

Australian Research Council (ARC)  
Linkage Projects: Project ID: LP160100259

*“Innovative procurement theories to optimise educational outcomes per total cost of school facilities”*

ARC Value in Operations

<https://research.qut.edu.au/arcvio/>

**Research Activity #6 Project Bundling Study  
and  
“Procurement Decision Tool”**

**Research Team**

Associate Professor Adrian Bridge

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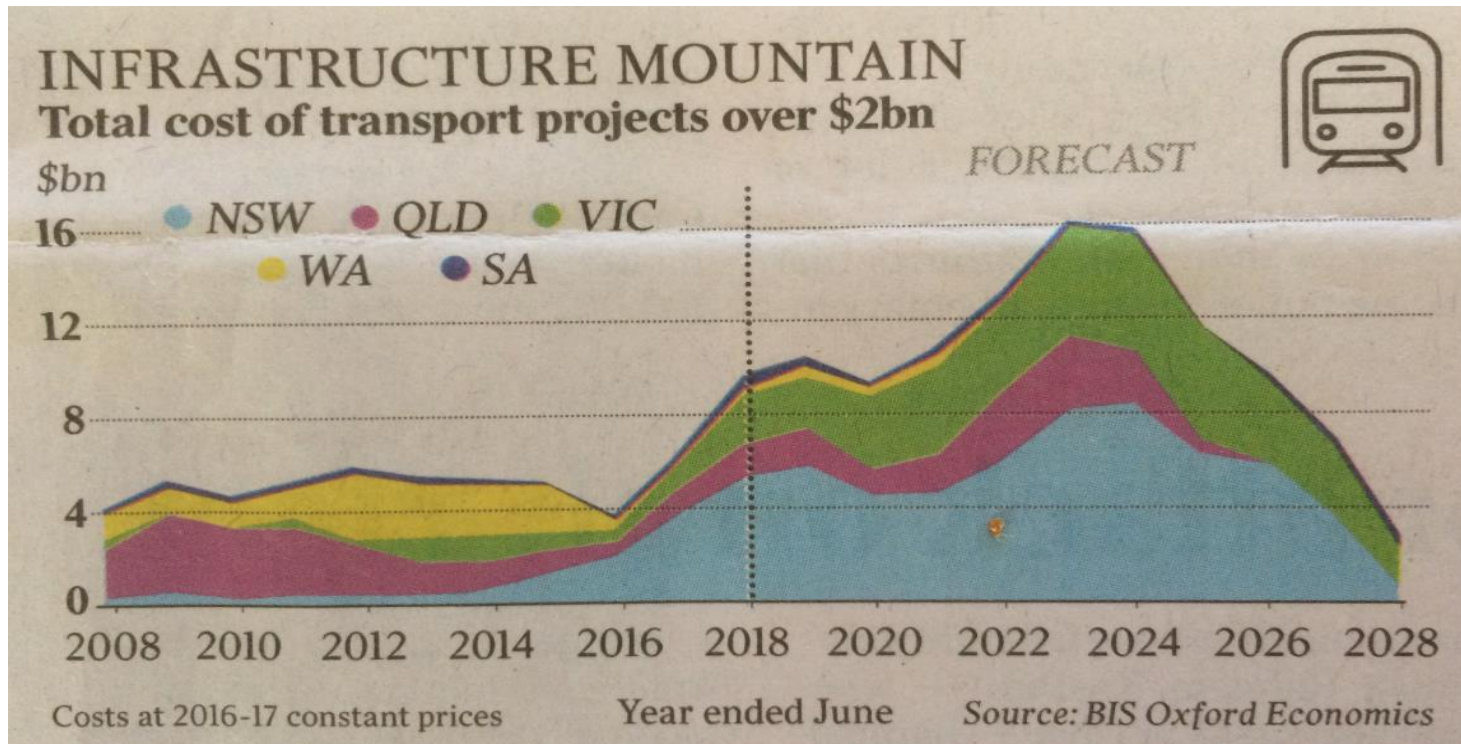
Nora Kinnunen

Presented to the Project Partners on Thursday 16<sup>th</sup> July 2020



# Activity 6. Project Bundling Study

- Stepping back and looking at upcoming pipeline...



