# DON'T SUE ME, I WAS JUST LAWFULLY TEXTING & DRUNK WHEN MY AUTONOMOUS CAR CRASHED INTO YOU*

Have you ever sent a text message that did not reach its destination?[1] Ever follow Google Maps directions that proved inaccurate? Driven in a foreign country, scrupulously obeying the Queen's English GPS voice ordering you to "turn right, turn right, turn right!" against your better judgment, until you almost run over the unsuspecting pedestrians lingering in what was once a roadway, but is now a car-free square?

Imagine sitting in the backseat of your car, having a cocktail, texting your friends, while lawfully being driven, not by Jeeves your chauffeur, but perhaps by Google Chauffeur,[2] the technology operating your ride, what is now called an "autonomous vehicle."[3] Autonomous cars are fully automated vehicles not yet available to the public, as opposed to presently available luxury cars that have only some automated functionality but that are not fully "autonomous" (semi-autonomous).[4]

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* The author would like to thank Jeffrey K. Gurney, author of *Sue My Car Not Me: Products Liability And Accidents Involving Autonomous Vehicles* U. ILL. J.L. TECH. & POL'Y 247 (2013) for the title inspiration for this Comment.

1. For every major smart phone, at one point or another, there is an issue concerning text messages not going through. *See, e.g.*, Matthew J. Belvedere, *Fix for iOS 7 Users Having Problems with Texting*, CNBC (Oct. 1, 2013, 1:11 PM), http://www.cnbc.com/id/101077494; *Text Messages Not Going Through?*, Question posted on *Discussions*, VERIZON WIRELESS, https://community.verizonwireless.com/thread/802562 (last visited Mar. 20, 2014); *Text Messages Not Going Through to Certain People?*, Question posted on *Android Tech Support Forum*, DROIDFORUMS.NET, http://www.droidforums.net/forum/rescue-squad-help/28556-texts-messages-not-going-through-certain-people.html (last visited Mar. 20, 2014).

2. Google Chauffeur is the company's autonomous driving software. Adam Fisher, *Inside Google's Quest to Popularize Self-Driving Cars*, POPULAR SCIENCE, Oct., 2013, *available at* http://www.popsci.com/cars/article/2013-09/google-self-driving-car. Google employees have driven over half a million miles testing the company's self-driving cars that include a modified Cadillac and Lexus. RAND CORP., AUTONOMOUS VEHICLE TECHNOLOGY, Research Briefs (2014), *available at* http://www.rand.org/content/dam/rand/pubs/research_briefs/RB9700/RB9755/RAND_RB9755.pdf [hereinafter AUTONOMOUS VEHICLE TECHNOLOGY].

3. *See id.*

4. *See* NAT'L HIGHWAY TRAFFIC SAFETY ADMINISTRATION, PRELIMINARY STATEMENT OF POLICY CONCERNING AUTOMATED VEHICLES 3-5 (2013), *available at* www.nhtsa.gov

INTRODUCTION

No longer limited to the creative vision of science fiction, robotic and computerized automated cars (autonomous cars) are real and they are on the roads, at least, so far, for example, on Highway 1 between San Francisco and Los Angeles, in part thanks to Google.[5] While the potential of the new technology is alluring,[6] in light of the frequency of basic technological failures noted above, one must anticipate serious problems involving liability when autonomous cars become available on the market. Presumably, the cars, which are being developed and tested now, will become available for purchase when they have achieved acceptable safety standards.[7] Determining the party at fault is an issue that threatens to burden innocent injured parties in accidents with autonomous vehicles. Will liability be attributed to the manufacturer of the autonomous car or the human operator? How will the party injured in an autonomous car accident pursue her claim? A prophylactic resolution and rule of liability that protects the nascent technology as well as the public should be the goal.

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/staticfiles/rulemaking/pdf/Automated_Vehicles_Policy.pdf. In the United States, the National Highway Traffic Safety Administration ("NHTSA") defined "automated vehicles" as "those in which at least some aspects of a safety-critical control function (e.g., steering, throttle, or braking) occur without driver input. Vehicles that provide safety warnings to drivers (forward crash warning, for example) but do not perform a control function are, in this context, not considered automated, even though the technology necessary to provide that warning involves varying degrees of automation (e.g. the necessary data are received and processed, and the warning is given, without driver input)." NHTSA also explains that "[a]utomated vehicles may use on-board sensors, cameras, GPS, and telecommunications to obtain information in order to make their own judgments regarding safety-critical situations and act appropriately by effectuating control at some level." *Id.* at 3. Use of V2V (vehicle-to-vehicle) safety technology that only provides safety warnings does not define a car as autonomous even though such warnings are very beneficial and autonomous cars may utilize V2V as well. *Id.* at 3-4. The NHTSA established a classification system of five levels ranging from "Level 0" (no automation) whereby the "driver is in complete and sole control of the primary vehicles controls (brake, steering, throttle, and motive power) at all times," etc. and "Level 4 – Full Self-Driving Automation" where the "vehicle is designed to perform all safety-critical driving functions and monitor roadway conditions for an entire trip. [T]he driver will provide destination or navigation input, but is not expected to be available for control at any time during the trip. . . . By design, safe operation rests solely on the automated vehicle system." *Id.* at 4-5.

