Our Ref:

Your Reference:

13 January 2020

Productivity Commission
Inquiry into National Transport Regulatory Reform

Dear Commissioners

Submission in response to the Draft Report on National Transport Regulatory Reform (Nov-19)

We are pleased to provide feedback to the Productivity Commission on its Draft Report on national transport regulatory reform in Australia.

As your national transport research organisation, the Australian Road Research Board (ARRB) is the source of independent expert transport knowledge, advising key decision makers on our nation's most important challenges. ARRB was established 60 years ago by the Australian Transport and Road agencies. We employ over 200 staff who form a multi-disciplinary pool of highly qualified research professionals, experienced engineers, specialist technical and support staff. ARRB has offices located in Melbourne, Perth, Brisbane, Sydney, and Adelaide. We have a national and international reputation for transport and infrastructure solutions through applied research, knowledge transfer (workshops and conferences) and information services.

On behalf of Australian Road Agencies, we have been substantially involved in operational and infrastructure areas to benefit transport outcomes. Based on our input, significant and positive benefits have been achieved in areas including PBS, telematics, access, freight data, road pricing, fatigue, speed, mass monitoring, ITS, safety, road space allocation, parking, traveller information, compliance and enforcement, accident investigation, traffic management, pavement and structures performance, standards, guidelines and more recently automation and advanced driver assistance systems, and sustainability and resilience.

A wholistic view

The fundamental problem which transport regulators and their consultants struggle to take into consideration is that while infrastructure reforms and national harmonisation are helpful, the true benefits will only accrue when the commensurate freight operations change. This requires a substantial industry investment. In themselves the national reforms make sense but will not by themselves produce much productivity improvement. When 30-40% of heavy vehicles run empty on the Hume Highway for example, what difference will it make when these vehicles are bigger – they will still be empty in one direction? Fundamentally, logistics supply chains are complex and transport is one part of a highly interdependent chain of decisions, equipment, modes, business factors, opening hours, weather and labour inputs.

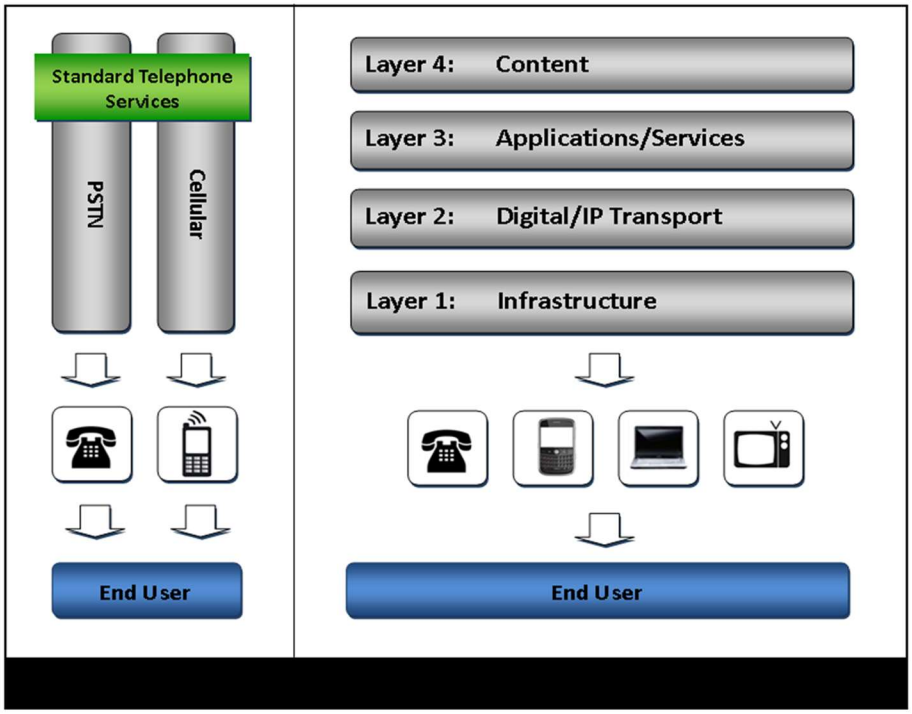
Larger vehicles can carry larger loads, but how do larger loads relate to the needs of customers? Does the customer need a larger dock, more staff to unload, more space to store the products, etc? Does a customer want more loads, how will the projections of that load change over the next five years, and will the investment in a larger vehicle produce a return on investment? These kinds of questions are critical to understand cause and impact. Policy makers and regulators must understand the operations of freight transport which are an essential pre-requisite to productivity benefits. Without that understanding or interest they are likely to invest a lot of money for little real benefit.

