Enhancing risk based heavy vehicle safety screening in NSW

Client

Roads and Maritime Services (RMS) is the NSW Government agency charged with delivering safe and efficient journeys throughout NSW. Their duties involve managing the road network, optimising travel times, providing capacity and maintenance solutions for road and maritime infrastructure, educating and licencing drivers and vessel operators, registering and inspecting vehicles and vessels and improving both road and maritime safety.

RMS projects and programs improve the safe and reliable movement of people and goods by various transport modes, including through the road freight network, NSW waterways, public transport network and active transport such as cycling and pedestrian areas.

Itree has partnered with RMS to deliver transport technology solutions for over a decade, providing software that uses data captured by a network of over 400 devices for compliance and enforcement.

Itree developed software for RMS that also manages the devices – cameras, height and weight measurement systems and other road sensors – processing the data captured to extend the analysis of vehicle movements and incidents more broadly.

As the customer says, *"these systems have become a template for how vehicle movement data should be collected nationally."*

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Challenge

The Heavy Vehicle Safety Screen Program uses Heavy Vehicle Safety Stations (HVSS) situated throughout NSW. Heavy vehicles with a Gross Vehicle Mass (GVM) over specified limits must enter the HVSS to ensure the vehicle meets safety standards and that their drivers comply with road transport laws. The program seeks to intercept and inspect heavy vehicles that may be operating illegally or are non-compliant and therefore pose a risk for road users, the road infrastructure or the environment.

Continued growth in vehicle movements over the first two years of risk-based screening led RMS to seek enhancements that would provide the same or better level of assurance without a commensurate increase in compliance resources.

Consideration was also required for the inclusion of a wider range of screening technologies and camera vendors.

Roads & Maritime Services manages:

21,006km of roads
5,287 bridges
3,945 traffic signals
2,137km of coastline

460,000 heavy vehicles operating on NSW roads each day

3.2 million heavy vehicles screened annually

Solution:

Transport Safety Suite, Truckscan, Heavy Vehicle Rating System

Solution

In 2011, Itree became the prime technology software partner for RMS to implement risk-based heavy vehicle safety screening. The goal was to develop enhancements to the software solution, based on further analysis of risk factors.

To identify potential improvements, Itree analysed inspection outcomes recorded in the first two years and profiled this against traffic flows and levels of non-compliance. This was used as the foundation for a business case to secure funding for a system upgrade.

Itree proposed a comprehensive test strategy involving laboratory simulation and testing of operating scenarios, coupled with a progressive rollout of the upgraded system. This approach mitigated technical risks, reduced downtime and allowed fine tuning of the screening algorithm, without compromising safety or unnecessarily disrupting enforcement activities.

Enhanced screening has now been fully implemented across NSW, delivered within project budget and on schedule.

Value

The Heavy Vehicle Safety Screen Program originally involved manual checks for vehicle defects and compliance with driver rest requirements at roadside safety stations. Routine screening is now largely automated and occurs while the vehicles are in motion.

As well as ensuring RMS can use its resources most effectively to achieve the best safety outcomes, risk-based screening minimises the cost and intrusiveness of compliance activity for those who are doing the right thing.

The data from sensors and other sources, including average speed as well as the compliance history of the vehicle and operator, is analysed to recommend risk-based intervention. This enables field staff to spend less time intercepting compliant operators and focus on highest risk vehicles.

The depth and currency of the data allows RMS and the NSW Police to identify and respond quickly to emerging risk profiles stemming from vehicle defects, driver behaviour and operator culture from drivers to chain of responsibility investigations.

The introduction of automated screening lanes has also improved traffic flow and minimised disruption for compliant vehicle operators.

RMS continue to regard Itree as a value-adding technology partner, proactively developing solutions that respond to safety and business needs rather than just reacting to fully developed requirements.

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Why Itree

- Specialists in regulation, compliance and enforcement intelligent solutions
- Deep domain understanding of how to manage risk and safety helps to secure the business case for customers
- A technology partner that adds real business value through proactive development of solutions rather than only reacting to fully developed requirements
- Testing and deployment plans that reduce risk and provide confidence for real world government systems that focus on safety and compliance