

# WA Department of Transport Presentation

Curtin University, Bentley Campus - 17 May 2018

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**SBEnc**  
*Industry, Government and Research  
Collaboration in the Built Environment*

Keith Hampson, CEO  
Sustainable Built Environment National Research Centre (SBEnc)



## Growth of Collaborative Research through Australia's SBEnc

Construction Research Alliance



1996  
↓  
2001  
↓  
2009  
2010  
↓  
2012  
↓  
2018/21  
↓  
Ongoing



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**Sustainable  
Built Environment**  
National Research Centre



- Program 1 - Greening the Built Environment
- Program 2 – People, Processes and Procurement
- Program 3 - Productivity through Innovation

- » Collaborative research centre with key international partners
- » Industry, government and research partners
- » Applied research and industry outreach across integrated themes



**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

*To deliver research that adds value to our partners' businesses*

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## SBEnc Core Partners



## Collaborating Partners



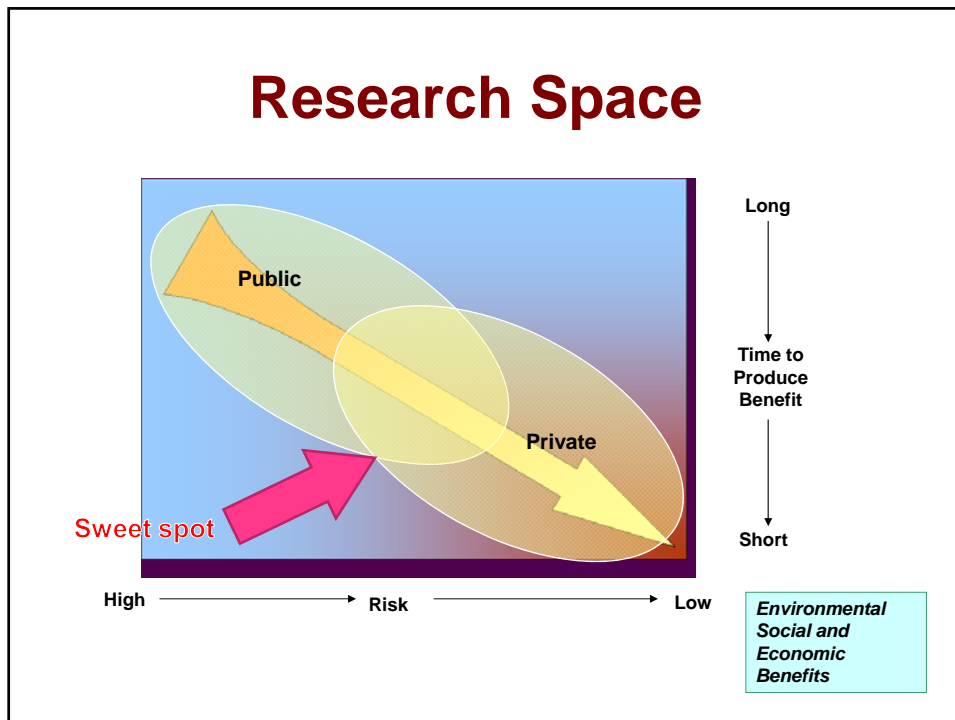
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## What do we really do?

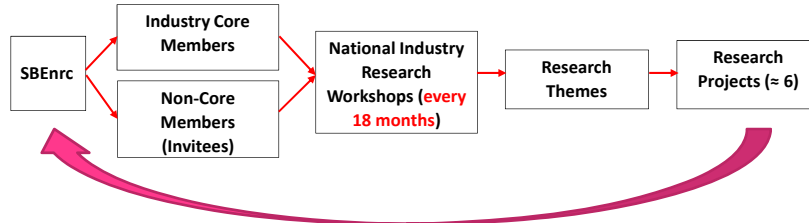
### Public-Private Partnerships in R&D

- Build innovative networks of industry, government and researchers for applied research
- Research skills training for industry
- Respond to global challenges with national and international partnerships

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## How? Developing New Projects



- Industry-led themes
  - Existing and future partners lead the agenda
- National process (Sydney, Melbourne, Brisbane and Perth)
- 3 questions:
  - What keeps you awake at night?
  - What is the research that could make a difference?
  - How will you implement outcomes in your business?
- RUC recommends => Board invests
- February Workshops => October commencement

## Completing Projects

- 1.41: Valuing Social Housing
- 1.42: Innovative Industrialised Buildings
- 1.43: Retrofitting Public Buildings for Energy and Water Efficiency
- 1.44: Scenario Planning Transport Futures
- 1.45: Big Data, Technology and Transportation
- 3.48: Sustainable Asset Management


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## Current Projects

- 1.54: Procuring Social and Affordable Housing: Improving Access and Delivery
- 1.53: Resilient Buildings: Informing Maintenance for Long-term Sustainability
- 1.55: Integrated Cities: Procuring Transport Infrastructure through Integrating Transport, Land Use and Finance
- 1.52: Tech-enabled Transport: Informing the Transition to Technology-enabled Transport Vehicles and Infrastructure
- 2.51: Developing a Cross-Sector Digital Asset Information Model Framework for Asset Management

## Transport Focused Projects



**1.3 The Future of Roads:** Reducing Environmental Pressures, Sustainability Reporting, and Considering Future Scenarios  
Project 1.3 Final Industry Report – Dec 2012 (998.99 Kb)  
Project 1.3 Industry Brochure  
Environment **Completed**

