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## No More 1-Star Ubers: A New Model of Ride-Share Is Here

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# **NO MORE 1-STAR UBERS: A NEW MODEL OF RIDE-SHARE IS HERE**

## INTRODUCTION

It is Monday morning in the year 2040, and you are on your way to yet another day of work. You went to sleep early and did not finish preparing a presentation for later this afternoon. You hop in your car, tell it to “go to work,” and your car begins to drive itself. Before you owned a fully autonomous car, you dreaded the hour commute with traffic every morning. However, now, this hour is a great time to sit back, relax, and do work or maybe even take a nap if you did not sleep well. Everyone around you is doing the same thing. There is not a worry in the world right now because your car brakes every time the car in front of it is getting too close, as it constantly scans its surroundings. It does this through its various sensors and cameras that scan the environment around it.

Your workplace is about five miles off the highway, so your car exits the highway onto a three-lane local road surrounded by the forest. Your car is in the middle lane. To your left, there is a school bus full of children. To your right, there is an elderly couple driving their old 2018 Chevrolet. All of a sudden, multiple deer run in front of your car. Your car has three options because there is no time to stop before hitting the deer: (1) hit the deer; (2) swerve to your left to avoid the deer, hitting the school bus; or (3) swerve to your right to avoid the deer, hitting the elderly couple. A human driver, if aware of their surroundings, would probably choose option 1. However, does your car have the same ethical framework as you—valuing the life of human beings higher than an animal? What will your car do?

This Comment proposes a change in the ride-share business market toward embracing autonomous vehicles while also carefully leveraging practical concerns against state laws and technological limitations. Specifically, companies such as Lyft, through its partnership with Aptiv, have demonstrated the benefits of autonomous vehicle ride-share, but it has not been free of problems—both legal and practical.

While still a relatively new technology, autonomous vehicles have taken off in popularity in recent years. Major motor vehicle and technology companies, such as Ford and Google, have put money and time into developing them. After companies like Tesla have worked to make autonomous vehicles common in everyday life, the need for driverless technology in other areas, such as ride-share, became apparent.

The ride-share industry has a lot to gain by embracing new driverless technology, and the potential to address and fix problems that plague human driving in general has a lot to lend to the ride-share industry. The need for change is clear considering increases in car crashes due to human error, the constant push for fuel efficiency, and the goal of reduced traffic congestion. Nonetheless, changes are needed not only for safety matters, but also for more practical concerns. The emergence of self-driving cars will allow people who were unable to drive cars because of a disability or age to have a reliable method of transportation without posing as a danger on the road to society. With the ride-share platform becoming more common across the country, autonomous vehicles will have the potential to change the face of the ride-share industry.

Driverless technology has improved and developed considerably in recent years. Improvements ranging from more complex GPS navigation systems to intricate laser sensors that detect other cars on the road and a vehicle's general surroundings have made it possible for companies like Tesla to manufacture and sell fully electric, self-driving cars to the general public.<sup>1</sup>

While driverless technology has developed considerably in recent years, it does not come without problems. Tesla systems have had many issues of recognition, resulting in numerous crashes. Further, as highlighted in the scenario above, the question of how self-driving cars will respond to ethical issues is a large unknown. Removing the human element will certainly reduce many dangers on the road, but it will also create dangers in themselves. We will never get rid of the human element entirely, because there may always be a child crossing a road when they are not supposed to, a dog chasing a ball onto the street, and many more scenarios that will force the car to make critical ethical decisions. Sometimes, this means choosing the best worst option.

Several states have enacted laws addressing the growing autonomous vehicle industry. At the forefront of those developments, Nevada was the first state to enact such laws and is widely regarded as the pioneer state for autonomous vehicle legislation.<sup>2</sup> Such legislation makes Nevada a safe haven for many autonomous vehicle companies to develop and test technology.<sup>3</sup> For example,

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<sup>1</sup> Helena Ball, *The 5 Breakthroughs Powering the Self-Driving Car Boom*, Inc. (Feb. 2017), <https://www.inc.com/magazine/201702/helena-ball/self-driving-cars-information-superhighway.html>.

<sup>2</sup> Jann Stinnesbeck, *Research Brief on Autonomous Vehicles* (Nov. 2017), <https://www.leg.state.nv.us/Division/Research/Publications/ResearchBriefs/AutonomousVehicles.pdf>.

<sup>3</sup> *Id.*

Lyft has teamed up with Aptiv to provide autonomous vehicle ride-share options to riders in Las Vegas under the Nevada statutes.<sup>4</sup>

The burgeoning autonomous ride-share business model must adapt to the practical concerns and demands of autonomous vehicles while also operating within the confines of the law, which is largely state-specific. For instance, the traditional ride-share business model of depending on drivers as independent contractors who provide the car and perform the service—driving—will no longer be relevant in the future. Instead, ride-share companies will likely have higher overhead costs because they will have to purchase the autonomous vehicles or contract with an operator of autonomous vehicles, like Aptiv, and be exclusively responsible for ensuring their safety and efficiency. In addition, because there will no longer be a need for actual human drivers, the very heart of what we now know to be the face of ride-share, the drivers, will shift to a more corporate-focused image. While it is too early to tell whether that will be positive or negative, the fact of the matter is that the ride-share industry cannot embrace autonomous vehicle technology without essentially turning its entire business model upside down.

This Comment, in Sections II and III, discuss background matters relating to the ride-share industry as it currently operates and identifies the factors that demonstrate the need for change in light of advances in autonomous vehicle technology. Section IV discusses driverless technology, including its origins and where it is likely to go in the future. In Section V, this Comment outlines the benefits of the ride-share industry embracing driverless technology by explaining why ride-share companies should evolve their business model. Last, Section VI concludes by summarizing where the ride-share industry should evolve considering improvements in technology and proposed changes in law.

## I. BACKGROUND

Ride-share companies have become more popular every year. They are so popular that some taxi companies have gone out of business.<sup>5</sup> The ride-share business model consists of independent contractors as drivers. However, with fully-autonomous cars emerging, their business model could become even more

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<sup>4</sup> See Kirsten Korosec, *Aptiv's self-driving BMWs have made more than 50,000 rides on the Lyft app in Las Vegas*, TechCrunch (June 3, 2019, 7:53 PM), <https://techcrunch.com/2019/06/03/aptivs-self-driving-bmws-have-made-more-than-50000-rides-on-the-lyft-app-in-las-vegas/>.

<sup>5</sup> Ashley Biviano, *Competition from Uber, Lyft Puts Yellow Cab Out of Business in Binghamton*, Press Connects (May 21, 2019 3:35 PM), <https://www.pressconnects.com/story/money/2019/05/21/uber-lyft-drivers-binghamton-yellow-cab-rideshare-taxi/3753332002/>.

efficient. The human element of ride-share has led to many problems, especially criminal activity and accidents. Technology is extremely advanced with fully-autonomous cars and is on the rise. While this does not come without new issues, there are many benefits to an increase in self-driving cars on the road. This section examines the business model of ride-share companies, looks further into the “human element” of ride-share, explains the need for driverless technology, and details current driverless technology.

### A. *The Ride-Share Business Model*

Some of the biggest and most rapidly growing businesses are ride-share companies.<sup>6</sup> With just Uber alone, there are fourteen million trips completed every single day on average.<sup>7</sup> This adds up to over five billion trips per year.<sup>8</sup> Lyft is smaller than Uber, occupying about 35% of the market share for ride-share companies.<sup>9</sup> In 2017, Lyft operated about 375 million rides.<sup>10</sup> Uber and Lyft are still fairly new: Uber was founded in 2009 and Lyft in 2012.<sup>11</sup> This is all the more impressive because the ride-share business is becoming more popular every year and has already grown humongous in the small time frame they have been around.<sup>12</sup>

The typical modern ride-share business model is similar for most companies, including Uber and Lyft.<sup>13</sup> Both feature on-demand service that connects riders with drivers who are independent contractors.<sup>14</sup> Specifically, riders use a smartphone app to select their destinations and then “hail” a ride-share driver chosen by a formula.<sup>15</sup> After a rider calls a vehicle, the connected driver has the

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<sup>6</sup> Russell Hensley, Asutosh Padhi, and Jeff Salazar, *Cracks in the ridesharing market—and how to fill them*, MCKINSEY QUARTERLY, July 2017, available at <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/cracks-in-the-ridesharing-market-and-how-to-fill-them> (last visited Feb. 10, 2020).

<sup>7</sup> Uber Newsroom, *Company Info* (2020), <https://www.uber.com/newsroom/company-info/> (last visited Feb. 10, 2020).

<sup>8</sup> *See id.*

<sup>9</sup> Much Needed, *Lyft by the Numbers: Users & Drivers Statistics, Growth & Fun Facts* (2020), <https://muchneeded.com/lyft-statistics/> (last visited Feb. 10, 2020).

<sup>10</sup> *Id.*

<sup>11</sup> Dan Blystone, *The Story of Uber*, INVESTOPEDIA (June 25, 2019), <https://www.investopedia.com/articles/personal-finance/111015/story-uber.asp>; Andrew Creiner, Matt McFarland, Ivory, Sherman, and Jen Tse, *A History of Lyft, From Fuzzy Pink Mustaches to Global Ride Share Giant*, CNN BUSINESS (Apr. 2, 2019), <https://www.cnn.com/interactive/2019/03/business/lyft-history/index.html>.

<sup>12</sup> Hensley, *supra* note 6.

<sup>13</sup> Levi Davis, *Lyft vs. Uber: What’s the Difference?*, INVESTOPEDIA (June 25, 2019), <https://www.investopedia.com/articles/personal-finance/010715/key-differences-between-uber-and-lyft.asp>.

