THE ROLE OF ITS DATA IN REGULATION AND ENFORCEMENT

THE PRESENTER

Name: Paul Hayes.
Role: Compliance Technology Manager (Roads and Maritime Services)
- Engineering Background.
- 23 Years With RMS in all areas of ICT infrastructure design specification and development.
- Manual and Automated Tolling (Sydney Harbour Bridge, Tunnel and Eastern Distributor development).
- Electronic Tolling Development (Bridge and Tunnel).
- VMS development (Olympic Park).
- Regulatory System Development and Support (NSW).
CURRENT RESPONSIBILITIES

Responsible for all ICT based Regulatory and Enforcement Systems in NSW, Which Includes:

- Speed Enforcement Systems.
- Environmental Enforcement Systems.
- Intersection Enforcement Systems.
- Heavy Vehicle Regulatory Systems.
- Bus and Transit Lane Priority Enforcement.
- Network Regulatory Systems (Vehicle Height and Length).
- Environmental Monitoring (VEES) M5 East.

CURRENT ICT BASED DATA NETWORK.

ANPR based detection Systems:

- 44 Point to Point detection Locations.
- 27 Safe T Cam.
- Enforcement Cameras.
- Bus Priority Monitoring (ANPR).
- 5 HV Inspection Stations with Various ICT assets WIM, Height, Inspection facilities, ANPR and vehicle classification facilities.
- All fitted with co-located Infrared Traffic Loggers some with Weigh in motion systems geographically dispersed through the state associated with the highest road safety problems.
Vehicle data must be collected, reviewed, analysed and diversion discussions made within 2 seconds for the system to work effectively.

Located in remote inspection locations.
DATA COLLECTION

Detailed Vehicle profile data collected dynamically in screening lanes.

Compliance information and prioritised interception.

BRAKE TESTING FACILITIES
WEIGH-BRIDGE FACILITIES

CURRENT DATA ANALYSIS SYSTEMS

TRUCK-SCAN
  • Key source of intelligence in relation to HV compliance for all passing heavy vehicles.
  • Sophisticated risk analysis based on fatigue, speed, mechanical breach records and live axle weight compliance analysis.

TRAFFIC FLOW ANALYSIS
  • Time Synchronised records from all sources with high resolutions required by regulatory or evidential systems.
  • ANPR data and Synchronised vehicle profile information now allow a clear “Fingerprints” to be taken of passing vehicles.
MOTIVATION FOR ANALYSIS

The Tragic death of the Logan family at Menangle Bridge, prompted a change in the approach of both the NSW Police Force and Roads and Maritime Services to the investigation of Heavy Vehicle Compliance Issues.

All RMS resources and collected data were re-examined to assist in the prioritised investigation of Heavy Vehicle Compliance. The Analysis gives an up to date snapshot of heavy vehicle and organisational compliance to minimise the risk of the repetition of similar tragedies.

FATAL TRUCK CRASHES 2012

Heavy trucks

Represented only 1.8% of registered motor vehicles in NSW (RMS June 2012)

Accounted for 7% of all motor vehicle travel in NSW (ABS SMVU 2012)

Crashes involving heavy trucks accounted for 17% of all fatalities on NSW roads in 2008, 15% in 2009, 18% in 2010, 17% in 2011 and 20% in 2012

Fatal crashes involving a heavy truck in NSW, 2012
Organisations responsible for vehicle movement data must take positive steps to prevent a breach of the road transport mass, dimension, loading and work hours laws using incentives, training and if necessary, sanctions.

If non compliance of operators or individual drivers are identified, the companies themselves have a responsibility to demonstrate how they have attempted to address the issues raised by that data.

Otherwise, they take on the direct responsibility for any implications of that failure to manage the behaviour the data identified.

This is not restricted to companies managing Heavy Vehicles only.

All parties in the supply chain – consignor/dispatcher, packer, loader, scheduler, consignee/receiver, manager, as well as the driver and operator – must take positive steps to prevent a breach of the road transport mass, dimension, loading and work hours laws.

The heavy vehicle operator was ordered to pay $1million in compensation and was fined $16,500 by the court. Rapid Access Australia was ordered to pay $400,000 and was fined $8,250.
LOOKING AT THE ACCUMULATED DATA

HEAVY VEHICLE DATA COLLECTION SYSTEMS THROUGHOUT NSW

Three cross linked central data collection control and warehousing systems:

- Truck-Scan, The Compliance and Enforcement System (CES) and Traffic Data Networks.
- They are generally dedicated to their primary purpose which is Heavy Vehicle fatigue, registration and average speed management.
- Relevant data also sourced from Office of State Revenue (OSR) State Debt Recovery.
- New South Wales Police.
DETECTING TAILGATING

SAFE-T-CAM AVOIDANCE
SAFE-T-CAM AVOIDANCE

VEHICLE FINGERPRINTING

- Combination of ANPR information and high resolution vehicle, classification and vehicle identification systems.
- Results in a highly unique Vehicle Fingerprint.
DATA PRIVACY

The data itself is separated and is not linked to driver or vehicle identity in its raw form.

Only when the data indicated patterns of potential non compliance or unsafe habits, Speed, Fatigue, maintenance deficiencies, does directly identify of vehicle owners, drivers or companies occur.

Once one area of non compliance is identified, other collected data is investigated to confirm, or contradict, suspicions that might be raised in relation to individuals or companies.

Intervention is then prioritised on the basis of the number of incidents and other co-incident information which will necessitate identifying a company or individual.

TASKFORCE OPERATIONS

Multiple Joint Heavy Vehicle Taskforce Operations were conducted based on intelligence and prioritisation provided by the data analysis which resulted in:

- 7051 trucks inspected from speeding & other events.
- 161 speed limiters ‘non compliant’.
- 52 identified upon inspection of 2563 trucks.
- 1897 infringements, breaches and defects.
- 32 charges of drug use, possession, whilst driving under the influence.
- Multiple ongoing court prosecutions based on the data.
It must be pointed out that most reputable Transport organisations already proactively self regulated and use their accumulated data as a tool to allow this to happen effectively. They have systems in place to minimise risks to themselves, their drivers and the driving public.

Those contributing the technology and its development systems must:

- Design Data collection systems to identify issues or behaviours of concern.
- Highlight areas that need attention and need to be escalated.
- Develop policies and procedures to manage areas of concerns.
- Act to mitigate and manage the risk of these outcomes.
IMPLICATIONS FOR ICT.

The Rapid introduction of GPS based data collection by organisations on Heavy vehicle movement can now massively improve the quality of information and improve efficiency for freight organisations.

- Freight location tracking.
- Maintenance recording.
- Fuel use and efficiency.
- Security Improvement.
- Insurance Reduction.
- Driver performance.
- Driver compliance.

ICT DEVELOPMENT RESPONSIBILITY

Anyone responsible for the specification, development or management of ITS based systems must consider the inherent intelligence contained within the data they collect.

1. They must include data retention regimes that are appropriate to allow review of the information gathered.
2. They should consider alerts that highlight aspects of the data that might represent risk or safety concerns.
3. They must consider the implications of the data collected from a safety and public responsibility point of view.
4. Put training and management systems in place that handle the behaviours that data may highlight.
5. They must take action to correct behaviours or safety issues that the collected data may highlight.