SELF-DRIVING CARS: ON THE ROAD TO A NEW REGULATORY ERA

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INTRODUCTION

Self-driving cars shatter the schism between federal and state safety regulations for automobiles in the United States. The federal government, through the U.S. Department of Transportation (DOT) National Highway Traffic Safety Administration (NHTSA), currently regulates the *manufacturing* safety standards of vehicles, whereas state governments regulate the *operation* of vehicles.[1] But fully autonomous self-driving cars will replace human drivers with computers, uniting manufacturers with the task of operating the vehicle. The introduction of fully autonomous self-driving cars, therefore, creates an imminent regulatory challenge for federal and state agencies to determine how to regulate self-driving cars.

In Part I, this paper will define self-driving cars and their benefits, describe the imminent safety issues they present for regulatory agencies, and introduce the most commonly analyzed legal issues for self-driving cars. Part II will give background information on the United States regulates motor vehicles by first describing the federal government's traditional role in regulating vehicle safety via NHTSA. Then, Part II will explain the preliminary actions NHTSA and several state governments have taken to preliminarily regulate self-driving cars. Part III will compare two approaches to creating a new regulatory regime for self-driving cars: a federal approach and a state approach. Part III will begin by examining the legal authority of NHTSA to regulate self-driving cars, and what authority the states may retain. Then, Part III will compare the practical benefits and drawbacks of seeking enhanced federal regulations versus a state-by-state approach to regulation. Finally, Part VI will show that NHTSA's use of a model national policy is the best way to prospectively regulate self-driving cars because it combines the strengths of a consistent national policy with the flexibility of state rulemaking.

I. DEFINING SELF-DRIVING CARS AND THEIR IMPACT

In time, self-driving cars will not only radically change the way we move, but they will radically change the way we live. They have the potential of curbing traffic accidents and fatalities, creating more independence for disabled individuals, and reforming the way we build streets and cities.[2] But before our most optimistic dreams for self-driving cars can become a reality, it is important to understand where the technology stands today and what obstacles may impede their introduction to market. This section will first

[1] Off. of Vehicle Safety Compliance, U.S. Dep't of Transp., *Federal Motor Vehicle Safety Standards and Regulations*, http://www.nhtsa.gov/cars/rules/import/FMVSS/.
[2] *Infra* text accompanying notes 15–25.

define the various levels of automation for self-driving cars and describe the predicted societal benefits of both semi-autonomous and fully autonomous vehicles. Next, this section will describe some of the imminent safety issues that self-driving vehicles will present for regulatory agencies. Finally, this section will describe the legal issues for self-driving cars typically explored in academia: liability, privacy, and security. Despite the focus in legal academia on liability, privacy and security, the oft overlooked and more pressing legal obstacle is the upheaval that self-driving cars will bring to the traditional regulatory schism between federal and state regulatory agencies.

A. THE FOUR LEVELS OF SELF-DRIVING CARS

The term "self-driving car" is misleading because self-driving cars can have various levels of automation. To better understand the differences between the levels of automation that cars can have, NHTSA created a classification system. Level 0, where the driver controls all aspects of the vehicle's movement, encapsulates automobiles that lack any automated feature. Even vehicles with relatively new safety features, such as adaptive headlights,[3] can be characterized as Level 0 because the driver still retains all control of the vehicle's operation.[4] Level 1 vehicles contain at least one automated control function such as electronic stability control[5] or pre-charged brakes that are used in isolation.[6] Other automated features could include lane centering, adaptive cruise control,[7] and automatic emergency braking.[8]

Level 2 consists of vehicles that combine specific control functions, such as when adaptive cruise control and lane centering work in unison.[9] These "semi-autonomous" vehicles are already on the road. In June 2015, Volvo introduced its pilot assist feature when it released the XC90 sports

[3] Adaptive headlights increase visibility around curves and over hills.

[4] James M. Anderson et al., Autonomous Vehicle Technology: A Guide for Policymakers 5, 15 (2014), http://www.rand.org/content/dam/rand/pubs/research_reports/RR400/RR443-1/RAND_RR443-1.pdf.

[5] Electronic stability control (ESC) helps prevent drivers from spinning out by automatically braking individual wheels during "extreme steering maneuvers." *Electronic Stability Control*, Nat'l Highway Transportation Safety Administration http://www.safercar.gov/Vehicle+Shoppers/Rollover/Electronic+Stability+Control.

[6] *U.S. Department of Transportation Releases Policy on Automated Vehicle Development*, U.S. Department of Transportation (May 30, 2013), http://www.nhtsa.gov/About+NHTSA/Press+Releases/U.S.+Department+of+Transportation+Releases+Policy+on+Automated+Vehicle+Development.

[7] Adaptive cruise control (ACC) allows drivers to maintain the same pace as a car ahead regardless of changes in velocity, by selecting a distance therefrom and maximum speed.

[8] More autonomous driving features along with descriptions can be found at http://www.safercar.gov/staticfiles/safetytech/st_landing_ca.htm#st_tabs.

[9] Nat'l Highway Traffic Safety Admin., *Safety Technology*, safercar.gov, http://www.safercar.gov/staticfiles/safetytech/st_landing_ca.htm#st_tabs.

utility vehicle.[10] In October 2015, Tesla released an update for its cars, called Auto Pilot that allows the cars to autonomously drive and shift lanes on highways.[11] By the end of 2016, Nissan will release an affordable semi-autonomous vehicle, priced at a mere $21,500 that can autonomously drive under heavy highway traffic conditions.[12]

Level 3 vehicles, like Google's self-driving car prototype, allow the driver to cede all control to the car's computer system under favorable weather and traffic conditions. Drivers of Level 3 vehicles are required to be ready and able to take control of the vehicle in certain circumstances. Level 4 is a fully autonomous vehicle that allows the driver (or "passenger") to submit a destination or route but requires no further input for the trip. Level 4 vehicles do not require passengers at all.[13] In fact, Google aims to create a Level 4 car that requires no steering wheel or pedals by 2020.[14]

According to the Insurance Institute for Highway Safety, if all cars added several Level 0 and Level 1 features, namely forward collision and lane departure warning systems, side view (blind spot) assist systems, and adaptive headlights, then nearly one third of all crashes and fatalities could be prevented.[15] Nevertheless, much of the hype around self-driving cars focuses on expected benefits from *fully* autonomous vehicles of Level 4.[16] First, self-driving cars will eliminate the human errors that often cause car crashes. Self-driving cars will be able to measure safe distances between each other and more quickly react to obstacles. In addition, some predict that fully autonomous cars will drastically reduce individual car ownership because households often have little "trip overlap," or periods where multiple members of a household commute at the same regular times.[17] As a

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[10] *The All New XC90*, Volvo, http://www.volvocars.com/us/cars/new-models/all-new-xc90/safety (last visited Mar. 14, 2016). Volvo's vehicle is priced at $50,000. *Id.*

[11] J.T. Quigley, *Nissan Will Sell Semi-autonomous Cars by the End of 2016*, Tech In Asia (Nov. 2, 2015, 7:55AM), https://www.techinasia.com/nissan-semi-autonomous-cars-2016/. Tesla's vehicle is priced at $75,000. *Id.*

[12] *Id.* By 2020, Nissan will sell a car that can shift lanes on the highway and navigate urban roads and intersections. *Id.*

[13] Nat'l Highway Traffic Safety Admin., *supra* note 9.

