Global Heavy Vehicle
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State of the Industry

Dr Peter Hart

Chairman, ARTSA

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My Themes

- Government can't do it all.
- Industry needs to pro-actively work with Regulators to tackle inherent challenges.
- The industry associations need to get their collective 'act together' to be more effective agents for change.

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A Bit of History

EDITORIAL OPINION

Monday 4 July 1988

Let us say no to the juggernauts

THE transport industry is agitating for the introduction to Victoria of road trains, the huge, heavy and often speeding m ordinary m the truckers want o Canadian-designed trailer of similar le which allows the ve longer than the nor medium-sized cars. Industry Council, w Government agenci these vehicles be p roads. However, wh and its clients is no Transport Minister, accept the recomm

The State Government should confront these problems rather than yield to the demand for approval of road trains, even on a restricted basis. Once they were allowed in, pressure would inevitably build up for them to use metropolitan roads and for even bigger and more dangerous vehicles to be permitted. Let the answer to those who want these road monsters be clear, firm and prompt: "No way!"

Road monsters are heading our way

What is almost five times longer than a Ford Falcon, carries nearly twice as much as a normal semi-trailer and could soon be travelling on our metropolitan roads? JOHN STEVENS looks at the implications of the B-double road train.

NOBODY expects you to like them, but road trains are almost certainly coming to Victoria. The only question is whether they can be kept out of metropolitan Melbourne, and for how long.

On this critical aspect, a State Government mandarin reflected bureaucratic thinking at a recent seminar on road trains by recalling, by way of analogy, the two ways to cook a frog. One way, he said, was to drop the frog into boiling water. The other was to put it in cold water and bring it to the boil.

The implication was that road trains will be initially restricted to country routes before gradually being allowed into Melbourne. In this way the frog, that is public opposition, will be boiled slowly but cooked just as surely.

The particular road monster heading our way with seemingly unstoppable momentum is the B-double, a juggernaut of Canadian origins. It is basically a semi-trailer with a second trailer hitched behind. It is 23 metres long, almost a third longer than the conventional, 17.5-metre semi-trailer, and carries 60 tonnes as against the semi's 38.

The Victorian Road Freight Transport Industry Council (VRFTIC), a body representing business, Government agencies and the railways, this week recommended its introduction. The Transport Minister, Mr Kennan, will study the report, as well as alternative submissions, before making a recommendation to Cabinet, probably in a couple of months.

The Government will not have the nerve to stand alone against introduction in the other states, nor to tell an increasingly raucus road lobby to go jump. Hauliers see a big killing from road trains. Trials of B-doubles in Queensland, Western Australia and South Australia have convinced them they are 30 per cent more productive.

Yet the possible consequences on safety, the real economy as opposed to private profit and environmental disruption, indicate that a decision in favor of road trains will be the wrong one.

A little understood fact is that heavy road transport is a highly subsidised activity. The Federal Bureau of Transport Economics last year estimated that trucks of three or more axles failed to pay their national road damage costs by $1406 million. This is almost three-quarters of the annual cost of road maintenance.

The meaning of that figure is that each truck damages the roads to the tune of $33,000 a year and each Australian car owner pays $419 towards the cost, a figure for drivers to bear in mind next time they are cringing on the kerb in the shadow of a semi, or rocked by slipstream on the open highway.

It seems incredible that governments, as owners of railways, are about to bestow yet another favor on their principal transport competitor. A transfer of freight from rail to road train is inevitable. Even the VRFTIC conceded this, apparently accepting the expected loss to V Line of $30 million in revenue, or nearly a fifth of its total freight business.

The effect will be a further blowout of the railways' annual deficit, $142 million of which is accountable to freight handling, the more cost-efficient of rail operations. The most worrying part of this is that the big loser is likely to be the kind of haulage the railways does best — the bulk carrying of grain, briquettes, fertiliser and cement.

The road transport lobby is pushing the notion that the B-double is no less safe than the ordinary semi. This is far from certain. The B-double is promoted as being more stable than other road trains because of the way its two trailers are linked. Both rest on a four-axled central carriage which turns with the vehicle. However, this does not overcome its principal menace to other traffic, its sheer length.

The critical factor is the time it will take for other vehicles to pass. The B-double is almost five times longer than a Ford Falcon. The VRFTIC draft report raised scepticism by quoting passing time at only five per cent longer than that for passing a semi, despite the fact that the B-double is more than 30 per cent longer.

The only available research on the comparative safety of B-doubles is inconclusive but suggest the vehicle is decidedly riskier than an ordinary semi. Certainly the additional weight would tend to make any accident than 100 drivers were convicted of failing to rest sufficiently and there were more than 1000 log book breaches. More than 700 were fined for speeding and 3800 for overloading. Industry experts say the figures are the tip of the iceberg. The US insurance study found the crash risk almost doubles after eight hours' driving.

Costly modifications of road turnings, roundabouts, parking areas and depot facilities will be needed for road trains. They have a wide turning circle and are unable to go backwards.

THE truck industry says B-doubles will do no more damage to the road because their load is distributed over more axles. It also claims they will be safer because fewer will carry the same load. Both arguments conflict with the acknowledgement that more trucks will be needed to carry freight captured from rail.

The higher levels of noise and vibration are unknown. Even with a well-muffled engine there will be extra tyre noise from the additional weight and wheels. In heavy traffic, road trains will be particularly overwhelming to drivers and pedestrians alike.

A study by the US Insurance Institute for Highway Safety, released last year, concluded that double-trailer trucks had two to three times more accidents than single-

there could be hundreds of road trains pounding at the city gates. It is then that we will come to understand the effectiveness of the slower method of frog cooking.

Why do we need road trains at all? There is another way of viewing the proposition that they are more efficient, more productive. That is that they will provide a service on the cheap.

Can't we afford something a little more civilised, given our present level of prosperity? Who actually wants to save twopence on the price of his morning oatmeal at the expense of his sanity? In any case, it may be naive to expect the fatter profits of subsidised haulage giants to be passed on to the consumer by way of cheaper goods.

The Age
1 July
1988

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Achievments

NHVR
National Heavy Vehicle Regulator
December 2017

Victoria's HPFV Networks for 30 metre 85.5 tonne A-Doubles – Information sheet

This document provides information on the Victoria road access policies for Performance Based Standards (PBS) 30 metre A-Double Road Trains up to 85.5 tonnes.

What is the difference between current B-Doubles and HPFV A-Doubles?

B-Doubles are up to 26 metres long and have a Gross Combination Mass (GCM) up to 68.5 tonne. In Victoria, a High Productivity Freight Vehicle (HPFV) is a heavy vehicle combination that exceeds 26 metres and/or has a GCM in excess of 68.5 tonne.:

What roads can be accessed by HPFVs?

The Victorian HPFV network is being developed with a focus on providing access to primary freight routes connecting with Victorian Ports, interstate links and key industries.

VicRoads is progressively assessing more freight routes to continue to expand the HPFV network. The A-Double maps and details of Victoria's A-Double HPFV network are available on VicRoads website via https://www.vicroads.vic.gov.au/business-and-industry/heavyvehicle-industry/heavy-vehicle-map-networks-in-victoria

- Green = approved for HPFV at full mass
- Orange = approved for HPFV at reduced mass
- Blue = approved for HPFV at full mass following highway upgrade
- Red = restricted to 68.5 tonnes
- Purple = currently under assessment

What are the specific dimension limits?

The dimension limits for A-Doubles on the HPFV Mass network are as follows:

	Approved Dimensions
Maximum Length	30m
Maximum Height	4.3m
Maximum Width	2.5m

What are the specific mass limits and axle spacings?

The mass limits for A-Double HPFV operating on the network are as follows:

	Approved Mass
Steer axle	6t
Steer axle[1]	6.5t
Drive Axle or Tandem Axle Group (Dolly)	17t
Triaxle Group	22.5t
Total Combination Mass	85.5t

[1] - Provided the complying steer axle requirements as set out in the

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Achievements

Class 2 Heavy Vehicles (examples for illustration purposes)

Freight Carrying Vehicles

21		B-double ✓
22		
23		A-double
24		
25		B-triple ✓
26		
27		AB-triple
28		A-triple
29		BAB-Quad
30		ABB-Quad
31		Rigid Truck and 2 Semitrailers

Vehicles Exceeding 4.3m in Height (up to 4.6m high as per Schedule 6 of Heavy Vehicle (Mass, Dimension and Loading) National Regulation) (MDL)

37		Vehicle Carrier
38		A-double (Livestock)
39		B-triple (Livestock)

HVNL Definitons

HVNL s136
A heavy vehicle is a class 2 heavy vehicle if–
(a) it–
(i) complies with the prescribed mass requirements and prescribed dimension requirements applying to it; and
(ii) is–
(A) a B-double; or
(B) a road train; or
(C) a bus, other than an articulated bus, that is longer than 12.5m; or
(D) a combination designed and built to carry vehicles on more than 1 deck that, together with its load is longer than 19m or higher than 4.3m; or
(E) a motor vehicle, or a combination, that is higher than 4.3m and is built to carry cattle, sheep, pigs or horses; or
(b) it is a PBS vehicle.

HVNL s5
B-double means a combination consisting of a prime mover towing 2 semitrailers, with the first semitrailer being attached directly to the prime mover by a fifth wheel coupling and

HVNL s5
B-triple means a combination consisting of a prime mover towing 3 semitrailers, with–
(a) The first semitrailer being attached directly to the prime mover by a fifth wheel coupling; and
(b) The second semitrailer being mounted on the rear of the first semitrailer by a fifth wheel coupling on the first semitrailer; and
(c) The third semitrailer being mounted on the rear of the second semitrailer by a fifth wheel coupling on the second semitrailer.

HVNL s5
road train means–
(a) A B-triple; or
(b) A combination, other than a B-double, consisting of a motor vehicle towing at least 2 trailers, excluding any converter dolly supporting a semitrailer.

HVNL s5
PBS vehicle means a heavy vehicle that is the subject of a current PBS vehicle approval under Part 1.4.