# Activity 6. Project Bundling Study

- Evidence of sub-optimal bundling (and sub-optimal risk allocation/transfer)
  - High cost (prices and variations/claims)
  - Low performance
  - Sell-offs

COAG Meeting Communiqué, 9 August 2019 | Council of Australian Governments

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## Delivering Australia's infrastructure pipeline

Leaders committed to delivering a record pipeline of infrastructure investment that will significantly boost construction, create jobs, support Australia's productivity and improve the amenity of our cities and regions. COAG discussed the benefits of increased or accelerated construction activity, and the need to manage cost and capacity pressures while maintaining the quality of construction. Leaders asked the COAG Transport and Infrastructure Council to commission analysis and provide advice on infrastructure market conditions in each jurisdiction to COAG by the end of 2019.

# Activity 6. Project Bundling Study

Illustration 2

## Survey of major road and health projects

### » Project size/value

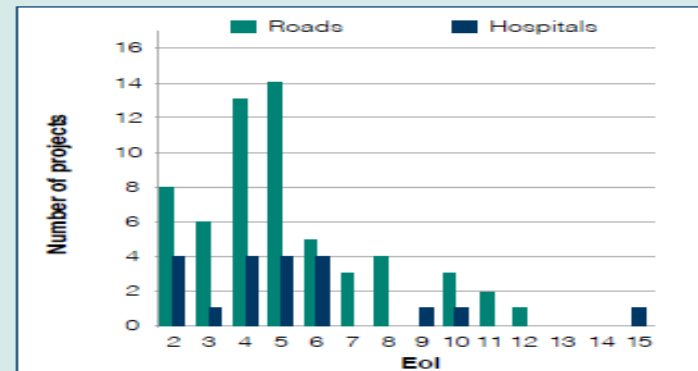
- > The total value of the 87 projects is AUD 32.297 billion (comprising AUD 22.143 billion road projects and AUD 10.154 billion health projects) and across these projects **a low number of higher value projects account for an appreciably higher proportion of the overall value**
  - > That is, in roads 40 of the submitted road projects (66 percent) comprise the two lower value/most frequently occurring categories (between AUD 50 to 100 million and AUD 100 to 250 million) and which account for AUD 4.164 billion (19 percent) of the total value of the submitted road projects. At the same time, 10 of the submitted road projects (16 percent) fall in the two higher value categories (between AUD 500 million to AUD 1 billion, and more than AUD 1 billion) and which accounts for AUD 13.847 billion (63 percent) of the total value of the submitted road projects
  - > In terms of health projects, 17 of submitted the health projects (65 percent) comprise the two lower value/most frequently occurring categories (between AUD 50 to 100 million and AUD 100 to 250 million) and which accounts for AUD 2.024 billion (20 percent) of the total value of the submitted health projects. At the same time, five of the health projects (19 percent) fall in the two higher value categories (between AUD 500 million to \$1 billion, and more than \$1 billion) and which accounts for AUD 6.593 billion (65 percent) of the total value of the submitted health projects
- > **The majority of road and health projects (62 projects, or 71 percent of the submitted projects representing AUD 19.406 billion, or 60 percent of the value of submitted projects) are delivered as a single contract** and in terms of projects delivered as multiple contracts, these tend to comprise the two lower value categories and below AUD 250 million.

### » Bundling

- > With regard to the 61 road projects lower value projects (\$50-100m) are dominated by Construct Only (24 projects) whilst the **larger value projects over \$100m are dominated by Design and Construct (in 15 projects); Alliancing (in 14 projects); and Early Contractor Involvement (in 6 projects)**; Leaving only two projects that comprise Design, Construct; Operations and Maintenance (including a PPP)
- > On the other hand, **Managing Contractor in 13 projects (and of these projects eight were greater than AUD 100 million) dominated the health projects** submitted; Again only a small number of projects comprise Design, Construct; Operations and Maintenance (namely three PPPs)

### » Expressions of Interest (Eoi)

- > The following histogram shows that **57% projects in the sample of 87 projects (or 45 projects out of 79 projects, with missing data on 8 projects) have Eoi that lie below 5 or above 8**



