Opening the Pod Bay Doors

Assessment of Risk and the Future of Commercial Automobile Coverage

By William A. Bulfer and Brian M. Love

Among other things, AI and autonomous programs that can "learn" through shared data retention and cooperative analysis are likely to eliminate risk on certain fronts, while creating new risks on others.

Early in 2018, the senior vice president and chief economist of the American Trucking Association issued what he referred to as his "warning shot to the industry." John Kingston, *ATA's Costello Projects Out the Driver Shortage, and It's a Big Number*, Freight Waves (Apr. 3, 2018), https://www.freightwaves.com. The supply of truckload drivers in the United States over the next eight years is projected to be woefully inadequate. Unless something changes, there could be a shortfall of 175,000 drivers by 2026.

For an industry realizing more than $700 billion in annual revenue, the need for increased capacity is ripe for substantial investment. Technology that can produce greater efficiency and reduce risk has been in place for years and continues to be developed. While we are not yet living in a world where Hal 9000 from *2001: A Space Odyssey* is driving tractor trailers, smaller scale artificial intelligence in the form of GPS, electronic logs, and crash-data retrieval is already widespread and soon to be mandatory. Fully autonomous vehicles have progressed to the development phase, with driverless pilot programs already in operation. As this trend continues, issues relating to insurability and allocation of risk are sure to follow.

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The present and future use of artificial intelligence in the trucking industry raises many questions. From the standard ISO commercial auto coverage forms and the associated MCS-90 endorsement, to commercial general liability and cyber liability forms, the expansion of artificial intelligence into an industry as diverse and widespread as trucking is a critical issue for both commercial auto carriers and the broader insurance market alike. This is particularly true given the possibility of risk transfer, allocation, and apportionment, as well as the Federal Motor Carrier Safety Administration's heavy oversight of the industry. Whether it should continue with the current regulatory and insurance standards, merge into other sectors of insurance, or begin an entirely new insurance and regulatory scheme is one of the most pressing issues in the trucking industry.

Historical Context

While the advancements discussed here are relatively new, the concept of technological advances working their way into the transportation sector is not. As stated by U.S. Secretary of Transportation Anthony R. Foxx in the U.S. Department of Transportation's 2016 Federal Automated Vehicles policy, "Technology in transportation is not new. In fact, the airplane, the automobile, the train and the horse-drawn carriage all introduced new opportunities and new complications to the safe movement of people and goods." U.S. Dept. of Transportation, DOT HS 812 329, Federal Automated Vehicles Policy (2016). Automation in vehicle movement is simply the next logical step in the evolution of vehicular technology.

Though this article focuses on the commercial trucking sector, no discussion of artificial intelligence in a vehicular context can be had without some discussion of passenger automobiles. Historically, advances in vehicular safety have largely started in the consumer auto sector and have worked their way into the trucking sector. From early advances in seat belt technology to the modern crash avoidance systems, advancements within the consumer sector that add value to trucking are routinely implemented and further developed. In doing so, these advances generally facilitate safety and efficiency.

Safety

Of the 37,461 lives that were lost on U.S. roadways in 2016, nearly 10 percent involved large trucks. Nat'l Highway Traffic Safety Admin., Traffic Safety Facts 2016 Data (May 2018). Safety concerns are not, however, limited to the public's encounters with large trucks on the road. More truck drivers (852) were killed while working than any other single occupation in 2016. Mark Baumgartner, *Most Deadly Occupation: Truck Driver*, ABC News, https://abcnews.go.com.

The introduction of artificial intelligence is projected to reduce and eventually remove the opportunity for driver error, which will increase safety for drivers and the motoring public alike. According to a study by the Insurance Institute for Highway Safety, Google's driverless vehicles, which have covered more than two million miles, have been involved in less than 20 collisions, none of which were caused by autonomous vehicle system failure. Ins. Inst. for Highway Safety, *Special Issue: Autonomous Vehicles*, Status Report, Vol. 53, No. 2 (2016).

