



Who moves what where
Better informing transport planning for Australians

January 2017



National Transport Commission

Report outline

Title	Who moves what where: Better informing transport planning for Australians
Type of report	Discussion paper
Purpose	This discussion paper seeks stakeholder feedback on the draft recommendations to ministers to better inform and equip Australia's transport planning decision-makers.
Abstract	This discussion paper sets out the lessons from the <i>Who moves what where</i> project to date, proposes recommendations to fill identified information gaps and provides opportunities to improve data collection and sharing to benefit planning for transport and related areas in Australia. We are seeking stakeholder comments to finalise the recommendations that will be presented to ministers in the second half of 2017.
Submission details	Submissions will be accepted until Friday, 10 March 2016 online at www.ntc.gov.au or by mail to: Att: Who moves what where National Transport Commission Level 15/628 Bourke Street Melbourne VIC 3000
Key words	Information, data, transport planning
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Executive summary

Context

In November 2015 Australia's transport ministers asked the National Transport Commission (NTC) to describe existing transport usage datasets, update transport industry composition data and analyse existing high-level information on transport usage for freight and passenger flows. They also asked that we develop options and opportunities to improve data collection and sharing, potentially using modern telematics and other applications.

The *Who moves what where* project was designed to build a better understanding of the nature and composition of the transport sector in Australia and the use of transport networks. The NTC is also conducting a project to develop a national land transport productivity framework. Together, these two strategic projects are designed to improve the strategic transport information available to decision-makers in Australia.

The *Who moves what where* project is being delivered in several stages. A public [information paper](#) was released on 8 September 2016 summarising the movements of freight and passengers in Australia, and identifying information gaps. The NTC held stakeholder workshops from 21 July 2016, that explored current and potential decisions that better transport data could inform, as well as opportunities to standardise and improve information gathering, storage, sharing and analysis. These workshops identified limitations of the information within the information paper and opportunities to standardise and improve information gathering, storage, sharing and analysis in future.

This discussion paper sets out how we have used the lessons from the project to date to develop proposed recommendations for transport ministers. The recommendations are designed to fill identified information gaps, as well as provide opportunities to improve data collection and sharing to allow better decision making and planning (by government and the private sector) for transport and related areas in Australia.

The NTC is seeking stakeholder input to the proposed recommendations. Submissions will be accepted until Friday, 10 March 2017.

Issues

The purpose of this discussion paper is to explore options for how information gaps may be filled, and by whom, by:

- presenting options and opportunities to improve data collection and sharing, and
- identifying the 'value-add' of bringing together existing datasets.

We will address three focus areas by combining the outcomes of the report and consultation:

1. Encouraging a data culture: developing wider behavioural change and a stronger focus on data access and sharing, across and between government and industry.
2. Filling the specific information gaps: prioritising the importance of filling those gaps identified, and developing a suggestion for how this could be achieved and who is best placed to take the lead.
3. Identifying further information or analysis that should be included in future *Who moves what where*-style reporting and the proposed frequency of such reporting.

Through a combination of open data strategies, improved consistency and collaboration across data collectors and collection of some new industry and economic information, the NTC believes the information available to transport planners and decision makers both in

government and the private sector could be improved. The proposed recommendation areas in Chapter 3 explain our ideas in detail.

Next steps

The NTC will consider the feedback we receive from stakeholders to this discussion paper, after which we will finalise our recommendations. We will discuss these recommendations with the Transport and Infrastructure Standing Officials Committee in September 2017, and subsequently provide them to the Transport and Infrastructure Council, in November 2017.

1 Context

Key point

The National Transport Commission (NTC) seeks stakeholder views about our proposed recommendations for transport ministers, designed to improve transport planning information in Australia.

1.1 Objectives

Through this discussion paper, the NTC seeks stakeholder views about the proposed recommendations to transport ministers to improve transport planning information in Australia. We aim to:

- describe the style of report that is possible using existing transport information sources
- consider whether there is a need to prepare a regular report in the style of *Who moves what where*
- describe the information gaps identified while preparing the *Who moves what where* report and subsequent stakeholder consultation
- identify options for how those gaps may be filled and by whom, and
- discuss options and opportunities to improve data collection and sharing, with a view to formulating recommendations for transport ministers in mid–late 2017.

1.2 Background

The transport and logistics industry is one of the key drivers of the Australian economy, yet it is often difficult to find up-to-date and comparable passenger and freight data for road and rail that can assist in transport planning and reform. To determine whether we could improve this situation, transport ministers approved the *Who moves what where* project in November 2015. The project was designed to build a better understanding of the nature and composition of the transport sector in Australia and the use of transport networks. In particular, the project aims to provide:

- a strategic overview of the Australian land transport industry, including an update to now decades-old analyses describing the composition of the road freight sector
- an analysis of the key data gaps and discussion of improved, cost-effective methods of collecting detailed network usage data
- identification of existing transport usage and transport user data and whether this data is able to be shared
- origin-destination information for passenger and commodity movements for network planning and strategic investment purposes.

Developing recommendations

The methodology for the *Who moves what where* project is set out in Chapter 2. This explains how our proposed recommendation areas have been developed. We have explored options for filling information gaps identified by the project to date and opportunities to improve data collection and sharing.

The recommendations are based around three main focus areas:

1. Encouraging a data culture: developing wider behavioural change and a stronger focus on data access and sharing across and between government and industry.
2. Filling the specific information gaps: prioritising the importance of filling identified gaps and developing a proposal for how this could be achieved and who is best placed to take the lead.
3. Identifying further information or analyses that should be included within future *Who moves what where*-style reporting and the proposed frequency of such reporting.

1.3 Consultation

How to submit

Any person or organisation can make a submission to the NTC. Submissions close on Friday, 10 March 2017.

To make an online submission, please visit www.ntc.gov.au and select 'Submissions' from the top navigation menu.

Or, you can mail your comments to: Att: Who moves what where, National Transport Commission, Level 15/628 Bourke Street, Melbourne VIC 3000.

Where possible, you should provide evidence, such as data and documents, to support your views.

Unless you clearly ask us not to, we will publish all submissions online. However, we will not publish submissions that contain defamatory or offensive content.

The *Freedom of Information Act 1982* (Cwlth) applies to the NTC.

2 Who moves what where – to date

Key points

- The *Who moves what where* project is being delivered in several stages.
- An information paper was released by the NTC on 8 September 2016 summarising the movements of freight and passengers in Australia and identifying information gaps.
- Subsequent stakeholder workshops have further explored current and potential decisions that better transport data could inform. The limitations of the information in the NTC's information paper and opportunities to standardise and improve information gathering, storage, sharing and analysis in future have been a key focus at the stakeholder workshops.

