

Austroads Data Standard

A Common Road Asset Data Language



Austroads

Draft Standard

Australian Local Government Association
Roads Congress November 2016

About the Data Standard – Why

Currently

- Incomplete, different and numerous data sets, and the need to convert them into useable formats
- Governments cannot attribute or differentiate costs to users
- Innovation, investment and greater economic efficiency across the transport system is limited.

What's in it for Local Government

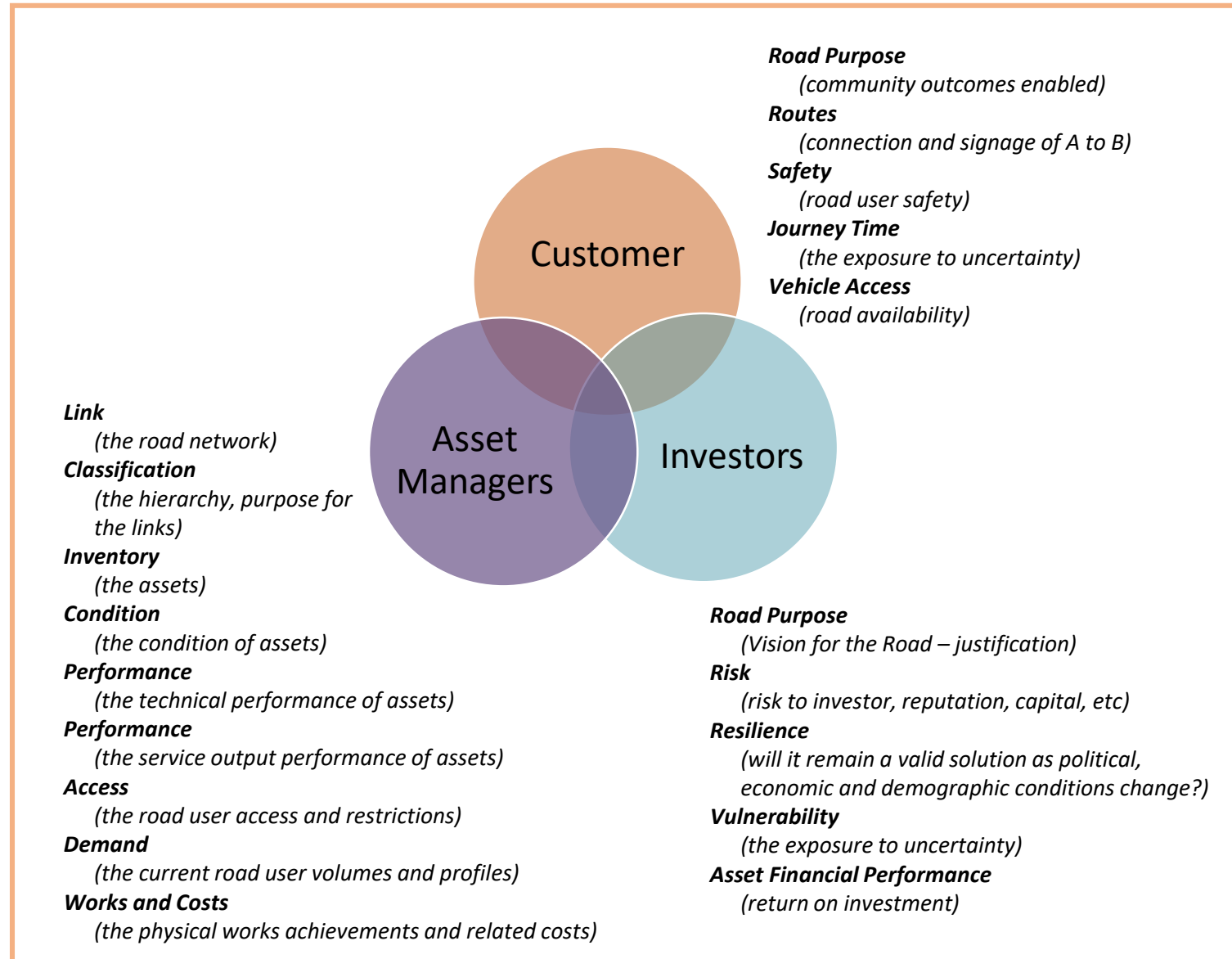
- Facilitation of collaboration and benchmarking
- Better investment decision making
- Enabling national reforms
- Accommodation of new technology



About the Data Standard – What Is It?