In October 2015, the University of Michigan released a study that found that self-driving vehicles were not at fault for *any* of the crashes in which they were involved. Brandon Schoettle & Michael Sivak, *A Preliminary Analysis of Real-World Crashes Involving Self-Driving Vehicles* (Univ. of Mich. Transp. Res. Inst., Report No. UMTRI-2015-34, Oct. 2015). In a July 2018 white paper, Travelers noted a series of 2017 reports from KPMG that estimated "a 90-percent reduction in accident frequency by the year 2050." Travelers Inst., *Insuring Autonomy: How Auto Insurance Can Adapt to Changing Risks* (White Paper, July 2018), https://www.travelers.com/travelers-institute. Stated simply, the introduction of artificial intelligence and autonomous vehicles will make trucking safer.

Efficiency

Autonomous vehicle technologies can increase efficiency and flexibility with industry supply chains and logistics operations. A combination of autonomous vehicles and other smart technologies can reduce labor costs and increase equipment and facility productivity. Moreover, once it is automated fully, a lean supply chain may help reduce overall load sizes and stock by leveraging smart distribution technologies and smaller autonomous vehicles.

Through the "internet of things," communication between logistics units and operating units with automated decision making and coordination is increasingly possible. As data is collected, it can be stored, and more importantly, evaluated and shared, to increase efficiency throughout the trucking marketplace. As the trucking industry moves toward more complete automation, the demand for drivers will correspondingly decrease to some extent, reducing the present driver shortage severity. If human truck drivers are ultimately displaced by artificial intelligence, efficiency will increase even more by reducing the downtime currently required by human operators.

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Levels of Autonomy

The Society of Automotive Engineers (SAE) has published an accepted standard identifying five levels of motor vehicle automation. Taxonomy and Definitions for Terms Related to On-Road Motor Vehicle Automated Driving Systems, SAE J3016 (2016). Each level is based the extent of driver involvement in relation to the automated system:

- SAE Level 0: the human driver does everything.
- SAE Level 1: an automated system on the vehicle can sometimes assist the human

driver conduct some parts of the driving task.

- SAE Level 2: an automated system on the vehicle can actually conduct some parts of the driving task, while the human continues to monitor the driving environment and performs the rest of the driving task.
- SAE Level 3: an automated system can both actually conduct some parts of the driving task and monitor the driving environment in some instances, but the human driver must be ready to take back control when the automated system requests.
- SAE Level 4: an automated system can conduct the driving task and monitor the driving environment, and the human need not take back control, but the automated system can operate only in certain environments and under certain conditions.
- SAE Level 5: the automated system can perform all driving tasks, under all conditions that a human driver could perform them.

The National Highway Traffic Safety Administration (NHTSA) Federal Automated Vehicles Policy incorporates the five-level classification in SAE J3016 and projects that level five automation will be achieved by 2025, noting:

> Fully autonomous cars and trucks that drive us instead of us driving them will become a reality. These self-driving vehicles ultimately will integrate onto U.S. roadways by progressing through six levels of driver assistance technology advancements in the coming years. This includes everything from no automation (where a fully engaged driver is required at all times), to full autonomy (where an automated vehicle operates independently, without a human driver).

As integration continues, the risk of driver error will necessarily decrease and the application of traditional insurance models will result in new challenges.

Overlaying the insurance challenges as the trucking industry becomes more autonomous is the question of how regulatory and legislative changes will affect future risk handling.

Existing and Emerging Technologies

With the trucking industry bringing in hundreds of billions of dollars each year, the use of artificial technology is limited more by capacity than demand. As a result, research and development have increased. Motor carriers and vendors for the trucking industry similarly are continually looking to create and implement artificial intelligence to increase efficiency, safety, and ultimately, profitability.

When considering artificial intelligence, it is tempting to think of Hal subsuming the role of humans. The reality, however, is that artificial intelligence has been part of daily life in the trucking industry for some time. Current technologies include radar sensors, onboard cameras, laser distance measuring (LiDAR), GPS systems, and the interactive technology that integrates these systems into a single truck. Crash-data retrieval systems and associated technology make driving a truck and reacting to acute risk safer. When a collision does occur, the data can be analyzed and learned from, improving safety and accurate risk apportionment.

Artificial intelligence also helps with logistics, through electronic logging (ELD) and the use of systems that track everything from breaking, to traffic patterns and sleeping habits of drivers. Indeed, the use of ELDs has been so universally accepted as positively affecting safety and efficiency that Congress has mandated their implementation as part of its Moving Ahead for Progress in the 21st Century Act. Other technologies such as blind-spot monitoring, automatic emergency braking (crash-eminent braking), forward collision warning systems, following distance-monitoring systems, pedestrian automatic-emergency braking systems, and lane-keeping support are similarly being placed in power units with increased frequency.

