

Driver attitudes towards **Vehicle Safety Technology**

February 2022



Introduction

A non-fleet driver in the U.S. travels 12,000 miles annually and has a 1 in 15 chance of being involved in a crash. Most fleet drivers travel 25,000+ miles per year, which means their exposure is even greater than 1 in 15. These drivers hold the literal keys to achieving <u>Vision Zero</u>.

Crashes with commercial fleets aren't just frequent, they're also deadly. And fatalities are on the rise, with an increase of 18.4% in the first half of 2021 putting pressure on fleet managers, industry leaders, and government to improve safety behind the wheel.

Distracted driving is the number one cause of preventable fleet crashes, followed closely by driver fatigue, and aggressive driving. To reduce and mitigate these behaviors behind the wheel, fleet managers have a number of options - e.g., trainings, ride-alongs for coaching, and vehicle safety features.

Now, Fleet Managers also have GPS-based telematics and in-cab driver assistance technology as an option. These features are often paired with in-cab dash cameras. This technology gives managers an opportunity to respond to and correct previously hardto-detect behaviors such as cell phone usage. Given the technology can detect eye movement, it can also monitor for signs of fatigue and drowsiness. Managers can't always be in the cab, but now they always have a digital set of eyes on their drivers.

The problem is many drivers and even some managers are critical of the technology and this has significant impacts on adoption and use.

The purpose of this study is to understand what makes drivers reluctant to adopt in-cab camera technology and identify what can be done to positively influence perceptions. We surveyed professional drivers to examine differences in attitudes toward technology including driver-facing dash cameras.

In this paper, we present findings for the benefits, concerns, and the necessary leadership to make the adoption journey as frictionless as possible.

THREE THINGS YOU'LL DISCOVER:

In-Cab Technology Improves Driver Safety: How in-cab cameras help drivers become safer behind the wheel.

Driver Trust in Technology Increases with Personal Experience: When drivers have the most concern about in-cab technology, and how that shifts based on usage.

Managers Can Accelerate Adoption: Why transparent communication from management prior to and during the installation of in-cab cameras is important. Plus, advice on how to manage the adoption experience to create a stronger safety culture.

In-Cab Technology Improves Driver Safety



According to NHTSA, the primary cause of 94% of crashes is driver error. This underscores the need to adopt strategies that target unsafe behaviors behind the wheel. In-cab camera and driver assist technology proactively monitor behavior and provide audible alerts whenever a predefined event is triggered. These alerts provide drivers instantaneous feedback on their behaviors and allows them to recognize and correct it.

Feedback is also provided to management in the form of instant notifications, alerts, and data available on a portal or dashboard. This enables management to look for trends in driver behavior on an individual and organizational level. This data can be used to coach and correct behaviors and provides video evidence helpful to the coaching process because it shows all circumstances leading up to the event.

The collection of video is useful in a number of other situations. For instance:

- Video illustrating both safe and unsafe behaviors can be used in training (blurring driver)
- Video can be used as evidence to settle third-party claims in not-atfault crashes. It's an objective way to show the sequence of events that occurred, protecting drivers in cases where they were not at fault
- Knowing there is a video record of a crash, drivers can focus on the immediate needs of victims or property damage



While the use of in-cab cameras has been linked to several organization-level safety outcomes such as reduced crashes, speeding, and harsh events (acceleration and braking) little is known about the benefits that accrue to the driver at an individual level.

The more they experience the technology, the more they identify as careful, safe drivers. Our survey results suggest that exposure to the type of feedback obtained via in-cab camera technology positively influences the degree to which drivers selfidentify as more risk-averse.

Specifically, over half of respondents view themselves as safer and more careful following in-cab camera adoption (52.63% and 53.59%, respectively). More objectively, over a quarter (26.79%) recall having avoided a crash due to in-cab alerts and impressively, more than 1 in 5 drivers (20.57%) have been exonerated based on in-cab footage (*Figure 1*).

