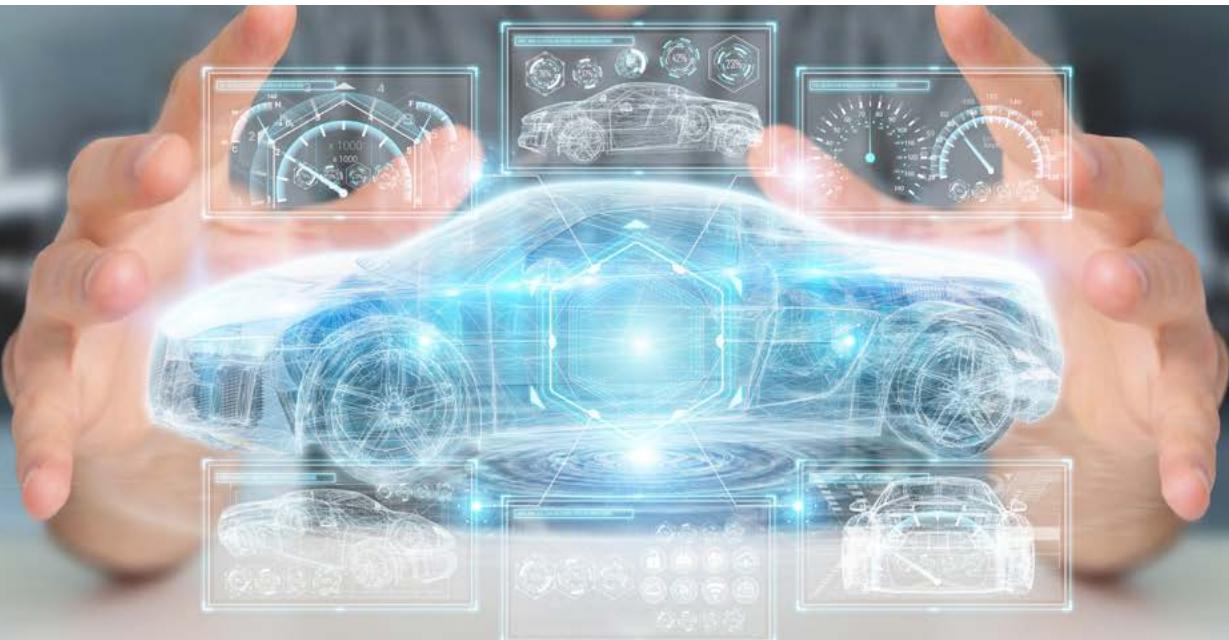


NAMIC ISSUE ANALYSIS



LIABILITY STANDARDS FOR AUTOMATED VEHICLE SHARED-DRIVING CRASHES

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INTRODUCTION

When insurance companies seek to determine coverage liability in a car crash, there are only four possible outcomes: (1) the insured was liable; (2) another party was liable; (3) liability was shared among the insured and other parties; or (4) no liability. Assessing and allocating liability are critical components of every property/casualty insurance claim decision regarding automobile crashes. The key then is to provide underwriters and adjusters with the knowledge and tools to accurately assess and determine liability.

Determining exactly what happened in a car crash is often very difficult. That determination will be exponentially more difficult in crashes where a car has a human driver and automated driving capabilities. Existing legal standards for allocating liability in car crashes are not designed to consider non-human “drivers”; and the absence of specific guidance and definitions will leave legislators, regulators, judges, and juries ill-equipped to make important determinations in this space. Auto insurance companies will benefit from a greater understanding of how the proper application of local legal standards and duties to such vehicles will ensure that actual losses are evaluated better and recovery potential can be improved.

