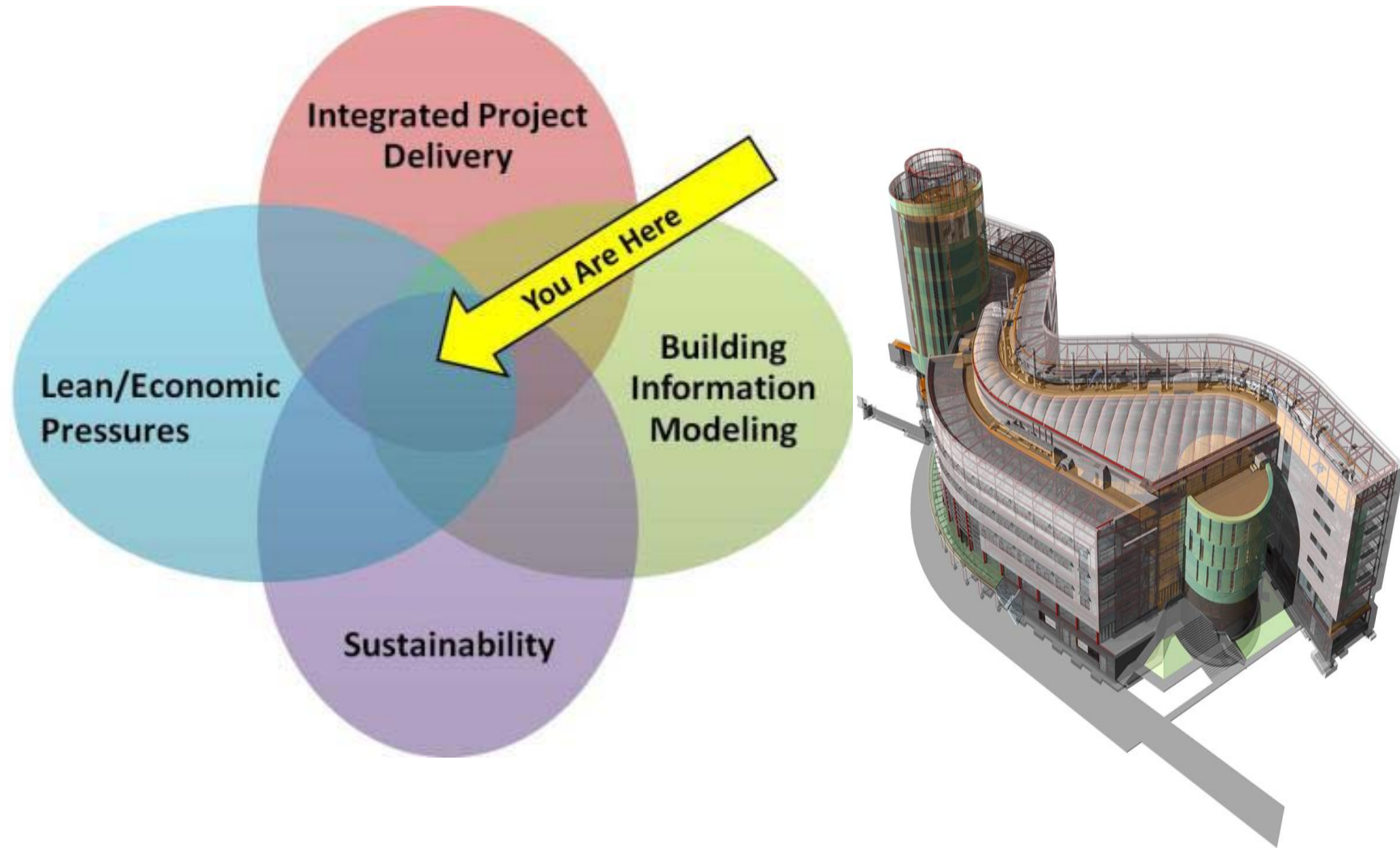
**Richard Morwood – AECOM – Industry  
Director – Integrated Project Delivery**

Lean Construction Institute Australasia



#LIPS2015  
@itec\_es

# Industry Convergence



# Australia – Drivers for Innovative Contract Models



## LITIGATION

- In the 1990s partnering and alliancing grew out of an industry beset by adversarial conduct and marginal projects.