HVNL s5

✓ Signifies vehicle can be found in sub-urban regions

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Achievments

Performance Based Standards (PBS)			
32	√		Prime Mover and Quad Axle Semitrailer
33	√		Rigid Truck and 5 Axle Dog Trailer
34	√		B-double with Quad Axle Groups (up to 30m)
35	√		A-double (up to 30m)
Buses			
36	√		Controlled Access Bus

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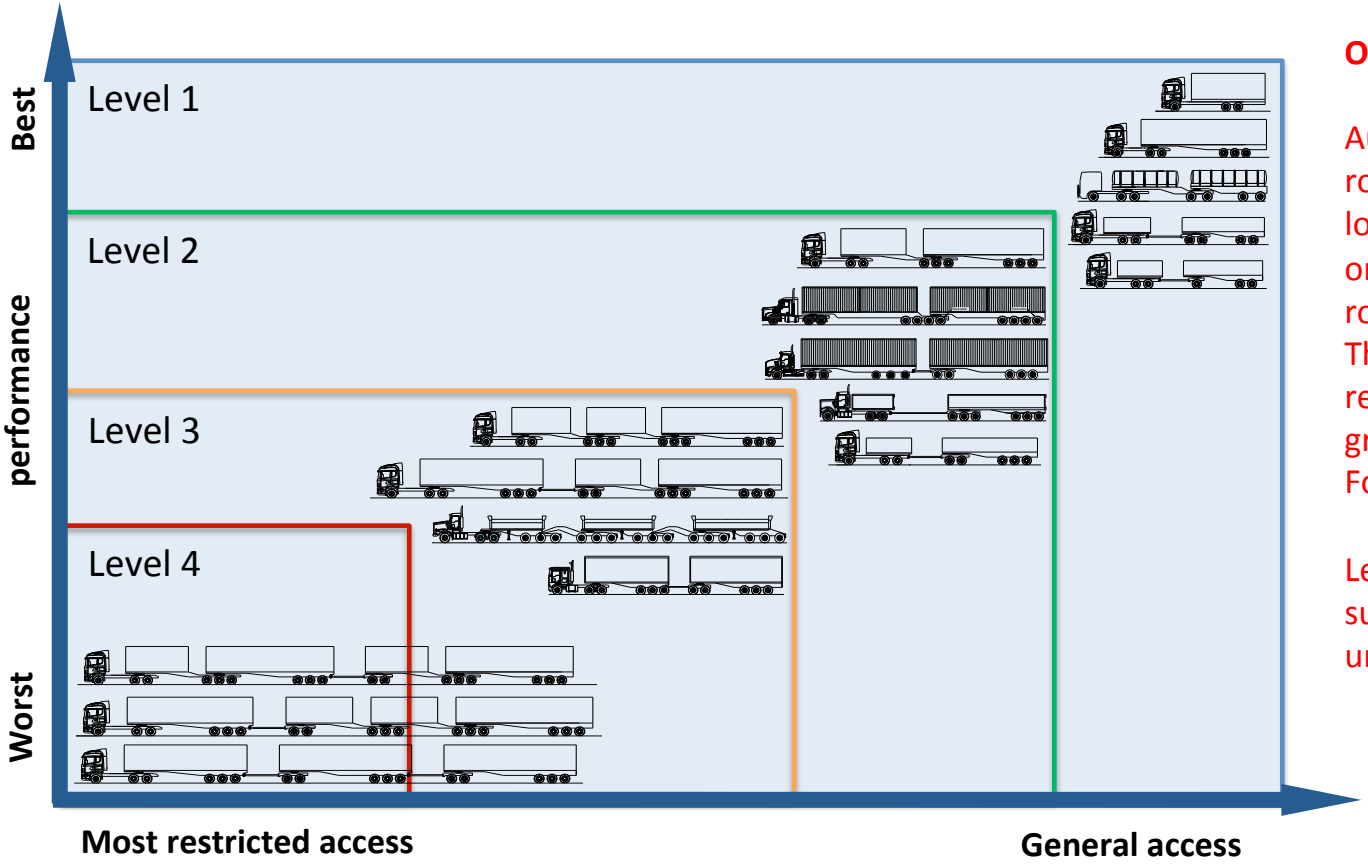
Achievments



Overview:

Australia has allowed road access for long-combinations based on four levels of road classification. The vehicle technical requirements are graduated for the Four road levels.

Level 1 includes are main suburban roads and urban freeways

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ARTSA Data

- **ARTSA has been analysing the NEVDIS Heavy Vehicle Data for the past 5 years.**

  NEVDIS = National Exchange of Vehicle and Driver Information System (AustRoads).

- **A good example of Government – Industry Association partnership.**

- **Much more can be learnt from government databases.**

- **Government can't do it all!**

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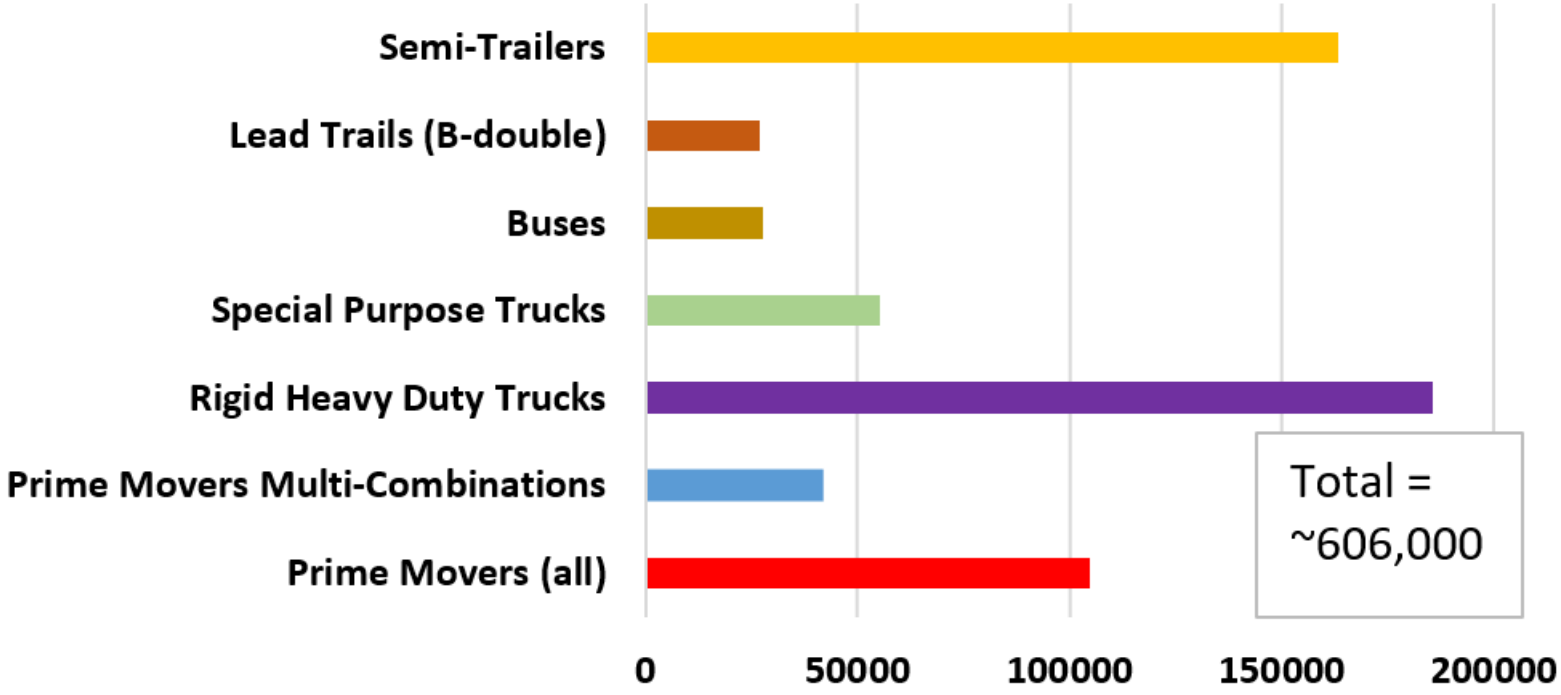
Size of Fleet

Total Heavy Duty Fleet Size (≥ 12t)
December 2017



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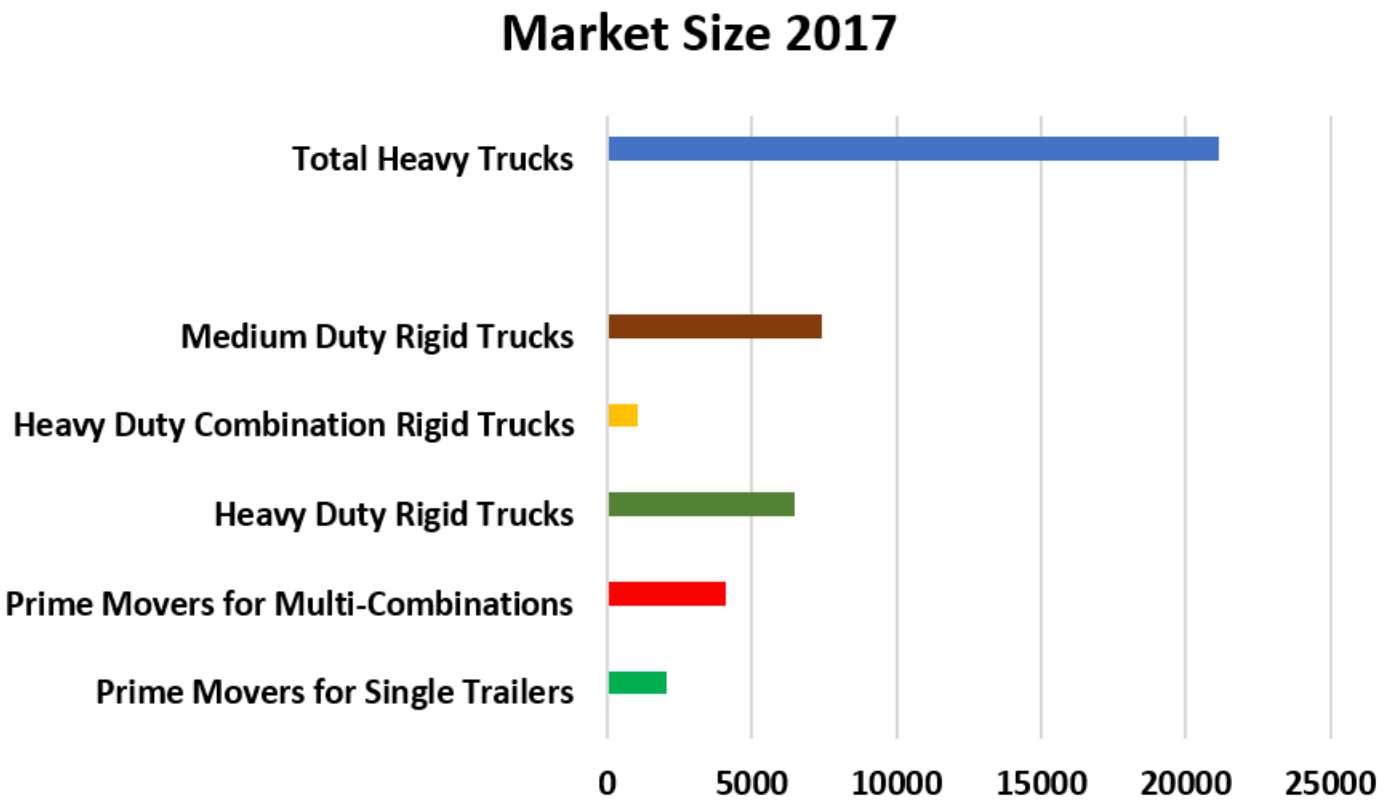
Market Size



