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Swords and Shields: Impact of Private Standards for Liability Determinations of Autonomous Vehicles

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Abstract: Private voluntary standards are playing an ever increasing role in the governance of many emerging technologies, including autonomous vehicles (AVs). Government regulation of AVs and other emerging technologies has lagged due to the “pacing problem” in which technology moves faster than government regulation, and regulators lack the first-hand information that is mostly in the hands of industry and other experts in the field who often participate in standard-setting activities. Consequently, private standards have moved beyond historical tasks such as interoperability and definitions to now produce quasi-governmental policy specifications that address the risk management, governance, safety and privacy risks of emerging technologies. As the federal government has prudently concluded that promulgating government standards for AVs would be premature at this time and may do more harm than good, private standards have become the primary governance tool for these vehicles. A number of standard-setting organizations, including the SAE, ISO, UL and IEEE have stepped forward to adopt a series of inter-locking private standards that collectively govern AV safety. While these private standards were not developed with litigation in mind, they could provide a useful benchmark for judges and juries to use in evaluating the safety of AVs and whether compensatory and punitive damages are appropriate after an injury-causing accident involving an AV. This application of private standards would help solve two problems: (i) the lack of incentives for AV manufacturers to commit to conformance with the existing private standards for AV safety, and (ii) the concerns and uncertainty of AV manufacturers about potential liability standards (especially punitive damages) when their vehicles are inevitably involved in crashes resulting in injury or death. Drawing on several decades of relevant case law, this paper argues that a manufacturer’s conformance with private standards for AV safety should be a partial shield against liability, whereas failure to conform to such standards should be a partial sword used by plaintiffs to argue lack of due care.

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Private standards promulgated by a variety of standard-setting organizations have assumed an ever-increasing role in the governance of emerging technologies in recent years. The rising role of private standards is made possible and propelled by the growing gaps and shortcomings of traditional government regulation due to challenges such as the “pacing problem,” where the speed of technology far exceeds the capability of government regulation to keep up.¹ Thus, private standards have evolved from primarily setting technical specifications and inter-operability to now covering more technology oversight roles such as risk management, governance, safety, data security, and privacy.²

As private standards assume more and more of a quasi-regulatory role, one issue presented is whether such standards should and will have any role in liability determinations. The potential for standards compliance to serve as a partial shield for liability, or non-compliance to serve as a liability sword, has been discussed for decades, but the relevance of such a role in liability determination has never been greater given the growing importance of private standards in technology governance today.

This article considers the potential role of private standards conformance for tort liability and damages, using autonomous vehicles (AVs) as a case study. Part I reviews the new private standards landscape, including the broader technology governance role that such standards are serving today. Part II then presents a case study of the landscape and potential role of private standards for the safety governance of one particular emerging technology, AVs. Part III then summarizes the existing case law where courts have considered the impact of private standards in liability litigation and how this precedent might and should apply to autonomous vehicle liability.

1 The Evolving Private Standards Landscape

Private voluntary standards have assumed an ever-increasing role in the governance and management of emerging technologies, including autonomous vehicles. As the D.C. Circuit recently stated:

Across a diverse array of commercial and industrial endeavors, from paving roads to building the Internet of Things, private organizations have developed written standards to resolve

¹ Gary E. Marchant, *The Growing Gap Between Emerging Technologies and the Law*, in *THE GROWING GAP BETWEEN EMERGING TECHNOLOGIES AND LEGAL-ETHICAL OVERSIGHT: THE PACING PROBLEM* 19, 22–23 (Gary E. Marchant et al. eds., 2011).

² See *infra* notes 7–9 and accompanying text.

technical problems, ensure compatibility across products, and promote public safety. These technical works, which authoring organizations copyright upon publication, are typically distributed as voluntary guidelines for self-regulation.³

Most private standards are promulgated by established standard development organizations (SDOs), such as the International Organization for Standardization (ISO), the American Society for Testing and Materials (ASTM), and the Institute of Electrical and Electronics Engineers (IEEE). SDOs and their processes were concisely summarized by the D.C. Circuit:

The typical SDO operates through volunteer committees that focus on narrow technical issues. Comprised of industry representatives, academics, technical experts, and government employees, these committees meet regularly to debate best practices in their areas of expertise and to issue new technical standards or update existing ones.⁴

Standards can be of many types, including specifications, test methods, definitions, practices, or more substantive provisions that apply to a particular type of facility or product.⁵ Historically, especially in the technology field, private standards tended to provide common definitions or specifications that permitted pieces of equipment to be inter-operable or substitute for each other.⁶ However, in recent years, private standards have attempted to fill regulatory voids created by the inability of government regulators to keep pace with rapidly developing technologies. Standards now address substantive policy issues such as risk management, governance, privacy or data security aspects of technologies. Examples include ISO standards for risk management of nanotechnology,⁷ corporate governance for entities that develop or use artificial intelligence by the IEEE,⁸ and environmental management standards (ISO 14000) by the ISO.⁹

3 American Society for Testing and Materials, et al. v. Public.Resource.Org, Inc, 896 F.3 d 437, 440 (D.C. Cir. 2018),

4 ASTM v. Public Resources Org, 896 F.3 d at 441.

5 Thomas Parker Redick, *Chapter 5: Regulatory and Voluntary Standards*, in PROD.LIAB.: DESIGN AND MFG. DEFECTS (LEWIS BASS, ed) (2 d ed., 2021 update), § 5.5.

6 For example, ISO standards have harmonized film speeds (100, 200 or 400) so the standardized films work in virtually all cameras. David A. Worth, *The International Organization for Standardization: Private Voluntary Standards as Swords and Shields*, 36 ENVTL. AFFAIRS 79, 81 (2009).

7 See, e.g., ISO/TR 12885:2018, Nanotechnologies – Health and safety practices in occupational settings, available at <https://www.iso.org/obp/ui/#iso:std:iso:tr:12885:ed-2:v1:en>.

8 IEEE P2863, Recommended Practice for Organizational Governance of Artificial Intelligence, available at <https://standards.ieee.org/ieee/2863/10142/>. The author of this article is the chair of this standards working group.

9 ISO, ISO 14000 Family Environmental Management, available at <https://www.iso.org/iso-14001-environmental-management.html>. See also Worth, *supra* note 6, at 87; Cary Coglianese, *Environmental “Soft Law” as a Governance Strategy*, 61 JURIMETRICS (2021).

U.S. federal regulatory agencies are required by statute to give precedence to private voluntary standards if they are appropriate and relevant. Under the National Technology Transfer and Advancement Act, U.S. federal agencies are directed to consider private consensus standards in lieu of adopting their own government regulations.¹⁰ This requirement is implemented by OMB Circular A-119, last revised in 2016, which recognizes that private consensus standards have many advantages for governance, including participation by experts in drafting the standard, transparency, and international application.¹¹ As emerging technologies become more important and government regulation of these technologies becomes more difficult because of the “pacing problem,”¹² this Congressional dictate to give greater emphasis to private standards becomes more relevant over time.