## TEAM INTEGRATION

- In the mid to late 2000s – we saw the pinnacle of owner-contractor collaboration through “conventional” Alliances and ECI’s.

## BUYERS MARKET

- Recent push-back (particularly Treasury) concerned about demonstrating VFM & contractor “capture” heralded a return towards less integrated, possibly more adversarial environment
- Dominance of dual ECI’s and Collaborative Contracts

## WHAT’S NEXT

- Emerging innovative practices (eg. Lean, BIM, system thinking, etc.) more than ever require a culture of sharing and interdependence.
- Integrated Project Delivery

# Australian Alliance (IPD) Structures – The Fundamentals in a Slide

1. Integrated owner / team structure – no barriers, full accountability
2. Commercial Framework
  - ‘Direct Cost’ paid - no risk
  - Corporate Overhead and Profit at Risk
  - Painshare/Gainshare & Key Result Areas
  - No dispute / no sue → new Professional Indemnity
3. ‘Best for Project’ (not for participant) decision making
4. Integrated team derives Target Cost and scope – with independent check
5. Quality based selection process, dual Target Cost model



# Productivity Commission - Inquiry Report

## Public Infrastructure

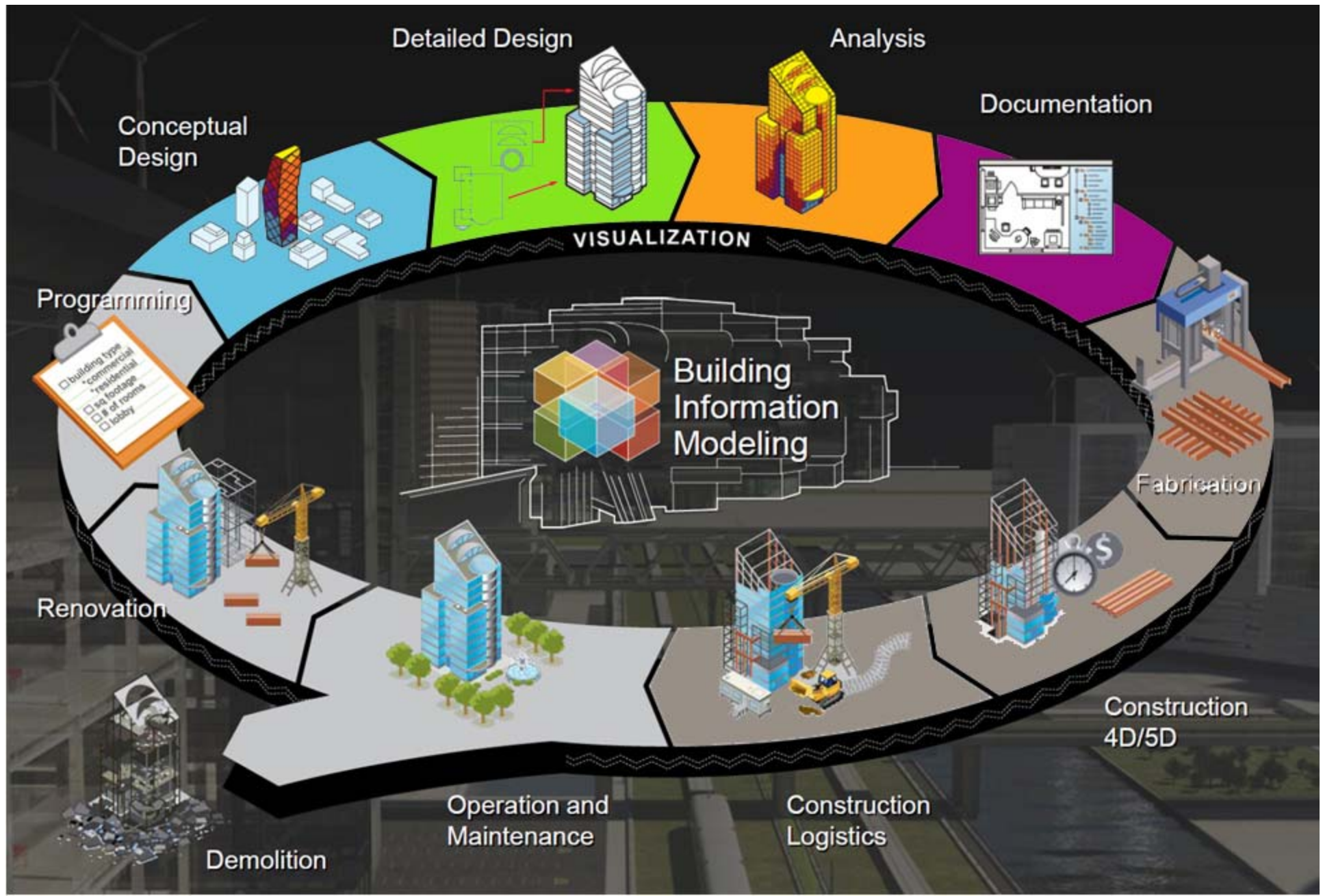
### Recommendation 12.5

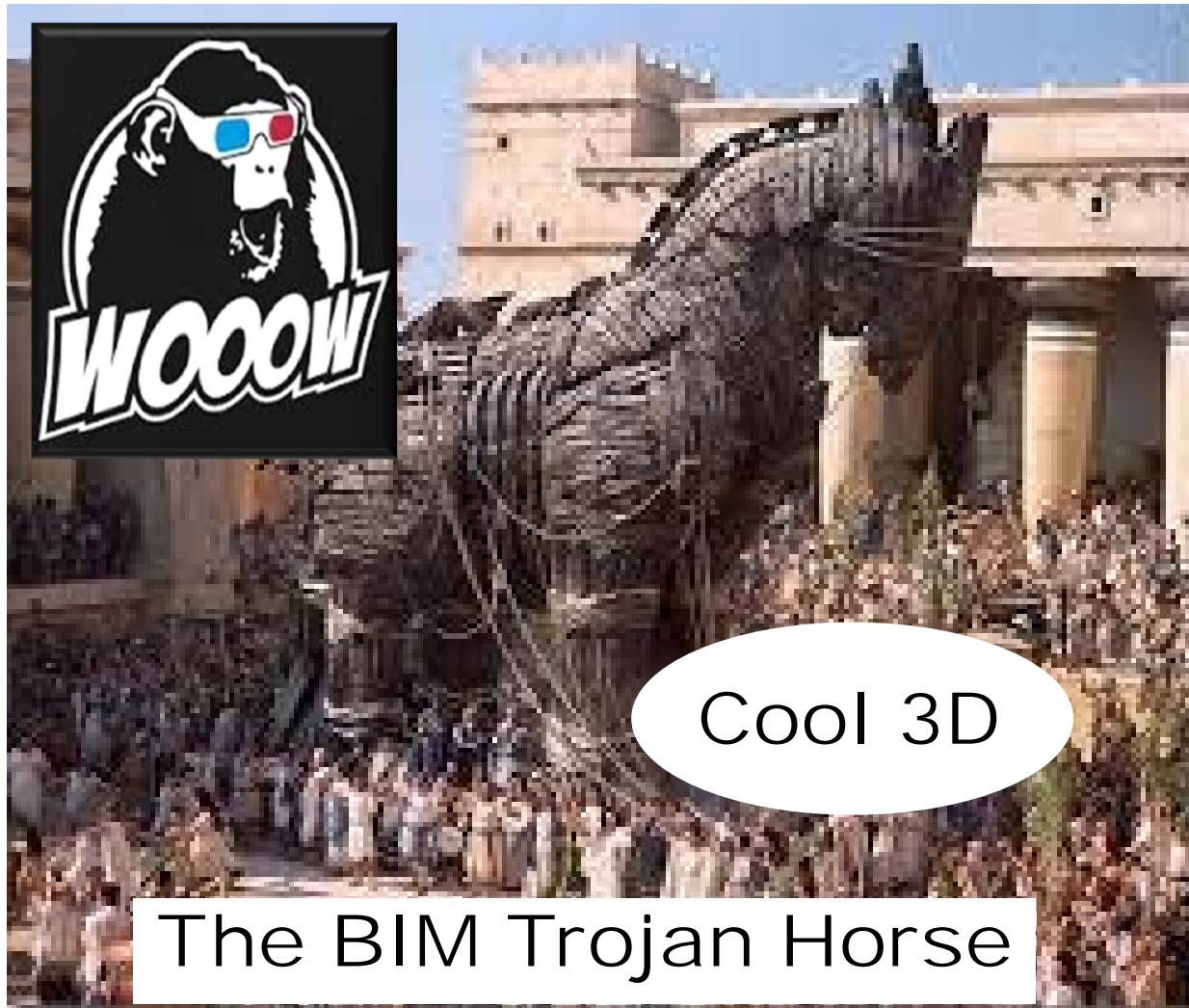
For complex infrastructure projects, government clients should:

