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Mr Jared Greenville
Public Infrastructure Inquiry
Productivity Commission
LB2 Collins Street East
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Dear Jared,

Inquiry on Public Infrastructure

We are writing to offer what we believe is an important perspective on the design, delivery and management of public infrastructure – one which offers not only *a reduction in the costs of infrastructure but also substantial value uplift* in terms of economic, social and environmental benefits, in turn creating more attractive investment propositions that can unlock private funds.

We set out some key messages and recommendations below, and draw your attention to the enclosed book, *Insight Trading*, which develops these insights with greater depth supported by real, illustrative case studies. Importantly, the insights offered are directly relevant to enhancing the productivity of public and private infrastructure but also to manufacturing and business more generally; this has been acknowledged and highlighted by the Australian and international reviewers of the book.

In short, we observe that while we need lower cost infrastructure, we also need purposeful growth. Capital projects must consistently build more productive, attractive and sustainable cities and regions. This demands more than incremental improvements in the design and delivery of infrastructure; transformation is required in capital productivity to delivery short and longer-term outcomes.

“What should be built, if anything?” is clearly a central question. *How* this question is approached has a big impact on the answer and whether collectively we can identify and then successfully deliver the right project, at the right time, in the right place, at the right cost.

Cost reduction

Given current and emerging budgetary and market pressures, cost reduction is understandably a very high priority for governments and the private sector alike, particularly in the delivery and management of major assets like public infrastructure. The need to reduce public debt levels understandably fuels interest in engaging institutional investors and private sector balance sheets in the financing of infrastructure. Indeed, it seems that when ‘innovation’ is used in the context of infrastructure, it’s directed at financing and the underpinning funding and delivery models. While this is undoubtedly an area warranting innovation, we believe it’s critical to recognise and foster

the opportunities of innovation in 'design' (encompassing the planning, engineering design and delivery approaches).

Through extensive, practical experience on capital projects in Australia and abroad, we have observed and contributed to 'smarter design' that reduces not only the whole-of-life costs of asset ownership *but also capital costs*. We believe savings in the order of 10-40% are generally feasible – while also generating better economic, social and environmental outcomes – with the potential to more successfully attract private capital as mentioned above. Core components of smarter design, like inter-disciplinary collaboration, systems thinking and design thinking, are set out in *Insight Trading*. Early engagement in and throughout the design and delivery process is essential. Importantly, this is *not* about adding more effort and cost; rather it's about *better placed effort*.

Recommendations

1) *Enable an earlier and more collaborative approach to infrastructure design, enabling relevant disciplines, functions and stakeholders (within and outside government) to think together rather than just work side-by-side or in sequence in a transactional way.*

2) *Cultivate and maintain a publically-visible pipeline of infrastructure projects (large and small) to enable better, ongoing and systematic planning and development of projects, thereby providing greater certainty to all stakeholders, maintenance of the competencies required to achieve routine success, and diminished politicisation of project selection and funding.*

Systemic solutions

It's easy for attention to be focused on the cost and cost-cutting of individual projects, particularly where they are large 'iconic' projects that make for good press releases. In practice, what is clear is that:

- Many projects suffer from poor problem definition; that is, the proponent has not fully understood and assessed the underlying causes and needs for the project, being inclined to jump to 'solutions' based on past practice or fashionable ideas.
- Smaller, less complex projects can often deliver a better economic return on investment, often enabling smarter operations and better use of existing assets.
- Government institutions operating single asset types (e.g. road or rail) are looking for new sources of revenue and cost cutting. Greater capital and operation efficiencies, leverage of assets (including non-physical assets like data) and revenue-generating business models can optimise the revenue and expenditure streams if the view is taken to optimise operation of the 'system' (e.g. an integrated transport network) rather than individual assets.
- Cost cutting on capital projects will often drive toward more 'efficient' solutions that, paradoxically, can be sub-optimal in terms of the wider infrastructure system or network into which they fit. For example, we have seen water supply and wastewater systems in which components have been 'optimised' for average conditions which leave them and the wider system hardened and fragile and hence likely to fail or collapse when conditions change.