A wholistic view across modes as well as across the customers of freight and their demands will assist the commission to make better decisions.

A new concept of operation

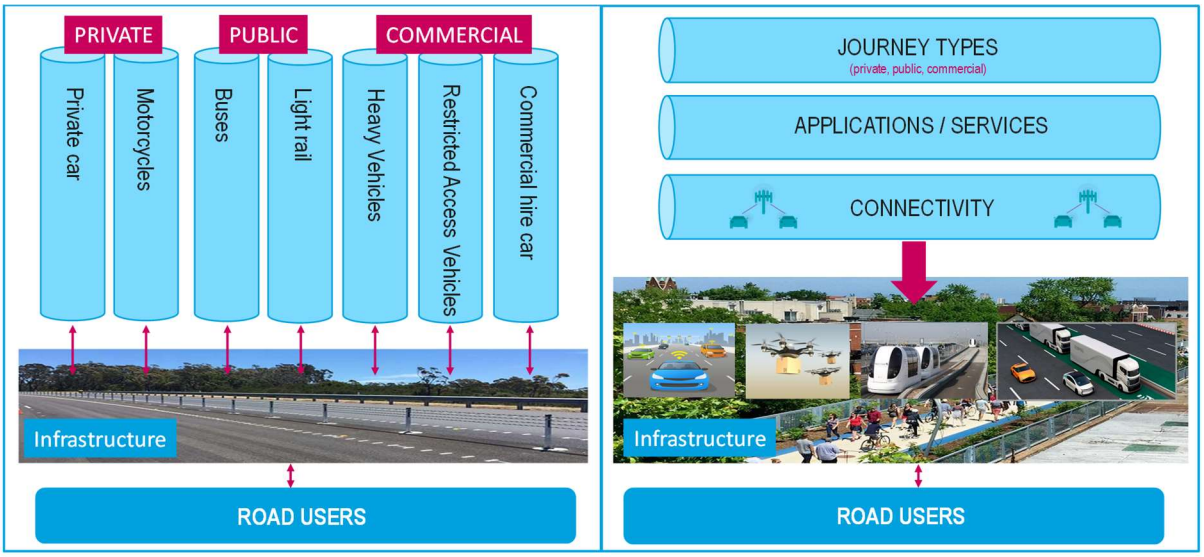
The current transport systems and services have remained unchanged for a long period (100 years) with slow incremental innovations. However, this is now changing rapidly as a result of technology. New integrated transport and mobility concepts have been evolving around the world. Each concept develops its own architecture; roles and responsibility models and physical architectures. We suggest to the Commission that what has happened in our communications landscape is now happening in road/land transport.

The Australian Communications and Media Authority in a 2011 report presented the change they were seeing in their legislative landscape as shown in the figure below. The silo based view of a regulatory and operational environment based on fixed line and cellular architectures shifted to a layer based view of the communications environment which comprised of content, application, transport and infrastructure layers.



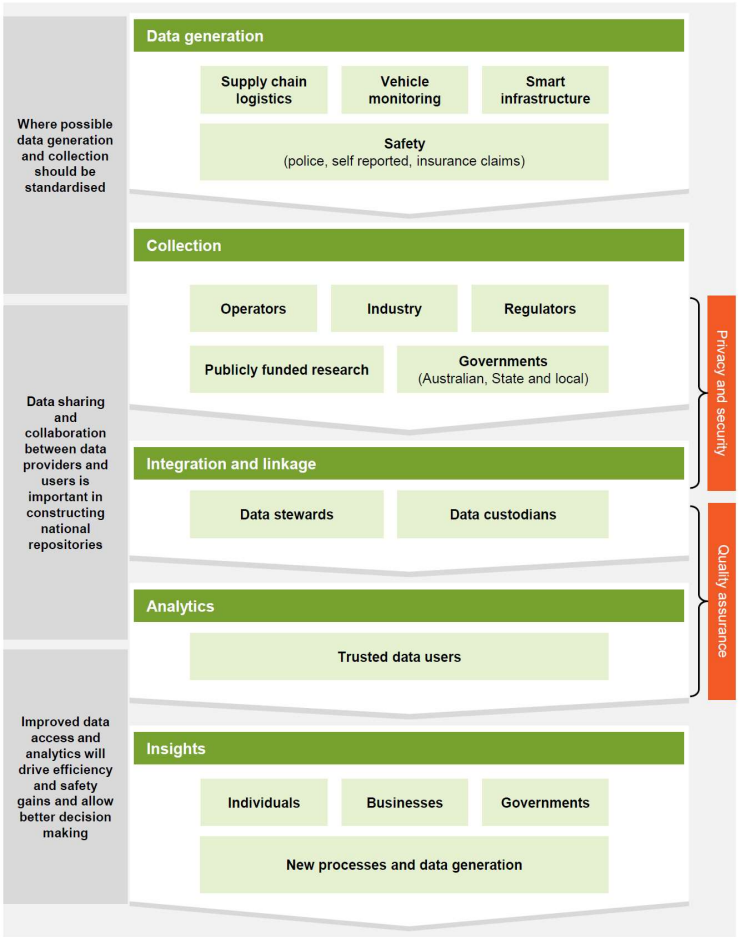
Vertical Application of the Standard Telephone Service, Figure 4, p76, Broken Concepts, The Australian Communications Legislative Landscape, Australian Communications and Media Authority, August 2011.