DEFINING AUTO CRASH LIABILITY IS A FREQUENT AND IMPORTANT CHALLENGE

With more than 200 million cars insured in the U.S., almost all crashes involve automobile insurance. In 2018, there were an estimated¹ 6.7 million police-reported motor vehicle traffic crashes in the U.S., resulting in 36,560 fatalities and 2.7 million people injured. Among these crashes, less than 1 percent (33,654) were fatal crashes, 28 percent (1,894,000) were injury crashes, and 71 percent (4,807,000) were property-damage-only crashes. According to Insurance Information Institute statistics², in 2018 insurance companies paid almost \$175 million in auto claims, and:

- 1.1 percent of people with liability insurance had a bodily injury liability claim, while 3.9 percent of those with liability insurance had a property damage liability claim;
- 6.1 percent of collision insurance policyholders had a claim, while 3.0 percent of people with comprehensive coverage had a claim;
- The average auto liability claim for property damage was \$3,841; the average auto liability claim for bodily injury was \$15,785; and
- The average collision claim was \$3,574; the average comprehensive claim was \$1,833.

Victims of auto crashes often seek compensation from the liable party or parties. A Rand Corporation study³ of injury compensation reported that “about half of all those injured in motor vehicle accidents make some informal or formal attempt to collect from another party to the accident. In contrast, in non-work, non-motor-vehicle accidents, only three injuries out of 100 led to liability claims.” The same study also found that more than 70 percent of auto accident claimants receive some third-party compensation for their injuries.

¹ Police-Reported Motor Vehicle Traffic Crashes in 2018, National Highway Safety Administration, <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812860>

² Facts + Statistics: Auto insurance, Insurance Information Institute, [https://www.iii.org/fact-statistic/facts-statistics-auto-insurance#Incurred%20Losses%20For%20Auto%20Insurance,%202014-2018%20\(1\)](https://www.iii.org/fact-statistic/facts-statistics-auto-insurance#Incurred%20Losses%20For%20Auto%20Insurance,%202014-2018%20(1))

³ Compensation for Accidental Injuries in the United States, Rand Corporation, <https://www.rand.org/pubs/reports/R3999.html>

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The vast majority of auto crash claims are settled without litigation. Insurance adjusters and plaintiffs' lawyers, who both handle claims in high volumes, tend to settle at least minor-injury claims in a fairly routine manner – using claims categories, computer programs, going rates, or rules of thumb⁴. Even then, automobile tort cases primarily involve individuals suing individuals – and their insurers – and according to the National Center for State Courts, automobile torts are the single largest subcategory of tort cases, accounting for nearly two-thirds (60 percent) of all tort cases.⁵ Litigation for crashes that involve only one state and no question of federal law is generally conducted in state court and pursuant to state law governing liability.

In general, insurance companies determine fault based on the state's legal definition of negligence. Determining who is at fault in automobile crash claims in most states is often determined by the negligence per se doctrine, which provides that the human-driver-defendant's breach of duty is established by his or her violation of a traffic law. There is also a comparative negligence standard, which may allocate fault and negligence among the parties involved in an accident. Under comparative negligence, a defendant can raise a partial defense, saying that another party was partially at fault for the accident as well. It can be critical to the ability of insurance carriers to be able to legally pursue a third party that caused or contributed to an insurance loss to the insured in order to recover the amount of the claim paid by the insurance carrier to the insured for the loss.

These determinations are very important to the proper operations of property/casualty insurance companies. If the liability of parties other than the insured is not appreciated in underwriting and claims and if subrogation is not considered, direct settlements may be excessive and proper allocation of damages will not be achieved. Even a nominal amount of leakage across a significant portion of claims can cause numbers to grow exponentially and negatively impact the business of an auto insurer.

CRITICAL TERMINOLOGY

- **DDT** – Dynamic Driving Tasks
 - All of the real-time operational and tactical functions required to operate a vehicle in on-road traffic
- **DAS** – Driving Automation Systems
 - Hardware, software, and other components that can perform some DDT

AUTOMATED DRIVING = SHARED DRIVING

Understanding risk and fault in current human-only driver auto underwriting and claims adjustment is complex and difficult. Understanding and determining risk and liability for the emerging automated or autonomous cars will compound the challenges exponentially. In the past, driving operations were the sole province of the human driver; the person behind the wheel performed all of the dynamic driving tasks, or DDT, which the Society of Automotive Engineers defines as “all of the real-time operational and tactical functions required to operate a vehicle in on-road traffic.” The SAE defines these same operations and functions being performed by the vehicle in SAE J 3016-2016 – Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles⁶.