It is generally apparent that more attention must be placed on solutions that make sense in the context of public infrastructure system rather than single projects, with clear guiding policies and strategies that are seeking more than economic outcomes alone.

Recommendations

3) *Move beyond single 'iconic' project solutions to an integrated, systemic model of identifying capital project requirements and solutions that are system strengthening.*

4) *Develop a system of incentives and rewards for government agencies to genuinely seek and develop infrastructure network solutions.*

5) *Consistently communicate the vision for infrastructure networks and the socio-economic outcomes they will deliver, so that communities can see where projects fit into the infrastructure jigsaw and can be excited by their development and progress rather than dismayed at "a lot of public money going into a questionable project".*

Procurement

Procurement matters. Through procurement government consciously (and often unconsciously) conveys what it wants – the product or service, the level of innovative thought, the level of risk that's tolerable, the extent of collaboration, and the quality of product. We observe that:

- Tightly specified procurement documents are well suited to projects where planning has been effective, options well developed and evaluated, and the delivery methods and technologies are well established. In this environment, delivery is about efficiency and least cost. Where this is not the case, the risks for all parties are higher. History demonstrates that costs, timescales, reputations and organisations are all at risk.
- Flexible and respectful procurement practices can encourage unsolicited proposals from the private sector, while rigid practices discourage innovation and sharing of ideas for fear they will not be welcomed nor the intellectual property rights recognised.
- Extending procurement practices to invite participation by international organisations is certainly useful for driving competition and introduction of alternative technologies, approaches and pricing models. Our experience does not demonstrate, however, that the levels of design thinking and innovation are markedly better and in many cases can be less progressive with many of the same impediments to smart design (as outlined in *Insight Trading*).
- Too little emphasis is placed on purchasing outcomes, in favour of purchasing outputs.
- Alliance models of capital delivery are, for example, better suited to delivery of innovative solutions within budget constraints.

Being at the mid-point of an infrastructure development process, procurement sends signals down the supply chain to service providers, and ripples back up the supply chain challenging government to be clear in its policies, planning and requirements. It is a powerful leverage point if used thoughtfully and is therefore important to get procurement processes and practices right and consistently executed.

Recommendations

6) *Encourage collaboration before competition in the infrastructure development process, rewarding sharing of ideas and skills to achieve the most useful infrastructure solutions before moving to tightening specifications and competitive delivery models. For example, this could involve smaller, lower-cost packages of work at the front end of a project conducted in an alliancing style.*

7) *Ensure emphasis in procurement is on purchasing outcomes within clearly defined budgets rather than pre-determined outputs and scopes of work, to ensure that service providers are able to apply their collective experience, capability for innovation, and resources to delivering the best value for money.*

8) *Develop, hire and/or recruit procurement managers to ensure they are equipped to specify the outcomes they are seeking, and to judge the calibre of responses to that need.*

9) *Strengthen the emphasis on, and discipline for, benefits realisation to ensure delivery on the ideas and solutions outlined in the initial business case (that are often diluted through the multiple stages and 'hand-overs' in a project development and delivery process).*

Assessing and managing risks

The perception is that risk assessment is done routinely and effectively on capital projects. Our experience reveals something different. The focus and backgrounds of the people leading and participating in the risk assessment understandably biases the scope and perception of risk. What often results is a risk matrix that is skewed to the immediate (e.g. planning and construction phases) and well understood risks (engineering, operational). Longer-term or differing categories of risk (like risks during asset operations, threats to social licence, evolution in regulatory requirements) – which can carry substantial project and organisational consequences – can be diminished or even overlooked. In short, the landscape of risks and their inter-relationships is often poorly understood.