5. John Markoff, *Google Lobbies Nevada to Allow Driverless Cars*, N.Y. TIMES, May 10, 2011, at A18, *available at* http://www.nytimes.com/2011/05/11/science/11drive.html?_r=2&emc=eta1&.; Chris Bruce, *Google's Self-Driving Car Gets Better At Navigating Streets*, AUTOBLOG AOL AUTOS (April 28, 2014, 7:30 PM), http://www.autoblog.com/2014/04/28/googles-self-driving-car-better-navigating-city-streets/.

6. *See infra* Part I.

7. Nissan has, since first announcing a 2020 release, delayed its planned release date as it perfects the technology, in the meantime releasing semi-autonomous vehicles. Rakesh Datt, *Nissan Reveals Details of Autonomous Car Project*, INDIAN CARS BIKE.IN (July 19, 2014), http://www.indiancarsbikes.in/cars/nissan-reveals-details-autonomous-car-project-95357/.

This Comment urges solutions that go beyond defaulting to relying on the freedom to litigate at the parties' expense.

Part I of this Comment lays the foundation for assessing legal liability problems associated with autonomous vehicles. Part I also summarizes: 1) the existing technology involved with autonomous cars, 2) their present functionality and purpose, 3) their safety profile and the plans for these cars being on the market as compared to traditional vehicles, and 4) the problem of assessing liability in accidents involving autonomous vehicles. Part II explains the current state of legislation covering autonomous vehicles in the testing phase, and recommends greater uniformity in legislation. Part III A of this Comment addresses the legal challenges associated with claims brought by non-user injured parties when the injury more likely results from general negligence than from more clear cut strict products liability issues such as: design defect, manufacture defect, and warning defects. Part III B addresses the potential plaintiff's burden of proof, litigation costs, and discovery issues. Part IV of this Comment offers three types of solutions intended to collectively address these issues, especially during the "Interim Period."[8] The proposed solutions are: 1) creating a negligence per se legal standard[9] that imposes liability for negligence depending on the nature marketing and warnings information of the autonomous vehicle; 2) a legislative requirement of mandatory "No Fault" insurance policy[10] coverage involving a government/manufacturer scheme that both requires a high degree of coverage but also allows manufacturers to secure such policies in bulk so as to bring costs down for the consumer; and 3) legislative requirements and judicial involvement to streamline discovery related to the vehicle's software and hardware (e.g., the black box) in order make such information immediately accessible upon accident reporting in order to accurately determine causation. In addition, Part IV argues that federal and state governments, in order to support this nascent and promising innovation and industry, should offer tax rebates/incentives as was done for electric vehicles. In conclusion, this Comment summarizes the key liability and other general safety issues autonomous vehicles raise and suggests solutions accordingly.

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8. The "Interim Period" in this Comment refers to the interim time between when autonomous cars are introduced into the marketplace and when there is enough market saturation that their safety profile is based on actual driving statistics rather than predictive models.

9. For a discussion of negligence per se, see *infra* Part IV.

10. *What Does No-Fault Insurance Cover?*, ALLSTATE (Jan. 2013), http://www.allstate.com/tools-and-resources/car-insurance/no-fault-insurance-cover.aspx.

## PART I

### *A. The Autonomous Car, The Problem*

Given that we all have experienced technological and computer systems failures regularly, why should we trust that cars operated by computing systems and other technologies will be consistently safe? What about the poor soul driving a regular car, or even walking, who gets hit by an autonomous car? What if the cause of the accident cannot be traced to an overt mechanical failure such as brakes or steering,[11] rather, it is due to plain old bad driving or mistake? While autonomous cars are designed to mitigate and even eliminate bad driving,[12] technology is imperfect and often only as good as the humans either programming it, feeding it information, or operating it.[13] Accidents will happen, regardless of the steps taken to prevent them,[14] simply because of mistaken decisions or carelessness that may happen by the car itself (due to its programming of mechanical

11. Toyota is an example of an automaker with several products liability legal losses connected to specific parts or functionality such as defective steering and brakes/acceleration. *See* Dan Strumpf & Shino Yuasa, *Toyota Subpoenaed by Federal Grand Jury*, HUFFINGTON POST (Sept. 19, 2010, 5:12 AM), http://www.huffingtonpost.com/2010/07/20/toyota-subpoenaed-by-fede_n_652311.html; Shaya Tayefe Mohajer, *Toyota Settlement: Orange County to Receive $16 Million over Acceleration, Braking Issues*, HUFFINGTON POST (Apr. 6, 2013, 7:44 PM), http://www.huffingtonpost.com/2013/04/06/toyota-settlement-orange-county_n_3029193.html.

