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PROCUREMENT OF GOVERNMENT INFRASTRUCTURE PROJECTS

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SMART INFRASTRUCTURE FACILITY
SUBMISSION

World's Best Practice Procurement of Public Infrastructure

Submission to the NSW Legislative Assembly Transport & Infrastructure Committee Inquiry

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Joe Branigan, Senior Research Fellow at SMART Infrastructure Facility UOW has prepared this submission. Professor Andrew McCusker, Director – Rail Logistics Laboratory, SMART Infrastructure Facility UOW, has reviewed the paper. The opinions and recommendations expressed in this submission are those of the author and do not necessarily reflect any official position of the University of Wollongong.

Title – World's best practice procurement of public infrastructure

Disclaimer:

The policy advice provided in this submission is general in nature. When considering infrastructure procurement mechanisms, jurisdictions should consider their own unique circumstances.

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Key points

- Procurement processes for public infrastructure are intrinsically linked to service delivery outcomes.
- Given their importance, it is not surprising that infrastructure procurement processes are lengthy and resource intensive. However, excessive bidding costs can produce unacceptable economic consequences for both bidding companies and government. Efforts to lower procurement related costs and minimise the extent to which processes are complex, lengthy and unpredictable can thus generate a raft of benefits for overall public infrastructure delivery.
- The desirability of standardising procurement processes and documentation for infrastructure delivery has many parallels with the considerations on regulatory harmonisation. Harmonisation is not an end in itself; and is certainly no guarantee of superior economic outcomes. There are often sound reasons for differences in regulatory approaches and policy frameworks. The key consideration is to understand and minimise the risks of unnecessary diversity on the one hand and unduly costly coordination on the other.
- Infrastructure related procurement processes are *less likely* to be amenable to a harmonised cross-jurisdictional approach:
  - Identifying optimal standardised approaches to infrastructure procurement, including across myriad approaches for tendering (which are likely to expand in the future), is not clear cut and will surely involve significant transition and implementation costs.
  - Should a harmonisation program be applied, it could considerably constrain the ability of state governments to attune approaches to local circumstances.
- This should not moderate the incentives for NSW or any other state to pursue measures to appropriately lower the costs of tendering for government infrastructure projects. Several areas where policy attention may be warranted include:
  - *A greater focus on in-house design and pre-investigation work prior to tender.* This avoids the doubling up of such work by competing proponents.
  - *Direct payment for design-intensive bids from shortlisted proponents*. Under these arrangements, governments would own the associated intellectual property. While this increases the upfront cost to government, it has the potential to lower risks for proponents (risks which are ultimately priced and passed on by contractors).
  - *Streamlining project tendering processes*. This is especially important for small and medium sized developments.
- A key observation of SMART's work in reviewing procurement processes globally is that an "Independent Review" to endorse the 'value delivery' for each project can benefit outcomes, when reviews take place at principle gateways along the project cycle.

1. SMART Infrastructure Facility

The SMART Infrastructure Facility at the University of Wollongong is pleased to make this submission to the NSW Legislative Assembly Transport & Infrastructure Committee on the *Procurement of government infrastructure projects* (Terms of Reference at Appendix A). Our submission seeks to identify best practice processes and challenges in procuring public infrastructure in the context of the existing fiscal arrangements in the Australian Federation.

SMART was established to develop an integrated approach to public infrastructure research. Australia's first research centre dedicated to infrastructure commenced in 2011 and was jointly funded by the Commonwealth Government, the NSW Government (via RailCorp) and the University of Wollongong. The SMART acronym means 'Simulation, Modelling, Analysis, Research and Teaching' and our *modis operandi* is multidisciplinary and collaborative. We have established Australia's first Professorial chairs in infrastructure economics, infrastructure systems, and infrastructure modelling and simulation.

SMART has built a reputation of being able to provide the research, knowledge and tools required for evidence-based planning, public policy and investment decision-making. Our research and teaching focuses on four practical themes:

- Infrastructure governance, including project evaluation, cost drivers, pricing and economic regulation
- Infrastructure systems and complex modelling and simulation
- Infrastructure data aggregation and analysis
- Rail logistics

Our mission is to generate, publish and disseminate ideas that support greater understanding of the value, interconnection and interdependencies of infrastructure — both public and private. For instance, the SMART Rail logistics division is establishing a research capability to support and champion the role of rail as part of the broader transport network in Australia.