Although private standards are generally not developed for purposes of litigation, they can be useful in litigation to help establish reasonable due care or whether a company engaged in malicious, intentional, or grossly negligent actions that may justify punitive damages. Private standards usually represent the expertise of many of the leading practitioners in an area of technology, and thus may involve and incorporate more expertise than is often available to the government, which generally lacks the front-line design and manufacturing expertise that exists in industry. Some from the plaintiffs’ side argue that some private standards may be more lenient than they should, given the predominance of industry members on the working groups that draft the standard.¹³ However, private standards often include other types of expertise as

10 Pub. L. 104–113, §12(d), Mar. 7, 1996, 110 Stat. 783, as amended by Pub. L. 107–107, div. A, title XI, §1, 115, Dec. 28, 2001, 115 Stat. 1,241 (unless prohibited by law or impractical, “all Federal agencies and departments shall use technical standards that are developed or adopted by voluntary consensus standards bodies, using such technical standards as a means to carry out policy objectives or activities determined by the agencies and departments.”).

11 Office of Management and Budget, OMB Circular A-119: Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities (revised Jan. 27, 2016), available at chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.whitehouse.gov/wp-content/uploads/2020/07/revised_circular_a-119_as_of_1_22.pdf.

12 See *supra* note 1; see also DEP’T OF TRANSPORTATION, FEDERAL AUTOMATED VEHICLES POLICY 8 (Sept. 2016), <https://www.transportation.gov/AV/federal-automated-vehicles-policy-september-2016> (“The speed with which HAVs [highly automated vehicles] are advancing, combined with the complexity and novelty of these innovations, threatens to outpace the Agency’s conventional regulatory processes and capabilities.”).

13 For example, one plaintiff lawyer wrote “codes and standards represent a compromise between the safe and unsafe practice. They do not represent due care. They do represent industry’s attempt to maintain and maximize profits.” Harry M. Philo, *Use of Safety Standards, Codes and Practice in Tort Litigation*, 41 *1*, 3 (1965). Yet this plaintiffs’ attorney, one of the first to write about the role of private standards in litigation, still argued that private standards have important benefits for both defendants and plaintiffs in tort litigation. *Id.* at 5–6. See also Wirth, *supra* note 7, at 89 (“it is not difficult to imagine a setting in which the array of interests that shape an industry-dominated, voluntary

well such as representatives from think tanks, government agencies, non-governmental organizations, law firms, and many different fields of academia.¹⁴

Because they are not subject to the bureaucratic requirements of government agencies, private standards can usually be revised and updated much faster and more frequently than government regulations, an important quality in fast-moving technical fields. Finally, private standards are not limited to specific jurisdictions like government regulation, and thus are more amenable to international application.

Private standards can be used in litigation in appropriate cases by both plaintiffs and defendants.¹⁵ However, there may be complications that affect their relevance. One issue is that for some products there may be no existing private standard.¹⁶ In other situations multiple inconsistent standards may apply to the same product.¹⁷ A third potential problem is that some standards may not be updated in a timely manner and therefore provide an outdated assessment.¹⁸ Nonetheless, many private standards can provide judges, juries and litigants an evidence-based standard of care for complex technologies such as artificial intelligence and AVs, which will be especially useful in situations where no government regulations exist.¹⁹

2 Autonomous Vehicle Safety Standards: A Case Study

Autonomous vehicles are an emerging technology that has the potential to save thousands of lives every year.²⁰ Unlike human drivers, AVs do not drink and drive, do

standard-setting process is expressly contrary to the well-being of the public in the United States and abroad.”).

¹⁴ See *supra* note 4 and accompanying text.

¹⁵ Philo, *supra* note 13, at 5–6; American Law of Products Liability 3 d, §30:47 Admissibility and sufficiency of evidence of industry standards (Feb. 2025 update) (“Generally, the plaintiff or defendant may introduce safety standards promulgated by industry groups or nongovernmental testing organizations in a products liability case. Such standards are clearly relevant, and are probative of the defendant’s due care regarding the design of its product.” (footnotes omitted)).

¹⁶ Redick, *supra* note 5, at § 5.01.

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ Ristina Frattone, *Reasonable AI and Other Creatures: What Role for AI Standards in Liability Litigation*, 1 J. LAW, MARKET & INNOVATION 15, 20 (2022) (“Notwithstanding their non-binding nature, standards are therefore a precious tool in the hands of stakeholders and courts to mitigate the unclarity of the liability regime of AI.”).

²⁰ Nidhi Kalra & David G. Groves, *The Enemy of Good Estimating the Cost of Waiting for Nearly Perfect Automated Vehicles* (Rand Institute, 2017), available at https://www.rand.org/pubs/research_reports/RR2150.html.

not get distracted by cell phones or other distractions, do not get tired or drowsy, do not engage in road rage, nor engage in other human vulnerabilities that cause the vast majority of vehicle accidents.²¹ Because AVs avoid these human errors, AVs have the potential to be significantly safer overall than human-driven conventional vehicles.²²

The federal government has traditionally regulated vehicle safety using federal motor vehicle safety standards (FMVSS) promulgated and enforced by the National Highway Traffic Safety Administration (NHTSA). However, NHTSA has not adopted FMVSS for AVs to date, and has indicated that adoption of such standards would be “premature.”²³ According to NHTSA, “[p]remature establishment of an FMVSS without the appropriate knowledge base could result in unintended consequences.”²⁴ Industry is concerned that the historical pattern of very slow updating of FMVSS by NHTSA could “freeze” technology and block innovation for a rapidly evolving technology like AVs.²⁵ Moreover, FMVSSs are not a good fit with AVs, since such standards must be based on objective criteria and test methods,²⁶ which AVs can be designed to easily comply with. The safety problem with AVs is so-called “edge” or “corner” cases where the vehicle encounters an unexpected situation that is not in

21 An NHTSA survey found that 94 percent of motor vehicle crashes were due to human choice or error. SANTOKH SINGH, NHTSA, CRITICAL REASONS FOR CRASHES INVESTIGATED IN THE NATIONAL MOTOR VEHICLE CRASH CAUSATION SURVEY, Report No. DOT HS 812 115 (Feb. 2015).

22 Recent insurance data analyzed by the insurer Swiss Re found that after 25 million miles of on-road driving by the Waymo AV, the Waymo AV significantly outperformed human drivers in safety performance (88 % reduction in property damage claims and 92 % reduction on bodily injury claims. Luigi Di Lillo et al., Do Autonomous Vehicles Outperform Latest-Generation Human-Driven Vehicles? A Comparison to Waymo’s Auto Liability Insurance Claims at 25 Million Miles, <https://storage.googleapis.com/waymo-uploads/files/documents/safety/Comparison%20of%20Waymo%20and%20Human-Driven%20Vehicles%20at%2025M%20miles.pdf>.

23 NHTSA, Framework for Automated Driving System Safety, 85 Fed. Reg. 78058, 78059 (Dec. 3, 2020) (“it may be premature for NHTSA to develop and promulgate a specialized set of FMVSS or other performance standards for [AV] competency”).

24 *Id.* Such premature adoption of FMVSS could “inadvertently provide an unreliable sense of security, potentially lead to negative safety results, or potentially hinder the development of [AV] technology.”). *Id.*

25 Congressional Research Service, Issues in Autonomous Vehicle Testing and Deployment 8 (April 23, 2021), available at <https://sgp.fas.org/crs/misc/R45985.pdf> (“Proponents of autonomous vehicles note that lengthy revisions to current vehicle safety regulations could impede innovation, as the rules could be obsolete by the time they take effect.”).