This Standard

- establishes a common understanding of
- the meaning of the data
- ensures correct and proper use and interpretation of the data.
- The data specifications are specific to the data that is typically and routinely used for road management and investment purposes.
- It provides consistency in data definition and format.



Data Standard – What is It

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- Purpose
- Road Management & Investment Practice
- Function Groups & Data Items
- Using this Standard
- Asset Data Life Cycle
- Data Classes
- Data Specifications
- Code Lists
- Glossary of Terms & Definitions



About the Data Standard - Functional Groups

- Functional Groups of data developed to accommodate all aspects of maintenance and investment
- AM Data Activity Groups apply across the lifecycle of asset management activities
- Further functional groups being developed as the Data Standard matures.



About the Data Standard: Location Referencing

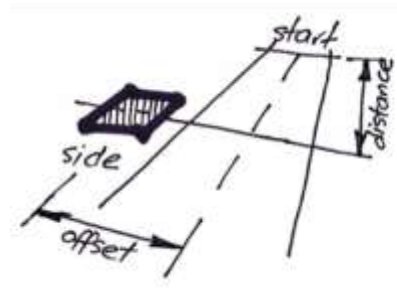
- Sophistication Levels:

- 1D
- 2D
- 3D

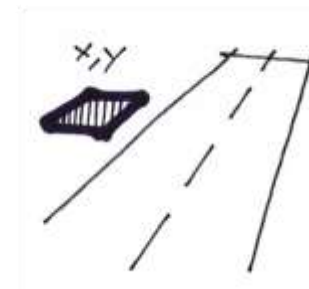
- Accommodation of different requirements:

- Across asset groups
- Some are on a maturity journey

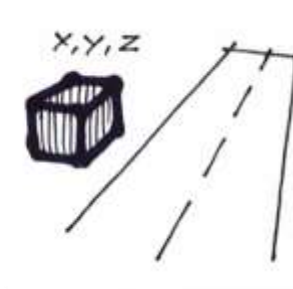
LOCATION REFERENCING (L)		
L1	L2	L3
Non Graphical Asset Register <ul style="list-style-type: none">• Network 1D spatially located.• Asset location referenced by centreline distance/side/offset and known locations.	2D Digital and Graphical Representation <ul style="list-style-type: none">• Network 2D spatially located.• Assets spatially referenced in a 2D context.	3D Digital and Graphical Representation <ul style="list-style-type: none">• Network 3D spatially located.• Assets spatially referenced in a 3D context.



Includes a simple chainage based reference of the start and endpoint in relation to the centreline of the road.



Includes a point or polyline or polygon representation of an asset of the as constructed detailed location (x, y co-ordinates as appropriate) in a spatial environment.



Includes a point or polyline or polygon representation of an asset of the as constructed detailed location (x, y, z co-ordinates as appropriate) in a spatial environment.

About the Data Standard: Asset Data Structure

- Sophistication Levels:

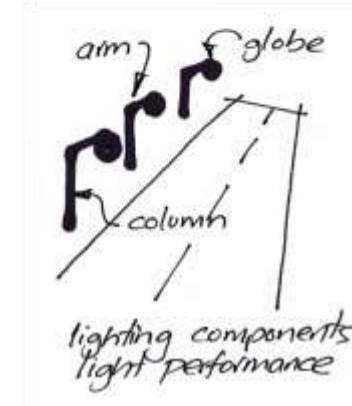
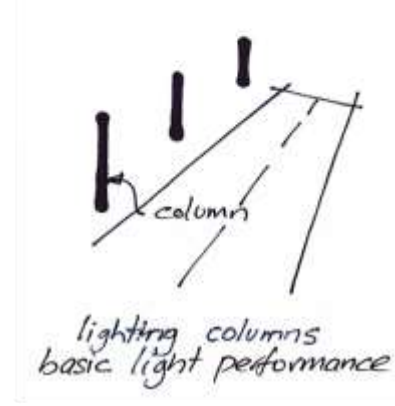
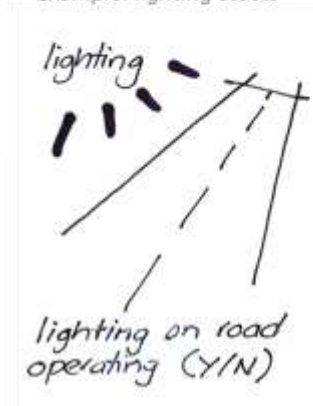
- Network
- Asset
- Component

