



Increasing Transit Safety with Video-Based Driver Risk Management Technology

Max Kabrich

DriveCam
POWERED BY Lytx 

Agenda

- What is the problem?
 - Distracted driving

- What is the DriveCam solution?
 - Predictive analytics

- Open Forum

Background

- Lytx (formerly DriveCam)
 - Use video and analytics to increase driver safety and productivity
 - Protecting ~1,000 fleets and ~500,000 drivers (lots of data)
 - Saving lives, dollars, and reputations for clients

- Max Kabrich
 - Economics degree from the University of Puget Sound
 - 2+ years as Lytx Client Account Manager for transit company in Dallas, TX
 - 1 year as Program Consultant in San Diego, CA



What is the problem?

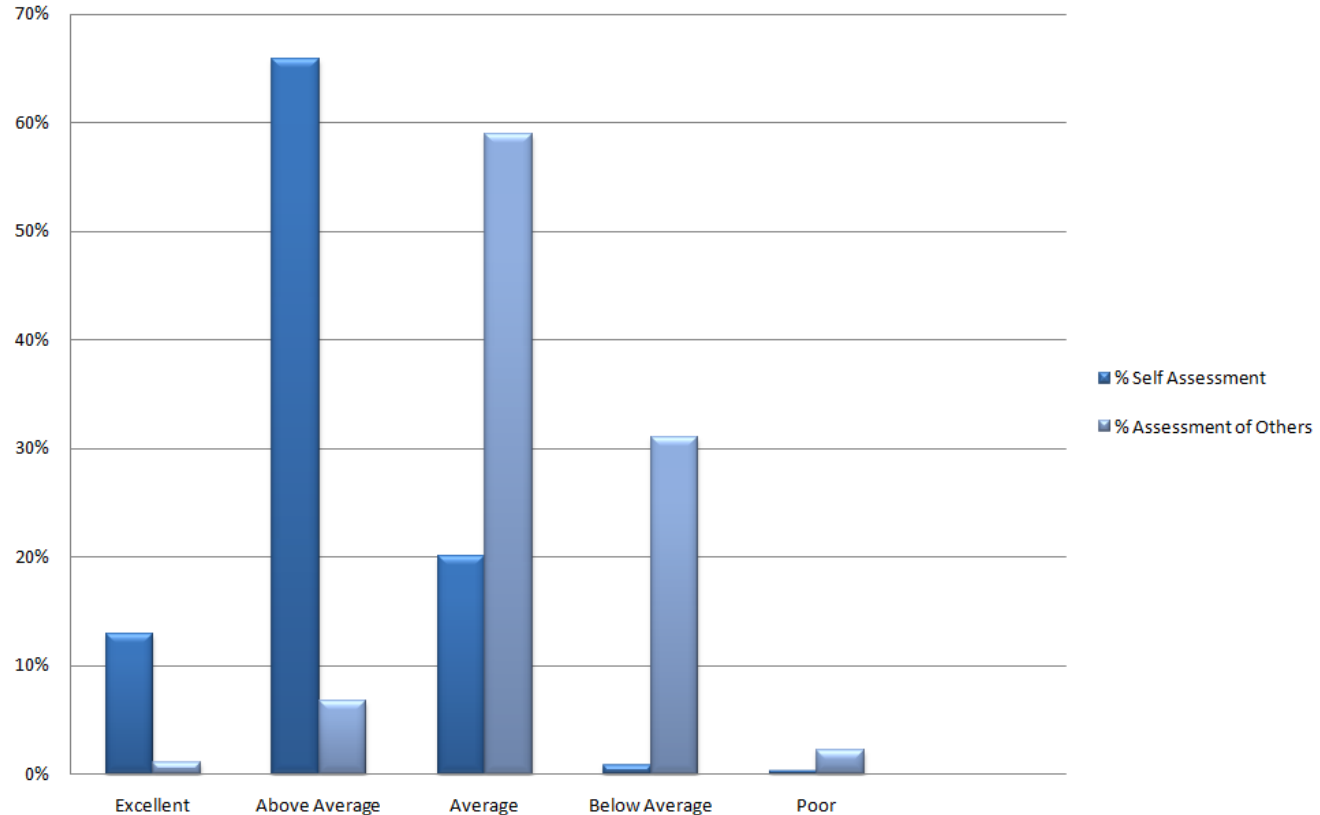
How safe of driver are you?

- Very safe
- Safe
- Occasionally risky
- Frequently risky
- Lucky to make anywhere without an incident

▪ How safe are other drivers?

Self-Assessment

Driver self-assessment findings



- That's the challenge. How do you convince someone to improve when they already think they are perfect?
- Recognition of the problem is a key...drivers must recognize their mistakes *before* they will be motivated to make a change.