[14] Alex Davies, *Google's Plan to Eliminate Human Driving in 5 Years*, WIRED, May 18, 2015, http://www.wired.com/2015/05/google-wants-eliminate-human-driving-5-years/. Because of California's current regulations of self-driving cars, Google's prototype vehicles have detachable steering wheels and pedals so that they can be tested on public roads. *Id.*

[15] INS. INST. FOR HIGHWAY SAFETY, *NEW ESTIMATES OF BENEFITS OF CRASH AVOIDANCE FEATURES ON PASSENGER VEHICLES*, STATUS REPORT (May 20, 2010), *available at* http://www.iihs.org/iihs/sr/statusreport/article/45/5/2; *see also* Anderson et al., *supra* note 4.

[16] When discussing self-driving cars, this paper will distinguish, where necessary, Level 1 through Level 3 vehicles (semi-autonomous) from Level 4 vehicles (fully autonomous).

[17] Brandon Schoettle & Michael Sivak, *Potential Impact of Self-Driving Vehicles on Household Vehicle Demand and Usage,* U. OF MICH. TRANSPORTATION RESEARCH INST., 8 (2015), http://deepblue.lib.umich.edu/bitstream/handle/2027.42/110789/103157.pdf?sequence=1&isAllowed=y.(According to the study, car ownership could drop from 2.1 per

result, people could summon an empty car to provide them with a ride once it drops off the first passenger of the morning. Furthermore, parking needs are predicted to fall as cars will no longer need to sit idle between trips, but rather can be used to transport other passengers.[18] Combining reduced parking needs with the lack of individual car ownership and improved vehicle efficiency will help to ease congestion on the roads.[19]

Self-driving cars will also be able to safely draft off of each other,[20] allowing for a more efficient fuel usage, and denser lanes for driving.[21] Additionally, car insurance rates will decrease or become part of the cost of the car.[22] Many predict that the cars will also allow disabled passengers more mobility,[23] provide inebriated passengers a safe trip home,[24] and permit workers to spend their trips to and from work more productively.[25] Despite the many benefits fully autonomous cars will bring, there are numerous safety issues self-driving cars will present in the immediate future.

B. IMMINENT SAFETY ISSUES FOR SELF-DRIVING CARS

Self-driving cars may seem like a distant reality,[26] but the transition to semi-autonomous and fully autonomous cars presents immediate and unique safety issues. As stated above, semi-autonomous cars are already on the road.[27] The potentially slow transition to fully autonomous cars may contribute to distracted driving, causing an increase in crashes. Furthermore, Level 0 vehicles, along with pedestrians and cyclists, will likely dominate

household to 1.2 per household once self-driving cars are fully utilized. According to the study, car ownership could drop from 2.1 per household to 1.2 per household once self-driving cars are fully utilized).

[18] Anderson et al., *supra* note 4, at 20-21.

[19] *Id.* at xv, 5; *see also* Daniel Fagant & Kara M. Kockelman, *Preparing a Nation for Autonomous Vehicles: Opportunities, Barriers and Policy Recommendations,* ENO CTR. FOR TRANSPORTATION, at 17 (2013), https://www.enotrans.org/wp-content/uploads/2015/09/AV-paper.pdf.

[20] Drafting is a technique utilized in auto racing in which a vehicle drives closely behind another to minimize wind resistance.

[21] Anderson et al., *supra* note 4, at xvi, 21.

[22] Robert W. Peterson, *New Technology—Old Law: Autonomous Vehicles and California's Insurance Framework,* 52 SANTA CLARA L. REV. 1340, 1341-1342 (2012).

[23] Anderson et al., *supra* note 4, at xv, 16–17.

[24] Ethan Elkind, *Could Self-Driving Cars Help the Environment?*, LEGAL PLANET (Apr. 10, 2012), http://legal-planet.org/2012/04/10/could-self-driving-cars-help-the-environment/.

[25] Some predict that self-driving cars will allow people to spend trips working, reading, watching movies, or napping. Anderson et al., *supra* note 4, at 18.

[26] There is some veracity to this idea. The Boston Consulting Group predicts that by 2035, only nine percent of cars on the road, about twelve million, will be self-driving cars. Paul Lienert, *12 Million Driverless Cars to be on the Road by 2035 – Study*, REUTERS (Jan. 8, 2015, 5:35 PM), http://www.reuters.com/article/2015/01/08/autos-bcg-autonomous-idUSL1N0UN2GQ20150108.

[27] *Supra* text accompanying notes 10–12.

the roadways for the immediate future.[28] As a result, it is likely that accidents will result from the confusion between computer-driven and human-driven vehicles.

Despite the excitement about fully autonomous vehicles, regulatory agencies must plan for and address the potential issues that vehicles from Levels 1 through Level 3 ("semi-autonomous vehicles") will introduce within the next few years. These semi-autonomous cars will require the driver to remain alert and ready to intervene in the car's regular operation. Since one of the benefits of a self-driving car is its ability to share some driving responsibilities with the driver, many drivers will likely make use of their newly freed hands, feet, and attention. Drivers may place too much trust in their cars[29] and distract themselves because they are looking at their phones, crossing their legs, and occupying their hands with a smartphone or tablet. The less active driving becomes, the more people will be susceptible to distractions that prevent them from making quick driving decisions.

In addition, the potential for misguided expectations among human drivers, pedestrians, and cyclists about how self-driving cars operate may initially result in an increase in crashes.[30] Moreover, the reverse will likely be true as well: self-driving cars are likely to slavishly follow the rules of the road in a world where human drivers and pedestrians behave erratically. According to Google, which keeps records of all incidents with its self-driving car fleet, human drivers caused collisions with the self-driving cars fourteen times since 2009.[31] The car has only been the cause of an accident once.[32] Therefore, although self-driving cars are mostly accident-free, there is still a safety issue with how the cars will interact with other drivers.