- Road Managers are at different levels of sophistication:

- Across asset groups
- Some are on a maturity journey

ASSET DATA		
D1	D2	D3
Network / Subnetwork <ul style="list-style-type: none">• Network / subnetwork level information.• Level of Service description.• Basic asset description.	Asset <ul style="list-style-type: none">• Asset level information.• Detailed asset description and condition data.• Parent/child asset to network relationships defined.• Asset intervention criteria.	Component <ul style="list-style-type: none">• Asset component level information• Detailed asset description and performance data.• Parent/child component to asset relationships defined.• Component intervention criteria.

Example: lighting assets



Data Standard - Guidance on Sophistication Levels

LOCATION REFERENCING				ASSET PLANNING				ASSET DATA			
Sophistication Level				Sophistication Level				Sophistication Level			
1	2	3		1	2	3		1	2	3	
1. Are there reasons, other than for asset management, to use BIM / 3D GIS?			<input type="checkbox"/>	1. Are you committed to delivery and reporting of customer service performance outcomes?			<input type="checkbox"/>	1. Are you only interested in network level reporting?			<input type="checkbox"/>
2. Are there reasons, other than for asset management, to use GIS?	<input type="checkbox"/>	<input type="checkbox"/>		2. Are you committed only to delivery and reporting of technical performance outcomes?		<input type="checkbox"/>		2. Are the asset management plans only focused at asset level?		<input type="checkbox"/>	
3. Are you wanting to identify and manage conflicts and opportunities between asset groups?	<input type="checkbox"/>	<input type="checkbox"/>		3. Are you committed only to condition based planning?		<input type="checkbox"/>		3. Is there a planning process at asset component level?			<input type="checkbox"/>
4. Is your financial register and asset register linked spatially?	<input type="checkbox"/>	<input type="checkbox"/>		4. Do you want to assess the future financial liability for assets (FWP development)?		<input type="checkbox"/>	<input type="checkbox"/>	4. Are assets managed at component level?			<input type="checkbox"/>
5. Are assets located on site spatially?	<input type="checkbox"/>	<input type="checkbox"/>		5. Are you interested in WOL ownership costs?		<input type="checkbox"/>	<input type="checkbox"/>				
6. Do service providers operate on a spatial basis?	<input type="checkbox"/>	<input type="checkbox"/>		6. Are you committed to reactive maintenance?	<input type="checkbox"/>						
7. Are you wanting 3D visualisation and a control interface?			<input type="checkbox"/>								

		ASSET DATA (D)		
		D1	D2	D3
ASSET PLANNING (P)	P1	Asset preservation with no limited future asset planning supported by a basic network level asset register.	Asset preservation with no future asset planning supported by a detailed asset register.	NOT DESIRABLE There is an operational discrepancy in sophistication between the data and the asset planning.
	P2	Prioritised asset planning with integrated asset performance management supported by a basic network level asset register.	Prioritised asset planning with integrated asset performance management supported by a detailed asset register.	Prioritised asset planning with integrated asset performance management supported by a detailed asset component register.
	P3	NOT DESIRABLE There is an operational discrepancy in sophistication between the asset planning and the data.	Optimised asset planning with integrated asset service performance management supported by a detailed asset register.	Optimised asset planning with integrated asset service performance management supported by a detailed asset component register.

