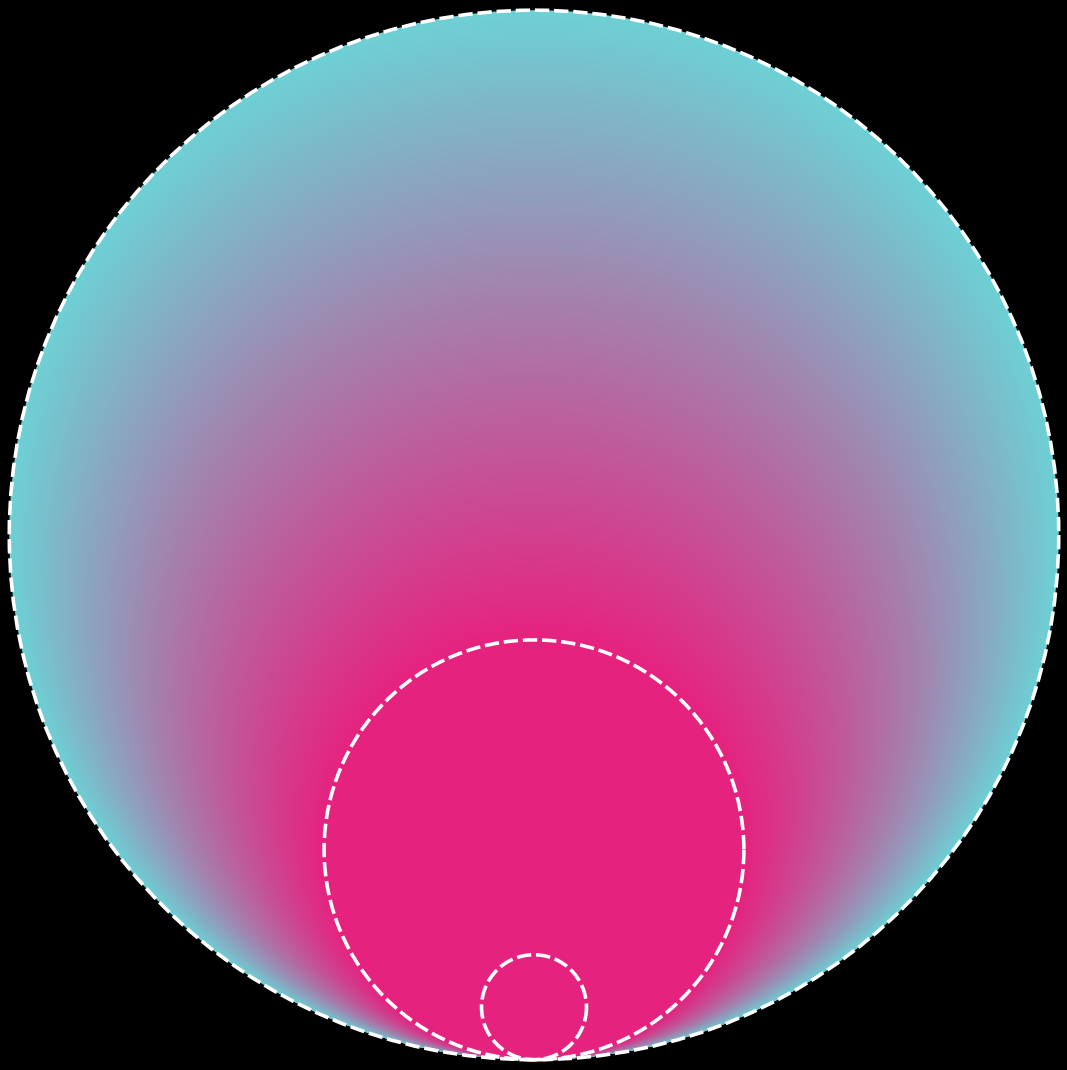
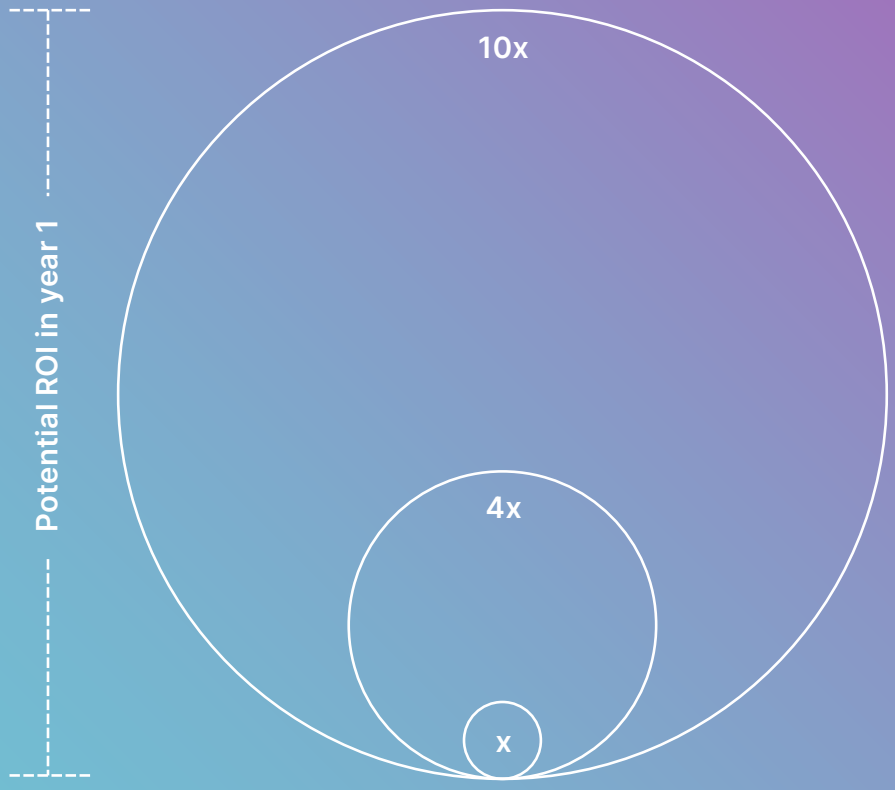
KEEP TRUCKIN