<sup>14</sup> Lyft, *Lyft Terms of Service*, (2019), <https://www.lyft.com/terms> (last visited Feb. 10, 2020).

<sup>15</sup> *See* Jungleworks, *How Uber Works: Insights into the Business & Revenue Model* (2019), <https://jungleworks.com/uber-business-model-revenue-insights/> (last visited Dec. 21, 2019).

option to either accept or reject the ride; if the driver accepts the ride, then the driver's details are displayed to the rider and the driver proceeds to pick up the rider.<sup>16</sup> The touchstone of the ride-share business model, as it currently operates, is that the companies strive for less ownership.<sup>17</sup> The ride-share companies do not own the cars - the drivers do - thus cutting overhead costs significantly.<sup>18</sup>

As independent contractors, ride-share drivers are not employees, but instead are their "own bosses."<sup>19</sup> This comes with several benefits, according to the Associate General Counsel at the National Labor Relations Board, Jayme Sophir:

Drivers' virtually complete control of their cars, work schedules, and log-in locations, together with their freedom to work for competitors of [ride-share companies], provide[] them with significant entrepreneurial opportunity. On any given day ... [ride-share] drivers [can] decide how best to serve their economic objectives: by fulfilling ride requests through the App, working for a competing ride-share service, or pursuing a different venture altogether.<sup>20</sup>

As to its drivers' status as independent contractors, Uber stands behind the practice, stating in a public release: "We believe that drivers are independent contractors because, among other things, they can choose whether, when, and where to provide services on our platform, are free to provide services on our competitors' platforms, and provide a vehicle to perform services on our platform."<sup>21</sup> In fact, Uber stands behind its independent contractor practice so much that it has paid millions of dollars to litigate the issue across the country in recent years.<sup>22</sup>

However, the freedom that comes with designating drivers as independent contractors who use their own cars to work for ride-share companies will likely

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<sup>16</sup> *See id.*

<sup>17</sup> Erik Sherman, 'Catastrophically Huge': New Labor Laws Aimed at Independent Contractors Could be a Huge Drag on Uber and Lyft Stock, FORTUNE (Nov. 27, 2019), <https://fortune.com/2019/11/27/uber-lyft-employment-laws/>.

<sup>18</sup> *Id.*

<sup>19</sup> Lisa Guerin, *Are drivers for rideshare companies employees or independent contractors?*, NOLO (2019), <https://www.nolo.com/legal-encyclopedia/are-drivers-rideshare-companies-employees-independent-contractors.html>.

<sup>20</sup> Andrew J. Hawkins, *Uber drivers are freelancers, not employees, federal labor lawyer says*, THE VERGE (May 14, 2019, 2:21 PM), <https://www.theverge.com/2019/5/14/18623467/uber-driver-freelancers-employees-federal-labor-lawyer-contractor>.

<sup>21</sup> Jacob Passy, *Uber doesn't want its drivers to be employees – here's why that matters*, MARKETWATCH (Apr. 14, 2019, 7:30 PM), <https://www.marketwatch.com/story/uber-doesnt-want-its-drivers-to-be-employees-heres-why-that-matters-2017-11-13>.

<sup>22</sup> *See id.*

not be sustainable in the future with autonomous ride-share vehicles.<sup>23</sup> For instance, Aptiv, the self-driving software company that teamed up with Lyft to launch an autonomous ride-hailing service in Las Vegas, does not depend on driver-owned vehicles.<sup>24</sup> In addition, it is likely that the safety drivers in the Aptiv self-driving vehicles are not independent contractors, but are instead employees of either Aptiv or Lyft.

Advancements in driverless technology and the corresponding cost and accessibility of drivers to access the technology will likely force the burgeoning driverless ride-share industry to embrace a new business model - one that includes costs of purchasing and maintaining autonomous vehicles and eliminating the need for human drivers altogether.<sup>25</sup>

### *B. Problems with Human Ride-Share Drivers*

Car crashes are not the only safety concern with human drivers. Having human ride-share drivers raises personal safety concerns for riders in the car. As a result of the human factor creating issues of personal safety, some riders have had very serious experiences. Between 2012 and 2015, BuzzFeed leaked statistics showing that 6,160 Uber support tickets contained the phrase “sexual assault” and 5,827 support tickets contained the word “rape.”<sup>26</sup> Uber disclaimed these statistics, stating that only 170 complaints contained allegations of sexual assault and five of rape.<sup>27</sup> No matter which statistics are correct, or if there is some number in the middle of this discrepancy, any allegation of sexual assault or rape is one too many. Many people take ride-shares to avoid problems, so it is troubling that by avoiding one problem, many people find themselves facing a bigger problem in their “safe” vehicle.<sup>28</sup>

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<sup>23</sup> See Faiz Siddiqui and Greeg Bensinger, *As IPO soars, can Uber and Lyft survive long enough to replace their drivers with computers?*, THE WASHINGTON POST (Mar. 29, 2019 4:52 PM), <https://www.washingtonpost.com/technology/2019/03/29/even-with-ipo-billions-can-uber-lyft-survive-long-enough-replace-their-drivers-with-machines/>.

<sup>24</sup> See Korosec, *supra* note 4.

<sup>25</sup> One such advancement in driverless technology are self-driving buses, seen across several cities. See Mary Katherine Delegal, *Gainesville Set To Run Self-Driving Vehicles On Its Public Roads*, WUFT (Jan. 30, 2020), <https://www.wuft.org/news/2020/01/30/gainesville-set-to-become-first-u-s-city-with-self-driving-buses-on-public-roads/>.

<sup>26</sup> Charlie Warzel & Johana Bhuiyan, *Internal Data Offers Glimpse at Uber Sex Assault Complaints*, BUZZFEED NEWS (March 6, 2016, 3:36 PM), <https://www.buzzfeednews.com/article/charliwarzel/internal-data-offers-glimpse-at-uber-sex-assault-complaints#.fwa9modg3g>.

<sup>27</sup> *Id.*

<sup>28</sup> Kari Paul, *Is Uber Doing Enough to Protect Women from Drivers Who Stalk Them?*, VICE (Jul. 1, 2016, 12:00 PM), [https://www.vice.com/en\\_us/article/mbqq7y/is-uber-doing-enough-to-protect-women-from-drivers-who-stalk-them](https://www.vice.com/en_us/article/mbqq7y/is-uber-doing-enough-to-protect-women-from-drivers-who-stalk-them).

Women have frequently shared stories of their sexual harassment from drivers in ride-share vehicles.<sup>29</sup> One woman was stalked by a former Uber driver she had, and he even showed up at her house.<sup>30</sup> Although Uber does not show riders' home addresses to drivers for safety reasons, it is easy for drivers to simply write a rider's home address down after dropping them off.<sup>31</sup> The controversy surrounding Uber's response is widespread:

Uber has received a rash of criticism recently over reports of drivers sexually assaulting passengers. In those cases, the driver is suspended from the app while the incident is investigated and Uber collaborates with law enforcement. However, its policies on complaints involving stalking and broader allegations of harassment are less clear. When Broadly spoke to an Uber representative, they did not say following somebody home would be grounds for automatic dismissal from the app. The company has a 24-hour response team for safety complaints, but [the rider] said she did not receive a reply until 10 hours after her driver showed up at her door—one hour after tweeting about the incident publicly.<sup>32</sup>

In this case, the rider desperately tried to get the attention of Uber to handle this properly.<sup>33</sup> She stated:

"I really think if I hadn't gone to Twitter or made a fuss about it, I wouldn't have been noticed," she said. "It would have made me feel better if they responded more quickly. From their response, there was no indication they would do better or make sure drivers are held accountable for their actions in the future."

Since the incident occurred, [the rider] has returned to the app to hail rides, now putting her destination one street away from her actual address and refraining from being friendly towards drivers. She said she felt Uber's response implied the incident was at least partially her fault for giving the driver her number.<sup>34</sup>

While the rider is still using ride-share apps, it is clear that she is not simply going point A to point B anymore.<sup>35</sup> When riders pay for a service, they should

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<sup>29</sup> Mike, *Why I Reported My Driver to Lyft*, ONE MILE AT A TIME (Dec. 17, 2015), <https://onemileatatime.com/bad-lyft-experience/>. In that instance, the driver was talking about how "he couldn't wait to check out her ass." *Id.*

<sup>30</sup> Paul, *supra* note 28.

<sup>31</sup> *Id.*

<sup>32</sup> *Id.*

<sup>33</sup> *Id.*

<sup>34</sup> *Id.*

<sup>35</sup> *See id.*

not have to walk to their house after being dropped off. While it is an important safety measure, it takes away from the convenience of ride-share.

Uber policies also reward drivers who achieve near perfect five-star ratings and admonish those who fall short, creating a competitive environment for drivers to protect their ability to drive at all.<sup>36</sup> One driver, Marat, went as far as falsely imprisoning a passenger until he saw that she rated him five-stars:

“Marat” was so desperate to maintain his near-perfect rating that he may have falsely imprisoned one of his passengers, refusing to let her exit his car unless she gave him a five-star rating, then and there.