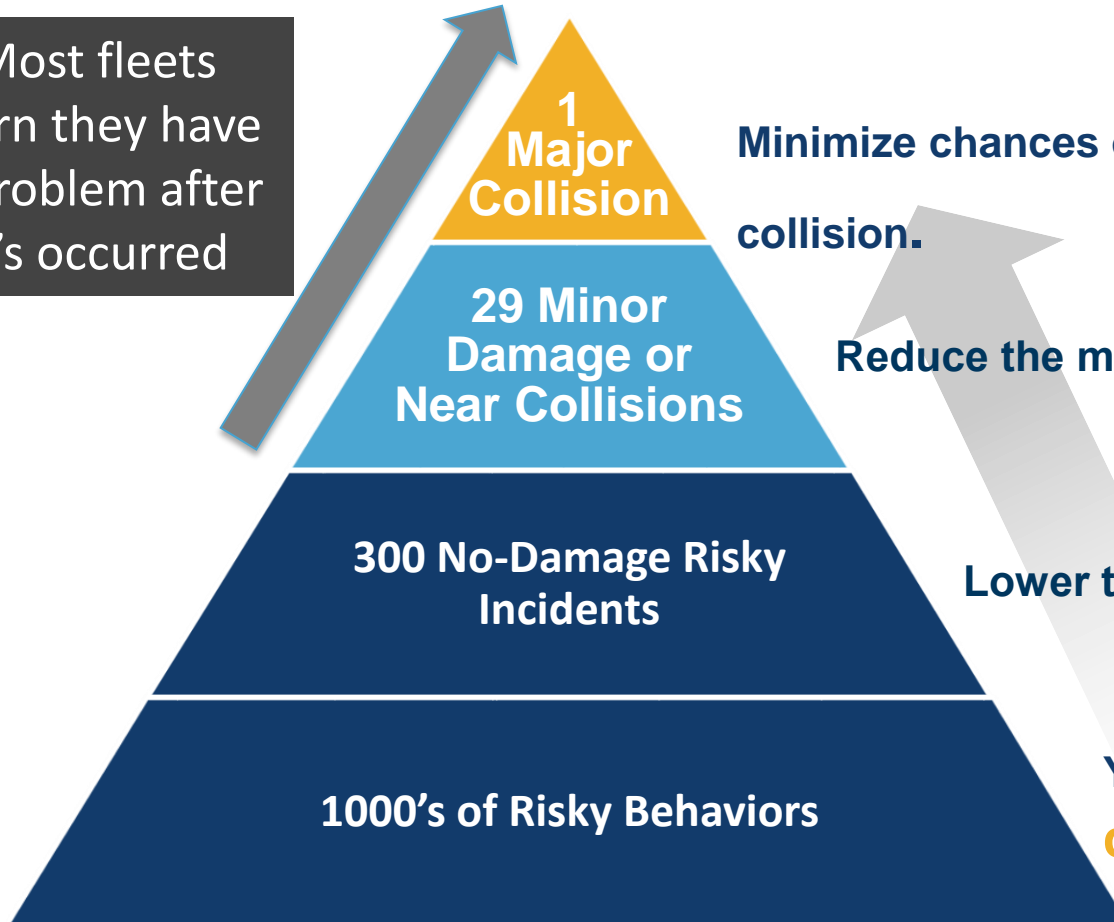
Driving a Vehicle is Risky



The Safety Foundation

Modifying Driver Behavior Before the Incident Occurs

Most fleets learn they have a problem after it's occurred



Minimize chances of a major collision.

Reduce the minor collisions and to ...

Lower the risky incidents ...

You must change the **risky driving behaviors to...**

Source: H.W. Heinrich, *Industrial Accident Prevention: A Scientific Approach*.