How to achieve up to 10x ROI with AI-powered dashcams and coaching



Abstract

KeepTruckin studied the impact of how our AI-powered dashcams and safety platform help reduce high-risk driving behaviors and crashes on the road. We analyzed more than 5,000 KeepTruckin fleets over two years, and concluded fleets that used KeepTruckin dashcams and frequently coached had **22% fewer accidents** and **56% fewer unsafe driving incidents** than fleets that didn't use dashcams and didn't coach. Fleets also saw up to **10x return on investment** (ROI) in their first year with KeepTruckin. Our study showed that taking a proactive approach to safety definitively helped prevent crashes and lower costs, all while keeping drivers safe.



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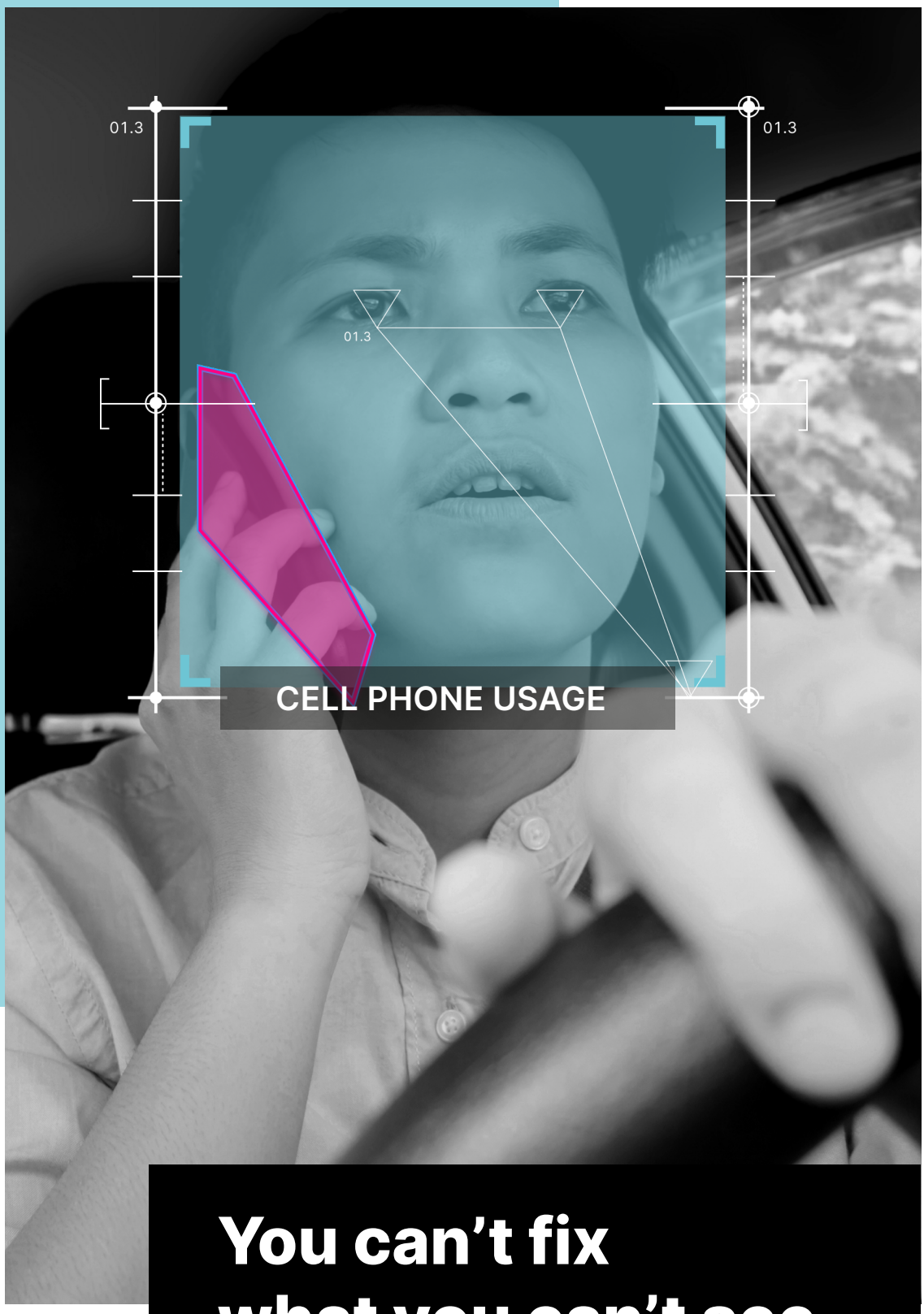


You can’t fix what you can’t see

Don’t leave your fleet’s safety up to chance

Fleets using KeepTruckin dashcams and frequently coaching had 22% fewer accidents

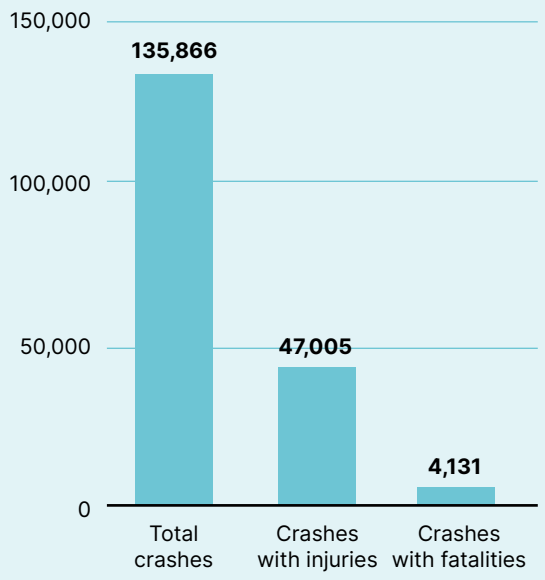
Executive summary

With insurance costs and nuclear verdicts on the rise, running a safe fleet has never been more critical to the health and success of a business. In 2020 alone the Federal Motor Carrier Safety Administration (FMCSA) recorded 135,866 crashes, 47,005 crashes with injuries, and 4,131 crashes with fatalities. In aggregate, there were 65,244 injuries and 4,752 fatalities.