To be sure, the new automated features of semi-autonomous vehicles still have the potential to curb traffic accidents and make commuting more convenient. By one estimate, automatic emergency braking in cars can

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[28] Drivers on average keep their cars for eleven years at a time. Reno Charlton, *American Drivers Keeping Cars on the Road for Longer: Average Age Now 11.4 Years*, HUFFINGTON POST (Aug. 9, 2013, 11:52 AM), http://www.huffingtonpost.com/reno-charlton/american-drivers-keeping-_b_3718301.html.

[29] Tim Adams, *Self-driving Cars: From 2020 You Will Become a Permanent Backseat Driver*, THE GUARDIAN (Sept. 13, 2015, 5:05), http://www.theguardian.com/technology/2015/sep/13/self-driving-cars-bmw-google-2020-driving.

[30] MICHAEL SIVAK & BRANDON SCHOETTLE, ROAD SAFETY WITH SELF-DRIVING VEHICLES: GENERAL LIMITATIONS AND ROAD SHARING WITH CONVENTIONAL VEHICLES 5,7 (2015).

[31] Stephanie Milot, *Distracted Driver Rear-Ends Google Self-Driving Car*, PCMAG.COM (July 17, 2015, 10:00 AM), http://www.pcmag.com/article2/0,2817,2487896,00.asp.

[32] See generally, Marco della Cava, *Google Car Hits Bus, First Time at Fault*, USA TODAY (Feb. 29, 2016 7:11 PM), http://www.usatoday.com/story/tech/news/2016/02/29/google-car-hits-bus-first-time-fault/81115258/. In this incident, Google's car (and the test operator inside) anticipated a bus that was approaching from the rear would slow down so that the car could shift lanes to drive around an obstacle in the road. Unfortunately, the bus collided with the self-driving car. Fortunately, the car was travelling at a mere two miles per hour.

yield a thirty-five percent decrease in insurance claims for bodily injury.[33] Further, adaptive cruise control can make driving long distances less draining and less frustrating. But ultimately, because human-operated cars will still dominate the road in the short run,[34] safety regulators will need to consider the dangers that will occur when self-driving cars share the road with semi-autonomous cars, Level 0 vehicles, cyclists, and pedestrians.

C. LEGAL ISSUES FOR SELF-DRIVING CARS

The excitement over self-driving cars is creating frenzy in legal academia over the potential liability, privacy, and personal security of self-driving cars.[35] These three issues, however, are often easily resolved, whereas the issue of how to regulate self-driving cars receives little attention among legal scholars.

Many question whether the driver or the manufacturer will be responsible when a self-driving car hits a pedestrian or drives through a red light.[36] It is true that self-driving cars will introduce a new complexity for questions of civil liability, but tort law will adapt.[37] Furthermore, even if the judicial system were to struggle with the question of liability, representatives from Google, Mercedes-Benz, and Volvo recently stated publicly that they, the manufacturers of self-driving cars, would *voluntarily* take responsibility for any accidents caused by the cars.[38] In addition, NHTSA has proposed to mandate installation of event data recorders (EDRs), which preserve information about a vehicle's performance and

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[33] Sarah Karush, *Evidence Continues to Mount in Favor of Front Crash Prevention*, STATUS REPORT, Aug. 26, 2015, at 5, 7. A mere ten percent reduction in a vehicle's speed prior to an accident can lead to a thirty percent reduction in fatality risk. Maria Krafft et al., The Effects of Automatic Emergency Braking on Fatal and Serious Injuries (2009), http://www-nrd.nhtsa.dot.gov/pdf/esv/esv21/09-0419.pdf.

[34] Lienert, *supra* note 26 (by 2035 it is predicted that only nine percent of cars will be self-driving).

[35] Jack Boeglin, *The Costs of Self-Driving Cars: Reconciling Freedom and Privacy with Tort Liability in Autonomous Vehicle Regulation*, 17 YALE J.L. & TECH. 171, 173 (2015); *Infra* text accompanying notes **Error! Bookmark not defined.**–46.

[36] *See, e.g.*, Gary E. Merchant & Rachel A. Lindor, *The Coming Collision Between Autonomous Vehicles and the Liability System*, 52 SANTA CLARA L. REV. 1321 (2012); Adam Thierer & Ryan Hagemann, REMOVING *Roadblocks to Intelligent Vehicles and Driverless Cars* 23–27 (Mercatus Ctr., Working Paper, 2014); *See also* Frank Douma & Sarah Aue Palodichuk, *Criminal Liability Issues Created by Autonomous Vehicles*, 52 SANTA CLARA L. REV. 1157 (2012).

[37] Jack Cutts, *On the Road to Driverless Cars*, FIVE TECHNOLOGY TRENDS TO WATCH 9, 12 (2014), http://content.ce.org/PDF/2K14_5Tech_web.pdf ("So who is at fault when a driverless car crashes into another vehicle and the accident is determined to have been caused by faulty code? Can the driver still be held liable? Ultimately, the judicial system and public opinion will figure that one out."); *See generally* Kyle Graham, *Of Frightened Horses and Autonomous Vehicles: Tort Law and Its Assimilation of Innovations*, 52 SANTA CLARA L. REV. (2012).

[38] James Derek Sapienza, *If an Autonomous Car Crashes, Who's at Fault?*, CHEATSHEET.COM (Oct. 18, 2015), http://www.cheatsheet.com/automobiles/if-an-autonomous-car-crashes-whos-at-fault.html/.

operation immediately prior to a crash, in all new vehicles.[39] EDRs could be used to collect the necessary data to help a court determine if the human driver, computer driver, or a particular automated feature of a car caused a crash or traffic incident. In the immediate future, however, as semi-autonomous self-driving cars are introduced, there is no dispute that the driver will retain responsibility for monitoring the car's operation.[40]

Another concern is whether corporations or government can collect information from self-driving cars to observe individuals' driving patterns.[41] EDRs contain private information about drivers' behavior that will need to be protected.[42] To resolve this issue, a short-term memory on EDRs will help to ensure that the corporations collecting data and the governmental officials that request it are not able to abuse their access to the information.[43] In addition, the U.S. Senate has already taken steps to pass legislation to protect drivers' privacy from illegitimate collections of EDR data.[44]

As for the security of the cars, some are worried that self-driving cars will be very susceptible to hacking.[45] It is likely that self-driving cars will be targets of hackers;[46] however, that is not a security issue unique to self-driving cars. Hackers recently caused a non-self-driving Jeep to slam

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[39] Bill Canis & David Randall Peterman, *"Black Boxes" in Passenger Vehicles: Policy Issues* 1 CONGRESSIONAL RESEARCH SERV. (2014), https://www.fas.org/sgp/crs/misc/R43651.pdf. (stating that EDRs are already in ninety percent of all new cars today).