Though the passenger rightfully did not want Marat accessing her phone, she ultimately made the safest choice in allowing Marat to do something arbitrary and ineffective—rate himself. After Marat gave himself five stars, he allowed his passenger to leave his car.<sup>37</sup>

This is a great example of how the human element in ride-share services never paints a fully clear picture.<sup>38</sup> While it is usually true that the higher rated driver equates to a better driver, this may not always be the case.<sup>39</sup> In this case, one may question how many times the driver, Marat, made other passengers do this.<sup>40</sup> These unknowns, as well as not knowing how many other drivers do this, can lead to the conclusion that driver ratings may be a baseline for correlation, but is never a guarantee, because of the human element.<sup>41</sup>

Ride-share companies have created extensive safety plans.<sup>42</sup> However, none can possibly prevent problems entirely, because the human factor is still there. Uber drivers and many ride-share companies’ drivers are independent contractors and are not vetted as well as taxi-drivers.<sup>43</sup> While it is great that ride-share companies detail plans for rider’s safety, it is also a huge hassle to go through lots of steps for a simple ride from point A to point B.<sup>44</sup>

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<sup>36</sup> Dan Mattia, *4 Ways Riders Can Escape from Creepy Uber Drivers*, THE ZEBRA (Feb. 15, 2018), <https://www.thezebra.com/insurance-news/5557/riders-escape-creepy-uber-drivers/>.

<sup>37</sup> *Id.*

<sup>38</sup> *See id.*

<sup>39</sup> *See id.*

<sup>40</sup> *Id.*

<sup>41</sup> *Id.*

<sup>42</sup> Uber, *Protect your safety while riding with Uber*, <https://www.uber.com/us/en/ride/safety/tips/>, 2019 (last visited Dec. 21, 2019).

<sup>43</sup> Rachael R. Hyde, *Is Uber Safer Than a Regular Taxi?*, INVESTOPEDIA (Aug. 11, 2019), <https://www.investopedia.com/articles/professionals/102815/uber-safer-regular-taxi.asp>.

<sup>44</sup> Mattia, *supra* note 36.

## II. THE NEED FOR DRIVERLESS TECHNOLOGY

There is a significant issue with avoidable car crashes due to human-driver error.<sup>45</sup> In 2015, 94% of car crashes were due to human error.<sup>46</sup> According to the Association for Safe International Road Travel, approximately 1.25 million people per year die in vehicle crashes, costing the United States over \$230 billion every year.<sup>47</sup> This is a significant issue, because predictions show that by the year 2030, such crashes will be the fifth leading cause of death of U.S. citizens.<sup>48</sup>

There are many safety benefits to eliminating human error and implementing driverless technology. The most obvious benefit is saving lives.<sup>49</sup> Fewer deaths equate to a reduction of medical costs,<sup>50</sup> as well as a reduced burden on emergency response teams.<sup>51</sup> From a technological standpoint, the sensors in self-driving cars are always observing, and do not get tired, sleepy, angry, or distracted like all humans do at some point.<sup>52</sup> The reduction of human error could possibly reduce the total number of car crashes in the United States by 80% in the next twenty to twenty-five years.<sup>53</sup>

There are also many societal benefits to eliminating human error and implementing driverless technology. People who are not able to drive due to a physical disability, age, or comfortability will be able to get a car.<sup>54</sup> Further, with less congestion on the road, the average time saved by commuters could be as high as 50 minutes per day.<sup>55</sup> People will no longer have to fight over parking spaces as much as they do now because 5.7 billion square meters of parking space could be freed up in the United States.<sup>56</sup> Land owners could potentially convert unused parking spaces into green spaces to influence a positive

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<sup>45</sup> See, e.g., National Highway Traffic Safety Administration, *Critical Reasons for Crashes Investigated in the National Motor Vehicle Crash Causation Survey*, TRAFFIC SAFETY FACTS, Feb. 2015, available at <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812115> (last visited Dec. 21, 2019).

<sup>46</sup> See, e.g., *id.*

<sup>47</sup> Association for Safe International Road Travel, *Annual Global Road Crash Statistics*, ROAD SAFETY FACTS (2019), <https://www.asirt.org/safe-travel/road-safety-facts> (last visited Dec. 21, 2019).

<sup>48</sup> *Id.* Currently, such crashes are the ninth leading cause of death of US citizens. *Id.*

<sup>49</sup> Caitlin Brock, Comment, *Where We're Going, We Don't Need Drivers: The Legal Issues and Liability Implications of Automated Vehicle Technology*, 83 UMKC L. Rev. 769, 770 (2015).

<sup>50</sup> *Id.*

<sup>51</sup> The Franklin Institute, *The Science of Self-Driving Cars*, Aug. 1, 2016, available at <https://www.fi.edu/science-of-selfdriving-cars> (last visited Dec. 21, 2019).

<sup>52</sup> *Id.*

<sup>53</sup> CHARLES GLUCKSTEIN, PREPARING FOR THE FUTURE OF MOTOR VEHICLE LITIGATION AND AUTONOMOUS CARS, AMERICAN ASSOCIATION FOR JUSTICE PAPERS (2016).

<sup>54</sup> The Franklin Institute, *supra* note 51.

<sup>55</sup> GLUCKSTEIN, *supra* note 53. The global aggregate would equate to \$1 billion per day. *Id.*

<sup>56</sup> *Id.*

environmental effect.<sup>57</sup> Benefits of more efficient driving include better fuel efficiency, generally lower emissions, and less traffic congestion on the roads.<sup>58</sup> Moreover, all of the self-driving vehicles contain “black boxes,” that record and transmit driver and car information, often on video.<sup>59</sup> The information contained in these “black boxes” have become increasingly more useful in lawsuits, and may help the courts settle criminal and civil cases more efficiently.<sup>60</sup>

#### A. *Driverless Technology*

Self-driving technology has come a long way since cruise control was invented in the 1940’s.<sup>61</sup> Many different companies are heavy lifters in the fully-autonomous car market, each with unique technology.<sup>62</sup> With current technology, futuristic self-driving car scenes from science-fiction movies are not fiction anymore.<sup>63</sup> Specifically, these vehicles “use cameras, lasers, GPS, lidar, radar, and other types of sensory input technologies for the computers to scan and understand the surrounding environment.”<sup>64</sup> The results of the scan identify vehicles as well as other objects, allowing the car to drive safely.<sup>65</sup> Google uses lidar, a radar technology that uses light waves to sensor the surrounding environment.<sup>66</sup> Google is using Toyota and Audi vehicles to test its technology,<sup>67</sup> and their cars do not even have steering wheels or foot pedals.<sup>68</sup> Most popular, Tesla has an autopilot system, that uses “eyes,” which are high-tech sensors that scan the surroundings.<sup>69</sup> Ford is set to release a fully-autonomous version of its famous Mustang called the “MACH-E,” which uses an autopilot program called “Ford Co-Pilot 360.”<sup>70</sup>

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<sup>57</sup> *Id.*

<sup>58</sup> Brock, *supra* note 49.

<sup>59</sup> See GLUCKSTEIN, *supra* note 53.

<sup>60</sup> *Id.*

<sup>61</sup> Conrad A. Bulcher, Jr., *Where We’re Going, We Don’t Need Drivers*, 19 Loy. J. Pub. Int. L 1, 3 (2017).

<sup>62</sup> See *id.*; Jacob D. Walpert, Note, *Carpooling Liability?: Applying Tort Law Principles to the Join Emergence of Self-Driving Automobiles and Transportation Network Companies*, 85 Fordham L. Rev. 1863 (2017); Alyssa Vallar, Comment, *Robots on the Road: Fourth Amendment Implications of Stopping and Searching an Autonomous Vehicle*, 26 Geo. Mason L. Rev. 587, 595 (2018); The Franklin Institute, *supra* note 51.

<sup>63</sup> The Franklin Institute, *supra* note 51.

<sup>64</sup> Bulcher, Jr., *supra* note 61.

<sup>65</sup> *Id.*

<sup>66</sup> The Franklin Institute, *supra* note 51.

<sup>67</sup> Walpert, *supra* note 62.

<sup>68</sup> The Franklin Institute, *supra* note 51.

<sup>69</sup> *Id.*

<sup>70</sup> FORD, <https://www.ford.com/suvs/mach-e/2021/> (last visited Dec. 21, 2019).

### 1. *Current Developments with Driverless Technology in the Ride-share Market*

Ride-share companies, including Uber and Lyft, are testing autonomous vehicles in the ride-share market. Specifically, Ford and Volvo have partnered with Uber to develop and test autonomous vehicles in Pennsylvania, California, and Arizona.<sup>71</sup> In 2015, General Motors invested \$500 million in Lyft to design a network of autonomous ride-share vehicles.<sup>72</sup> In 2016, Ford announced its plans to “introduce fully autonomous vehicles for ride-hailing or ride-sharing services as early as 2021.”<sup>73</sup>

Ride-share market developments with autonomous vehicles are not without roadblocks, however. Uber ran into issues in California when it tried to test its autonomous vehicles and was stopped by the California Department of Motor Vehicles because its cars did not have a special permit.<sup>74</sup> Uber tried to distinguish its situation from the California laws by claiming that its cars had a licensed driver in the vehicle to operate the vehicle if necessary, similar to Tesla’s autopilot vehicles, and was granted a license in March 2017 to perform testing.<sup>75</sup>

Lyft has found great success in its Aptiv program with autonomous ride-share vehicles in Las Vegas, Nevada.<sup>76</sup> Although the Aptiv vehicles have a licensed driver in the front seat to take over if necessary, the autonomous vehicles have completed over 50,000 rides.<sup>77</sup> During Aptiv’s 2019 second quarter earnings call, it announced its plan is to have completely autonomous ride-share vehicles without safety drivers for testing purposes in late 2020.<sup>78</sup> This will be a game changer. With this plan, in the near future you can be picked up by a 5-series BMW Aptiv vehicle, sit down, and have the car take over without any driver in the vehicle. Further, Lyft has announced that they have plans for “purpose-built” driverless vehicles in the coming years, with focus on

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<sup>71</sup> Jordan Golson, *Volvo and Uber ink deal to develop ‘base vehicles’ for autonomous cars*, THE VERGE (Aug. 18, 2016, 5:46 PM), <http://www.theverge.com/2016/8/18/12541672/uber-volvo-partnership-autonomous-self-driving-car>.