2. Introduction

To the extent that the taxpayer funds the provision of public infrastructure, such as roads and passenger rail networks, governments should always strive to deliver value-for-money on behalf of the taxpayer. Taxes impose efficiency costs on the economy and also carry an opportunity cost in the sense that the taxes raised could be spent on alternative projects.

Procurement processes for public infrastructure are intrinsically linked to service delivery outcomes. For instance, these processes materially affect the cost of projects, how risk is allocated, the burden of compliance and administration, competition between contractors, and, potentially, what projects are actually undertaken by governments. In this way, the efficiency of project procurement frameworks and procedures is fundamental to the way in which public infrastructure is delivered in Australia.

For contractors, the costs of tendering for infrastructure projects are substantial, often representing between 3% and 5% of overall project development costs (Productivity Commission). Many contracting firms also operate in different states and territories and must therefore comply with project tendering processes which vary across jurisdictions. While these variances can reflect legitimate differences in the approaches by state governments to develop public infrastructure, they can also add to compliance costs.

In this context, initiatives to advance a seamless national economy and reduce red tape for business should ideally recognise the merits and drawbacks of both harmonised and differential state-based approaches to infrastructure project procurement (the so-called cooperative federalism versus competitive federalism models).

Project procurement processes will also typically vary depending on the size and type of the infrastructure project and what tendering model is used (e.g. traditional contracting like Design and Construct, alliance contracting or PPPs etc).

Leveraging our expertise on public infrastructure cost pressures, SMART's submission focuses on three specific areas in the inquiry's terms of reference: (i) the desirability of standardising procurement processes and documentation, (ii) options to minimise the cost of tendering, and (iii) facilitating greater contestability in the market for contractors. These are issues which SMART has examined in detail within its current work program, including undertaking a comparative analysis of road and rail project costs in NSW, Victoria and Queensland.

The SMART Infrastructure Facility welcomes the opportunity to make a submission to the NSW Parliamentary Inquiry on best-practice government procurement processes. We believe the inquiry provides an important avenue to examine ways for agencies to better deliver the infrastructure needs of NSW and Australia. To complement this submission, we would also be pleased to appear at any Committee hearings if required.

3. Policy Considerations in Standardising Procurement Processes

The procurement phase of public infrastructure development forms a substantial component in the project lifecycle. Once a decision to proceed with a project has been made, procurement related processes involve preparing detailed project specifications and tender documentation, taking these to market, selecting a preferred contractor, negotiating and awarding a contract. In doing so, the procurement process largely locks in key risk and value for money parameters (i.e. cost and quality) before construction commences.

Given its importance, it is not surprising that infrastructure procurement processes are lengthy and resource intensive for government agencies and private contractors. Yet the extent to which these processes and their associated costs are justifiable and proportionate is contestable. This is often made more difficult to judge because almost all major infrastructure projects have substantial unique elements, for instance in terms of their design, size and development schedule, location or technical features. That said, the Productivity Commission (2014) report on public infrastructure noted a range of industry concerns regarding the growth of project tendering costs in Australia which appear high by international standards. Analysis conducted by SMART (which is not publically available) on cost drivers for road and rail infrastructure indicates that the growth in project development costs, which includes tendering costs, along Australia's east coast has been significant across all procurement structures.

From a policy perspective, excessive bidding costs can have undesirable consequences for both bidding companies and government. They can discourage competition between contractors (especially new entrants) and unduly add to costs which must later be recouped. For governments, they also add to administration costs and can delay the time in which much needed projects are commissioned. Thus, efforts to lower procurement related costs and minimise the extent to which processes are complex, lengthy and unpredictable can generate a raft of benefits for overall public infrastructure delivery.

3.1 Regulatory Harmonisation is not a Cure-All

Much of the attention for reducing the burden of regulation over the last decade or so has centred on greater harmonisation of regulation across the Australian federation. This includes reforms in the areas of occupational health and safety, environmental assessment and approval processes and professional licensing, registration and accreditation of health professionals, building standards and transport safety regulations (see OECD 2010 and COAG). Importantly, many of these reform areas, both directly and indirectly, influence infrastructure delivery and the ability of businesses to operate across jurisdictional boundaries.

The majority of public infrastructure in Australia is delivered by state governments (often with federal funding contributions); and accordingly states have adopted their own longstanding approaches to infrastructure procurement (see Infrastructure Australia 2012). This encompasses, to varying degrees, different procurement policies and guidelines, as well as regulatory frameworks.