Data Standard – Versions 1 and 2

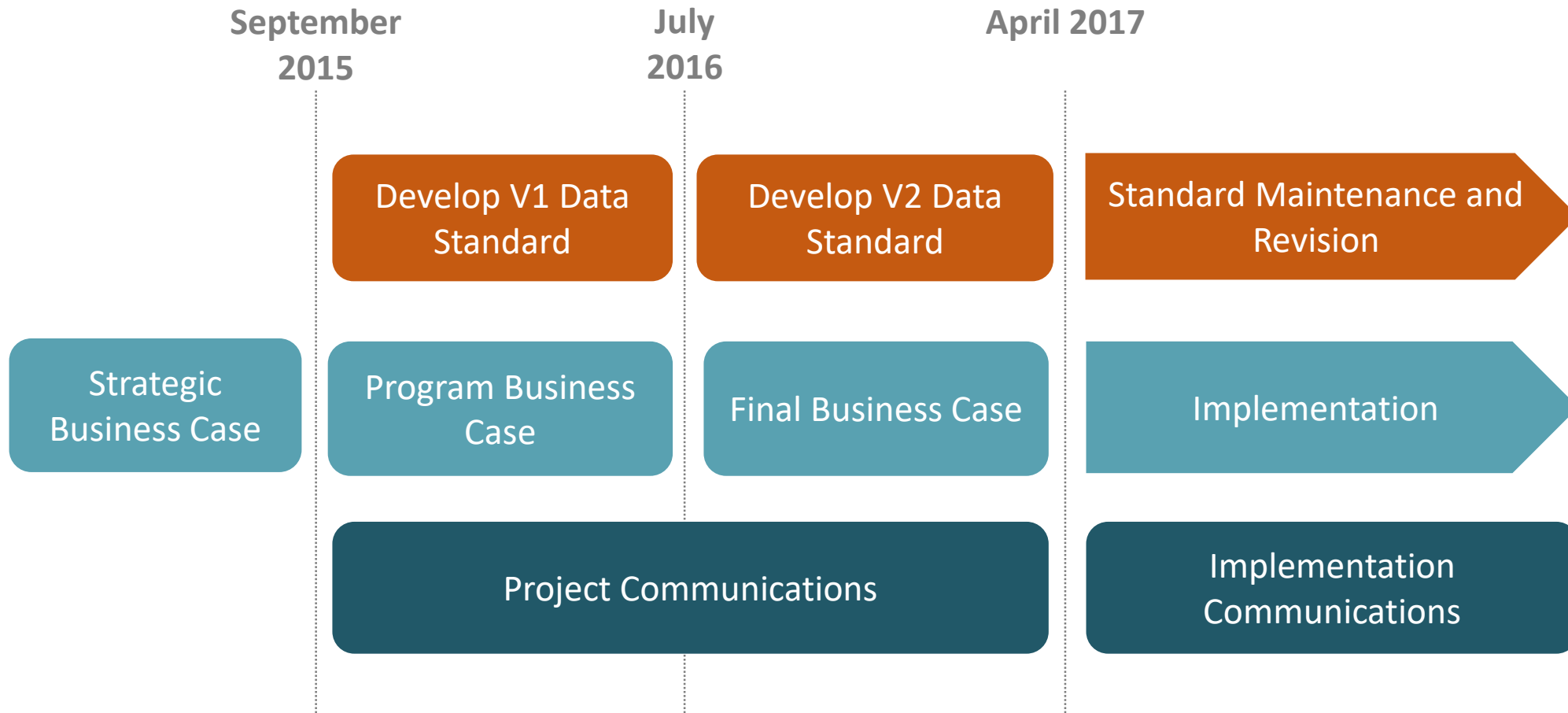
Version 1

- Version 1 published as a technical report on....
- Made available to the benefit of road managers
- Subject to broad consultation
- First version released

Version 2

- Version 2, will build on Version 1
- Has commenced development in October 2016
- Consultation commencing November 2016
- Likely to be published mid 2017
- Ready for Australia-New Zealand wide adoption

Austrroads Harmonised Data Standard Project



Business Case - Benefits Areas

Business Cases developed to support early development decisions.

Based on key areas of benefit and addressing key known 'problems' related to inconsistent of data

- Facilitation of collaboration and benchmarking
- Better investment decision making
- Enablement of national reforms and accommodation of technology

Problem Definition

Inadequate data limiting road transport and infrastructure reforms

Road managers use of different standards a barrier to investments aimed at greater collaborations and national reform.

Multiple data standards creates duplication and inefficiency = increased costs for government and business.