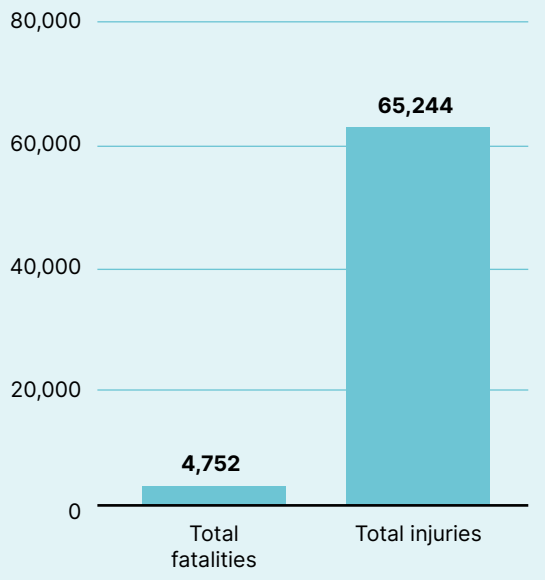
Besides the significant impact on lives lost and injuries, crashes also have a major monetary impact. Based on the study conducted by the FMCSA [1], the average cost of a large commercial vehicle crash is $91,000. This increases to $200,000 if there's an injury and $3.6 million if there's a fatality. After adding up all the crashes with injuries and fatalities, we estimate that fleets lost $24.3 billion[1] in 2020 alone due to crashes.

This data tells us that implementing a proactive safety strategy is crucial to saving lives and saving money.

Crashes in 2020



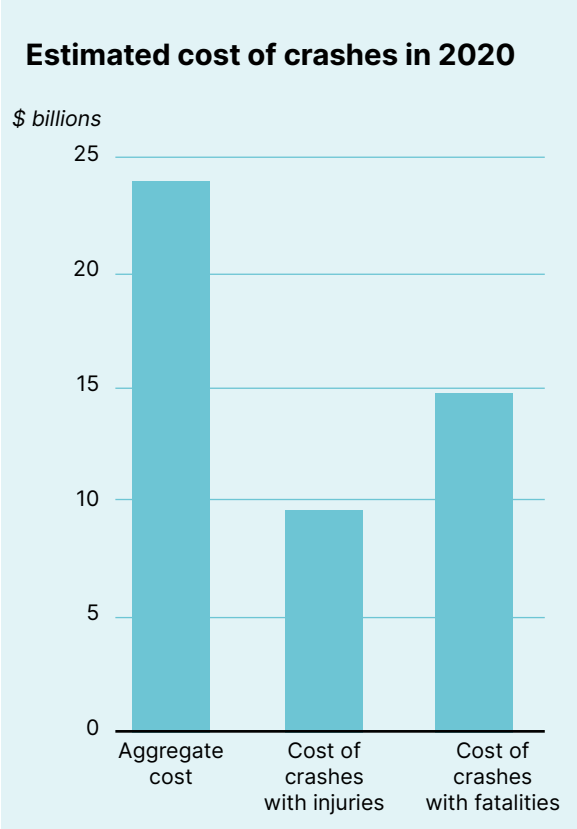
Total incidents in 2020



[1] Estimated using the average cost of crashes in [1] and calculating total crashes and injuries in 2020 from the FMCSA public crashes database.

We estimate that fleets lost $24.3 billion in 2020 alone due to crashes.

After adding up all the crashes with injuries and fatalities



The safety departments that are able to identify and modify high-risk driving behaviors early are the ones that will be successful. This proactive approach to safety can make all the difference in keeping both liability and costs low — and profit margins high. More importantly, drivers can get home safe and we make our roads safer for everyone.

Since 2013, KeepTruckin has helped improve the safety, productivity, and profitability of businesses that power our physical economy. With more than 550,000 vehicles in the KeepTruckin network, over 73 million relevant driving events captured per year, and trillions of driving data points collected over the years, we wanted to use that data to better understand the impact that dashcams and robust coaching practices could have on fleet safety.

In this study, we analyzed over 5,000 KeepTruckin fleets across two years to determine the impact our AI-powered dashcams and safety platform had on reducing high-risk driving behaviors and crashes on the road. We grouped fleets based on their usage of the coaching features and compared the average safety metrics across three groups:

Frequent coaching: Fleets with dashcams that received coachable events in their Fleet Dashboard and were in the top 10% of coaching activity. Coaching activity is defined as fleets changing events that were automatically tagged as “coachable” to “coached.”

Occasional coaching: Fleets with dashcams that received coachable events in their Fleet Dashboard and were in the remaining 90% of coaching activity.

