



Fatigue Science

NAFMP Solution Series

North American Fatigue Management Program

October 8, 2026

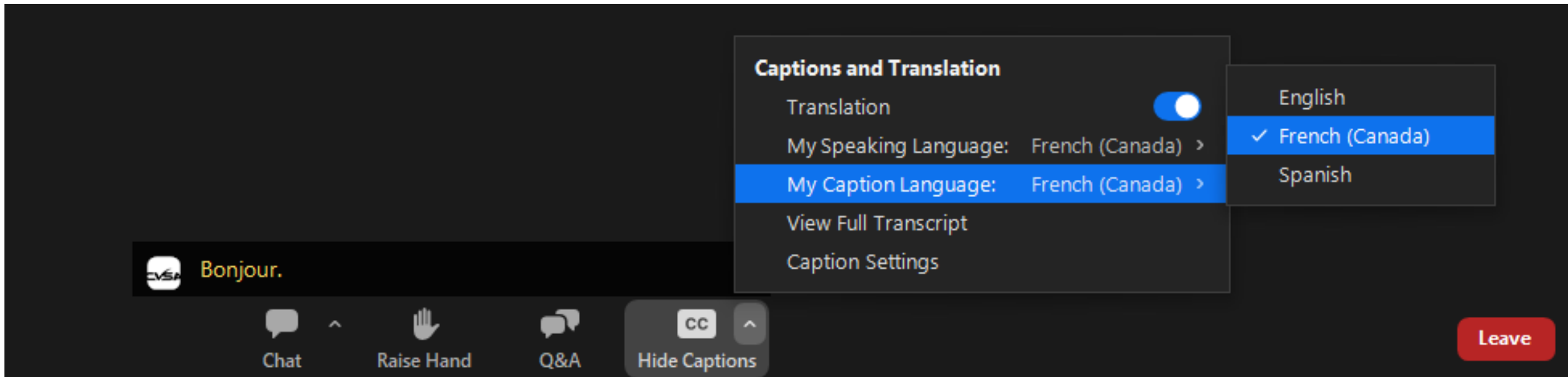
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1. Fatigue Management and Vendor Solutions
2. Fatigue Science Presentation
3. Questions

- Neither CVSA nor the NAFMP endorses or recommends any specific product or service
- The claims and system specifications of vendors have not been validated by CVSA or the NAFMP
- Solutions are a key component of a Fatigue Management Program

Fatigue Management Program



➤ Safety Culture

- 1) Education
- 2) Training
- 3) Continuous communications – Including partnerships

➤ Fatigue Risk Management System

- 1) Operations
- 2) Identify risks with processes and controls
 - Predictive, proactive, reactive
 - Sound scheduling & routing practices, sleep disorders management program, and fatigue detection technologies
- 3) Risk assessment
- 4) Measures and countermeasures
- 5) Evaluation

- Tools
 - FMP Template
 - Implementation Manual
 - ROI Calculator
- Courses
 - eLearning Platform
 - PowerPoints with and without audio
 - For carrier's executives, safety managers, dispatchers, instructors, drivers, driver's families, shippers & receivers
- Webinars, Info Sessions & Articles
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- Podcast
 - The NAFMP Pod
 - Available from eight platforms
- Events
 - Download individual event
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FATIGUE SCIENCE

VIRTUAL WORKSHOP

The Future of Fleet Safety and Its Impact on Operational Efficiency

How to Affect Change Before the Shift Starts

Lessons from a controlled pilot at a large U.S. logistics fleet on predicting driver readiness before the shift begins — and what it takes for dispatchers and drivers to trust it.