12. *See* Phil LeBeau, *Google's Driverless Car Is Good News for Bad Drivers*, CNBC (May 28, 2014, 1:56 AM), http://www.cnbc.com/id/101708805#.

13. The Space Shuttle Challenger O-ring disaster is a perfect example of how great engineering was yet unfortunately not sufficiently tested in the ultimate environment (temperature) it was required to perform in. *See* Joe Atkinson, *Engineer Who Opposed Challenger Launch Offers Personal Look at Tragedy*, NASA (Oct. 05, 2012), http://www.nasa.gov/centers/langley/news/researchernews/rn_Colloquium1012.html; *Space Shuttle Challenger Disaster*, WIKIPEDIA, http://en.wikipedia.org/wiki/Space_Shuttle_Challenger_ disaster (last visited Sept. 11, 2014).

14. While reporting of autonomous car accidents is hard to come by, that is the result of the fact that few are being driven and only in test mode. For example, Google regularly tests one of its couple dozen prototypes in Mountain View California. A journalist along for one of the reportedly smooth test drives observed the car emitting lasers that generate 3D information on objects all around the car and using radar that bounces approximately 150 meters in every direction to perceive more than any human could. Eric Jaffe, *The First Look at How Google's Self-Driving Car Handles City Streets*, CITYLAB (Apr. 28, 2014), http://www.citylab.com/tech/2014/04/first-look-how-googles-self-driving-car-handles-city-streets/8977/. The technology credentials are impressive to be sure and the Google cars go through six steps before making each driving decision utilizing a combination of GPS, cameras, sensors, laser, radar, maps, etc. at its disposal. *Id.* Although Chris Urmson, the head of Google's self-driving car project (Google X), is confident that autonomous cars can change the world by lightening road congestion, increasing commute productivity, and significantly mitigating the 33,000 annual deaths on U.S. roads (90% of which result from human error), there is no accounting for the regularity of simple computer and other technological failures, any one of which can cause an accident instantly. *Id.*

limitations), not the driver.[15] Whose fault is it if the accident is due to, what essentially comes down to general negligence and the human operator never even touched the wheel? The autonomous car manufacturer, or the human "driver" who is not even driving?

The autonomous car is coming.[16] This Comment addresses liability issues that affect non-driver/user-third party victims, meaning people who are not choosing to use the autonomous vehicle, but who are injured in an accident that is resolved to be the fault of the other party (the human using the autonomous car in autonomous car-mode). There are other analyses of liability issues concerning autonomous vehicles, a lot of popular press discussion as well, and even a course already at Stanford Law School.[17]

This Comment, in focusing on non-user injured parties, analyzes the inevitable problem of complications involved in assessing general negligence regarding a product that is designed to operate itself, for the most part.[18] Does liability for negligence fall on the user of the technology

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15. *See infra* notes 26-28 and accompanying text (discussing and citing statistics regarding accidents being mostly due to human behavior, not vehicle products malfunctioning).

16. Cars that will drive themselves are predicted to enter the marketplace by approximately 2017 in Sweden and 2020 (or soon after) via Nissan in Japan and in the U.S. via Google, Ford, and others, expected to saturate the car market with autonomous vehicles by 2035. *See Sweden Joins Race for Self-Driving Cars*, PHYS.ORG (Dec. 2, 2013), http://phys.org/news/2013-12-sweden-self-driving-cars.pdf (Volvo, a Swedish brand now owned by a Chinese company, announced it will roll out a hundred self-driving cars on the public roads of Gothenburg Sweden in 2017); *see also* Alexis Santos, *Nissan Leaf Prototype Becomes First Autonomous Car to Hit Japanese Highways*, ENGADGET (Nov. 26, 2013), http://www.engadget.com/2013/11/26/nissan-leaf-is-first-autonomous-car-on-japanese-public-roads/; Press Release, *Autonomous Vehicles Will Surpass 95 Million in Annual Sales by 2035*, NAVIGANT RESEARCH (Aug. 21, 2013), http://www.navigantresearch.com/newsroom/autonomous-vehicles-will-surpass-95-million-in-annual-sales-by-2035 [hereinafter Navigant Research Press Release]. Navigant Research (a market research consulting team) predicts that autonomous vehicles will slowly enter the marketplace over the next two decades and that by 2035 sales will reach 95.4 million annually, representing 75% of all light-duty vehicle sales. As of June 2014, experts predict that autonomous cars will be on the market within ten to fifteen years. *See* Neil Winton, *Autonomous Cars Like the Google May Be Viable in Less Than 10 Years*, FORBES (June 6, 2014, 1:23 PM), http://www.forbes.com/sites/neilwinton/2014/06/06/autonomous-cars-like-the-google-may-be-viable-in-less-than-10-years/.

