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AI driving H&S improvements

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Artificial Intelligence can be used to drive cultural change to better manage health and safety risks in a workplace, members of the extractives industry have been told.

The technology is valuable for driving cultural change by identifying breaches and using objective data as part of coaching and training, founder of an AI start-up Tane van der Boon told a MinEx-hosted webinar last week.

He explained that AI is being used in predictive analytics and root cause identification. Its use in wearables is a big area of innovation.

But the focus for his company - Inviol - is on using AI for visual analysis, which he says can combat complacency around health and safety.

"Over time we get used to things not failing, things not going wrong, and then that starts to create unnecessary risk," he says.

A trial his company ran four years ago showed 72 breaches over a two-week period at one workplace. Of those, there were 42 missing helmets, 23 dangerous dismount events, two dangerous crane loading events and five active fall zone breaches.

But after taking the videos identifying those breaches to the team and undertaking training with them, the total number of breaches detected went down to 11.

Dangerous dismount events decreased by 18, to just five. There were only two missing helmet events and no dangerous crane loading.

Growth

AI has seen growth in a range of areas in the health and safety space during the past few years.

At the QuarryNZ conference last year AI New Zealand founder Justin Flitter pointed to its use in collision prevention, real-time people detection around vehicles, and for the use of unmanned excavators, loaders and trucks.

McConnell Dowell has also used the technology to build traffic management plans.

Driving change

Inviol's system uses cameras to identify risks and collect data which can then be used for training.

As part of van der Boon's presentation he showed a video where the system identified a worker walking into a heavy machinery exclusion zone.

That video, he says, can be used to start a conversation which drives change in an objective manner.

"It's no longer my opinion anymore. It's something objective in the video that we can talk about, chat through the key potential risks and then move forward, hopefully acting in a safer way."

Real-time alerts

Van der Boon says that Inviol can also be used for identifying risks around how people are moving to help guide lifting techniques and track those results over time.

They also have an AI device that goes on the back of vehicles to detect stock movement.

Real-time alerts can be triggered for any breach where coaching and culture change can be difficult.

That, he says, is a secondary measure, with the priority being driving cultural change through training based on the identification of breaches.

Van der Boon says it is an area where you need to be careful triaging the level of risk and the level of alert in response to that, whether it be sirens or text.

His company is also looking into a "stop and think" light.

"I really like this idea because, again, we are coming back to empowering the people.

"It's just like having those training and coaching conversations and not just necessarily telling people off all the time."

Privacy

Van der Boon says some workers have been reluctant about the technology and having cameras watching them all the time.

But he emphasises that the system does not use facial recognition. If requested, the faces in videos can be blurred before the video is sent anywhere.

"I think the key thing is that we are not sending anything anywhere unless there is a breach.

"And if there is a breach it is because something has been detected that could stop you getting home at the end of the day."

He adds that Inviol doesn't recommend having every single camera everywhere and customers don't tend to do that.

"It's about having examples of the safety culture on site, understanding what's going on in those key high-risk areas, and then training and coaching

on those."