

The importance of real-time in-cab and external feedback in managing fatigue in commercial transport operations

This document provides a summary of the findings in the following paper:

Michael Fitzharris, Sara Liu, Amanda N. Stephens, and Michael G. Lenné. 2017. The relative importance of real-time incab and external feedback in managing fatigue in real-world commercial transport operations. *Traffic Injury Prevention*, 18:sup1, S71-S78. <https://dx.doi.org/10.1080/15389588.2017.1306855>

Historically, heavy vehicles have been notorious for their high crash rates. This has been directly linked to driver fatigue, with studies indicating that truck drivers falling asleep or being fatigued accounts for 46% of all driver impairment-related factors in truck-involved fatality crashes.

On top of this, working long hours is a common occurrence in the commercial vehicle sector, where drivers often face financial and other pressures to continue driving even when it's unsafe to do so.

In light of these factors, reducing fatigue for heavy vehicle drivers has become a top priority, and there has been increased interest in real-time driver monitoring.

Real-time driver monitoring systems (DMS) can take many forms, but in general aim to provide a solution that addresses the risks of driver distraction and fatigue as they happen.

The systems act to warn the driver when a safety-critical event such as a fatigue episode, has been detected, and depending on the device settings, parties external to the vehicle can also receive warning information.

In this study, the authors examined the effect of real-time in-cab feedback to the driver as well as the provision of direct feedback to the driver's employer, on the number of fatigue events detected in commercial vehicle contexts.

Specifically, the study looked at the contribution of these two types of feedback on the number, timing, and duration of fatigue events.

The study found that providing a fatigue alert to a driver reduced the incidence of fatigue events by 66.2%. Adding direct feedback to the driver's employer or fleet manager, increased this number to 94.4%.

The reduced incidence of fatigue events can be attributed to the fact that in these cases, the employer had an opportunity to use real-time, objective feedback on driver performance. The company was then able to counsel individuals on known risks and optimise crews and rostering.

The fact the additional level of feedback provided greater benefits is consistent with broader safety literature. Multiple studies have shown motivations for safe behaviour are influenced by the prevailing safety climate of the worker's organisation, and the most effective safety cultures are those where company policies complement, rather than compete against, the demands of the working role.

The findings in the study clearly demonstrate the importance of providing feedback to the driver's employer, as it significantly reduces the incidence of fatigue events. The findings also support the installation of a DMS and concurrent fatigue management strategies across different vehicle platforms as a preventative road safety action.

Guardian by Seeing Machines has been proven to reduce fatigue-related driver events by more than 90%, by providing in-cab alerts as well as direct feedback to the driver's manager.

As an aftermarket DMS for commercial vehicles, Guardian monitors for fatigue and distraction and warns drivers through audible and haptic alerts.

The Seeing Machines Guardian Centre provides a 24/7 monitoring and analysis service that notifies managers about events, allowing them to take immediate action to manage the situation and keep their driver safe.

By providing feedback to the driver's manager, the incidence of fatigue events is significantly reduced.