Sharing or shedding of risks from the public to private sector may, in some situations, not be a cost effective nor realistic solution. An increasing role for the private sector in infrastructure development and delivery may not shield government nor the developer from social outrage and its multi-faceted consequences. One need not look far for examples of social licence risk being poorly understood, with repeated poor judgement impacting government and private enterprise (e.g. the unconventional gas sector). Despite the industry's hopes that promises of "jobs and taxes" underpinned by "scientific evidence" and "planning approvals in place", failure to engage with the real causes of social licence risk continue to put government and the private sector at substantial reputational and commercial risk, stalling much needed development.

Conversely what we do find is that when people are assisted to gain a richer and more realistic perspective on a project risk landscape over different project phases, they are better equipped and motivated to reduce those whole-of-life risks from the outset. Furthermore, reframing the problem to *eliminate the risks by design* often this triggers innovative solutions that tend to simplify a project, not only reducing its scope, footprint, resource use and cost, but also enhancing its short- and long-run value. This tends to smash the commonly held myth that innovation is random, risky and likely to impose greater cost.

Recommendation

10) *Drive a shift in thinking away from risk mitigation toward risk elimination through the planning, design and procurement processes.*

Non-legislative approaches

We understand the Inquiry is interested in non-legislative approaches to enhancing funding, financing and cost cutting. What should be clear from the points above is that few of them require adjustments to legislation or regulation. They are more about the way in which current processes are executed. Indeed, a review of the Victorian and New South Wales Gateway review processes of the Departments of Treasury & Finance and Commerce respectively suggest that the mechanisms exist to achieve lower cost and more sustainable projects. So it becomes a question of the *skill, rigour and consistency* with which this is achieved.

We can also furnish examples where smart design and delivery of capital projects has diminished or eliminated regulatory barriers and project delays; that is, the issues or risks triggering regulatory processes have been designed out. Hence, while streamlining of 'red and green tape' is a worthy and necessary objective (without diluting the protections intended and afforded), smart design can also substantially avoid these impediments.

The recommendations throughout this submission will assist in responding to this opportunity.

Enabling better decision making

Undoubtedly models of funding and financing infrastructure will emerge that will reduce the cost on the public purse. But as a nation we must not be so naïve as to think we can "cost-cut" our way to growth or productive, vibrant cities and industries. Nor can we assume that traditional design and development approaches (or working "business-as-usual" harder) with deliver different and better results in a world that is now more connected, complex and constrained. We must create high value assets that deliver enduring benefits, founded on better thinking and better decision making.

When we have smart professionals applying tried and tested methods developed over years, the questions becomes "so how is smart thinking and decision making different from what we're doing now?" This is where the methods we have outlined in *Insight Trading* come into play, and have been proven and illustrated via projects across the world and conveyed in the book through case studies. These methods need to be translated into planning, design and procurement guidance, and practiced with support so that they become a competency in government.

Recommendation

11) *Review and redefine what government understands is a "well planned" project, providing suitable guidance throughout the planning, procurement and development process to achieve an internally consistent and self-reinforcing shift in understanding and practice.*

12) *Undertake skill building programs in agencies and allied organisations tasked with the design and delivery of public infrastructure to enable effective implementation of Recommendation 9.*

13) *'Shock' government agencies – as the controllers of public infrastructure – into change. The sorts of adjustments in public infrastructure design, procurement and delivery suggested above are not in-and-of-themselves difficult to achieve. Yet institutional inertia will mean they occur slowly if at all. The significance of infrastructure decisions and the magnitude of capital involved means we cannot delay in making these adjustments. Therefore change must be driven from the top down with a sense of urgency coupled with an intelligent design and participatory process that engages stakeholders in shaping the change.*

We trust this has been a thought provoking and useful submission despite coming late in the Inquiry process. Please do not hesitate to contact me if you wish to discuss any aspect further as we are corporately committed to sharing our global insights in the interest of enhancing our national productivity and the sustainability of public infrastructure.

Yours sincerely

Dr Nicholas Fleming
Chief Sustainability Officer