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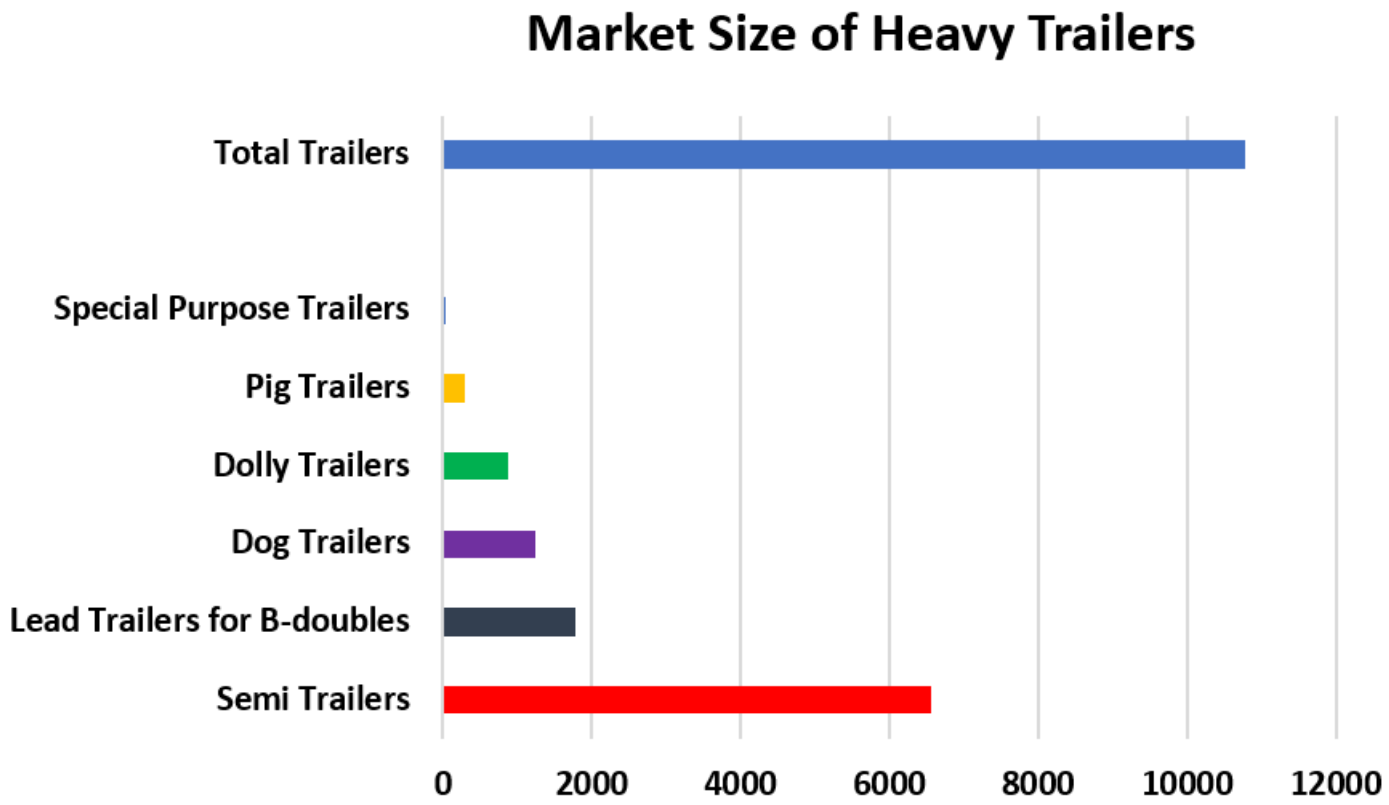
Market Size



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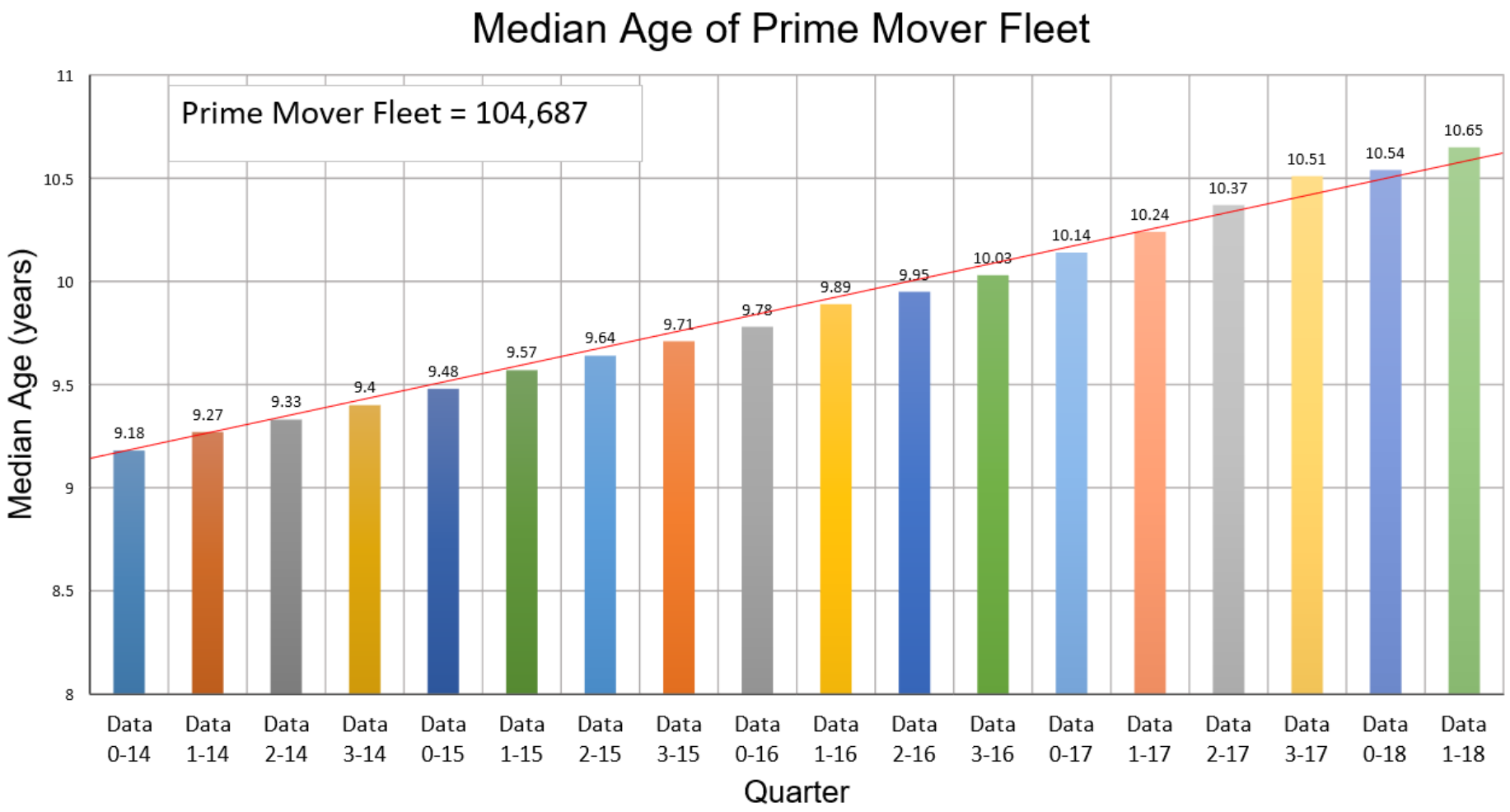
Median Age



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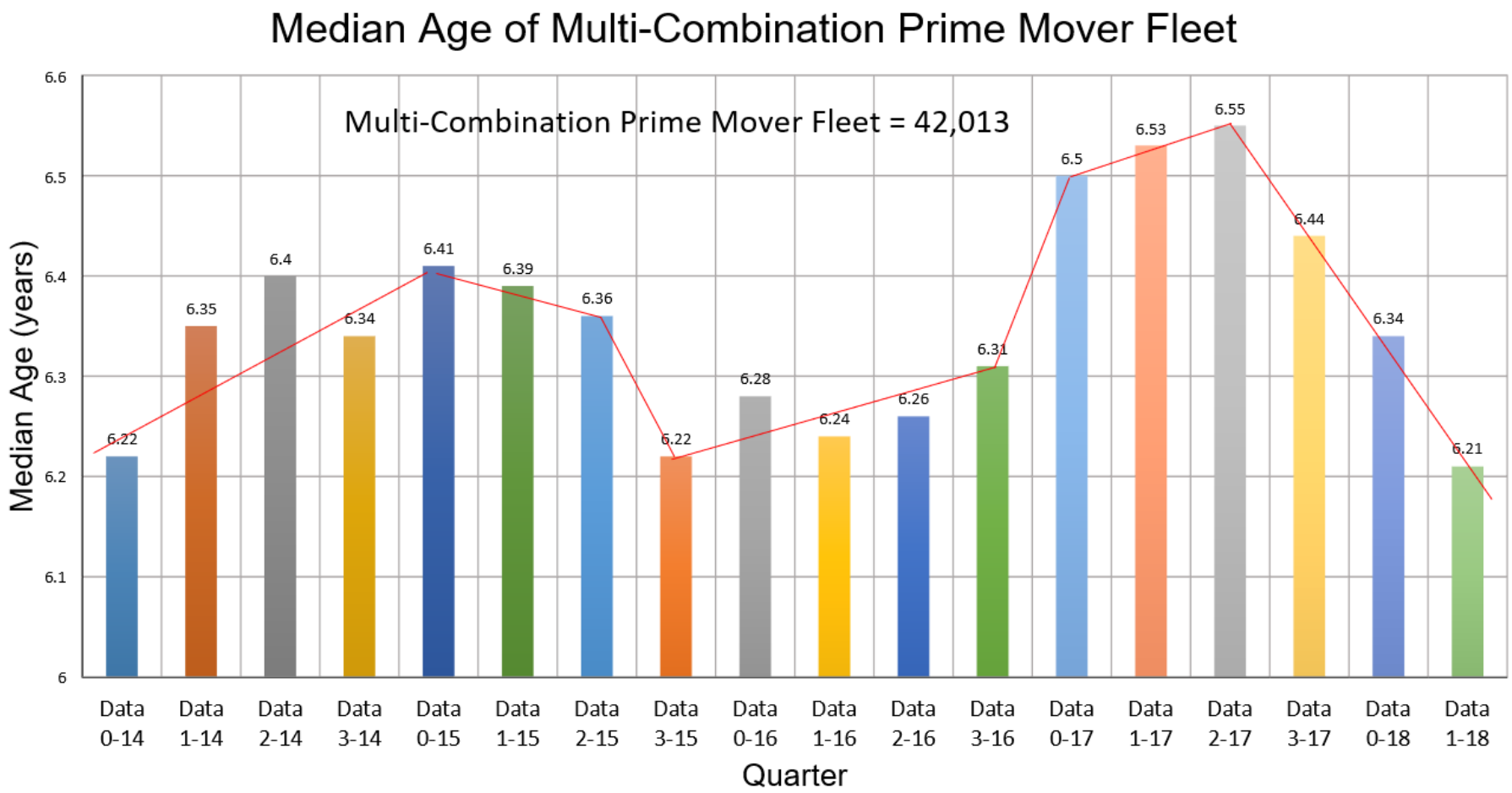
Median Age



