

Autonomous Vehicle **SAFETY REGULATION**

Speakers from 2016's inaugural Autonomous Vehicle Safety Regulation World Congress consider the possible future approval obstacles

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Autonomous Vehicle
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● Homologation ISSUES

Speakers from 2016's inaugural Autonomous Vehicle Safety Regulation World Congress consider the possible future approval obstacles

COMPILED BY JOHN THORNTON



As you read this, there are no universal rules or regulations in which autonomous vehicles can operate, and the potential legal issues around them remain undefined. With so many major issues unresolved, *ATTI* has gathered some of the world's leading policymakers, national and local transportation authorities, law firms and legal experts to discuss how to create a regulatory framework to enable further public testing, and to debate what regulatory and legal challenges must be addressed before autonomous vehicles can be purchased and used by consumers.



MARK HALVERSON
CEO, PRECISION AUTONOMY

Infrastructure for artificial intelligence – a purposeful view of ethical autonomy

➤ Artificial intelligence and autonomy are both in their infancy and currently lack the infrastructure required to be readily adopted in society. In migrating from the information age to the intelligent age, a huge amount of information is being aggregated in order to serve data monetization business models.

This corporate version of autonomy is upon us and the sad reality is that while as human beings (and consumers) we are materially impacted by those staging our thinking and intentionally biasing our decisions, we have no insight into the rules upon which that autonomy operates. And though we may dismiss the intrusion as ‘marketing’, as a growing percentage of our daily experience is delivered digitally (and is therefore capable of scale impact/

influence) the greater the need is for transparency into how the autonomy is making decisions.

As the digital and physical worlds intersect, the risk grows materially. An example comes up in the philosophical debate as to whether an autonomous car may choose to kill the driver instead of hitting a school bus or running into a crowd of people. The reality is that (in the near term) the machine will follow the rules/law it has access to. Our challenge now as we move toward an autonomy economy is how to define those rules and ensure the autonomy is operating ‘on purpose’. An ‘on purpose’ infrastructure will build trust and offer full transparency into the operation of autonomy.

TO READ MARK'S PAPER IN FULL, VISIT:
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Held alongside Automotive Testing Expo USA, the **Autonomous Vehicle Safety Regulation World Congress** will return to the Suburban Collection Showplace for a second year in **Novi, Michigan, USA**, on **October 24-25, 2017**. Over the course of the two days, the conference will address a number of key unresolved issues, such as:

- Adapting current safety standards and regulations to allow further testing of autonomous vehicles on public roads
- Assessing liability in accidents involving autonomous vehicles
- Establishing an international agreement on the rules and regulations for fully autonomous vehicles
- Safely integrating autonomous vehicles with other road users
- Establishing a comprehensive code of ethics for autonomous vehicles in the event of an unavoidable accident
- Authorizing police and law enforcement agencies to intercept and remotely stop self-driving vehicles
- Allocating civil and criminal liability in the event of a cyberattack, vehicle hacking or deliberate interference with an automated vehicle

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GAIL GOTTEHRER
PARTNER, AKERMAN

Data, evidence and defenses to liability: takeaways from NHTSA's report on the Tesla Autopilot fatality

➤ On May 7, 2016, the first known fatality involving a Tesla that was being operated in Autopilot occurred in a crossing path collision on a highway in Williston, Florida.

Joshua Brown was killed when his Tesla collided with a tractor trailer that made a left turn in front of him at an uncontrolled intersection on the highway on which Brown was travelling. Tesla explained that Autopilot and Brown had not noticed the white side of the tractor trailer against the bright sky, so neither Autopilot nor Brown had applied the brakes.

Following this incident, the National Highway Traffic Safety Administration (NHTSA) opened an investigation in order to “examine the design and performance of any automated driving systems” that were in use in the Tesla at the time of the crash.

On January 19, 2017, NHTSA announced that it had closed its preliminary evaluation of the incident because its investigation had not identified a “safety-related defect trend” and further examination did not appear to be warranted.

In its investigation, NHTSA did not find any defects in the design or performance of Tesla's automatic emergency braking (AEB) system or the Autopilot systems. Nor did it find incidents where those systems did not perform as they were designed to, due to the fact that the AEB systems used in vehicles through model year 2016, like Brown's Tesla, are rear-end collision avoidance technologies “that are not designed to reliably perform in all crash modes, including crossing path collisions”. Braking for crossing path collisions, such as the one involving Brown, are “outside the expected performance capabilities of the system”, said NHTSA.

NHTSA's analysis highlights the significant role played by data, disclosures and digital evidence in regulatory investigations and potential litigation involving partially autonomous vehicles. It also reveals the autonomous vehicle technology issues that are priorities for NHTSA.

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LESLIE S RICHARDS
SECRETARY, PENNSYLVANIA DEPARTMENT OF TRANSPORTATION

Finding the safety-innovation equilibrium in vehicle automation policy

➤ The year 2016 will be memorable in the world of transportation as the time when vehicle automation burst out on society. No longer a topic of interest just among industry professionals, these powerful and sophisticated technologies are being increasingly understood by the general public as a force of gathering momentum that heralds profound changes in how we live.

For those who serve as transport policymakers in the public sector, this acceleration of technical progress, in conjunction with the awakening of public attention, poses both significant responsibilities and challenging issues.

Our paramount duty as public officials is to ensure the safety of the transportation system and of those

who use it. Because highly automated vehicles (HAVs) portend vast safety improvements, transportation policy should foster its development and eventual deployment. However, doing so effectively and properly means being mindful of public concerns and anxieties, as well as the real-world issues of safety that inevitably arise as more and more HAVs are tested, improved and eventually introduced into general use.

In short, as public policymakers, transportation officials must find the delicate equilibrium that balances innovation and public safety. Here in Pennsylvania that equilibrium has been our focus.