INTRODUCTIONS & AGENDA

Exploring Fatigue Impact in Safety-Sensitive Shift Work

Current & Future State of Fleet Safety

Fleet Pilot Overview

- Objectives & Success Criteria
- Impact Areas & Lessons Learned
- Key Results
- Human Impact

Evolution of Fatigue Management

Discussion



Tomas Kuras
Vice President of Revenue

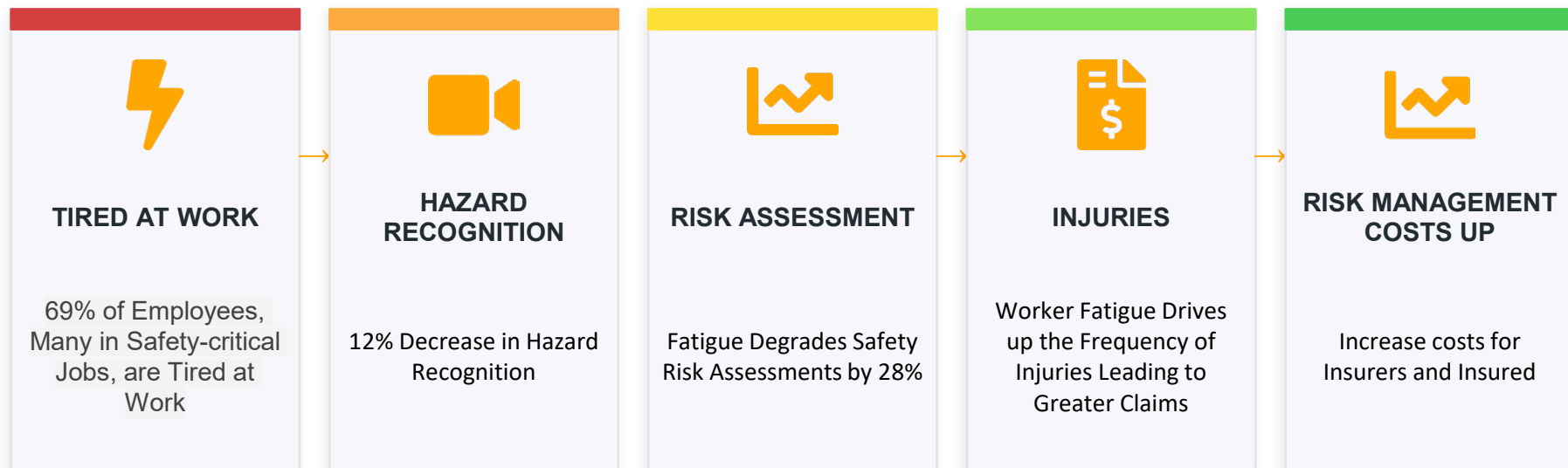


Marco Parlato
Director of Product Management

Exploring Fatigue Impact in Safety-Sensitive Shift Work

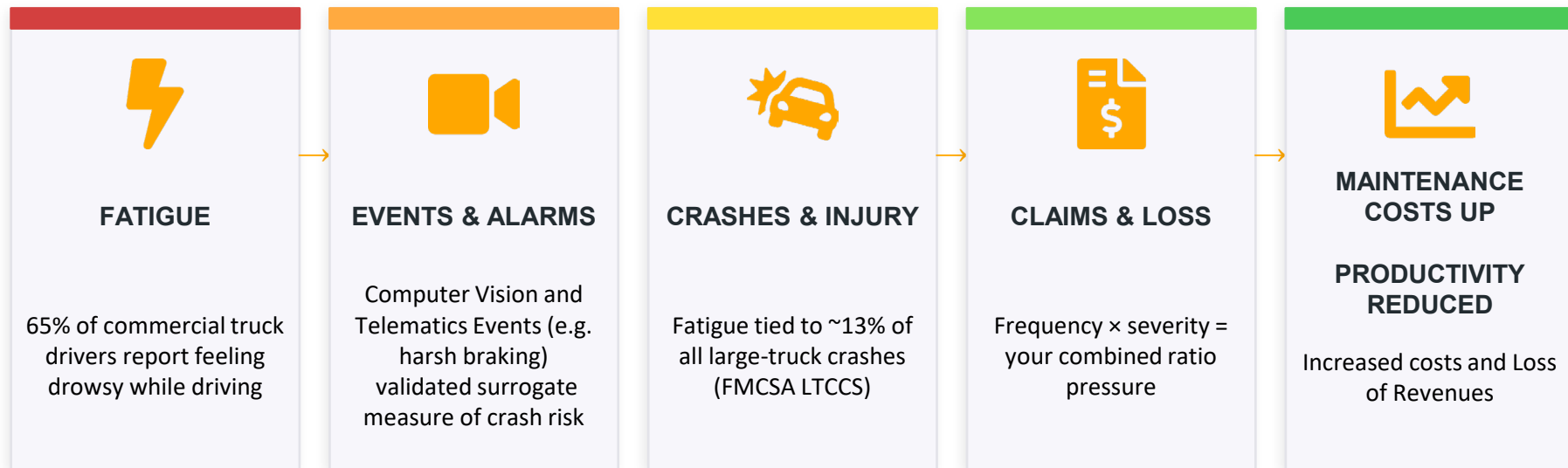
DOWNSTREAM EFFECT OF FATIGUE

Industry-Wide



DOWNSTREAM EFFECT OF FATIGUE

Transportation-Specific



TRANSPORTATION MARKET HAS A STRUCTURAL PROBLEM

Fatigue is the upstream root cause driving transportation losses

30–40%

of all heavy truck accidents
caused by fatigue

NTSB — Safety study and crash analysis

65%

of commercial truck drivers
report feeling drowsy while
driving

*Federal Motor Carrier Safety
Administration (FMCSA)*

8.36x

Drivers generate an average of
8.36 excess events per 450
miles vs alert baseline

*Speeding, harsh braking, following