Safety

Traditional safety efforts sometimes do little to change poor driving habits

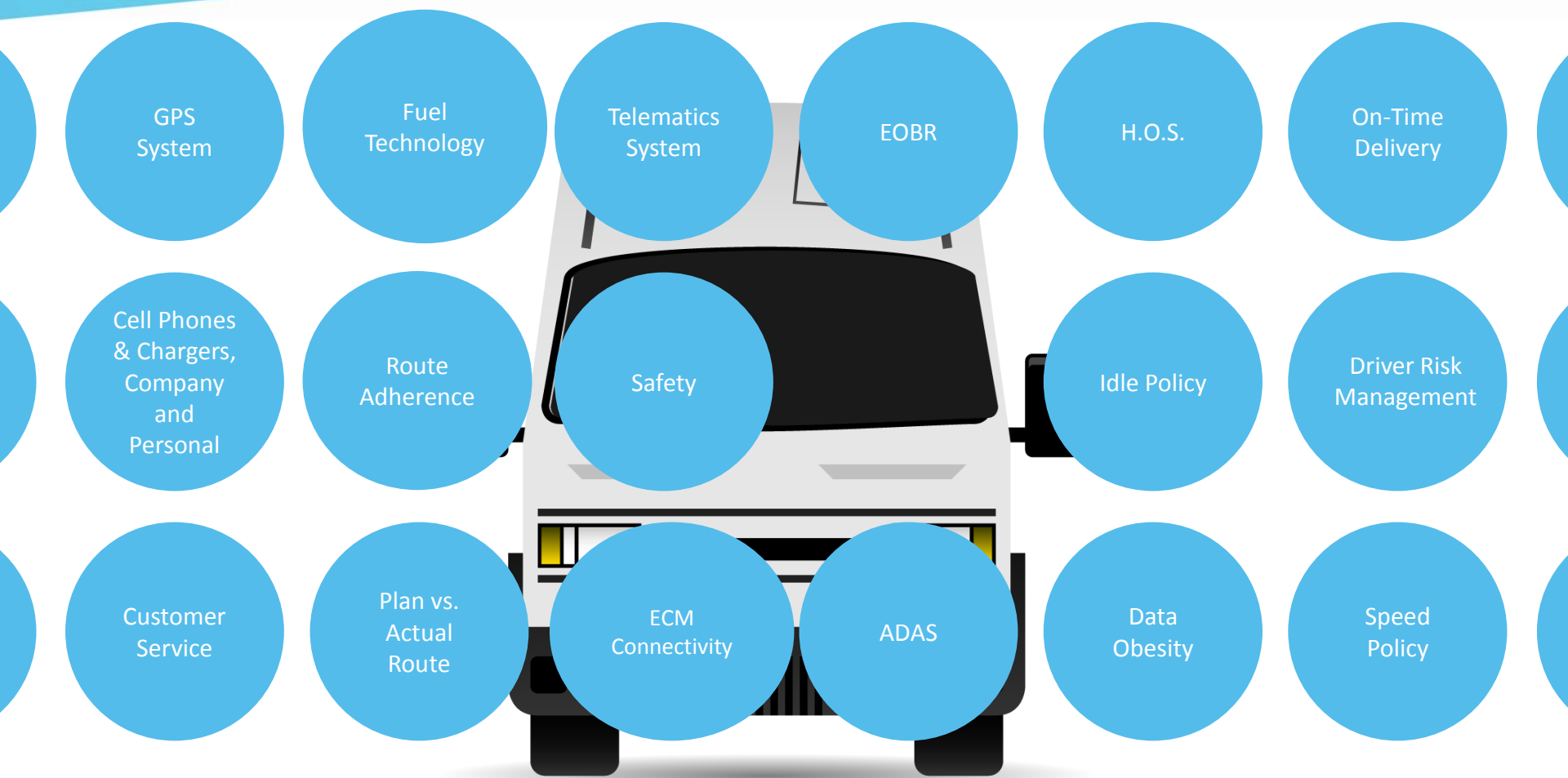


But he attended every safety meeting and just went through training!



Distracted Driving

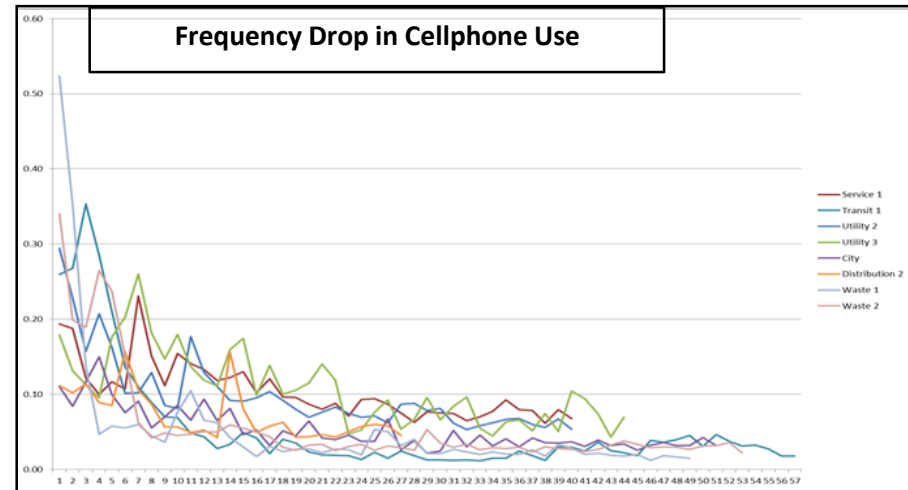
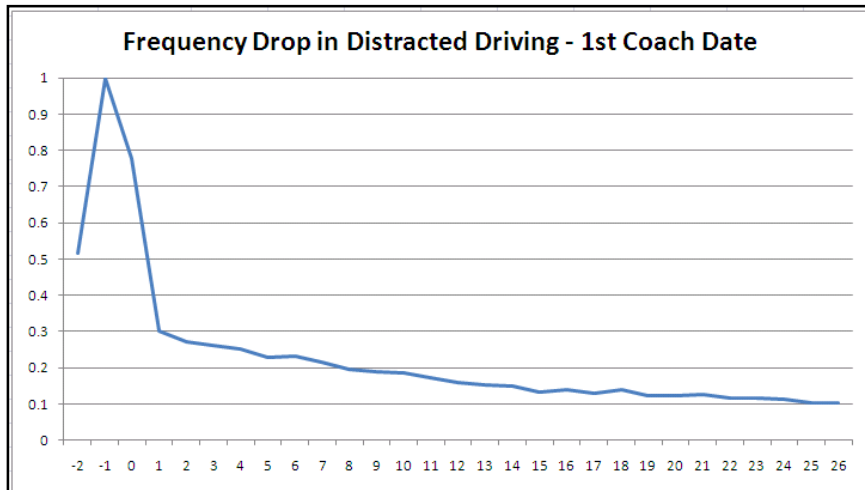
Distractions Facing Today's Professional Drivers