[40] Stephen P. Wood et al., *The Potential Regulatory Challenges of Increasingly Autonomous Motor Vehicles*, 52 SANTA CLARA L. REV. 1423, 1428–32 (2012). (describing the levels of human responsibility for levels of car automation).

[41] *See, e.g.*, *Id.* at 1471–1472; William J. Kohler & Alex Colbert-Taylor, *Current Law and Potential Legal Issues Pertaining to Automated, Autonomous and Connected Vehicles*, 31 SANTA CLARA HIGH TECH. L.J. 99, 120–132 (2015).

[42] Bill Canis & David Randall Peterman, *supra* note **Error! Bookmark not defined.**, at 10 (describing that EDRs may collect private information such as vehicle location and audio from within the car).

[43] *How Your Car's Black Box is Tracking You*, CONSUMER REPORTS. (July 2014), http://www.consumerreports.org/cro/magazine/2014/09/how-your-car-is-tracking-you/index.htm (describing how EDRs, or black boxes, collect five seconds of data prior to a car accident and less than one second afterwards).

[44] *See Hoeven Driver Privacy Act Passes as Part of Senate Highway Bill*, www.hoeven.senate.gov (July 31, 2015), https://www.hoeven.senate.gov/news/news-releases/hoeven-driver-privacy-act-passes-as-part-of-senate-highway-bill.

[45] *See* Alex Hern, *Self-driving Cars Irresistible to Hackers, Warns Security Executive*, The Guardian (Jan. 28, 2014, 5:35 AM), http://www.theguardian.com/technology/2014/jan/28/self-driving-cars-irresistible-hackers-security-executive; Wood et al., *supra* note **Error! Bookmark not defined.**, at 1465–1470 (2012); William J. Kohler & Alex Colbert-Taylor, *supra* note **Error! Bookmark not defined.**, at 132–134.

[46] *See* Alex Hern, *Self-driving Cars Irresistible to Hackers, Warns Security Executive*, The Guardian (Jan. 28, 2014, 5:35 AM), http://www.theguardian.com/technology/2014/jan/28/self-driving-cars-irresistible-hackers-security-executive; Wood et al., *supra* note **Error! Bookmark not defined.**, at 1465–1470 (2012); William J. Kohler & Alex Colbert-Taylor, *supra* note **Error! Bookmark not defined.**, at 132–134.

its brakes as an effort to show the vulnerability of the vehicle's computer system.[47] As vehicles become more computerized, manufacturers will need to develop security features to meet all drivers' needs, regardless of whether their vehicle is autonomous or not.

The more challenging and more pressing issue often overlooked in legal scholarship on self-driving cars is how to regulate self-driving cars. Self-driving cars shatter the schism between federal regulation of manufacturing safety standards and state regulations of vehicle operation. This paper focuses on determining whether the federal government, through NHTSA, or the states have the authority to regulate self-driving cars, and which has the ability to regulate most effectively.

II. BACKGROUND ON CAR REGULATIONS

This section will first explain NHTSA's general authority to regulate vehicle safety and the regulatory tools it uses. Then, this section will describe the various steps NHTSA has taken to preliminarily support and regulate self-driving cars. Finally, this section will discuss the actions taken by several states to regulate self-driving cars.

A. VEHICLE SAFETY REGULATIONS

To answer the question of who should regulate self-driving cars, one may intuitively start with the federal government. DOT currently regulates vehicle safety through the NHTSA. The agency can carry out safety programs under the National Traffic and Motor Vehicle Safety Act of 1966.[48] NHTSA's purpose is to reduce deaths, injuries, and economic losses from automobile crashes.[49]

There are three main regulatory tools that NHTSA uses to regulate vehicle safety. First, NHTSA creates Federal Motor Vehicle Safety Standards (FMVSSs), which sets performance and testing standards for the safety components of a vehicle.[50] FMVSSs cover crash-avoidance, crashworthiness, and post-crash features of vehicles.[51] NHTSA can also prohibit third-party modifications that interfere with safety, but it cannot control modifications that individual car owners make to their vehicles.[52] Second, NHTSA mandates recalls when its FMVSSs are not met or when a defect exists in the vehicle.[53] Third, NHTSA conducts the New Car

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[47] Andy Greenberg, *The Jeep Hackers are Back to Prove Car Hacking Can Get Much Worse*, WIRED, (Aug. 01, 2016, 3:30 PM), https://www.wired.com/2016/08/jeephackersreturnhighspeedsteeringaccelerationhacks/.
[48] Anderson et al., *supra* note 4, at 98.
[49] *NHSTA's Core Values,* Nat'l Highway Traffic Safety Admin., http://www.nhtsa.gov/about-nhtsa/nhtsas-core-values (last visited Jan. 2, 2017).
[50] Anderson et al., *supra* note 4, at 98.
[51] *Id.* at xxii.
[52] *Id.*
[53] 49 U.S.C. 301 § 30120.

Assessment Program, a rating and information program created to keep consumers informed and incentivize manufacturers to create safer vehicles.[54] In addition to these regulatory tools, NHTSA conducts studies aimed at reducing deaths and injuries from motor vehicle crashes.[55] Despite NHTSA's broad regulatory powers, states remain in control of vehicle operation, insurance, maintenance, and repair standards as well as the licensure of drivers. NHTSA also relies on the states to inspect cars for fitness once they leave the lot. Unlike states, which have police forces and motor vehicle agencies to regulate vehicle operation, NHTSA has no enforcement authority beyond its recall power. Nonetheless, NHTSA has taken several key steps towards regulating self-driving cars.

B. NHTSA'S ACTIONS TOWARD REGULATING SELF-DRIVING CARS

In 2013, NHTSA released its first preliminary statement of policy on self-driving cars.[56] In the statement, NHTSA explains that it has taken a number of steps to promote the introduction of self-driving cars. For example, NHTSA researched the effects of Level 1 features such as electronic stability control (ESC), lane departure and frontward collision warnings, and has already mandated ESC on all new models.[57] In addition to these regulatory tools, NHTSA conducts studies aimed at reducing deaths and injuries from motor vehicle crashes.[58] Despite NHTSA's broad regulatory powers, states remain in control of vehicle operation, insurance, maintenance, and repair standards as well as the licensure of drivers. NHTSA also relies on the states to inspect cars for fitness once they leave the lot. Unlike states, which have police forces and motor vehicle agencies to regulate vehicle operation, NHTSA has no enforcement authority beyond its recall power. Nonetheless, NHTSA has taken several key steps towards regulating self-driving cars.