A similar approach for transport could possibly be represented in the figure we developed below. Journeys (or Mobility) are enabled by applications and services, supported by layers of digital and physical infrastructures.



(adapted from "**Broken Concepts** – The Australian Communications Legislative Landscape, ACMA, August 2011, p7)

In fact, the considerations in the Commission's Draft Report on data and the actors identified are already presented in such a layered view, shown in the Figure below (transport data life cycle, Figure 9, p33). The layers are "data generation', 'collection', etc. The roles and responsibilities of the actors in Figure 9 of the Draft Report also needs to be defined. By defining the 'layers' and the actors' roles and responsibilities, the system architecture or 'concept of operation' emerges.



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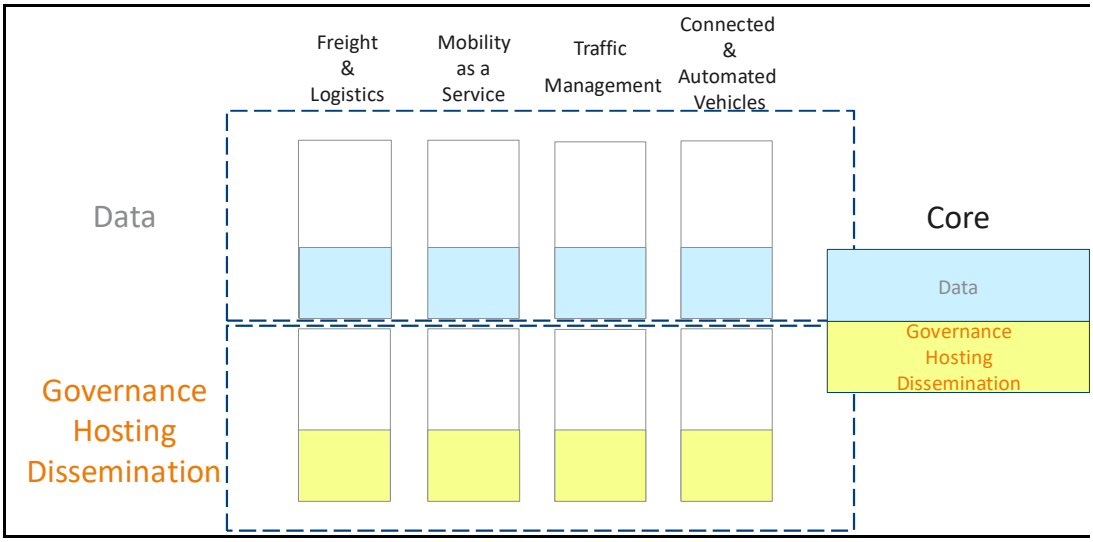
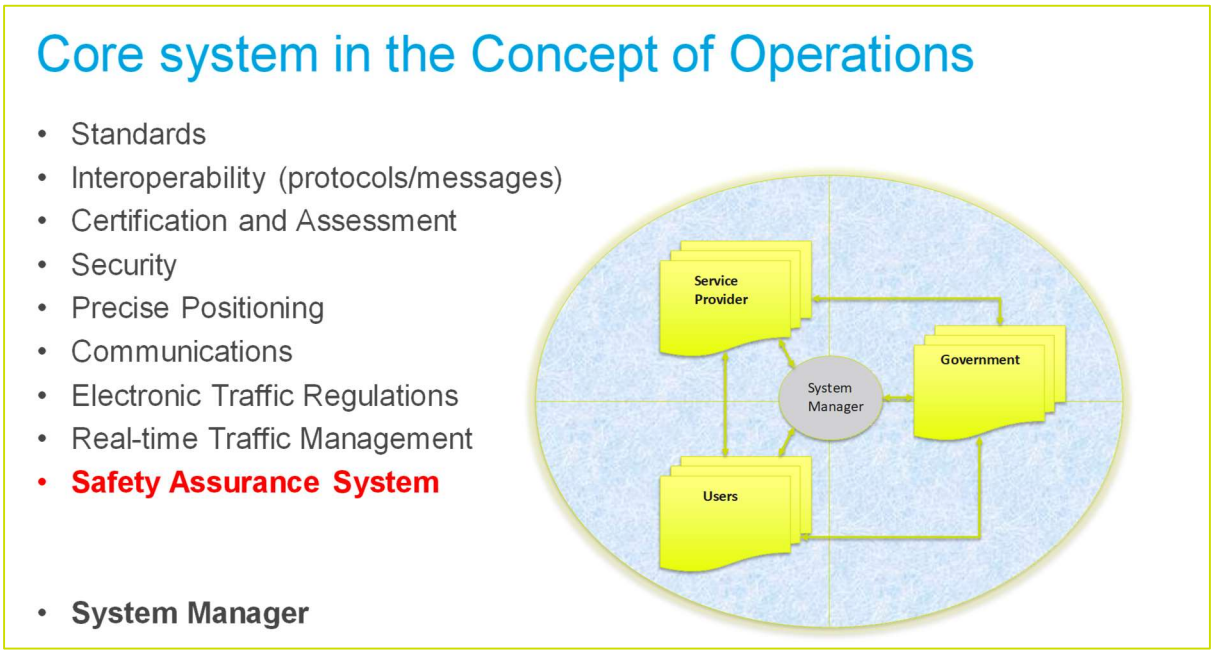
We would also suggest to the Commission that such an approach covers transport regulatory reform across several silos in transport, today and tomorrow as shown in the figure below.