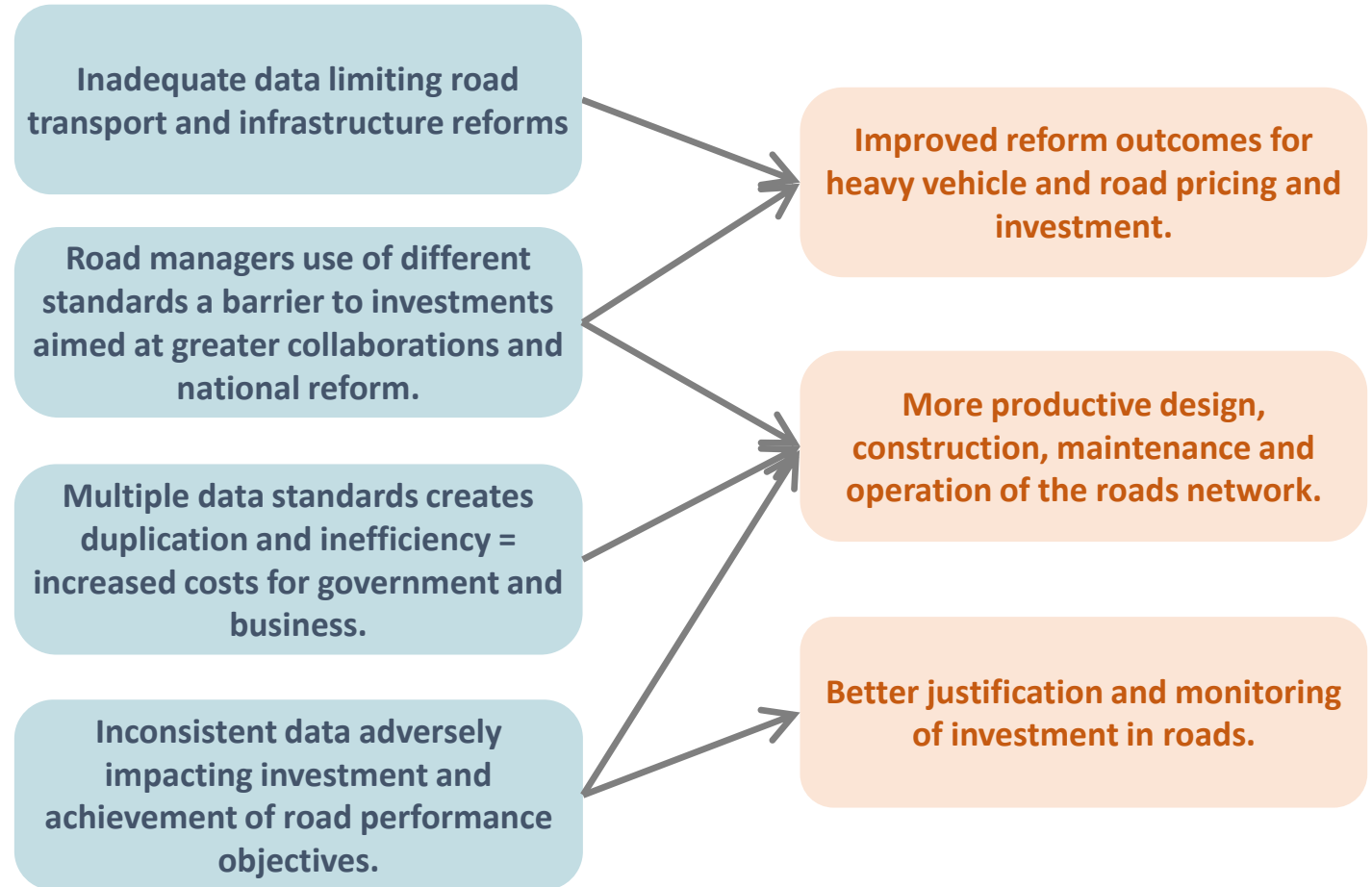
Inconsistent data adversely impacting investment and achievement of road performance objectives.

Benefit Areas

Improved reform outcomes for heavy vehicle and road pricing and investment.

More productive design, construction, maintenance and operation of the roads network.

Better justification and monitoring of investment in roads.