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SANDEE PERFETTO
DIRECTOR, PERSONAL AUTO PRODUCT DEVELOPMENT
VERISK INSURANCE SOLUTIONS

Automated vehicles and the future of insurance

➤ The first personal automotive insurance policy was written well over a century ago. And while automotive insurance has certainly evolved since then, insurers may anticipate the greatest evolution as autonomous vehicle technologies advance. The changes currently underway will likely lead to a path-changing reconsideration of personal automotive insurance and the driver, as advanced safety features now being added to vehicles are viewed as likely to decrease risk.

In anticipation of this progression of automated vehicles, insurance coverages and laws will likely need to be reevaluated. Potential updates need to be reviewed to consider the gradual movement from driver to driverless travel. Furthermore, a look at changes to rating personal automotive insurance risk is necessary, in accordance with the possible decrease in accidents through the decline of driver error.

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KIRK STEUDLE
DIRECTOR, MICHIGAN DEPARTMENT OF TRANSPORTATION



The role of state government in the development of autonomous vehicles

Seated between a vintage Model T and a new automated test vehicle, Michigan Governor Rick Snyder recently signed an important law on automated motor vehicles. The law, Public Act No. 332 of 2016, updates an earlier Michigan law that had been on the books for just 33 months.

While these specific laws apply only to Michigan, the process of drafting them and securing their passage yields lessons for policymakers now and into the future. This guidance is framed by the following questions: What can state government do in order to help develop automated motor vehicles and mobility options? What must state government avoid? And finally, What did Michigan do?

So, what can state government do? First, realize its proper role and limitations. State government does not build cars or computers. It does not compete in the private marketplace for customers. It does not regulate vehicle standards in lieu of the conventional role of the NHTSA (National Highway Traffic Safety Administration). Attempts to overstep these limits will bring legal challenges, confusion to developers and the fledgling industry, and dissatisfaction among taxpayers and citizens. Instead of welcoming new thinkers and makers, ill-advised overregulation or misplaced roles will drive these same people away.

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JOHN ISAAC SOUTHERLAND
DEFENSE TRIAL ATTORNEY/PARTNER, HUIE, FERNAMBUCQ & STEWART

Personal jurisdiction considerations when engaging in autonomous vehicle technology development

The idea of a network of fully autonomous vehicles zooming along roads and highways elicits visions of human occupants casually reading the newspaper, playing cards, or even peacefully napping. Meanwhile the autonomous technology works tirelessly to communicate with other vehicles and fixed infrastructure to operate the vehicle safely and without error – constantly measuring and calculating to ensure a level of safety unreachable under the hands of human guidance. After all, the National Highway Traffic Safety Administration estimates that 94% of fatal crashes result from human error or decision, and cites this statistic as a primary reason for its strong support in favor of autonomous technologies on US roadways.

However, despite the promise of revolutionizing the way the world travels, and simultaneously reducing the toll that automobile accidents levy on economies and human lives, the likelihood that even a fully autonomous network of vehicles will bring an end to all crashes and incidents seems far-fetched. Particularly during the lengthy transitional period away from human-navigated automobiles to a fully autonomous network of software-driven machines, which we have yet to enter, crashes will still occur and will give rise to legal considerations that must be confronted by vehicle manufacturers, suppliers, consumers and particularly the courts.

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KATHERINE SHERIFF
RESEARCH ASSISTANT, EMORY UNIVERSITY SCHOOL OF LAW

Adapting tort liability for autonomous vehicle tech

➤ During the 2016 Autonomous Vehicle Safety Regulation World Congress, designated liability panelists summarized the most pressing legal issues in autonomous vehicles. The introduction of these vehicles over the next several decades will not only dramatically alter the automotive industry, but will impact society at large, making regulatory revision necessary in numerous legal fields. One such major focus is that of tort liability implications, and examining a path forward that builds upon existing tort principles in order to accommodate adoption of the new technology.

In 2015, 38,300 people were killed in motor vehicle accidents in the USA, and that number represents only a small fraction of nonfatal injuries to drivers and passengers. In 2014 motor vehicle accidents ranked in the top 10 causes of nonfatal

injuries for several age groups. All of these incidents, fatal or not, generate significant liability concerns for drivers and automotive manufacturers. Because human error has been cited as a leading cause of motor vehicle accidents, autonomous vehicles hold the potential to greatly reduce the number of automotive accidents.

Unfortunately, before autonomous vehicles will be seen regularly on public roads, both technology and the law must evolve. No matter how advanced technology becomes, the systems underpinning and powering autonomous vehicles might not be totally accident-free, and identifying who will take ultimate responsibility for those accidents has yet to be fully and clearly determined.

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BYRON BLOCH
AUTO SAFETY EXPERT, AUTO SAFETY DESIGN

Ensuring the safe design of autonomous vehicles

➤ The claimed promise of automated features and autonomous vehicles is that they will be superior to the human driver's judgment and skills in preventing accidents. With a large percentage of accidents historically attributed to the driver's poor judgment, poor skills, poor reaction time and various impairments, the promise of automated vehicle technology is that it will eliminate those human driver flaws and therefore many accidents will be completely avoided.

But just how safe are autonomous vehicles? What policies should be implemented by an automated systems supplier, autonomous vehicle manufacturer

or fleet operator? What safety regulations do such vehicles have to comply with? If there is an accident with an autonomous vehicle, with severe to fatal injuries, which parties are liable? After a minor accident and repairs, how do we verify that the vehicle and its sensors, computers and servos are fully operational? Can autonomous vehicles be hacked and then controlled by someone who wants to do harm? Can a snowstorm or fog cause an autonomous vehicle's sensors to become ineffective? What about unintended consequences? ◀

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