2.1 Method

The *Who moves what where* project consists of several components. Each is outlined below.

The *Who moves what where* information paper

The NTC released an information paper on 8 September 2016, which was designed to explore the following using existing, publicly-available information:

- who is moving freight and passengers around Australia via road and rail
 - whether they are exclusively hire-and-reward transport companies, third-party contractors or businesses where transport is ancillary to business
 - different types of vehicles used
 - number of employees
- what and who they are moving
 - people – tourism
 - people – public transport
 - what type of products or commodities are being moved, and
- where they are moving freight and passengers to and from
 - freight tonne kilometres – how much, how far
 - passenger kilometres – how many, how far
 - origin and destination of travel.

Through this process, we found there is a large range of information available; however, it is largely focused on a transport mode, an area or a business type. It also covers different time series (with varying degrees of currency) and comes in different formats. However, by combining the individual datasets and reports, a comprehensive, strategic national picture of passengers and freight movements can be presented. This process also enhances the value of the individual reports and datasets.

Our primary focus was commercial and government-funded transportation of goods and people, rather than private use of light vehicles. We found that, among the 150 sources

used in the information paper, there was sufficient data to address the majority of our questions either fully, or at least partially, notwithstanding the limitations identified for some data. These limitations are set out in section 2.2.

Stakeholder workshop

During the final stages of preparing the information paper, the NTC held a stakeholder workshop to identify the current and potential decisions that better transport data could inform, as well as opportunities to standardise and improve information gathering, storage, sharing and analysis.

Approximately 30 stakeholders attended from federal, state and local government, as well as from industry.

Participants noted that traditional forecasting and projections don't necessarily take into account disruptive factors of change. To respond to this change/disruption, workshop participants identified the need for 'comparability and connectivity', in particular, the need for:

- technology/data to be interoperable across supply chains to create efficiencies
- solid governance and frameworks for data collection and sharing between government and industry, and
- education strategies to ensure wide awareness of data availability, both to avoid duplication of effort and to articulate the value of sharing or using data.

As well as this, stakeholders suggested that they would like to see information in future reporting about:

- the composition of the freight vehicle fleet in detail, including trailer and axle configuration for road vehicles
- the split of ancillary versus hire-and-reward operators (not just vehicles) involved in road freight
- movements of dangerous/hazardous goods
- movements of 'grey nomads' and their interaction with freight/heavy vehicle movements
- fuel efficiency information
- a more detailed profile of the road freight market, including employees per fleet and subcontractor arrangements
- freight demand modelling and a picture of how demand drives freight movements
- the value of freight movement to supplement figures on weight and quantity, and
- mapping of bus links to rail connections.

State and territory workshops

Throughout November 2016, the NTC visited all interested jurisdictions to develop and refine the potential recommendation areas that would feed into this discussion paper. The proposed recommendations discussed in Chapter 3 reflect the discussions that took place during those workshops.

Discussion paper

The NTC is seeking wider stakeholder input into the recommendations we develop for ministers (see below). Chapter 3 of the paper outlines those areas where we believe achievable improvements are possible. Once we consider and incorporate appropriate stakeholder feedback at the conclusion of the consultation period in February 2017, we will finalise the recommendations and present them to ministers.

Recommendations to ministers

The final aspect of the *Who moves what where* project is to report to the Transport and Infrastructure Senior Officials Committee (TISOC) in September 2017 and, finally, we will put our recommendations to ministers in November 2017.

Should any of the recommendations be accepted, implementation activity would commence from 2018. It should be noted that implementation activity will be subject to the work program and priorities of the designated lead agencies.

We have outlined some potential recommendations throughout this discussion paper, summarised in section 4.2, and encourage you to provide feedback.

2.2 Findings of the *Who moves what where* information paper

The *Who moves what where* information paper describes the industry composition, trends and forecasts related to freight and passenger movement on Australian road and rail networks. The information paper presents a brief overview of the domestic freight and passenger land transport task in Australia, the scope and scale of Australia's road and rail networks, followed by a summary of the available information on the major road and rail transport operators active in the domestic transport market. The information paper concludes by summarising the gaps identified in the information reviewed.

The full information paper can be found on the NTC website; however, some of the high-level findings include:

Size of the task:

- In 2013–14 the national domestic transport task totalled 427 billion passenger-kilometres and 726 billion tonne-kilometres.
- The domestic passenger task increased by eight per cent in the 10 years to 2016, having reached a low point after the global financial crisis, and is forecast to grow another 19 per cent by 2026.
- The domestic freight task increased by 50 per cent in the 10 years to 2016 and is forecast to grow another 26 per cent by 2026.

Passenger and freight movements by mode:

- Road accounted for almost four-fifths of the national domestic passenger transport task (including private vehicle usage) and one-third of the freight task.
- Air accounted for just over one-sixth of the national domestic passenger task.
- Rail accounts for around half of the domestic freight task, road approximately a third and coastal shipping for just under one-sixth.

Future of the freight task:

- The economic slowdown following the global financial crisis reduced growth rates in road freight and it is unlikely that road freight will double by 2020, as was

predicted in 2003. It is unlikely that this will be achieved until around 2025-28, that is, five to eight years later than originally predicted.

The paper also presents a range of information gaps that were identified through the research process.

The paper has subsequently been used in many ways including:

- to support market intelligence reporting by industry
- for government to estimate the transport industry's impact on greenhouse gas emissions
- in advocacy work by industry associations
- as reference material at the Transportation Research Board in the United States
- within industry and government presentations.

The limitations of the findings

The main limitations identified through the first phase of the project were:

1. The general age, segregation and 'static' nature of much of the information that is currently available.
2. Specific gaps where no information could be found about:
 - the number of ancillary versus hire-and-reward vehicles involved in road freight
 - the number of employees per fleet involved in road freight
 - commodities moved on the rail freight network
 - freight rail network utilisation
 - the fleet profile for tourist rail operators
 - tourist rail usage, and
 - passenger rail network utilisation.
3. During the NTC's workshops with states and territories, participants advised on analysis they thought would add value to future *Who moves what where*-style reporting. Some of the potential areas they thought would be useful included:
 - more information on the areas in Australia in which particular vehicle types are used for certain freight/passenger types. This would assist in understanding demand for access and implications for maintenance and infrastructure programs
 - the location of rest areas overlaid with crash location data. This would help to plan with fatigue management programs
 - measurements of the value of goods moved and information about passenger trips as well as passenger kilometres. This would supplement figures about tonne-kilometres (for freight) and passenger-kilometres (for passengers) in measuring the 'size' of the transport task
 - information that connects commodity supply chains, for example, for imports, the country of origin, port of arrival, commodity type and the postcode to which the goods were delivered from the port of arrival