NHTSA's preliminary policy was updated in January 2016, when Secretary Foxx announced the Obama administration's new budget proposal to support development of self-driving cars.[59] The proposal

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[54] Lawrence L. Hershman, National Highway Traffic Safety Administration, The U.S. New Car Assessment Program (NCAP): Past, Present and Future (2001), http://www-nrd.nhtsa.dot.gov/pdf/esv/esv17/Proceed/00245.pdf.

[55] *National Highway Traffic Safety Administration*, Federal Register, https://www.federalregister.gov/agencies/national-highway-traffic-safety-administration.

[56] Nat'l Highway Traffic Safety Admin., Preliminary Statement of Policy Concerning Automated Vehicles (2013), http://www.nhtsa.gov/staticfiles/rulemaking/pdf/Automated_Vehicles_Policy.pdf.

[57] *Id.* at 5–6.

[58] *National Highway Traffic Safety Administration*, Federal Register, https://www.federalregister.gov/agencies/national-highway-traffic-safety-administration.

[59] *Secretary Foxx Unveils President Obama's FY17 Budget Proposal of Nearly $4 Billion for Automated Vehicles and Announces DOT Initiatives to Accelerate Vehicle*

includes a four-billion-dollar investment in development of self-driving technology and five initiatives to facilitate the introduction of fully self-driving cars.[60] First, NHTSA is committing to working with industry leaders to "develop guidance on the safe deployment and operation of autonomous vehicles" within six months.[61] Second, NHTSA will develop a model state policy on automated vehicles by June 2016 to promote a "consistent national policy."[62]

NHTSA's updated their preliminary policy January 2016, when Secretary Foxx announced the Obama administration's new budget proposal to support development of self-driving cars.[63] The proposal includes a four billion dollar investment in development of self-driving technology and five initiatives to facilitate the introduction of fully self-driving cars.[64] First, NHTSA is committing to work with industry leaders to "develop guidance on the safe deployment and operation of autonomous vehicles" within six months.[65] Second, NHTSA will develop a model state policy on automated vehicles by June 2016 to promote a "consistent national policy."[66]

DOT is also encouraging manufacturers to submit rule interpretation requests in situations where the law might inhibit the research and use of self-driving technology. NHTSA already used its rule interpretation power to approve a driverless feature called Park Assistant Plus in BMW's vehicles.[67] Park Assistant Plus allows a person to park their car via remote control.[68] The person must first park their car, turn it off, and then, while outside of the vehicle, simultaneously press two buttons on their key fob to make the car park itself.[69] BMW was concerned that FMVSS No. 114 Section 5.3 prohibited this function, because FMVSS No. 114 provides that "Each motor vehicle. . . with an automatic transmission that includes a 'park' position. . . shall be equipped with a system that requires the service brake to be depressed before the transmission can be

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Safety Innovations, U.S. Dep't of Transp. (Jan. 14, 2016), https://www.transportation.gov/briefing-room/secretary-foxx-unveils-president-obama's-fy17-budget-proposal-nearly-4-billion.

[60] *Id.*

[61] *Id.*

[62] *Id.*

[63] *Secretary Foxx Unveils President Obama's FY17 Budget Proposal of Nearly $4 Billion for Automated Vehicles and Announces DOT Initiatives to Accelerate Vehicle Safety Innovations*, U.S. Dep't of Transp. (Jan. 14, 2016), https://www.transportation.gov/briefing-room/secretary-foxx-unveils-president-obama's-fy17-budget-proposal-nearly-4-billion.

[64] *Id.*

[65] *Id.*

[66] *Id.*

[67] Paul Hemmersbaugh, Letter from Paul A. Hemmersbaugh, Chief Counsel, Nat'l Highway Traffic Safety Admin., to Samuel Campbell, III., Dep't Head, Safety Eng'g & ITS, BMW of N. Am.; (2016); http://www.nhtsa.gov/staticfiles/rulemaking/pdf/BMW-response- 01042016.pdf

[68] *Id.* at 1

[69] *Id.* at 1

shifted out of 'park.'"[70] NHTSA Chief Counsel Paul Hemmersbaugh stated in his letter of interpretation to BMW that the phrase "service brake to be depressed," is "unusual" because it appears to require the brake pedal to be depressed via foot.[71] He says that the phrasing would be clearer if it instead read "service brake to applied," which would show that the requirement is that the brake pads are in place to stop the vehicle from moving.[72] Therefore, he concludes that BMW's Park Assist Plus is compliant with the regulation.

A month after NHTSA sent its response to BMW, NHTSA replied to an interpretation request from Chris Urmson, the director of Google's Self-Driving Car Project.[73] Urmson sought an interpretation of the term "driver" to determine if the self-driving system (SDS) of an autonomous vehicle would be considered the driver, or if the person seated in the "left front outboard seating position" would be considered the driver; in the alternative, Urmson asked if the term "driver" would be considered meaningless for rules that targeted at cars with human drivers.[74] NHTSA determined that the SDS would be considered the driver, and that Google would need to seek exemptions for rules targeted at human drivers (e.g. rules requiring a foot-operated brake pedal and dashboard displays that are visible to the driver) until NHTSA conducted rulemakings to address the matter.[75] Ultimately, Google's and BMW's use of NHTSA's interpretation power shows great promise for enabling the introduction of autonomous driving features by offering self-driving car producers a method of ensuring that their vehicles can meet federal safety standards.

As NHTSA's response to Urmson demonstrates, DOT's policy updates on self-driving cars also includes encouraging manufacturers to submit requests for exemptions.[76] Under 49 U.S.C. § 30113, the Secretary of Transportation may exempt, for up to two years, motor vehicles from a motor vehicle safety standard if he finds that "(A) an exemption is consistent with the public interest . . . and (B) . . . the exemption would make easier the development of field evaluation of a new motor vehicle safety feature providing a safety level at least equal to the safety level of the standard . . ."[77] Self-driving technology seems to fit squarely within the statute because the introduction of self-driving cars is in the public interest

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[70] 49 C.F.R. §571.114 (2016)
[71] Hemmersbaugh to Campbell, *supra* at 3
[72] *Id.* at 3
[73] Paul Hemmersbaugh, Letter from Paul A. Hemmersbaugh, Chief Counsel, Nat'l Highway Traffic Safety Admin., to Chris Urmson, Dir., Self-Driving Car Project, Google; (2016); http://isearch.nhtsa.gov/files/Google%20--%20compiled%20response%20to%2012%20Nov%20%2015%20interp%20request%20-- %204%20Feb%2016%20final.htm
[74] *Id.* at 2
[75] *See id.*
[76] *See generally*: Hemmersbaugh to Campbell, *supra*; Hemmersbaugh to Urmson, *supra*. (NHTSA asking question to Department of Transportation on behalf of Google, and then replying to Google)
[77] 49 U.S.C. § 30113 (2015)

and the exemptions could ease the development of vehicles that are safer than ever. The great news for self-driving car makers is that Secretary Foxx intends to use this exemption power up to its limit of 2,500 vehicles if the manufacturers request it.[78]

Lastly, NHTSA is committing to develop "new tools" and seek authority where necessary to ensure that self driving cars are deployable once they are deemed to be equally safe or safer than cars on the road today.[79] It is unclear what this action will entail, but DOT's commitment to "seeking new authorities" suggests that the Department will ask Congress for more regulatory power in the event that NHTSA hits a roadblock.