# Activity 6. Project Bundling Study

## State of Play

AUSTRALIAN INFRASTRUCTURE BY THE NUMBERS

The value of a megaproject has increased rapidly

\$50 MILLION

\$500 MILLION



1990

2000

2015

Ryan & Dufield 2018

Financial outcomes of 28 completed projects



GDP accounted for by infrastructure

Ryan & Dufield 2018, University of Melbourne\*

Key Australian Infrastructure Stats, ABS 2018



## KEY FINDINGS

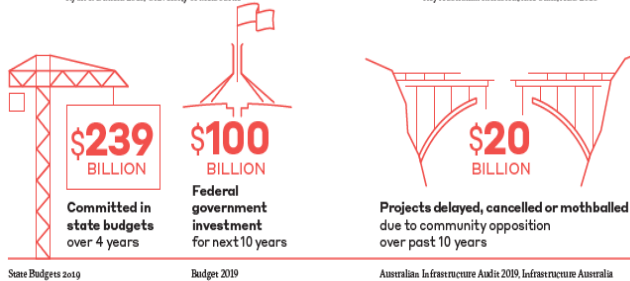
Survey respondents were asked to assess eight key themes for their impact on project success:

THEME 1	THEME 2	THEME 3	THEME 4
Strengthen government and political engagement	Improve integrated business case and early community engagement	Efficient choice of contract	Improved confidence in project pipeline delivery
THEME 5	THEME 6	THEME 7	THEME 8
Increase emphasis on project assets lifetime costs	Reduce unknown environmental impacts	Improved industry ecosystem	Effective use of technology and data

### Highest Impacts on Projects

99%	92%	86%
say a more integrated planning and robust business case process is needed combined with front-end engineering design and early community engagement.	say choosing the right contract for the right project is required, standardising the use across both delivery agencies and construction firms.	say strengthening government and political engagement is key to success.

Percentages of respondents who rated these issues as having a high or medium impact on a project's success.



State Budgets 2019

Budgets 2019

Australian Infrastructure Audit 2019, Infrastructure Australia

# Activity 6. Project Bundling Study

- Citations and/or endorsements

- 5 year **Australian Research Council grant (ARC)** in which we successfully applied state-of-the-art of economic theory and successfully empirically tested this tool using \$32 billion worth of Australian health and road projects
- Cited/endorsed by Australian **Productivity Commission** on final report on infrastructure in 2014 Vol.2 page 461 (at: <http://www.pc.gov.au/inquiries/completed/infrastructure/report>)
- Cited/endorsed by **CIB PPP Task Group** – see page 8 (world’s largest network of construction researchers)
- Cited by the International Transport Forum at the **OECD** in the conclusion of their 2-year in-depth study and biggest ever inter-governmental report (chaired by Infrastructure Australia), in which they conclude that the new procurement tool, **“compared to current procurement practices, represents a significant step forward”** and **“that could bring efficient procurement a huge leap forward”** (at: <https://www.itf-oecd.org/private-investment-infrastructure>).



# Activity 6. Project Bundling Study

- Successful trials of tool on 2 major Australian public sector projects (road funded by Austroads and hospital funded by IA)
  - including significant differences in both projects in terms of the procurement approach recommended by the tool in contrast to the actual approach to procurement

# Activity 6. Project Bundling Study

- Partnering with **OECD** to develop and apply tool around the globe
- **NBER** (hosted by **MIT**) book in 2020 including paper by OECD and Adrian featuring tool; book designed to launch **Infrastructure economics** as sub-discipline in mainstream economics

The screenshot shows the NBER website for the 'Economics of Infrastructure Investment' conference. The header includes the NBER logo and navigation links. The main content area displays the conference title, organizers (Edward L. Glaeser and James M. Poterba), dates (November 15-16, 2019), and location (Parlview Room, Royal Sonesta Hotel, 40 Edwin H. Land Blvd, Cambridge, MA). A detailed schedule for Friday, November 15, is provided, listing various sessions, speakers, and discussants. A specific session at 3:15 pm is highlighted in yellow, featuring Dejan Malovicsek, Adrian Bridge, and Shoshana Vasseman.