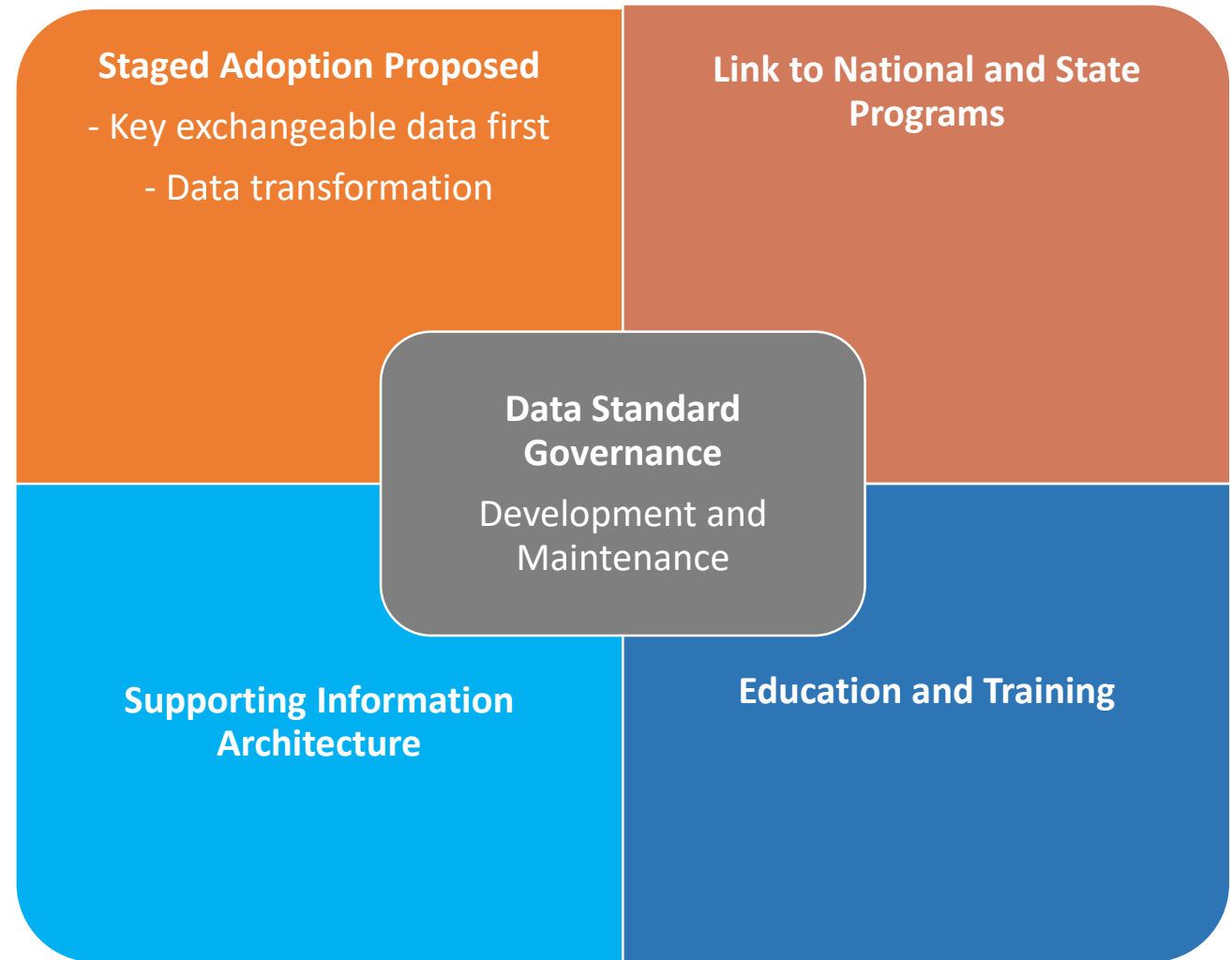
Business Case – Next Stage of Development

- Reviewing assumptions
- Aligning to revised standard
- Implementation approach considerations
 - Staging of adoption
 - Level of Adoptions
 - Supporting IT
- Deeper analysis with representative local government
- Impact Statement for local government
- Deeper analysis in selected agencies



