Retrospective evaluation and prospective value-add: A review of R&D investment in Australia

Dr Keith Hampson, CEO
Sustainable Built Environment National Research Centre (SBEnrc) Australia

Co-author:
Dr Judy Kraatz
Senior Research Fellow, QUT
Presentation Structure

1. Background to Australia’s SBEnrc
2. R&D Investment and Impact Project
3. Future collaboration … CIB TG85
Australia’s Construction Industry

• A$160B = US$160B = €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
• Safety remains an issue
• Strong growth in *green* construction
• Declining public support for R&D as private support grows
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

1996
2001
2009
2010
2012
Program 1 - Greening the Built Environment

Program 2 - Developing Innovation and Safety Cultures

Program 3 - Driving Productivity through Procurement

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

QUT

John Holland

Swinburne

Queensland Government
Department of Transport and Main Roads

Queensland Government
Department of Public Works

Queensland Government
Infrastructure and Planning

Transport Roads & Traffic Authority
Department of Treasury and Finance
Building Management Works
Office of Strategic Projects

Parsons Brinckerhoff

Curtin University
R&D Investment and Impact Project
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*
Retrospective evaluation

Private-sector R&D on construction relative to total business R&D
(from Barlow 2011)
Australian business R&D investment in the construction sector as a share of 16 OECD nations (from Barlow 2011)
Comparing the construction industry with chemical and motor vehicle manufacturing
Comparing the construction industry with mining and finance

R&D expenditure ($ current millions)

- Mining
- Finance & insurance
- Construction

Private versus public R&D on ‘construction’
Government agency R&D focused on ‘construction’
The construction industry in the Australian economy
Questions for future research

• Why did construction grow its R&D investment so quickly?
• What happened to government R&D?
• Why is construction not better known for its R&D, both in the community and among policymakers?
• What is the most important role for public research organisations?
• Has the construction industry’s perception of public research changed over the past decade?
3 Case Studies – Happening Now

Examining mechanisms and impact of research and innovation in organisations

1. Digital Modelling
2. Green Building
3. Construction Worker Safety
Prospective value-add … next year

• Industry roadmapping
  – Environmental
  – Social
  – Technological
  – Market

• R&D Strategy
  – Public
  – Private
Conclusions

• Understanding previous behaviours can improve future performance
• Case studies provide depth and richness
  – Green buildings case will highlight what’s worked and what hasn’t … in WA
• Need industry and research roadmap to better target future investments
• And informed policies to guide actions …

We can all do better!
“It’s always ‘Sit,’ ‘Stay,’ ‘Heel’—never ‘Think,’ ‘Innovate,’ ‘Be yourself.’”
CIB TG85: R&D Investment and Impact

Inaugural meeting ....

Room 214 15:00 to 17:00 Today
Thank you for your attention …

www.sbenrc.com.au