distance, distracted driving*

+81%

YoY increase in nuclear
verdicts — trucking (2025/26)

SambaSafety 2026 Driver Risk Report

The average heavy truck incident costs \$148,000–\$334,000. A nuclear verdict exceeds \$10M.

Predictive fatigue management is the upstream lever that mitigates these risks

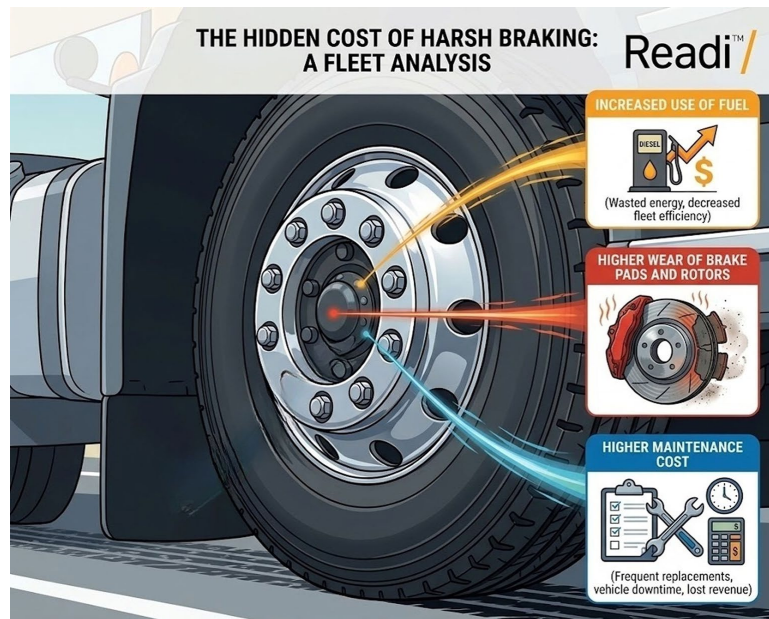
THE COST OF FATIGUE

Cognitive Tunneling: Fatigue restricts visual scanning. Drivers stop anticipating traffic, terrain, and road topology.

Late Braking Events: Delayed perception causes sudden, reactive maneuvers—recorded as harsh braking exceptions on telematics.

The Momentum Penalty: Sudden braking converts kinetic energy into heat. Recovering cruising speed forces high-torque engine load, wasting diesel.

The Multiplier: A RediScore under 70 correlates directly to an 8.5x increase in harsh braking events.



Current & Future State of Fleet Safety

DETECTIVE TECHNOLOGY MAKES SYMPTOMS VISIBLE

Telematics document symptoms of risk, but cannot predict or prevent the underlying biological cause (**FATIGUE**).