Drivers today are confronted by more systems, policies and information than ever

Measuring Impact – Distracted Driving

Once captured on video and coached, behavior change is dramatic ...providing policies are in place and enforced





What is the DriveCam solution?

How the Program Works

Providing Technology . . .



. . . objective 3rd party analysis



4 Access confidential website for events, dashboards and reports



DRIVER SCIENCE PROGRAM



5 Coach driver

Results in Continuous Improvement

6 Driver returns to the field with added knowledge

. . . and Co-Managing a Program

Driver Risky Management

Critical Events Alerts



Engaging Drivers in Continuous Skill Improvement

Three Phases Toward Improvement

Expose Risk



Capture data and evidence of poor driving behavior.

Identify & Prioritize



Use data to identify the riskiest drivers and develop and prioritize a coaching plan.

Coach & Improve



Coach and train the riskiest drivers. Reward safe drivers for their performance.

Coaching

- What is coaching?
 - A process that enables learning and development to occur and thus performance to improve.
 - Involves questioning techniques to facilitate employee's own thought and conclusions (rather than a directive)
 - Focused on the individual
 - Collaborative and positive



Identifying Risky Root-Cause Behaviors

Human Review Validation

Root Cause

Distractions

(e.g., cell phone, food, passenger)

Poor Awareness

(e.g., not scanning, not looking ahead, not checking mirrors)

Driver Conduct

(e.g., aggressive, reckless, judgment error)

Fundamentals

(e.g., following too close, too fast for conditions, unsafe lane change)

Driver Condition

(e.g., drowsy, falling asleep, impaired)

Traffic Violations

(e.g., stop sign, red light, speeding)

Other Concerns

(e.g., smoking, passenger unbelted)

The screenshot shows a software interface for reviewing an event. At the top, it displays 'Driver: John Crowley (233)', 'Status: FYI Notify', 'Group: Vehicle Site B', 'Vehicle: 85', 'ER Record Time: 5/26/2019 1:21:40 PM PST', 'Trigger: Email', 'Seat Belt Type: Shoulder Harness', 'Audio: Disabled', and 'Vehicle Type: J-Alta - 4 Tire Light'. Below this, there are several panels for selecting root causes:

- Event Trigger:** Not Specified, Accelerating, Braking, Cornering, Rough/Uneven Surface, Other.
- Distractions:** Cell Phone - Handheld, Cell Phone - Hand Free, Other Communication, Food/Drink, Electronic Device, Passenger, Other.
- Poor Awareness:** Not Looking Far Ahead, Blank Stare, Not Scanning Roadway, Not Scanning Intersection, Mirrors Not Checked.
- Driver Conduct:** No Issue, Judgment Error, Aggressive, Reckless Driving.
- Fundamentals:** Failed to Keep an Out, Too Fast for Conditions, Unsafe Lane Change, Following Too Close (with dropdowns for 1 sec or less, 1.25 - 1.75 sec, 2 - 2.25 sec, 3 - 3.25 sec), Driver Condition (with dropdowns for No Issue, Drowsy, Falling Asleep).
- Traffic Violations:** Rolling Stop, Stop Sign, Red Light, Not on Designated Roadway, Speeding, Other (Unsafe / Risky).
- Other Concerns:** Smoking, ER Obstruction / Abuse, Camera Issue, Passenger Unbelted, Driver Unbelted (with dropdowns for No Concern, Roadway, Restricted Roadway, Off-Identifiable Roadway, Company Premise, Parking Lot, Yield, Landfill).