- more spatial data to understand where intermodal terminals and key warehousing facilities are located and how these fit within the supply chains of major commodity types (it was noted that the location of warehouses and distribution centres is largely known, however there is less information available about the flow of goods to and from intermodal terminals and warehouses, as well as the consolidation or division of goods in the delivery process)
- more information on shipping, pipeline and conveyer movements
- identification of those areas where national data can be skewed by local factors – in particular, the rail task should be presented nationally but also state by state. For example, the movements of coal and iron ore in Western Australia (WA) may create a national picture which is quite different from state based movements outside of WA, and
- passenger movements with behavioural information about mode selection. This would help us to understand, for example, how active (walking/cycling) travel could be encouraged and congestion managed. Some states collect public transport journeys via touch on and off, others only via touch on, which is more limiting. Household travel surveys were seen as the best way to understand people movements and the behavioural aspects of mode choice, trip length, trip reason, etc. Not all states have a household travel survey and those that do have differing methodologies.

Participants also stated that, wherever possible, data is most valuable in its raw form because they are able to perform analyses tailored to their specific area of interest to create knowledge. The analysis is important because it provides a connection between datasets, but to get the most benefit from datasets, they should accompany the report in full, raw form and be made publicly available wherever possible.

Workshop participants believed a regular *Who moves what where*-style report would most be valuable in between Census years. The Census is conducted every five years, with the most recent one in August 2016.

3 Improving information

Key points

There are three main areas the NTC has focused on as areas that could be improved:

1. the age, segregation and 'static' nature of much of the information that is available
2. specific information gaps where no (or very limited) information could be found.
3. further information that should be included in future *Who moves what where*-style reporting and the proposed frequency of such reporting.

Information management practice is changing. To ensure Australians reap the potential benefits, we need to respond and change the way we collect and share data in the transport industry.

Our proposed way forward focuses on encouraging open data, comparability and connectivity through collaborating with other agencies.

3.1 What are we trying to improve?

The NTC has focused on three areas where we believe improvement can be made to transport information:

- the age, segregation and 'static' nature of much of the information that is currently available
- specific information gaps where no (or very limited) information could be found, as outlined in section 2.1, and
- further information that should be included within future *Who moves what where*-style reporting and the proposed frequency of such reporting.

3.2 Why is now the right time?

With technological advances and proliferation, the volume of data being generated and collected is growing, as is the scope to use data to improve our lives. Some estimates suggest that 90 per cent of the world's data was generated in just the past two years (IBM, 2016). What's more, most of this data is no longer what could be called 'organised data' such as that found in databases and spreadsheets. Consequently there is a need to better understand how this affects our consumption and use of data. The world of information management is changing, and to ensure Australians reap the potential benefits, we need to respond and change the way we collect and share data in the transport industry as well.

This was expressed very well by the Productivity Commission in its recent draft report *Data Availability and Use*:

Increased access to data can facilitate the development of ground-breaking new products and services that fundamentally transform everyday life. Many are widely known – apps that tell you in real time where to find vacant car parking places, the fastest route to travel to the city at the time you want to go, or which electricity provider offers you the best deal given your pattern of energy use, are all examples that rely on data analysis.

But better access to and use of data can also benefit business and government through improved operational processes and productivity. Examples abound of new found opportunities – in supply chain logistics, saving time and money; through more cost effective infrastructure and machinery maintenance and planning; improved safety and efficiency in aircraft engines; and in the capacity to better respond to and manage emergencies. And data is critical to building the evidence base to underpin incremental improvements, allowing governments and businesses to offer products and services that are more customised, coordinated or timely. The potential value of data is tremendous, but so too is the scope for Australia to forgo much of this value under the misconception that denial of access would minimise risks. (Productivity Commission, 2016)

Note just how much of this statement touches on land transport information and the benefits that can be realised from open data.

In addition, the Australian Government has provided its response to [Infrastructure Australia's 15 Year Plan](#) recommendations. Minister Fletcher's [speech](#) to announce the Australia Government's response on 24 November 2016 was entitled 'Building our future, on good advice'. One of the key elements of the response involves a focus on obtaining more and better data in the transport and infrastructure space to ensure analysis and decision making is underpinned by a robust evidence base. Data 61, the Department of Infrastructure and Regional Development (DIRD) and the Australian Bureau of Statistics (ABS) will all be involved in creating a data collection and dissemination plan to underpin investment decision making. The plan will include the collection and public release of data on the performance of transport services.

3.3 How have we developed the recommendation focus areas?

The NTC has developed proposed recommendations following stakeholder workshops conducted after the release of the information paper in September 2016. We are keen to ensure these recommendations add value to and merge existing information and datasets.

As mentioned above, there are four focus areas considered in each of these proposed recommendations:

- improving data quality and encouraging a data culture across government and industry
- filling the specific information gaps
- identifying further information or analysis that should be included within future *Who moves what where*-style reporting, and
- the proposed frequency of such reporting.

We have also prioritised the importance of filling those gaps and proposed some options for who may be best placed to contribute or take the lead for particular activities.

3.4 Encouraging a data culture

A focus on open data – comparability and connectivity

New forms of data sharing may be necessary to leverage intelligence. These can include sharing between and within government and industry. For example, a large portion of the data pertaining to road safety, traffic management and travel behaviour is held by the private sector, while public authorities continue to provide many essential transport services that this data could improve. By defaulting to an open data position, governments

are also able to provide industry with intelligence to improve decision making (Department of Communications, 2015a).

Government agencies collect significant amounts of data in the course of their activities. This data has intrinsic economic and social value, often in ways not foreseen by those who collect it. There is mounting evidence that the public release of government-held data, in easily shared and readable formats, can fuel business activity, increase public sector efficiency and provide better support for evidence-based policy development. With public release comes the need to consider appropriate commercial, privacy and security sensitivities.