⁴When Cars Crash: The Automobile's Tort Law Legacy, Wake Forest Law Review, Vol. 53, p. 301,
https://law.stanford.edu/wp-content/uploads/2018/06/When_Cars_Crash_-_Tort_Law_Legacy_-As_Published.pdf

⁵The Landscape of Civil Litigation in State Courts, Civil Justice Initiative, <https://www.ncsc.org/~/media/Files/PDF/Research/CivilJusticeReport2015.ashx>

⁶Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles, Society of Automotive Engineers, https://www.sae.org/standards/content/j3016_201806/

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Auto companies are now offering combinations of hardware, software, and other components that can perform some DDT and are currently being developed and tested on public roads. This paper will refer to such components as “driving automation systems,” or DAS. Driver-assist features such as Tesla’s “Autopilot” and Cadillac’s “Super Cruise” systems are already in use by drivers on the road. While many people may think of automated vehicles as fully autonomous driving systems in which the occupants have no influence over the DDT, the reality is, at present and for the foreseeable future, these vehicles will only control some “real-time operational and tactical functions required to operate a vehicle in on-road traffic” and will require a human driver to retain some level of responsibility for the “real-time operational and tactical functions required to operate a vehicle in on-road traffic.”⁷

As of this writing, there are no technical or legal standards governing when it is appropriate or permissible for a vehicle to perform which DDT. Various iterations of test and commercially available cars today have different levels of ability to perform diverse DDT at assorted times and under a range of conditions. There are also no technical or legal standards today that define how many and which DDT a human driver must maintain or under what conditions. The result is that some of these vehicles will have systems that can perform some, but not all, DDT, which the human driver will have varying responsibility to modify or control depending on a myriad of factors.

The purported purpose of DAS is to mitigate risks and increase safe driving. These systems use technologies designed to reduce risk either by providing additional information to the human driver or by assuming control of the vehicle in defined pre-crash situations where technological control is predicted to make safer decisions. Persons knowingly initiating operation of vehicles with DAS therefore provide legal consent to use information from the system and/or to allow some level of control of the vehicle when the system detects what it determines to be an emergency condition.

Whether they use the information from the systems to operate the vehicle or enable the vehicle to perform dynamic driving tasks, human occupants have agreed that they and the vehicles will share driving operations. The human driver must be adequately informed of relevant driving information, must share and independently retain some level of situational awareness, and – perhaps most importantly – under certain conditions resume some or all real-time operational and tactical functions.



⁷ Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles, Society of Automotive Engineers, https://www.sae.org/standards/content/j3016_201806/

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SHARED DRIVING = POTENTIAL SHARED-CRASH LIABILITY

As noted earlier, determining liability in a car crash can only have four outcomes:

1. The insured was liable;
2. Another party was liable;
3. There is some shared liability among the insured and other parties, which now includes at least one DAS; or
4. No liability.

The addition of one or more DAS into the liability equation raises new questions:

- Did the human driver exercise due care in relying on that vehicle's system or acting in compliance with the DAS?
- How was that particular DAS designed to operate; was it properly engaged; and how can you tell how it did operate?
- Did a manufacturing, equipment, or software design function raise a product liability issue?
- Were the shared responsibilities understood and accepted? When and how was the acceptance memorialized?
- Is selling or using a driving automation system an ultrahazardous activity, so inherently dangerous that a person engaged in such an activity can be held strictly liable for injuries caused to another person, even if the person engaged in the activity took every reasonable precaution to prevent others from being injured?

Recent actions by the National Transportation Safety Board, the independent U.S. government investigative agency responsible for civil transportation accident investigation, clearly illustrate the number of parties that may contribute to liability in shared-driving crashes. In a 2020 report⁸ on a 2018 Tesla fatal crash, the NTSB determined that all three of the following were causes of the crash:

1. The Tesla Autopilot system's limitations;
2. The driver's overreliance on the Autopilot; and
3. The driver's distraction.

The NTSB also determined that the vehicle's ineffective monitoring of driver engagement contributed to the crash. The NTSB also determined that the systemic problems with the California Department of Transportation's repair of traffic safety hardware and the California Highway Patrol's failure to report damage to a crash attenuator led to the vehicle striking a damaged and nonoperational crash attenuator, which contributed to the severity of the driver's injuries. Clearly, there is a great deal of responsibility to be shared among numerous parties.