In large part these reflect the individual circumstances of states, as well as differing appetites for non traditional contracting methods. But methods of procuring infrastructure also have a substantial legacy element in which state agencies continue the approaches they have successfully used in the past. A key point is that measures to standardise project procurement processes are less about regulatory harmonisation and much more about the efficiency and effectiveness of the administrative practices used by agencies.

Notwithstanding, the inquiry's examination of the desirability of standardising procurement processes and documentation for infrastructure delivery has many parallels with the considerations on regulatory harmonisation. After all, both are essentially about the frameworks (whether in statute or otherwise) which governments apply and which contracting businesses are required to navigate.

The costs and benefits of harmonisation

Standardising or harmonising regulations or policies involves both costs and benefits to individual states and the Australian economy as a whole (see Australian Government 2014). Crucially, there is no precise theoretical position in terms of whether harmonisation is desirable across all areas of regulation. Different areas of regulation give rise to different impacts.

In this vein, the in-principle benefits of economic harmonisation tend to be more easily identifiable. Moving to a common set of standards and procedures can yield a range of efficiency benefits, including the achievement of economies of scale and reduced costs for businesses that operate across state boundaries. This can lower barriers to entry and promote more competition, ultimately lowering prices for consumers. Harmonisation can also reduce costs for governments, for example by reducing administrative duplication across states.

The potential costs of harmonisation are not always as obvious or as easily understood as the in-principle benefits. Inevitably, achieving a common standard is a political process involving negotiation between jurisdictions. Former reform programs indicate that jurisdictions will not necessarily agree to harmonise to the 'best practice' set of procedures or standards.

Indeed, it may well be the case that there is no such benchmark due to substantial jurisdictional diversity. Rather, the standardised approach that emerges from negotiations may be worse for some or even most jurisdictions, and may reduce rather than increase efficiency overall. There are also internal resourcing costs to consider. The process of actually negotiating harmonised standards is itself very resource-intensive. The uncertainty about the eventual outcome of negotiations can also be a hindrance to business — at worst undermining the very objective of the reform.

In this context, there are often sound reasons for differences in regulatory approaches and policy frameworks, particularly in Australia where large geographic size and demographic dispersion has frequently required local solutions for local problems. Harmonisation towards regulatory uniformity can retard or prevent policy experimentation and innovation, with potentially high long-run welfare costs. And particularly problematic is that fact that harmonisation, once achieved, can slow the adaptation to new developments and approaches: adjusting the standardised arrangements requires a new round of negotiations, with all the complexities and compromises that invariably involves. As a result, even were the harmonised standard superior to those that preceded it, there is no assurance that it will remain superior to alternative state-based arrangements into the future.

The key consideration is to understand and minimise the risks of unnecessary diversity on the one hand and unduly costly coordination on the other. This accords with the principle of subsidiarity in a federal system, which stresses that central authorities should undertake only those tasks that cannot be performed effectively at a more immediate or local level.

3.2 Industry Suitability to Regulatory Harmonisation Reform

Building on these general perspectives for adopting standardised approaches to regulatory and policy frameworks, it is useful to consider the aspects of industries where harmonisation tends to yield greatest economic benefit, as well as those where the drawbacks are most likely to be substantial.

The general features of industries that benefit from harmonisation include:

- Industries that operate nationally (multi-state businesses) and where (1) there are large costs to adopting and complying with state-specific processes and procedures, including in terms of foregone economies of scale and scope, and (2) those costs cannot be avoided by the choice of location (i.e. by servicing interstate markets from the jurisdiction where regulations are most conducive to the efficient operation of the industry).
- Industries where consumers have a high degree of risk aversion, face difficulties and very high costs in evaluating product quality and, therefore, seek the same set of standards across all states (for example, the provision of medical services).
- Industries that depend on highly prescriptive technical standards, that then constrain equipment choice, staff training and operating procedures, where the costs of maintaining several different standards would outweigh any innovation or diversity benefits.

In contrast, the general features of industries where the costs of harmonisation will tend to outweigh benefits include:

- Industries dominated by highly localised, small single-state businesses which have already adjusted to a state-specific regulatory approach and where the costs of understanding and implementing new rules and regulations would be high.
- Industries where there is no clear single optimal approach of regulating or setting common standards, and consequently diversity benefits are large.
- Industries subject to state-specific demand or supply shocks that call for a regulatory response, and for the timely adaptation of existing regulations and policy frameworks.