For example, a report produced by Deloitte for the UK's Department for Business, Innovation and Skills estimates the economic value of the data held by the public sector in the UK, if it were released for use and re-use, to be around £5 billion (A\$8.5 billion) per year. This includes £400 million (A\$680 million) per year in the value of lives saved from reduced death rates among cardiac patients, and time savings worth £15–58 million (A\$25–98 million) from the use of real-time transport data and consequent adjustments in behaviour (UK Department for Business, Innovation and Skills and Cabinet Office, 2013). A [transport case study](#) within the report highlights the benefits of (and changed behaviour due to) access to open transport data for the community and businesses in the UK. The value of any given public sector information dataset to society is positively correlated with the following factors:

- The content of the dataset – there are certain content themes that have well-established uses and re-uses or may be fundamental to the provision of services, products and types of research. Where this is the case, as it is for transport data, it will positively influence the value of the public sector information dataset to society.
- The flexibility of the dataset – where datasets can be used in multiple ways to generate insights (for example, house price data that can be used as proxies for a range of factors such as environmental conditions, transport links or school performance), the relative value of the dataset to society may be higher than a single-use dataset.
- The accuracy, comprehensiveness and speed of refresh of the dataset – as one would expect, the value of public sector information dataset will increase with its accuracy, comprehensiveness and speed of which it is updated (for example, economic statistics).
- The ability to link the data – the easier it is to link a given dataset with other datasets and other forms of information will increase its flexibility and comprehensiveness, and again can increase its value to society (UK Department for Business, Innovation and Skills and Cabinet Office, 2013).

It is also important to note that some data cannot be shared in an open way since there are a number of classes of information that would not be appropriate to share publicly. Examples include:

- personal information (such as personal travel histories, contact details or financial information)
- information formally 'classified' as sensitive or confidential (such as for national security or commercial reasons), and
- data where the copyright is contractually owned by a third party.

The value of a given public sector information dataset will also vary over time as new uses are discovered or rival datasets used. Accordingly, predicting the future value of any given dataset is difficult as we found when producing the *Who moves what where* information paper.

Opportunities

While the NTC has worked (and will continue to work) with industry and government sources to identify general classes of data that exist, we believe there would be benefit to recommending to the Transport and Infrastructure Council that each of their departments/agencies ensure they have a focus on:

- data collection and storage methods that enable sharing of data that is flexible, accurate, current, comprehensive and in a format that can be manipulated and linked with other datasets
- an open data policy that is in line with their jurisdictional policy.

We also intend to encourage both the National Heavy Vehicle Regulator (NHVR) and the Office of the National Rail Safety Regulator (ONRSR) and the Rail Industry Safety and Standards Board (RISSB) to develop open data policies. As well as encouraging transparency and accountability of decision making, open data could facilitate greater leveraging of technology, encourage data sharing and linkage and increase administrative efficiency. Of course, this needs to be implemented with appropriate consideration of privacy, security and intellectual property issues as set out above and with respect to legislative requirements.

After discussions with state and territory agencies, we believe it may also be beneficial to establish guidelines for data sharing between different jurisdictions to encourage a default position of open data wherever possible and to assist in creating appropriate data-sharing arrangements.

In some cases this will be a continued effort and, in others, it may be a new focal point. This recommendation would also address comments we received at our stakeholder workshop about the importance of interoperability and strong governance.

Australia's provision of open access to data is below comparable countries with similar governance structures — including the United States and the UK. There remains considerable scope to improve the range of datasets published (and, correspondingly, the diversity of agencies and research bodies publicly releasing data) and the usability of open data portals (Productivity Commission, 2016). With a realistic risk assessment and recognition of the enormous potential for benefits, the NTC believes that transport agencies and industry should support a policy of open data.

A summary of the open data policies of each state and territory, each regulator and the Australian Government is included at [Attachment A](#).

Recommendation 1: Jurisdictions should continue to develop:

- data collection and storage methods that enable sharing of data that is flexible, accurate, current, comprehensive and in a format that can be manipulated and linked with other datasets
- an open data policy that is in line with their jurisdictional policy.

Recommendation 2: The NHVR, the ONRSR, RISSB and the NTC should consider adopting open data policies.

Collaborating with other agencies

If government and industry work towards a stronger focus on data access and sharing, the use and benefit of data is more likely to be realised and maximised. We have found through the Who moves what where project that when datasets from various sources are combined, the results can provide a strategic overview of an issue and present new information.

Opportunities

The Australian Bureau of Statistics – transport satellite account

Feedback from stakeholders through both *Who moves what where* and the NTC's *National Land Transport Productivity Framework* project has demonstrated strong interest in understanding the economic contribution of transport activity to the broader Australian economy through a transport satellite account (TrSA).

A satellite account measures the size of economic sectors that are not defined as industries in the national accounts. One of the major features of a TrSA is that it is set within the context of the whole Australian economy so that transport's contribution to major national accounting aggregates can be determined, and can be compared with other industries. This would not only benefit the *Who moves what where* project but also greatly assist in developing the NTC's *National Land Transport Productivity Framework*.

A TrSA would cover both transport activities conducted on a hire-and-reward basis and ancillary transport activity conducted by businesses. This would provide a unified picture of the impact of transport activity on the whole economy.

The development of a TrSA would provide data critical to supporting evidence-based decision making. It has the potential to help inform key policy issues such as:

- the economic impact of transport policies (for example, road user pricing, congestion charges, fuel surcharges) on all industries, final consumers and the economy as a whole
- better understanding of broader transport activity in the economy including employment, productivity, energy consumption and the environment.

As an extension of the core national accounts, a TrSA would be based on the framework, concepts and definitions of the Australian System of National Accounts, which would allow for the production of a credible and comprehensive measure of the contribution of transport in the national economy. Estimating the contribution of total transport activity in the economy, including transport services provided by ancillary businesses, would provide information on the contribution of transport activity to GDP, and also on which industries are the largest producers and users of transport activity. Estimates of the contribution of transport activity would not be affected when businesses switch from ancillary to hire and reward services or vice versa.

Based on the practical use made of existing satellite accounts and international experiences with TrSAs, some of its key benefits would include the ability to:

- understand transport's footprint on the economy
- analyse transport impacts on national and state/regional economies
- understand the flow-on effects of transport policy
- enable decision-makers to more clearly analyse transport on a comprehensive economic activity basis for both hire-and-reward and ancillary services
- draw together transport monetary and volume data (such as employment, freight movement data, type of vehicles and energy use) into a single accounting framework, and
- provide interested economic researchers/academics with the methodology, framework and national estimates to utilise as a starting point to derive TrSAs at a local level.

The ABS has stated the methodology to undertake a satellite account measurement largely exists, so there would be no significant barriers to overcome in operationalising a TrSA. However, the development of a TrSA requires industry support and funding.

Indicative costs to introduce a TrSA would be in the vicinity of \$3 million for set up and development, with an ongoing annual cost of around \$500,000. These costs were developed by the ABS approximately five years ago and would need to be reviewed should there be industry interest in progressing.