At the bottom, it says 'Event Status: Resolved / FYI Notify / Self / PZF / Internal Notify' and 'Custom: Clients may select up to 5 pre-approved custom behaviors to be identified during event analysis'.

Root Cause Checklist

Outcomes

- No collision
- Near collision avoidable
- Near collision unavoidable
- Collision

Distracted Driving

Event Analysis



The Power of Video

Risk that would otherwise be invisible – until its too late



The Power of Video

Protecting Drivers and Companies Against False Claims

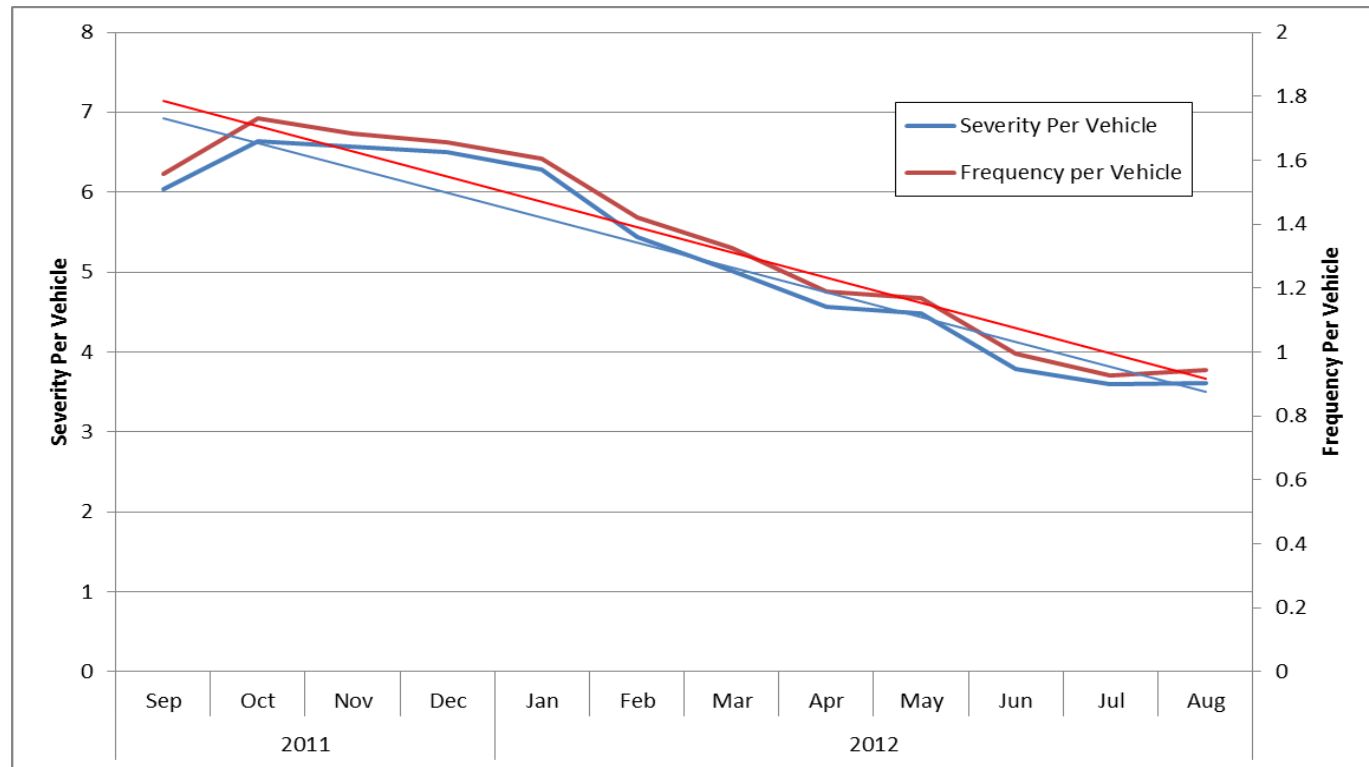


Measuring Impact – Overall Performance

Total Risk Reduction Results

Ability to proactively measure program impact on reducing risky driving incidents

