National Freight Data Hub: Discussion Paper #1 Response

Respondent details

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<tr>
<th>Organisation name</th>
<th>SMEC Australia Pty Ltd</th>
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Contact details (to whom any correspondence in relation to this submission can be addressed)

Why your organisation is interested in the National Freight Data Hub

SMEC is involved with clients and stakeholders in the following areas:

- Freight and logistic supply chain studies
- Rail system planning and design
- Road, Bridges and Highway Planning and Design
- Port planning and design
- Airport and Aviation Services
- Transport planning and logistics
- Intelligent Transport Systems
- Masterplanning, Economic Planning and Feasibility Studies

SMEC understands the complexity of freight and supply chains and how the impact of decisions made in the private and public sector have long term influence on the use of public infrastructure by freight operators.

SMEC uses various methodologies to estimate the economic benefits which are achieved by infrastructure investment decisions. We have found that freight data used in these studies is often incomplete or lacks the required accuracy.

SMEC anticipates that the Freight Data Hub could be a valuable data resource used to inform economic assessments of transport infrastructure investments. This could improve analysis and productivity gains realised by future infrastructure investment decisions. Current practice uses heavy vehicle traffic from traditional traffic surveys multiplied by value-of-time, often
adopted from ATAP’s PV2 parameters in the case of roads. Such values have shortcomings from uncertainty around the value of time for freight and additional parameters which impact freight differently from passenger traffic such as reliability and accessibility which are often ignored.

Improving ATAP value of freight parameters and developing a more detailed RFMS-style database of freight movements, while incorporating a large up-front investment, would significantly reduce the costs of undertaking future infrastructure investment studies including Business Cases, feasibility studies and research projects.

### iMove – National Freight Data Requirements Study

SMEC has reviewed iMove’s National Freight Data Requirements Study recommending government intervention in this space.

SMEC appreciates the work involved to encourage discussion around data and infrastructure upgrades to support the national freight network and encourage optimisation of the existing network. We think the report accurately captures the key challenges around data gaps.

However, we believe the study recommendations would benefit from drawing a clearer link between requirements for data in the freight industry with the recommended actions.

Areas which we believe could be enhanced include:

- How the recommendations will address challenges (such as those identified in the gap analysis)
- what data should be collected (to address data gaps identified)
- what data is already available and on what scale could existing data collection be expanded and who should be responsible for it.

SMEC believes analysis on the need for data and policy gaps should be more closely linked to the funding recommendations.

SMEC believes that the iMove study may underestimated the considerable work required in collecting data which would be sufficient for addressing infrastructure investment needs which SMEC believes is one of the most important uses of the data.
Question 1

a) Of the following, what are the most important purposes of the Hub?

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<thead>
<tr>
<th>Purpose</th>
<th>Importance rank (High/Medium/Low)</th>
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<tbody>
<tr>
<td>Support operational decisions</td>
<td>LOW – Private industry could use this information to support internal operational decisions, but aggregated data may not be specifically reliable and operators with rich data will already understand their operations and perhaps not wish to give that advantage to less data-aware competitors.</td>
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<td>Improve investment decisions</td>
<td>HIGH – Public / Private investment relies on up-to-date data and accurately capturing benefits of infrastructure investment. This is an area in which SMEC believes the value of infrastructure investment on freight is often underestimated.</td>
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<td>Performance measurement and benchmarking</td>
<td>MEDIUM – Existing statistics and competitive tendering can be used for benchmarking and performance measurement. However, due to the diverse nature of Australian supply chains, comparisons with other nations or areas are difficult to use for meaningful conclusions.</td>
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b) What other purposes should the Hub have?

The current lack of accurate data for planning of freight infrastructure hinders the ability for transport planners to accurately develop investment options as well as assessing the performance of existing infrastructure.

Consistent, linear data series can also identify trends and changes in freight supply chains which would not otherwise be identified by inconsistent data collection, reporting or collection methodologies.

Shared road and rail infrastructure between freight and passenger services impacts the ability to provide efficient and reliable freight access.

There is currently a lack of information and data available for infrastructure providers to enable a network-wide approach in delivering freight infrastructure and reduce these conflicts. The provision of information which will assist in private and public investments include:

- Origins and destinations: Where are products moving to and from, and how do these movements fit into overall supply chains?
- Handling: Where do the products change hands, how long is the process and what costs are involved?
- Product details: What is the specific product, value and composition?
- Manufacturing/Processing: What is the product being sold for, what is occurring in this part of the supply chain and what is the value-add involved and economic benefit at each stage?
Question 2

a) For each purpose, what are the most critical things to include in the Hub?

(List all elements and data sources that you see as important)

For SMEC, the most important purpose of the data hub would be to provide an evidence base for all levels of government, private freight asset owners and logistic operators to be able to make more informed investment decisions.