Implementation Strategy - Overview

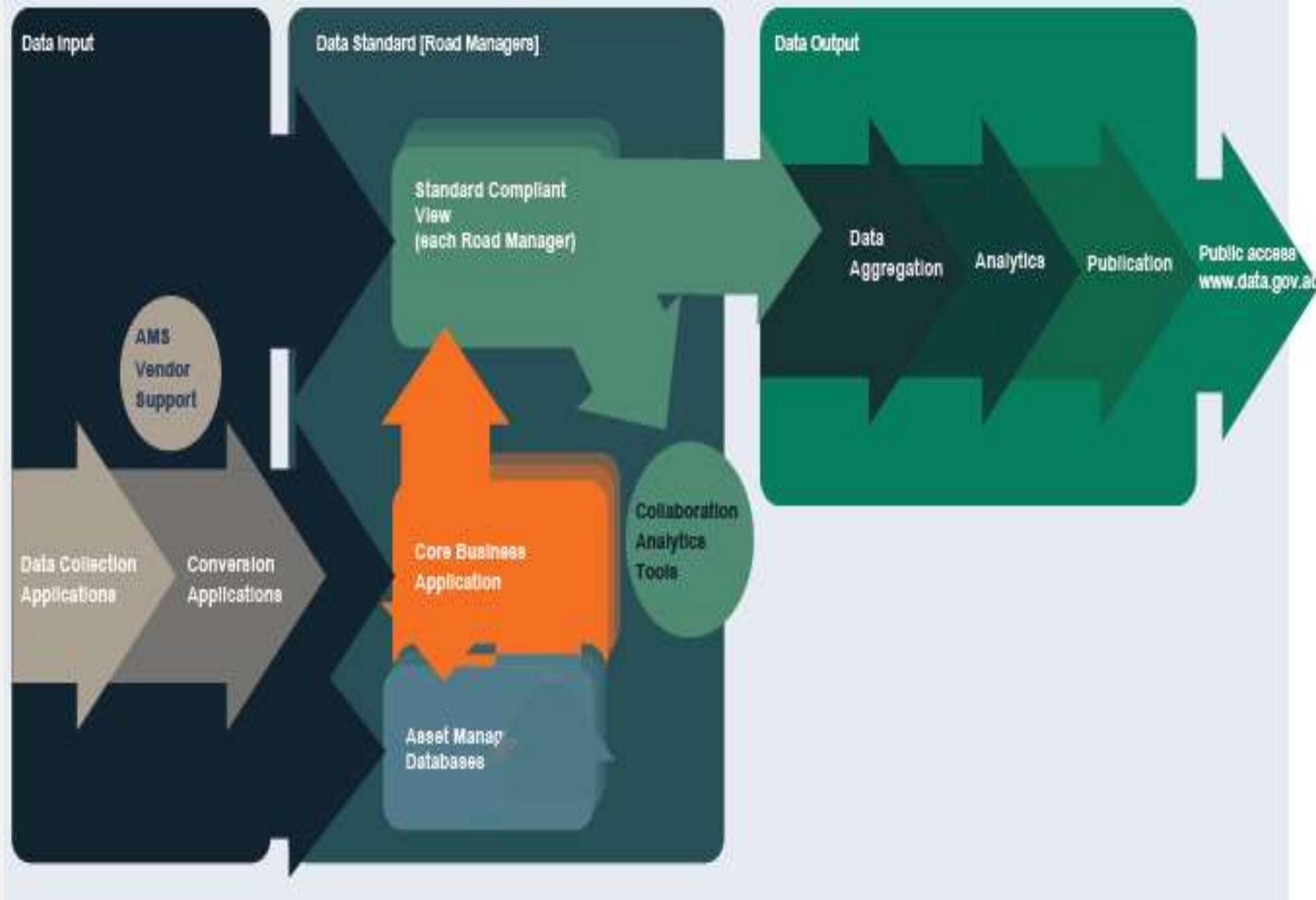
- Austroads Board commissioned development of Implementation Strategy
- Connected to several reforms and agendas
 - Road pricing
 - National Heavy Vehicle Regulatory
 - BIM / Digital Engineering
 - Infrastructure Australia Performance Framework
- Strategy will cover:
 - Staged adoption – initial key exchangeable data set
 - National/State programs may start using data format
 - Considerations of collaboration on national architecture to support implementation
 - Education, training and tools



Implementation Strategy – Supporting ICT

Supporting Information Architecture

- National coordinated approach
- Commissioning interface protocols
- Reduce costs of transitioning to the Austroads Standard.
- Support the development of web interfaces
- Facilitate the creation of a wide range of applications
- Improve analysis, understanding and practice of road asset management.



Summary

- Data Standard developed to be useful for the whole sector.
- Designed to reflect the range of practice and complexity.
- Consultation on Standard late 2016, and first quarter of 2017.
- Benefits for local government, particular if utilisation of the standard is high.
- Links to a range of reforms and technology.
- Implementation factoring local government context and requirements.
- Engagement on standard, implementation planning and business case.



Further Information

<http://www.austroads.com.au/road-operations/asset-management/road-data-harmonisation-project>

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