



Telematics for Construction Fleets

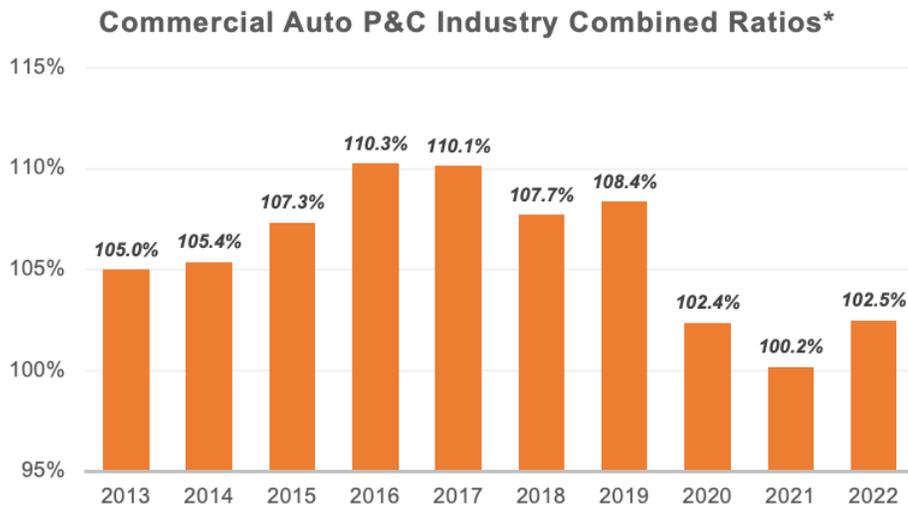
Promise for a sustainable future



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April 2023

Severe losses continue to plague the commercial auto sector

For over a decade, commercial auto insurance has not produced a profitable underwriting result. Throughout the period between 2011 and 2021, the industry's lowest combined ratio was 100.2%, which occurred in 2021. Escalating loss costs, primarily due to substantial spikes in loss severity, have been the main driver behind these unfavorable underwriting outcomes. In 2022, claim severity caused the combined ratios to exceed 100% once again.



*Based on aggregated P&C Industry annual statement data published by S&P Global Market Intelligence

The construction industry relies heavily on autos and commercial contractors typically purchase auto liability coverage on both a primary and excess basis. Sampling our own dataset at Shepherd, an average mid-sized commercial insured has over 200 vehicles and nearly double that number of drivers. Auto exposure for contractors can vary both in terms of size (number of vehicles) and fleet makeup (distribution of heavy vehicles vs. private passenger cars). But it is very unlikely for an average fleet of this size to avoid auto claims altogether; in fact, statistically speaking, it is very likely that these businesses will have more than one claim each year.

The commercial auto insurance sector urgently requires innovative solutions to tackle present-day challenges. As the industry seeks pathways to regain profitability, the drivers of the underlying loss performance are being carefully studied. Enhanced focus on auto and truck safety, as well as crash prevention measures, is crucial since they directly impact loss outcomes. In this context, fleet telematics hold considerable promise for effecting substantial improvements.

Understanding causes of crashes

Based on data released by the Federal Motor Carrier Administration, there were roughly 450,000 crashes involving large commercial trucks in 2017. Out of these, 4,237 led to fatalities and 344,000 resulted in injuries. A review of these accidents revealed that a considerable number of the traffic fatalities and serious injuries were possibly preventable.

The National Highway Traffic Safety Administration conducted a study in 2015, revealing that 94% of crashes were caused primarily by human error. Out of the driver-related crashes, decision errors such as driving too fast for road conditions or illegal maneuvers accounted for about one-third (33%) of the accidents.

Even more concerning, about 50% of these accidents were attributed to driver distractions. The recognition error, which included driver's inattention, internal and external distractions, and inadequate surveillance, was the most frequent reason (41% of total). Additionally, non-performance errors such as sleep and fatigue accounted for another 8%.