- **provide concept designs using Building Information Modelling (BIM)** to help lower bid costs, and
- **require tender designs to be submitted using BIM** to reduce overall costs.









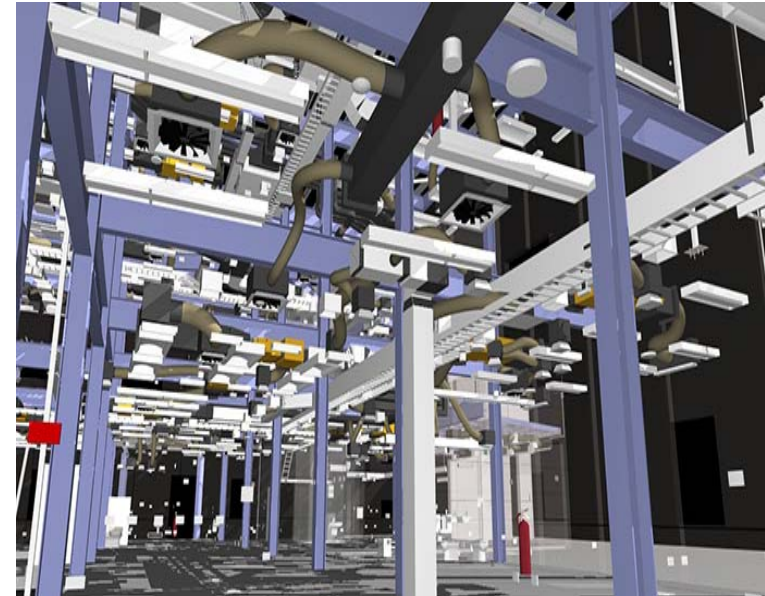
**BIM in it's various  
guises is becoming  
a metaphor for  
industry change –  
it is helping set a  
compelling **vision**  
of  
**what a digitised  
sector would look  
like  
using computer  
readable data****

# Lean Principles and BIM

“Interaction of Lean and Building Information Modelling in Construction” by Sacks, Koskella, Dave and Owen, Journal of Construction Engineering Management, 136, 968 (2010)

The paper itemises some of the technical capabilities that BIM applications possess but which are not provided, or are not provided well, by conventional CAD systems. These include:

- Realistic visualization of architectural proposals
- Rapid generation of design alternatives
- Predictive analysis of building performance
- Simulation of construction processes
- Maintenance of project information integrity
- Automated generation of drawings and other documents
- Collaboration in design and construction
- Online/electronic object-based communication
- Direct data transfer to computerised component fabrication
- Optimised “As built” model for asset operation and maintenance