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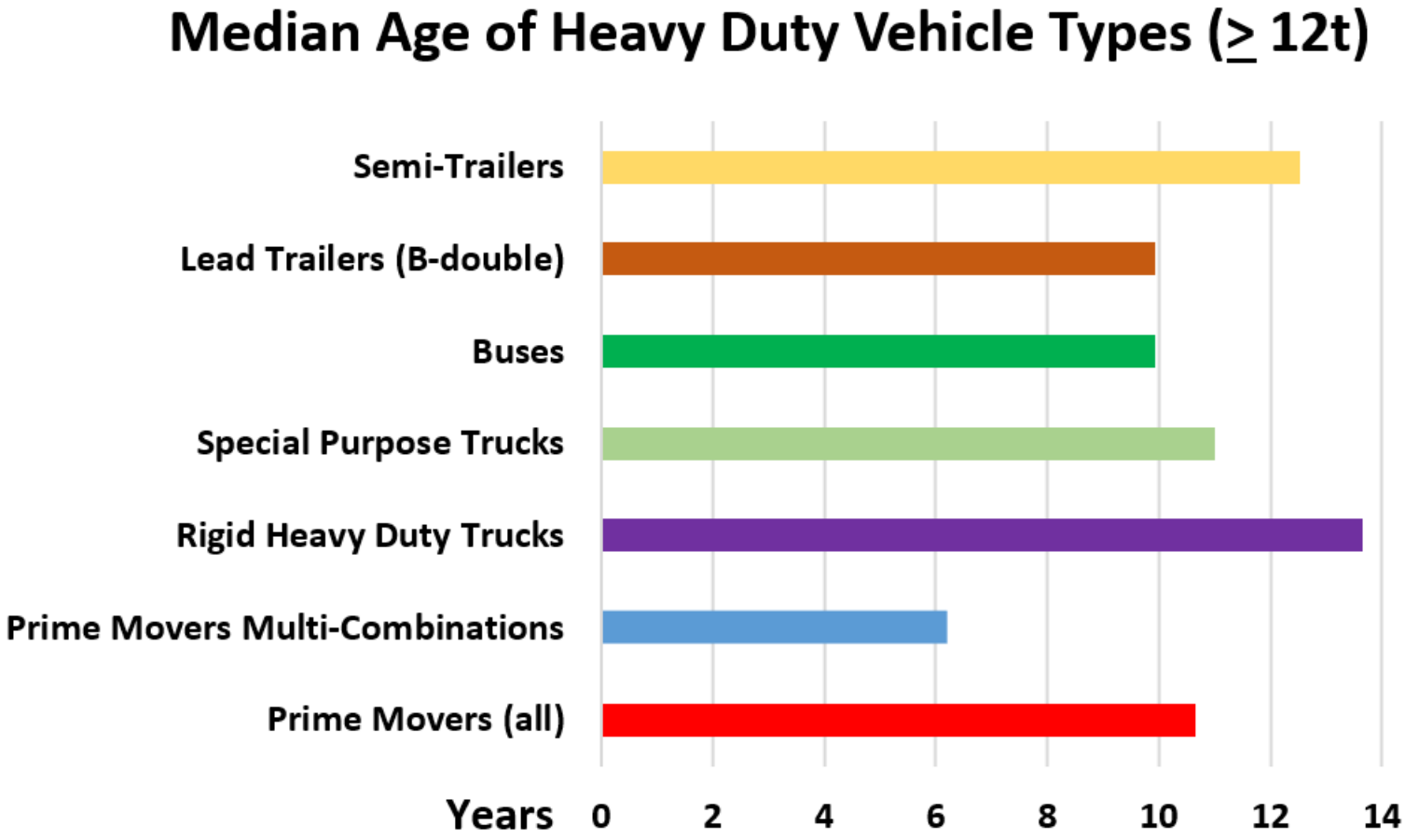
Median Age



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Age Ramifications

Older Vehicles:

- Do not have current safety features.
- Are less comfortable to travel in.
- Require a greater maintenance budget and / or have more roadworthiness challenges.
- Tend to produce more pollution and CO_2.

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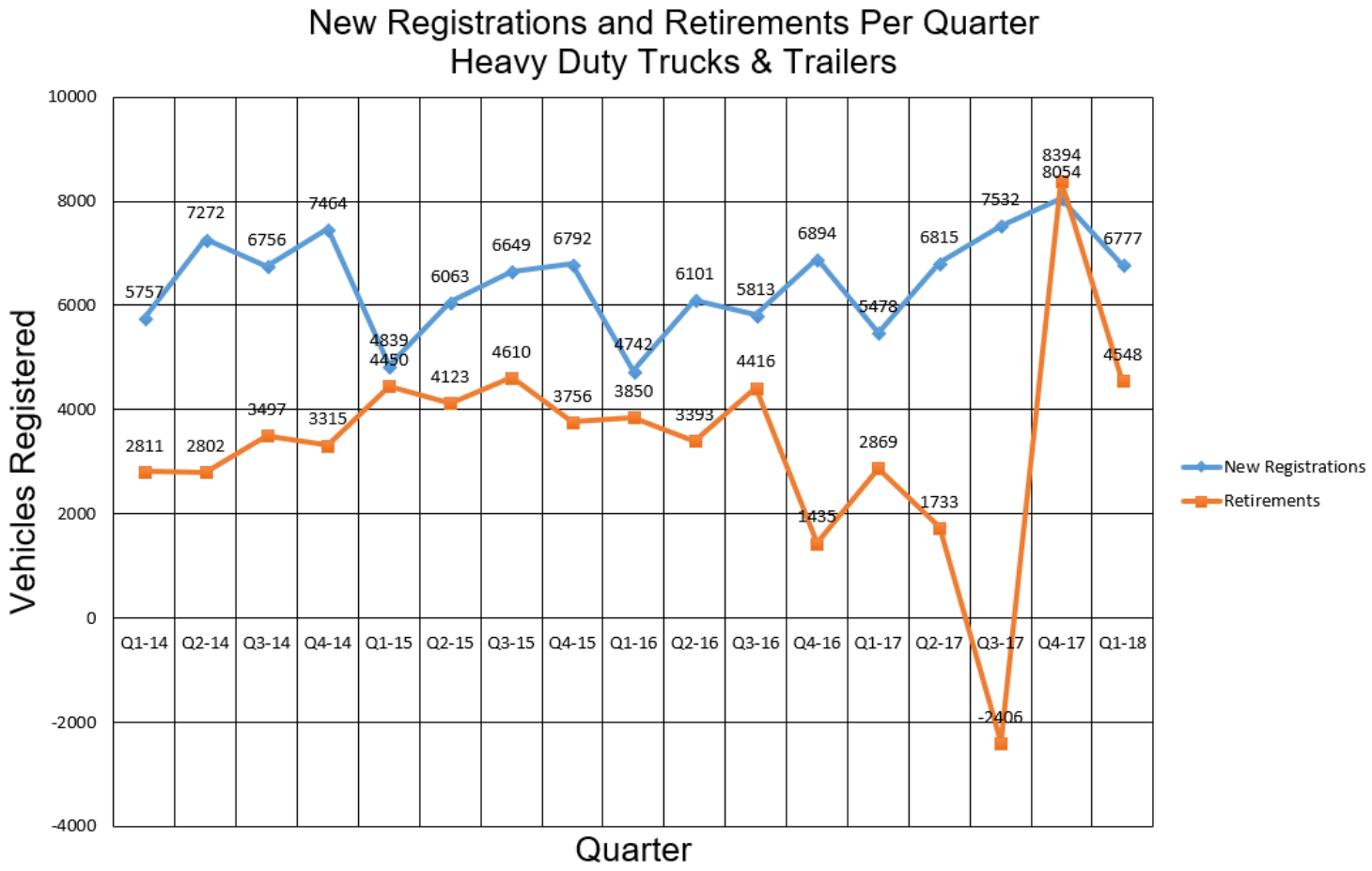
Quarterly Variations