Movement of trucks through road networks of various agencies is well-reported (i.e. traffic surveys), however the contents and relative value of movements is an area of the supply chain which is rarely captured. Empty truck movements and full-truck movements are reported the same way in most Government databases and under existing assessment methodologies are assumed to carry the same value. For a freight operator, empty movements represent a necessary cost while full truck movement will have a high economic value. This can be influenced by a range of factors including operating costs, supply chain reliability and the value of time for the goods being carried.

Governments have little visibility of the inefficiencies which occur due to poor co-ordination and infrastructure provision. They could be better informed by data provided by operators (transport, terminals and warehousing/distribution) or collected by surveys by Government/s.

Private operators undertake studies to improve supply chains for which they have substantial control. Other private operators, such as individual trucking companies and handlers may have less interest in overall supply chains and focus on individual movement efficiencies.

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<thead>
<tr>
<th>Purpose</th>
<th>Data element</th>
<th>Current/new data sources</th>
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<tbody>
<tr>
<td>Improve investment decisions</td>
<td>Origins and destinations: Where are products moving to and from? Why and what economic benefit is provided by the movement?</td>
<td>Current: Limited to production and demand data. This data can be rich in various private companies and Government has some aggregated data for vehicles, but limited data by commodity and value. Rarely is this information constructed to complete logistic supply chains from end to end except within specific studies and business cases. <strong>New:</strong> Piecing together supply chains from various data sources such as through TranSIT or other supply chain models builds understanding of end-to-end supply chains which can help inform the value of individual routes and handling locations.</td>
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<td>Handling:</td>
<td>Where do the products change hands, and how long is the process?</td>
<td>Current: Terminals specifically established for the purpose of interchanging or storing goods, such as silos, intermodal terminals and ports have rich data on handling times and costs which are generally reportable.</td>
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Where value-add is undertaken, this may often not be captured or reportable.

**New:**
Handling costs and estimates of value-add at various nodes can inform the value of individual movements in the supply chain or opportunity for improving business models.

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<th>Product details: What is the specific product, value and composition?</th>
<th>Current:</th>
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<td></td>
<td>Information is available at heavily regulated areas such as airports and seaports, but less available at private terminals and for internal movements.</td>
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<td></td>
<td>Some of this is captured by private operators, but rarely combined to overall supply chains except under specific studies.</td>
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<td></td>
<td>There is little interest from some stakeholders in improving supply chain efficiencies, as late deliveries may be of benefit to their bottom line.</td>
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<td><strong>New:</strong></td>
<td>Provision and analysis of data from multiple sources for the purpose of improving overall supply chains, including supply chain costs, would improve overall performance but this analysis would rely on external parties providing data which will impact accuracy and reliability.</td>
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<tr>
<th>Manufacturing/Processing: What is the product being sold for, what is the end use?</th>
<th>Current:</th>
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<tbody>
<tr>
<td></td>
<td>Besides imports and exports, there is little data held by supply chain stakeholders outside of beneficial cargo-owners (the destination or origin of the goods).</td>
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<td><strong>New:</strong></td>
<td>Understanding the end use and value of the product would enable more accurate economic assessments and provide greater detail on the limitations in Australia’s capacity for value adding to our natural resources, agricultural produce and manufactured goods.</td>
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b) Are there other critical data elements that should be included in the Hub?

The level of criticality is dependent on the intended use of the data. We believe the purpose for the use of the data should be more closely linked to identifying the critical data elements.

Our submission focuses on the use of the data for infrastructure planning purposes and the elements which would be critical for better informing investment decisions in this area.

More accurate reporting and benchmarking (similar to the TfNSW Freight Performance Dashboard) could be a by-product of the preparation of data for infrastructure planning purposes or be built simply from existing data sets.

For traditional infrastructure business case development, transport benefits are generally measured by the difference in the value between the existing (or future base case) and future project cases.

To accurately measure the value difference, the initial value and methodology for developing this value should be well understood. For bulk movements such as coal, this is relatively straightforward exercise. For the development of an urban arterial, other factors such as supply chain reliability, changes in land use and access should be considered.

ATAP has developed generic aggregated values of time for freight for regional and urban areas, however greater disaggregation and location-specific data would be valuable in accurately assessing infrastructure investments. Regularly updating the ATAP data would also be a beneficial (see Question 4) potential outcome of the Freight Data Hub.
Question 3

a) What are the barriers to sharing data? (Please provide examples in the table below)

b) How could these barriers be overcome?

c) What are the benefits of greater data sharing?

SMEC’s role as a consultant to the freight and transport industry is such that our position on data sharing is based on our experience rather than a specific need or interest in the area.

Our logistics and analytics teams have experience in the management of sensitive client data which can be aggregated and published for use in studies, but often not suitable for ongoing linear studies.

The benefits of greater data sharing differ between stakeholders. For freight service operators and asset managers, the level of benefit depends on the accuracy and analysis from the data and its applicability to the operations or asset.

More complete data-sets around freight movements on roads and rail are relevant to Governments considering upgrading or expanding existing road and rail networks so Governments can provide efficient network for freight movements.