26 49 U.S.C. 30111(a). Courts have held that the FMVSS objectivity requirement means that compliance with an FMVSS standard must be susceptible to objective measurements, which are capable of repetition. *Chrysler Corp. v. Dep’t of Transp.*, 472 F.2 d 659, 675–76 (6th Cir. 1972). Each FMVSS must also give reasonable notice of what performance is required and how compliance will be determined. *United States v. Chrysler Corp.* 158 F.3 d 1,350, 1,354 (D.C. Cir. 1972).

their training data. By definition and legal determinations,²⁷ FMVSSs cannot test for such “surprises,” but must be based on objective, pre-determined test criteria, and thus would not be an effective governance system for AVs.

Yet, AVs face significant safety and liability uncertainties. While AVs are expected to result in a significant reduction in overall motor vehicle crash mortality and morbidity, they will undoubtedly be (and indeed have already been) involved in some accidents. AV manufacturers and/or component manufacturers (hereinafter “manufacturers”) are likely to be sued after most such accidents for the resulting damages based on the theory that due to an alleged programming defect the AV either caused, or should have been able to avoid, the collision.²⁸ Non-expert legal factfinders, whether they be judges or jurors, will find it difficult in many such cases to determine whether the AV’s performance in a specific accident was sufficiently culpable to deserve awarding of compensatory or punitive damages to the injured parties.²⁹ Private standards may be helpful in this liability determination.³⁰ Similarly, AV developers would benefit from some objective standards that provide a benchmark for performance and safety that they should strive to meet to protect against excessive liability risks.

There have recently been numerous efforts and initiatives to develop private standards for AVs. There are to date no federal regulatory standards for AVs, and the first Trump administration indicated a preference for private standards:

Voluntary standards offer flexibility and responsiveness to the rapid pace of innovation, can encourage investment and bring cost-effective innovation to the market more quickly, and may be validated by private sector conformity assessment and testing protocols ... Areas where industry can support standards development include – but are not limited to – topics such as definitions, taxonomy, testing, interoperability, and performance characteristic definitions.³¹

²⁷ See *supra* note 26.

²⁸ Gary Marchant & Rida Bazzi, *Autonomous Vehicles and Liability: What Will Juries Do*, 26 B.U. J. Sci. & Tech. L. 67, 86, 96 (2020).

²⁹ *Id.* at 98 (“Because of the complexity of AVs, it will be challenging and expensive for many plaintiffs to meet their burden of proving that the AV was defective, especially when the AV was not the initial cause of the crash.”); Frattone, *supra* note 20, at 55 (“the problem with AI-related damage is that there is not much data on which courts and experts can rely. Uncertainty is unavoidable. Moreover, the features of AI significantly complicate the assessment of the human responsibility for negative outputs.” [footnote omitted]).

³⁰ *Id.* (“standards provide a valuable yardstick against which the behavior of developers and deployers can be evaluated”).

³¹ U.S. DEPARTMENT OF TRANSPORTATION, AUTOMATED VEHICLES 3.0: PREPARING FOR THE FUTURE OF TRANSPORTATION 32 (2018).

The Biden administration also did not attempt to adopt FMVSSs for AVs, and in its final days proposed its own governance program based on voluntary commitments by AV manufacturers.³²

The primary purpose of private AV standards is not to assist the litigation process, but rather to guide AV and AV-system developers with consistent terminology, performance criteria, and testing and safety expectations.³³ Several standards for AVs already exist, notably standards developed by the Society of Automotive Engineers (SAE) that define relevant terms related to AVs, including the different levels of vehicle automation.³⁴ Such standards are expressly intended to “be descriptive and informative rather than normative.”³⁵ These existing SAE standards would be of limited relevance to the issues that would be litigated in a product liability lawsuit resulting from an AV crash.

However, several other private standards have recently been developed and published by various standard development organizations, and these private standards do directly govern AV safety.³⁶ For example, the ISO adopted a new safety standard (ISO 21448) with the title “Safety of the Intended Functionality” (SOTIF), that is intended to assess and promote the safety of AVs in various dangerous situations when no components fail.³⁷ In other words, it provides a standard for evaluating safety of an AV in normal operation without any faults, which of course only encompasses some but not all operational conditions of an AV.

Underwriters Laboratories (UL) developed ANSI/UL4600, titled a “Standard for Safety for the Evaluation of Autonomous Products” in April 2020. An updated version (4,600.2) was published in March 2022, less than two years later, incorporating a number of clarifications, upgrades and other improvements suggested by stakeholders and new research.³⁸ According to one UL standards executive, this rapid update schedule demonstrates how “[s]tandards help to assure safety in rapidly

³² NHTSA, ADS-Equipped Vehicle Safety, Transparency, and Evaluation Program, 90 Fed. Reg. 4,130 (Jan. 15, 2025)

³³ An excellent review of the use of private standards for AV safety is provided in Helen A.F. Gould & Jeffrey K. Gurney, *Use of Industry Consensus Standards as a Soft Law Mechanism to Safely Deploy Automated Driving Systems*, 64 JURIMETRICS J. 425–53 (2024).

³⁴ SAE Recommended Practice J3016, Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles (June 2018).

³⁵ *Id.* at 1.

³⁶ The DOT has provided a list of such efforts as of August 2018 in an appendix to its 2018 Automated Vehicles Policy. DOT, *supra* note 31, at 49–62.

³⁷ Junko Yoshida, *AV Safety Ventures Beyond ISO 26262*, EE TIMES (March 5, 2019), available at <https://www.eetimes.com/document.asp>.

³⁸ Underwriters Laboratories, Second Edition of UL 4600 Published (March 15, 2022), available at <https://ulse.org/standards-and-engagement/presenting-standard-safety-evaluation-autonomous-vehicles/second-edition>.

evolving, new technology such as autonomous vehicles.”³⁹ UL is working on a 3rd version of UL 4600 that incorporates autonomous trucks.

ANSI/UL 4600 is intended to ensure that safety cases are created and maintained to ensure acceptable safety for deployment of fully autonomous systems, including fully autonomous vehicles without a human driver.⁴⁰ The standard requires a written safety case that includes claims that identifies the hazards that the AV is intended to prevent or avoid, an argument on why the AV achieves that goal, and evidence consisting of test results, analysis and other results that support the claim. UL 4600 is goals based, describing what a safety case should address, but does not mandate any specific engineering approach, and thus can incorporate other AV private standards that specify specific engineering approaches.⁴¹ The standard also provides for criteria that can be used for independent assessment of the vehicle’s safety case.⁴²

The IEEE followed up with IEEE P2846, entitled “Assumptions for Models in Safety-Related Automated Vehicle Behavior.”⁴³ This standard includes both normative and informative portions. The normative provisions define “a minimum set of assumptions regarding reasonably foreseeable behaviors of other road users that shall be considered in the development of safety-related models” for AVs.⁴⁴ The informative provisions “defines a list of attributes common to contributed safety-related models and methods to help verify whether a safety-related model considers the Normative minimum set of assumptions.”⁴⁵ The standard include annexes that provide examples of how the normative minimum set of assumptions could be employed in AV development.⁴⁶ Essentially this standard seeks to answer the critical question for AVs of “how safe is safe.”⁴⁷

Finally, the SAE announced in 2018 that it planned an expedited effort to develop new testing standards for AV safety.⁴⁸ This standard, designated as SAE J3237, is technically described as Driving Assessment (DA) Metrics for Automated Driving

39 *Id* (quoting Phil Piqueira, vice president of Global Standards for UL Standards & Engagement).

