EROAD

WHITEPAPER

TURNING CAMERAS INTO CO-PILOTS

How AI Improves Dashcams

Introduction

The new reality of fleet safety

Checking the dashcam footage used to be enough to get to the truth of a near-miss or accident. But that is no longer the case in today's high-stakes environment — and the old "wait and see" approach is costing fleets dearly.

Consider the numbers that are shaping the industry:

- Insurance premiums are up nearly 50% over the past decade[1]
- One in four trucking accident trials now results in "nuclear verdicts" of over $10 million[2]
- Driver turnover still exceeds 90%[3] — estimated cost of losing just one driver is $12,799[4]

Taken together, these risks hit the bottom line hard. Rising premiums and litigation costs pile on financial strain; high turnover forces fleets to spend heavily on recruiting and training, with productivity lost every day the driver's seat remains empty. Put simply, fleets still using old technology and methods are bleeding fast.

This is where artificial intelligence changes the conversation. AI-powered dashcams do more than just record the drive. They read it, interpret it, and act on what they see. They shift fleets from playing defense to taking control, turning every vehicle into a proactive safety platform.

The soaring cost of nuclear verdicts

In just one year (from 2023 to 2024), the median nuclear verdict jumped from $44 million to $51 million.[5]

Why traditional dashcams fall short

Older dashcams suffer from a fundamental limitation: they're designed to watch, not warn. They may capture the moment a drowsy driver's eyes close, but they can't shake them awake. What happens next is left entirely up to chance.

Reactive by design

At their core, traditional dashcams operate like black boxes. They provide footage of incidents once they've already occurred and do nothing to stop the accident from happening in the first place. This limits them to only being valuable in post-incident analysis, effectively turning them into forensic tools rather than active safety solutions. As a result, managers are left addressing consequences rather than preventing them.

Narrow visibility

Even when cameras are functioning properly, they often miss the subtle precursors to dangerous events.

Risky behaviours like unsafe following distances, rolling stops, or inconsistent lane changes can go unaddressed. Likewise, fatigue indicators like gradual head nods, frequent yawning, and micro-sleeps are recorded but often ignored (until a review is necessary, but by then it may be too late). Without the ability to identify these risks in real time, fleets are forced to rely on fractured data that fails to paint a full picture of driver performance or road hazards.

Footage overload

Perhaps the biggest drawback is the overwhelming amount of footage these systems produce. Hours of uneventful highway driving are stored alongside critical moments, with no automated way to separate the meaningful from the mundane. This creates a heavy burden for safety managers, who must manually search for clips, potentially missing crucial moments that led to the incident.

What makes AI dashcams better

AI-powered dashcams flip the script by turning passive observation into active protection. Acting like a co-pilot who never gets tired or distracted, these systems analyze and respond in real time. They actively monitor both driver behavior and road conditions, providing insights and interventions that help prevent accidents entirely.

Proactive safety

Where traditional dashcams capture only what has already happened, AI-powered systems detect danger as they develop. Advanced systems catch the earliest signs of unsafe driving — like when a driver's eyes droop, attention drifts from the road, or following distances shrink dangerously. At these, the system issues real-time alerts that prompt immediate corrective action.

Expanded visibility

Detection is just the start. AI continuously analyzes head and eye movement, lane positioning, and driving patterns, revealing risks that standard cameras can't. This deeper visibility gives fleets a clear picture of driver behavior and road events to create a stronger foundation for safety programs.

Focused insights

With a complete view in place, AI turns raw data into action[6]. Automated event tagging filters hours of footage down to the few clips that matter most — risky maneuvers, policy violations, or standout safe driving moments. Managers spend less time buried in admin and more time where it counts: preventing accidents and developing safer, more confident drivers.

How AI supports drivers

Drivers are the heart of every fleet operation, but their jobs come with physical and mental hurdles. Fatigue, constant context-switching, and the pressure to stay alert create significant safety challenges.

Protection in real time

For drivers, the immediate value of AI is its ability to act in the moment. When fatigue or distraction begin to take hold, the system delivers subtle interventions, such as audible alerts or seat vibrations, that help drivers self-correct before a situation escalates. These interventions are designed to be supportive rather than punitive, giving drivers the chance to adjust safely without feeling micromanaged or surveilled.

Confidence on the road

In an industry where drivers are frequently blamed in the event of collisions, AI-powered dashcams offer a powerful layer of protection. High-definition video evidence can quickly clear drivers of false accusations, ensuring fair treatment in both legal and insurance contexts. This advantage gives drivers confidence in knowing they have tangible proof and the backing of their carrier when disputes arise.

