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

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Sustainable Built Environment National Research Centre

Presentation Structure

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

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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

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- 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

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Sustainable Built Environment National Research Centre

Our Mission

To be a world-class research and knowledge broker in sustainable infrastructure and building design, construction and management

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Growth of Collaborative Research through Australia's SBEnrc

QUT/CSIRO Construction Research Alliance

CRC Construction Innovation
BUILDING OUR FUTURE

Sustainable Built Environment National Research Centre

1996
2001
2009
2010
2012

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Sustainable Built Environment National Research Centre

2010 -2012

- A nation-wide collaborative research centre
- Industry, government and research partners
- Applied research and industry outreach across 3 integrated themes

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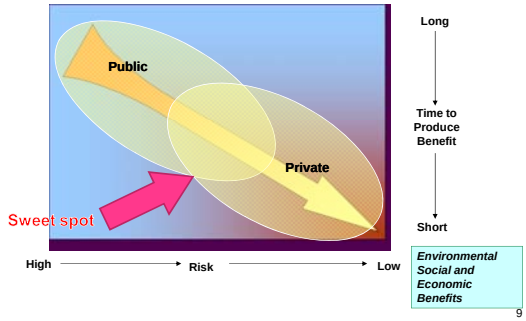
Research Space



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Partners

QUT
John Holland
SWINBURNE

Queensland Government Department of Transport and Main Roads
Queensland Government Department of Public Works
Queensland Government Infrastructure and Planning
NSW Government Transport Roads & Traffic Authority
Government of Western Australia: Department of Treasury and Finance, Building Management Works, Office of Strategic Projects
PB PARSONS BRINCKERHOFF
Curtin University

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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

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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

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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

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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

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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!

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Thank you for your attention …

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