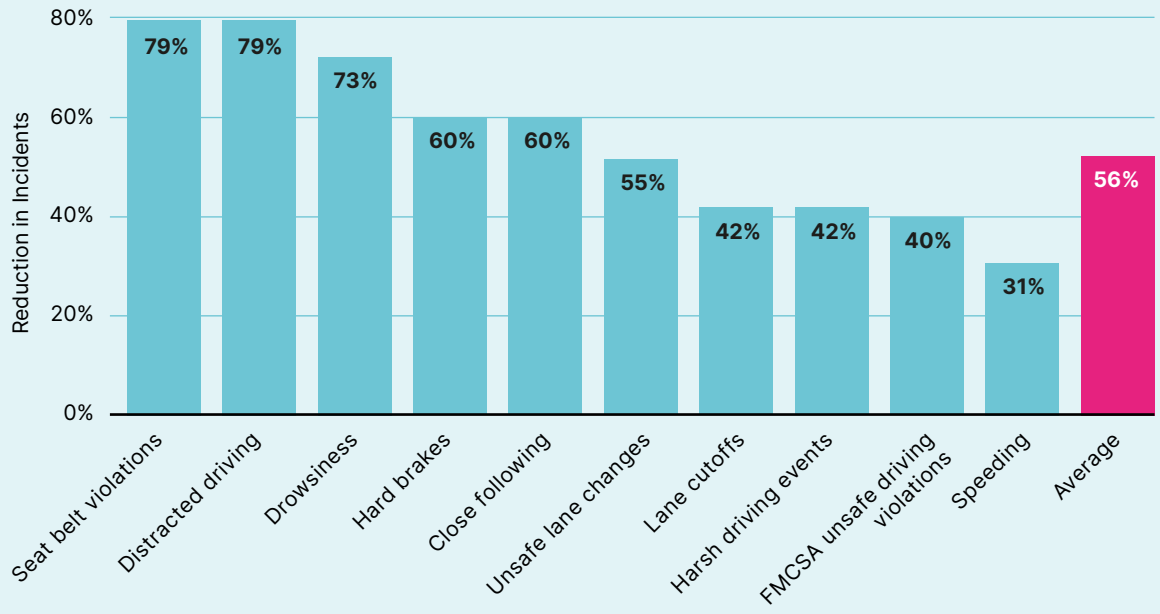
No dashcams: Fleets that didn't use dashcams and didn’t coach.

We discovered fleets that used KeepTruckin dashcams and frequently coached their drivers had **56% fewer unsafe driving incidents.**

Fewer safety incidents translated into a lower number of severe crashes, defined by the FMCSA as crashes with a towaway, injury, or fatality. We determined fleets that used dashcams and frequently coached experienced **22% fewer crashes** than fleets that didn’t use dashcams and didn’t coach.

We then estimated the financial impact of dashcams and coaching by multiplying the average cost of a crash

Incident reduction in fleets that frequently coach



Group	Crashes per 100k hrs	% change vs. no dashcams
Frequent coaching	2.9	-22%
Occasional coaching	3.1	-16%
No dashcams	3.7	

($91,000) by the crash difference (0.8) between fleets that used dashcams and frequently coached and fleets that didn't use dashcams and didn't coach. On average, KeepTruckin fleets that used dashcams and frequently coached **saved $72,800 per year**. Annual savings were estimated based on a 50 vehicle fleet driving 100,000 hours annually.

Based on these assumptions and the typical cost of implementing a KeepTruckin dashcam, we estimated fleets that used dashcams and frequently coached received a **4x ROI** if the program helped them avoid a standard crash. This ROI jumps to **10x** if they avoided a crash with an injury, and **186x** if the fleet avoided a crash with a fatality.

These ROI metrics clearly show that purchasing dashcams and safety technology upfront is a positive investment on long-term spend, rather than a cost, for businesses.

	No dashcams	Frequent coaching	Crashes avoided	Average savings
Crashes per 100k hours	3.7	2.9	0.8	**$72,800**

KeepTruckin fleets saved $72,800 per year.

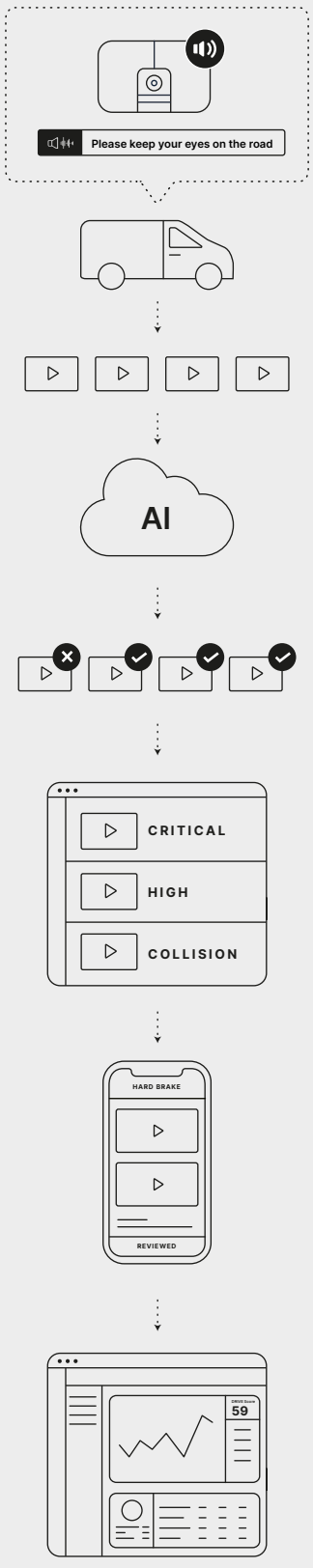
Based on a 50 vehicle fleet using dashcams and frequently coaching

KeepTruckin background

KeepTruckin is an integrated fleet management platform that helps improve the safety, productivity, and profitability of the businesses that power our physical economy. Our AI-powered safety platform puts fleets back in control with a proactive approach to driver safety that helps prevent accidents and lower costs.

It all starts with KeepTruckin AI-powered dashcams, which instantly detect unsafe driving behaviors and alert drivers in real time. When an unsafe driving event is detected, video footage is instantly uploaded to the cloud. Our AI technology then automatically filters out videos that don't represent actual risk, and our in-house safety team analyzes the remaining videos to determine the context and severity.