40 Junko Yoshida, *Safe Autonomy: UL 4600 and How It Grew*, EE TIMES, April 2, 2020, available at <https://www.eetimes.com/safe-autonomy-ul-4600-and-how-it-grew/>.

41 *Id*.

42 *Id*.

43 IEEE, Welcome to P2846!, available at <https://sagroups.ieee.org/2846/>.

44 *Id*.

45 *Id*.

46 *Id*.

47 Junko Yoshida, *Intel Gets IEEE to Ask ‘How Safe Is Safe Enough’ for AVs*, EETIMES, Dec. 19, 2019, available at <https://www.eetimes.com/intel-gets-ieee-to-ask-how-safe-is-safe-enough-for-avs/>.

48 Sam Abuelsamid, *SAE International Ready to Tackle Automated Vehicle Safety Testing Standards*, FORBES (online) (Aug. 1, 2018), <https://www.forbes.com/sites/samabuelsamid/2018/08/01/sae-international-ready-to-tackle-automated-vehicle-safety-testing-standards/#774ae2c733cf>.

Systems.”⁴⁹ The focus and impact of these SAE AV testing standards were described as follows:

What SAE doesn't plan to do is define the thresholds for acceptable performance. That will be left up to regulators and to some degree the marketplace. However, the testing standards will likely become the mechanism used to evaluate whether a particular vehicle is sufficiently safe for use on public roads. In effect, these new standards will become the test that a computer must pass in order to gain its virtual driver's license.⁵⁰

Several other AV standards are currently under development to complement these five major AV safety standards.⁵¹ For the most part, these various standards do not compete or overlap with each other, but rather govern different aspects of the safety determination for AVs, fitting together like pieces of a jigsaw puzzle.⁵² In the words of Intel's Jack Weast, who chaired IEEE P2846, the various AV safety standards “are totally complementary,” and “[c]ertainly, one standard can't cover everything. We can use 10 standards or more!”⁵³ The fact that several different private standards are needed to govern AV safety demonstrate the complexity of the issue, and may explain why no regulatory standards yet exist. These types of safety standards would likely have greater relevance for AV injury litigation, as elaborated below.

However, there is a problem with these private AV safety standards. Although experts from vehicle manufacturers participated in the development of these standards, no AV manufacturer has publicly committed to conform to any of these standards, albeit while nevertheless citing their value and significance in various forums. These types of standards are unlike the traditional private standards addressing technology compatibility that companies are self-incentivized to adopt and conform with by network effects. Rather, this type of standards require an additional commitment of resources and legal responsibility.⁵⁴ This newer type of private standard has been referred to as an “enforced” standard, because additional pressures or incentives are required to motivate companies to commit to such

⁴⁹ SAE, Driving Assessment (DA) Metrics for Automated Driving Systems J3237 (Mar. 13, 2024), [https://www.sae.org/standards/content/j3237/#:~:text=Driving%20Assessment%20\(DA\)%20Metrics%20for%20Automated%20Driving%20Systems%20J3237,performance%20of%20ADS%20operated%20vehicles%20\(under%20development\)](https://www.sae.org/standards/content/j3237/#:~:text=Driving%20Assessment%20(DA)%20Metrics%20for%20Automated%20Driving%20Systems%20J3237,performance%20of%20ADS%20operated%20vehicles%20(under%20development).).

⁵⁰ Abuelsamid, *supra* note 48.

⁵¹ See Gould & Gurney, *supra* note 33, at 449–453.

⁵² *Id.* at 441–44.

⁵³ Yoshida, *supra*, note 47.

⁵⁴ Gary Marchant & Carlos Ignacio Gutierrez, *Soft Law 2.0: An Agile and Effective Governance Approach for Artificial Intelligence*, 24 MINN. J.L. SCI. & TECH. 375, 401–424 (2023) (providing a “tool box” of incentives and indirect enforcement mechanisms to drive conformance with private standards).

standards.⁵⁵ As discussed below, a partial liability shield for conformance with the AV safety standards may provide the necessary incentive for companies to commit to these standards, providing improved safety for the public and some relief from liability uncertainty for the AV manufacturers.

3 The Liability Implications of Private Standards

Private standards may supply some benefits and appropriate incentives for the safety of autonomous vehicles, and at the same time provide some benchmarks for liability determinations for accidents involving autonomous vehicles. Part A below is descriptive, summarizing the existing case law examining the impact of private standards in liability litigation. Part B is normative, and argues that private standards should be given a prominent role and impact by courts in adjudicating autonomous vehicle liability.

3.1 Existing Case Law on Role of Private Standards in Liability Determinations

Compliance with applicable voluntary standards can provide evidence of the product or manufacturer's reasonableness, whereas failure to comply with applicable industry standards may be evidence of unreasonableness. Indeed, legal precedent in most jurisdictions establishes that compliance with applicable standards can provide at least a partial shield against liability, whereas non-compliance can be a partial sword that can increase liability risks. Private or voluntary standards have been found admissible to help evaluate the reasonableness of the defendant's conduct in both negligence⁵⁶ and strict liability actions.⁵⁷ As one appellate court stated, "[e]

⁵⁵ Peter Cihon, Standards for AI Governance: International Standards to Enable Global Coordination in AI Research & Development (Technical Report, University of Oxford Future of Humanity Institute, April 2019), at 11 https://www.fhi.ox.ac.uk/wp-content/uploads/Standards_FHI-Technical-Report.pdf.

⁵⁶ *Elledge v. Richland/Lexington School Dist. Five*, 534 S.E.2d 289, 290 (S.C. App. 2000). *See also* Victor E. Schwartz, Patrick W. Lee & Kathryn Kelly, Guide to Multistate Litigation §7:13 (Oct. 2011) ("At one time, customs and codes were held inadmissible in a majority of states because of hearsay problems. There is now a trend towards admissibility in negligence cases when the code or custom is relevant.") (references omitted).

⁵⁷ Although some earlier case law and one State today (Pennsylvania, *see infra* notes 76–78 and accompanying text) held that industry standards should only be admissible in negligence cases and not strict liability cases, the use of such industry standards has become well-accepted in strict liability cases in almost all jurisdictions today. *See* BARRY A. LINDAHL, 3 MODERN TORT LAW: LIABILITY AND LITIGATION § 16:109 (2d ed.) ("The admissibility of industry standards in actions based on strict liability in tort,

vidence of industry standards, customs, and practices is ‘often highly probative when defining a standard of care.’”⁵⁸