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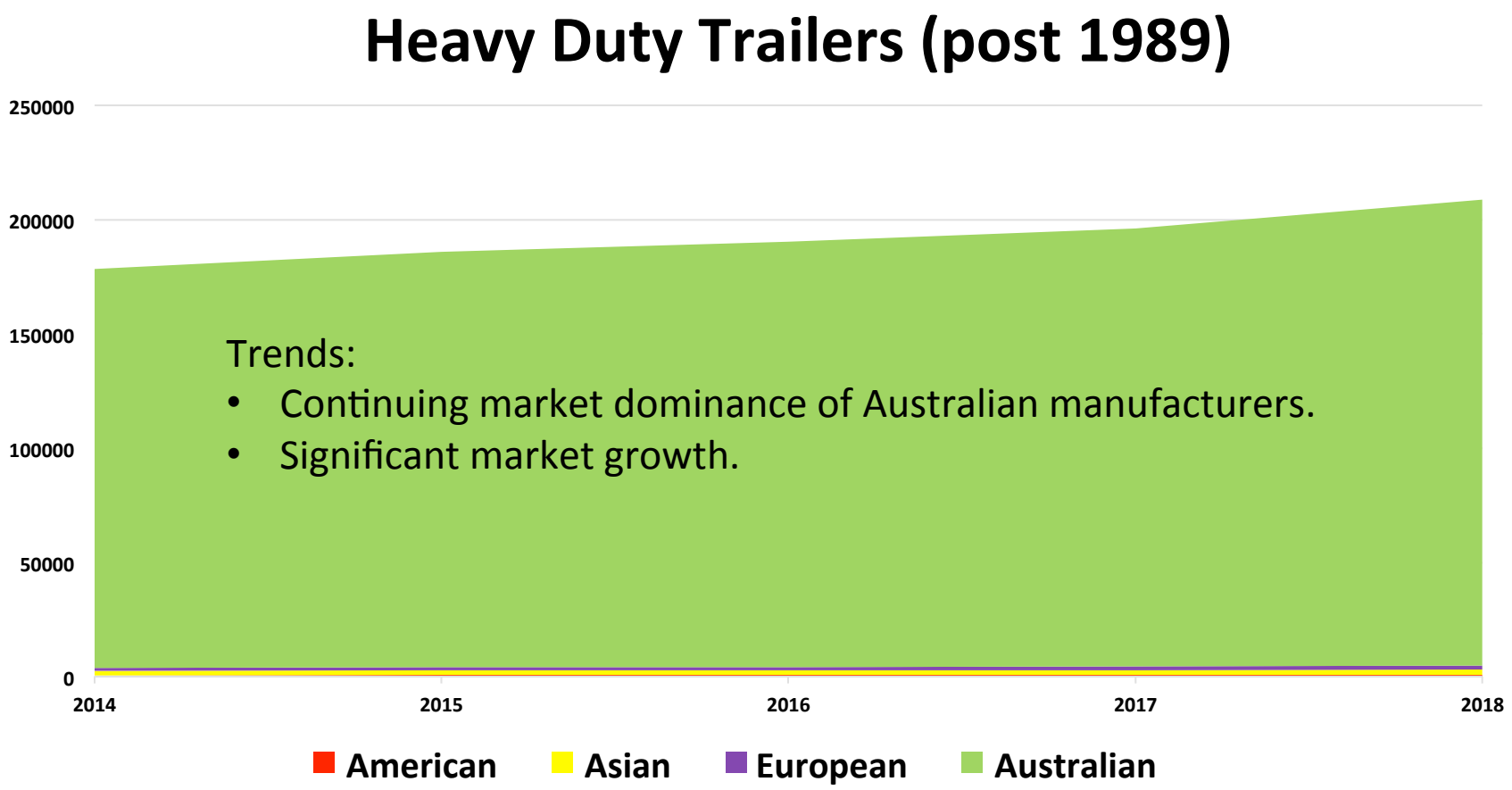
Continent of Origin



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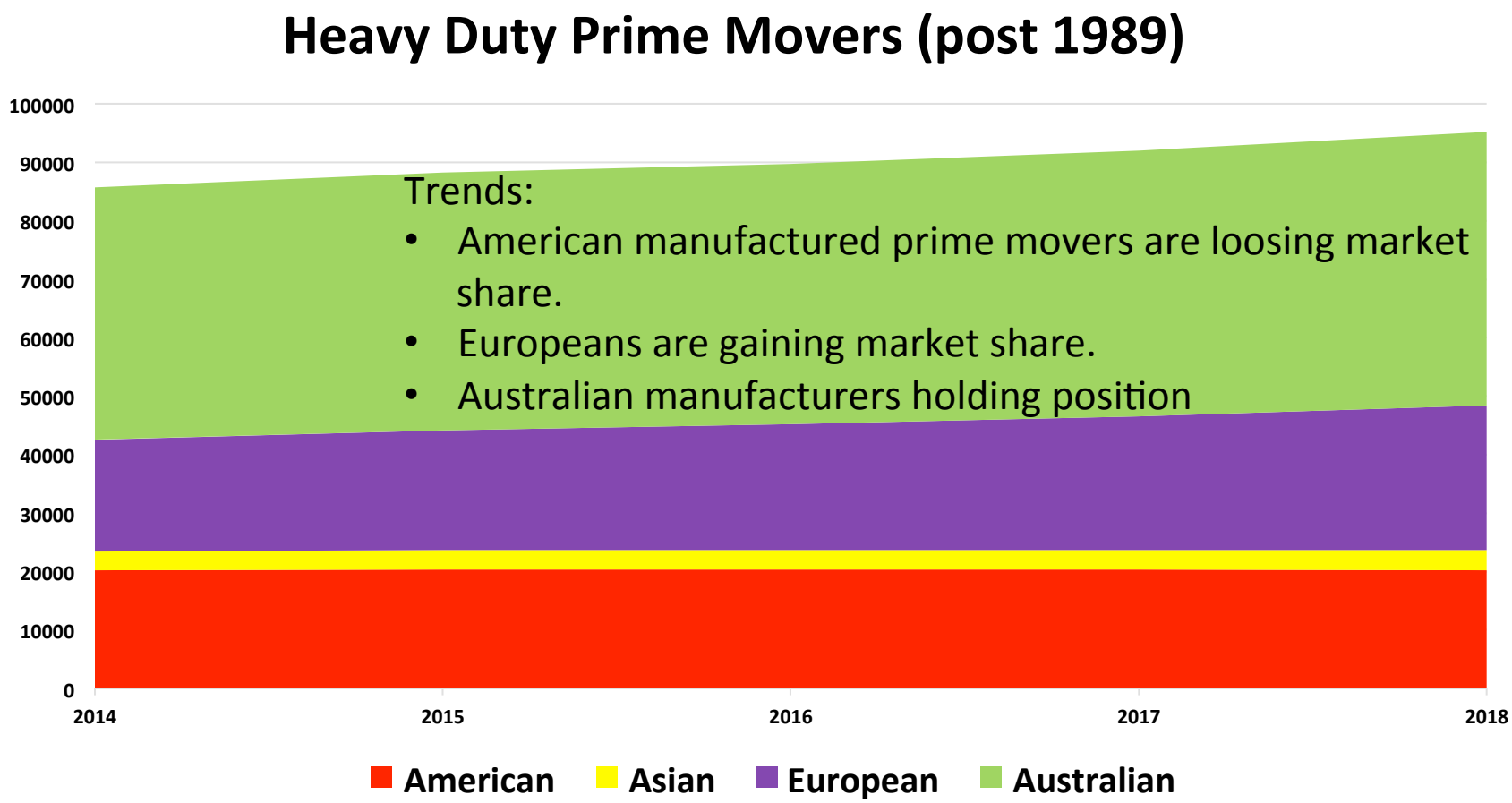

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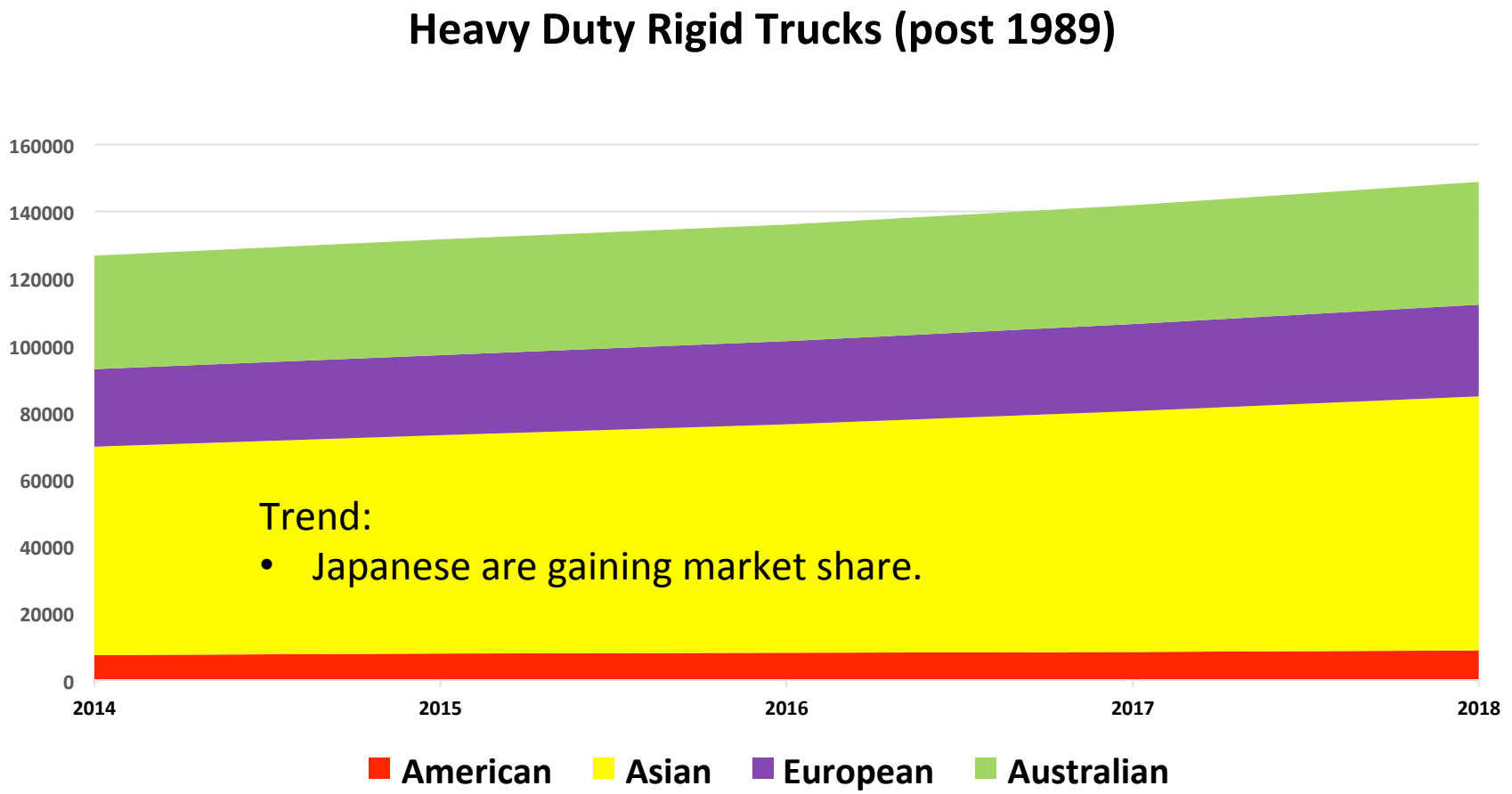

