SINGAPORE 2019

26th ITS World Congress
21–25 October

Smart Mobility, Empowering Cities

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SINGAPORE 2019

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Performance Based Standards (PBS) and Intelligent Access Program (IAP), benefit of implementation and lessons learned

Transforming Freight Movements through ITS – Part I (SIS25)

Les Bruzsa

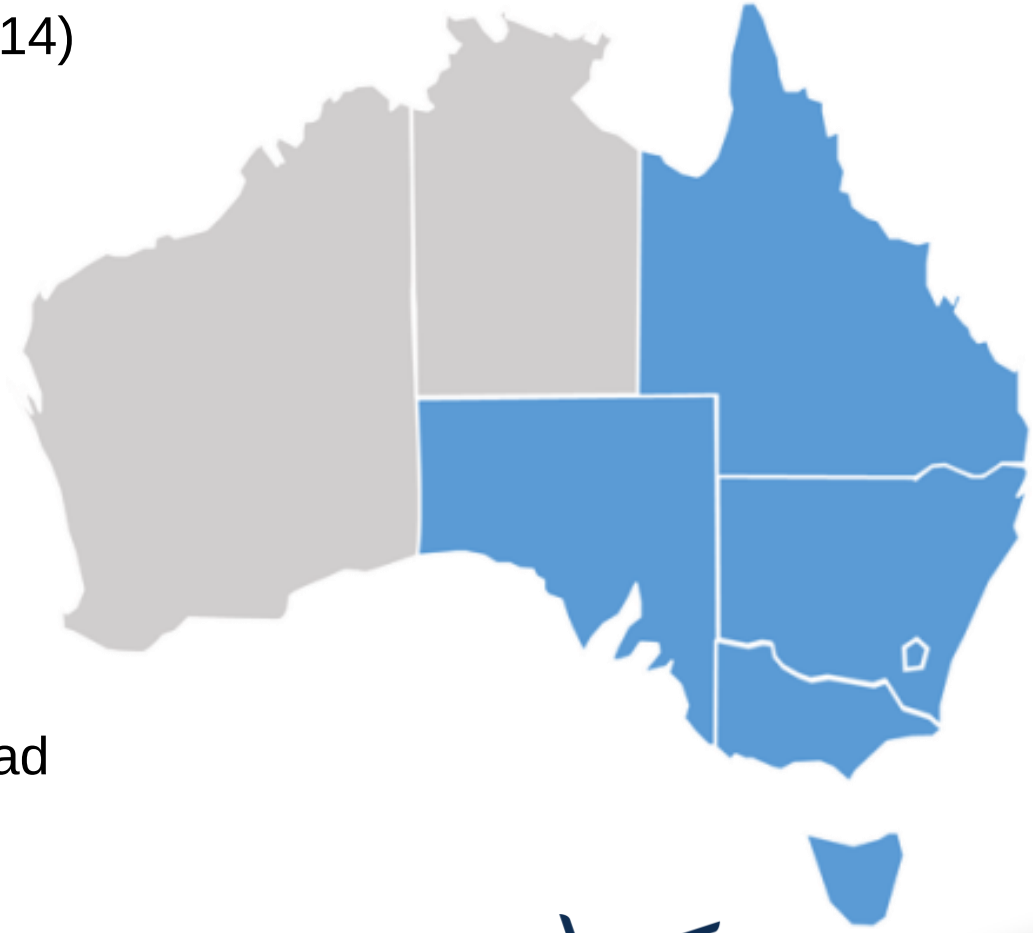
National Heavy Vehicle Regulator

NHVR
National Heavy Vehicle Regulator

National Heavy Vehicle Regulator (NHVR)

Australia's dedicated regulator for all vehicles over 4.5 tonnes gross vehicle mass

- Administer the Heavy Vehicle National Law (HVNL, 2014)
  - Harmonise laws and policies
  - Vehicle Standards
  - Performance Based Standards (PBS)
  - Access
  - Compliance and enforcement
  - Accreditation (Mass, Maintenance, Fatigue, EWD)
- Improve public and heavy vehicle safety
- Promote industry productivity & efficiency
- Manage impacts of heavy vehicles on environment, road infrastructure and public amenity



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Heavy vehicle industry

165,000 heavy vehicle supply chain businesses

65,000 access permits

810,000 kms public roads

Freight task is set to increase by 25% in the next decades

Managing access through more than 450 road managers

550,000 heavy vehicles

$48 billion freight industry

More than 40,000 transport businesses

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What is PBS? What is Intelligent Access Program?

