

28 September 2015

Standing Committee on Infrastructure and Communication's Inquiry into Smart ICT
PO Box 6021
Parliament House
Canberra ACT 2600

***Re: Infrastructure Partnerships Australia's submission to the Standing Committee on
Infrastructure and Communication's Inquiry into Smart ICT***

Dear Sir/Madam,

Infrastructure Partnerships Australia (IPA) welcomes the opportunity to submit to the House of Representatives Standing Committee on Infrastructure and Communication's Inquiry into the role of Smart ICT in infrastructure design and planning.

This submission isolates three areas of Smart ICT which IPA believes should form a core focus for the Committee in developing its recommendations to Government. These areas of focus are:

- Facilitating the ongoing development and enhanced community understanding of technological opportunities and limitations related to road user charging reform;
- Establish a Digital Infrastructure Task Group to assess improvements in cost, value and carbon performance through the use of open sharable asset information; and
- Promotion of Smart ICT in the measurement of project and network performance.

Smart ICT and Road User Charging

Australia's transport policymakers are facing a substantial and worsening challenge, because demand for access to the transport network is fast outstripping the ability of governments to supply and fund new road, rail and public transport projects.

Transport, and in particular roads, have been described as the last great unreformed utility – leaving Australia with a transport system which suffers from economically damaging congestion and wasteful underutilisation; afflicted by under investment and by poorly aligned incentives for users and providers.

In this context, IPA, alongside Australia's leading motoring organisations, last year produced a research report entitled '*Road Pricing and Transport Infrastructure Funding*'. This paper is attached as an annexure to this submission.

The report's principle recommendation was for the Commonwealth to direct the Productivity Commission to establish a detailed public Inquiry into the funding, regulation and pricing of Australia's road transport market.

Separately, the report recommended that government facilitate and support trials to increase understanding of the needs and implications of potential technology options – recognising that technology is the key enabler of change to the way that road use costs are recovered from users.

In particular, the report urged that the technology requisite to enable an effective road user pricing system should be driven by scheme design, with final solutions developed through trials and competitive processes – including the flexibility to be delivered using a variety of technology solutions and allowing the market to determine the best approach.

Clearly, the technology enabler for a new charging system will be necessarily complex, needing to balance a range of considerations, including costs for motorists and government, effectiveness, privacy and relative simplicity of use.

It is in this context that IPA urges the Committee to consider the Commonwealth’s useful role in facilitating trials and application of Smart ICT solutions to support road user charging reform.

Infrastructure Digital Strategy

The second area of focus in this submission provides an overview on how the Commonwealth, and Australian construction industry more broadly, can benefit from the adoption of a digital strategy.

The use of digital information in the management of assets and system operations presents a unique opportunity for the industry. In particular, better co-ordination between parties working on the same project through digital platforms can vastly improve productivity and efficiency.

While some in the construction sector have already adopted greater use of digital tools, for example architects and engineers, many have yet to follow this trend. There are industry wide benefits to be reaped from implementing a systematic approach across state borders.

The case study below discusses the Building Information Model (BIM), one such digital platform that can help achieve this.

Case Study - Building Information Modelling (BIM)

What is BIM?

BIM is software that centralises all data and information relating to a project, therefore enabling for it to be efficiently and accurately shared between agents in infrastructure provision. This facilitates reliable decision making at every step in the lifecycle of the buildings and infrastructure assets to which it relates – from strategic appraisal through briefing, design and construction to operation, maintenance and renewal. BIM enables a variety of current risks to be mitigated and opportunities to be accessed through:

Safety improvement	Design modelling which reduces safety risks Information requirements that support the safe operation for the network can be clearly defined and communicated to the supply chain
Risk reduction	Reduction of operational risks by ensuring that the required asset management information is provided to the required quality, and is stored in a structured way to support asset management teams in planning, inspection and maintenance activities. Reducing project risks through clear information requirements, defined processes and standards and using design modelling techniques to identify and address interface and constructability issues
Cost reduction	Reduction of cost of capital works by eliminating waste from the design, construction and handover activities Reduction in cost from handover of capital works to operation through provision of structural asset management information aligned to the requirements of the Employer’s asset management system
Sustainability	Support of environmental improvements by ensuring environmental data, such as energy consumption and embedded carbon, is captured during design, construction and operation. This means agencies can monitor environmental performance, and enable improvements to be targeted during the operation of assets

BIM also allows for project information to be efficiently distributed between people, organisations and stakeholders. Sharing this information throughout the project lifecycle, for instance between a constructor, operator and owner plus government procurer, creates efficiencies through increased transparency, eliminating data redundancy, data re-entry, data loss, miscommunication, and translation errors. It also means that once a project is handed over to government, the procuring agency will also receive the necessary data to manage the asset efficiently.