Starting with the shielding effect of standards compliance, a tort defendant can use its compliance with voluntary programs or standards as evidence that it exercised reasonableness or due care.⁵⁹ In litigation, “industry standards and best practices are the minimum standard of care to which [an] organization is likely to be held.”⁶⁰ Compliance with voluntary standards will usually not provide a complete shield against liability,⁶¹ but can provide helpful evidence that the company acted with due care.⁶² This is particularly true in areas like AVs without any technology-

where the primary issue is the character of the product, and not the conduct of the parties, is supported by even more cogent reasons than in negligence actions.”). See also *Union Supply Co. v. Pust*, 583 P.2d 276, 286–87 (Col. 1978) (holding that private or industry standards are particularly relevant in design defect cases to assist the trier of fact in determining whether a design defect is present); *Pacy v. Cowen Holdings*, 148 A.D.3d 1,747, 1,748 (N.Y. App. 2017) (no design defect when manufacturer conforms to industry standard); *Ross v. Alexander Mitchell and Son, Inc.*, 138 A.D.3d 1, 425 (N.Y. 4th Dep’t 2016) (a manufacturer and installer of restroom stall door were not strictly liable for restroom user’s injuries because they submitted evidence that door and hinges were manufactured in accordance with applicable industry standards); *Dugan v. Sears, Roebuck & Co.*, 447 N.E.2d 1, 055, 1,057 (Ill. App.3d 1983); *Alderman v. Wysong & Miles Co.*, 486 So.2d 673, 678–79 (Fla. App. 1986).
⁵⁸ *Elledge*, 534 S.E.2d at 290; *Jolly v. Gen. Elec. Co.*, 869 S.E.2d 819, 843 (S.C. Ct. App. 2021) (same). See also *Hansen v. Abrasive Engineering and Mfg., Inc.*, 856 P.2d 625, 628 (Or. 1993) (“Because advisory safety standards that are adopted by nongovernmental entities such as ANSI may represent a consensus regarding what a reasonable person in a particular industry would do, they may be helpful to the trier of fact in deciding whether the defendant has met the standard of care due.”).

⁵⁹ *Alderman v. Wysong & Miles Co.*, 486 So. 2d 673 (Fla. 1st DCA 1986) (in negligence and strict liability action the trial court properly permitted defendant manufacturer to introduce ANSI standards concerning design of press brakes and safety in their installation since evidence of industry standards provided by such private, voluntary organizations is generally considered relevant in strict products liability action on issue of design defects and to impeach expert testimony that is contrary to standards). See generally Edward R. Glady, Jr., Gregorio M. Garcia & Blair H. Moses, *Nanotechnology Liability: Do We Steer or Just Go Along for the Ride?*, 52 JURIMETRICS, THE JOURNAL OF LAW, SCIENCE, AND TECHNOLOGY 313, 324 (2012).

⁶⁰ Ronald C. Wernette, *8 Steps to Reducing Nanotorts in Your Nanofuture*, LAW360 (July 8, 2010).

⁶¹ *Sawyer v. Dreis & Krump Mfg. Co.*, 493 N.E.2d 920, 925 (1986) (national standards were properly admitted and could be considered by the jury as some evidence of negligence but they were not conclusive on the subject of negligence); *Jorgensen v. Horton*, 206 N.W.2d 100, 103 (Iowa 1973) (“Violation of standards in such [private safety] codes is evidence on the issue of negligence but not negligence per se.”).

⁶² S. David Hoffman & Mathew E. Hoffman, *Use of Standards in Products Liability Litigation*, 30 DRAKE L. REV. 283 (1980); *Alderman v. Wysong & Miles Co.* 486 So.2d 673, 678–79 (Fla. Dist Ct. 1986) (upholding using manufacturer’s compliance with ANSI private standards as evidence against design defect); *Stone v. United Eng’g*, 475 S.E.2d 439, 454 (W.V. 1996) (“Courts have become increasingly appreciative of the value of national safety codes and other guidelines issued by governmental and voluntary associations to assist the trier of fact in applying the standard of due care in negligence cases.”).

specific government standards, in which case private standards can “suggest [] a standard of care as a yardstick in emerging areas where the legal standard is not as clear against which the conduct of organizations can be measured.”⁶³ In a much publicized case involving the safety of a Toyota vehicle, the California Supreme Court ruled that evidence of industry custom and practice can be admitted to show that the manufacturer acted reasonably.⁶⁴ However, a court may exclude reference to private standards on which a manufacturer relies if the standards do not directly address the risk that the alleged product defect created.⁶⁵

Just as compliance with a voluntary standard may help shield a defendant from liability, a manufacturer’s failure or refusal to comply with a voluntary standard can be used as a sword by a plaintiff to argue that the manufacturer did not act reasonably.⁶⁶ For example, a federal district court upheld a plaintiff’s reliance on the defendant’s failure to comply with private standards and industry guidelines in a walkway accident on a cruise ship, holding that “advisory guidelines and recommendations, while not conclusive, are admissible as bearing on the standard of care in determining negligence.”⁶⁷ In another case where stairs designed by a defendant failed to comply with an ASTM voluntary standard, the court concluded:

Although the ASTM standards are non-binding and a reasonable jury could discredit their persuasiveness, for summary judgment purposes, the standards as applied to the stairs satisfy Plaintiff’s burden of presenting evidence of defect. By failing to comply with the ASTM standards, a jury could conclude that the stairs were not reasonably fit, suitable and safe for their intended purpose.⁶⁸

63 Chris Bell & Martha Marrapese, *Nanotechnology Standards and International Legal Considerations*, in V. MURASHOV & J. HOWARD (Eds.), *NANOTECHNOLOGY STANDARDS* 239, 250 (2011). See also *Union Supply Co. v. Pust*, 583 P.2d at 286–87.

64 *Kim v. Toyota Motor Corp.*, 424 P.3d 290, 300–301 (2018). While the admissibility of industry custom was contested in this case, both the defendant and plaintiff in this case agreed that industry standards promulgated by trade associations should be admissible. *Id.* at 299.

65 *Lutz v. National Crane Corp.*, 884 P.2d 455, 464–65 (Mont. 1994).

66 *Hoffman & Hoffman*, *supra* note 62, at 288–92; *Hansen v. Abrasive Engineering and Mfg., Inc.* 856 P.2d 625, 628 (Or. 1993) (“Although violation of an industry custom does not constitute negligence per se, it may be shown in order to establish whether a party has met a standard of care to which the party is required to conform.”); *L. Z. PPA Zern v. BIGAIRBAG B.V.*, 721 F.Supp.3d 169, 184 (D. Conn. 2024) (“failure to comply with ASTM standards are sufficient to state a claim for negligence”).

67 *Cook v. Royal Caribbean Cruises, Ltd.*, 2012 WL 1792628 (S.D. Fla, May 15, 2012).

68 *Donlon v. Gluck Group, LLC*, 2011 WL 6020574, *4 (D.N.J., Dec. 2, 2011).

Violation of industry standards can therefore be probative of negligence or a product defect, but does not conclusively establish liability.⁶⁹

Of course, the party opposing reliance on private standards to demonstrate the exercise or lack of reasonableness can challenge the relevance and weight to be given to such standards on cross-examination and rebuttal.⁷⁰ For example, an opponent of reliance on private standards could argue that the private standards at issue are outdated, a potential concern in a rapidly evolving industry like AVs.⁷¹ Another counter-argument is that the private standards at issue are not sufficiently well-accepted as the standard of care in the industry. A private standard that has been accepted by all companies in an industry will therefore be more persuasive.⁷² Voluntary or private programs that have not received “industry-wide” recognition are entitled to less weight.⁷³

Courts also generally give more weight to voluntary standards adopted by recognized international and national standard-setting bodies such as SAE, IEEE, ISO, ASTM and ANSI than to ad hoc standards created by a group of individual

69 See *Jablonski v. Ford Motor Co.*, 955 N.E.2d 1,138 (Ill. 2011) (evidence of a violation of industry standards is considered probative of, but not conclusive on, the question of negligent design); *Graves v. Mazda Motor Corp.*, 675 F. Supp. 2d 1,082 (W.D. Okla. 2009), *aff'd*, 405 Fed. Appx. 296 (10th Cir. 2010) (although the fact that a piece of equipment fails to comply with published engineering standards may allow a jury to infer that the product is defective, it does not establish, by itself, that the defect made the product unreasonably dangerous to an extent beyond that which would be contemplated by the ordinary consumer).