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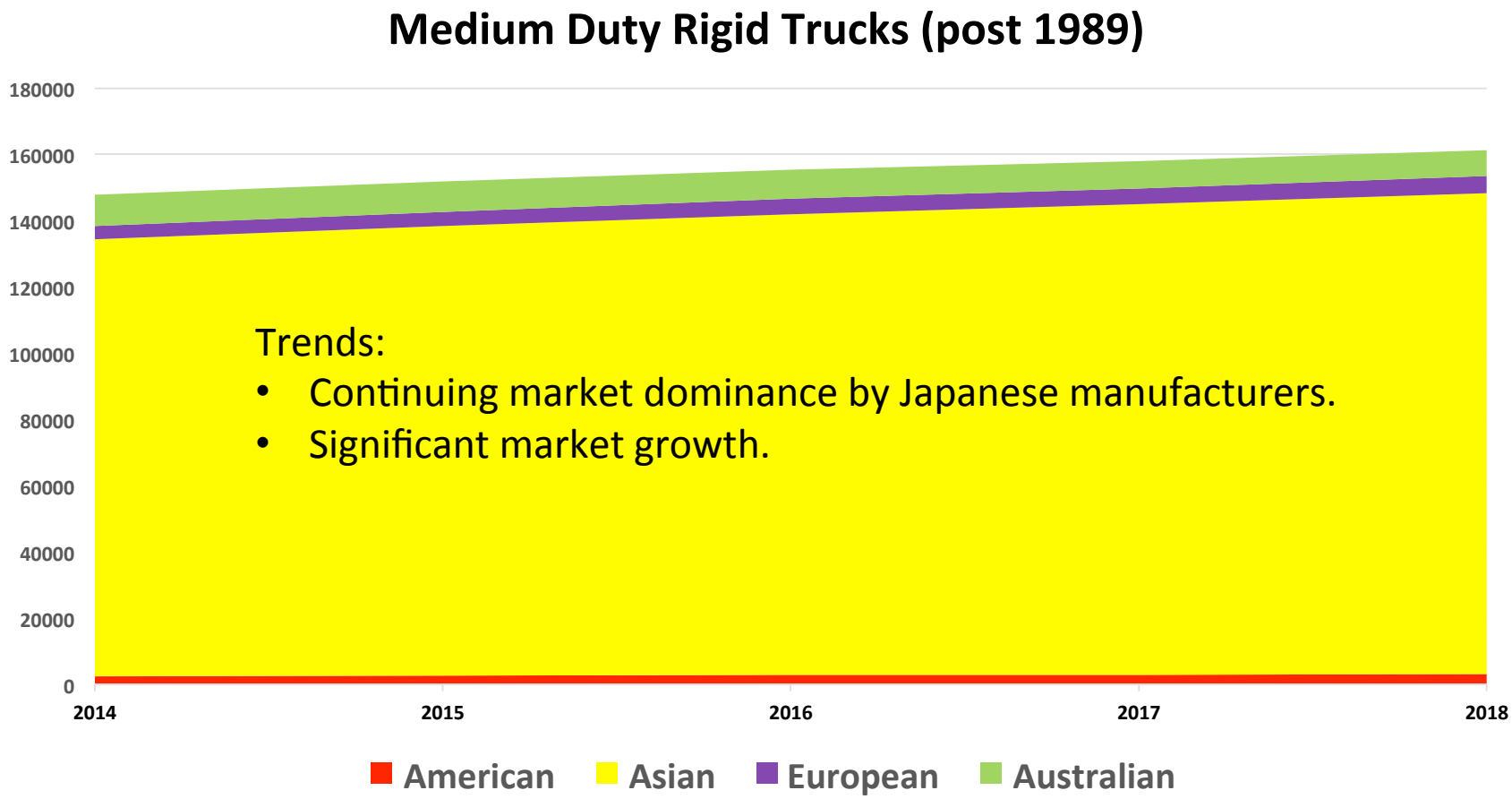

Trends:

- Continuing market dominance by Japanese manufacturers.
- Significant market growth.

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Australian Value Add

Australian Manufacturing Value Add 2017

Heavy Vehicles (≥4.5t)

Prime Movers	40 %	x $ 1.935B	=	$ 0.774 B
Heavy Duty Rigid Trucks	10%	x $ 1.276B	=	$ 0.128 B
Heavy Duty Rigid Truck Bodies	90%	x $ 0.302B	=	$ 0.272 B
Medium Duty Rigid Trucks	5%	x $ 0.745B	=	$ 0.373 B
Medium Duty Rigid Truck Bodies	90%	x $ 0.149B	=	$ 0.134 B
Trailers	90%	x $ 1.322B	=	$ 1.190 B
Heavy Omnibus	15%	x $ 0.624B	=	$ 0.094 B
Total Australian Value Add				$ 2.965B

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Purchase Factors

1. Customisation – satisfying sophisticated customer demands.
2. Safety Equipment of European trucks.
3. Satisfying Permit Requirements (PBS, low combinations).
4. Ride comfort.
5. Longevity.
6. Fuel economy.
7. Price.

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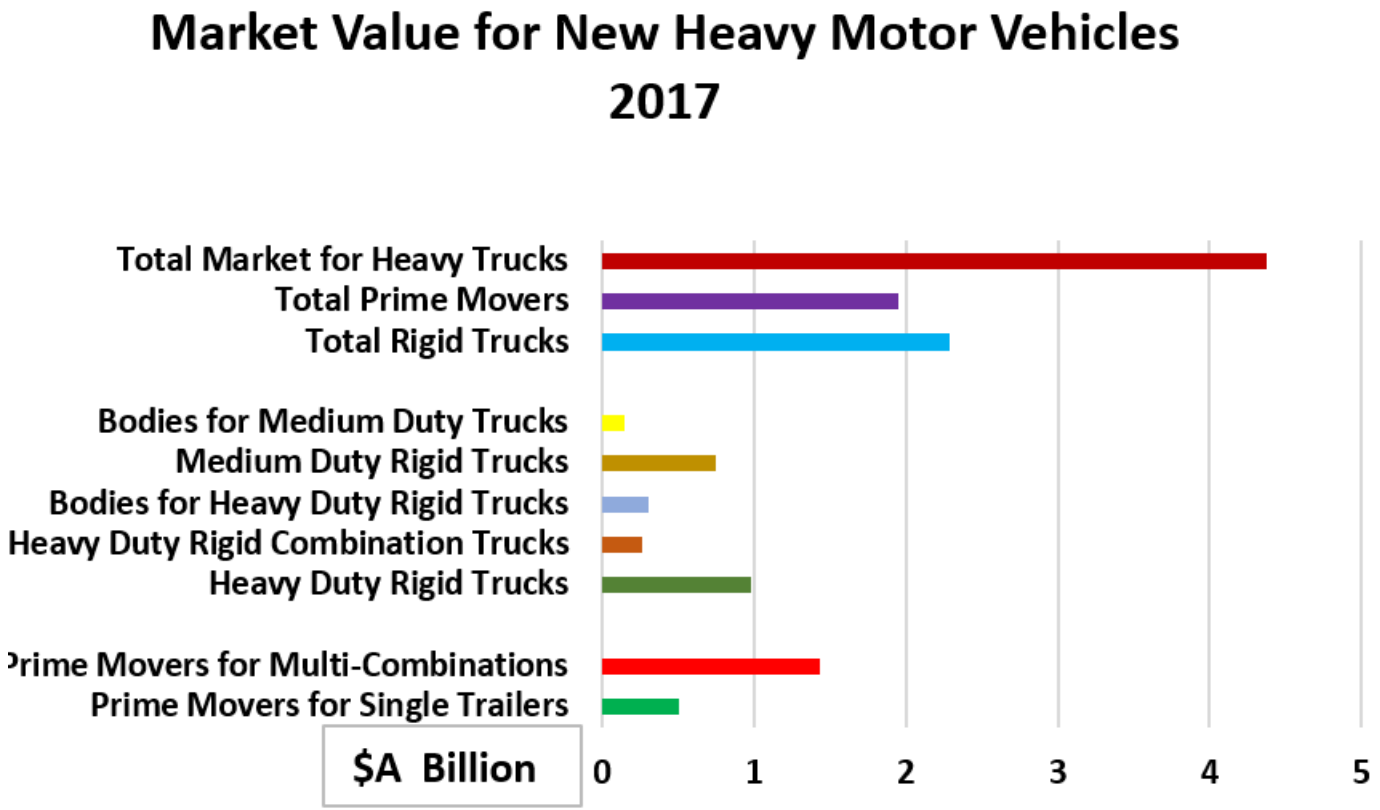
Value of the Market