Performance Based Standards (PBS)

- PBS – the alternative regulatory system
  - Making road transport more innovative, efficient and safe
  - Greater national uniformity and consistency
  - Moving away from a “one size fits all” approach
- 16 safety and 4 infrastructure standards that reflect various aspects of vehicle performance
- A performance-based standard is a performance measure together with a pass/fail criterion

Telematics

- Telematics in a transport context broadly refers to technologies that collect, store and **transfer information to and from vehicles**
- Telematics applications can be used to:
  - monitor vehicles and infrastructure
  - provide navigational and other information to vehicles
  - enable connected and cooperative vehicles
  - enable automated and autonomous vehicles
- There are more than 43,000 vehicles that are fitted with telematics technology while 5,700 vehicles enrolled in IAP in Australia

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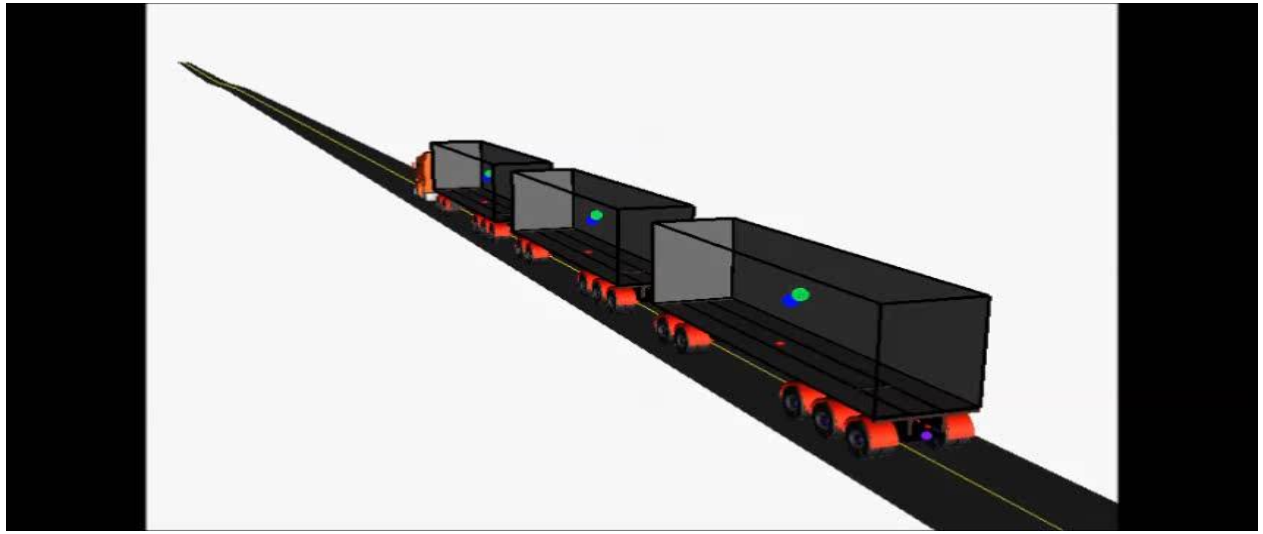
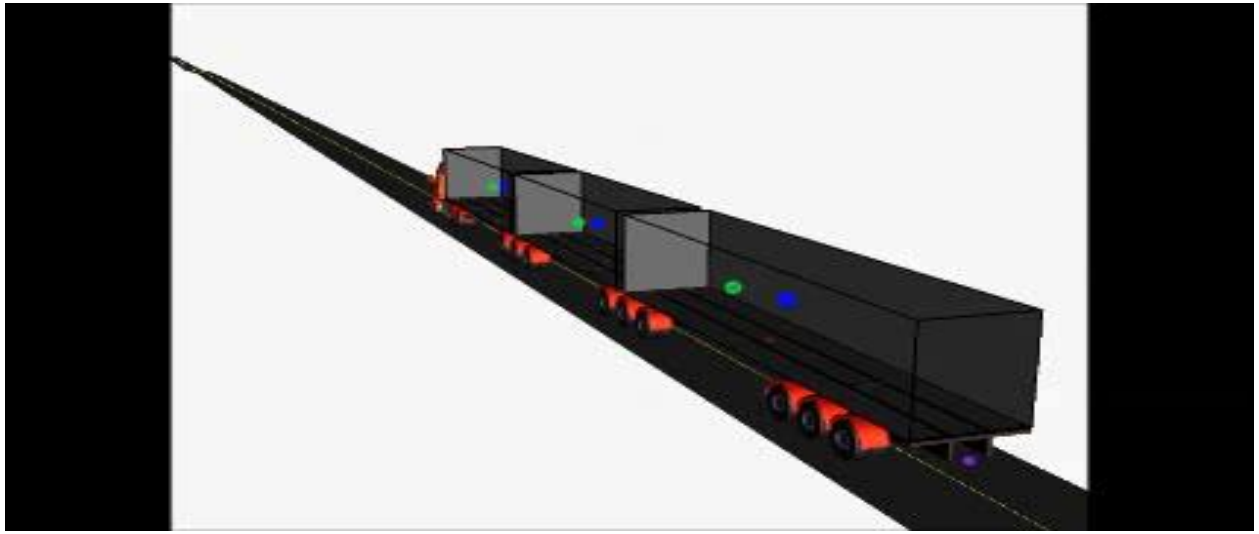
Improved dynamic performance