70 *Dugan v. Sears, Roebuck & Co.*, 447 N.E.2d 1,055, 1,057 (Ill. App.3d, 1983) (opposing counsel can use cross-examination and other evidence to put voluntary standards in context and try to show their limitations); *Alderman v. Wysong & Miles Co.*, 486 So.2d 673, 678–79 (Fla. App. 1986) (argument that private standards relied on by opposing party “were too general to constitute legitimate industry standards of conduct and, hence, this evidence was irrelevant” should be made in cross-examination and rebuttal rather than as an admissibility question).

71 *Bell & Marrapese*, *supra* note 63, at 250.

72 *Am. L. Prod. Liab.* 3d § 112:33 (“Nongovernmental safety codes or standards for industrial machinery are admissible where they are formulated by groups of experts in designing and manufacturing; they are likely to be more probative than a single learned treatise or an expert opinion, as they represent the consensus of an entire industry, there is no motive for the formulators to falsify, and there is no danger that the standard will be subsequently altered or incorrectly remembered by a witness.”).

73 *Alderman*, 486 at 678 (declining admission for showing industry standard of care where “no such standards were recognized industry-wide” but nevertheless allowing standards to be admitted for other purposes such as to show lack of design defect and to impeach opposing expert testimony); *Fras v. Creative Playthings, Inc.*, 2005 WL 2327232, at *11 (2nd Cir., Sept. 21, 2005) (jury may consider defendant’s compliance with private standards “only if it first finds that those standards represent industry custom”).

companies.⁷⁴ It is also relevant that the purpose of the private standards was to define and promote product safety.⁷⁵

One state that is an outlier in the role of private standards is Pennsylvania.⁷⁶ Although Pennsylvania, like other states, allows industry standards to be introduced in negligence cases, its Supreme Court has held that private standards are not admissible as a defense in strict liability cases.⁷⁷ The Court applies the risk-utility test to determine design defects, and the state Supreme Court has held that this risk-utility test evaluates the product, not the manufacturer, and thus information about whether the manufacturer acted reasonably in following an industry standard relates to the manufacturer, not the product, and is not admissible.⁷⁸

The most devastating potential impact of product liability litigation for a product manufacturer such as an AV manufacturer is the award of substantial (and possibly repeated) punitive damages. Punitive damages are awarded over and above any compensation award when a liable defendant acted with “reckless disregard” or “wanton misconduct.”⁷⁹ Punitive damages not only can impose large economic losses on a manufacturer, but can also create a very negative public expression that the company is a bad actor. As the U.S. Supreme Court has noted, punitive damages awards “serve the same purposes as criminal penalties.”⁸⁰

Compliance with industry or private standards can provide a strong bulwark against awarding of punitive damages.⁸¹ As a leading scholar on punitive damages has advised, “[i]n a typical case, compliance with a universal industry custom should

74 Hoffman & Hoffman, *supra* note 66, at 293 (“Certainly, the imprimatur of such an organization as ANSI lends more credence to a standard and makes it easier to have it accepted into evidence in products liability litigation.”).

75 Am. L. Prod. Liab. 3 d § 112:33 (“safety codes and standards relating to machinery are admissible when they are prepared by organizations formed for the purpose of promoting safety”).

76 Matthew Santoni, *Pa. Justices Nix ‘Industry Standards’ as a Defense*, LAW360, Dec. 22, 2023 (“Pennsylvania is now the only state in the union that precludes defendants, but not plaintiffs, from raising compliance with voluntary industry standards ... as a factor for the jury to consider in determining whether products are defectively designed” (quoting defense attorney)).

77 Sullivan v. Werner Co., 306 A.2d 846 (2023).

78 *Id.* at 862. In contrast, the California Supreme Court held that in the same circumstances, where strict liability is evaluated under a risk-utility test, industry custom that relates more to the manufacturer than the product is nonetheless admissible in California. Kim v. Toyota, 424 P.3d at 300.

79 W. PROSSER, HANDBOOK OF THE LAW OF TORTS § 2; K. REDDEN, PUNITIVE DAMAGES § 4.14.

80 State Farm Mut. Auto. Ins. Co. v. Campbell, 538 U.S. 408, 409, 417 (2003).

81 See generally Orlyn “Skip” Lockard III, *Nanotechnology Litigation: Winning the War Before It Starts*, NANOWORK (Dec. 17, 2008), available at www.nanowork.com/spotlight/spotid=8676.php (“Voluntary adherence to guidance documents and industry standards now may demonstrate the kind of good faith efforts necessary to defeat punitive damages claims in future litigation.”).

be held conclusively to establish good faith against a punitive damages claim.”⁸² The implementation of private standards is one major tool to assure due diligence and signal that firms are taking all reasonable precautions to prevent incidents from occurring.”⁸³ Regulatory or private industry standards can help “anchor” the legal factfinder in determining an otherwise uncertain standard of care.⁸⁴

While the standards for awarding punitive damages vary between states, most states recognize that compliance with standards provides a presumptive defense against punitive damages. In Georgia, for example, “as a general rule, punitive damages are ‘improper where a defendant has adhered’ to the relevant safety regulations and industry standards.”⁸⁵ The 8th Circuit Court of Appeals has stated that where a defendant proves that it has complied with industry standards and custom, such proof “serves to negate conscious disregard and to show that the defendant acted with a nonculpable state of mind.”⁸⁶ Other states likewise hold that compliance with industry standards is evidence against awarding punitive damages.⁸⁷

Compliance with industry standards is not a complete shield against punitive damages however. “Although the issue of whether or not a manufacturer followed industry standards and complied with state of the art techniques is probative of the

⁸² David G. Owen, *Problems in Assessing Punitive Damages against Manufacturers of Defective Products*, 49 U. CHI. L. REV. 1, 40 (1982).

⁸³ Eric Giraud-H 'Eraud et al., *Joint Private Safety Standards and Vertical Relationships in Food Retailing*, 21 J. Econ. Management Strategy 179, 180 (2012).

⁸⁴ Yuval Feldman, Amos Schurr, & Doron Teichman, *Anchoring Legal Standards*, 13 J. EMPIRICAL LEG. STUD. 298–329 (2016).

⁸⁵ *Hernandez v. Crown Equipment Corp.*, 92 F.Supp.3 d 1,325, 1,356 (M.D. Ga. 2015), quoting *Stone Man, Inc. v. Green*, 435 S.E.2 d 205 (Ga. 1993).

⁸⁶ *Drabik v. Stanley-Bostitch, Inc.*, 997 F.2 d 496, 510 (8th Cir. 1993).