Table 1. Vehicle Crashes Critical Reasons

Critical Reason Attributed to	Number	Percentage* \pm 95% conf. limits
Drivers	2,046,000	94% \pm 2.2%
Vehicles	44,000	2% \pm 0.7%
Environment	52,000	2% \pm 1.3%
Unknown Critical Reasons	47,000	2% \pm 1.4%
Total	2,189,000	100%

National Highway Traffic Safety Administration, 2015 Report
**Percentages are based on unrounded estimated frequencies*

Table 2. Driver-Related Critical Reasons*

Critical Reason	Number	Percentage* \pm 95% conf. limits
Recognition Error	845,000	41% \pm 2.2%
Decision Error	684,000	33% \pm 3.7%
Performance Error	210,000	11% \pm 2.7%
Non-Performance Error (sleep, etc.)	145,000	7% \pm 1.0%
Other	162,000	8% \pm 1.9%
Total	2,046,000	100%

National Highway Traffic Safety Administration, 2015 Report

**Estimated based on 94% of the Driver-related crashes*

Despite the complexity of large scale construction projects, the type of auto exposure common to most contractors is similar to most other commercial industries. The predominant use case is individual drivers commuting to and from project locations using company owned vehicles. The persistence of preventable accidents caused primarily by human error underscores the need to adopt strategies that target unsafe behaviors behind the wheel. While vehicle crash prevention technology has been rapidly evolving in the last decade, technology that specifically focuses on driver behavior has been getting a lot of recent attention.

Introducing Telematics

Telematics is a technology that merges telecommunications with data processing to remotely track and manage vehicles, offering real-time insights on their performance, location, and usage. There are varying accident prevention concepts behind different types of telematics technology. In the US, fleet telematics solutions are commonly a combination of various technologies, which are accompanied by analytical platforms and apps. These platforms utilize generated telematics data and analytics or AI to support optimization of fleet operations, driver workflow, route tracking, and scheduling.

The technology powering telematics solutions is in a constant state of evolution. The most commonly utilized technology types currently available in the United States are described in the table below.

Type of Telematics	Value	Fleet Management Solutions Analytical Platforms / Apps
Real-time Vehicle Tracking (GPS)	GPS-based systems that allow real-time tracking of vehicles.	
Electronic Logging Device (ELD)	Devices that capture driving behavior data, such as speed, acceleration, and braking.	
Road-facing camera, sensors, and video telematics	Solutions that include cameras and sensors facing the road, often using AI to recognize hazards and prevent accidents with preventative alerts.	
Driver assistance features	Systems that assist drivers: Forward Collision Warning, Automatic Braking, Seatbelt Reminders, Speed Limit Warning, and Lane Departure Warning, and others.	
Driver-facing camera	Cameras face the drivers; use AI to recognize distracted driving and provide audible alerts for behavior correction. <i>Lowest acceptance rates due to privacy concerns and resistance from employees.</i>	

Measuring the impact of Telematics on claims frequency and severity

Is there evidence to support the claim that these technologies can reduce accident statistics and financial losses? The short answer is yes, though there is considerable nuance in the results. The insurance industry has seen conclusive evidence that the use of telematics results in improvements in fleet efficiency and loss reduction, but also in indirect benefits such as increased employee satisfaction and retention.

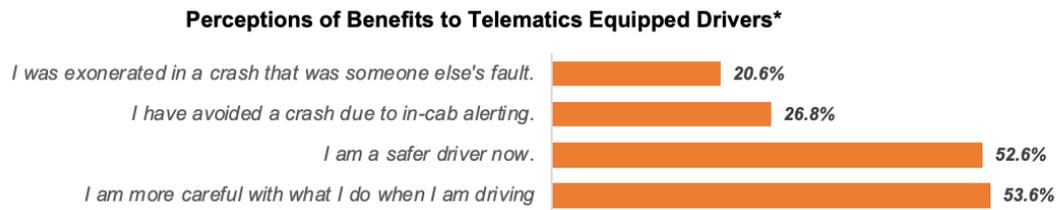
We identify 6 categories in which telematics is making an impact. Their description and documented improvement on claims outcomes or driver satisfaction is detailed in the table below.

