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What are the safety benefits of Australian high productivity vehicles when compared to the conventional heavy vehicle fleet?

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Abstract

The introduction of High Productivity Vehicles (HPVs) began in Australia from 1999. Since then, the question of actual safety performance was examined in 2013/2014. To develop safety metrics for HPVs major accident benchmarks for the conventional truck fleet were established. This was a major step in national safety research. The second step examined the accident histories of the Australian HPV fleet and compared these to the conventional fleet benchmarks. An operator survey was conducted to establish HPV crash histories, which were compared to private insurance data and conventional truck accident rates. The results for the HPV fleet showed significant accident savings.

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1. Introduction

The Performance Based Standards (PBS) concept was a freight productivity initiative of the National Road Transport Commission (NRTC) in 1999. (See NRTC 1999a and 1999b). In 2001, the Australian Transport Council (ATC, 2001) agreed to adopt the Performance Based Standards (PBS) as a new initiative. Later in 2006 the Council of Australian Governments (COAG) endorsed this productivity initiative once the operational vehicle performance standards were finalized. Since that time, PBS vehicles have operated on State approved networks and they have already brought significant benefits to operators and customers nationally.

However, from a safety perspective there were no quantifiable assessment of safety benefits from the adoption of High Productivity Vehicles (HPVs) that had been approved through the PBS regulatory process. Up until 2014 the only safety benefits were estimated through modelled kilometre savings brought about by the kilometre savings of HPV/PBS vehicles. (NTC, 2010)

2. A Lack of Higher Productivity Vehicle Accident Data In Australia

Up until the Austroads 2014 study, there were no national safety statistics for HPV accidents or incidents that were reliably recorded. At the national level, the Bureau of Infrastructure Transport and Regional Economics' (BITRE) Safety Statistics Unit, records truck fatality data by articulated trucks, rigid trucks and buses, but there is no identifier to indicate any truck as being a HPV. State police accident reports on vehicle/truck accidents itemize some sixty information descriptors relating to the accident. Again, however, none of these descriptors identify High Productivity Vehicles or even vehicles using, fatigue management schemes or any of the National Heavy Vehicle Accreditation Scheme modules such as mass or maintenance management.

2.1. A Lack of Higher Productivity Vehicle Operational Data in Australia

There are, however, some specialist heavy vehicle data sets available in Australia. The Australian Bureau of Statistics (ABS) collects significant truck and freight information through the national Survey of Motor Vehicle Use, (SMVU) which is now conducted every two years. The 41 special, commercial vehicle, data cubes, contain very good conventional vehicle data, such as:

- general vehicle/truck type (30 types)
- numbers of vehicles by type by State
- areas of operation within State and interstate regions
- total kilometres performed by areas of operation by vehicle type,
- major commodities carried, and
- vehicle operations differentiated by 'for hire' and 'other' operators

These ABS data sets, which are public domain, although expensive, do not allow extraction of any HPV data. For example:

- Super B-Doubles and conventional B-Doubles cannot be distinguished
- B-Triples cannot be separated from the Triple Road Train group,
- HPV A-Doubles cannot be distinguished from Type I (double) road trains,
- conventional truck and 3 and 4 axle dog trailers cannot be separated from HPV truck and 3 axle or 4 axle dog trailers,
- trucks with 5 or 6 axle dog trailers are not shown in the survey, and
- quad-trailer combinations are not part of the ABS survey.

From an operational perspective the detailed ABS data cubes, do not enlighten regulators or analysts into the operational performance of HPVs within Australia, although these data sets are an invaluable source of data for national road use pricing models.

The only reliable HPV data, however, comes from the individual operator applications for PBS/HPV permits to the regulatory authorities. From these applications the following data can be found:

- vehicle configuration considered for HPV approval,
- number of vehicles pertaining to the application,
- operator details,
- commodities carried, and the
- State/area/network of operation.

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