THE READI PLATFORM

Predictive fatigue management software — When paired with existing reactive techs, it creates the perfect safety solution

Predictive Visibility

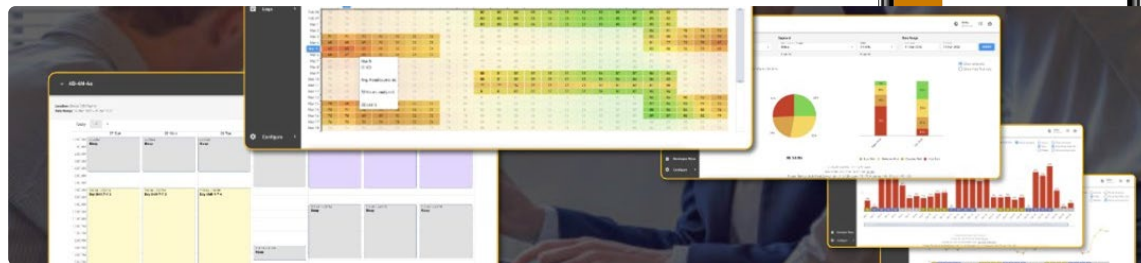
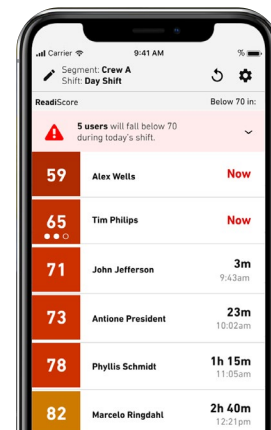
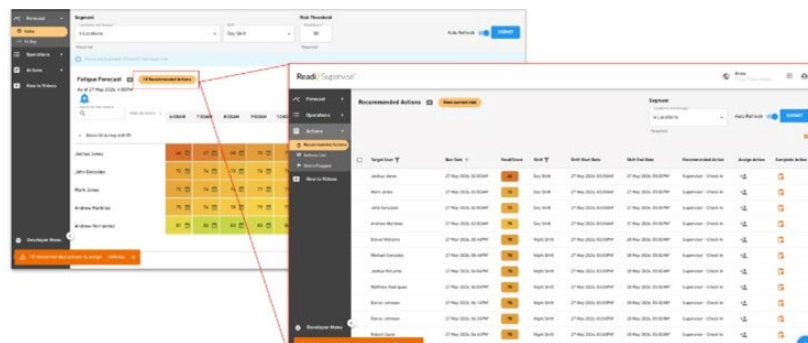
Personalized fatigue forecasts up to 18 hours in advance, powered by 10 million+ sleep data points.

Automated Workflows

Smart, non-punitive, countermeasures routed to dispatchers/supervisors at the exact time drivers/operators fall in fatigue risk zones.

Enterprise-level Analytics

Total visibility into macro fatigue trends, countermeasure compliance, and schedule simulations.



HOW READI WORKS — FROM INPUT TO COUNTERMEASURE IN 5 STEPS

No wearables required. No new hardware. Readi integrates with existing systems.

1



Data Capture

Through Sleep Capture, or
Via One-Time
Questionnaire

2



Capture Operator Schedule and/or Sleep Opportunities

System pulls upcoming and
real time shift schedules

3



AI Sleep Quantity and Quality

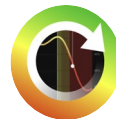
AI/ML model creates a
personalized sleep profile
for each operator
leveraging 10 million +
nights sleep database =>
continuous improvement
and 90%+ accuracy.

4



Readiscore Generated

SAFTE™ predicts alertness
predicted hour by hour —
flagging high-risk periods
before the shift.