Considering these findings, it is not surprising that most respondents who are equipped with in-cab cameras report high levels of comfort and positive perceptions associated with this technology. Less than 1% of our equipped respondents indicated discomfort with in-cab cameras, while almost 80% indicated at least some level of comfort and over half responded being full comfortable with in-cab camera technology (*Figure 2*).

Driver Trust Increases with Personal Experience

Compared to drivers who use telematics and in-cab camera technology, unequipped drivers report low levels of comfort and negative perceptions associated with them.

As shown in Figure 3, primary concerns included:

- Being monitored while working (27.7%)
- Their employer sharing video (22.37%)
- Other concerns such as being recorded while motionless and the recording of private areas (16.73% and 17.67%, respectively)

A closer look at Figure 3 reveals that acrossthe-board declines in concerns are reported once drivers gain some experience with incab cameras. For equipped drivers, concern over being monitored while working is more than halved (12.6%) and represents the largest proportional decrease among the concerns cited.

The US labor force is increasingly being monitored, but there is little guidance

for the transportation industry on helping workers adjust. Research exists that investigates employee reactions to monitoring. However, nothing digs into sources of discomfort associated with incab camera technology and helps leaders understand how to address them.

When any form of monitoring is introduced in the workplace, invasion of privacy concerns are front-and-center for employees. If these concerns are not handled, it can often lead to dysfunctional turnover of good employees, reduced employee satisfaction, and decreased morale. In some cases, the dysfunction caused by even just a few internal critics of the introduction to in-cab monitoring, can be enough for organizations to remove the technology altogether.

Privacy is the top concern, but as we can see, those concerns abate with familiarity and experience with the technology. When asked to rate how acceptable it would be for their own organization to install telematics technology with various features, having exposure to in-cab cameras dramatically boosts driver acceptance of most features.



Drivers whose vehicles are equipped with in-cab camera technology report largely positive associations with most telematics features (Figure 4):

- In general, 7 in 10 equipped drivers find all forms of technology acceptable.
- Driver-facing cameras are the most unacceptable form of technology among unequipped drivers with an average unacceptability rating of 12.6% compared to 5.7% average unacceptability rating for all other technologies.
- The largest gains in acceptance between unequipped and equipped drivers are among the driver-facing technologies, with a 26% increase in average acceptability.

IN THEIR OWN WORDS: Drivers interviewed to qualitatively supplement this research indicated that once they understood the footage wasn't being used to get rid of people or to embarrass people, they began to accept the technology and even allowed themselves to be coached by it. Other drivers indicated the coaching mechanisms built into the technology have not only made them safer drivers in their work vehicles but in their personal vehicles as well. Additionally, they report coaching their families on driving behaviors because of the technology.



Managers Can Accelerate Adoption

Driver perceptions of technology change based on experience. What can managers do to accelerate adoption?

As shown in Figure 6, a majority of respondents reported that management implemented policies and practices meant to preemptively improve perceptions of in-cab camera technology, however, this majority is slim. Across twelve safety management and leadership practices commonly employed for such purposes, on average 6 in 10 respondents reported that management enacted proactive policies to ease the adoption transition. These results suggest that substantial room for improvement remains given the 40% of respondents whose leadership did not proactively engage operators in the change process.

Also shown in Figure 6, respondents indicated that perceptions of in-cab cameras were dramatically influenced for drivers whose leadership engaged in these practices; between 51%-72% report that these actions positively influenced their perceptions of in-cab cameras, depending on the action. The most impactful management or leadership practices were treating drivers with dignity and respect (72.1%), utilizing video to reward safe driving (71%), and communicating clear language around when and how video will be used (67.1%).

The results underscore that when managers engage drivers prior to in-cab camera installation, organizations attain higher levels of driver buy-in and compliance. The results unambiguously indicate that a little thought and planning when it comes to managing the change can result in a shorter journey to adoption and acceptance.

Actions to Take:

Consider how the technology will be used to fit within and strengthen your safety culture (Figure 10) *.

Discuss how the technology will be used to meet organizational safety goals and your drive to zero injuries and fatalities.

