

CASE STUDY QUEENSLAND MINING AWARDS

DRIVER SAFETY SYSTEM

Hastings Deering and Caterpillar's Fatigue Risk Management Solution is driving safety results and reducing the "invisible threat".

THE PRODUCT

Approximately 40% of shift workers admit to fatigue during their shifts and documented research shows 17 hours awake is equivalent to a blood alcohol content of .05.

We have long understood the importance of managing fatigue and its impact on the workplace. Together with Caterpillar Safety Services, we have strived to produce tools companies can easily access, to combat this silent killer.

We provided our customer with an option to recognise and quantify what we call the invisible threat. Without the right framework and equipment, fatigue cannot be seen, smelled, or heard and it plagues haulage fleets and mine sites globally driven by the demand of 24/7 production schedules. Our solution is a Fatigue Risk Assessment (FRA). The FRA provides leaders with data and information, and with the power to see the invisible threat.



40% OF SHIFT WORKERS ADMIT TO FATIGUE

THE INNOVATION

The power to see the invisible threat is comprised of:

- **VISION** - A Leadership Workshop and Operator Engagement.
- **VISIBILITY** - A 90-day data collection period to capture fatigue-specific data. The technology-enabled toolset includes 25 Cat Smartbands, The Fatigue Avoidance Scheduling Tool, and the Driver Safety System (DSS).
- **INSIGHT** - A one day, on-site report back to the leadership.



THE FATIGUE RISK ASSESSMENT IS STRUCTURED IN THREE PHASES:

1

The units will be tracking fatigue and distraction but with the alarms off.

This will allow us 30 days of information pertaining to the number of fatigue and distraction events happening inside the cab as well as further classification of the type of event.

2

The in-cab alarms are turned on and we can see the impact of the DSS units engaged and the conditional behaviours that follow.

3

In parallel with the in-cab technology being operational, the 24/7 monitoring centre interacts with the customer through various forms of communication to provide further investigation into what is happening from a fatigue perspective, acting on a customer specific protocol we create with the site.

In conjunction with the DSS deployment, Cat Smartbands were rolled out into the workforce for data collection. The volunteers were equipped with Smartbands and an information session on how to analyse the data being provided.

THE INNOVATION

Right from the start we knew success would only be achieved with strong purpose and critical data highlighting and diagnosing the severity of the issue. Our plan was to set new standards.

Driver Safety System (DSS), is an in-cab detection system which uses artificial intelligence to pick up signs of fatigue and distraction in an operator. Our objective is to prevent fatigue

before it sets in. To ensure this, an in-vehicle audio alarm is sounded combined with seat vibrations engaging the driver as soon as an event is detected.

The system is watching for controlled eye closures which are the first visible signs of fatigue. Unlike other eye tracking solutions, the DSS assesses a number of other biometric measures such as head rotation and tilt.

THE RESULTS

Key outcomes delivered with Driver Safety System:

MITIGATE DRIVER FATIGUE RISK

- ✔ Provide real-time driver fatigue intervention for tired operators
- ✔ Link education with action for driver fatigue awareness and behaviour change
- ✔ Seamless integration into mixed truck fleets.

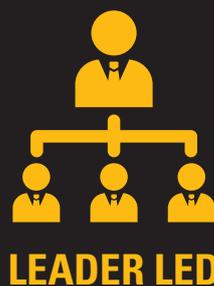
IMPROVE OPERATIONS

- ✔ Allow operators to focus on their job by eliminating requirements to interact with the system
- ✔ Alert operators to extended distraction events to improve safe driving.

ONGOING DRIVER FATIGUE RISK MANAGEMENT SUPPORT

- ✔ Customised data and reporting for continuous improvement and safety education site-wide
- ✔ Live data analysis provided by the 24/7 Monitoring Centre.

5 KEY ACCOMPLISHMENTS FOR THE FATIGUE MANAGEMENT SOLUTION:



**IMPROVEMENT IN
SAFETY CULTURE**



**EXCELLENCE
IN CHANGE
MANAGEMENT**



CONTINUOUS IMPROVEMENT
In safety, productivity and efficiency.