Historic Performance

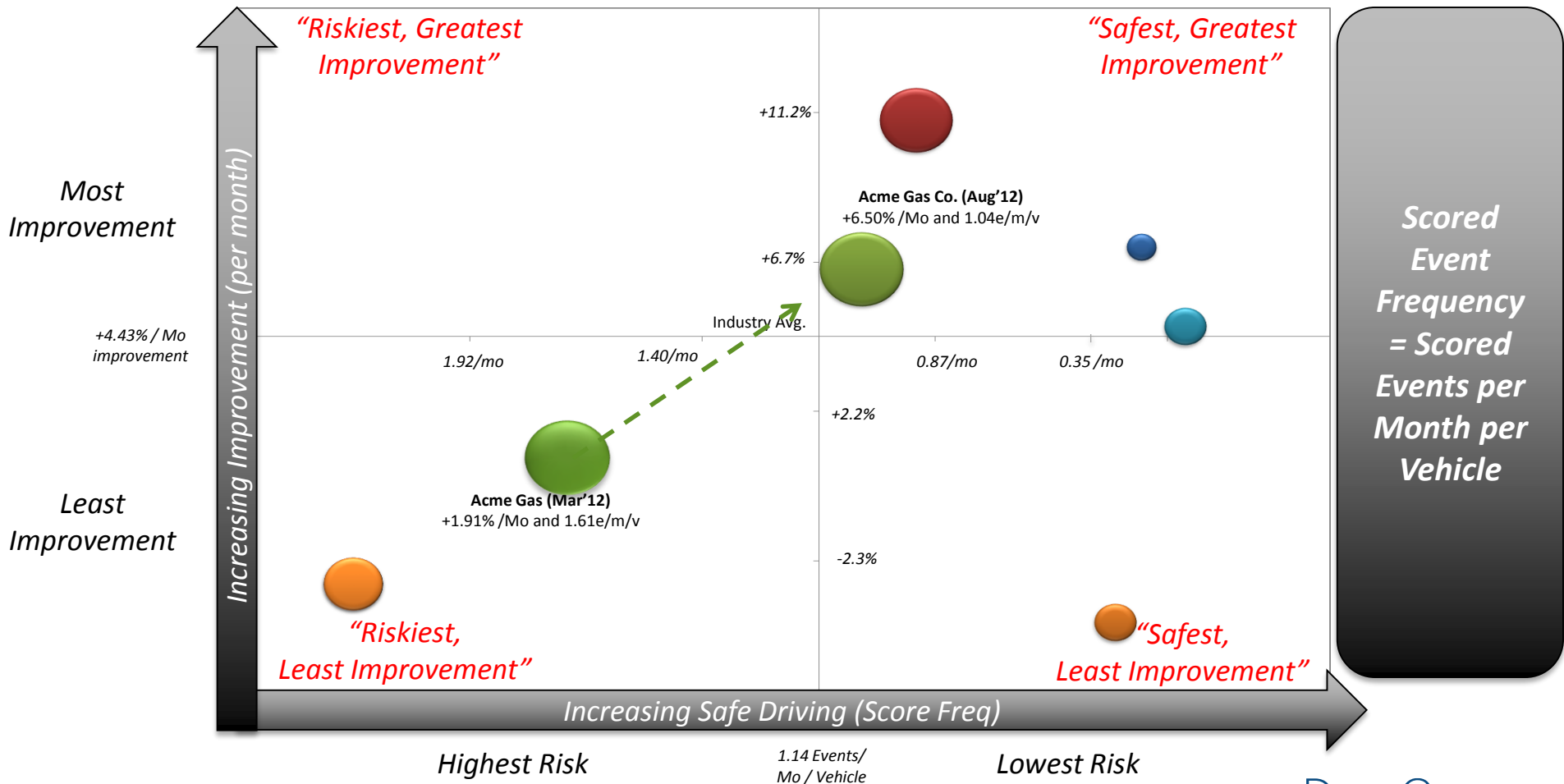


Actual chart from a 5,000 vehicle waste industry client

Benchmarking Against Peers

Company-by-Company Comparison

Performance by Risk and 6-Mo Improvement
(size of bubble represents deployment size)



Measuring Driver Performance

Technology Enables Identification of Riskiest Drivers & Focus on Where They Need Improvement

Driver Name	Location	Feb-Apr Total Score	Feb-Apr Coached Events	Last 6 Month Driving Behavior Profile				
				Collis and Near Collis	FTC and NLFA	Traffic Violation	Cell Phone	Seatbelt
PEMPLESTON, LEON	Temple	36	9	2	8	2	0	9
Chism, Jerry	Dallas	30	6	0	6	1	0	2
TAYLOR, TERENCE	Dallas	27	6	3	1	0	0	8
ARMSTRONG, ARTHUR	Dallas	25	6	1	6	0	1	7
DANIELS, JEREKIAL	Dallas	24	8	1	10	1	1	2
Bonilla, Joel	Dallas	21	6	0	5	0	0	3
Perez, Carlos	Houston	20	4	1	4	1	1	12
HEINECKE, BRAD	Temple	19	6	1	4	1	3	5
Hernandez, Michael	San Antonio	18	4	1	4	0	0	3
Parker, Michael	Dallas	17	6	0	4	0	0	7
WILLIS, MIKE	Dallas	17	8	0	4	0	0	11
White, Craig	Dallas	16	4	1	4	1	0	13
TERRY, CHARLES	Dallas	15	10	3	7	1	5	13
Combs, Michael	Temple	15	7	1	3	0	3	2
LADELL, RAY	Temple	15	6	0	4	0	2	7
HOLTZAPPLE, JOHN	Dallas	15	4	0	7	0	0	0
FARMER, ROY	Temple	15	3	1	1	0	0	6
RAMOS, RICARDO	Temple	15	5	0	3	0	0	3
JACKSON, RICKEY	Dallas	14	3	2	7	0	1	1
CAMARILLO, VICENTE	Dallas	14	3	1	5	0	1	17