Constructive coaching

AI-driven insights provide context-rich feedback that acknowledges both strengths and areas for growth. Instead of flagging only obvious mistakes, these systems can highlight safe decisions and good practices that would have gone unnoticed, such as maintaining proper following distance in heavy traffic or tackling a difficult merge correctly. This balanced approach reframes coaching as support[7] and professional development.

Safety in motion: AI dashcams in practice

The impact of an AI dashcam becomes easiest to see when you walk through what actually happens on the road. While specific features may vary across different dashcam models, here's an example of how EROAD's Clarity Edge AI Dashcam works in real-world situations. From the moment a risky behavior is detected to the follow-up coaching that builds trust, AI-powered dashcams turn everyday challenges into opportunities for safer, smarter operations.

1 Fatigue sets in

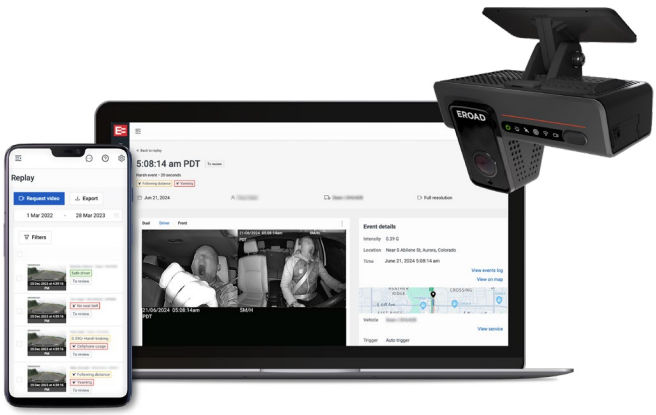
After hours behind the wheel, a commercial driver feels the familiar weight of exhaustion settling in. Eyelids begin to droop — first for milliseconds, then for dangerous half-seconds. The vehicle drifts imperceptibly toward the lane marker as cognitive awareness diminishes.

During these critical moments, the AI system processes multiple data streams simultaneously: facial detection identifies drowsy eye patterns and head nodding, while lane positioning algorithms register the subtle drift.

2 The warning trigger

The system responds with an audible alert and gentle seat vibrations, calibrated to be attention-grabbing and tactile without being jarring. Timing is crucial: the intervention occurs while the driver can still process and respond to the warning effectively.

The driver snaps back to full alertness, hands tightening on the steering wheel, immediately aware of the near-miss. This technology doesn't replace human judgment — it makes up for human capability at precisely the moment when it is compromised.



3 The moment is marked

Rather than adding to the overwhelming volume of fleet data, the AI system performs sophisticated filtering and documentation. The fatigue event triggers automatic video segmentation, capturing focused clips that include the pre-incident behavior, the alert activation, and the driver's corrective response. The system applies contextual metadata: time of day, route conditions, driver schedule, and incident severity level.

This intelligent curation transforms data management from a resource drain into a strategic asset. Instead of storing terabytes of routine footage, the system creates a curated library of learning opportunities.

4 Coaching follows

Fleet managers receive far more than raw footage. The system provides comprehensive context: driver performance trends, route difficulty factors, schedule optimization opportunities, and peer comparison benchmarks. The conversation that follows focuses on proactive support rather than reactive discipline.

"I noticed you handled a challenging moment really well on Highway 101," becomes the opening line — not accusation, but recognition of professional skill under pressure. The manager and driver can then have meaningful discussions on schedule adjustments, route optimization, and wellness strategies to prevent future fatigue incidents.

5 Trust takes root

Drivers experience the system as a professional ally rather than a surveillance tool. They understand that the technology exists to enhance their safety and support their success. This psychological shift creates a positive feedback loop: drivers become more receptive to safety interventions, more proactive about risk recognition, and more likely to champion the technology.

A wake up call for fleets

21% of all vehicle crashes are caused by drowsy driving.[8]

These five moments repeat thousands of times across fleet operations to create a compounding impact. Each successful intervention builds organizational confidence in both technology and human capability. Each coaching conversation strengthens the relationship between management and drivers. Each trust-building moment contributes to a safety culture that becomes self-reinforcing and continuously improving.

This is more than just theory. Fleets that embrace AI-powered safety technology are seeing happier drivers, smoother operations, and stronger safety cultures. Hypothetical examples paint a clear picture, but here's the story of how one transport provider's AI transformation unfolded in practice.

Case study: How one fleet adopted AI dashcams and eliminated fatigue-related risks

A transport and logistics provider faced escalating challenges that traditional safety tools couldn't address. Operating hundreds of vehicles across a nationwide network, the company struggled with fatigue management, driver oversight across dispersed operations, and the administrative burden of compliance reporting.