## Procurement choices and infrastructure cost

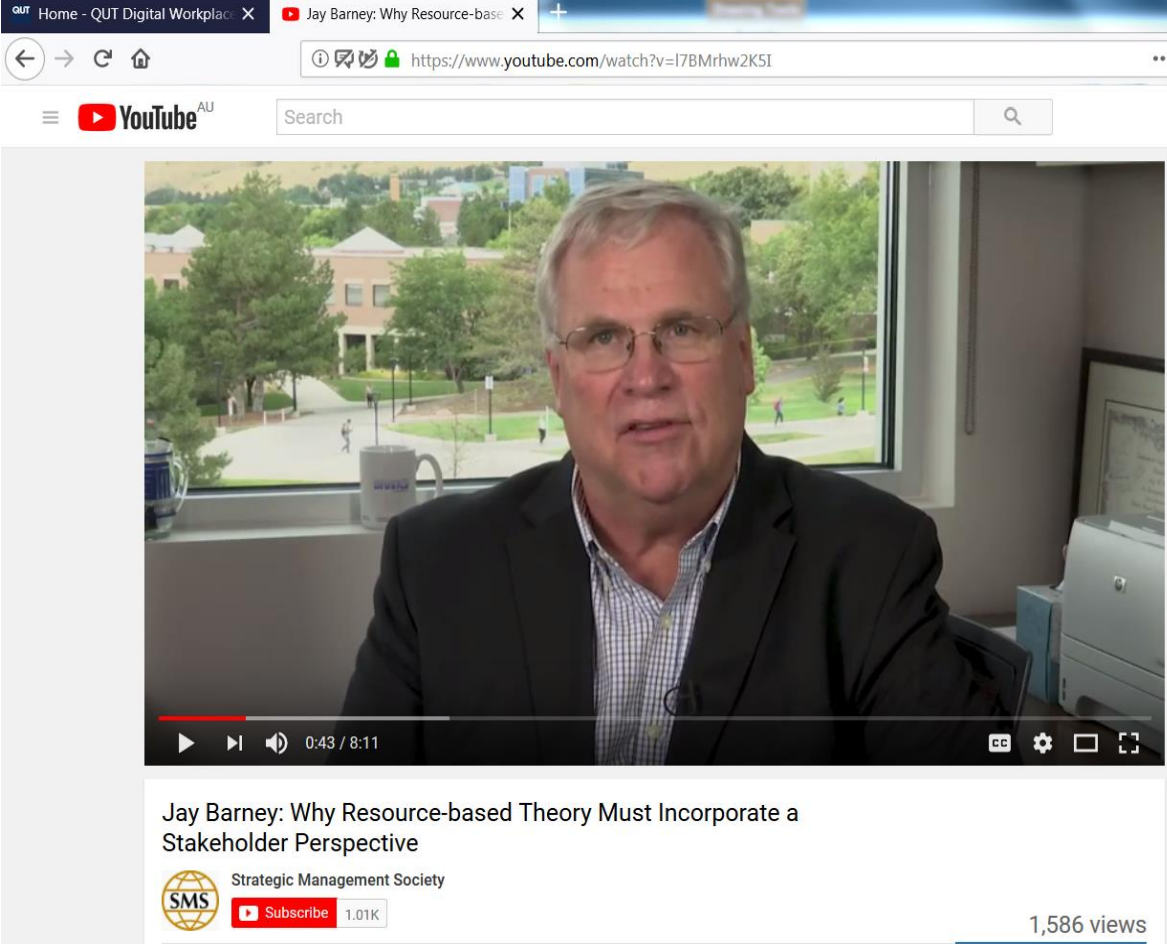
Boston, November 2019  
Dejan Makovšek, OECD/ITF  
Associate Prof. Adrian Bridge, QUT





# Activity 6. Project Bundling Study

- Collaborating with **Jay Barney**, University of Utah, US (world's leading academic on Resource-Based Theory – one of the theories in the tool) on Jay and Adrian co-authoring new book on *“The Economics of Strategic Procurement”* in 2021
  - Focus on theory and empirical work underpinning the new procurement decision tool, that will complement the practical focus in IA's user manual and in Austroads' report



