Leveraging R&D to Advance Digital Modelling Practice in Australian Construction

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Presentation Structure

1. Background to Australia's SBEnrc
2. Leveraging R&D Project
3. Conclusions

Australia’s Construction Industry

- A$160B = US$170B = €120B pa turnover
- Employs 1 million people
- 250,000 firms => many small firms
- Growing and slowing at same time …
  - Residential, Commercial, Industrial
  - Resources & Mining, Infrastructure

- Slower in productivity growth than others
  - ICT integration an opportunity
- Safety remains an issue
- Strong growth in green construction
- Declining public support for R&D as private support grows

Our Mission

To be a world-class research and knowledge broker in sustainable infrastructure and building design, construction and management
Growth of Collaborative Research through Australia’s SBEnrc

- QUT/CSIRO Construction Research Alliance
- Sustainable Built Environment National Research Centre

Research Space

- Public
- Private
- Sweet spot
- High Risk
- Low Risk
- Long Time to Produce Benefit
- Short Time to Produce Benefit
- Environmental Social and Economic Benefits

Partners

- Queensland Government
- Department of Transport and Main Roads
- Department of Public Works
- Transport Roads & Traffic Authority
- Queensland Government
- Queensland Department of Infrastructure and Planning
- Queensland Government
- Infrastructure and Planning
- Transport
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- Infrastructure and Planning
- Transport

Leveraging R&D Investment for the Australian Built Environment

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Background and significance

- Australia’s R&D spend is 2% of GDP
  - Denmark and US 2.5%
  - Finland and Sweden > 3% (DIISR, 2010:3)
- Australian Government target
  - 25% increased business engagement in innovation in the next 10 years
  - responses to climate change; improving workplace innovation capabilities; and business innovation
- Built environment productivity growth is poor
The Project …

1. Audit R&D investment in the Australian built environment since 1990
2. Examine impact of research and innovation in public and private organisations (case studies)
3. Develop a strategic roadmap – assess industry future that R&D will respond to and help shape
4. Devise policy to maximise the value of R&D investments to public and private organisations

The Built Environment Research Roadmap

• SBEnrc support from strategic level
• Australian Built Environment Industry Innovation Council (BEIIC) support
  – on Project Steering Committee
• OECD international alignment
  – Innovation Strategy: Getting a Head Start on Tomorrow, 2010
• CIB New Task Group focus
  – TG85 - R&D Investment and Impact

3 Case Studies

Examining mechanisms and impact of research and innovation in organisations

1. Digital Modelling (BIM/IPD)
2. Green Building
3. Construction Worker Safety

Digital Modelling

• Tracking integration efforts into design/construction/asset management
• buildingSMART and industry associations
  e.g. Australian Institute of Architects (AIA)
• Queensland Government (QDPW) + others
• Technology, process and policy implications

Sydney Opera House
Primary Structure & Architecture

Created by Arup / JPW Architects
Stuart Bull - Wayne Dickerson
Animation by Wayne Dickerson Associate JPW
Conclusions

• Understanding previous behaviours can improve future performance
• Case studies provide depth and richness
  – Advanced ICT (Digital modelling) is a key tool for productivity improvement
• R&D roadmap to target future investments
• And informed policies to guide actions …

We can all do better!

Thank you for your attention …

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