<sup>72</sup> Mike Isaac, *General Motors, Gazing at Future, Invests \$500 Million in Lyft*, N.Y. TIMES (Jan. 4, 2016), <https://www.nytimes.com/2016/01/05/technology/gm-invests-in-lyft.html>.

<sup>73</sup> Vallar, *supra* note 62.

<sup>74</sup> Bulcher, Jr., *supra* note 61.

<sup>75</sup> *Id.*

<sup>76</sup> See Korosec, *supra* note 4.

<sup>77</sup> *Id.*

<sup>78</sup> *Q2 2019 Aptiv PLC Earnings Call – Final*, FAIR DISCLOSURE WIRE, July 2019.

long-haul travel.<sup>79</sup> More details are unknown, but it will be interesting to see how refueling and pricing will be handled when the time comes.

## 2. *Problems with the Technology*

Self-driving technology will certainly save lives, but the technology is not perfect. For example, recently the driver of a Tesla released an alarming video of an issue with the auto-pilot system.<sup>80</sup> There was a temporary concrete barrier on a highway, forcing a merge; the autopilot did not register the barrier and thought the lane was continuous, smashing into the barrier.<sup>81</sup> Another similar scenario occurred, but the human corrected it quickly so it did not crash.<sup>82</sup> While human error is the leading cause of crashes, driverless cars will not fix other causes of accidents such as pedestrians, road conditions, weather, and vehicle defects.<sup>83</sup>

A major problem with the technology is with ethical issues that arise from not having a human in control of the vehicle.<sup>84</sup> Driving may be straightforward in decision-making most of the time, but sometimes the driver must make a no-win decision from factors out of its control.<sup>85</sup> Journalist Caroline Lester succinctly describes the issue:

[Fully-autonomous cars] would drive as well as or better than humans, smoothly adapting to rapid changes in their environments, like swerving cars or stray pedestrians. This would require the vehicles to make value judgments, including in versions of a classic philosophy thought experiment called the trolley problem: if a car detects a sudden obstacle—say, a jackknifed truck—should it hit the truck and kill its own driver, or should it swerve onto a crowded sidewalk and kill pedestrians? A human driver might react randomly (if she has time to react at all), but the response of an autonomous vehicle would have to be programmed ahead of time.<sup>86</sup>

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<sup>79</sup> Siddiqui & Bensinger, *supra* note 23.

<sup>80</sup> See Scott Kubo, *Tesla Autopilot Drives Straight Towards Concrete Barrier on Highway*, YOUTUBE (Nov. 8, 2019), <https://www.youtube.com/watch?v=fKyUqZDYwrU&t=151s>.

<sup>81</sup> *See id.*

<sup>82</sup> *Id.*

<sup>83</sup> GLUCKSTEIN, *supra* note 53.

<sup>84</sup> See Caroline Lester, *A Study on Driverless-Car Ethics Offers a Troubling Look Into Our Values*, THE NEW YORKER, Jan. 24, 2019, available at <https://www.newyorker.com/science/elements/a-study-on-driverless-car-ethics-offers-a-troubling-look-into-our-values?verso=true> (last visited Dec. 21, 2019).

<sup>85</sup> *See id.*

<sup>86</sup> *See id.*

For example, assume you are in a self-driving vehicle. Another car on the road swerves over and runs you off the road, forcing a decision to hit a wall or a pole. Hitting the wall will most likely damage the vehicle more; however, there is a pedestrian standing in front of the pole. As of now, self-driving cars are not equipped to make this choice,<sup>87</sup> and it is an ethical dilemma whether technology should make such a choice at all. The head of BMW marketing and sales, Ian Robertson, describes current self-driving technology as “hands off and eyes off.”<sup>88</sup> The next stage of technology will be “driver off, brain off,” when and if these ethical issues are accounted for.<sup>89</sup>

In 2016, MIT conducted a study to see how people thought cars should act in situations involving an ethical dilemma.<sup>90</sup> Essentially, MIT asked people who the car should kill in a no-win situation.<sup>91</sup> Scholars have debated how to best handle ethical issues that are implicated by driverless technology:

A team of researchers from University of Bologna, Italy, for instance, proposed outfitting self-driving cars with an “ethical knob” that lets riders control how selfishly the vehicle will behave during an accident. In the U.S., Nicholas Evans, philosophy professor at the University of Massachusetts, says the first question people should ask themselves is: How do we value and how should we value lives? Studying ways to make driverless vehicles capable of making ethical decisions, he said, forces us to confront uncomfortable realities about subjective versus objective ethics. In other words, what happens when you are the person in the car? “You could program a car to minimize the number of deaths or life-years lost in any situation, but then something counter-intuitive happens. When there’s a choice between a two-person car and you alone in your self-driving car, the result would be to run you off the road,” Evans explains on University of Massachusetts website.

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<sup>87</sup> GLUCKSTEIN, *supra* note 53.

<sup>88</sup> Patrick McGee, *BMW marks journey from WW1 aero engines to luxury car leader*, FINANCIAL TIMES (Mar. 6, 2016), <https://www.ft.com/content/701fe9fa-e1f4-11e5-9217-6ae3733a2cd1>.

<sup>89</sup> *See id.*; GLUCKSTEIN, *supra* note 53.

<sup>90</sup> Pragati Verma, *What Moral Code Should Your Self-driving Car Follow?*, DELL TECHNOLOGIES (June 19, 2018), [https://www.delltechnologies.com/en-us/perspectives/what-moral-code-should-your-self-driving-car-follow/?mkwid=s7TXDXVhW&pclid=307950998863&pkw=&pmt=b&pdv=c&slid=&product=&pgrid=48687302552&ptaid=dsa-826091099273&VEN1=s7TXDXVhW,307950998863,901qz26673,c,,48687302552,dsa-826091099273&VEN2=b,cid=314879&lid=5960351&dgc=st&dgseg=COM&acd=12309215337205632&CID=314879&st=&gclid=EAIAIQobChMIstff1-\\_F5gIVhMDACh2pXQxSEAAAYAiAAEgIWrfD\\_BwE&LID=5960351&ptaid=dsa-826091099273&VEN1=s7TXDXVhW%2C307950998863%2C901qz26673%2Cc%2C%2C%2C48687302552%2Cdsa-826091099273&VEN2=b%2C&pgrid=48687302552&dgc=st&dgseg=cbg&acd=12309215337205632&VEN3=811705212577070646](https://www.delltechnologies.com/en-us/perspectives/what-moral-code-should-your-self-driving-car-follow/?mkwid=s7TXDXVhW&pclid=307950998863&pkw=&pmt=b&pdv=c&slid=&product=&pgrid=48687302552&ptaid=dsa-826091099273&VEN1=s7TXDXVhW,307950998863,901qz26673,c,,48687302552,dsa-826091099273&VEN2=b,cid=314879&lid=5960351&dgc=st&dgseg=COM&acd=12309215337205632&CID=314879&st=&gclid=EAIAIQobChMIstff1-_F5gIVhMDACh2pXQxSEAAAYAiAAEgIWrfD_BwE&LID=5960351&ptaid=dsa-826091099273&VEN1=s7TXDXVhW%2C307950998863%2C901qz26673%2Cc%2C%2C%2C48687302552%2Cdsa-826091099273&VEN2=b%2C&pgrid=48687302552&dgc=st&dgseg=cbg&acd=12309215337205632&VEN3=811705212577070646).

<sup>91</sup> *Id.*

“People are much less likely to buy self-driving vehicles if they think theirs might kill them on purpose and be programmed to do so.”<sup>92</sup>

In sum, it is widely recognized that these ethical dilemmas with the technology will cause problems. However, it is unknown how cars and the technology will be programmed to handle these dilemmas. It is also unknown how long it will take to improve this issue, if at all. Self-driving cars may be able to purely “drive” better than most humans, but there are many questions to be answered concerning programming cars to have an ethical framework. Only time will tell how these will be handled and societies reaction.

### III. DRIVERLESS TECHNOLOGY LAWS

The laws that govern autonomous vehicles are inconsistent and haphazard to say the least. The one thing that the industry needs most—a solid base of laws and regulations that govern its operations—do not exist. Instead, many states have enacted legislation that impose a variety of requirements on autonomous vehicles that are very likely to present a problem to the ride-share industry in the future. This section begins by exploring one overarching governing body of guidelines, a table of standards adopted by the Department of Transportation and the National Highway Traffic Safety Administration. It then discusses some of the various nuances in state laws to point out just how many differences exist among the states. It then focuses on Nevada state law, where Aptiv exists, to highlight how one “progressive” state’s laws operate.

#### A. General Laws

In 2016, the Society of Automotive Engineers established industry standards to govern the development of autonomous vehicles.<sup>93</sup> These standards have been adopted by the Department of Transportation and the National Highway Traffic Safety Administration.<sup>94</sup> The standards establish six total levels of automation ranging from “no automation” to “full automation.”<sup>95</sup> Here is a chart showing all of the levels, with most of the commentary by Ford’s Director of Autonomous Vehicle Research, Randal Visintainer.<sup>96</sup>

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<sup>92</sup> *Id.*

<sup>93</sup> See Bulcher, Jr., *supra* note 61.