The efficiency dividends can be shared appropriately between public and private sector participants. Ultimately, this improves tax payer value for money through increasing infrastructure service outcomes for the community on a per dollar basis.

In the absence of any national Digital strategy, state governments are currently looking into the how they can apply digital strategies such as BIM to their portfolio. This fragmented approach by each state to adopt BIM has the potential to cause huge issues to the supply chain, as industry will have to respond to inconsistent information requirements from each state.

In this context, there is clear scope for the Commonwealth to consider how it might facilitate a more systematic, coordinated approach to the adoption of techniques such as BIM. Indeed, a standardised BIM framework in public infrastructure procurement formed a key finding of the Productivity Commission *Inquiry Report into Public Infrastructure* (July 2014), which recommended strategies to “*facilitate the consistent use of BIM by public sector procurers*”.

In particular, this submission encourages the Committee to consider the establishment of a joint government-industry taskforce. This taskforce would investigate BIM in an Australian context, and assist governments in developing a standardised BIM procurement framework and policy for public projects that receive either Commonwealth or state government funding.

Besides promoting consistency across jurisdictions, assisting to minimise regulatory, administration and compliance costs, a taskforce could consider factors such as legal protocols, standards, processes, government procurement guidelines and a Code of Practice.

The taskforce could also investigate how BIM has been implemented in other advanced economies – such as the use of BIM in the design stage for new public service buildings in the US. Other advanced economies and jurisdictions which have standardised, mandated or have BIM programmes include the UK, Singapore, Finland, Hong Kong, the Netherlands and South Korea.

Key Performance Indicators (KPI) and Benchmarking

Developing Smart ICT that supports the measurement and performance of Australia’s social and economic infrastructure should be a further key focus of the Inquiry. Australia’s infrastructure underpins economic activity and our quality of life, and accordingly, understanding the functional performance of project delivery and network performance has the potential to deliver considerable efficiency dividends.

IPA submits performance benchmarking frameworks need to be developed for Australia’s major capital cities – with Smart ICT as a crucial platform to underpin performance monitoring. This is because measuring the performance of our cities means policymakers can target government investment and spending in the areas where it is most needed.

Various global cities have implemented functional performance benchmarks to align accountability. New York City, for example, launched a Citywide Performance Reporting System (CPR) in 2002 allowing the community, government and service providers to monitor how the city is performing in over 500 service categories. ICT development facilitated the upgrade of CPR to an online platform, which helped the city manage a \$7 billion allocation of stimulus funds. This allowed the community to engage with a *Stimulus Tracker* and follow funding by project, job type or location, and to track key success measures.

At the project level, further opportunities exist to capture data and understand the performance of individual assets – both in construction and operation. This is becoming increasingly important as infrastructure and related services are increasingly moving towards outcomes based contracting and payment, with Smart ICT a crucial component of that capture and analytical work.

Conclusion

IPA thanks the Committee for the opportunity to submit on your valuable inquiry into the role of ICT in infrastructure planning and design.

In conclusion, we submit that with the right approach and application, Smart ICT provide an unrivalled opportunity to extract substantially more from existing infrastructure – and to provide substantially better data to understand real requirements across transport, utility and social infrastructure.

We hope that the Committee will use its report to advance the case for technology trials for road user charging; to consider a national approach to developing digital engineering models for key assets and systems; and to improve performance benchmarking and monitoring of infrastructure networks.

We hope that our submission has been of use to the Committee and we would be happy to provide further information to you, as you continue your inquiries.

In the meantime, should you require any further information please contact IPA's Policy Officer Nick Hudson on (02) 9152 6018 or nick.hudson@infrastructure.org.au.

Yours sincerely,



Brendan Lyon
Chief Executive Officer