3.3 Evaluating the Merits of Standardising Procurement Processes and Documentation

The above perspectives highlight that harmonisation is not an end in itself; and is certainly no guarantee of superior economic outcomes. Some industries and areas of government activity are more suited to a divergence of approaches provided for under a federal system.

On the basis of the economic and policy considerations noted above, it appears, prima facie, that infrastructure related procurement processes are less likely to be amenable to a harmonised approach. Identifying optimal standardised approaches, including across myriad approaches for tendering (which are likely to expand in the future), is not clear cut and will surely involve significant transition and implementation costs. Further, should a harmonisation program be applied, it could considerably constrain the ability of state governments to attune approaches to local circumstances.

Any detailed analysis of advancing a more harmonised set of infrastructure procurement arrangements would need to consider a range of factors. These include:

- the distribution of impacts across jurisdictions;
- implementation costs faced by jurisdiction;
- the number and size of businesses affected and the proportion of these businesses that operate in more than one jurisdiction;
- an estimate of the potential scope of the reduction in business compliance costs, including clearly stated assumptions and sensitivity analysis around those assumptions;
- whether there could be net benefits to governments in terms of a reduction in resources employed to administer standardised procurement arrangements; and
- whether any proposal accords with sound federalism principles, such as the principle of subsidiarity and beneficial competition.

3.4 Enhancing the Effectiveness and Efficiency for all Stakeholders

The cornerstone for best practice and governance in infrastructure procurement lies in the ability of each stakeholder achieving efficiency in the delivery and in creating enhanced value for money for the taxpayer.

The issue of achieving value is one which requires attention throughout the full investment cycle and with the advent of the inclusion of private finance the infrastructure delivered must generate value sufficient to provide return and profit to the private investor.

At the SMART Infrastructure Facility we have reviewed procurement processes where best practice is deemed to exist, such as that applied by the Public & Private Infrastructure Investment Centre of the Korean Development Institute.

A key observation is that an “Independent Review” to endorse the ‘value delivery’ for each project can benefit outcomes, when reviews take place at principle gateways along the project cycle.

Correspondingly, our recommendation to the inquiry is that rather than pursuing standardization in procurement processes and documentation, effort would be more advantageously applied to developing a framework for "Value Assurance" where the principle value requirements for each project would be embedded into all aspects of the project cycle and into the service delivery cycle for high value projects[1].

Project proponents, investors and project directors would have to meet the requirements of value gates as assessed by an independent body prior to proceeding.

We also consider that benefit can be derived through the commission of further research in this area and would encourage that this is pursued so that Australia may benefit from countries where best practice is thought to exist.

4. Minimising the Cost of Tendering

A substantial aspect of policy discussions on public infrastructure provision in Australia has centred on the high costs of bidding for construction in Australia, which is often reported as expensive relative to other countries (see Productivity Commission inquiry on public infrastructure). Several causes of high bidding costs have been identified:

- tenders which are often highly prescriptive and process-driven rather than outcome-focussed;
- high level of detail required at early bidding stages (thus requiring substantial input at an early stage from consultants and technical expertise providers); and
- poorly developed projects by government agencies prior to tender.

These factors also compound other project development costs such as those related to regulatory and environmental requirements. The upshot is that front-end processes for infrastructure delivery can be unpredictable and unnecessarily complex and costly.

Cost driver analysis by SMART has highlighted significant growth in Australian road and rail project development costs (NSW, Victoria and Queensland), which include bidding costs, over the last decade. One aspect which emerged from the analysis was the influence of project size on development costs. There is evidence that relative project development costs for smaller and medium-sized projects decrease with project size. However, for larger projects (say

[1] SMART's is currently undertaking work with T4NSW's Asset Standards Authority, on the use of Model-Based Systems Engineering (MBSE) to map and track various assets within an organisation from procurement to retirement. Such a framework provides 'value assurance' as it embeds – in principle - regulatory, technological, social and economic interactions into an asset life cycle. With this kind of tool in place, pre-tender in-house design and investigation can be more easily developed. This approach has been developed in industries characterised by complex embedded systems (Defence, Rail).

projects valued over $400 million), road and rail project development costs show signs of increasing with project magnitude, driven by greater upfront development requirements. This suggests that project complexity and its attendant costs disproportionately increase costs beyond a certain project size.

Certainly, infrastructure investments, more than any other type of large-scale development, are customised for local requirements and conditions. This has implications for the way in which governments may strive to constrain tendering costs, including through standardising bidding procedures or identifying best practice processes. Several areas where attention may be warranted are highlighted below.