NHTSA has taken many steps to promote the development of self-driving cars and improve self-driving car safety; however, NHTSA has not yet regulated self-driving cars separately from Level 0 vehicles. Part of the reason for NHTSA's inaction is that self-driving cars disrupt the federal-state divide over manufacturing requirements versus operation requirements. The follow section will describe the traditional role of states in regulating vehicle safety and the approach that some states are taking to regulating self-driving vehicles.

C. STATE ACTIONS TO REGULATE SELF-DRIVING CARS

Traditionally, states create traffic codes that set standards for vehicle operation, car insurance, car maintenance and repair, and the licensure of drivers to regulate vehicle safety. As mentioned above, states are in a better position to regulate vehicle operation because they have the enforcement capacity via local police, state troopers, and state regulatory agencies. The introduction of fully autonomous cars, however, which disrupts the notion of "vehicle operation," creates new challenges for state legislatures because they are uncertain of how to regulate the new technology. NHTSA's 2013 preliminary policy on self-driving cars made note of this challenge and stated that detailed regulations at the state level must wait because of the "rapid evolution and wide variations in self-driving technologies" that make regulating self-driving cars infeasible.[80]

Despite these regulatory challenges, four states and the District of Columbia enacted laws aimed at regulating the testing and use of self-driving cars. There are some similarities in the laws, including that Michigan, Florida, and Washington, D.C. all require a driver to be present to manually override the self-driving mode to prevent crashes.[81] Also, California, Florida, and Nevada require drivers to submit an insurance instrument, surety bond, or proof of self-insurance in the amount of five

[78] U.S. Dep't of Transp., *supra* note 63.
[79] U.S. Dep't of Transp., DOT/NHTSA Policy Statement Concerning Automated Vehicles 2 (2016), http://www.nhtsa.gov/staticfiles/rulemaking/pdf/Autonomous-Vehicles-Policy-Update-2016.pdf.
[80] Nat'l Highway Traffic Safety Admin., *supra* note 56, at 12.
[81] Mich. Comp. Laws § 257.665 (2016); Fla. Stat. Ann. § 319.145 (2016); D.C. Code § 50-2352 (2013). *See* also James M. Anderson et al. supra note 4, 44-48.

million dollars.[82] California's and Florida's statutes also include a clause expressly stating that federal law preempts any section where the states' laws are in conflict.[83] Nevada has taken a further step and crafted a licensing framework that requires operators of self-driving cars to obtain a certificate of compliance for the vehicle and a driver's license with an endorsement from Nevada's DMV.[84]

California, Nevada, Florida, Michigan, and D.C. set an example that other states can follow, but there are still gaps in their regulations of self-driving cars. For example, the four states and D.C. largely focus their statutes on permitting testing of fully self-driving vehicles and explicitly exclude semi-autonomous (namely Levels 1 and 2) cars from the definition of a self-driving car.[85] As a result, there are no regulations affecting the interplay between cars at different levels of automation even within the states that regulate self-driving cars. In addition, these five jurisdictions vary considerably despite their similarities. Only Nevada implemented a licensing framework for self-driving vehicle operators.[86] Furthermore, California, where a significant portion of testing is being performed, created some controversy with Google after releasing its draft rules for regulating the public deployment of self-driving cars.[87] The issue is that California will require a licensed operator to be inside the vehicle, whereas Google desires to make its cars fully autonomous: no steering wheel, pedals, or person required.[88] If California's standards are too prohibitive, Google may wish to roll out its vehicles in another state that permits a design that does not require human drivers. In addition, these regulatory disparities between states may mean that Google's fully autonomous vehicle may be unable to legally travel from California to Nevada or elsewhere.

Besides these four examples of direct regulation, other states have expressly permitted self-driving cars without any further regulation of them,[89] passed legislation or executive orders to further study automated

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[82] Cal Veh Code § 38750(b) (3) (2015); Fla. Stat. Ann. § 316.86 (2016); Nev. Rev. Stat. Ann. § 482.060 (2015). In comparison, California's minimum coverage for auto insurance is $5,000 for property damage and $30,000 for personal injury. http://www.dmv.org/ca-california/car-insurance.php. Florida's minimum auto insurance coverage are $10,000 for property damage and $10,000 for personal injury. http://www.dmv.org/fl-florida/car-insurance.php. Nevada's minimum suto insurance coverage is $10,000 for property damage and $30,000 for personal injury. http://www.dmvnv.com/insurance.htm.

[83] Cal Veh Code § 38750(g) (2015).

[84] Nev. Rev. Stat. Ann. § 482A.200 (2012).

[85] Anderson et al, *supra* note 4, at 41.

[86] Nev. Rev. Stat. Ann. § 482A.200. *See also* Anderson et al, *supra* note 4 at 43—52.

[87] Alex Davies, *California's New Self Driving Car Rules are Great for Texas*, Wired (Dec. 17, 2015, 11:00 AM), http://www.wired.com/2015/12/californias-new-self-driving-car-rules-are-great-for-texas/.

[88] *Id.*

[89] S. 598, 2015 Gen. Assemb., 109th Reg. Sess. (Tn. 2015).

vehicles,[90] or have bills still in committee that would authorize self-driving vehicle regulation and testing.[91] Most states, however, have not enacted legislation that regulates self-driving cars.

Furthermore, many state traffic codes contemplate a human driver operating the vehicle. Some define a driver or operator as a person, and explain what a "driver" must do in specific situations, such as approaching an intersection.[92] It would be undesirable for self-driving car manufacturers to perform a detailed analysis of each state's driving laws to find hidden obstacles for self-driving cars when NHTSA can set new federal standards and states can enact legislation that directly permits self-driving cars.