Similarly, the NTSB's 2019 determination⁹ of probable cause of the 2018 automated Uber fatal crash put primary blame on the safety driver's inattention. Contributory causes were Uber's lack of safety culture, poor monitoring of safety drivers, and lack of countermeasures for automation complacency. The NTSB also put tertiary blame on the pedestrian's impaired crossing of the road and the lack of good regulations at the state and federal levels.

⁸ National Transportation Safety Board, Public Meeting of Feb. 25, 2020, Collision Between a Sport Utility Vehicle Operating With Partial Driving Automation and a Crash Attenuator, Mountain View, California, March 23, 2018, <https://www.ntsb.gov/news/events/Documents/2020-HWY18FH011-BMGabstract.pdf>

⁹ NTSB Report: Collision Between Vehicle Controlled by Developmental Automated Driving System and Pedestrian, Tempe, Ariz., March 18, 2018, <https://www.ntsb.gov/investigations/AccidentReports/Reports/HAR1903.pdf>

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In a March 2020 report¹⁰, the Insurance Institute for Highway Safety found that:

- The more sophisticated and reliable the shared-driving automation is, the harder it is for drivers to maintain the necessary vigilance to monitor the vehicle interface and roadway to detect vehicle notifications and hazards.
- Drivers are more likely to perform secondary nondriving tasks, such as using a smartphone, when DAS are active.
- DAS often behave in ways that are unexpected when they encounter difficult road conditions that exceed their operational boundaries and the human driver must rapidly intervene to avoid potentially catastrophic consequences. Unfortunately, the ability to do so diminishes with reduced driver engagement in the driving task.
- Surveys indicate that the public has an inaccurate understanding of the limitations of DAS and what the driver's responsibilities are when sharing driving, which is likely to increase the risk of misuse.

Until, and if ever, there are completely autonomous cars – in which the occupants have no ability or responsibility to do anything that can affect the operations of the vehicle in traffic other than choosing a destination – some human occupant in the vehicle will retain some ability to control DDT to cause or prevent a crash and therefore may have some responsibility for a crash involving that vehicle. While not solely responsible for the operational and tactical functions required to operate a vehicle in on-road traffic, the occupant may contribute to the crash and resulting damage and injury when the occupant's actions or failure to act falls below what is required by the applicable reasonable person standard, which gauges what the reasonable person would have done to prevent the crash, damage, and injury. At the same time, in a shared environment where the DAS takes increasing control of the DDT, it will also be necessary to recognize a greater share of liability on the manufacturer and designer of the DAS.

As noted, determining who is at fault in automobile crash claims is most often determined by the negligence per se doctrine, which provides that the human-driver-defendant's breach of duty is established by his or her violation of a traffic law. Until there is full autonomy and clear, bright-line technical and legal standards for DDT, there is likely to remain some presumption that a human driver in the car is negligent per se. Because of the broad spectrum along which vehicles and capabilities will fall, fact finders may have difficulties understanding capabilities and limitations of a vehicle, but they will always see a human driver as a human driver.



¹⁰ Insurance Institute for Highway Safety Report: Addressing driver disengagement and system misuse: Human factors recommendations for Level 2 driving automation design, March 2020

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ALLOCATING SHARED-DRIVING RESPONSIBILITY TO THIRD PARTIES

As the human driver is, for the foreseeable future, going to be included in the consideration of potential parties at fault in a shared-driving car crash, it is important to appreciate that when dealing with multiple parties at fault, state laws generally determine the allocation of liability under one of three standards: joint liability; several liability; or joint and several liability. States differ on which form of liability they apply, and states can change their approaches as tort reform legislation is enacted. Today, joint and several liability comes in three general forms, with minor variations from state to state¹¹:

- Pure Joint and Several Liability: Each party at fault is responsible for the entire amount of damages regardless of the amount of responsibility. Seven states practice pure joint and several liability: Alabama, Delaware, Maryland, Massachusetts, North Carolina, Rhode Island, and Virginia.
- Modified Joint and Several Liability: A cross between pure joint and several liability and pure several liability. A party at fault is responsible for the entire verdict only if he or she is found to be at or above a specified percentage of fault. Twenty-nine states practice modified joint and several liability: California, Colorado, Hawaii, Idaho, Illinois, Iowa, Louisiana, Maine, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Texas, Washington, West Virginia, and Wisconsin.
- Pure Several Liability: Each party at fault is only liable for their assigned portion of damages based on their percentage of responsibility. Fourteen states practice pure several liability: Alaska, Arizona, Arkansas, Connecticut, Florida, Georgia, Indiana, Kansas, Kentucky, Michigan, Tennessee, Utah, Vermont, and Wyoming.

