

TRANSPORTATION WHITEPAPER

# Building the Case for Self-Driving Semis

How Autonomous Vehicles Can  
Reduce Your Total Cost of Risk



Self-driving, or autonomous vehicles (AVs), have moved beyond the imagination of fanciful science-fiction writers.

With “robo-cabs” and last-mile delivery cars becoming common in many metropolitan markets, AVs are on more roads than ever. And they’re gaining traction as a new and viable alternative for middle-mile and long-hauls trips.

For more than a decade, major vehicle manufacturing companies throughout the world have been fine-tuning and test-driving driverless car systems, though the transportation industry’s adoption of autonomous rigs remains in the early stages. However, the interest in adding AVs to trucking fleets is speeding up fast.



Market research experts predict the autonomous truck market size will reach **\$66.5 billion** by 2030, growing at an annual rate of **10.6%**.<sup>1</sup>



The emergence of this technology carries both benefits and risks. But considering today’s driver shortage, rising wages and a spiking per mile cost of risk, autonomous trucks may be the ideal solution for reining in those costs.

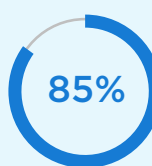
## Fueling the rationale for autonomous trucks

Today’s trucking industry faces many persistent pressures. In 2023, the commercial fleet industry was short 60,000 drivers, and that number is expected to reach 82,000 by 2024. In fact, by 2030 the industry is expected to be short 130,000 drivers.<sup>2</sup>

The human element contributing to crashes also continues to present challenges for commercial fleets.



Driver error is the cause of more than **85%** of trucking accidents, with driver fatigue, distracted driving, speeding and hard braking contributing to many crashes.<sup>3</sup>



And the frequency of lawsuits stemming from those accidents and the rising severity of nuclear verdicts are putting pressure on insurers. A report by the American Transportation Research Institute (ATRI) found that in regard to jury awards valued at \$1 million or more, the average trucking verdict value spiked from \$2.3 million in 2010 to \$22.3 million in 2018.<sup>4</sup>

With the increase in jury awards, insurance premiums rose from an average of \$0.071 marginal cost per mile to \$0.088 between 2019 and 2022.<sup>5</sup>

<sup>1</sup> SNS Insider, “[Autonomous Trucks Market Trends, Technology Research and Advancement Outlook 2023-2030](#),” June 4, 2024.

<sup>2</sup> Fleetio, “[2024 Trucking Industry Forecast](#),” December 12, 2023.

<sup>3</sup> Federal Motor Carrier Safety Administration, “[The Large Truck Crash Causation Study](#),” July 2007.

<sup>4</sup> Insurance Business, “[Trucking bankruptcies fuel ‘hyper-competitive’ insurance marketplace](#),” February 26, 2024.

<sup>5</sup> American Transportation Research Institute, “[Critical Issues in the Trucking Industry – 2023](#),” October 2023.

Faced with these challenges, autonomous trucking — particularly for middle-mile and long-haul transport — may provide an answer. AVs have the potential to improve productivity and produce cost savings, and autonomous trucks could become ideal for moving cargo to and from distribution centers across U.S. highways.



With routes often planned to avoid peak hours, and without the concerns over human driving times, AVs could be on the road **78%** of the time, versus today's average of **29%** given the necessary rest requirements for human truck drivers.<sup>6</sup>

And without human error, fully autonomous trucking could potentially lead to operating cost savings of 45% annually, saving the industry as much as \$125 billion over time.<sup>7</sup>

## Obstacles to AV adoption

Like any change, there are challenges. While the potential cost savings from autonomous trucking is significant, so too is the investment required to integrate AVs into a fleet.

A fully decked-out new semi can cost as much as \$270,000.<sup>8</sup> A Class 8 truck equipped with the software and hardware to make it autonomous could cost as much as \$350,000 to \$500,000 per unit. However, during the truck's life cycle of six or seven years, fleet carriers won't be paying drivers or investing in recruiting, retention and benefits costs.

Insurance also presents a conundrum, with few policies available that thoroughly address the differences in exposures that an AV presents versus a traditional vehicle, such as coverage for vehicle and component manufacturers, fleet owners and operators and software developers.<sup>9</sup>

The optics of driverless vehicles are another challenge. AV risks remain, particularly when driverless vehicles are traversing streets congested with other cars and trucks, scooters, bikes and pedestrians. And when accidents happen, they're often highly publicized.