Managers get prioritized videos with rich, actionable insights in their Safety Hub and can quickly zero in on the most critical events, so they know exactly which drivers to pay attention to and what behaviors to coach. Fleets can also choose to automatically coach



AI-powered dashcams

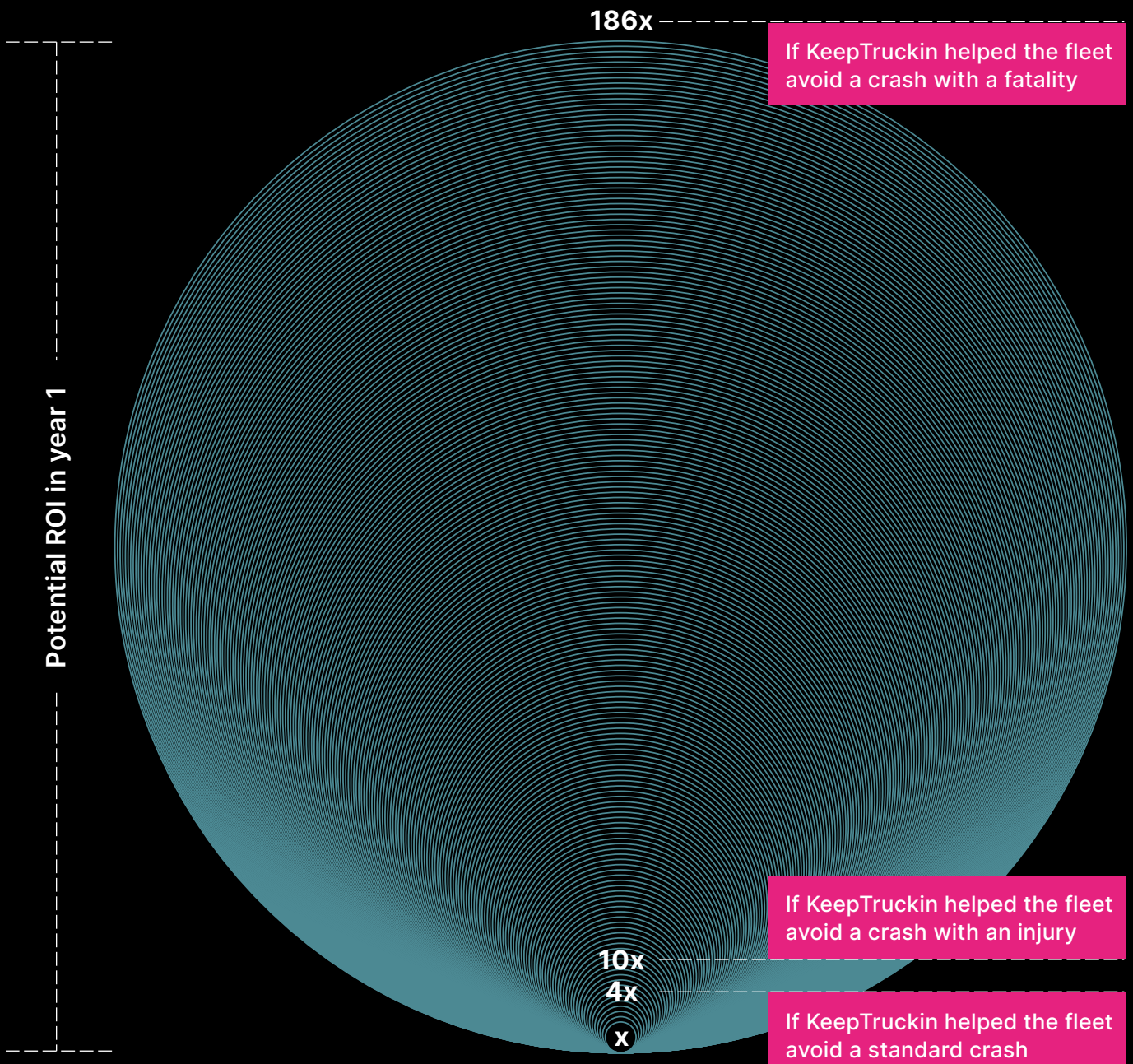
Automatic video review

Safety Hub

Automated coaching post-trip

DRIVE risk score

The ROI of KeepTruckin's safety platform



drivers through the KeepTruckin Driver App when they complete their trip.

While managers can coach drivers on individual events, KeepTruckin's proprietary DRIVE risk score helps provide a holistic view of driver performance over time. DRIVE offers full context into factors surrounding the event, e.g., road conditions, vehicle class, and the behaviors of other drivers on the road. DRIVE benchmarks every single driver behavior across KeepTruckin's network of 550,000+ vehicles to create an objective measure of risk, helping fleets understand the true risk profile of their drivers relative to their peers.

Managers can easily identify high-risk drivers with low DRIVE scores and address specific behaviors by reviewing the prioritized event footage, coaching drivers, and monitoring improvements in their driving performance. DRIVE can also be used as the foundation for driver incentive programs to help with driver retention.