SAFTE™

5



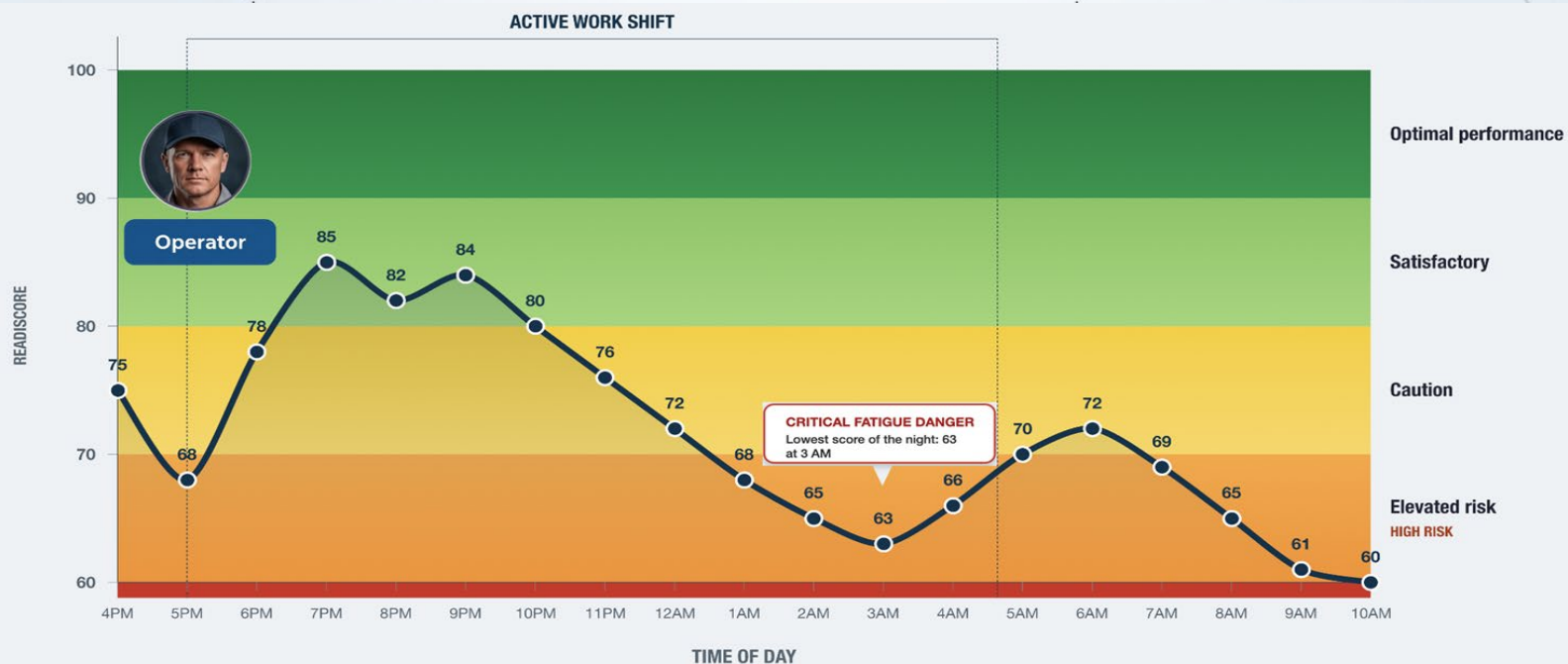
Countermeasure Deployed

Automated break timing
and check ins adjusted
based on fatigue
predictions.

READI'S PERSONALIZED FATIGUE PREDICTION

Insight into a driver's fatigue at the **start, middle, and end** of a shift.

FATIGUE SCIENCE READIScore: DAILY CIRCADIAN RHYTHM EVOLUTION



The Future of Fleet Safety Is Decided Before the Shift Starts

Every era of fleet safety moved the intervention point earlier. The next one moves it before the engine.

YESTERDAY

Compliance

“Were we legal?”

HOS rules and ELD mandates. Safety managed by logbook — hours on duty as a proxy for risk.

TODAY

Detection

“What happened?”

Cameras, telematics, AI vision. Unprecedented visibility into events — after they occur. The era your current stack was built for.

NEXT

Prediction

“What’s about to happen?”

Driver readiness forecast before the shift begins. Intervention moves upstream of the event — and existing tools get more effective.