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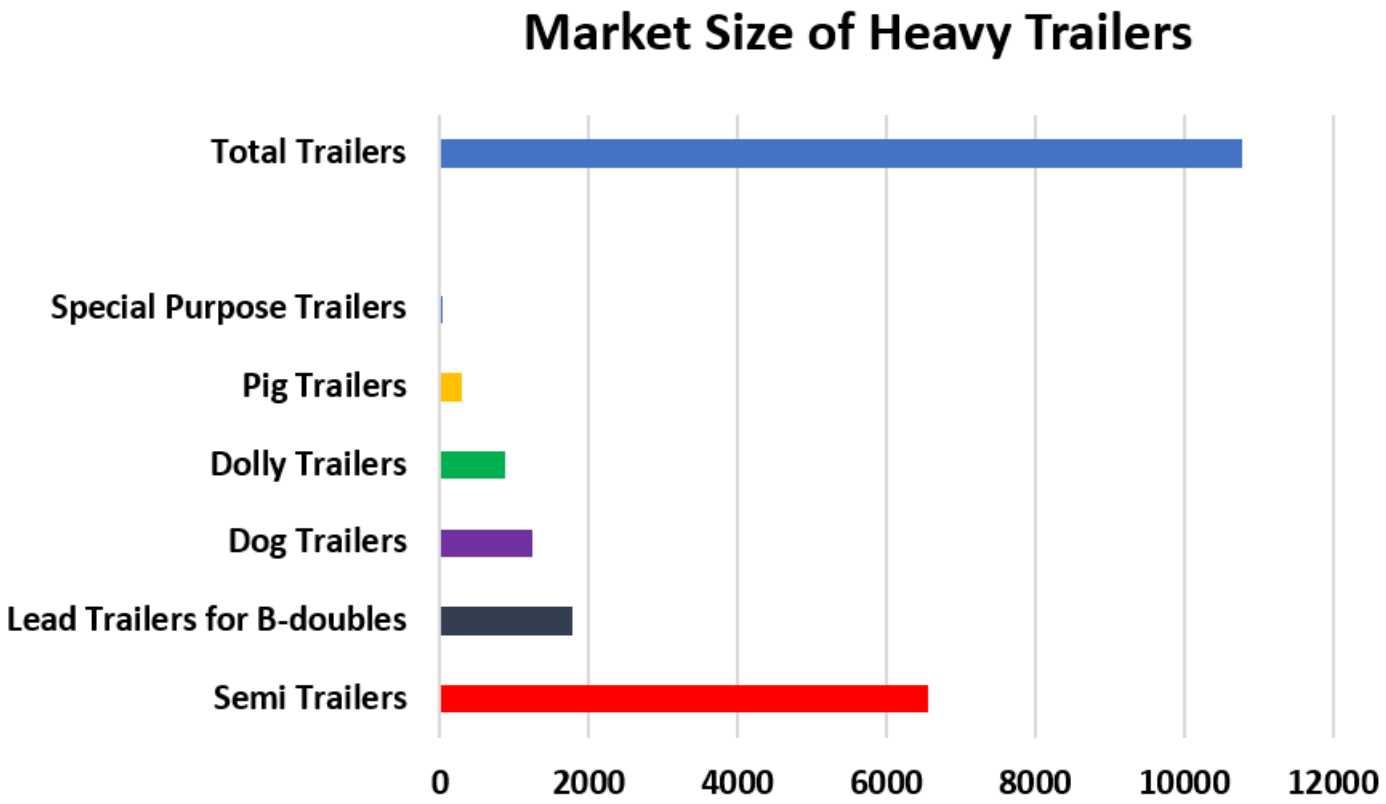
Value of the Market



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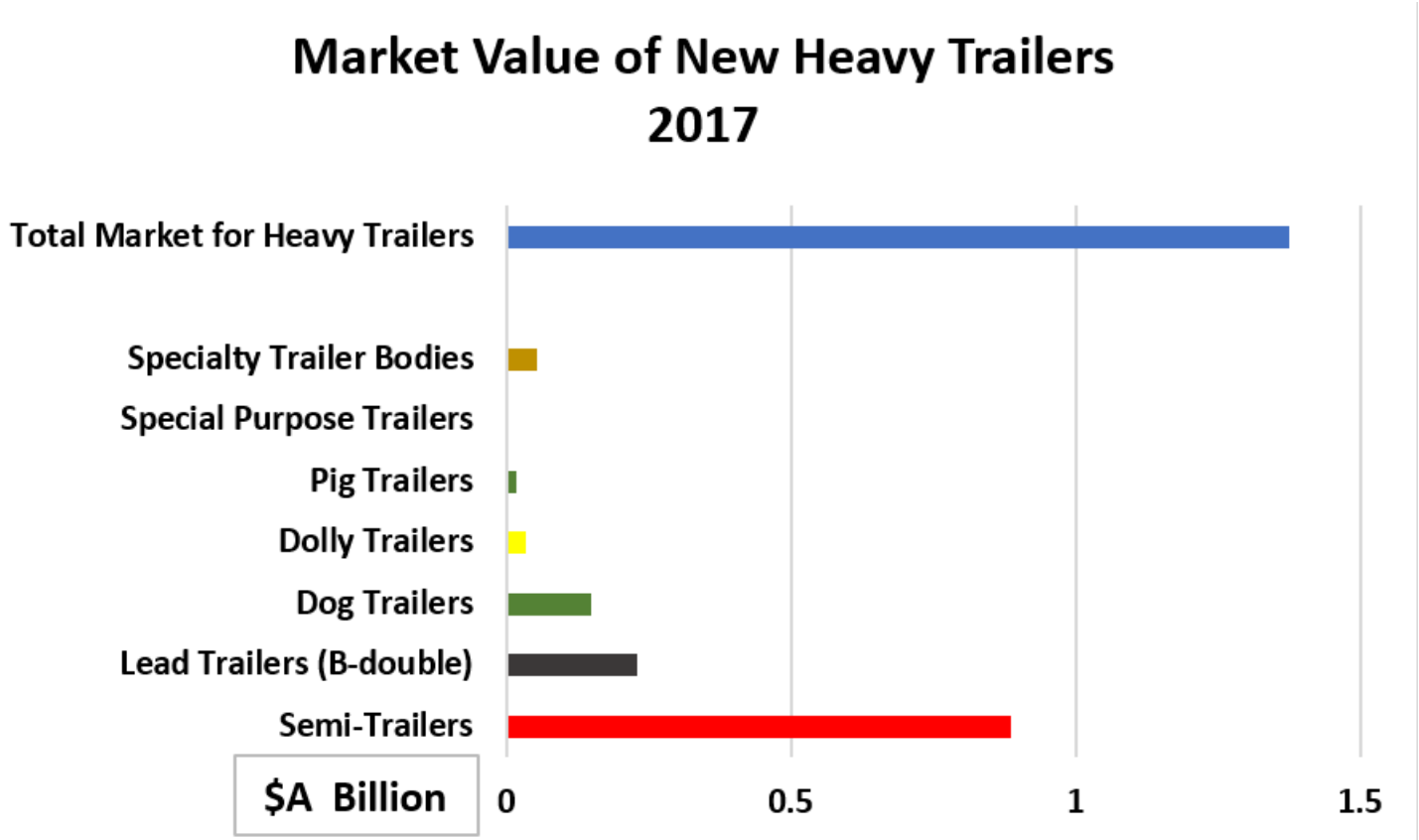
Value of the Market



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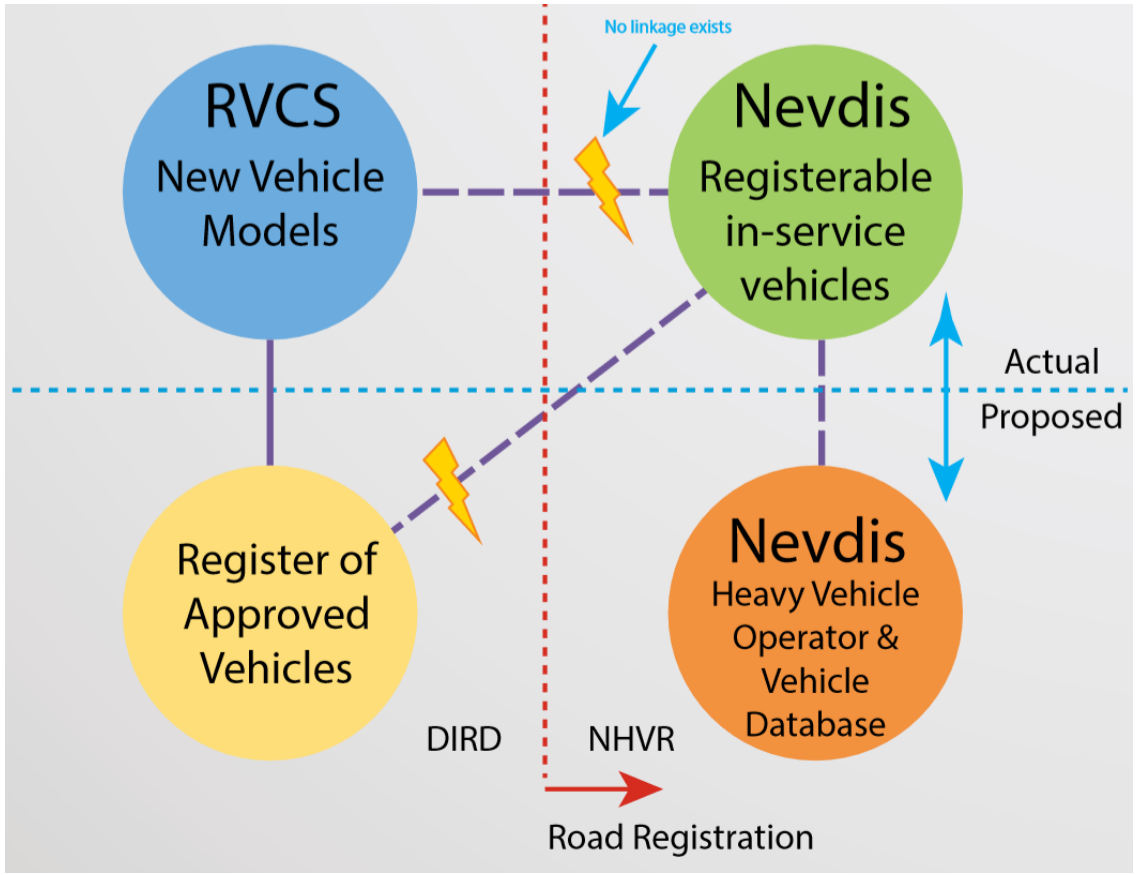
Government Databases