⁸⁷ *Reed v. Tiffin Motor Homes, Inc.*, 697 F.2 d 1,192, 1,198 (4th Cir. 1982) (“Clearly, whether or not [defendant] followed industry standards and complied with the state of the art while designing the motor home is probative on the issue of the wantonness, willfulness and maliciousness of their acts, including the placement of the auxiliary gas tank.”); *Balliet v. Toyota Motor Sales USA, Inc.*, 2010 WL 5576205 (Pa.Com.Pl. July 2, 2010) (“The defendants are, under Pennsylvania law, permitted to introduce evidence of industry standards and custom to support the defense that the defendants acted with a non-culpable state of mind that could negate a claim of wanton or reckless indifference to the rights of others.”); *Liesener v. Weslo, Inc.*, 775 F. Supp. 857, 861–62 (D. Md. 1991) (“It would be intolerable to hold that a manufacturer must, to escape punitive damages, follow the path of timidity and greatest caution urged by counsel and shaped by the most pro-plaintiff result possible, especially where the manufacturer’s conduct conforms to widely-recognized industry standards, such as the ASTM warning standard actually followed in this case.”); *Lane v. Amsted Indus., Inc.*, 779 S.W.2 d 754, 759 (Mo. Ct. App. 1989) (“Compliance with industry standard and custom impinges to prove that the defendant acted with a nonculpable state of mind – without knowledge of a dangerous design defect – and hence to negate any inference of complete indifference or conscious disregard for the safety of others the proof of punitive damages entails.”).

wantonness, willfulness, and maliciousness of the manufacturer's conduct ... it does not necessarily follow that abiding by industry standards insulates a manufacturer from punitive damages."⁸⁸ There are some narrow exceptions to the effects of compliance with private or industry standards in shielding a company from punitive damages. For example, courts have allowed punitive damages to be awarded even where there has been compliance with private standards where there is evidence the manufacturer has actively resisted safer designs based on purely "economic considerations,"⁸⁹ where a company that complied with industry standards nevertheless knew about a remaining risk but failed to warn about it⁹⁰ or remedy the risk,⁹¹ or where a manufacturer engaged in a deliberate course of conduct that knowingly endangered the victims.⁹² In contrast, a company's failure to comply with government or industry standards may arguably be evidence of irresponsible conduct warranting punitive damages.⁹³

3.2 Private Standards Should be Relevant to Determining Liability in AV Accident Litigation

In motor vehicle accident litigation, a variety of legal claims and doctrines may apply, but the two primary causes of action are strict liability design defect and negligence. In a design defect claim, the injured plaintiff asserts that the vehicle design was defective, and this defect caused or contributed to the accident and resulting injuries. There are two different tests used to determine whether there is a design defect depending on the state in which the law suit is brought. The "risk-utility" test asks

⁸⁸ Pfeiffer v. Eagle Mfg. Co., No. CIV. A. 89-2359-L, 1992 WL 26035 *2 (D. Kan. Jan. 16, 1992).

⁸⁹ General Motors Corp. v. Moseley, 447 S.E.2 d 302 (Ga. App. 1994), abrogated on other grounds by Webster v. Boyett, 496 S.E.2 d 459 (Ga. 1998).

⁹⁰ Pfeiffer v. Eagle Mfg. Co., at *2.

⁹¹ Flax v. DaimlerChrysler Corp., 272 S.W.3 d 521, 536 (Tenn. 2008) ("Evidence that a manufacturer consciously disregarded substantial and unjustifiable risks to the public can, in some rare cases, overcome evidence that the manufacturer's practice was common in the industry."); Mascarenas v. Cooper Tire & Rubber Co., 643 F.Supp.2 d 1,363, 1,374 (S.D. Ga. 2009).

⁹² Uniroyal Goodrich Tire Co. v. Ford, 461 S.E.2 d 877 (Ga. App. 1995), rev'd in part on other grounds by Ford v. Uniroyal Goodrich Tire Co., 476 S.E.2 d 565 (Ga. 1996).

⁹³ David G. Owen, *Punitive Damages in Products Liability Litigation*, 74 MICH L REV 1,257, 1,355 (1974). See, e.g., Ellis v. Elkins, No. 5:18-CV-06121-NKL, 2018 WL 6331706 *2 (W.D. Mo. Dec. 4, 2018) ("evidence of failure to follow motor carrier regulations and industry standards is permitted to support an award of punitive damages against commercial motor carriers"); Coon v. Am. Compressed Steel, Inc., 207 S. W.3 d 629, 639 (Mo. Ct. App. 2006) (upholding award of punitive damages because the motor carrier had shown a conscious disregard for public safety in failing to comply with federal and state motor carrier regulations and industry standards).

whether there was a reasonably available alternative design choice available which have avoided or lessened the severity of the accident. Here, the legal fact-finder is evaluating the “reasonableness” of the manufacturer’s design. In some states, a design defect is evaluated under a “consumer expectation” test, which is based on the public’s assumptions about the level of safety that consumers would expect reasonable manufacturers to provide. Once again, perfect safety is not expected by consumers, only a reasonable level of safety. An alternative or additional claim that a plaintiff may assert is a negligence claim, which is based on whether a manufacturer acted reasonably by exercising due care.

The common denominator of all these causes of action is that they require some evaluation and determination of the “reasonableness” of the product (design defect) or manufacturer (negligence) by the legal factfinder (i.e., jury and/or judge). This inquiry, unaided by any benchmarks, would be very challenging for judges and jurors without technological training.⁹⁴ Private AV safety standards can provide a benchmark for “reasonableness” that courts and litigants will seek.⁹⁵

The more detail and industry participation in AV safety standards, the more deference those standards would receive by courts. Even if there is not industry consensus or participation by major vehicle standard-setting bodies such as SAE, more informal standards or guidance adopted by less well-recognized industry or other private entities can nevertheless be admissible and relevant in some cases.⁹⁶

Over and above the specific case sentiments reviewed above, successful litigation strategy involves telling a compelling story.⁹⁷ Experienced litigators know that overall judges and juries want to do what is right, and to achieve a just result. Thus, each side strives to frame its case within a narrative that tells a story that convinces the decision-maker to hold in their favor. An AV manufacturer will tell a story that AVs are a beneficial technology that will save many lives overall, even though it involves complex technology that must be developed cautiously and carefully. The manufacturer who complies with private safety standards will point out that with the lack of regulatory standards, private AV safety standards represent the best

⁹⁴ See *supra* notes 29-30 and accompanying text.

⁹⁵ *Id.*

⁹⁶ *Bragg v. Hi-Ranger, Inc.*, 462 S.E.2d 321, 330 (S.C. Ct.App.1995) (approving admission of industry standards evidence, including evidence of manufacturer’s safety organization, to establish standard of care); *Taylor, Thon, Thompson & Peterson v. Cannaday*, 230 Mont. 151, 749 P.2d 63, 66 (Mont. 1988) (Architects’ Handbook of Professional Practice describing the standard of practice for architects in the United States was admissible as evidence of negligence).

⁹⁷ See, e.g., Rachel Lanier, *10 Guideposts for Arguing Punitive Damages*, TRIAL, Jan. 2022, at 21, 23 (“Every trial tells a story, and every great story has themes.”); Chris Arledge, *Making Your Case*, ABA J., Aug-Spt. 2022, at 16, 17 (“We must stop throwing facts at the jury – particularly boring ones – and tell a story instead.”).

available guide to developing and deploying the safest feasible AV technology. Thus, the manufacturer's compliance with all relevant AV safety standards shows that it is responsible and took the best available due care.