Opponents of AVs also often argue that although the industry faces driver shortages today, that may change, and AVs could be pinned as responsible for removing jobs from the economy. However, even if a fleet operator's trucking operations became entirely autonomous, they'd still need experienced drivers. A U.S. Department of Transportation study estimated that 35,000 new jobs will be created each year with the addition of AV trucks.<sup>10</sup> Drivers are being employed to support testing and development, as well as fill roles as terminal operators, vehicle/fleet technicians, dispatchers, remote assistance specialists, mapping experts and engineers.<sup>11</sup>

<sup>6</sup> World Economic Forum, "The surprising benefits of self-driving trucks," March 2, 2020.

<sup>7</sup> Motive, "The impact of autonomous trucking on logistics," July 22, 2022.

<sup>8</sup> My Little Salesman, "How Much Does a Semi Truck Cost in 2024?," June 6, 2024.

<sup>9</sup> Deloitte, "More autonomous trucks are hitting the road. How should insurers be changing lanes on coverage?" July 27, 2023.

<sup>10</sup> U.S. Department of Transportation, "Macroeconomic Impacts of Automated Driving Systems in Long-Haul Trucking," January 28, 2021.

<sup>11</sup> Autonomous Vehicle Industry Association, "Autonomous Vehicle Industry Commends South Dakota for Signing AV Legislation into Law," February 13, 2024.



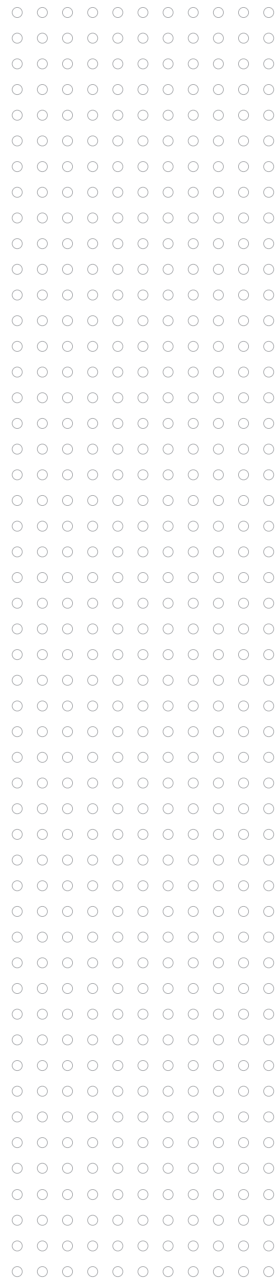
Training top drivers in the technology can empower them to analyze data and provide remote oversight over a number of trucks — and be available to make necessary adjustments in AVs in response to route changes or adverse weather conditions.

## Mapping out the journey toward AVs

Even if fleet carriers are ready to steer toward AVs, they'll likely need buy-in from many stakeholders and will need expertise to ensure they're protected when they make that change. To start the process, companies should:

- **Research the fleet's needs.** Moving to autonomous trucks could mean purchasing new vehicles or retrofitting, while new products and providers enter the market every day. Identify how to incorporate AVs into your fleet, determine their purpose and estimate their lifecycle. Assess needs and costs, but don't forget to consider what you may no longer require by moving to autonomous trucks — such as electronic logging devices and driver-facing cameras — and the savings that can provide.
- **Ask an expert.** When moving to an AV fleet, fleet operators must have solid contractual agreements in place between themselves and the companies providing the autonomous components (think product defect claims), even though the operator has the primary responsibility. Your insurance broker will be able to identify any contractual provisions that could expose your operations to additional liability.
- **Adhere to state-specific regulations.** The regulatory environment is continually evolving, with states adding new laws that provide for the testing and operation of AVs. Consider seeking legal counsel to help you understand specific operating guidelines and legal requirements and implement the right checks and balances.
- **Delve into the data.** Many fleets already have telematics data at their disposal. A digital solution such as **HUB Drive Online** can examine loss history, driver scoring and other telematics information. In turn, HUB Drive Online can pinpoint variables to see how using autonomous trucks will affect future losses, while calculating the expected return-on-investment for AVs.
- **Understand the underwriting.** As an evolving market, there's no standard for underwriting the exposures related to AVs and how autonomous trucks could affect your overall risk profile. Your broker should be able to identify the best policies to cover all your potential AV exposures.

Embracing new technology will help commercial fleets operate more efficiently and safely. To learn more about how autonomous vehicles may reduce your total cost of risk per mile, contact [HUB International's transportation insurance specialists](#).



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