The NTC believes that a recommendation should be put to transport ministers that they request the ABS prepare an updated costing of the TrSA for their review in order to consider future funding and resourcing requirements if a TrSA was introduced. Implementing this recommendation would also be subject to the work program and priorities of the ABS.

The existing Tourism Satellite Account is prepared by the ABS and is funded by the Australian Trade Commission (Austrade). In 2014–15, for example, the Tourism Satellite Account was able to demonstrate that direct tourism GDP in current prices (or nominal terms) increased by 5.3 per cent (or \$2.4 billion) to \$47.5 billion – higher than the previous year's growth at 3.3 per cent. The strength of the industry is highlighted by the fact that the 5.3 per cent increase is more than three times the growth for the total economy (Austrade, 2015). More information on the 2014–15 measurement can be found at <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/5249.0Main+Features12014-15?OpenDocument>.

Recommendation 3: Ministers should request that the ABS prepare an updated costing of the TrSA for their review in order to consider potential future funding and resourcing requirements if a TrSA was introduced. This recommendation would be subject to the work program and priorities of the ABS.

Department of Immigration and Border Protection – Integrated Cargo System

The Integrated Cargo System (ICS) is the only method of electronically reporting the legitimate movement of goods across Australia's borders (Department of Immigration and Border Protection, 2016).

The NTC and the Department of Immigration and Border Protection (DIBP) have been working together under arrangements consistent with the Commonwealth guidelines for data sharing, to establish access to information about the movement of commodities across Australia's borders. Once connected with our current picture of freight movements, non-sensitive DIBP data about commodity movements at a de-identified, aggregate level would aid transport decision making for both government and industry.

Heavy vehicle registration systems

The National Exchange of Vehicle and Driver Information System (NEVDIS) is the database of Australian driver and vehicle information. It includes the national Vehicle Identification Number (VIN) database and the national Written Off Vehicle Register (WOVR) database. State and territory road agencies are the source of NEVDIS data.

Registration systems are a primary source of information about the national operator and fleet profile. The NTC believes a potential recommendation to transport ministers could be the consideration of the information gaps identified through Who moves what where in any future review of registration data collection. For example, we believe that data fields could be added to collect statistics about:

- vehicle usage – hire-and-reward versus ancillary road freight vehicles
- the trailer and axle configuration the vehicle will normally operate
- fuel efficiency information
- whether the vehicle will support the movement of dangerous/hazardous/refrigerated goods.

Alignment between jurisdictions

A further issue that was discussed through the stakeholder workshops was the benefit of having consistent collection methods where states and territories have similar information requirements. For example, household travel surveys are collected in many states and territories with varied methodologies. A nationally consistent methodology would make a national comparison possible and therefore enhance the value of the datasets.

The Australian Transport Data Action Network (ATDAN)

ATDAN was created in September 2009 for the purpose of implementing a transportation data action plan as endorsed by transport ministers in November 2008. ATDAN reports to TISOC and meets biannually. The group is chaired by the ABS and comprises representatives from DIRD, the NTC and jurisdictional transport agencies.

As well as providing advice to TISOC regarding strategic transportation data issues, ATDAN also undertakes projects to improve transportation data collection and develops and promotes the use of metadata standards and frameworks.

The NTC believes there may be benefit in recommending that jurisdictional data collections that could benefit from a more consistent methodology be identified to allow for national comparisons to be made. This is linked with the ability of states and territories to share data as discussed above. This may be implemented by ATDAN, as it is best positioned to establish guidelines for cross-jurisdictional data sharing, as well as identify the data collections that could benefit from a more consistent methodology.

Recommendation 4: Ministers should request that ATDAN develops guidelines to guide data sharing between different jurisdictions, and a review of the jurisdictional data collections should be undertaken to allow for better national comparisons.

Industry bodies

With appropriate consideration of commercial sensitivity and de-identification, industry bodies such as the Australian Trucking Association (ATA), the Australasian Railway Association (ARA), the Australian Logistics Council (ALC), the Bus Industry Council (BIC) and their members, also have an opportunity to default to an open data position, and improve supply chain intelligence. We believe there would be benefit the NTC working with industry associations to create information promoting the benefits of open data to their members which encourages the adoption of open data as a default position where possible.

Learning from New Zealand's experience

New Zealand has developed its *Transport Domain Plan* over the last two years. The plan describes:

- the long-term picture of priorities to improve official transport statistics and transport information, covering land transport, aviation and maritime
- a coordinated plan for addressing the priority initiatives
- a transport sector-wide approach to identifying long-term statistical and information priorities.

Extensive engagement during the plan's development generated a large number of topics and associated enduring questions, which have been refined down to 11 topics, 45 enduring questions and 118 recommended initiatives.

During July 2016 New Zealand's Ministry of Transport released its [full list of recommendations](#), which included a full record of the enduring questions and the recommended initiatives under each topic. The domain plan:

- outlines the main statistical and information priorities for the transport sector and provides guidance on how to address them, and
- provides a tool for targeting research and investment across the transport sector and creates a common approach for how sector agencies prioritise transport data and research.

The key elements of the plan include:

- identifying 11 topics of data, statistical and research interest
- enduring questions that need to be answered in relation to each topic
- defining and framing the problems to be resolved in relation to each topic and enduring question, and
- identifying the responses and likely actions required.

In Australia, a project such as this would establish a data framework to inform the transport sector in a holistic way and it would allow both governments and industry to understand which of their datasets would be valuable if made 'open'.

Such a project would build on *Who moves what where*, to allow analysis of transport behaviour and needs, transport impacts, planning and management and funding and charging information. Much of this information would also add significant robustness to a future land transport productivity measurement also.

As mentioned earlier in this paper, in late 2016, the Australian Government released its response to Infrastructure Australia's 15 Year Plan and announced several key initiatives relating to its recommendations. One of these initiatives is to develop a Data Collection and Dissemination Plan, to help improve and coordinate information and data collection across key stakeholders. This project will be managed by BITRE. It is likely that the project will include some of the elements listed throughout this section. BITRE has commenced scoping for this initiative, however, the timeframe for the final delivery of this initiative is still to be finalised.

The NTC supports a project of a similar nature to the New Zealand *Transport Domain Plan* being undertaken in Australia. This would require leadership from an appropriate agency and inclusion of agencies across Australia with responsibility for maritime, road, rail and aviation. It may be that the Bureau of Infrastructure, Transport and Regional Economics (BITRE), with appropriate additional resourcing, is best placed to provide leadership for such a task given its remit.

Much can be achieved through using dynamic data platforms to provide interactive and configurable information that can assist planning. There are a number of projects across industry and government already working in this space, and the synergies and opportunities for collaboration should be considered as part of any transport domain-style project.