In contrast, a manufacturer who fails to conform to private AV standards will be vulnerable to an attack from plaintiff's counsel that it failed to take due care. Plaintiff's counsel will point out, quite effectively in most cases, that private standards represent the best available technical expertise on how to produce the safest possible AVs, and that contrary to the manufacturer in this case, other manufacturers have conformed to these important standards. Thus, the plaintiff will be well-positioned to argue that "the company cut corners and decided to market and sell a more dangerous product that was cheaper to make."⁹⁸

These normative arguments will be even more influential in the litigation of punitive damages. The defendant AV manufacturer will have a persuasive case they did not act wantonly if they conformed to the existing industry standards, the best available benchmark of recommended safety practices. Alternatively, a manufacturer that refuses to conform to the safety standards followed by its competitors will run the risk of punitive damages. AVs have many of the features that tend to result in punitive damages when they cause harms, including lay jurors disproportionate fear of "exotic" technologies,⁹⁹ and the phenomenon of "betrayal aversion" in which jurors are particularly unforgiving and harsh towards products that are marketed as improving safety but nevertheless cause harm.¹⁰⁰ Awareness of these factors are why AV manufacturers are so concerned about liability risks from AVs, particularly punitive damages.¹⁰¹ If conformance with private standards help to shield against such liability concerns, manufacturers would be strongly incentivized to conform to such standards.

Given the value of potential standards in the AV accident litigation to help factfinders determine both culpability and damages, courts should admit and give weight to such private standards, especially in an area like this involving highly complex technical systems like AVs that are beyond the understanding of lay judges and jurors, and where no government regulations exist. State legislatures should also adopt legislation to recognize the admissibility and significance of private standards in civil litigation, especially with respect to punitive damages.

There are however a number of limitations and complexities in using private standards as a liability sword or shield in AV litigation, including:

⁹⁸ Lanier, *supra* note 97, at 23.

⁹⁹ Marchant & Bazzi, *supra* note 28, at 106–107.

¹⁰⁰ *Id.* at 110–111.

¹⁰¹ *Id.* at 117.

- *How widely adopted does the standard need to be to be admissible?* What if only some of the companies in an industry such as AVs have adopted the standard? Does it still represent evidence of industry custom or expectations? If only some companies adopt a standard that seems to improve product safety, don't we want to give it effect and reward those companies that act responsibly to implement the standard while punishing those companies that refuse to adopt the standard?
- *What if there are competing private standards?* For many technologies, there are multiple private standards promulgated by different organizations. This is the case for AVs, but fortunately the different AV private standards tend to complement rather than compete with each other.¹⁰² For other technologies, however, private standards often compete, and companies must adopt one or the other.¹⁰³ How should courts deal with this? Give weight to any private standard? The most adopted one? The most stringent one?
- *What if a manufacturer only conforms to some but not all of the AV private standards?* As noted above, there are now five major private standards for AV safety that fit together like pieces of a jigsaw puzzle.¹⁰⁴ What if an AV manufacturer only adopts and conforms to one, two, three or four of these available standards? Should the liability shielding effect apply only if the manufacturer adopts all five standards? Or should a pro-rated partial shielding effect be applied based on the percentage of the available standards the manufacturer commits to?
- *How does the judge or jury court know the defendant conformed to standard?* Many technology standards are complex, and conformance with such standards is also very technical and complex.¹⁰⁵ Juries and judges may be challenged in determining whether a particular AV manufacturer is actually conforming to a private standard it claims to follow. Some private standards have third party certifications – but that does not yet exist for any of the AV private standards. That may be a useful step to help courts evaluate conformance with such standards.
- *Do private standards (often driven by industry) represent society's view of standard of care?* Standard-setting bodies for technical topics such as AVs are primarily composed of experts from industry, so there is a risk that the resulting standard could exhibit a pro-industry bias. The experts who participate in these

¹⁰² See *supra* notes 53–54 and accompanying text.

¹⁰³ See Nora von Ingersleben-Seip, *Competition and Cooperation in Artificial Intelligence Standard Setting: Explaining Emergent Patterns*, 40 REV. POLICY RES. 781, 785 (2023).

¹⁰⁴ See *supra* notes 53–54 and accompanying text.

¹⁰⁵ The complexity of private standard conformity assessment is described in National Institute of Standards and Technology (NIST), *ABC's of Conformity Assessment*, NIST Special Publication 2000–01 (2000), <https://www.nist.gov/publications/abcs-conformity-assessment>.

standard-setting bodies usually are committed to using their technical expertise to advance safety (in the case of AV standards), rather than to tilt the outcome of future litigation in favor of their employers.¹⁰⁶ Moreover, these standard-setting organizations are open to non-industry participants from academics, think tanks, non-governmental organizations and government, and generally operate on a consensus-based procedure, which helps balance any industry bias.¹⁰⁷ Nonetheless, when a standard appears to be biased in favor of industry interests, the plaintiff attorney can argue, and the judge and jury can consider, whether a particular private standard is too pro-industry.

- *Will the court and jury have access to full standard?* Private standards are usually not available for free, but have to be purchased, usually for a couple hundred dollars. The fees to purchase standards are what pays for the staff needed by the standard-setting organizations to coordinate and oversee standards development. These standards are also copyrighted, so they cannot be simply copied and distributed to the judge and jury. Although it is not a lot of money to procure enough copies of a standard to use in a court case, someone will have to provide that funding.¹⁰⁸

These and other practical questions, such as ensuring that private standards are sufficiently up to date and that they address the risk at issue in a particular case, will have to be resolved if private standards are going to be an effective shield or sword in private litigation.

106 See 1 Owens & Davis on Prod. Liability §2:15 (4th ed.) (2024) (Standard-setting organizations “typically work closely with industry to ensure that the safety standards they establish – safety “codes” – are practicable as well as useful...[S]afety standards contained in the codes of such organizations normally represent the industry’s consensus on the most appropriate balance of safety and practicality... [T]he formal way in which such standards may be developed and formulated into specific codes and industry’s commensurate reliance upon them suggests that they sometimes should be accorded great weight.”).

107 See *supra* note 4 and accompanying text. Ironically, one court held that since an ANSI ladder standard committee included some non-industry members, “the standards are not evidence of ‘custom and usage’ within an industry” and this trial court’s decision to not admit it was not error. *Fayerweather v. Menard, Inc.*, 650 N.W.2d 506 (Wis. Ct. App. 2003). This decision is surely wrong-headed – standard-setting organizations should be encouraged not punished or permitting non-industry members to provide balance.

108 Perhaps the party that seeks to rely on a private standard as a shield or sword should have the responsibility to buy sufficient copies of the standard to use in court. Or perhaps the standard setting organization would be willing to provide them to juries for free, since such use of their standards would likely increase the demand and market value of such standards.

4 Conclusions

Private AV safety and testing standards provide probative evidence of whether a manufacturer exercised reasonable care in designing its vehicle or component. A finding that a manufacturer complied with applicable standards would weigh in favor of the absence of a design defect and negligence. In contrast, a finding that a manufacturer failed to comply would argue in favor of a design defect and negligence. Perhaps even more importantly, compliance with industry-wide private safety standards would provide a strong defense against punitive damages, while failure to comply with such standards would subject a manufacturer to potential punitive damages awards.

This use of AV safety standards in litigation would help solve two current problems. First, it would help solve the problem that AV manufacturers are resisting formal adoption of private AV standards by incentivizing their conformance with such standards in order to receive the litigation benefit of such standards. Second, it would help address the problem that lay judges and juries will lack the technological sophistication to determine whether or not an AV had defective programming, and instead use the private standards as a benchmark of reasonable care.