When driving is shared, the human driver will often be at fault to some degree in a crash. In those states with pure joint and several liability, the human driver at fault will be responsible for the entire amount of all damages even if he or she is only partially or minimally at fault. In modified joint and several liability states, the human driver at fault will be responsible for the entire amount of all damages if he or she is found to be at or above a specified percentage of fault for the crash. In states with pure several liability standards, the human driver at fault will be liable for an assigned portion of damages based on his or her percentage of responsibility.

Shared-driving crashes will be further complicated by different shared-driving requirements and limitations of specific vehicles and DAS, each of which has different degrees of individual human driver responsibilities and duties. Insurers dealing with crash claims will have to fully understand and appreciate all of these additional complications, as well as collect and analyze years of data on varying shared-driving systems and human drivers to provide actuarially sound underwriting of personal and commercial shared-driving policies.

Insurance carrier and independent adjusters and other representatives will seek to include all parties at fault and to allocate liability in a manner equitable under the law. An insurer looking to settle on behalf of its insured should understand that a proper settlement must include retaining all rights to compensation from all parties, as well as when settlement may extinguish its rights of contribution against other parties at fault.

¹¹ This section is taken from a comprehensive analysis “Joint And Several Liability And Contribution Laws In All 50 States,” by Matthiesen, Wickert & Lehrer, S.C., <https://www.mwl-law.com/wp-content/uploads/2018/02/JOIN-AND-SEVERAL-LIABILITY-AND-CONTRIBUTION-LAWS.pdf>

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WHOSE FAULT WAS IT? HUMAN DRIVER OR DRIVING AUTOMATION SYSTEMS

In addition to third-party victim liability, there will be a multitude of shared-driving crashes in which the human driver will take the position that the crash was solely or mostly the fault of the DAS, i.e., the car crashes itself. Making that determination and addressing claims will require a more complete understanding of what the DAS was designed to do and not do, what the human driver was required to do and not do, and under what conditions, as well as the proper upkeep of the vehicle and all relevant traffic and weather conditions.

To determine responsibility for the crash, it must be determined whether the human driver used the care that a reasonable person would use under the same or similar circumstances. The extent the human driver did or did not exercise that level of care will determine whether and how much the DAS may be at fault for the crash.

Laws in every state define different standards for whether a human driver at fault can hold the DAS responsible for the crash and damages and to what extent, or whether human driver's fault prevents any recovery from the DAS. Again, these standards will be critical to insurers handling insureds claims in shared-driving crashes and determining how to write and price policies for shared-driving vehicles and operations.

- Alabama, the District of Columbia, Maryland, North Carolina, and Virginia recognize the Pure Contributory Negligence Rule, which provides that if either party is even slightly responsible for the harm, it cannot recover any damages from the other party. However negligent or faulty a party may have been, this system bars any recovery with only 1 percent of fault by the other party.
 - In these states, a human driver responsible for 1 percent of the fault in a shared-driving crash could not recover from a massive failure of a DAS that was 99 percent at fault.
- Twelve states¹² recognize the Pure Comparative Fault Rule, in which a party's negligence will not completely bar recovery but will reduce the amount of damages the other party can recover based on his or her percentage of fault. A damaged party can recover 1 percent of the damages even if it is 99 percent at fault.
 - In these states, an irresponsible human driver almost totally at fault in a shared-driving crash could recover some amount of damages from a DAS that had a modicum of responsibility for the crash.
- Parties at fault share responsibility for damages in the Modified Comparative Fault System. Each party at fault is held responsible for damages in proportion to their own percentage of fault. But when one party's negligence reaches a certain designated percentage, e.g., 50 or 51 percent, that party cannot recover any damages. This can get very complicated and confusing. Ten states¹³ apply the 50 percent rule, and 23 states¹⁴ follow the 51 percent rule.
 - A shared-driving crash in these states in which the human driver was 50/51 percent at fault and the insurer paid all damages would preclude the insurer from recovering any damages from the Driver Automation System.

