

RoadRISK

Road safety is a major burden on global wellbeing. In fact, the World Health Organisation data suggests that approximately 1.2 million of the five million injury deaths around the world each year are road safety related. Governments all over the world have implemented a whole range of engineering, educational, enforcement and evaluation-based programmes – some of which have been more effective than others.

In recent years, one increasingly important element of road safety has emerged as that of work related road safety. This includes people involved in crashes whilst working by the roadside, or driving as part of their work, either in their own vehicle or a vehicle provided by their employer.

In fact, there are a wide range of societal, business, legal and cost reasons why work related road safety has emerged as an important issue. This article focuses on why work related road safety is important and what can be done about it.

Why is work related road safety important?

From a societal perspective, there is only limited data at present because few jurisdictions around the world maintain any 'purpose of journey information' in relation to road crashes. The best data currently available is for Queensland, in Australia, where at least 16% of hospitalisation crashes and 24% of fatal crashes over the period 1998-2002 involved someone driving for work. In the UK, there is some data emerging from police trials and estimated studies that in the region of three of the nine road fatalities per day involve someone driving for work.

From a more general organisational or business perspective, safety is a core activity, and there are many quality, efficiency, environmental, marketing, business development, corporate responsibility and brand enhancement or brand protection reasons why work related road safety is important. At the most simple level, it's much better to be promoting a good news

safety story than it is to be trying to suppress the outcomes of a major incident.

Legally, many jurisdictions around the world – including the UK, Australia and New Zealand in the last year or so – have tightened up their Occupational Health and Safety regulations to include work related driving. This means that not only do organisations have to ensure that their workers drive with the road traffic rules, but also that the organisations themselves must have clearly risk assessed and documented safe systems of work in place for their vehicles, drivers, journeys, sites and processes.

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From a cost perspective, the implications of work related road safety can be massive. One company we worked with recently had damage costs of £3m per year; they estimated that their hidden costs were approximately as much again – and their return on sales figure was 8%. This meant that just to pay for the £3m of 'metal bashing costs', they had to generate £75m in revenues. Although government agencies do not have to make a profit in this way, they are using the public's money and should be seen to lead by example in all of these areas – but how can they do it?

How can work related road safety be improved?

It is generally agreed by researchers and managers around the world that 'there are clear indications that fleet safety is most likely to be improved by the introduction of an integrated set of measures based on the safety culture within the organisation'. The joint Health and Safety Executive and Department for Transport guidance on 'Work-related Road Safety', issued in September 2003, suggested that this can be achieved by taking a risk assessment led approach to managing drivers, vehicles and the journeys they undertake. All

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of Interactive
Driving Systems,
highlight work
related road safety
and ask 'why is it
important and
what can be done
about it?'**

these areas are important, but the remainder of this article focuses on driver risk assessment and some recent research undertaken by Napier University on one particular web-based driver risk assessment tool called RoadRISK.

RoadRISK is one element of the Virtual Fleet Risk Manager (VFRM.net) developed by Yorkshire-based Interactive Driving Systems, in collaboration with universities in the UK and Australia, as well as a wide range of partner organisations around the globe. RoadRISK assesses a driver's attitude, behaviour, knowledge, hazard perception and personal exposure to the risks of the road through a series of questions and interactive computer-based exercises.

The research was undertaken because, although driver assessment and training is intuitively the right thing to do, there is very little hard research evidence that it actually improves road safety outcomes. For this reason, Napier University was commissioned to undertake an independent statistical comparison of the results from over 13,000 drivers assessed against their reported crash outcomes. This was groundbreaking, in that it was the first known study of its type by the UK fleet industry and a university. It focused on three main areas:

- Identifying drivers most at risk;
- The relationship between the assessment score and crash involvement;
- Predicting the likelihood of a driver being involved in a crash.

Identifying the drivers most at risk

The first finding from the Napier University study data was that the system could be used to identify the most at risk drivers in an organisation. In the following table, for example, the system identified the 1% of drivers responsible for 10% of crashes.

% of drivers	Crashes	% of crashes
82%	0	0%
13%	1	55%
3%	2	25%
1%	3	10%
1%	4	10%

Relationship between assessment score and crash involvement

The Napier analysis showed that the RoadRISK assessment has some potential to predict crash involvement. This is highlighted in the graph at the bottom of this page, where low scores on the assessment are clearly linked to higher crash rates by the two trend lines. For example, 3.7% of drivers with no crashes scored <70%, whereas 34% of drivers with four crashes scored <70%.

What the above graph means for road safety is that drivers with good (>80%) scores on the assessment are less likely to have crashes than those with average (70-80%) and poor (<70%) scores.