Loss frequency	<p>Recently published studies have revealed that fleet telematics can result in a substantial reduction in accident frequency, ranging from 16% to 20%. It has also been observed that different industries experience varying degrees of benefits, with non-passenger heavier truck industries experiencing the most significant reduction in accident frequency.</p> <p><i>It is worth noting, however, that fleets have diverse risk profiles, influenced by factors such as environmental conditions, vehicle classification, time of day driving, driver</i></p>
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	<p><i>experience, among others, which contribute to varying degrees of benefits they see from telematics.</i></p>
Loss severity	<p>While it may not be possible to prevent all crashes completely, preventive technology has been shown to reduce the impact force thus reducing the overall crash damage and severity of injuries sustained.</p> <p>With the reduction in speeds and other unsafe driver behavior the mix of accident types shifts, resulting in fewer severe crashes. For instance, some severe categories of crashes like head-on-collision, striking pedestrians/cyclists were avoided the most.</p> <p>The combined impact of the reduced frequency and severity of accidents has been shown to produce a 25% reduction in overall loss ratios for fleets utilizing telematics solutions.</p>
Driver coaching	<p>By utilizing feedback from both road-facing and driver-facing cameras, fleet management can provide customized coaching to their drivers. This approach enables them to analyze driver behavior on both an individual and organizational level, identifying trends and opportunities for improvement.</p> <p>The data gathered from these cameras provides insights into the circumstances leading up to an event, allowing fleet managers to correct certain behaviors and improve overall driver performance.</p>
Driver exoneration	<p>Despite evidence indicating that 80% of car-truck crashes are caused by car drivers, truck drivers are disproportionately being blamed for accidents due to a variety of factors, such as larger blind spots and the perception of higher insurance payouts.</p> <p>According to a recent report by <i>Together for Safer Roads</i>, 20.6% of truck drivers reported being exonerated in accidents caused by someone else. In addition to the obvious cost savings, protecting drivers who are not at fault can positively impact their job satisfaction and even retention rates.</p>
Accident investigation and defense savings	<p>With an average mid-sized construction fleet having over 200 vehicles, it can get incredibly costly and time-consuming to defend the claims.</p> <p>While camera footage can help completely exonerate drivers in some traffic accidents, video evidence can also aid in resolving minor claims and accelerate the investigation process. Insured parties with access to vehicle video have experienced a roughly 3% reduction in claim processing time, resulting in decreased claim handling expenses.</p>
Societal benefits	<p>More than 50% of drivers operating telematics-enabled vehicles report that they have become safer drivers, having altered their behaviors since the technology's adoption. This shift not only reduces monetary losses but also minimizes human trauma for society's benefit.</p> <p>Moreover, about one in four U.S. adults believe that incorporating safety technology into trucks would simply help them feel better about sharing the road.</p>

Despite positive impacts Telematics still faces adoption and perception challenges

Although fleet telematics solutions have been in use for more than a decade, some remain hesitant to embrace the technology due to skepticism from those who have yet to work with it. More encouraging, however, there is a significant shift in how drivers perceive the value of the technology post-implementation.



*Based on "Driver Perception Towards Safety Technology" report by Together for Safer Roads

Driver-facing camera solutions are currently facing lowest acceptance rates due to privacy concerns and resistance from employees. That being said, distracted driving has become an increasingly urgent safety concern, with alarming [statistics](#) revealing that 37% of truck drivers have admitted to falling asleep behind the wheel at some point in their lives, with 11% having done so in just the past year.