Communicate the Benefits:

Describe the use of technology in terms of the benefits to individual drivers: private coaching and professional development, exoneration from not-at-fault crashes or property damage and the peace of mind that comes with it, bonuses or incentives based on safe driving performance, and most importantly, reducing the likelihood of a fatal or life-altering crash).

Build Trust:

Employees are more engaged when leadership communicates openly and honestly about changes. Communicate through multiple channels and provide employees with opportunities to ask questions. Ensure those questions are answered clearly and honestly. Explain why the change is needed and how it will benefit the driver and the organization's safety goals.

Explain How the Technology Works:

Decide which events will be triggering events and how drivers and managers will be alerted. Decide on a strategy and practice for video footage retrieval (and stick to it). Communicate this information to drivers and answer any questions.

Identify Champions of Change:

Our research shows drivers value the opinions of their co-workers. When learning about in-cab cameras, 17.11% report other drivers as the most trustworthy source of information (Figure 6). Fleet leaders should recruit the fleet's informal safety champions to train and communicate with other drivers.

Showcase Real Exoneration Footage:

Successfully exonerating drivers is the most powerful way to get skeptical drivers supportive of dashcams. Share examples from your technology provider or any examples you have of your own drivers.

Use the Technology to Coach versus Discipline:

The primary use of the data and video should be to coach drivers to reduce risky behaviors behind the wheel. There may be times when drivers may violate a company policy, however, if discipline is issued make sure it is for pre-defined zero exception behavior.

Offer Incentives and Rewards and Reinforce Positive Behavior:

Consider introducing a safety-based rewards program and/or a gamification system for improving driver behaviors. Rewards can help drivers feel recognized and valued for their work effort.

Additionally, don't just use the dash cams to showcase negative events. Highlight footage where drivers are practicing exemplary defensive driving, where they prevented a crash, and/or where they went out of their way to help a co-worker, customer, or member of the public.

Adoption is Easier with a FOCUSed Safety Culture

An organizational culture of safety and continuous improvement makes it much easier to add dash-cameras. And if your organization does not have an established culture like this, any attempt at installing dash-cameras will likely be viewed negatively as intrusion and as a disciplinary tool. If safety is not a known and observable priority, a driver's perception will be influenced by their own perceptions of why the organization is investing in dash-cam technology.

As defined by TSR's <u>FOCUS on Fleet Safety</u> program, a strong safety culture is based on five key elements: Fairness, Openness, Capability, Unity, and Sustainability. The elements are described here, along with corresponding change management processes that will help you on your technology adoption journey.

Fairness

Definition: New safety processes are clearly outlined prior to change and operators feel respected. The organization recognizes that humans make mistakes; they are not 100% perfect all the time. When crashes, incidents, and/or unsafe behaviors occur, management does not automatically punish the driver if it turns out the behavior was unintentional or could have been prevented with organizational controls. Clear consequences are outlined for unintentional human error and at-risk/reckless behaviors.

Related Policies / Programs:

- Establish clear policies regarding:
 - o Who has access to the dashboard and can view alerts and retrieve video
 - o Whether live-streaming video will be utilized, and if so, when and by whom
 - o How and by whom alert thresholds are set
 - o When and how coaching will take place
 - o When and if data will be used for discipline or personnel decisions
 - o When and how GPS data will be used
- Consider installing telematics and dash cams in all company vehicles including supervisors and managers
- \odot Ensure consistency when using data for coaching and / other personnel decisions

Openness

Definition: Everyone in the organization feels a sense of shared responsibility for reporting unsafe acts or conditions. Honest and transparent communication takes place regarding safety data and issues. Everyone feels comfortable discussing safety anytime, anywhere, with anyone and understands that safety issues will be acted upon.

Related Policies / Programs:

- Include drivers in decision-making (i.e., technology selection)
- Communicate the need and benefits of the technology well in advance of installation
- Communicate the policies described above
- Establish communication channels for drivers to voice concerns directly to supervisors and management
- Ensure concerns are addressed
- Share stories of drivers who are exonerated using the technology

Capability

Definition: Everyone in the organization has the skills, knowledge, and resources to perform their job safely. This includes understanding safe workplace expectations and having the required skills and equipment to perform the job effectively and safely.