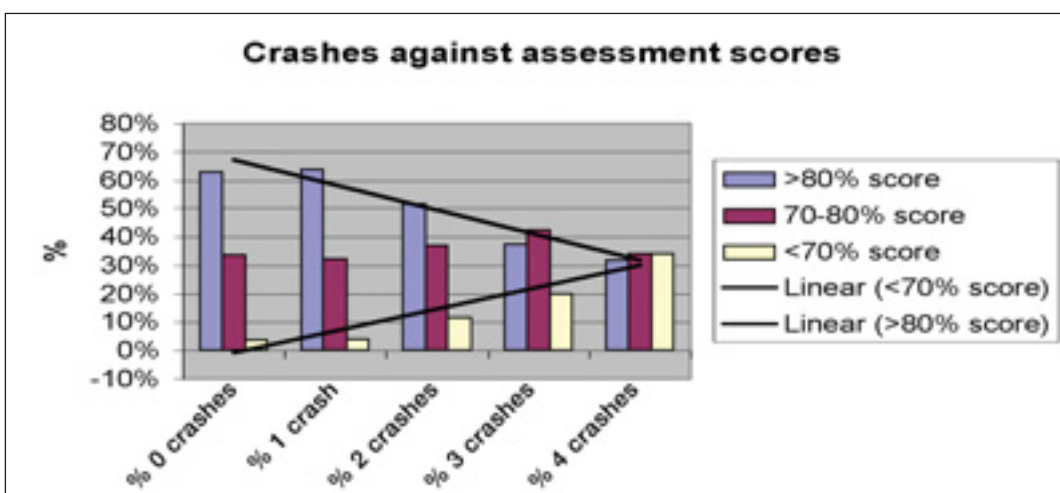
The graph on the following page from the Napier study shows a clear relationship between the scores on the individual elements of the assessment and driver crash history.

Predicting the likelihood of a driver being involved in a crash

More detailed statistical analysis in the form of a logistic regression was then undertaken on the data by Napier University. The results are shown in the following table:

	1 or more crashes	2 or more crashes	3 or more crashes	4 crashes
Low score (<70%)	1.3	1.5	2.2	3.3
Mid Score (70-80%)	1.2	1.3	1.5	1.9

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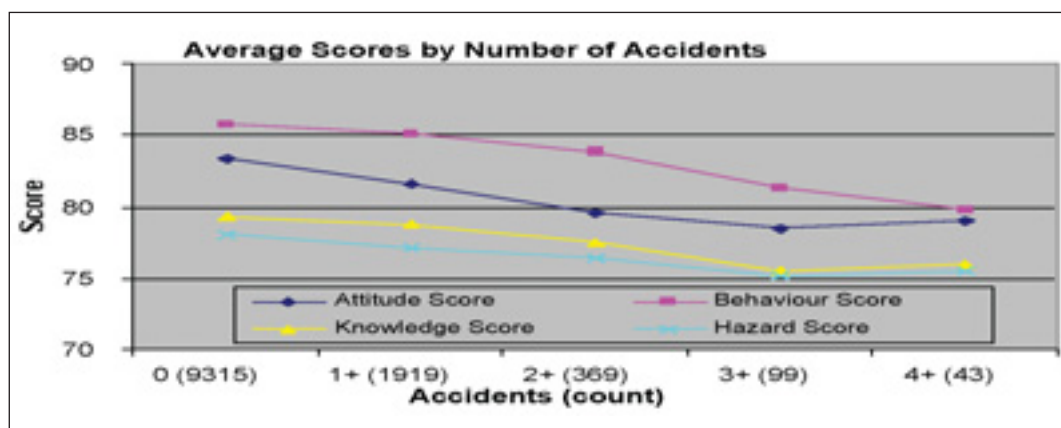


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In simple terms, what this means for road safety is that a driver scoring <70% on the assessment is 3.3 times more likely to report four crashes than a driver scoring >80%. When the personal risk exposure element of the assessment is included, a driver scoring <70% is 16.8 times more likely to report four crashes than a driver scoring >80%.

This can be equated to fleet costs by taking an average crash cost of £765. An increase in the average RoadRISK assessment score of 10% could reduce incidents by at least 300 and costs by £229,500 for every 10,000 drivers assessed.

The implications of identifying high risk drivers and the practical benefits for the industry are best shown through a case study. The largest user of the RoadRISK assessment tool to date is BT, whose accident rate has reduced by 30% over the past four years as part of an ongoing commitment to improve driver safety. During that time, it has put almost 25,000 of its 70,000 driving staff through the RoadRISK assessment.

With such high numbers of drivers employed, a conventional approach to defensive driver training is unrealistic. BT therefore uses RoadRISK to filter those drivers assessed as being at high risk. It then looks at the identified areas of weakness and tailors programmes. In this case, RoadRISK offers a cost-effective solution to driver assessment, rather than the usual generic approach of on-road training. The outcomes from the Napier study give BT and other users, such as the TNT Logistics and Arriva buses, confidence that there is a strong correlation between assessment scores and crash rates – allowing them to use the RoadRISK assessment for the following tasks:

Pre-employment:

- Part of recruitment pre-screen, interview or induction process.

Current staff:

- Annual assessment in conditions of employment;
- Remote sites;
- Selection of instructors and assessors;
- Evaluate training needs and review success of training;
- Post-crash investigation.

Other uses:

- Allocation of company cars;
- High employee turnover, agency drivers;
- Risk assessments for insurance, underwriting, health and safety due diligence and vehicle hire.

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Conclusion

Work related road safety is important to government and industry for a range of societal, business, legal and cost reasons. A risk assessment led approach has been identified by the UK Government as an effective approach to managing the drivers, vehicles and journeys involved. The Napier University study described has shown the potential benefits that can be achieved by applying this methodology to driver risk assessment. More detailed research papers on this topic and a demonstration of the RoadRISK system are freely available by emailing or calling Dr Will Murray.