Current Regulatory Climate

Overlaying the insurance challenges as the trucking industry becomes more autonomous is the question of how regulatory and legislative changes will affect future risk handling. The Federal Motor Carrier Safety Administration (FMCSA) requirement for insurance and application of the MCS-90 endorsement are bound to affect future claims in the autonomous sector. At the same time, federal and state efforts to understand and to legislate in the autonomous-use arena are already taking place.

U.S. Department of Transportation – National Highway Traffic Safety Administration

In September of 2017, the U.S. Department of Transportation's NHTSA updated its "Federal Automated Vehicles Policy." The policy sets forth guidelines and policies for vehicle performance, current and future federal regulatory tools, and model state policies.

The NHTSA envisions that autonomous vehicle technology will be regulated at the federal level, while the states would be responsible for licensing drivers, registering autonomous vehicles, enacting and enforcing traffic laws, conducting safety inspections on autonomous vehicles, and regulating autonomous vehicle insurance and the allocation of liability.

The NHTSA has promulgated model state policies governing highly automated vehicles (HAVs). In creating the model state policies, the NHTSA's goal is to avoid a "patchwork of inconsistent laws and regulations" among the states. To this end, the NHTSA makes certain recommendations for state-level regulations on HAVs, such as who must carry motor vehicle insurance and who is the "driver" of an HAV for purposes of determining accident fault. For example, the NHTSA recommends that states consider a human to be the "driver" of a vehicle when the "human is primarily responsible for monitoring the driving environment (generally SAE Levels 1-2)" for purposes of traffic laws. Such a bright-line rule becomes more difficult to apply as the extent of autonomy increases beyond SAE Levels 1–2 toward a fully autonomous vehicle.

As a consequence, the NHTSA has recognized that a comprehensive regulatory framework is not practical at present and could have unintended consequences. State

laws and regulations allocating tort liability could eventually have a significant effect on consumer demand and acceptance of HAVs, the rate at which HAVs are deployed, and the cost of insuring operation of HAVs. The NHTSA thusly foresees that in the future, the states "may identify additional liability issues and seek to develop consistent solutions" and that it "may be desirable to create a commission to study liability insurance issues and make recommendations to the States."

Federal Motor Carrier Safety Administration

On April 24, 2017, the FMCSA held a public listening session to solicit information relating to the design, development, testing, and integration of automated driving system-equipped commercial motor vehicles. Highly Automated Commercial Vehicles Public Session, 82 Fed. Reg. 18,096 (Apr. 17, 2017). The September 2017 policy expressed the belief that FMCSA regulations would require that "a trained commercial driver must be behind the wheel at all times, regardless of any automated driving technologies available on the commercial motor vehicle, unless a petition for a waiver or exemption has been granted." Request for Comments on Federal Motor Carrier Safety Regulations on the Safe Testing and Deployment of Automated Driving Systems-Equipped Commercial Motor Vehicles, 83 Fed. Reg. 12,933, 12,935 (Mar. 26, 2018).

The FMCSA has encouraged states to "work together to standardize and maintain road infrastructure including signs, traffic signals and lights, and pavement markings" so as to better enable the application of artificial intelligence across state lines." Volpe Nat'l Transp. Sys. Ctr., Review of the Federal Motor Carrier Safety Regulations for Automated Commercial Vehicles: Preliminary Assessment of Interpretation and Enforcement Challenges, Questions, and Gaps, No. FMCSA-RRT-17-013, (Mar. 2018). A few states, including California, already have laws in place allowing for the testing of autonomous vehicles on public roads. Cal. Code Regs. Title 13, § 227.00, et seq. (2018).

Application of the Traditional Insurance Model

In the trucking context, the traditional insurance model is based on negligence, or more plainly stated, driver error. Semi-autonomous operation has already been shown to reduce the margins of error, and as discussed above, greater implementation of artificial intelligence has the potential to remove virtually all operator error.

As this trend continues, insurance practices and markets will face new challenges and a new paradigm for insurance and risk transfer. These challenges are complicated further in the trucking sector with the application of the MCS-90 Endorsement for Motor Carrier Policies of Insurance for Public Liability under Sections 29 and 30 of the Motor Carrier Act of 1980.