Benefits



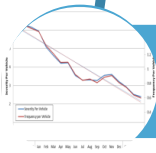
Identify & correct poor driving before it leads to a crash



Protect company & drivers against false claims



Identify your best drivers based on facts instead of luck



Measure driving improvements through leading indicators



Reduces fuel consumption & vehicle wear and tear

Validate Safety Benefits

VTTI

Driving Transportation with Technology

If all U.S. Commercial Fleets Used the DriveCam Program*

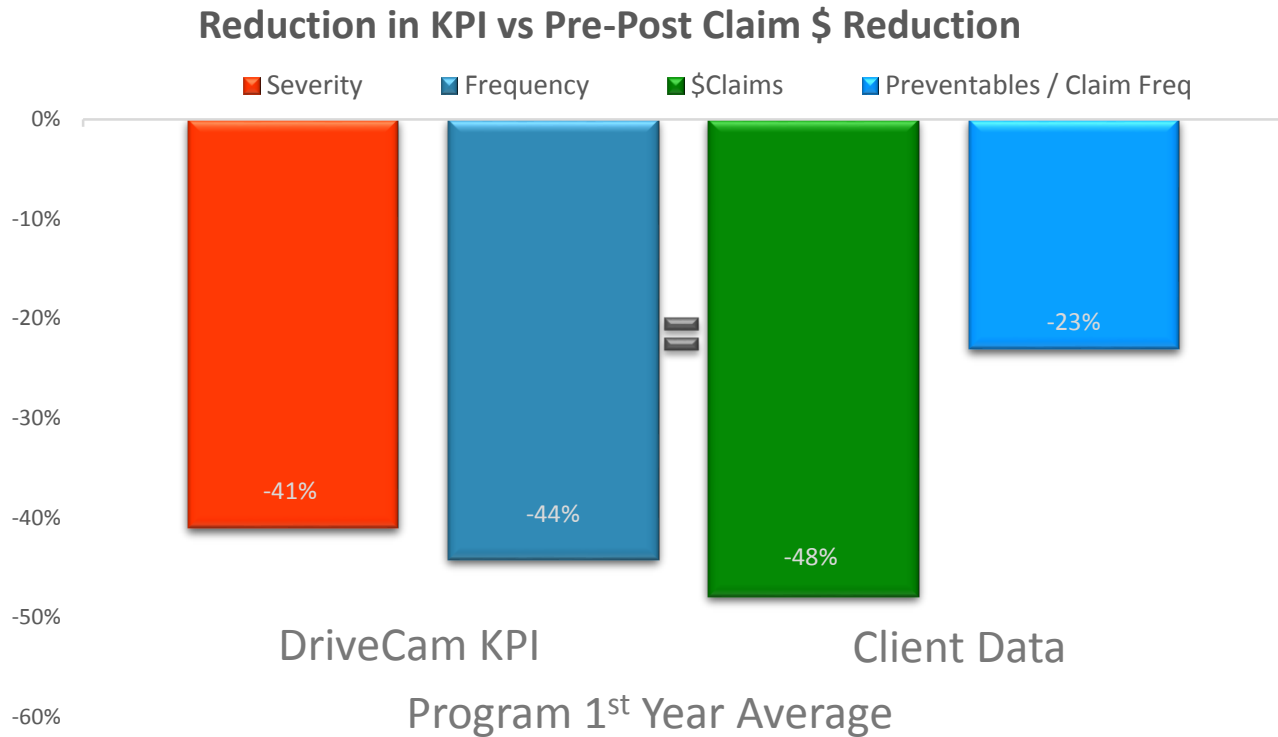
Truck and bus crash-related fatalities reduced by: 20.0% (801) per year

Truck and bus crash-related injuries reduced by: 35.5% (39,066) per year

* Assumes modeled fleets are as effective on average as the two fleets in the FMSCA study

Other Safety Measures	Lives Saved / Year
Vehicle Stability Control	439
Child Restraints (4 & under)	284
Lane Departure Warning	125
Back-up Cameras	58-69

Average Client Savings vs DriveCam KPI



Based on DriveCam & Client Data, DC fleets realize a >1x correlation between KPI Improvement & Claims Savings (\$).