For some freight operators information may be beneficial to plan future growth. This could be at the expense or benefit of competitors and therefore the incentive to publicly share data could be diminished or influenced.

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<thead>
<tr>
<th>Barrier to sharing</th>
<th>How to address?</th>
<th>Potential benefit?</th>
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<tbody>
<tr>
<td>Large logistics companies understand their own data sources and may be concerned that sharing may increase competition in areas where they may hold a competitive advantage</td>
<td>The benefits of sharing must outweigh the potential impacts of sharing this IP through increased targeted competition.</td>
<td>Greater sharing by private operators will increase granularity and detail of the datasets. Regular and consistent data sets creating an overall data set will be important in sustaining a useful data series.</td>
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<tr>
<td>Some information around seaports and airports or high value movements can include sensitive trade, security and quarantine information which should not be made publicly available.</td>
<td>Granularity around sensitive movements should be carefully managed.</td>
<td>Management of secure information in sensitive sectors can be used to provide reassurance to those providing less sensitive information.</td>
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Question 4

a) What products are required? (Please provide examples in the table below)

b) What is the best way for Hub products to be made available?

c) How frequently should data be updated?

Benefit to the development of demand forecasts in Business Cases would be from more complete freight datasets including a more detailed breakdown of goods moved by geographic area and broader supply chain data.

A dataset such as the Road Freight Movement Survey data cube would provide the richest source of data which could be made applicable in the development of transport infrastructure. Other datasets such as TfNSW’s Strategic Freight Forecasts could also be the development platform for the creation of a nationwide freight database capable of assessing interstate freight movements.

Freight models such as the FMM in Victoria lack the granularity and level of detail required for most freight-specific projects.

We note that the 2014 RFMS was expanded from the previous RFMS to include light trucks which comprise a much greater proportion of trucks and is predominantly oriented to urban freight movements. The size and scale of the project reduced the accuracy of the survey by diluting the survey pool of heavy and medium vehicles used in the previous survey which resulted in a lack of applicability for projects other than major interstate projects such as Inland Rail.

Separating light freight vehicles from medium and heavy vehicles would help separate urban freight from long-haul freight which often have very different behaviour, with smaller trucks making multiple stops per trip while medium and large vehicles tend to operate point-to-point.

In the absence of reliable specific datasets which can be adopted by infrastructure planners an alternative methodology is to adopt ATAP Road Parameter Values for the volume of trucks/trains taken from traffic surveys which are easily undertaken for individual projects, or often already available for the arterial road and rail networks.

ATAP’s PV2 Road Parameter Values (August 2016) identifies that the value of time of freight as worthy of further investigation:

“For future updates, these values could be based on a more recent and extensive study of the value of travel time for freight considering load and vehicle types. Austroads has identified the specific need for such a study soon and updates could draw on these results.”

A more detailed, regular or updated RFMS-style survey, while costly, could provide important data for the development of a geographically located data set as well as informing ATAP’s value of time for freight.

Investing in an expanded RFMS to be undertaken regularly could inform economic assessments for projects to a level of accuracy suitable for informed investment decisions particularly for major road and rail infrastructure projects or freight-specific infrastructure projects. Such a framework has already been established, with the Table Builder functionality suitable for use in such economic analyses.

Additionally, this data set could be used to inform updated ATAP guidelines for more fine-grained analysis of freight values of time to update ATAP’s PV2 Road Parameter Values. This would result in more detailed
ATAP guidance which could be applicable to smaller to medium-sized projects which may not require more detailed economic analysis of the impacts on supply chains, such as areas with fewer freight vehicles or in less industrial areas.

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<tr>
<th>Product</th>
<th>Method of reporting</th>
<th>Frequency</th>
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<tr>
<td>RFMS-style data cube suitable for measuring economic benefits of freight supply chain projects.</td>
<td>More regular reporting and data updates would provide not only a snapshot basis for economic assessment, but also a time-series to more accurately project growth and value.</td>
<td>Repeated every 2-5 years.</td>
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<td>Updated ATAP road value parameters for freight.</td>
<td>A study into the value of time for freight, preferably by commodity as well as truck size, as well as other measurable parameters such as reliability and accessibility could be used to inform economic analysis.</td>
<td>Updated every 5-8 years</td>
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We acknowledge that the RFMS style data set would require significant cost to establish to provide sufficient accuracy to use in economic analysis of medium and large-sized infrastructure projects, however the value of doing the study in more detail (relative to the 2015 release) would not only improve the accuracy of investment decisions, but would also reduce the cost of undertaking studies and planning for freight infrastructure in the future.

We believe that the methodology for collection of data for the RFMS should be improved in-line with the recommendations of the iMove report to greater automation and digitisation though it is unlikely that sufficient data could simply be collected from existing stakeholder or government datasets.

The current method of access to the RFMS (available in TableBuilder and via ABS website) and ATAP parameters (publicly available), we believe, is appropriate.