¹² Alaska, Arizona, California, Florida, Kentucky, Louisiana, Mississippi, Missouri, New Mexico, New York, Rhode Island, and Washington

¹³ Arkansas, Colorado, Georgia, Idaho, Kansas, Maine, Nebraska, North Dakota, Tennessee, and Utah

¹⁴ Connecticut, Delaware, Hawaii, Illinois, Indiana, Iowa, Massachusetts, Michigan, Minnesota, Montana, Nevada, New Hampshire, New Jersey, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Texas, Vermont, West Virginia, Wisconsin, and Wyoming

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- In South Dakota, a party at fault whose fault is more than “slight” cannot seek recovery from another party at fault.
 - A shared-driving crash in the human driver’s fault that was more than “slight” would preclude the human driver from recovering any damages from the DAS.

ALLOCATING SHARED-DRIVING LIABILITY – A FEW MORE VARIATIONS ON THE THEME

Clearly, the complex soup of varied vehicle capabilities and limitations, human driver requirements, and existing liability regimes and standards will present many difficult issues relating to shared-driving crash liability in general and insurance in particular.

The following are just samplings of the additional nuances that shared driving will bring to liability, law, and insurance:

The questions of the responsibility of the manufacturer of the vehicle, as well as the hardware and software used, raise a wide variety of issues related to product liability under various laws and judicial decisions.¹⁵ These product liability issues are many and critical for the vehicle and component manufacturers. Product liability concepts will have to augment the current personal negligence standards in order to address the challenges introduced by automated and shared-driving features and capabilities.

One of the most complex issues with respect to product liability will involve post-crash questions that may arise as to whether the designated takeover alert process or mechanics functioned properly, in accordance with its design, and whether the operator was properly informed of the alert methods and responses. Similarly, there will be complex questions as to whether the algorithm designed to anticipate the need for takeover in the particular circumstances was properly designed and implemented to reasonably anticipate or detect the danger requiring driver handover.

There is also the Sudden Emergency Doctrine that may provide a complete defense to a person who deals with an unexpected and sudden situation that demanded immediate response. The general duty to act as a reasonably prudent person is lowered to a duty to act as a reasonably prudent person would have in the context of the same emergency situation. This is designed to apply in such cases as an unseen child darting out into the street where the driver has no time to stop or swerve. Applying this complete defense to liability would require a judge or jury to believe that a driver confronted a sudden and unexpected situation, where the driver did not cause the situation, and the driver acted reasonably during the operations, including emergency situations.

Many¹⁶, but not all¹⁷, states apply a Sudden Emergency Doctrine, although some states are beginning to abolish it.

¹⁵ For an in-depth discussion of these issues, see Automated Vehicles and Manufacturer Responsibility for Accidents: A New Legal Regime for A New Era, 2019 Virginia Law Review Association, https://www.virginalawreview.org/sites/virginalawreview.org/files/A%26R_Book_0.pdf

¹⁶ Washington Civil Jury Instructions, [https://govt.westlaw.com/wciji/Document/12c832e71e10d11dab058a118868d70a9?viewType=FullText&originContext=documenttoc&transitionType=CategoryPageItem&contextData=\(sc.Default\)](https://govt.westlaw.com/wciji/Document/12c832e71e10d11dab058a118868d70a9?viewType=FullText&originContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default))

¹⁷ The Colorado Supreme Court in 2013 declared that Colorado would no longer be following the Sudden Emergency Doctrine, as it was confusing and redundant. *Bedor v. Johnson - Negligence - Sudden Emergency Doctrine*, https://www.courts.state.co.us/userfiles/file/Court_Probation/Supreme_Court/Opinions/2010/10SC65.pdf

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A corresponding complication will be a claim by a DAS that the human driver – in that car and in that situation – had the last opportunity to avoid the crash¹⁸ or a claim by the human driver that the DAS had the last opportunity to do so. With regard to both the sudden emergency and the last clear chance situations in a shared-driving crash, there will be complex questions as to whether and how the engagement of a DAS required the human driver to retain situational awareness, whether and how the DAS provided sufficient notice, and then determine how a reasonably prudent person would act in that car in that situation.