<sup>94</sup> Jack Karsten & Darrell West, *The state of self-driving car laws across the U.S.*, BROOKINGS (May 1, 2018), <https://www.brookings.edu/blog/techtank/2018/05/01/the-state-of-self-driving-car-laws-across-the-u-s/>.

<sup>95</sup> See Bulcher, Jr., *supra* note 61.

<sup>96</sup> *Autonomous Vehicles 101*, FORD (2019), [https://www.at.ford.com/content/dam/atford/fna/images/articles/2016/08/Levels%20of%20Autonomy\\_FINAL.pdf?logActivity=true](https://www.at.ford.com/content/dam/atford/fna/images/articles/2016/08/Levels%20of%20Autonomy_FINAL.pdf?logActivity=true) (last visited Nov. 30, 2019).

<u>LEVEL</u>	<u>DESCRIPTION</u>	<u>EXAMPLES OF TECHNOLOGY</u>
<b>Level 0: No Automation</b>	“Full-time driver performance is executed by the human driver in all aspects of the dynamic driving task, even when enhanced by warning or intervention systems.” <sup>97</sup>	<ul style="list-style-type: none"> <li>• Lane-Departure warnings.<sup>98</sup></li> <li>• Forward-Collision warning systems.<sup>99</sup></li> </ul>
<b>Level 1: Driver Assistance</b>	“Driving mode-specific execution by a driver assistance system of either steering or acceleration and deceleration, using information about the driving environment, with the expectation that the human driver perform all remaining aspects of the dynamic driving task.” <sup>100</sup> This is where the “system provides latitudinal and longitudinal control, but the driver is still in control.” <sup>101</sup>	<ul style="list-style-type: none"> <li>• Park-Assist features.<sup>102</sup></li> <li>• Intelligent Cruise Control.<sup>103</sup></li> </ul>
<b>Level 2: Partial Automation</b>	“Driving mode-specific execution by one or more driver assistance systems of both steering and acceleration or deceleration, using information about the driving environment and with the expectation that	<ul style="list-style-type: none"> <li>• Traffic Jam Assists, which combines “adaptive cruise control with a lane-keeping system to keep the vehicle centered in the lane and managing braking and acceleration to keep pace with the vehicle in front of it.”<sup>106</sup></li> </ul>

<sup>97</sup> *Id.*<sup>98</sup> *Id.*<sup>99</sup> *Id.*<sup>100</sup> *Id.*<sup>101</sup> *Id.*<sup>102</sup> *Id.*<sup>103</sup> WAYMO, <https://waymo.com/> (last visited Feb. 10, 2020); TRUECAR ADVISER, *The 5 Levels of Autonomous Vehicles* (Mar. 5, 2018), <https://www.truecar.com/blog/5-levels-autonomous-vehicles/> (Feb. 10, 2020).<sup>106</sup> *Id.*

	the human driver perform all remaining aspects of the dynamic driving task.” <sup>104</sup> This level “involves continuous latitudinal and longitudinal control by the system.” <sup>105</sup>	
<b>Level 3: Conditional Automation</b>	“Driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task, with the expectation that the human driver will respond appropriately to a request to intervene.” <sup>107</sup> In Level 3, the driver is “still in control of the vehicle and must be able to take over if there is a fault or failure in the autonomous vehicle system.” <sup>108</sup>	<ul style="list-style-type: none"> <li>• Audi plans to sell the first Level 3-capable vehicle in their A8 model but is awaiting legal approval.<sup>109</sup></li> </ul>
<b>Level 4: High Automation</b>	“Driving mode-specific performance by an automated driving system of all aspects of the dynamic driving task, even if a human driver does not respond appropriately to a request to intervene.” <sup>110</sup> In level 4, the driver is no longer in control and is not required to be in	<ul style="list-style-type: none"> <li>• Waymo is testing out their new Level 4 product, a self-driving taxi service.<sup>113</sup></li> </ul>

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<sup>104</sup> FORD, *supra* note 96.

<sup>105</sup> *Id.*

<sup>107</sup> *Id.*

<sup>108</sup> *Id.*

<sup>109</sup> Kyle Hyatt & Chris Paukert, *Self-driving cars: A level-by-level explainer of autonomous vehicles*, CNET (Mar. 29, 2018 1:13 PM) <https://www.cnet.com/roadshow/news/self-driving-car-guide-autonomous-explanation/>.

<sup>110</sup> FORD, *supra* note 96.

<sup>113</sup> *See* WAYMO, *supra* note 103.

	control.” <sup>111</sup> Level 4 is “limited by the conditions that the vehicle sensors can operate in.” <sup>112</sup>	
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Many states have passed legislation in anticipation of the rising autonomous vehicle industry. California is one of the leading states on this front and has passed legislation that imposes strict regulations that industry manufacturers view as hindering technological advancements.<sup>114</sup> The California laws state that “autonomous vehicles shall not be operated on public roads until the manufacturer submits an application” to the California Department of Motor Vehicles and it is approved.<sup>115</sup> Specific rules under California law “range from storing data thirty seconds before a crash while the vehicle is in autonomous mode to automatically stopping if an operator does not take control when a hazard is detected.”<sup>116</sup> California also forbids manufacturers from testing fully autonomous vehicles on public roads.<sup>117</sup> One recent development in California is that the state Department of Motor Vehicles issued a permit to Uber allowing self-driving cars on the road, signaling a potential regulatory shift in the enforcement of state law.<sup>118</sup> Other states, including Arizona, Texas, Michigan, and Florida, are known as safe havens for manufacturers of autonomous vehicles because these states require no special licenses or permits to test autonomous vehicle technology.<sup>119</sup>

States have different laws relating to different aspects of what it means to “operate” self-driving cars.<sup>120</sup> The definition of “vehicle operator” in Tennessee is liberal and points to the autonomous driving system itself rather than a human operator.<sup>121</sup> Texas, on the other hand, requires a “natural person” to be riding in the vehicle to qualify as an “operator.”<sup>122</sup> Somewhere in the middle, Georgia

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<sup>111</sup> *Id.*

<sup>112</sup> *Id.*

<sup>114</sup> *See* Bulcher, Jr., *supra* note 61..

<sup>115</sup> *See id.*

<sup>116</sup> *Id.*

<sup>117</sup> *See id.*

<sup>118</sup> BBC, *Uber self-driving cars allowed back on California roads*, BBC (Feb. 5, 2020), <https://www.bbc.com/news/technology-51393808>.

<sup>119</sup> *See* Bulcher, Jr., *supra* note 61.

<sup>120</sup> Karsten & West, *supra* note 94.

<sup>121</sup> *Id.*

<sup>122</sup> *Id.*

does not require that an operator be in the vehicle—acknowledging remote operators who cause the autonomous driving system to engage.<sup>123</sup>

Federally, there are few statutes and regulations that govern autonomous vehicles, but that does not mean that Congress has not attempted to regulate the industry. In December 2018, Congress considered a bill that, if passed, would have governed self-driving cars.<sup>124</sup> The bill, called AV START, would have supported the increased use of autonomous vehicles for more widespread use and would have “laid out a path for the Department of Transportation to issue large numbers of exemptions from current safety standards for autonomous vehicles.”<sup>125</sup> The bill was largely welcomed by automakers and autonomous vehicle technology companies because it would have provided a common ground nationwide for the emerging autonomous vehicle industry to have the regulatory backing it needs to be successful in every state. Unfortunately, the bill did not survive the Senate after being passed by the house, leaving individual state laws in charge of regulating autonomous vehicles for each particular state.<sup>126</sup>

Pennsylvania, like California, is also known for its stringent rules governing autonomous vehicles.<sup>127</sup> Specifically, under its current and proposed statutes, Pennsylvania requires autonomous vehicle manufacturers and potential ride-share companies testing autonomous vehicles to provide the state government with information about the company as well and documentation providing proof of the certified operator that has received specialized training, and information about “the anticipated routes or geographic areas of testing.”<sup>128</sup> Taken together, Pennsylvania’s stringent requirements on testing autonomous vehicles suggests that it will be similarly strict with any potential future laws that regulate the use of autonomous vehicles in the ride-share industry.

In 2017, thirty-three states introduced various pieces of legislation that dealt with autonomous vehicles, but in 2018, only fifteen states enacted autonomous vehicle-related bills into law.<sup>129</sup> The unpredictable and haphazard nature of

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<sup>123</sup> Karsten & West, *supra* note 94.

<sup>124</sup> Aarian Marshall, *Who’s Regulating Self-Driving Cars? Often, No One*, WIRED (Nov. 27, 2019), <https://www.wired.com/story/regulating-self-driving-cars-no-one/>.

<sup>125</sup> Stephen Lawson, *AV Start Is Dead, but Feds Have Given an Inch on Regulation*, TU AUTOMOTIVE (Dec. 20, 2018), <https://www.tu-auto.com/av-start-is-dead-but-feds-have-given-an-inch-on-regulation/>.

<sup>126</sup> Marshall, *supra* note 127.

<sup>127</sup> *Id.*

<sup>128</sup> Margaret J. Krauss, *PennDOT announces new regulations for testing self-driving vehicles*, WHY? (Apr. 9, 2018), <https://why.org/articles/penn-dot-announces-new-regulations-for-testing-self-driving-vehicles/>.