Recommendation 5: Ministers should request that BITRE continue to develop its Data Collection and Dissemination Plan, to help improve and coordinate information and data collection across key stakeholders and that this plan consider New Zealand's Transport Domain Plan approach to identify the main statistical and information priorities for the transport sector. This would require input from several agencies including the NTC, the Australian Maritime Safety Authority, the Civil Aviation Safety Authority and the ABS.

Recommendation 6: The NTC should work with industry associations and through them, their members, to promote the benefits of open data and encourage the adoption of open data as a default position where possible.

3.5 Filling the specific information gaps

In addition to making recommendations about improving data collection and sharing, the NTC was asked by ministers to make recommendations about how we think the identified information gaps could be filled.

Opportunities

Throughout the project, the NTC has catalogued all of the identified information gaps. Each one is set out in Table 1, along with suggestions for how they could potentially be filled based on the suggested recommendation areas throughout Chapter 3.

The NTC has allocated each gap a priority for consultation purposes.

Table 1: Filling the specific information gaps

Information gap	How it could be filled	Access, connectivity or new information?	Priority
Commodities moved on freight network	Currently working with the DIPB to receive a quarterly report of non-confidential data from its ICS. Crane clearance performance is also reported in the DIPB's Time Release Study .	Access/ connectivity	High
Rail network utilisation (freight and passenger)	Rail patronage numbers are contained within BITRE's Trainline series. This is also something that could be considered as part of a future transport domain-style project in Australia.	Access	Medium
Fleet profile for tourist and historical train operators	This could potentially be filled if a TrSA was introduced. It is arguably not as important to fill in a strategic planning sense.	New information	Low
The composition of the road freight vehicle fleet in detail including trailer and axle configuration for road vehicles	This could potentially be considered for collection through vehicle registration.	Access/ connectivity	Medium

The split of ancillary versus hire-and-reward operators and vehicles involved in road freight	<p>A TrSA could give us a much clearer picture of the split between hire-and-reward and ancillary operators and vehicles.</p> <p>There is also ability to estimate the split of operators (rather than drivers as we did in the <i>Who moves what where</i> report) by using Survey of Motor Vehicle Use data about hire-and-reward vehicles versus 'own business' vehicles. However, there is a risk that some respondents stated they are a 'business owner' when they are actually undertaking a hire-and-reward freight task.</p>	Connectivity/ new information	High
Movement of dangerous/ hazardous/ refrigerated goods	This could potentially be considered (for road) for collection through vehicle registration.	New information	Medium
Movements of 'grey nomads' and their interaction with freight or heavy vehicle movements	The ABS collects demographic data on grey nomads. In 2006 Tourism Western Australia conducted a study on movements and behaviours of grey nomads. It is possible this could be completed by other states/territories or combined with household travel surveys.	New information	Low
Fuel efficiency information	This could potentially be collected via a survey of industry.	Access/ connectivity	Medium
A more detailed profile of the road freight market – including employees per fleet and subcontractor arrangements	This could potentially be filled if a TrSA was introduced.	New information	High
Freight demand modelling and a picture of how demand drives freight movements	This could potentially be filled if a TrSA was introduced.	New information	Medium
Mapping of bus links to rail connections	This could be achieved through access to open data from state/territory governments.	Connectivity	Low

Recommendation 7: Future *Who moves what where* style reports should utilise non-confidential data from the Integrated Cargo System, provided to the NTC by the Department of Immigration and Border Protection.

Recommendation 8: Information gaps identified through the *Who moves what where* project should be considered in any future review of current vehicle registration systems.

3.6 Improving future *Who moves what where* analyses

The third and final area that ministers have sought advice, is in identifying further information or analysis that should be included in future *Who moves what where*-style reporting and the proposed frequency of such reporting

Opportunities

Section 2.2 outlines the feedback received on the *Who moves what where* information paper from state and territory agencies. Based on their feedback, we believe further value could be added to the paper by addressing the issues set out as ‘goals’ in Table 2. The ‘strategy’ column outlines the way we propose to include the analysis in future reporting.

Table 2: Improving future analyses

Goal	Strategy
Include passenger trips as well as passenger kilometres	Information about passenger trips can be included. The level of detail will be aided by a focus on open data by states and territories – particularly public transport data.
Provide information about the areas within Australia that particular vehicle types are being utilised for certain freight/ passenger types	This would require more detailed information about the fleet profile and commodity movements. However, to do so in detail may require an Intelligent Transport Systems solution to track certain vehicle types and their locations. The ABS and BITRE are currently undertaking a pilot study analysing GPS and logistics data collected by freight companies using ‘big data’ analytics tools. The results of this pilot and any resultant ongoing work will be considered within future reports.
Overlay the location of rest areas with crash location data	While this may be outside the scope of the <i>Who moves what where</i> report, safety data is very important, and a focus on open data and cross-jurisdictional data sharing arrangements would likely allow state and territory agencies to complete this analysis as needed.
Provide information that connects commodity supply chains, for example, for imports, the country of origin, port of arrival, commodity type and the postcode to which the goods were delivered	ICS data from the DIPB will provide us with the ability to do this for freight. We will receive more detailed commodity data, information about its reported value and a picture of its origin and destination, including the postcode of delivery from port for imports.
More spatial data would be useful in terms of understanding where intermodal terminals and key warehousing facilities are and how these fit within the supply chains of major commodity types (see above point)	Most of this information is freely available via the National Key Freight Route Maps. More information can be included in future reports.
More information on shipping, pipeline and conveyer movements	While the NTC’s remit is focused on road, rail and intermodal transport, states and territories told us the picture is not complete without information in these further areas. These can be expanded upon in future reporting in the context of their connection to land networks.

Avoid national data skewing the local picture	In future reporting, a breakdown by state of the freight and passenger tasks can be provided, together with additional indicators other than tonne-kilometres and passenger-kilometres.
Provide behavioural information about consumer travel choices	This would help us to understand, for example, how active (walking/cycling) travel could be encouraged and congestion managed. Some states collect public transport journeys via touch on and off, others only via touch on, which is more limiting. Household travel surveys were seen as the best way to understand people movements and the behavioural aspects of mode choice, trip length, trip reason, etc. Not all states have a household travel survey, and those that do have differing methodologies. This could be improved through a review of national data collections to allow for better national comparisons and assist jurisdictions to benchmark themselves.
Provide a regular <i>Who moves what where</i> -style report in between Census years	A report will be recommended once every five years. We will recommend that the next report should be sooner to incorporate the recommendations that stem from this project. To factor in the forthcoming timing of the Census and the Survey of Motor Vehicle Use/potential Freight Movement Study, we will recommend the next report be provided in 2019, with a report to follow every five years after that.
Wherever possible, provide data in its raw form to accompany the report	The data used in the current report is either already available through the ABS website or comes from a report or publication, not raw data. In future, wherever raw data is available, it could be made available/linked to. This would be aided by open data policies and a possible future NTC project based on New Zealand's Transport Domain Plan project.