Related Policies / Programs:

- Use the alerts as true opportunities for coaching and provide defensive driver training
- Ensure drivers have the equipment needed to assist in hazard recognition and mitigation (i.e. backup cameras, alley-cameras, mirrors, unobstructed windshields, etc.)
- Identify near-misses and use those as organization-wide learning opportunities

Unity

Definition: Everyone shares a mutual understanding of safety. Everyone works together and watches out for co-workers and the community at large. When everyone understands safety, everyone gets home every night.

Related Policies / Programs:

- Identify internal champions for the technology and encourage them to share their stories and spread the word
- Promote the safety benefits to the drivers and to the community at large
- Sponsor group wide performance goals and rewards (e.g., reducing distracted driving alerts)

Sustainability

Definition: Safety is a "living" system



designed to sustain the safety culture indefinitely. This includes adapting or changing, if needed, to improve safety and to never make decisions or process that might dilute safety culture efforts.

Related Policies / Programs:

- Give it time to work. Our research has shown the concerns regarding technology decrease after installation and with time
- Consider instituting a reward and recognition program based on the data received
- Analyze event alerts for trends in driver and other road-user behavior and consider additional training or re-routing opportunities
- Use the data received for ongoing organizational improvement

FOCUS on Fleet Safety: This program was designed with guidance from specialists with expertise in change management, human behavior, and/or industrial psychology and assists in the structuring the safety culture change process. Behavioral specialists can help ensure data integrity, assess qualitative and quantitative findings, identify strengths and areas for development, recommend high-leverage interventions, and prioritize initiatives to help fleet managers allocate resources efficiently.

Additional Information:

Methodology:

Together for Safer Roads based this white paper on Qworky's existing research in the fleet safety landscape as well as a 2021 survey of 532 professional drivers who provided information about their preferences for using telematics devices and how they prefer to receive management communications about in-cab camera technology. The survey sample was composed of adult drivers employed in the transportation industry, utilizing two pools of participants, those who have or are currently using dash cams and those who have no experience with dash cams.

A multiple-choice demographic survey was used to determine years of professional driving experience, transportation industry, union membership, route type, and employment relationship. The survey itself included questions regarding basic perceptions of technology options consisting of 12 short items rated on a 1-5 Likert scale from 1 (Totally Unacceptable) to 5 (Totally Acceptable). Users of in-cab camera technology answered questions related to the roll-out of technology to employees and the perceptions on the influence of these management actions. Measures of perceptions were collected on a 1-5 Likert scale from 1 (Negatively) to 5 (Positively). This was followed by a survey asking about the extent to which management communicated the benefits of in-cab camera technology to employees and the perceptions related to actions management should take if they were to roll-out in-cab camera technology to employees and the perceptions on the influence of these management should take if they were to roll-out in-cab camera technology to employees and the perceptions on the influence of these management should take if they were to roll-out in-cab camera technology to employees and the perceptions on the influence of these management actions. Measures of perceptions were collected on a 1-5 Likert scale from 1 (Negatively). This was followed by a survey asking about the extent to which management scale from 1 (Negatively) to 5 (Positively). This was followed by a survey asking about the extent to which management should communicate the benefits of in-cab camera technology.

See figures 7a-7e for demographic breakdown of the study sample.

Figure 1.

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Comfortability Ratings of In-Cab Cameras



Driver Concerns

Figure 3.



Acceptability Ratings of Technology Solutions Figure 4.

	Percentage Unacceptable			Percentage Acceptable		
Automatic Braking	3.35% ●				59.75	% • 71.29%
Backup Cam	4.31% - 3.72%					74.61% • 77.99%
Driver-Facing for Security Purposes	5.26% •				47.99% •	• 71.29%
Driver-Facing to Monitor Fatigue	3.35% •		11.76%	44	.89% •	• 69.86%
Driver-Facing to Record Behavior	4.78% •				• 40.25%	• 69.86%
Forward Collisions	2.87% • 3.41%					70.90% • 77.03%
In-cab Alerts	4.31%	• 8.98%			53.56% 🗕	• 69.38%
Lane Departure Warning	2.39% 3.10%					70.59% • 73.21%
Outward-Facing for Coaching	3.35% • 5.26%				62.6	• 74.16%
Seatbelt Reminders 1	.44% • 3.72%					71.21% • 76.56%
Speed Limit Warning 1	.44% •	9.60%			53.25% ●	• 73.21%