Why is this important?

There is a need to describe a concept of national transport and mobility that any existing and foreseen implementation could be mapped into to enable a common understanding, exchange of information and knowledge that would also converge towards a one world-wide integrated transport description. Otherwise, we would be developing solutions that would be obsolete by the time we deploy.

ARRB has been working for some time on such matters and suggests that within such an eco-system, governments should focus on the core elements, such as listed in the figure below. These include global standards, certification, safety assurance and an overall system manager role for each jurisdiction.



ARRB experts participate on various international standards development bodies. In December 2019, a new work item was initiated in ISO Technical Committee 204 on Intelligent Transport Systems (ITS), Working Group 19 on Integrated Mobility. We discussed a future view of integrated transport architecture based around the services provided to users as shown in the Figure below.

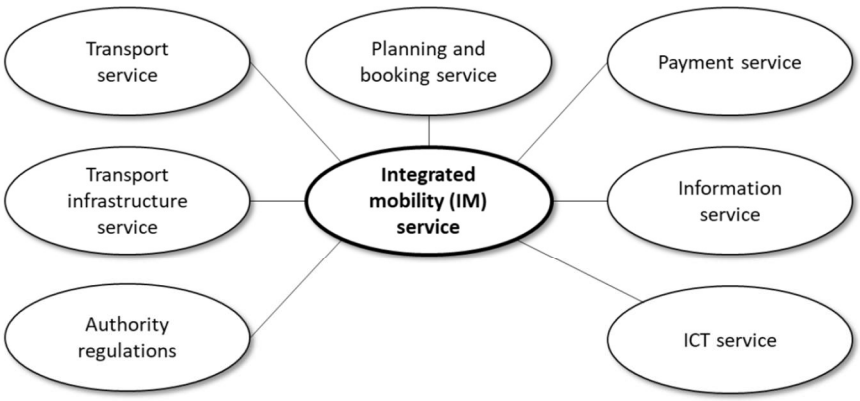


Figure 3: The main services enabling the integrated mobility service

The role of regulators and system managers is crucial. We need to build upon our growing expertise and knowledge base, supporting the current regulatory and operational frameworks while preparing for a future environment which will be layered around journeys (mobility), supported by data and real-time communications and delivered by a range of different types of service providers, many of which would have global operations.

A way forward

A good starting point would be for the Inquiry to consider the updated National Land Transport Technology Action Plan 2020-2023[1], reviewing the actions listed in that Action Plan and in the context of a wholistic system view as described in our remarks on concept of operations, identify the gaps in actions needed and the pathway to harmonisation and the key elements in the national core system that will support the current and future transport landscape.

ARRB has begun on this journey with a restructuring of our resources into six strategic work groups; Future Transport Systems, Future Transport Infrastructure, Transport Safety, Next Generation Asset Management, Sustainability and Resilience and Data Collection and Analysis. We will be happy to provide further input as required from all our six groups as required.

Yours Sincerely

Dr Charles Karl
Chief Technology Leader, Future Transport Systems

[1] https://www.infrastructure.gov.au/transport/land-transport-technology/files/national_land_transport_technology_action_plan_2020-2023.pdf