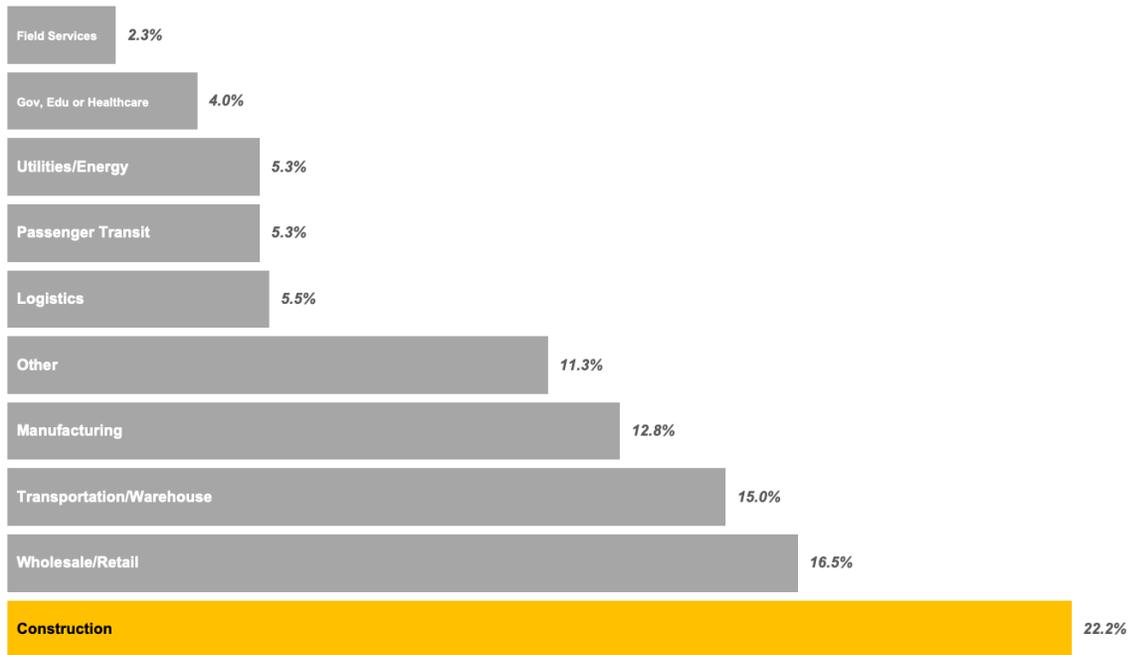
AAA Foundation specifically looked into what impact the use of onboard video-based safety systems may have. According to [their estimates](#), the implementation of this technology alone could prevent up to 63,000 crashes, 17,733 injuries, and 293 deaths per year.

Since the telematics technology first emerged, concerns about user privacy, specifically driver privacy, have been raised. It is, however, worth mentioning that telematics providers make significant efforts to safeguard the privacy of drivers and their data on their platforms, and we anticipate further enhancements in this area in the years ahead.

Telematics in the Construction industry

There is a noticeable difference in the adoption rates of telematics across various industries. The construction industry demonstrated the highest adoption percentage among insured parties surveyed by [Together for Safer Roads](#).

Telematics Adoption Rates by Industry*



*Based on "Driver Perception Towards Safety Technology" report by Together for Safer Roads

There is also a wide range of telematics options available in the US. Some of the provider names frequently seen among Shepherd's submission flow are Samsara, Linxup, Zonar, Geotab, Intellishift, Azuga, and Omnitrac.

Promise for a more sustainable future in Commercial Auto

The commercial auto insurance industry has been facing poor underwriting results for over a decade due to rising loss costs and increasing loss severity. To combat these trends, there is an increased focus on commercial auto safety and crash prevention. Fleet telematics has emerged as a promising technology that can significantly impact driver behavior and reduce crashes.

Different types of telematics, supplemented with analytics and AI-powered solutions, offer various accident prevention strategies. While some solutions are still seeing lower acceptance rates, studies have shown that they can reduce accident frequency and severity, lower overall loss ratio, and provide opportunities for tailored driver coaching. We are particularly encouraged by specific use cases such as road facing cameras, which avoids the adoption resistance for other applications such as driver facing cameras.

The construction industry has been one of the frontrunners of fleet telematics adoption. But even with that, about three quarters of commercial construction fleets are yet to embrace any telematics solution. However, with the proven benefits of improved driver safety and reduced losses, we believe contractors should consider exploring a possible telematics solution. Improved safety of the fleets can and will directly translate to cost savings on future auto insurance purchases.