Also consider that when there is no DAS, as in most vehicles on the road today, the human driver knows and accepts that he or she alone is responsible for all driving operations. In shared driving, the human driver must know and accept that he or she and the DAS will be responsible for some but not all driving operations at various times and under varying conditions. The human driver may also be required to know and accept that he/she retains ultimate responsibility for vigilant and controlled driving operations for the safety of himself/herself and others.

A human driver who engages in shared driving in public traffic without sufficient knowledge and appreciation of the capabilities and limitations of both himself/herself and the DAS would by definition be failing to exercise due care. On the other hand, the human driver who initiates and conducts shared driving with sufficient knowledge and appreciation of the capabilities and limitations of both himself/herself and the DAS voluntarily enters into a potentially dangerous situation in which he/she is fully aware of the risk involved.

Assumption of Risk is the legal doctrine that prevents someone from recovering damages for an injury sustained when he or she voluntarily exposed himself or herself to a known danger. If a person knew of a hazardous condition and willingly exposed himself or herself to it, he/she assumes the risks. If the human driver knows about a particular risk and accepts that risk, he/she cannot recover any damages. If a human driver knew of deficiencies in a DAS, the human driver may share in responsibly for damages, in comparative negligence described earlier. But the specific risk causing the injury must have been known and appreciated for assumption of risk to apply. Courts often refuse to enforce a general liability waiver if it fails to inform the signer of the specific risk that caused the injury. Additionally, assumption of risk applies only to negligent conduct, not reckless conduct.



¹⁸The Restatement (Second) of Torts explains the Last Clear Chance Doctrine in detail – for the Helpless in § 479 and the Inattentive in § 480, raising numerous factual and legal issues as to reasonable care, vigilance, and competence

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CONCLUSION

Often overlooked, but nevertheless key stakeholders, the insurance industry and liability experts are central to the sustainability of any move toward automated driving. The technological developments we are witnessing will inevitably result in a complete paradigm shift in the manner in which the auto insurance sector is managed. Foremost among their many challenges is the problem of shared responsibility between human and machine.¹⁹

Over the last century the property/casualty insurance industry has led the way in protecting human drivers, from auto insurance policies to safety analysis and advocacy for more highway safety laws and regulations. Automated vehicles are being proposed as an auto safety solution, but automated vehicles that eliminate human error are far off. Crashes continue to happen too often and partial automation in DAS in cars today has resulted in shared driving between the human driver and the system. Shared driving results in the potential for shared-crash liability, which only complicates the already complex legal and liability questions.

No step in moving forward to safer shared driving is more important than the foundation of defining what specific DAS are designed to do and not do, as well as the attendant human driver roles and responsibilities. This is and will remain the predicate for development and is critical for insurers as well as anyone who responsibly engages in shared-driving operations. Auto companies and dealers can enhance consumer confidence and control their liability risks by providing more and better information about DAS and shared driving. This definition is also a vital component for shared-driving law enforcement and motor vehicle administration, as well as regulators, legislators, and the judiciary that are enacting and applying rules and laws for shared driving.

Property/casualty insurance companies have the deepest understanding of auto crash liability, including evolving technical issues, human factors, and legal and regulatory standards. As it undertakes the analysis of these issues for emerging shared driving, the property/casualty insurance industry continues developing the many new tools, skill sets, approaches, and input regarding applications of legal standards that are necessary to better resolve shared-driving crash claims and to properly underwrite insurance coverage for shared-driving vehicles and operators. Property/casualty insurance companies will continue to share these advances with all involved in this development as we continue driving together into the future of shared driving.

¹⁹ "From semi to fully autonomous vehicles: New emerging risks and ethico-legal challenges for human-machine interactions," Transportation Research Part F: Traffic Psychology and Behaviour, Volume 63, May 2019, Pages 153-164

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