49m long prescriptive A-triple



42m long PBS B-triple



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Documented examples

- **Productivity benefits range from 15-30%** compared to conventional vehicles (100% for some specific freight tasks)
- **PBS sugarcane combination** (21.8m vs 19m long)
  - 31% reduction of trip numbers
  - Reduces potential public traffic interaction at entry and exit by 51,000 events (30% reduction)
  - Provides significant economic gain to the viability of the sugar industry
- **PBS A-doubles** (30m long vs 26m long B-double)
  - 27% increase in freight movements in Port of Brisbane
  - Only a 16% increase in truck numbers
  - Overall decrease in truck trips per TEU container

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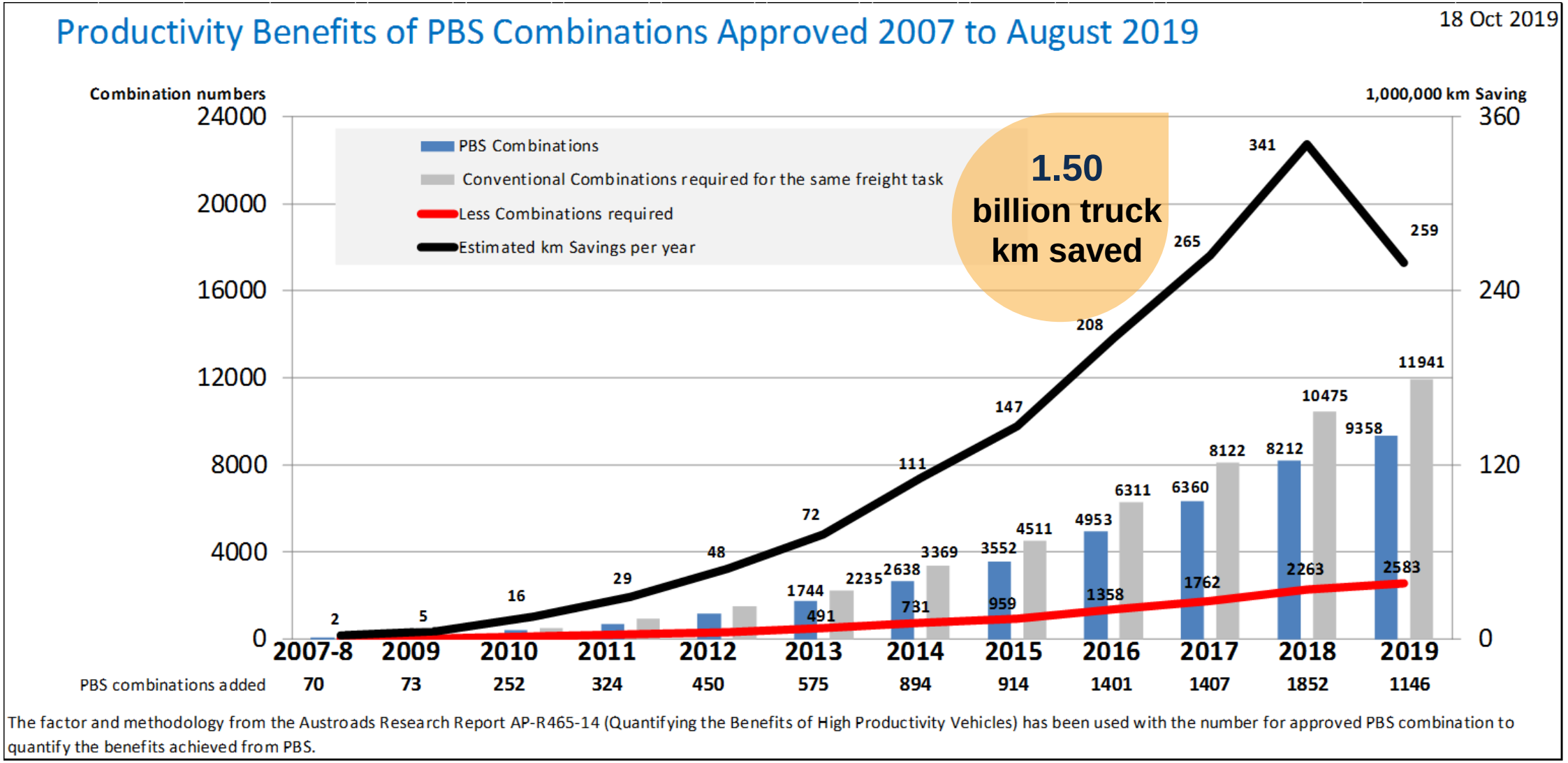
PBS productivity benefits