• Equipped • Unequipped

Management Actions Influencing Perceptions

Drivers were informed cameras would be placed in	6% 7 %	% 26 %	27% 34%	63%
vehicles before they are installed				
Management communicated clear rules and	2% 5%	26%	29% 37%	62 %
consequences of unsafe behavior behind the-wheel				
Drivers were treated with dignity and respect when	1% 3%	24%	29% 43%	62 %
management discusses camera technology				
Management explained clear guidelines for when they	2% 4%	28%	30% 35%	61 %
will review video data and how it will be used				
Management crafted a clear, accessible policy that	3%	27%	32% 35%	61 %
outlines how and why camera technology will be used				
Management was consistent in their application of the	3%	34%	29% 32%	60 %
policies in place related to camera technology				
	2% 4%	23%	27 % 44%	59 %
Management utilizes the data to reward safe driving by				
Management utilizes the data to reward safe driving by offering bonuses or other incentives		0501	2007 - 2407	50%
Management utilizes the data to reward safe driving by offering bonuses or other incentives Drivers were involved in establishing the consequences for unsafe actions behind the wheel	3% 4%	25%	32% 36%	59%
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Management utilizes the data to reward safe driving by offering bonuses or other incentives Drivers were involved in establishing the consequences for unsafe actions behind the wheel Drivers were given the opportunity to voice concerns, suggestions, or responses to cameras being installed Management shared with us who will be authorized to review data collected by the dash cam and how it will be shared	3% 4% 2% 5% 2% 5%	25% 28% 27% 24%	32% 36% 32% 33% 32% 34% 27% 41%	59% 59% 58% 57%
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Management utilizes the data to reward safe driving by offering bonuses or other incentives Drivers were involved in establishing the consequences for unsafe actions behind the wheel Drivers were given the opportunity to voice concerns, suggestions, or responses to cameras being installed Management shared with us who will be authorized to review data collected by the dash cam and how it will be shared Drivers were involved in the selections of camera technology Drivers were asked to help create a policy/policies related to the organization's use of camera technology	3% 4% 2% 5% 2% 5% 4% 2% 4%	25% 28% 27% 24% 24%	32% 36% 32% 33% 32% 34% 27% 41%	59% 59% 58% 58% 57% 56%

Negatively
 Somewhat Negatively
 Neutral
 Somewhat Positively
 Positively





Industry



- CONSTRUCTION
- FIELD SERVICES
- GOV, EDU, OR HEALTHCARE
- LOGISTICS
- MANUFACTURING
- OTHER
- PASSENGER TRANSIT
- TRANSPORTATION/WAREHOUSE
- UTILITIES/ENERGY
- WHOLESALE & RETAIL





Conclusion

According to data published by the Federal Motor Carrier Administration (FMCSA) there were approximately 450,000 police-reported crashes involving large commercial trucks in 2017. Of these crashes, 4,237 were fatal and 344,000 resulted in injuries. Traffic fatalities are serious injuries that are preventable. We know what causes them, so we can take action to reduce them. Clearly, we are not doing enough.

While managers have effective tools at their disposal, reluctance is driven by perceived skepticism on the part of drivers who have not worked with them. However, as our research indicate, this challenge can be overcome by regular use if the right policies and processes are in place to manage the change.

New safety and management technologies are impacting fleets of all sizes, and drivers are a critical part of the outcome. The choice to equip them with technology that improves driver behavior, reduces crashes, and protects their driving record, should be an easier one to make given what we know about how driver perceptions can change.

Improving the driver experience is critical, particularly amid the current labor shortage and demand for delivery. Implemented correctly, in-cab technology can not only improve the professional driver experience but their personal driving experience as well. It will make the roads safer for all.

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