That’s the thesis. The rest of this session is the evidence: **a controlled pilot at a large U.S. logistics fleet that put prediction to work — and what it took for dispatchers and drivers to trust it.**

Fleet Pilot Overview

Objective & Success Criteria

Driver & Dispatcher Engagement

Target 100 Drivers and 10 Dispatchers

Fatigue Predictions Generated for All Participants

Successful ELD Integration & Driver Sleep Profile Creation

Countermeasure Deployment & Reporting

Driver Interventions Approved Company-Wide - Successful Change Management
Daily Tracking of Key Metrics

Positive Experience & Feedback From Participants

Survey and Anecdotal Feedback

“Proactively predict and mitigate fatigue risks before they occur, therefore reducing safety incidents and Lytx events such as speeding, corner breaking and graveling”

The Pilot: Real-World Rigor, Not a Lab Study

Large U.S. logistics fleet · high-volume feeder operations

STRUCTURE

- 95 pilot drivers using Readit
- 85-driver matched control group (“twins”)
- Matched for route type, schedule, and tenure

ENVIRONMENT

- High-volume, high-complexity feeder corridors
- Demanding operating conditions, including peak-season pressure
- Same operational period for both groups, same geography

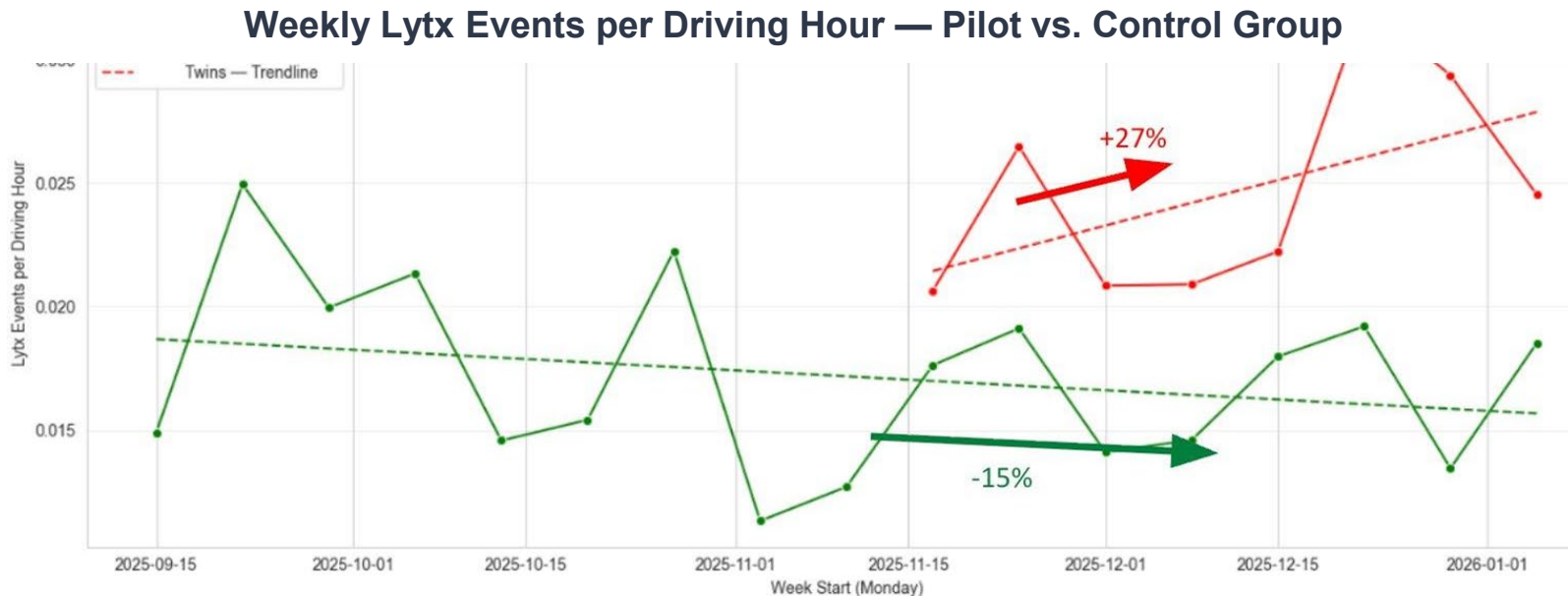
INTEGRATION

- No new hardware, no wearables
- Fatigue forecasts generated from existing ELD data
- Zero disruption to driver workflow

Event data analyzed independently by the fleet's existing video telematics provider.