- Need to include approval data into the in-service databases

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Road Safety

Mona Vale 30 Sept 2012

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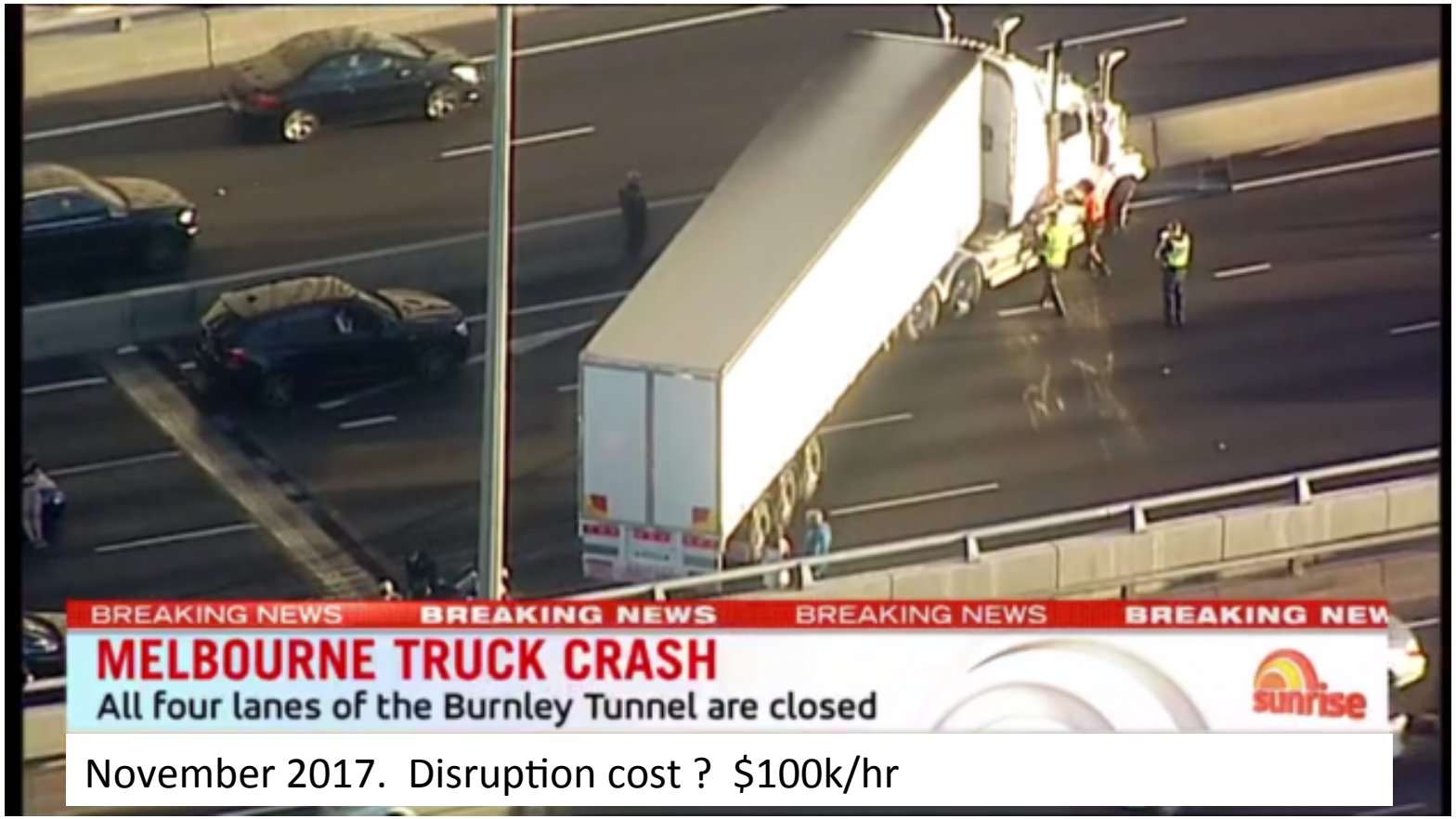
Road Safety



November 2017. Disruption cost ? $100k/hr

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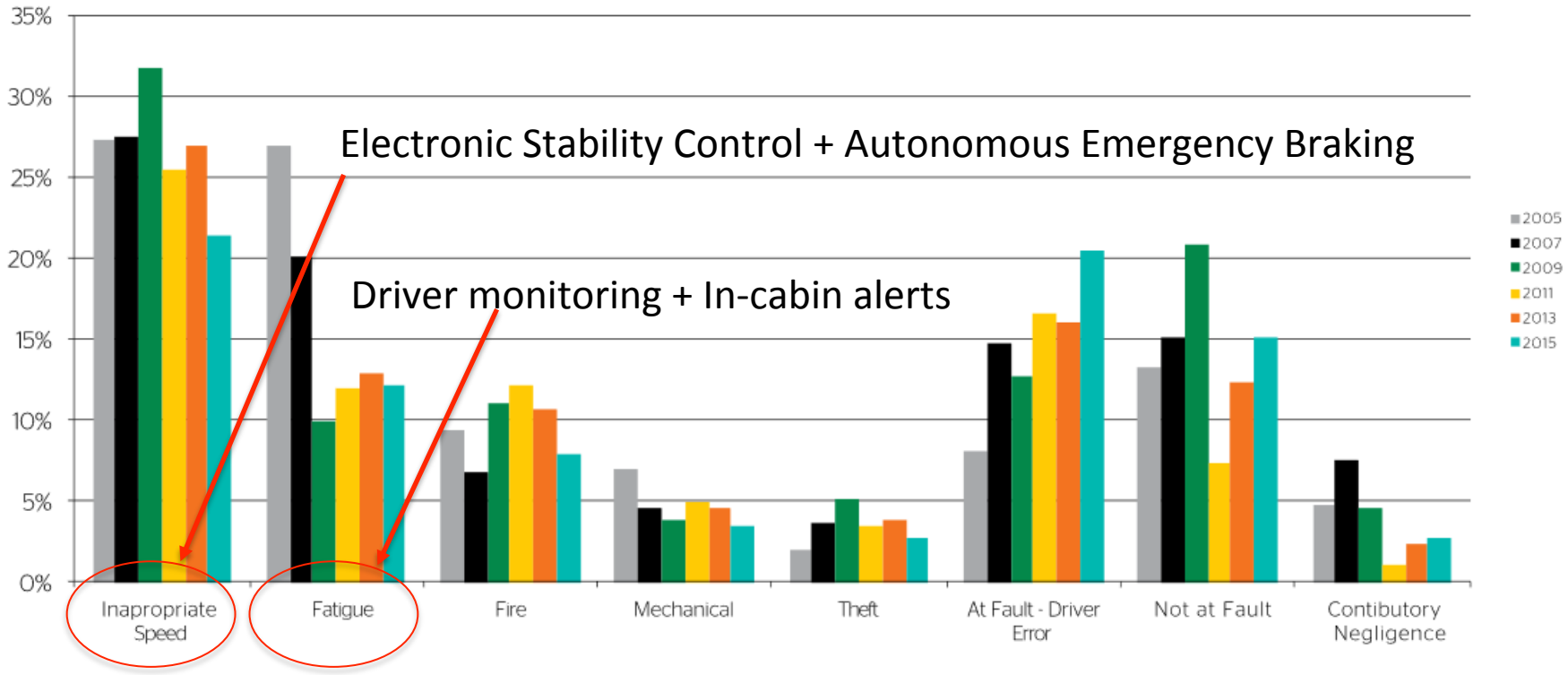
Road Trauma

Accident Cause - Investigation Pending

National Transport Insurers (NTI) causation assessments:



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Road Trauma

- The National Heavy Vehicle Braking Strategy envisaged mandating Electronic Stability Control (ESC) on new trucks and trailers by 2014. It will be 5 years late.

- A new approach is needed for justifying the case for mandated safety and driver assistance technologies.

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Driver Shortage

- Critical driver shortage
- Average driver age now 47 years.
- Increased use of 457 visa drivers  cultural issues.
- Need to increase training level and status of professional drivers.
- Need to provide comfortable cabins, safety features, stable trucks and LED headlights,…

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Fuel Economy Challenge

Australia's 2030 climate change target

Australia is taking a strong, credible and responsible commitment to the Paris climate change conference.

Australia's target—Australia will reduce emissions to 26–28 per cent on 2005 levels by 2030.

This target represents a 50–52 per cent reduction in emissions per capita and a 64–65 per cent reduction in the emissions intensity of the economy between 2005 and 2030.

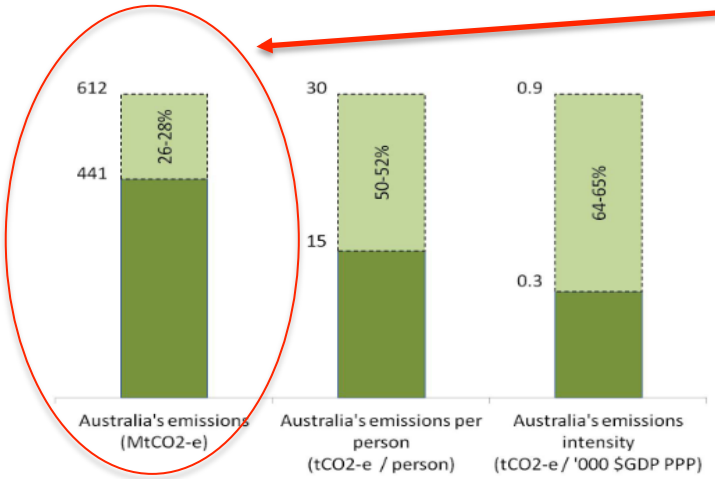

Figure 1. Australia's emissions reduction targets and achievements, 2005–2030.

Source: Department of the Environment analysis

A 26% reduction in fuel usage by our industrial is aspirational.

We have to do more than rely on HPVs.

We need innovation leaders.

We need industry association leaders.

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Greenhouse Gas Reduction

- New vehicles are better.
- High productivity vehicles are better.
- Hybrid drive technologies are promising.
- Aerodynamics has been largely ignored.
- Liftable axles are being used.
- Tyre pressure inflation systems are underutilised.
- …innovation is happening, particularly in the USA.
- An Australian ‘Smartway’ scheme is needed as exists in the USA.

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My Recommendations

1. A Council of 'Road Freight' Industry Associations should be established.

It should seek to co-ordinate:

- representations to government,
- training and education activities,
- explain the industry to the community,
- major useful projects
- demonstration projects involving new technologies,
- …..

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My Recommendations

2 A HV Safety Incident Institute is urgently needed. This could reside inside the NHVR or outside it.

- It should have government and industry participants.
- It should collect statistics about HV road trauma and industrial safety using both government and industry data.
- It should investigate causation.
- It should develop change proposals.
- It could fund demonstration projects.

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My Recommendations

3 An Australian 'Smartway Scheme' is urgently needed.

- It should be established and run by industry associations.
- It should be to benchmark fuel economy performance and quantify greenhouse gas emissions.
- It should accredit the fuel efficiency performance of participating fleets.
- It should co-ordinate / fund demonstration projects

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My Recommendations

4 A Co-Operative Research Centre (CRC) is needed for heavy vehicle engineering performance. It would:

- stimulate innovation in Australian heavy-vehicle design and manufacturing.
- co-ordinate / stimulate university and industry research into heavy vehicle performance.
- encourage and train engineers, scientists, ergonomists, in HV engineering.
- build on Australia's international reputation as a leading road transport country.