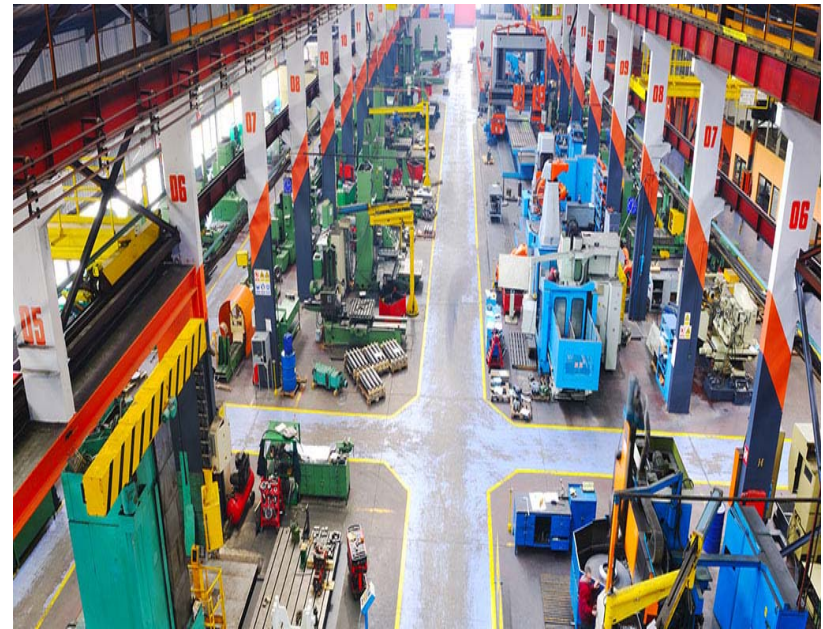


# Lean Principles and BIM

The authors point out:

***“Lean construction and BIM are not dependent upon one another (i.e. lean construction practices can be adopted without BIM, and BIM can be adopted without lean construction). This is illustrated by the numerous cases of separate adoption of each in design and construction companies within the past decade. However, (it is suggested) that **the full potential for improvement of construction projects can only be achieved when their adoption is integrated.**”***

It is undoubtedly the case that an understanding of Lean insights and the adoption of appropriate Lean principles will enhance an organisation's BIM implementation processes, and, equally, that an understanding of the power of BIM will help individuals and organisations to implement their Lean strategies.



# Australian Industry Reform

Australian Constructor Industry Forum (ACIF) and  
Australasian Procurement & Construction Council (APCC)

The Case for Project Team Integration  
March 2014



The construction industry in Australia, the US and the UK, is changing in response to four key drivers of change:

1. **Clients seeking greater value** from their investment in capital works - wanting better value for money outcomes;
2. Recognition that there is considerable **waste and wasted effort embedded** in the way the industry has done things for years;
3. **Technological change**, in particular the use of **BIM** in the broadest possible way and across all stages of the project; and
4. Changes in the **insurance** industry enabling better **integrated delivery models**.

# Construct 15 – 23<sup>rd</sup> Annual Global Lean Construction Conference

## Concurrent Sessions:

- IPC 2015
- IGLC 2015
- Construct15

## Australian Status:

### LEAN:

- Adopted by clients and contractors, suppliers in the Oil and Gas industry.
  - E.g. presentations by Clough Construction, Envision on culture change + efficiency (e.g. QCLNG)

### LEAN/BIM:

- Above plus innovative infrastructure
  - E.g. presentation by Laing O'Rourke, AECOM on key pilot projects (e.g. Stadium Rail – PRISM Alliance)