The Present Paradigm—Commercial Auto Policy and the MCS-90

In most cases, the party at fault for an auto accident is the driver. In a world of autonomous vehicles, however, it is foreseeable that liability will shift to the manufacturers of autonomous vehicles, suppliers of their components, and data service providers. At what point will liability shift away from the driver?

The insuring agreement under the standard ISO commercial auto form provides coverage for "all sums an 'insured' legally must pay as damages because of 'bodily injury' or 'property damage' to which this insurance applies, caused by an 'accident' and resulting from the ownership, maintenance or use of a covered 'auto'." This raises the question of whether an accident involving an autonomous vehicle would be covered. The answer to this question depends on whether the autonomous vehicle is an "auto," and whether the accident resulted from the insured's "maintenance or use" of the autonomous vehicle.

The ISO commercial auto forms generally define "auto" as " [a] land motor vehicle, 'trailer' or semitrailer designed for travel on public roads" or "[a]ny other land vehicle that is subject to a compulsory or financial responsibility law or other motor vehicle insurance law where it is licensed or principally garaged." The definition of "auto" excludes "mobile equipment." The definition of "mobile equipment" excludes "[l]and vehicles subject to a compulsory or financial responsibility law or other motor vehicle insurance law." Noticeably absent from the ISO commercial auto form is the mandate that an auto be operated by a human. Without some clarification on this point, questions regarding the applicability of the terms "auto," "maintenance," and "use" will likely become a source of coverage litigation for years to come.

In litigated cases involving property damage and personal injury, the present system that facilitates (relatively) prompt resolution of claims and compensation to victims is likely to become slower due to the introduction of these coverage questions. Still, without moving to a no-fault system, it is difficult to see how these increasingly complicated issues with regard to fault and insurability can be quickly streamlined. As a result, legislative action or movement within the current insurance framework presently represent the two most likely solutions.

Under the majority view, the terms of the MCS–90 endorsement supersede the terms of an underlying insurance policy so as to determine the relationship between an injured member of the public and the MCS–90 insurer. *Carolina Cas. Ins. Co. v. Yeates*, 584 F.3d 868, 878–79 (10th Cir. 2009). While the majority of cases conclude that the MCS–90 endorsement only operates to protect the public and does not alter the relationship between the insured and the insurer, the practical effect on trucking insurers, even as artificial intelligence becomes more prevalent, is likely to be an immediate obligation to indemnify when public liability risk is involved.

The MCS-90 endorsement applies to and provides coverage for public liability risk as follows:

> In consideration of the premium stated in the policy to which this endorsement is attached, the insurer (the company) agrees to pay, within the limits of liability described herein, any final judgment recovered against the insured for public liability resulting from negligence in the operation, maintenance or use of motor vehicles subject to the financial responsibility requirements of Sections 29 and 30 of the Motor Carrier Act of 1980 regardless of whether or not each motor vehicle is specifically described in the policy and whether or not such negligence occurs on any route or in any territory authorized to be served by the insured or elsewhere.

The MCS-90 endorsement also states:

> It is understood and agreed that no condition, provision, stipulation, or limitation

contained in the policy, this endorsement, or any other endorsement thereon, or violation thereof, shall relieve the company from liability or from the payment of any final judgment, within the limits of liability herein described, irrespective of the financial condition, insolvency or bankruptcy of the insured.

The broad scope of coverage, "resulting from negligence in the operation, maintenance or use of motor vehicles," absent legislative reform, may thus implicate commercial auto coverage, even if liability is not directly attributable to the driver or motor carrier.

Collectively, new technologies have had positive effects on logistics, truck function, and driver function with corresponding safety, efficiency, and environmental benefits. Developing technologies are expected to bring increasing vehicle autonomy and continued, positive results. Refinement of current technology and development of new technologies continues and compounds. The ability of autonomous programing to "learn" through shared data retention and cooperative analysis is likely to eliminate risk on certain fronts, while creating new risks on others.

While the frequency and severity of collisions are likely to be reduced, for example, the cost of a claim that does arise may well increase. Property damage to artificial intelligence systems is likely to be more expensive. Arguments regarding causation and risk transfer may increase the cost of litigation. Previously inapplicable areas of risk that may be more unfamiliar to the industry will need to be considered.