The factor and methodology from the Austroads Research Report AP-R465-14 (Quantifying the Benefits of High Productivity Vehicles) has been used with the number for approved PBS combination to quantify the benefits achieved from PBS.

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About technology and telematics

- Telematics technology enables road mangers to set access conditions for heavy vehicles, monitor the asset usage of heavy vehicles and, where necessary, enforce vehicle compliance with access conditions
- **The Heavy Vehicle National Law permits telematics information** to be used for public policy research purposes provided that information that could identify any transport operator or vehicle enrolled is not disclosed
- New technology applications are being deployed – both certified and non-certified
- Different providers offer different levels of assurance
- On Board Mass (OBM) – dynamically measuring axle group masses (TCA Type approved)

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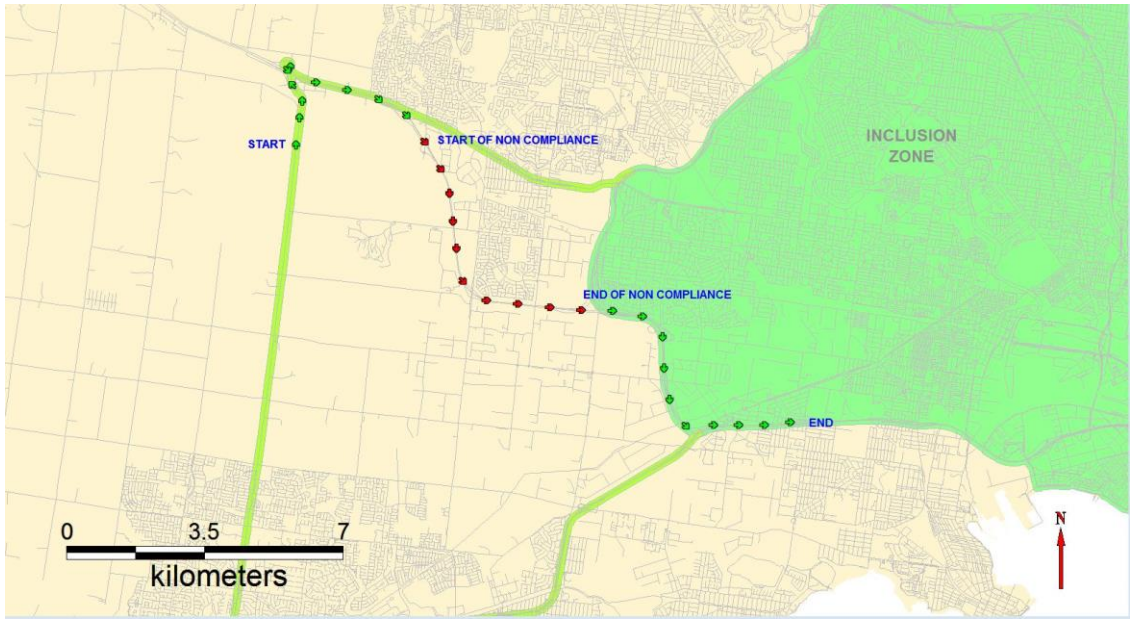
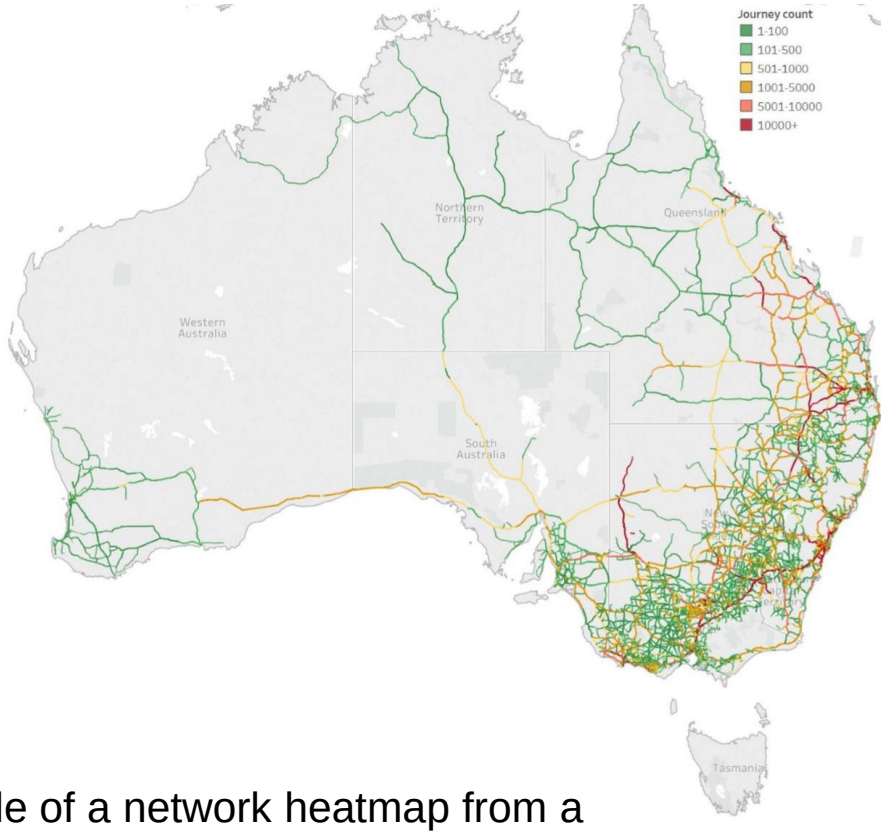
Evolution of the IAP

From *the right truck on the right road*…..



Example of a Non-Compliance Report from a vehicle in the IAP

To *which truck on which roads*….



Example of a network heatmap from a large number of monitored vehicles

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IAP: Lessons learnt

- Telematics has allowed road infrastructure managers to grant access to higher productivity vehicles