<sup>129</sup> NATIONAL CONFERENCE OF STATE LEGISLATURES, *Autonomous Vehicles | Self-Driving Vehicles*

various states having different laws governing autonomous vehicles is a significant hurdle to streamlining the use of autonomous vehicles in the ride-share market. Companies as large as Uber and Lyft cannot practically sustain a business that requires them to remain fully abreast of each particular state's laws and comply fully with every state's specific, and sometimes nuanced requirements to operate an autonomous vehicle in the state. Instead, having a single federal lawmaking body, such as a federal agency, that is charged with overseeing and regulating the burgeoning autonomous vehicle industry would provide the regulatory stability that manufacturers and ride-share companies alike need to be able to profitably advance their industry in the future. In the same way that many federal agencies lead the way and govern the entirety of various fields of law, laws governing autonomous vehicles should be no different. The simple fact of the matter is that companies are hesitant to invest a significant amount of time and money into a large-scale autonomous vehicle networks unless they can be assured that they can actually profit on the time and money someday. The current climate of laws and regulations governing the autonomous vehicle - and the ride-share - industry does not provide companies with the assurance they need to be able to fully invest in the future.

#### *B. Nevada Laws and Aptiv*

Nevada was the first state to pass legislation allowing autonomous vehicle testing to move forward.<sup>130</sup> In 2011, Nevada passed Assembly Bill 511 requiring the Department of Motor Vehicles to address the burgeoning autonomous vehicle industry by considering and passing laws and regulations to govern it, including adopting a driver's license endorsement for the operators of autonomous vehicles.<sup>131</sup>

Nevada is widely regarded as a state of "firsts" in the autonomous vehicle world.<sup>132</sup> In September 2016, Nevada issued the "nation's first autonomous vehicle-restricted driver's license to a quadriplegic man, who drives a modified Corvette using just his voice, head[,] and breath to steer, accelerate[,] and brake."<sup>133</sup>

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*Enacted Legislation*, NCSL (Oct. 9, 2019), <https://www.ncsl.org/research/transportation/autonomous-vehicles-self-driving-vehicles-enacted-legislation.aspx>.

<sup>130</sup> Stinnesbeck, *supra* note 2.

<sup>131</sup> *Id.*

<sup>132</sup> Sean Slone, *Las Vegas Transportation Session Highlights Nevada "Firsts," Autonomous Vehicles*, THE COUNCIL OF STATE GOVERNMENTS (Jan. 16, 2018, 2:27 PM), <https://knowledgecenter.csg.org/kc/content/las-vegas-transportation-session-highlights-nevada-firsts-autonomous-vehicles>.

<sup>133</sup> *Id.*

Clearly, Nevada’s aggressive legislation is trying to attract the autonomous vehicle industry into the state.<sup>134</sup> For instance, Assembly Bill 69, passed during the 2017 Legislative Session, authorizing fully autonomous vehicles to be operated on Nevada highways so long as certain safety measures are taken.<sup>135</sup> Under the bill:

[T]he fully autonomous vehicle must be capable of detecting a failure or malfunction of the autonomous driving system and responding to such a situation by getting the vehicle to safely stop or otherwise achieve a reasonable safe state. Assembly Bill 69 also authorizes the testing and use of driver-assistive platooning technology within the State. This technology enables two or more vehicles to travel on a highway at electronically coordinated speeds in a unified manner and follow each other at a distance that is closer than would be reasonable and prudent without the use of the technology.<sup>136</sup>

Significantly, Assembly Bill 69 also prohibits local governments from taxing any “autonomous driving system or autonomous vehicle.”<sup>137</sup> It also “extends immunity from liability for damages caused by modification by an unauthorized third party to the original manufacturer or developer of an autonomous driving system.”<sup>138</sup> It is unclear whether this immunity extends to “outsiders,” “manufacturers,” or both. Legislators or the courts will have to speak to this. Last, Assembly Bill 69 enables the Nevada Transportation Authority to establish “autonomous vehicle network companies” to address issues such as regulation, insurance, and taxation “in a manner generally consistent with transportation network companies such as Uber or Lyft.”<sup>139</sup>

Nevada has been actively promoting the use of self-driving electric cars.<sup>140</sup> In 2015, the Nevada Electric Highway was unveiled by Governor Brian Sandoval and Rudy Malfabon, Committee Vice Chair Director of the Nevada Department of Transportation.<sup>141</sup> This is a whole network of charging stations along a major highway connecting Las Vegas and Reno, in order to make it easier to make the long, boring, sparsely populated drive between Nevada’s major cities.<sup>142</sup>

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<sup>134</sup> Stinnesbeck, *supra* note 2.

<sup>135</sup> *Id.*

<sup>136</sup> *Id.*

<sup>137</sup> *Id.*

<sup>138</sup> *Id.*

<sup>139</sup> *Id.*

<sup>140</sup> Slone, *supra* note 135.

<sup>141</sup> *Id.*

<sup>142</sup> *Id.*

Since then, Malfabon's department has identified a number of other alternate fuel corridors to the Federal Highway Administration. The Governor's Office of Energy and power company NV Energy have sought to entice business owners to put in charging stations. State officials are also working with a private partner to deploy portable, solar-powered charging stations. And in 2017, Sandoval was one of the Western governors who signed a memorandum of understanding to create a regional network of electric vehicle recharging stations.<sup>143</sup>

The largest city in Nevada, Las Vegas, is considered to be a large innovation district as well.<sup>144</sup> Las Vegas has been installing sensors throughout the city, in order to communicate with a driverless shuttle.<sup>145</sup> The shuttle is free for tourists and has been a big hit.<sup>146</sup> The shuttle is fully-autonomous and relies on cameras, radar, laser rangefinders, and GPS to make sound driving decisions.<sup>147</sup> However, on its debut, it was involved in a crash.<sup>148</sup> The shuttle was actually stopped, and the driver of a truck who was backing into an alley hit the shuttle.<sup>149</sup> This was due to human error and shows that while we are still in the transition phase from humans driving to self-driving cars, crashes due to human error will still be prevalent.<sup>150</sup>

#### IV. RIDE-SHARE COMPANIES SHOULD EMBRACE FULLY AUTONOMOUS VEHICLES

Times are changing, and it is important that ride-share companies make a big effort to embrace fully autonomous vehicles and make it a new focus of their business models. While change does not happen overnight, there are already many known benefits.<sup>151</sup> First, the number of accidents will lower.<sup>152</sup> This will likely save ride-share companies money by not having to deal with settlements,

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<sup>143</sup> *Id.*

<sup>144</sup> *Id.*

<sup>145</sup> *Id.*

<sup>146</sup> Jay Jones, *Now you can ride a driverless shuttle in Las Vegas, for free*, LOS ANGELES TIMES (Jan. 1, 2018, 6:00 AM), <https://www.latimes.com/travel/deals/la-tr-las-vegas-first-driverless-shuttle-to-loop-the-city-20171228-story.html>.

<sup>147</sup> *Id.*

<sup>148</sup> *Id.*

<sup>149</sup> Slone, *supra* note 135.

<sup>150</sup> *Id.*

<sup>151</sup> *See, e.g.*, Liane Yvkoff, *Updated: Ubers and Lyfts May Increase Road Deaths, Study Claims*, FORBES (Oct. 23, 2018), <https://www.forbes.com/sites/lianeyvkoff/2018/10/23/ubers-and-lyfts-cause-congestion-in-cities-they-may-also-increase-fatalities/#51cd14c487f7>.

<sup>152</sup> *See id.*; Mick Akers, *Driverless vehicle programs see 3 accidents in 32,000 trips*, LAS VEGAS SUN (Sept. 5, 2019 2:00 AM), <https://lasvegassun.com/news/2018/sep/05/driverless-vehicle-programs-see-3-accidents-in-320/> (last visited Feb. 10, 2020).

litigation, and possible repairs.<sup>153</sup> Second, the transition from human drivers to self-driving cars will reduce crime and bad press for the companies.<sup>154</sup> Removing this element will allow ride-share companies to appeal to more people without the fear of dealing with human drivers.<sup>155</sup> Last, this is a win-win for passengers and ride-share companies. It will make passengers happier, save lives, and make the ride-share business thrive.

#### A. *Reduced Number of Accidents and Lower Settlement Costs*

If there are more self-driving cars on the road, there will be less accidents.<sup>156</sup> In general, it will be safer to be on the road, safer to be a pedestrian, and certainly safer to be a passenger in a ride-share vehicle.<sup>157</sup> Over one million people die every year in vehicle crashes, costing the United States over \$230 billion every year.<sup>158</sup> Currently, when ride-share companies begin doing business in a city, there is a net increase of about two to four percent in fatal auto collisions.<sup>159</sup> If ride-share companies start adapting their business models to include self-driving cars, it is doubtful that they will continue to have negative safety impacts on new cities.

A natural extension of a discussion about reducing the number of accidents is a discussion about reducing costs associated with litigation and settlement of claims associated with accidents. Litigation costs quickly add up and can create a significant expenditure of company resources, especially considering the number of accidents that ride-share drivers in companies the size of Uber and Lyft are involved in. Luckily, in the interest of saving money and conserving judicial economy, most of these cases settle out of court in exchange for keeping riders quiet about their potential claims. There is no way of telling just how many cases against Uber settle, but a quick search on LexisNexis reveals thousands of cases. Although it is impossible to obtain a specific number, ride-share companies spend a fortune on accident settlements.

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<sup>153</sup> See Cyrus Farivar, *Uber to pay \$20M settlement to drivers, which one expert sees as 'mostly a win for Uber'*, MSNBC (Mar. 12, 2019 8:47 PM), <https://www.nbcnews.com/news/us-news/uber-pay-20m-settlement-drivers-which-one-expert-sees-mostly-n982561>.

<sup>154</sup> See, e.g., Warzel & Bhuiyan, *supra* note 26.

<sup>155</sup> See, e.g., *id.*

<sup>156</sup> See Yvkoff, *supra* note 154.; Akers, *supra* note 155.