III. FEDERAL VERSUS STATE REGULATIONS

Despite NHTSA's many steps toward promoting and regulating self-driving cars, the agency has yet to conduct a rulemaking. Because self-driving car technology is still somewhat nascent, NHTSA appears to be taking caution to ensure that it does not impede development with regulations. Regulation of self-driving cars, therefore, currently rests on the states. One benefit to this is that states can act as laboratories of democracy, and set examples for NHTSA. But NHTSA's inaction presents a problem: there is no consistent national policy on self-driving cars, creating a patchwork of state laws that may also impede development of the new technology. This section will explain what NHTSA can and should do in order to resolve this dilemma. First, this section will describe the legal authority of NHTSA, and what powers the states have to preempt federal regulations. Then, this section will compare the practical ability of NHTSA and the states to regulate self-driving cars. Ultimately, because NHTSA has greater legal authority to regulate self-driving cars, and because states have more practical ability to quickly create regulations, a model national policy is the current best course of action.

A. FEDERAL AUTHORITY VERSUS STATE AUTHORITY

Before any rulemaking can begin, NHTSA must first have authority to pass FMVSSs for self-driving cars. NHTSA spokesman Gordon Trowbridge stated that the agency may lack the authority to preempt automakers' new autonomous features until there is an "unreasonable risk to safety."[93] His belief likely arises from the fact that the authorizing statutes

[90] Georgia S.B. 0369; North Dakota H.B. 1065; North Carolina S.B. 600; Utah H.B. 373, Arizona E.O. 2015-09.
[91] Connecticut H.B. 6344; New Jersey S. 734; Oregon S.B. 620.
[92] *See*, *e.g.*, N.Y. Veh. & Traf. Law § 113 (McKinney); *People v. Alamo*, 34 N.Y.2d 453, 358 N.Y.S.2d 375, 315 N.E.2d 446, 459 (1974)*; DWI Laws and Self-Driving Vehicles*, Annelli Xavier Defense Attorneys, http://www.anellixavier.com/dwi-laws-self-driving-vehicles/ (last visited Mar. 14, 2016); O.R.C. 4501.01(x) (2017).
[93] Kessler, *supra* note 92.

for NHTSA's regulations of motor vehicle safety define "motor vehicle safety" as "the performance of a motor vehicle or motor vehicle equipment in a way that protects the public against unreasonable risk of accidents . . . ."[94] NHTSA must, therefore, prove that the regulation of self-driving vehicles protects against an "unreasonable risk of accidents." This standard could be challenging to meet for NHTSA, in part because there is not enough data to show self-driving cars cause unreasonable risk. In the only relevant case law on the matter, the U.S. Court of Appeals for the Sixth Circuit has previously dismissed the idea that any difficulty exists in proving unreasonable risk. The court found that "it is *hardly controversial* that the Safety Act authorizes NHTSA to promulgate a safety standard regulating roof crush resistance."[95] Under the Sixth Circuit's "hardly controversial" standard, FMVSSs regulating self-driving cars are likely authorized given that it would be hardly controversial to find that NHTSA is authorized to regulate self-driving cars. Therefore, NHTSA should have little trouble conducting a rulemaking for self-driving car regulations.

The second hurdle for NHTSA comes from the potential for states to create regulations that differ from NHTSA's. As mentioned above, several states, such as California and Florida, specifically include preemption clauses in their self-driving car regulations.[96] Other states, however, may be willing to challenge contradictory federal regulations. Furthermore, the Technology Law and Public Policy Clinic of the University of Washington School of Law released a report finding that NHTSA is likely to challenge most contradictory state safety standard regulations.[97]

Given that states traditionally regulate vehicle operation, it initially makes sense that they would have authority to regulate the use of self-driving cars. There are, however, several reasons why the federal government could preempt any contradictory state laws. First, the Commerce Clause of the U.S. Constitution only grants Congress the authority to regulate interstate commerce.[98] The Dormant Commerce Clause (DCC) is the concept that states may not regulate interstate commerce, limits states from regulating a channel or instrumentality of commerce, or unduly burdening interstate commerce.[99] Self-driving cars would be an instrumentality of interstate commerce, and fit squarely within the clause. Therefore, contradictory state legislation would be preempted unless the state could show that its legislation fits into an exception to the dormant commerce clause: a legitimate local concern, or Congressional preemption. Notwithstanding

[94] 49 U.S.C. 30102(a)(9) (2012).
[95] Nat'l Truck Equip. Ass'n v. Nat'l Highway Traffic Safety Admin., 711 F.3d 662, 668 (6th Cir. 2013) (emphasis added).
[96] *Supra* text accompanying note 82.
[97] Tech. Law and Pub. Pol'y Clinic, Univ. of Wash. Sch. of Law, The Risks of Federal Preemption of State Autonomous Vehicle Regulations 2–3 (2014), http://techpolicylab.org/wp-content/uploads/2014/12/UW-Law-Clinic-Research-Memo-to-the-ULC-The-Risks-of-Federal-Preemption-of-State-Regulations-of-Autonomous-Vehicles.pdf.
[98] U.S. Const. art. I, § 8, cl. 3.
[99] Gonzalez v. Raich, 545 U.S. 1, 16 (2005).

Congressional action, the state could potentially show a legitimate local concern. For example, if a northern state with a snowy climate wished to impose stricter rules on self-driving cars, it may be able to show that the cars cause a unique danger to the state and potentially preempt federal law. Even then, the state needs to show that the state's local concerns outweigh the burden on interstate commerce.[100]

Ultimately, NHTSA appears to have the upper hand in any debate over legal authority to regulate self-driving cars. Despite its authority, however, it is possible that NHTSA lacks the practical ability that the states have to regulate self-driving cars.

B. FEDERAL PRACTICAL ABILITY VERSUS STATE PRACTICAL ABILITY

Some argue that NHTSA's inaction at the federal level to implement new vehicle safety standards for self-driving cars leaves a vacuum that states cannot fill.[101] Sean Walters, director of compliance and regulatory affairs at Daimler, stated "National standards are critical to the trucking industry, especially with respect to new and innovative technologies."[102] Other self-driving car makers, such as Google and Volvo, share Walters's sentiment and want a consistent national policy on self-driving cars.[103] At the time of writing, Chris Urmson, Director of Google's Self-Driving Car Project, spoke to Congress to ask for a national approach to regulations that would permit the deployment of Google's fully autonomous, wheel and pedal-free, cars.[104]

Adam Thierer and Ryan Hagemann, research fellows at the Mercatus Center at George Mason University, also argue that the "patchwork" of state laws on access to Event Data Recorder (EDR) data complicates the production of the devices for manufacturers.[105] Furthermore, the RAND Corporation, a nonprofit research institution, released a report that suggests that an automaker that wants to develop a standard

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[100] Pike v. Bruce Church, 397 U.S. 137, 142 (1970).