Recommendation 9: The NTC should seek to work with statistics agencies to compile a *Who moves what where*-style report every five years, beginning in 2019 (as stakeholders have suggested it be staggered between Census years). In preparing the report, the NTC should consider the stakeholder feedback summarised in Table 2.

4 Summary of recommendations

Key points

The NTC proposes to deliver a *Who moves what where*-style report every five years from 2019 and to present the recommendations outlined in Chapter 3 to ministers to improve data collection, storage and sharing.

In November 2015 ministers asked the NTC to describe existing transport usage datasets, update transport industry composition data and analyse existing high-level information on transport usage for freight and passenger flows. They also asked that we develop options and opportunities to improve data collection and sharing, potentially utilising modern telematics and other applications.

Section 4 summarises the potential recommendations to ministers that the NTC believes will improve data collection and sharing. In preparing your response, please consider the suitability and practicality of each potential recommendation and whether you agree with the proposed lead agency where relevant. If there are other recommendations you think have not been considered, please highlight them in your response.

4.1 Summary of potential recommendations

Recommendation 1: Jurisdictions should continue to develop:

- data collection and storage methods that enable sharing of data that is flexible, accurate, current, comprehensive and in a format that can be manipulated and linked with other datasets
- an open data policy that is in line with their jurisdictional policy.

Recommendation 2: The NHVR, the ONRSR, RISSB and the NTC should consider adopting open data policies.

Recommendation 3: Ministers should request that the ABS prepare an updated costing of the TrSA for their review in order to consider potential future funding and resourcing requirements if a TrSA was introduced. This recommendation would be subject to the work program and priorities of the ABS.

Recommendation 4: Ministers should request that ATDAN develops guidelines to guide data sharing between different jurisdictions, and a review of the jurisdictional data collections should be undertaken to allow for better national comparisons.

Recommendation 5: Ministers should request that BITRE continue to develop its Data Collection and Dissemination Plan, to help improve and coordinate information and data collection across key stakeholders and that this plan consider New Zealand's Transport Domain Plan approach to identify the main statistical and information priorities for the transport sector. This would require input from several agencies including the NTC, the Australian Maritime Safety Authority, the Civil Aviation Safety Authority and the ABS.

Recommendation 6: The NTC should work with industry associations and through them, their members, to promote the benefits of open data and encourage the adoption of open data as a default position where possible.

Recommendation 7: Future *Who moves what where* style reports should utilise non-confidential data from the Integrated Cargo System, provided to the NTC by the Department of Immigration and Border Protection.

Recommendation 8: Information gaps identified through the *Who moves what where* project should be considered in any future review of current vehicle registration systems.

Recommendation 9: The NTC should seek to work with statistics agencies to compile a *Who moves what where*-style report every five years, beginning in 2019 (as stakeholders have suggested it be staggered between Census years). In preparing the report, the NTC should consider the stakeholder feedback summarised in Table 2.

4.2 Questions

- Do you agree with the NTC's proposed recommendations? If not, why not?
- Do you have any comments on the specific recommendation areas or the proposed lead agencies where relevant?
- Do you believe there are further recommendation areas that the NTC should consider in preparing our advice to ministers?

Attachment A

States and territories, regulators and Australian Government – open data policies

All state and territory governments except for the Northern Territory have open data policies in place, requiring their departments to release data by default where possible unless there is an overriding public interest against disclosure. Transport agencies within each of those state and territory governments have varied strategies in place; these are described below.

Department of Infrastructure, Planning and Logistics, Northern Territory

While the Northern Territory Government does not have an open data policy, the Department of Infrastructure, Planning and Logistics does publish some data in reports on its [website](#). Raw datasets are not published in most cases.

Department of State Growth Tasmania

The Tasmanian Government has implemented an open data policy that applies to all departments. It states that data should be open by design, protected where required and free where appropriate. It should also be both:

- technically open – in the sense that it is in a machine-readable standard format, meaning that it can be retrieved and meaningfully processed by a computer application
- legally open – with appropriate licensing frameworks in place that facilitate commercial and non-commercial use and re-use without restriction (Office of eGovernment, Department of Premier and Cabinet, 2016).

While there is no central portal for open data in Tasmania, the Department of State Growth has some datasets on its website.

Transport Canberra

The ACT Government states that it is committed to transparency in process and information, as well as participation by citizens in the governing process.

For the ACT Government, being open means they value collaboration with each other and the community. 'Open government' initiatives enhance democracy and place the community at the centre of the governance process (Australian Capital Territory Government, 2015).

The Data ACT [website](#) contains available datasets on transport.

Transport for New South Wales

The Transport for NSW open data policy states:

It is acknowledged that resourcing and investment may be required to prepare data for release, particularly for existing and real-time datasets. These costs may limit the ability to release some datasets, particularly while agencies establish arrangements for Open Data implementation. High-value datasets should therefore be identified and prioritised for release. (Transport for New South Wales, 2016)

The Transport for NSW Open Data [website](#) provides open access to information on public transport services and live traffic data. Access is via registration, which is free. Once registered and signed in, developers can learn more about the available application program interfaces (APIs) and code snippets as well as request and manage API keys via the 'Applications' page.

Transport and Main Roads Queensland

Transport and Main Roads (TMR) Queensland has a transport-specific open data policy. They have also outlined some of the actions already underway. Throughout 2015, TMR:

- published more than 200 datasets and more than 400 resources
- worked with the Queensland community to make improvements to published datasets and publish new datasets
- participated in open data forums, communities and competitions
- became the first Australian Government agency to use the Open Data Institute (ODI) Pathways Program to measure and assess the maturity of its open data practice and set goals for the next year
- began earning ODI certificates to help demonstrate to data users that they can rely on TMR's data, and
- initiated the Open Data Governance Group, whose primary role is to embed and sustain open data into all areas of TMR's business and strategic planning. Membership of this group includes the CEO of the Open Data Institute of Queensland.

In 2016, TMR undertook to:

- open more datasets to the public
- improve the quality of its data, and
- support the reuse of data (Transport and Main Roads Queensland, 2015).

A range of datasets held by TMR are provided via the Queensland Government's data [website](#).