### LEAN/BIM/IPD:

- Industry reform papers
  - E.g. productivity commission, ACIF/APCC

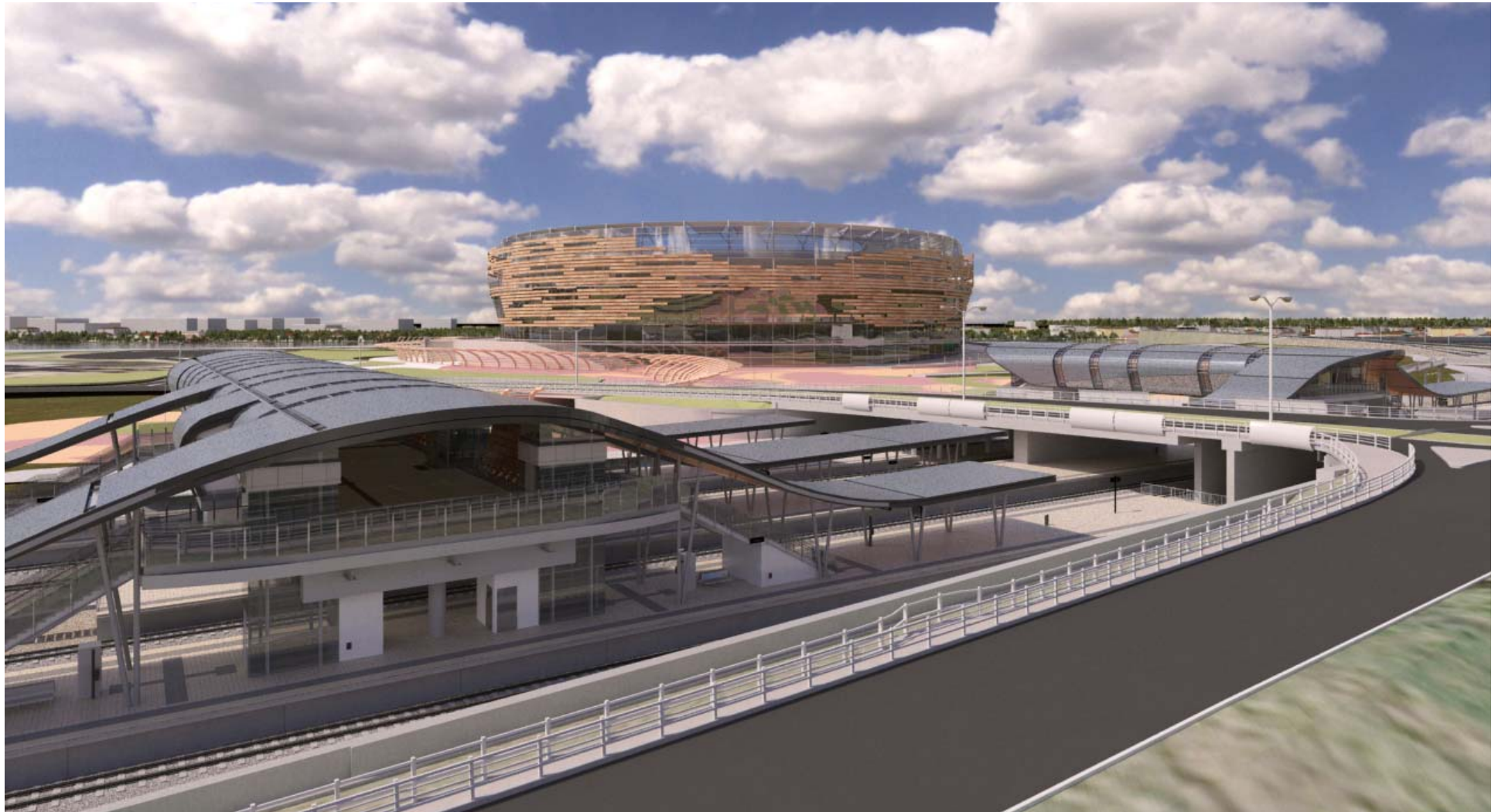


## Australian Challenges

- Procurement Process  
(In a buyers market)
- PPP's Preference –  
Conservative Delivery  
Models
- IP Exit from Government  
Agencies
- Willingness to learn from  
UK/USA
- FIDIC Asian Influence
- Lack of government  
leadership in industry  
reform







# Thank You

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