4.1 In-house Design and Pre-investigation Work

A major component of tender costs for public infrastructure works relate to project design. The Productivity Commission reported that this can form around 50% of total bidding costs for proponents. Accordingly, there is substantial scope in reducing these costs in a competitive bidding environment.

It is commonly accepted, including by state transport department officials, that design requirements and costs have increased over the last 10 years. This trend is supported by SMART analysis on road and rail project cost drivers. However, these strengthened requirements are not without offsetting benefits. Indeed, they may also contribute to better overall infrastructure outcomes, potentially driving whole-of-life asset savings.

In this regard, it appears that the greater focus on up-front design requirements has the potential to yield ongoing benefits for government and can reduce the risk of revisions down the track, which can be a major driver of project cost overruns. That said, costs could increase significantly when expensive design work is duplicated by competing contractors during early bidding stages. A balance is therefore needed between containing overall bidding costs on the one hand, and facilitating competitive tension and best practice design innovation and surety on the other.

One option to help achieve this balance would involve government infrastructure agencies undertaking more in-house project development work such as site surveying and early concept design work (such scoping activity is also consistent with preparing P90 cost estimates). This avoids the doubling up of such work by competing proponents as part of the tendering process and can lower site-related development risks. Government would also own the design work it completes which could have value for ongoing infrastructure development.

4.2 Direct Payment for Design-Intensive Bids

A further option that has potential merit is for government to directly compensate shortlisted bidders for detailed proposals, especially where these involve substantial design related intellectual property. Under these arrangements, governments would then own the associated intellectual property. While this clearly increases the upfront cost to government, it has the potential to lower risks for proponents (risks which are ultimately priced and passed on by contractors).

This approach can also help promote competition in the construction contractor market by offsetting some of the risks faced by new market entrants including overseas firms. Such arrangements have been used in some recent Australian infrastructure projects but have not been widely adopted. Trialling cost contribution arrangements, predominantly where innovative design is being sought, should be considered.

4.3 Streamlining Project Tendering Processes

Finally, the length of tendering processes should be reduced where possible. This is especially important for smaller and medium sized infrastructure developments, which tend to be based around more standardised approaches and where upfront costs are greater in relative terms. Shorter timeframes can also impose a useful discipline on government to make timely decisions and minimise information requirements from tenderers. A specific streamlined tender pathway for lower risk infrastructure projects could be developed.

This will not be feasible for all developments. For projects where market discovery processes are crucial, say to elicit innovative approaches in infrastructure design and financing, greater levels of information and tendering investment by proponents and longer decision periods by government will inevitably be warranted. However, these requirements should very much be commensurate with the scale of the project.

4.4 Link Between Project Planning and Procurement

It is also worth noting the links between infrastructure planning and procurement processes. Better planning and prioritisation gives greater visibility about tendering opportunities and how and when they might be pursued. Greater lead-time can be used by government to undertake more upfront work, (see discussion above), and provide scope for contractors to line up JV or consortium partners and schedule their internal tendering resources. However, greater lead-time should not simply be an opportunity to generate more detailed and disproportionate tender documentation (which can sometimes occur).

5. Final Thoughts

Getting value-for-money on behalf of taxpayers for public infrastructure projects are largely a matter of controlling and managing uncertainties and, in our view, independent oversight with teeth will generally trump bureaucratic procedure. Value will be enhanced through fact based evaluation and flexibility in the application of independently monitored procedures and standards.

Authorities need to be more proactive in project affairs and must start to assume more direct intervention in decision making with an aim to assuring the principle values the assets are created for delivers expected outcomes in infrastructure services.

In this regard, it might be more useful is states focus on establishing the legal framework to deal with solicited and unsolicited bids, setting limits around state guarantees in projects and introducing guidance on revenue modelling.

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Appendix Legislative Assembly *Transport & Infrastructure Committee* — Terms of Reference

That the Committee inquire into, and report on, world's best practice with regard to the procurement of government infrastructure projects with particular reference to:

1. the best process of gateway decision making on the efficacy of public private partnerships compared to other procurement methods
2. the best procurement process and documentation
3. the desirability of the standardisation of procurement processes and documentation
4. the desirability of a standard national process and documentation for the delivery of government infrastructure within a federal structure
5. methods to minimise the cost of contractors tendering for the supply of services with respect to government infrastructure
6. methods to achieve optimal contestability in tendering for the supply of services with respect to government infrastructure
7. any other related matter.

FOR MORE INFORMATION

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