[101] Thierer & Hageman, supra note 36, at 386.*See also Alex Davies, Self-Driving Cars are Legal, But Real Rules Would be Nice, Wired (May 15, 2015, 7:00 AM), http://www.wired.com/2015/05/self-driving-cars-legal-real-rules-nice/.*

[102] Davies, *supra* note 101.

[103] Laura Bliss, Google Urges Congress for New Rules on Driverless Cars, CityLab (Mar. 15, 2016, 3:53 PM), http://www.citylab.com/politics/2016/03/google-congress-fha-safety-regulations-driverless-cars/473748/?utm_source=SFTwitter. Urmson considers the variations in state regulations to be an "unworkable situation" that will "significantly hinder" the deployment of autonomous vehicles, id., Håkan Samuelsson, CEO of Volvo, expressed a similar concern by stating, "The absence of one set of rules means car makers cannot conduct credible tests to develop cars that meet all the different guidelines of all 50 US states." James Derek Sapienza, If an Autonomous Car Crashes, Who's at Fault?, The Cheat Sheet (Oct. 18, 2015), http://www.cheatsheet.com/automobiles/if-an-autonomous-car-crashes-whos-at-fault.html/.

[104] Bliss, *supra* note 103.

[105] Thierer & Hagemann, *supra* note **Error! Bookmark not defined.**.

communications platform for self-driving cars would face the problem of complying with up to fifty different distracted driving laws.[106]

Therefore, there is a strong argument to be made in support of NHTSA's favorability to regulate self-driving cars. One challenge NHTSA may face, however, is that it is limited to creating FMVSSs that are "practicable."[107] To be practicable, the standard must consider all relevant factors including technical capability and economic costs.[108] Unlike the "hardly controversial" standard mentioned above,[109] the practicable standard is harder to meet because NHTSA will be attempting to regulate "technological capability" that can rapidly change. This creates a challenge to NHTSA that may favor state regulations. First, NHTSA may need to perform research to be able to consider "technical capabilities" of self-driving cars. Second, NHTSA is relatively slow at creating regulations. To conduct rulemaking, NHTSA must propose a rule, seek comments, and potentially revise its rule and republish for further comments before the rule is finalized. Third, if NHTSA gets regulations wrong, the result would be a nationwide impediment on self-driving cars, and may take even longer to mitigate given the time required to amend a bad rule.

For these reasons, some scholars argue that states are the appropriate place for enacting new vehicle safety regulations. Walter Bryant Smith, an assistant professor at the University of South Carolina School of Law, argues that states may have more procedural flexibility than NHTSA when it comes to regulation of self-driving cars.[110] States are not bound by the "practicable" standard, and may have quicker rulemaking procedures. Furthermore, NHTSA's relative inflexibility to pass self-driving car regulations is compounded by the fact that some states have more tools for controlling vehicle use. For example, in New York, regardless of the state legislature's ability to enact new legislation, the motor vehicle commissioner may "refuse to register any . . . class of vehicles for use on public highways where he determines that the characteristics of such . . . class of vehicles make [them] . . . unsafe for highway operation."[111] Thus, the commissioner has the practical ability to quickly resolve any safety issues that self-driving cars may bring.

Lastly, by relying on states to regulate self-driving cars, the country would take advantage of its federalist system. If NHTSA decides to wait to create new FMVSSs, the agency can learn from the four states and D.C. that regulate self-driving cars by eventually incorporating the best features of their rules into new regulations. For example, a new NHTSA rule could include manual override standards that mirror California's standards if they are deemed successful.

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[106] *See* Anderson et al., *supra* note 4, at 93.
[107] 49 U.S.C. § 30111 (2015).
[108] Paccar, Inc. v. Nat'l Highway Traffic Safety Admin., 573 F.2d 632 (9th Cir. 1978).
[109] *Supra* text accompanying note 95.
[110] Bryant Walker Smith, Regulation and the Risk of Inaction, in Autonomous Fahren: Technische, Rechtliche und Gesellschaftliche Aspekte 601,601 (Markus Maurer et al. eds., 2015).
[111] N.Y. Veh & Tr § 400-a (McKinney 2016).

In spite of the promise that a consistent national policy on self-driving cars brings to manufacturers, states are currently in a better position to pass legislation and make regulations for such a unique and changing technology. The ideal approach to regulating self-driving vehicles would incorporate both the flexibility of the state regulations and the consistency of a national policy.

IV. SOLUTION TO THE REGULATORY SCHISM

NHTSA's soon-to-be-released model state policy is currently the best solution to the question of how to regulate self-driving cars in the United States. Self-driving cars upend the regulatory schism between the federal government's manufacturing safety standards and state governments' authority over vehicle operation. Some, namely self-driving car makers, argue that the federal government should fill the regulatory gap that self-driving cars are creating in order to create a consistent national policy. Others believe that states should take the new regulatory role in order to ensure that rules can be quickly updated to match the rapidly changing technology, and to achieve the full benefits from states behaving as laboratories of democracy.

A model state policy resolves the dilemma by establishing a consistent national policy by relying on the flexible regulatory powers of states. Similar to the Model Penal Code, Model Rules of Professional Conduct, Uniform Probate Code, and even the Federal Rules of Evidence and Civil Procedure, a model state policy can act as an initial layer of certainty for self-driving car makers. Furthermore, the model state policy will also guide states that are unsure of how to regulate self-driving cars, and avoid any questions of authority. It will be important for a large portion of states to follow or enact the model state policy, but given that the states are new to regulating vehicle safety standards, they have a strong incentive to follow the policy. Ultimately, when the technology has more fully developed, NHTSA can begin its rulemaking process to consolidate the best rules of the states and create a truly consistent national policy for self-driving cars.

CONCLUSION

DOT's January 2016 model state policy has the potential to resolve the problems of an inconsistent national policy on self-driving vehicles, while maintaining the flexibility of state lawmaking. With a model national policy, state governments can follow the lead of the federal government and more confidently pass legislation that keeps self-driving cars safe without inhibiting their development. If enough states follow the model policy, self-driving car manufacturers will avoid the problem of a patchwork of laws regarding self-driving cars. Additionally, a model national policy allows NHTSA to promote the regulations it wants without the difficulties of the federal rulemaking process. Furthermore, adoption of the model policy avoids potential challenges of state or federal preemption. If states fail to

widely adopt the model policy - or a substantially similar policy - automakers will likely urge more action from NHTSA or Congress. For now, however, NHTSA's model national policy is the only feasible way to regulate self-driving cars.