Product Liability Paradigm

As the spectrum of autonomous involvement gravitates toward level five on the SAE scale, the traditional model of risk will become more difficult to apply. On one hand, the number of expected incidents, and thus, the comparable cost and need for auto liability insurance will be reduced. On the other hand, when loss does occur, it is more likely to be caused by the failure of an autonomous system rather than operator error. To be certain, there is generally a "human" component to motor vehicle negligence. Even in a fully autonomous situation, it remains to be seen whether the human driver will have a duty to pay attention and intervene to avoid an accident. The level and timing of human involvement could eventually fall outside of the traditional operator framework. In such circumstances, the product liability paradigm may offer an alternative.

As artificial intelligence is incorporated, the manufacturers and suppliers of its systems and components will become increasingly be intertwined with their maintenance and use. This integration will occur over time, so operator involvement both in and outside of the cab will remain a reality for the foreseeable future. It is also likely that insurance for the manufacturers of these systems will remain under commercial general liability, where it currently exists.

In the future, however, new tangential risks are likely to emerge. These risks include the addition of motor carriers and their drivers as additional insureds and the need to protect against new cyber risk as data is collected and shared. While the current insurance framework is likely to be capable of addressing this risk, planning for it requires an in-depth understanding of the technologies being implemented.

Critics of a shift to the product liability paradigm have suggested that "alternative risk transfer mechanisms like product liability are not structured to be primary, comprehensive solutions." Travelers Inst., *supra*. In support of this challenge, Travelers points out the complex nature of product liability lawsuits and regulatory overlay compared with what it identifies as existing compensation systems and the unique position of the auto insurance to address this risk. *Id*.

Given the nature of the prospective risk associated with increased autonomy and involvement of artificial intelligence, a case can be made that adherence to the current commercial auto liability paradigm and moving toward a products-based risk transfer both have merit, Likewise, both are challenging to foresee implementing in the future. Ultimately however, the argument over their applications may be the insurance equivalent of "fighting the last war." If one were to apply a product liability model to the current auto structure it is easy to see how the compensation system would grind to a halt. At the same time, the data produced thus far suggests a drastic reduction in incidents so that the remaining losses may well require the level of engagement and sophistication typically reserved presently for the product liability sector.

Insurance for a Future with Commercial Autonomous Vehicles

Perhaps more than any other issue, the confluence of autonomous and semi-autonomous vehicles with the present non-autonomous motoring public is where the rubber meets the road. It is unknown how humans will interact with artificial intelligence operating in their environment. It also remains to be seen how the insurance industry will adjust and evolve.

In making its recommendation pertaining to liability insurance, the Federal Automated Vehicles Policy, as updated in September of 2017, notes, "rules and laws allocating tort liability could have a significant effect on both consumer acceptance of HAVs and their rate of deployment. Such rules also could have a substantial effect on the level and incidence of automobile liability insurance costs in jurisdictions in which HAVs operate."

Driver error plays a role in most motor vehicle crashes in the United States. In the future, a reduction in losses arising from motor vehicle accidents due to the introduction of artificial intelligence should correspond to lower premiums for commercial and personal auto liability policies. Moreover, if there is a shift in the allocation of tort liability toward a product liability model, then it is conceivable that the auto insurance industry could at some point in the future become a thing of the past. In this scenario, risk might be borne by insurers writing commercial general liability coverage to auto manufacturers.

The risk associated with introducing artificial intelligence is not limited to physical injury and property damage. Data security and personal privacy will certainly become sources of potential risk and corresponding insurability as artificial intelligence is implemented. With the cost of a data breach in the United States averaging just under $8 million, the prospective cost of insuring this new technology is sure to rise as well.

Conclusion

Even as new regulatory and insurance solutions are being forged, some of the projected challenges of new technology are

already here today. Artificial intelligence is present in one way or another in every commercial motor vehicle presently operating. Though Hal is not refusing to open the pod bay doors, there are and will continue to be problems that relate to the implementation and expansion of technology in commercial vehicles. Addressing these changes on an ongoing basis and with a clear understanding that the future will look decidedly different than today represents the best opportunity for government, the trucking industry, and the insurance sector to identify areas in need of modification, regulation, or wholesale change.

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