The challenge

The decision to deploy AI-enabled dashcams stemmed from realizing that reactive safety measures were no longer sufficient. Long-haul routes through harsh terrain pushed drivers to their limits, while regulatory requirements demanded constant vigilance that traditional monitoring couldn't provide.

The solution

The implementation centred around the EROAD Clarity Edge AI dashcam, which is capable of detecting fatigue and distraction within seconds. When the system identified dangerous drowsiness, prompt alerts provided immediate intervention. Critical incidents triggered real-time escalation to management, enabling proactive support for at-risk drivers. The seamless integration with existing telematics created a unified platform that combined GPS tracking, speed monitoring, and event analysis.

Key results

- **Zero fatigue-related accidents** following deployment — a remarkable turnaround for an operation previously struggling with drowsy driving incidents
- Dramatically **faster claims resolution** as high-definition footage provided immediate clarity on incident circumstances
- **30% improvement in administrative efficiency** through automated reporting that replaced manual compliance processes
- **Exceptional driver buy-in** that exceeded all projections — drivers embraced cameras as protective support rather than surveillance tools

Impact

The company's experience illustrates how AI-powered dashcams transform operations beyond simple technology adoption. They become the foundation for organizational change that prioritizes both safety and understanding — proving that the most effective safety systems are those that earn driver trust and support.

Seeing it all and stopping it early

There's no escaping that accidents will happen. And when they do, fleet leaders must answer two questions: What happened? What could have been prevented?

Traditional dashcams address only the first. They capture evidence, document damage, and support post-incident review — but they are powerless to prevent accidents from happening. AI-powered dashcams pick up the slack. By detecting risks in real time, issuing alerts, and intervening before incidents escalate, they shift fleets from reactive to proactive. When an event is recorded, it reflects a commitment to safety, investment in technology, and protection of drivers.

Accidents aren't a question of if, but when. AI dashcams give fleets the power to turn that "when" into "not today."

See how AI dashcams can protect your drivers and your bottom line

Prevention isn't a one-time fix. With AI-powered insights and real-time alerts, you'll have the tools to keep drivers safe, reduce risk, and make smarter decisions at every mile, every day.

LEARN MORE

Sources

[1] EROAD, “AI is Scary for Your Competition - How Adopting New Technologies Can Provide a Competitive Edge.” November 29, 2024.
https://www.eroad.com/resource/ai-is-scary-webinar/

[2] U.S. Chamber of Commerce Institute of Legal Reform, “Nuclear Verdicts: An Update on Trends, Causes, and Solutions.” May 2024.
https://instituteforlegalreform.com/wp-content/uploads/2024/05/ILR-May-2024-Nuclear-Verdicts-Study.pdf

[3] American Trucking Associations, Inc., “The truth about trucking turnover.” March 25, 2022.
https://www.trucking.org/news-insights/truth-about-trucking-turnover

[4] Conversion Interactive Agency, People. Data. Analytics., “2024 Driver Recruiting & Retention Snapshot.” Jun 4, 2024.
https://theresource.conversionia.com/2024-driver-recruiting-retention-snapshot

[5] Risk & Insurance, "Nuclear Verdicts Skyrocket: Corporate Lawsuit Awards Surge 116% to $31.3 Billion in 2024” May 28, 2025.
https://riskandinsurance.com/nuclear-verdicts-skyrocket-corporate-lawsuit-awards-surge-116-to-31-3-billion-in-2024/

[6] EROAD, “Clarity Edge AI Dashcam: From Footage to Foresight.” June 3, 2025.
https://www.eroad.com/blog/clarity-edge-ai-dashcam-from-footage-to-foresight/

[7] EROAD, “How to Get Your Drivers Comfortable with Dashcams.” July 13, 2025.
https://www.eroad.com/fleet-dash-cams/get-drivers-on-board-with-dash-cams/

[8] National Sleep Foundation, “National Sleep Foundation’s 2024 Drowsy Driving Survey.” October 31, 2024.
https://www.thensf.org/wp-content/uploads/2024/10/Drowsy-Driving-Survey_2024.pdf

About EROAD

EROAD empowers fleets of all sizes and sectors with real-time intelligence, transforming raw data into actionable insights that improve safety, compliance, and operational performance.

Our evolution

Since 2000, EROAD has grown from a New Zealand road tax pioneer into a global leader in integrated telematics and fleet technology. In 2014, we became North America's first approved electronic weight-mile tax provider. Today, our platform continues to expand, helping fleets across transport, cold chain, construction, and other industries navigate increasingly complex operational and regulatory landscapes.

Technology for safer and smarter fleets

EROAD delivers a complete suite of next-gen solutions, including video telematics, compliance automation, and advanced fleet tracking tools. By uniting safety, productivity, and efficiency on a single platform, we give fleets the clarity and confidence to operate at their best on every road, every day.

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