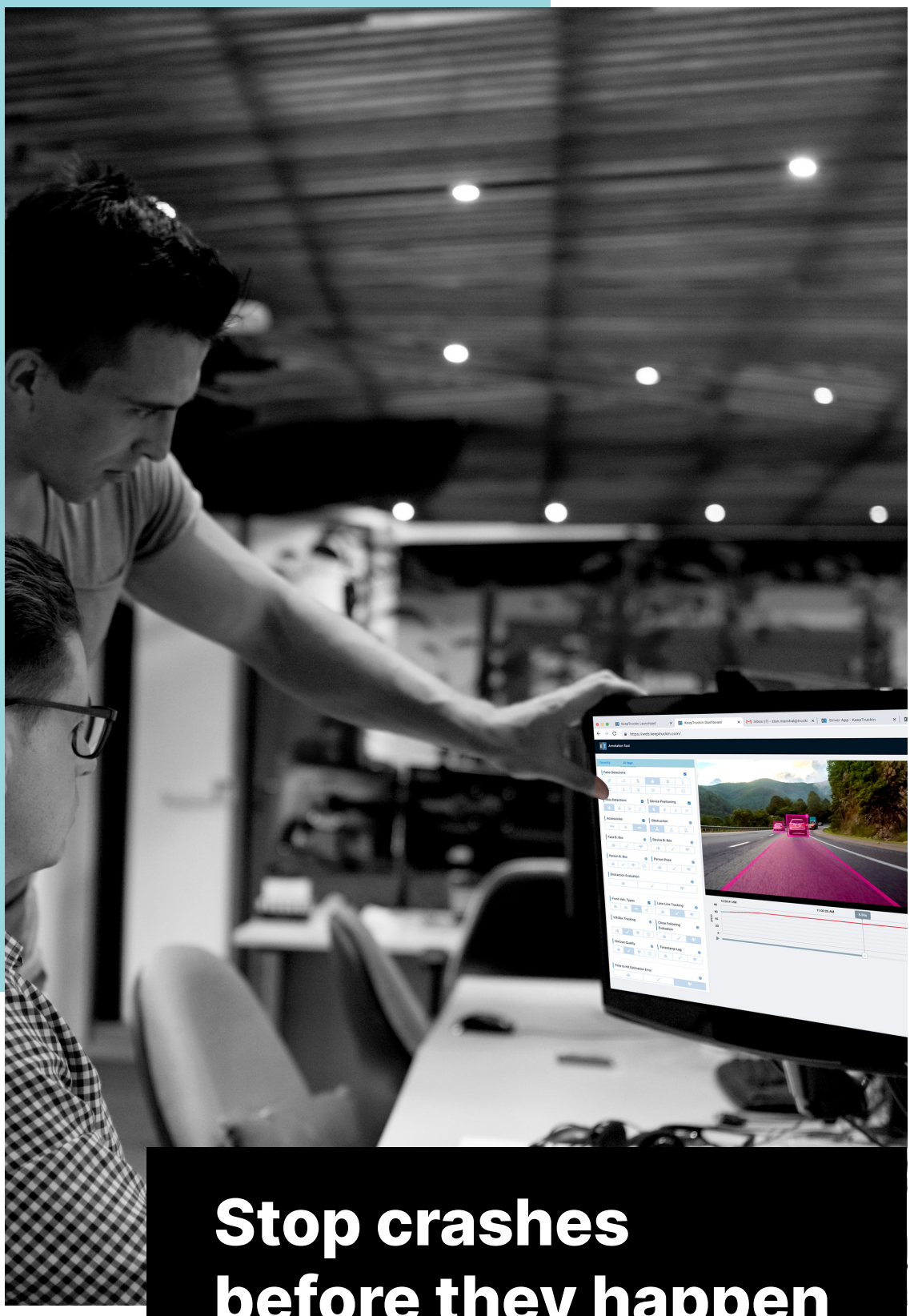
KeepTruckin's comprehensive platform approach to safety — spanning dashcams, automatic video review and coaching, and DRIVE — helps transform the way fleets manage their drivers and reduce the frequency of accidents on the road.

The power of KeepTruckin's network

There have been other studies attempted by bodies like the Department of Transportation (DOT) [2] and Virginia Tech's Transportation Institute [3] to study the impact that dashcams and coaching have on safety. However, with a sample size of less than 80 drivers and a short time window of 13 weeks, these studies didn't have enough data to deduce any statistically significant conclusions.

With more than 550,000 vehicles in the KeepTruckin network, over 73 million relevant driving events captured per year, and trillions of driving data points collected over the years, KeepTruckin has enough data points to reach statistically significant conclusions and avoid the limitations encountered in the other industry studies.

We use proprietary machine learning models to properly analyze and understand this high volume of data,



Stop crashes before they happen

Coach high-risk behavior before it’s too late

Fleets using KeepTruckin dashcams and frequently coaching had 56% fewer unsafe driving incidents

creating products that identify driving behavior impact on an aggregate level, averaging out unique fleet attributes such as internal safety policies, driving regions, industries, and more. We then use that information to determine the impact of how our AI-powered dashcams and safety platform help reduce high-risk driving behaviors and crashes on the road.

Methodology

For this historical correlation study, we analyzed over 5,000 KeepTruckin fleets across two years, looking at 1) fleets that used KeepTruckin dashcams and coached using the safety platform, and 2) fleets that didn't use dashcams and didn't coach.

Data sources

KeepTruckin: The 5,000 fleets included in our study had at least 20 vehicles, with the dataset consisting of monthly data starting November 2019. We used fleets with at least 20 vehicles since they're more likely to have a safety program in place with managers focused on improving fleet safety.

FMCSA: We used FMCSA's Crash File [4] to identify crashes per fleet. We focused on high-impact crashes for this study since the dataset only includes crashes with towaways, injuries, or fatalities.

Segmentation

We grouped KeepTruckin fleets based on their usage of the coaching features and compared the average safety metrics across three groups. Segments included:

Frequent coaching: Fleets with dashcams that received coachable events in their Fleet Dashboard and were in the top 10% of coaching activity. Coaching activity is defined as fleets changing events that were automatically tagged as "coachable" to "coached."

Occasional coaching: Fleets with dashcams that received coachable events in their Fleet Dashboard and were in the remaining 90% of coaching activity.

No dashcams: Fleets that didn't use dashcams and didn't coach.

The segments were recalibrated monthly. We only included fleets in the frequent coaching segment for a particular month if they were frequently coaching events during that period.

Metrics analyzed

We analyzed the following safety metrics across the three segments:

Unsafe driving behaviors: These are safety events recorded by the KeepTruckin dashcams and tagged by our in-house safety team. The following tags are available: close following, lane cutoff, unsafe lane change, distraction (e.g., cell phone usage, smoking), drowsiness, and seat belt violation. We normalized this metric by the monthly hours driven per fleet.

FMCSA crashes: These are crashes reported by the FMCSA and only includes crashes with towaways, injuries, or fatalities. Crashes are aggregated at the company level to account for fleets with multiple DOTs. We normalized this metric by the monthly hours driven per fleet.