South Australian Department of Planning, Transport and Infrastructure

In September 2013 South Australia announced its Declaration of Open Data to make government data available for use by business and the community (Government of South Australia, 2013).

The declaration commits the government to providing open data by default, releasing it in accordance with international best practice. At a minimum, data that is released must be:

- available online
- free wherever possible
- published using agreed open standards
- openly licensed for commercial and other re-use.

Public sector agencies in South Australia are expected to develop open data strategies that include specific actions, and to report on their progress (Government of South Australia, 2013). Though the Department of Planning, Transport and Infrastructure (DPTI) has no open data policy of its own, it does list open data as part of its 2016–20 [Strategic Plan](#). Data from the DPTI is housed on the Government of South Australia's [DataSA website](#).

VicRoads

While Victoria does not have a standalone transport open data policy through the Department of Economic Development, Jobs, Tourism and Resources, VicRoads has an [open data website](#). The website states that VicRoads believes that government data should be easy to find, access, use and share. In line with the Victorian Government's *DataVic Access Policy*, VicRoads, in conjunction with data.vic.gov.au, is committed to providing free and open data for public use.

The website provides a way to find and access road- and transport-related data that VicRoads encourages people to explore, download and use to build apps and tools that make travel easier and safer for Victorians.

Western Australian Department of Transport

The Western Australian Government's open data policy acknowledges that taking steps to make data easier to find and use, and opening access to datasets, will unlock opportunities for the public sector, businesses and communities to utilise data in more and diverse ways. This will give rise to the development of new insights, ideas and services that have the potential to improve the way Western Australians work and live (Western Australian Government, 2015).

Given the current fiscal constraints and pressures on government services, including increasing demand for flexible and high-quality online and mobile services, better management and new uses of existing assets such as data is now more important than ever.

While the WA Department of Transport does not have its own open data policy, it subscribes to the whole-of-government policy and its data is held on the WA Government's open data [website](#).

National Heavy Vehicle Regulator

The NHVR's *Corporate Plan 2016–17 to 2018–19* includes a strategic focus on ensuring the national regulatory framework and functions are appropriately targeted, harmonised, up to date, outcome-driven and underpinned by informed evidence-based decision making through a national dataset. A national data strategy is being developed during 2016–17 that supports the provision of safety critical data for timely and effective decision making.

To achieve this, the NHVR says it will build and maintain a national database for vehicles, operators, movements, routes and operating conditions that links to national registration, certification, assurance and compliance systems (NHVR, 2016b).

This information, in a non-confidential form, would be valuable as an open source for other agencies.

Office of the National Rail Safety Regulator

ONRSR is developing a national data strategy to support the collection and use of high-quality industry safety data and continues to issue clear guidance on the regulator's expectations (ONRSR, 2016a).

During 2017 ONRSR will commence the development of a national data strategy in consultation with industry (ONRSR, 2016b).

Generally the information held by ONRSR relates to safety. In its [Annual Safety Report](#), the ONRSR reports on passenger train kilometres and freight train kilometres and track length for those jurisdictions that operate under the ONRSR legislation. ONRSR will also publish six-monthly rail safety data reports on its website starting in 2017.

Rail Industry Safety and Standards Board

One of the objectives of Rail Industry Safety and Standards Board (RISSB's) Strategic Plan is to develop a Safety Risk Model. It will be designed so that:

- RISSB members can inform their approach to risk management
- RISSB can prioritise and inform standards development, and
- ONRSR can prioritise regulatory focus and efficiency.

The aim will be to use data collected from existing rail company systems with minimal input, effort or change to individual company internal processes (RISSB, 2015).

Commonwealth guidelines for data sharing

Public sector data management

In early 2015 the Department of the Prime Minister and Cabinet studied how public sector data helps the government with better service delivery and efficiencies. The study also looked at how the private sector can use public data to stimulate economic activity.

The Department of the Prime Minister and Cabinet has since released Commonwealth [guidelines](#) for data sharing. They cover how the Australian public service should manage its research data and open data, while taking into account privacy and security concerns. The guidelines provide direction to Commonwealth agencies for streamlining data-sharing processes within government, with a view to enabling efficient and informed policy outcomes. To achieve this, Australian Government entities are to:

- establish data-sharing arrangements through a letter of exchange between entities (rather than memorandums of understanding or deeds of arrangement) when an entity requires arrangements to be formalised in writing
- share data by default with other Australian Government entities, unless there are ongoing insurmountable legislative barriers or risks to privacy, security or confidentiality
- consult responsible expert groups and the Public Data Branch at the Department of the Prime Minister and Cabinet when determining the extent of legislative barriers and other risks
- foster a culture of trust and collaboration between entities, and
- where possible, provide data in a format that is machine-readable, high quality and complies with agreed open standards, with as few restrictions on use as possible.

Open data toolkit

The Commonwealth has also developed an open data toolkit to assist agencies in creating datasets or writing an open data strategy. The toolkit provides simple and practical information on how agencies can make their data open and why it's worth doing. The toolkit could be useful to states and territories in implementing or improving their open data policies, and is available from <https://www.toolkit.data.gov.au>

Open Data 500 Project

The Australian Open Data 500 Project is a study of Australian companies that use open government data. The project is being undertaken in collaboration between GovLab, a team of researchers at New York University and the Australian Government Department of Communications. The key goal is to enable Australians to use and re-use public data in innovative ways that stimulates economic growth. The project will create new case studies on how companies are using public sector open data and the benefits this provides to their business (Department of Communications, 2015b). Transport data is one of the areas that is being looked at and industry is encouraged to become involved by visiting www.opendata500.com/au and filling out the survey.

While the *Public Sector Data Management Guidelines* guides data-sharing arrangements at the Commonwealth level, there are currently no equivalent guidelines to assist sharing between jurisdictions. For example, the Queensland Government notes that:

In many public bodies data sharing is formalised via a Memorandum of Understanding (MoU) agreement. This requires multiple legal departments to be engaged on projects, along with external legal counsel. These are often drafted by policy and legal teams with little or any knowledge of where the data was captured, or what is the end-to-end journey of the data across a service change. Therefore, these MoUs are often complex, difficult to understand, unrealistically constrained to where the data can

come from, or be used for, and bear little relation to what data is really required.
(Queensland Government, 2016)

The NTC believes there may be benefit in establishing guidelines similar to those developed by the Department of the Prime Minister and Cabinet, which can be used to guide data sharing between jurisdictions.

Glossary

Term	Definition
Open data	Data that can be freely used, re-used and redistributed by anyone – subject only, at most, to the requirement to attribute and share alike.
Transport satellite account	The TrSA is a means for measuring the contribution of transportation services to the national economy.

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