- Telematics has changed the way how risk is managed…by providing infrastructure managers into vehicle movements that are not otherwise possible
- For infrastructure managers, gaining visibility across a greater population of heavy vehicles (not just higher productivity vehicles) has led to evolutions in way how telematics is used across the heavy vehicle fleet
- Different technology providers deliver performance outcomes in different ways
- Just as technology has continued to advance, so has the IAP
- And costs have continued to fall, making telematics systems more accessible to a wider selection of heavy vehicle operators

PBS benefits

46% less major crashes per km travelled

1.5b truck km saved (2008-2019 Sept)

9503 PBS combinations 2583 combination “saved”

259m truck km saved in 2019

2.04m tonnes of CO2 saved (2008-2019)

Reduced number of trips can lead to reduced road maintenance

744m litres of fuel saved (2008-2019)

20% of new units were PBS approved in 2018

350,000t of CO2 saved in 2019

PBS: Lessons learnt

- Matching the right vehicles to the right roads
- The most progressive heavy vehicle design scheme around the world
- World's first – only introduced into Australia – has already delivered significant benefits
- Regulatory response for the demand of more sustainable and environmentally friendly transport systems
- Consistency in heavy vehicle regulation is needed (both national and international)
- Community expectations must be addressed
- Dealing with the need for increased access to data
- Technically very complex – lack of knowledge

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