The screenshot shows a web browser window with a YouTube video player. The browser tabs include 'Home - QUT Digital Workplace' and 'Jay Barney: Why Resource-base'. The address bar shows the URL 'https://www.youtube.com/watch?v=l7BMrhw2K5I'. The YouTube player features a video of Jay Barney, a man with glasses and a dark suit, speaking in an office setting. The video progress bar indicates 0:43 / 8:11. Below the video, the title 'Jay Barney: Why Resource-based Theory Must Incorporate a Stakeholder Perspective' is displayed, along with the 'Strategic Management Society' logo and a 'Subscribe' button showing 1.01K subscribers. The view count '1,586 views' is shown in the bottom right corner of the video player area.

# Activity 6. Project Bundling Study

- Please watch Adrian's presentation of the model in this study, given at **OECD** in Paris 22<sup>nd</sup> June 2018 and available at: <https://www.itf-oecd.org/private-investment-infrastructure>

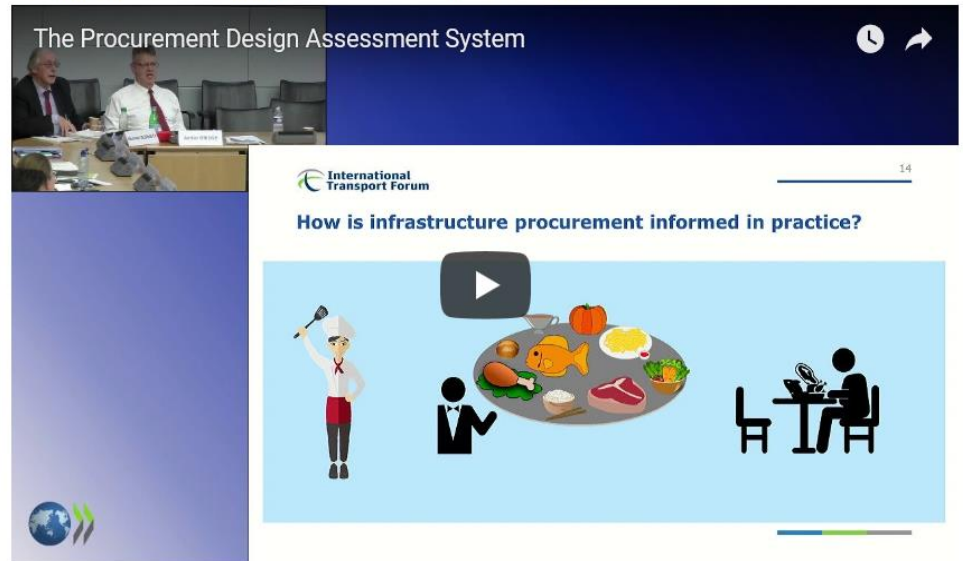
## The Procurement Design Assessment System: The roadmap towards it New

 View Presentation, slides, speech (PDF) (1.18 MB)

Presentation, slides, speech, 22 June 2018

Dejan Makovšek, International Transport Forum

Adrian Bridge, QUT, Queensland University of Technology, Australia



The Procurement Design Assessment System

International Transport Forum

How is infrastructure procurement informed in practice?

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# Activity 6. Project Bundling Study

- Current practice -> scope for improvement: more...
  - **Objectivity; transparency; and accountability**
  - Economic decision-making and less reliance in pivotal financial assumptions
  - Competition to ensure the market works as efficiently as possible to deliver the project/parts of the project and in so doing avoiding trial and error
  - Timely/earlier and more robust assessment in preliminary evaluation of whether there is a viable PPP/s
  - Overall, time and cost savings
- The model advances all of the above plus...
  - Addresses a number of recommendations in Infrastructure Australia's infrastructure plan – particularly, 9.7 concerning National Governance Principles, as well as 10.5 on reducing construction costs via more competition
  - Incorporates evidence that it can **double the chance** that the procurement strategy informed by the tool can set the project on path to deliver superior Value-for-Money relative to procurement developed using current practice