Since some fleets use a combination of KeepTruckin and non-KeepTruckin devices to record hours driven, we assumed that the vehicles using non-KeepTruckin devices drove the same average number of hours as those using KeepTruckin Vehicle Gateways. We extrapolated the monthly driven hours by multiplying the hours driven per Vehicle Gateway by the vehicles reported to the FMCSA by the fleet.

FMCSA unsafe driving violations: These are the number of FMCSA-reported unsafe driving violations observed during roadside inspections and audits. We aggregated violations on a company level and normalized this metric by the monthly hours driven per fleet.

Harsh driving events: These are driving events recorded by the Vehicle Gateway when drivers exceed certain thresholds defined by fleets in terms of acceleration changes (g-force). We normalized this metric by the monthly hours driven per fleet. Since the acceleration logic is defined by the fleet, we should note that the differences between segments might not be as significant.

Speeding: These are the number of times per hour a vehicle drove above the posted limit, captured by the Vehicle Gateway. We normalized this metric by the monthly hours driven per fleet.

Data normalization

We normalized all of our results by hours driven to control for fleet size and activity. For example, for each given month, we divided the number of crashes by the total hours driven, since

fleets that spend more time on the road tend to have more incidents. Outlier fleets were removed from that month's metrics if they drove less than 100 hours in a given month.

Impact of dashcams and coaching

To understand the impact of dashcams and coaching on the various safety metrics, we studied the average impact broken out by each segment. We performed a simple T-test statistic on the difference between the groups to see if the difference was statistically significant. We multiplied metrics by 100,000 hours to reflect the average hours driven by a fleet with 50-500 vehicles per year. 100,000 hours is equivalent to 50 vehicles driving eight hours per day, 252 days per year.

Fleets that had KeepTruckin's dashcams and frequently coached saw

69%
fewer unsafe driving behaviors (e.g., cell phone usage, close following)

22%
fewer FMCSA-reported crashes

40%
fewer FMCSA-reported unsafe driving violations

67%
fewer harsh driving events

31%
fewer speeding events

Unsafe driving behaviors

Compared to fleets that used dashcams and occasionally coached, fleets that used dashcams and frequently coached had **69% fewer unsafe driving behaviors** such as close following and unsafe lane changes.

Fleets that used dashcams and frequently coached saw an improvement in unsafe behavior across the board. Drivers saw the most improvement in distracted driving (e.g., cell phone usage, smoking). Since these behaviors are video-only events, we only looked at fleets with dashcams.

Unsafe driving behaviors per 100k hours	Frequent coaching	Occasional coaching	No dashcams
Observations	1,022	8,331	-
Mean	560	1,810	-
Standard deviation	1,130	10,630	-
Standard error	40	120	-
Lower confidence interval	490	1,580	-
Upper confidence interval	630	2,030	-
% change vs. occasional coaching	-69%		-

Unsafe driving behaviors per 100k hours	Frequent coaching	Occasional coaching	% change
Lane cutoffs	85.42	147.28	-42%
Close following	205.55	509.95	-60%
Unsafe lane changes	42.45	94.08	-55%
Distracted driving (cell phone usage, smoking)	54.01	251.97	-79%
Drowsiness	1.50	5.50	-73%
Seat belt violations	172.83	809.75	-79%

FMCSA crashes

Compared to fleets that didn't use dashcams and didn't coach, fleets that used dashcams and frequently coached had **22% fewer FMCSA-reported crashes.**

Crashes per 100k hours	Frequent coaching	Occasional coaching	No dashcams
Observations	1,924	17,882	31,441
Mean	2.9	3.1	3.7
Standard deviation	9	13.6	19.2
Standard error	0.2	0.1	0.1
Lower confidence interval	2.5	2.9	3.5
Upper confidence interval	3.3	3.3	3.9
% change vs. no dashcams	-22%	-16%	-

FMCSA unsafe driving violations

Compared to fleets that didn't use dashcams and didn't coach, fleets that used dashcams and frequently coached had **40% fewer FMCSA-reported unsafe driving violations**. Since these violations were logged during roadside inspections and FMCSA audits, the results may be skewed by the routes that a fleet takes since certain routes have more inspection points.

Unsafe driving violations per 100k hours	Frequent coaching	Occasional coaching	No dashcams
Observations	1,110	8,780	13,992
Mean	2.7	4.5	6.1
Standard deviation	10.1	24.1	35.2
Standard error	0.3	0.3	0.3
Lower confidence interval	2.1	4	5.5
Upper confidence interval	3.3	5	6.7
% change vs. no dashcams	**-40%**	-26%	-

Harsh driving events

Fleets that used dashcams and frequently coached had **67% fewer harsh driving events**, e.g., hard brakes and hard corners, compared to fleets that didn't use dashcams and didn't coach. However, since harsh driving events are basic safety behaviors highly dependent on context, we need to take this result with a grain of salt. Additionally, fleets can define unique thresholds for harsh driving events, which aren't accounted for in this analysis.

Harsh driving events per 100k hours	Frequent coaching	Occasional coaching	No dashcams
Observations	1,996	18,239	31,067
Mean	6,630	19,810	14,320
Standard deviation	8,570	57,290	37,400
Standard error	190	420	210
Lower confidence interval	6,260	18,980	13,910
Upper confidence interval	7,010	20,650	14,740
% change vs. no dashcams	**-67%**	-	-

That being said, we did see strong improvement across several harsh driving event types, especially for the fleets that had dashcams and frequently coached.