DC impacts severity of collisions more than frequency, driving claims \$ down.

The background features a series of overlapping, semi-transparent blue geometric shapes that create a sense of depth and movement. The shapes are primarily triangles and quadrilaterals, with varying shades of blue from light to a vibrant, saturated blue. The bottom right corner is a solid white space where the text is located.

Predictive Analytics

Predictive Analytics

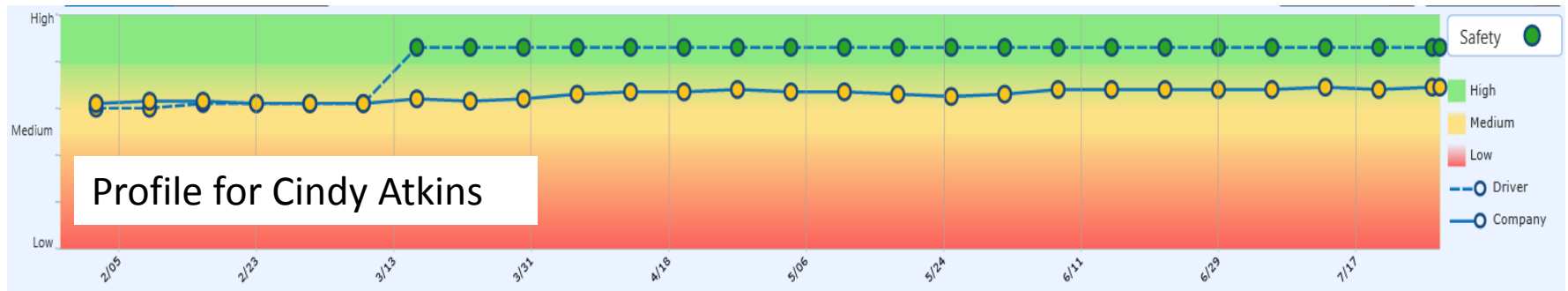
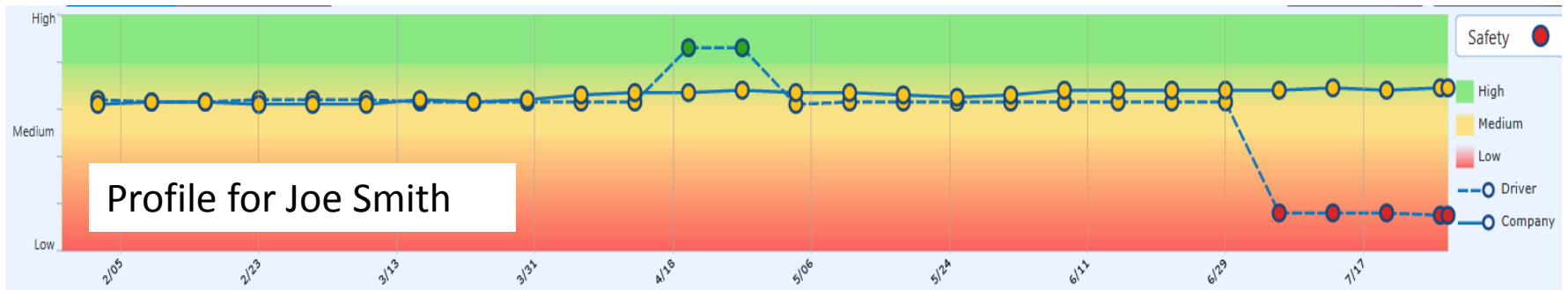
- Analysis of data available due to vehicle technologies enables ability to correlate driver performance to crash risk potential

Driver Score Ranking			
Unidentified Drivers: 2.1%			
Rank Number ▲	Driver	Home Group	Rank ▲
1	Butch Lawless	San Diego	●
2	Chris Gold	San Marcos	●
3	Nate Handels	Escondido	●
4	Colleen Gilman	Escondido	●
5	Josh Boseman	San Marcos	●
6	Russ Peterson	East County	●
7	Michael Shilling	Downtown	●
8	Kristen ONeil	Orange County	●
9	Nikki Kalipolis	San Diego	●
10	Trevor Hoffman	San Diego	●

LOW
MED
HIGH

Measuring Impact – Individual Drivers

Ability to proactively measure individual driver risk performance compared to rest of the organization



The background consists of several overlapping geometric shapes in various shades of blue. A large white triangle is positioned in the lower right quadrant, pointing towards the bottom right corner. The text 'Open Forum' is centered within this white area.

Open Forum