<sup>157</sup> See Yvkoff, *supra* note 154.

<sup>158</sup> Association for Safe International Road Travel, *supra* note 47.

<sup>159</sup> Yvkoff, *supra* note 154.

There have been very few reports of accidents with Aptiv vehicles in Las Vegas.<sup>160</sup> Not only are they safer for riders, they are also safer for the general public and save the company money on settlements and other accident-related costs. While implementing self-driving cars will not be a complete “catch-all” solution, it will likely be a certain improvement. Such a solution will most likely raise new issues, such as ethical dilemmas with automated decision-making. However, there will never be a panacea to make the roads safer. No matter how much we automate the things around us, the human element will always be there. What is important is that the sensors in self-driving cars are always observing, and do not get tired, sleepy, angry, or distracted like all humans do at some point. The reduction of human error could possibly reduce the total number of car crashes in the United States by 80% in the next twenty to twenty-five years.<sup>161</sup> It is impossible to predict all the new safety issues self-driving cars will bring to the table nor the magnitude of these issues. It is too early to tell. What is known is that autonomous vehicles will definitely make roads safer for everyone and help ride-share companies thrive.

### *B. Reduced Crime*

Sexual assault and general crime has become increasingly common in the ride-share industry and will likely continue to increase in the future.<sup>162</sup> While Uber claims that it received only approximately 170 complaints of allegations of sexual assault and five complaints of allegations of rape between 2012 and 2015, BuzzFeed leaked statistics showing that over 5,000 support tickets contained the word “rape” in that timeframe.<sup>163</sup> It is also clear that ride-share driver culture may have a significant influence on this.<sup>164</sup> For instance, ride-share companies reward drivers who achieve near perfect ratings and admonish those who fall short, creating a competitive environment among drivers to protect their ability to continue driving and earning money.<sup>165</sup> The burgeoning autonomous ride-share influence will undoubtedly lessen risk of rider safety by eliminating the competitive culture among drivers.

First, by its very definition, fully autonomous vehicles will eliminate the potential for sexual harassment by drivers. Taking human drivers out of the equation completely will ensure a safer experience for riders. As a result, ride-

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<sup>160</sup> Akers, *supra* note 155.

<sup>161</sup> GLUCKSTEIN, *supra* note 53.

<sup>162</sup> Warzel & Bhuiyan, *supra* note 26.

<sup>163</sup> *Id.*

<sup>164</sup> See Mattia, *supra* note 36.

<sup>165</sup> *Id.*

share sexual assault and rape statistics will very likely decrease down to nearly zero incidents. There will always remain some human element though - for example when a rider opts to take a shared ride-share with a passenger who is a stranger in a carpool type ride.<sup>166</sup> This is a common cost saving measure for passengers and would be more unsafe than taking a solo ride in a self-driving car.<sup>167</sup> While the change to self-driving cars obviously will not stop the potential for crime among ride-share riders themselves, it will likely eliminate potential issues with inappropriate driver behavior.

Next, autonomous ride-share vehicles will likely also eliminate the risk of torts being committed by ride-share drivers against riders. For instance, in 2016, there were a handful of deaths attributed to ride-share drivers ranging from battery to accidental collisions with pedestrians and other vehicles on the road.<sup>168</sup> While autonomous vehicle technology is not perfect, the chances of a computer error are far less than the chances of a human error behind the wheel of a ride-share vehicle.<sup>169</sup> As such, the reported incidents of negligence and intentional torts against ride-share riders, ride-share drivers, and other vehicles and people on the road will significantly decrease with increased use of autonomous vehicles on the road.<sup>170</sup>

Last, and perhaps most common, incidents of ride-share driver harassment will decrease if the ride-share industry primarily relies on autonomous vehicles. In 2016, there were dozens of reported incidents of harassment of passengers by drivers.<sup>171</sup> The harassment ranged from verbal harassment to groping passengers.<sup>172</sup> Like above, these incidents would be eliminated when there is no longer a need for human drivers in the vehicles.

There also may be new criminal issues that arise from having all self-driving cars. In recent years, lawmakers have expressed concern over the potential for hackers to interfere with autonomous vehicles.<sup>173</sup> Specifically, the staff of

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<sup>166</sup> UBER, *UberPool*, <https://www.uber.com/us/en/ride/uberpool/> (last visited Feb. 10, 2020).

<sup>167</sup> *See id.*

<sup>168</sup> *See* THE EMBRY LAW FIRM, *Rideshare Accident Statistics that Drivers Need to Know*, <https://embrylawfirm.com/rideshare-accident-statistics-that-drivers-need-to-know/> (last visited Feb. 10, 2020).

<sup>169</sup> *See* Andrew J. Hawkins, *The world's first robot car death was the result of human error – and it can happen again*, THE VERGE (Nov. 20, 2019 2:23 PM) <https://www.theverge.com/2019/11/20/20973971/uber-self-driving-car-crash-investigation-human-error-results>.

<sup>170</sup> *See id.*

<sup>171</sup> Sara Ashley O'Brien, Nelli Black, Curt Devine, and Drew Griffin, *CNN investigation: 103 Uber drivers accused of sexual assault or abuse*, CNN BUSINESS (Apr. 30, 2018 5:43 PM), <https://money.cnn.com/2018/04/30/technology/uber-driver-sexual-assault/index.html>.

<sup>172</sup> *Id.*

<sup>173</sup> *See, e.g.*, GLUCKSTEIN, *supra* note 53.

Senator Edward Markey published a report, “Tracking & Hacking: Security & Privacy Gaps Put American Drivers at Risk,” that concluded that “nearly 100 percent of cars on the market include wireless technologies that could pose vulnerabilities to hacking or privacy intrusions.”<sup>174</sup> While the Report was not specific to the burgeoning autonomous ride-share industry, it raises important questions about what entity would be liable for insufficient protections against hackers.<sup>175</sup> It also raises questions about whether the technology used in autonomous ride-share vehicles should be regulated by the government to establish standards to protect against the threat of hackers.<sup>176</sup>

Many have also raised concerns about whether increased surveillance is necessary and how it comes at a cost with data security.<sup>177</sup> The more personalized ride-share companies make their autonomous ride-share experiences, the greater the potential for more individual data to be incorporated into their services.<sup>178</sup> Corporate collection and storage of personal data, including surveillance data from inside autonomous ride-share vehicles, begs the question: just how far can ride-share companies go without crossing legal privacy boundaries?

Scholars have suggested that autonomous vehicles may implicate Fourth Amendment concerns.<sup>179</sup> The identity of the “operator” of an autonomous ride-share vehicle raises issues about who has standing to challenge searches of the vehicle.<sup>180</sup> For purposes of criminal liability, the most important considerations with regard to the Fourth Amendment “are the so-called ‘operator’ provisions, which attempt to define who is the ‘driver’ or ‘operator’ of the [autonomous vehicle] and determine whether an individual does more than merely occupy the vehicle.”<sup>181</sup> Thus, if pulled over by law enforcement, it is not clear that passengers in autonomous ride-share vehicles would have standing to challenge any search or seizure of the vehicle.<sup>182</sup>

State law may give hints about how these situations could be handled. For instance, California follows traditional definitions of “operator” centered on who controls the vehicle, defining the “operator” as the individual who sits in

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<sup>174</sup> *Id.*

<sup>175</sup> *Id.*

<sup>176</sup> *Id.*

<sup>177</sup> *See id.*

<sup>178</sup> *See id.*

<sup>179</sup> *See, e.g.,* Vallar, *supra* note 62.

<sup>180</sup> *See id.*

<sup>181</sup> *Id.*

<sup>182</sup> *See id.*

the driver's seat or operates the autonomous technology.<sup>183</sup> Florida law similarly deems an operator as the person who causes an autonomous vehicle's technology to engage, regardless of whether that person is actually in the car when the ride is happening.<sup>184</sup> On the other hand, Nevada statutes create an exception for autonomous vehicles that operate in levels 4 or 5: "a natural person who causes the automated driving system of the fully autonomous vehicle to engage" is not the "driver" of the autonomous vehicle unless that person also owns the vehicle.<sup>185</sup> Under the Nevada exception, an autonomous ride-share company would be considered the "operator" of the vehicle and would therefore have standing to challenge any governmental searches or seizures of the vehicle.<sup>186</sup>

On the other end of the spectrum are states like Michigan and Tennessee, which permit autonomous vehicles to be operated without a human driver in the car at all.<sup>187</sup> Scholars have argued that passengers of such vehicles should have standing to challenge any searches because passengers likely have a reasonable expectation of privacy in the vehicle.<sup>188</sup> Therefore, as one scholar suggests, "Because a passenger can establish a reasonable expectation of privacy in an [autonomous vehicle], even an Uber [autonomous vehicle], he should not be denied standing to invoke the exclusionary rule to exclude evidence obtained through an illegal search of that [autonomous vehicle]."<sup>189</sup>

It is too early to tell exactly what issues will come up because the ride-share market is not very saturated with self-driving cars. While we can make good predictions, there are a lot of unknowns. Regardless of any new issues or unanswered questions, having self-driving cars will make the ride-share industry be safer than it is now.

### C. *The Pros Outweigh the Cons*

There is no hiding the ball: there are certainly going to be cons with the ride-

<sup>183</sup> See Cal. Veh. Code § 38750(a)(4) (West 2017).

<sup>184</sup> Fla. Stat. § 316.85(2) (2016) ("[A] person shall be deemed to be the operator of an autonomous vehicle operating in autonomous mode when the person causes the vehicle's autonomous technology to engage, regardless of whether the person is physically present in the vehicle while the vehicle is operating in autonomous mode."); see Ga. Code Ann. § 40-8-11 (2018) (suggesting that a person is always operating an autonomous vehicle).