PROOF POINT — 42% LYTX EVENT REDUCTION

Controlled pilot · large U.S. logistics fleet



KEY INSIGHT: Managed drivers (Pilot) saw a **15% reduction** in events, while unmanaged (Control) **increased by 27%**.

The Headline: 42% Fewer Fatigue-Linked Telematics Events

Controlled pilot · large U.S. logistics fleet

42%

**fewer fatigue-linked in-cab
telematics events**

Readi group vs. identical control group, same operational period

-15%

Readi group — in-cab events per driving hour

+27%

Control group — same window, no Readi

No new hardware. No added surveillance. No extra burden on drivers.

Trust Decides Adoption

Zero mandates — the program was volunteer-first by design

1,722

High-risk shifts flagged and acted on before departure

Up to 81% countermeasure utilization — supervisors acting on fatigue risk hours before onset. The tool was designed to support people, not surveil them — and drivers responded.

Lessons Learned

Change Management and Communication

- Effective change management and communication from operations leadership built strong trust and engagement
- Proactive communication between drivers, safety committees, management, and Fatigue Science
- Sharing positive outcomes (i.e. reduced telematics events) is critical to demonstrating value and building trust ex: Leaderboards

Reporting and Engagement

- Utilization tracking and management reporting must be paired with visible actions to sustain trust and participation

Countermeasure Process

- Countermeasure processes must be clear, concise, and simple
- Process flexibility to accommodate weekends and holidays

Technology and Usability

- Integration of technology and data is critical to ease of use for supervisors (schedule of drivers (TMS), ELD data, no lag-time of data transfer, and Readiness)

The Tone From the Top

Why leadership commitment turned a pilot into a program

“

Drivers liked that we are looking out for their safety besides how they drive.

— Supervisor feedback, Phase 1 debrief

- Executive sponsorship from safety and operations leadership from day one
- Framed as a care signal, not a monitoring tool — and communicated that way
- Perception shift drove voluntary participation and completion rates

The Human Component

No Technology Can Replace Discussions & Interventions

Let The Technology Enhance, Augment and Contextualize Your Conversations.

- Leverage data and tools to enable greater depth
- Update Policies, Procedures and Work Instructions

Non-Punitive!

PROOF POINT — CAMERA ALARM AND TELEMATICS REDUCTION

Readi does not replace cameras and telematics— it reduces the fatigue events that trigger them

58%

**Reduction in Fatigue Camera
Alarms**

Customer #1

37%

**Year-over-year Decrease in Camera
Fatigue Events**

Customer #2

21%

Reduction in Telematics Events

Customer #3

**Fewer Alarms = Fewer Disruptions, Fewer Near-Misses and Ultimately Fewer Accidents.
Fewer Disruptions = More Productivity**

Evolution of Fatigue Management

Move the Moment of Intervention Upstream

Before the shift starts — and before the engine does

1

Predict

Before the shift

An hour-by-hour fatigue risk forecast for each driver's full upcoming shift — built from sleep opportunity, circadian patterns, and schedule data already in your ELD.

2

Prioritize

The right drivers

Supervisors and dispatchers see which shifts carry elevated risk and when in the shift risk peaks — exceptions, not alert streams.

3

Prevent

Before the event

Countermeasures applied hours before fatigue onset: route and schedule adjustments, rest guidance, check-in conversations.

Readi is designed to make existing camera, telematics, and ELD investments more effective — not to replace them.

Three Things to Take Back to Your Operation

Key operational takeaways to transform your fatigue management strategy

01

From detection to prediction

The step-change is intervening before the shift — not detecting more during it.

02

Leading indicators in practice

An hour-by-hour view of the upcoming shift reduces the events your cameras already track.

03

Trust decides adoption

Tools designed to support people, not surveil them, are the ones that get used.

Dig Deeper with Fatigue Science

01

Fatigue Risk Assessment

What an hour-by-hour fatigue forecast looks like across a real shift in a fleet your size.

02

Product Demo

A thorough demonstration of Readit and how it can impact your business similar to the Pilot.

Additional Questions?



Email additional questions to
Rodolfo.Giacoman@CVSA.org

Recording will be available at
nafmp.org/webinars

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Thank you!



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