Harsh driving events per 100k hours	Frequent coaching	Occasional coaching	No dashcams	% change
Hard corners	779.6	3,992.4	3,057.2	-75%
Hard accelerations	406.7	3,062	3,616	-89%
Hard brakes	9,305.9	29,688.8	23,619	-61%

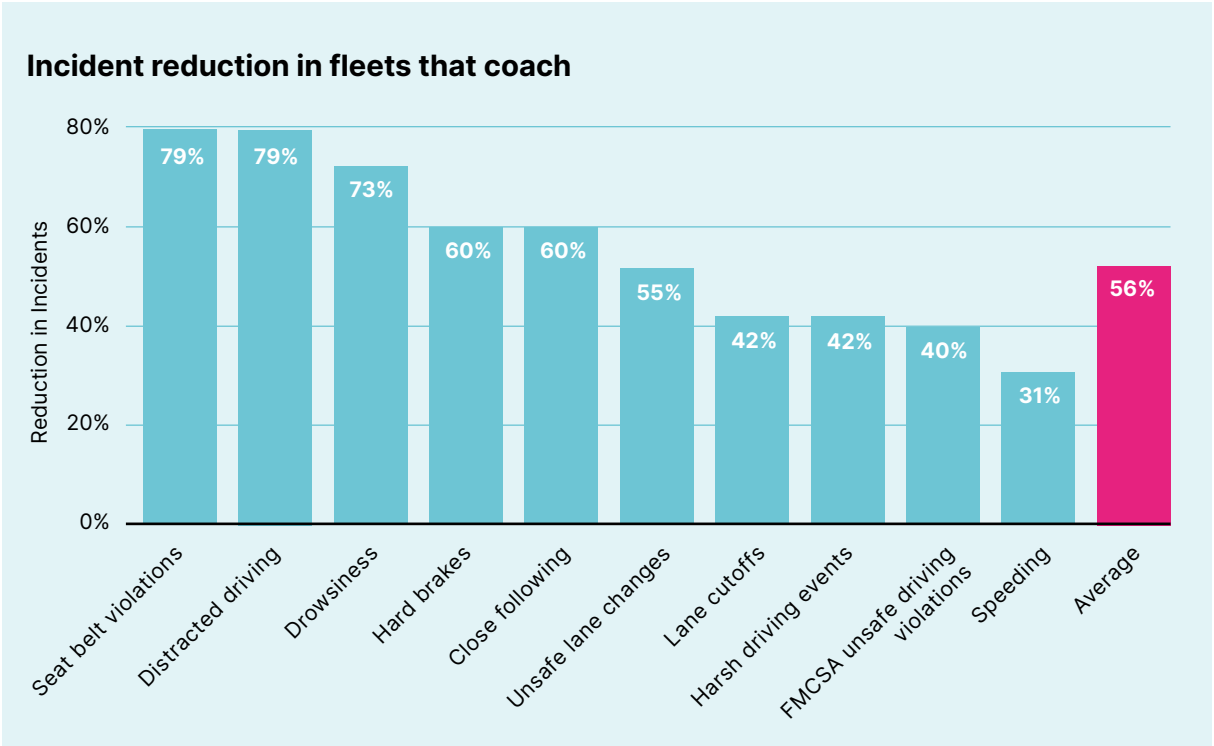
Speeding

Compared to fleets that didn’t use dashcams and didn’t coach, fleets that used dashcams and frequently coached had **31% fewer speeding events.**

Speeding per 100k hours	Frequent coaching	Occasional coaching	No dashcams
Observations	2,130	17,554	21,620
Mean	55,880	100,110	82,130
Standard deviation	62,250	88,110	97,420
Standard error	1,350	670	660
Lower confidence interval	53,240	98,810	80,830
Upper confidence interval	58,530	101,420	83,420
% change vs. no dashcams	-31%	-	-

Aggregate impact on unsafe incidents

When we aggregated the benefits of dashcams and coaching across the board, we saw fleets that used KeepTruckin dashcams and frequently coached drivers through the safety platform had **56% fewer unsafe driving incidents.**



Financial impact of avoided crashes

To estimate the financial impact of dashcams and coaching, we multiplied the average cost of a crash by the crash difference between fleets that used dashcams and frequently coached and fleets that didn't use dashcams and didn't coach. We assumed that the average fleet with 50 vehicles driving eight hours per day drove 100,000 hours per year. On average, fleets that frequently coached had 0.8 fewer crashes per 100,000 hours driven.

By multiplying the average cost of a crash ($91,000) by the 0.8 crash difference, we discovered fleets that used dashcams and frequently coached **saved $72,800 per year.**

Based on these assumptions and the typical cost of implementing a KeepTruckin dashcam, we estimated fleets that used dashcams and frequently coached received a **4x ROI** if the program helped them avoid a standard crash. This ROI jumps to **10x** if they avoided a crash with an injury, and **186x** if the fleet avoided a crash with a fatality.

These ROI metrics clearly show that purchasing dashcams and safety technology upfront is a positive investment on long-term spend, rather than a cost, for businesses.

	No dashcams	Frequent coaching	Crashes avoided	Average savings
Crashes per 100k hours	3.7	2.9	0.8	**$72,800**

One accident can end your business

Our AI-powered dashcams can save it

45% of customers say KeepTruckin has helped them save money on insurance

Based on an anonymous survey of over 200 KeepTruckin customers.

Conclusion

Taking a proactive approach to driver safety helps fleets prevent accidents, protect drivers, and lower costs. By using KeepTruckin, fleets achieved clear, measurable ROI in the first year alone. Those that used dashcams and frequently coached their drivers had 22% fewer accidents and 56% fewer unsafe driving incidents. Fleets also saw up to 10x ROI in their first year with KeepTruckin.

Proactively identifying and modifying high-risk behaviors with a robust safety program that uses dashcams and coaching can help drive significant bottom line improvements for businesses. **Save money, save lives, and make our roads safer for everyone with KeepTruckin.**

References

[1] Safety is Good Business. FMCSA.
https://www.fmcsa.dot.gov/safety/good-business/safety-good-business

[2] Potential Reduction in Large Truck and Bus Traffic Fatalities and Injuries Using Lytx's Drivecam Program; Susan Soccolich, and Jeffrey S. Hickman, 2014

[3] Evaluating the Safety Benefits of a Low-Cost Driving Behavior Management System in Commercial Vehicle Operations. US Department of Transportation, 2010

[4] MCMIS Catalog - Crashes
https://ask.fmcsa.dot.gov/app/mcmiscatalog/d_crash1