<sup>185</sup> Nev. Rev. Stat. § 484A.080(3) (2017).

<sup>186</sup> *Id.*

<sup>187</sup> See Vallar, *supra* note 62.

<sup>188</sup> See *id.*

<sup>189</sup> *Id.*

share industry adopting a business model focused on fully autonomous vehicles. However, the benefits for the business, consumers, and sustainability of the industry outweigh the cons.

Currently, there are almost four million Uber drivers.<sup>190</sup> One big question with a transition to self-driving cars is the loss of jobs for ride-share drivers.<sup>191</sup> However, over 62% of Uber Drivers do not drive full-time.<sup>192</sup> While being replaced with a self-driving car will take away their method of making some extra cash outside their full-time job, there are plenty of alternatives for part-time work.<sup>193</sup> The transition to self-driving cars will be gradual and will allow ride-share drivers to explore other part-time alternatives. They possibly could also earn more than they would with driving in the first place, because half of the drivers earn less than ten dollars an hour currently.<sup>194</sup> In fact, the average monthly income for Uber drivers is about \$364 a month.<sup>195</sup> Further, the shift in the industry to self-driving cars should create a different type of job and ride-share companies should go out of their way to help create new jobs for the 38% of drivers who make driving their career.

While it is too soon to know, many types of new jobs could emerge and end up being excellent for the job market. For instance, if ride-share companies begin manufacturing their own fully autonomous cars, they will need to employ thousands of people to fill these jobs. Moreover, current ride-share drivers are independent contractors.<sup>196</sup> With this shift, they would be employees, and would be afforded better benefits and protections as opposed to being independent contractors.<sup>197</sup> With more dependence on computer assisted technology, more jobs in IT are likely to be created as well.

Another potential issue that may arise is conflict of laws. For example, if someone is about to go on a trip to Washington D.C., they may fly into

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<sup>190</sup> Uber Newsroom, *supra* note 7.

<sup>191</sup> Siddiqui & Bensinger, *supra* note 23.

<sup>192</sup> Sam Frizell, *Uber Just Answered Everything You Want to Know About Your Driver*, TIME (Jan. 22, 2015), <https://time.com/3678507/uber-driver-questions/>.

<sup>193</sup> *See id.*

<sup>194</sup> Rani Molla, *Half of U.S. Uber drivers make less than \$10 an hour after vehicle expenses, according to a new study*, VOX (Oct. 2, 2018 3:41 PM), <https://www.vox.com/2018/10/2/17924628/uber-drivers-make-hourly-expenses>.

<sup>195</sup> Mansoor Iqbal, *Uber Revenue and Usage Statistics (2019)*, BUSINESS OF APPS (May 10, 2019), <https://www.businessofapps.com/data/uber-statistics/>.

<sup>196</sup> Guerin, *supra* note 19.

<sup>197</sup> *See* Jean Murray, *What Is an Independent Contractor*, THE BALANCE (Jan. 23, 2019), <https://www.thebalancesmb.com/what-is-an-independent-contractor-398291>.

Washington Dulles Airport. Dulles Airport is actually located in Virginia.<sup>198</sup> Even a short ride-share pick-up from the airport to the city will cross state lines from Virginia to D.C.. If the registration for the self-driving vehicle is in Virginia, but there is a crash with a human driver in Washington D.C. on the border of the states, a conflict of law issue concerning which state law applies. Conflicting state laws have the potential to cause a significant issue in the litigation of autonomous ride-share issues, especially considering there is currently no federal legislation that governs the industry. Such a short ride-share trip from Virginia to Washington may not seem like a big deal, but if an accident happens en route, the litigation costs hashing out which state's law would apply will make the trip much more expensive than intended.

If Congress enacts a single governing body of laws that regulates autonomous vehicles, and the autonomous ride-share industry, there will be a lessened concern of potential conflict of laws issues. A body of federal law that occupies the field of autonomous vehicles would provide guidance over how to handle potential accidents involving autonomous vehicles and would lessen the burden on litigation. In turn, this would practically ease the financial burden to sustain costly litigation of these issues.

Business potential will be heightened with new possibilities. For example, in 2016, Uber had to discontinue a program called “Uber Passport.”<sup>199</sup> Human drivers could take riders across the San Diego and Tijuana border, because the cities are very close and are high demand for travel.<sup>200</sup> The program failed due to complications with human drivers, because they needed a passport, and the rides became too complicated.<sup>201</sup> With self-driving cars, it would be easy for ride-share companies to cross borders. For example, without a human driver, the self-driving car could bring passengers on high demand routes like San Diego to Tijuana, Buffalo to Niagara Falls, and other similar high-demand destinations. Legislators would have to work out international laws with this, but it seems it would be easier than having a human driver to present border complications for just giving a “ride.” Rather than returning to the states after dropping passengers off because a human driver is not authorized to work in the other country, the

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<sup>198</sup> DULLES INTERNATIONAL, <https://www.flydulles.com/iad/about-dulles-international> (last visited Feb. 10, 2020).

<sup>199</sup> UBER BLOG, *Connecting Sister Cities with UberPASSPORT* (Mar. 16, 2016), <https://www.uber.com/blog/san-diego/connecting-sister-cities-at-the-tap-of-a-button/> (last visited Feb. 10, 2020).

<sup>200</sup> *See id.*

<sup>201</sup> See Robin Abcarian, *California Journal: Uber across the border to Mexico? A new services fails to live up to its hype*, LOS ANGELES TIMES (May 23, 2016), <https://www.latimes.com/local/abcarian/la-me-abcarian-uber-border-20160523-snap-story.html>.

self-driving car could possibly then pick up rides in the new city. This should not be too complicated, because Uber is already based in sixty-five countries.<sup>202</sup> It is unknown how self-driving cars would be “based.” It is not public information how far the cars can go, like Aptiv outside Las Vegas on a longer ride, but it is likely that there would be different “zones” to cover cross-states and cross-border trips. This would create tremendous returns for shareholders and add convenience to riders.

Clearly, there is a myriad of issues that can arise. None of the potential issues seem to be crippling, but it is too early to tell. There are too many pros to not proceed with the adoption of self-driving cars in ride-share companies. Ride-share companies should disclose these risks to shareholders and gradually adopt self-driving cars. Most ride-share companies are private, so there is no way to find out exactly how profitable it will be, but self-driving cars are good for the business, good for consumers, and could potentially be good for the job market as well. A safer solution that also turns into profit is a business model impossible to ignore.

#### CONCLUSION

It is Monday morning in the year 2020, and you are on your way to yet another day of work. You went to sleep early and did not finish preparing a presentation for later this afternoon. You order an Uber and your driver arrives in five minutes. You verify the driver's name and they verify your name. The car has a strange unidentifiable odor and there is trash on the floor in the passenger seat. The driver has the windows open to save money avoiding the air conditioning. You are trying to send emails and catch-up a little on work, but your driver is playing loud music and is making conversation with you the whole time. Your driver also tried to send a text message while on the highway but almost swerved into the car alongside you. Luckily, the driver put the phone away after that. You politely ask the driver to turn on the air conditioning and turn down the music, which appears to offend the driver.

You finally arrive at your workplace and your driver makes you rate them five-stars before you exit. Your driver also asks for a tip so you add a couple of dollars so you can exit peacefully. Even though it clearly was not a five-star experience, your driver's tactics will inflate their ratings—which in turn will put them in better standing with Uber, because there are plenty of incentives for high ratings. Even though this is not ideal, at least you are finally done with this ride.

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<sup>202</sup> Iqbal, *supra* note 198.

You contact Uber about what happened and get a positive response. The next morning, the Uber driver shows up at your house. Although home addresses are not saved on the app, drivers are capable of remembering where they were, a consequence of the human element. At this point, who knows what will happen.

The ride-share business model that we have all grown to know certainly has its problems. With humble beginnings, it quickly grew to what it is today: with individual ride-share companies completing over five billion trips per year.<sup>203</sup> However, the current business model that modern ride-share companies are built upon have much to improve. Modern day ride-share drivers are independent contractors who own their vehicles and work for large ride-share companies as part of the “less ownership” business model.<sup>204</sup> The independent contractor model is attractive to ride-share companies because it allows them to cut overhead costs by not having to purchase cars, because their drivers use their own personal vehicles to pick up passengers.<sup>205</sup>

However, recent advancements in technology and tradeoffs with safety and economic concerns point to necessary changes in the ride-share industry. Such changes are likely to force the burgeoning driverless ride-share industry to embrace a new business model that includes costs of purchasing and maintaining autonomous vehicles and eliminating the need for human drivers altogether. An increase in car crashes due to human-driver error combined with various issues of violence and sexual harassment and assault in ride-share vehicles all point to the need for change.

Luckily, driverless technology has come a long way in recent years and is now at the point where the burgeoning industry needs legislative support to back up the work it is doing. The state of the law surrounding driverless technology and the potential autonomous ride-share industry needs a solid body of law that applies nationwide to be truly successful. The current state of the law includes multiple jurisdictions imposing a wide variety of laws. There is a need for federal legislation to govern the licensing and operation of driverless technology before companies such as Uber and Lyft will fully buy in.

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<sup>203</sup> See Uber Newsroom, *supra* note 7.

<sup>204</sup> See Sherman, *supra* note 17.

<sup>205</sup> See *id.*

The benefits of a new ride-share business model are clear: it is safer for riders and more profitable for the business. Ride-share companies should ultimately fully-adopt the self-driving car business model.

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