**1.35 Transport Network Resilience: Disaster Logistics and Infrastructure Vulnerability**  
Transport Network Resilience: Disaster Logistics and Infrastructure Vulnerability – Information Sheet A number  
Environment **Completed**

**1.22 Strategies and Solutions for the Future of Roads**  
The Future of Roads – Information Sheet The coming decades will see a great  
Environment **Completed**

**3.28 National BIM Guidelines and Case Studies for Infrastructure**  
Information Sheet (472Kb, March 2015) Mechanisms that improve collaboration and communication in the  
Productivity **Completed**



## Transport Focused Projects

**1.55 Integrated Cities: Procuring Transport Infrastructure through Integrating Transport, Land Use and Finance**  
Project Fact Sheet Cities in Australia and globally find it difficult to integrate  
Environment Current

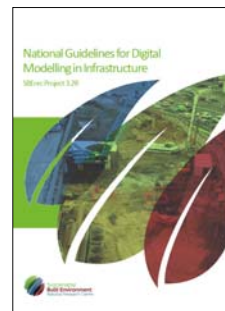
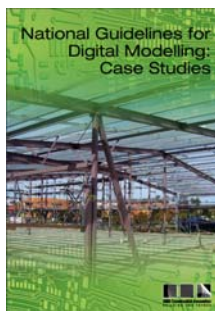
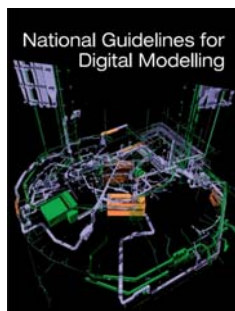
**2.51 Developing a Cross Sector Digital Asset Information Model Framework for Asset Management**  
Project 2.51 Fact Sheet Asset management in the built environment has been the  
Processes Current

**1.52 Tech-Enabled Transport: Informing the Transition to Technology Enabled Transport Vehicles and Infrastructure**  
Project Fact Sheet The coming decades will see a significant increase in the level  
Environment Current

**1.44 Scenario Planning Transport Futures: Improved Road and Transport Planning using Digital Scenario Planning Tools**  
Project Fact Sheet New data suggests Perth and Brisbane are likely to reach a  
Environment Completed

**1.45 Big Data, Technologies and Transportation**  
Project Fact Sheet A key focus for the management of main roads is to  
Environment Completed

## Two National BIM/DE Guidelines





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## Adopting BIM for Facilities Management



## Australian Research Council (ARC)



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## ARC Project 1: Scaffold Life Cycle Management

**Sustainable Built Environment National Research Centre**

**Partners:** Curtin University, woodside, Jobb Holidays, mainroads, Queensland Government Department of Main Roads



**Supply Chain Legend:**

- Supplier Countries: China, Indonesia, Qatar
- Country of suppliers: Germany, Ireland, Singapore
- Australia, HongKong, China, Malaysia, United Arab Emirates
- Canada, India, Philippines, United Kingdom, United States

**Process Stages:**

- g1 Ordering
- g2 Planning
- g3 Pre-Arranging
- g4 Inspection
- g6 Leaving
- g7 Strapping
- g8 Loading
- g5 Packing



## ARC Project 2: Bridge Performance Assessment

**Sustainable Built Environment National Research Centre**

**Partners:** Curtin University, mainroads, NSW Transport Roads & Maritime Services, aurecon, HUAWEI



**Topics:**

- Topic 1:** Multi-Criteria Optimisation for Sensor Deployment
- Topic 2:** Reserve Capacity Estimation Based on Error Domain Structural Identification
- Topic 3:** BIM Integrated Decision Support System

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## P2.51: Asset Information Delivery Manual

Digital Asset Information Manual  
(Preliminary structure post workshop discussions)

### Table of Contents

1. Introduction
  - 1.1 Standards and International Best Practices (i.e. International Asset Management Standards)
  - 1.2 Asset Management Overview
  - 1.3 Asset Management as a Process
2. Asset Management Process
  - 2.1 Policy and Procurement
  - 2.2 Operations
  - 2.3 Maintenance
3. Asset Classification System

The aim of Asset Classification System is to provide a single point of reference of asset discipline, asset class, asset function, asset type, and asset component for stakeholders involved in the planning, acquisition, operation, maintenance and disposal of assets.
4. Asset Location Referencing

The Asset Location Referencing is a unique identification of a geographic object. A standard location referencing method allows for a consistent and unambiguous identification of object instances representing the same geographic phenomenon in different geographic databases produced by different vendors, for varied applications and/or operating on multiple hardware/software platforms.
5. Asset Information Requirement

The Asset Information Requirement defines the information required at a project handover stage to enable the owner to safely and effectively operate new or refurbished assets from the date of occupation.
6. Asset Information Delivery Manual

The Asset Information Delivery Manual defines a series of process maps that describe the evolution of information for key topics throughout the project lifecycle. Each process map will identify the requirements for information exchange and the roles within the project from which the information is received or to which it is provided.
7. Asset Data Exchange Standards (BIM Book?)

This section will discuss relevant standards for BIM/DE data exchange, such as COBie, IFC4, IFC-Alignment, IFC-Road, IFC-Bridge, IFC-Tunnel, IFC-Railway, InfoGML, RailBIM, and RailTopicModel.
8. Case Studies
  - 8.1 Case Study 1
  - 8.2 Case Study 2
  - 8.3 Case Study 3
9. Appendix
  - 9.1 Review of Existing BIM/DE Standards



Housing



Building



Transport Infrastructure



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*Building a safer and more productive industry*