17. *See, e.g.,* Jeffrey K. Gurney, *Sue My Car Not Me: Products Liability and Accidents Involving Autonomous Vehicles*, 2013 U. ILL. J. L. TECH. & POL'Y 247 (2013) (a products liability analysis regarding autonomous cars); Bryant W. Smith, *Stanford Students: Fall 2012 Course on the Law of Autonomous Driving*, STAN. L. SCHOOL, CTR. FOR INTERNET & SOC'Y BLOG (July 10, 2012, 6:16 PM), http://cyberlaw.stanford.edu/blog/2012/07/stanford-students-fall-2012-course-law-autonomous-driving. Stanford's student body, along with researchers and corporate partners, is very focused on developing autonomous car technology. STANFORD'S AUTONOMOUS DRIVING TEAM, http://driving.stanford.edu (last visited Aug. 8, 2014).

18. Autonomous cars may be designed to adjust for the human driver's attentiveness. Volvo is testing sensors that detect distracted or sleepy drivers. The technology uses a:

because she has chosen to use it prior to it becoming commonly used and proven to be safe in regular use? Or, is the manufacture liable for creating the product and marketing its use?[19] Should the mere fact of "driving" an autonomous car be considered an "Inherently/Abnormally Dangerous Activity" or should the cars themselves be considered "inherently dangerous" for purposes of tort liability?[20] Alternatively, should the car be considered an agent of the owner?[21] Or, is the owner responsible for what the car does in the same way a dog "owner" would be if Kujo bit a neighbor?

This Comment argues a need to draw a line in determining liability in advance of autonomous cars' release onto the market. A line based on the consumer's information from the manufacturer about what the autonomous cars are meant to be, how they are meant to work, and then, what the consumer did based on that information. The key to the analysis is assigning liability appropriately to a driver or car manufacturer based on whether it would be foreseeable and reasonable for a consumer/driver to be hands-free in driving and how the driver handled the car in light of the information given by the manufacturer and the circumstances surrounding the driving and ensuing accident.

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> [D]ashboard-mounted sensor that captures information from infrared light projected on the driver's face. Although invisible to the human eye, the infrared light helps the sensor detect things such as whether eyes are open or closes, the position of the driver's head and whether he or she is looking straight ahead, down at the dashboard controls or out of one of the side windows.

Staff, Relaxnews, *Volvo Tests Sensor System That Detects Distracted Drivers*, TWINCITIES.COM (Mar. 18, 2014, 11:07 AM), http://www.twincities.com/breakingnews/ci_25366714/volvo-tests-sensor-system-that-detects-distracted-drivers; *see also* Antony Ingram, *Volvo Gets Serious on Driver Sensing Tech*, MOTOR AUTHORITY (Mar. 17, 2014), http://www.motorauthority.com/news/1090918_volvo-gets-serious-on-driver-sensing-tech. And the car's technology would adapt to the driver's status and support the driver's driving accordingly. *Id.*

19. This assumes there is no intervening action breaking the chain or causation or some extreme unforeseeable misuse by the human car-owner. In products liability cases only extreme foreseeable misuse excuses the manufacturer from liability. *See* Soule v. General Motors Corp., 882 P.2d 298 (Cal. 1994) (a landmark California Supreme Court case noting car manufacturers are liable for injuries that result from reasonable use); *see also* 63A AM. JUR. 2d *Products Liability* § 898 (West 2010).

20. *Compare* RESTATEMENT (SECOND) OF TORTS § 3885-391 (1965) (stating an activity is considered "inherently dangerous" or "ultrahazardous" when it presents an inherent special danger), *with* § 402A cmt. j (clarifying that sellers are liable for defective conditions that make a product unreasonably dangerous to the regular consumer or user). The former imposes strict liability on the actor for an activity that is deemed to create a serious risk of harm even if performed safely, whereas the latter imposes liability on the maker of a product that poses a serious risk of harm.

21. "A principal who conducts an activity through an agent is subject to liability for harm to a third person caused by the agent's conduct if the harm was caused by the principal's negligence in selecting, training, retaining, supervising, or otherwise controlling the agent." RESTATEMENT (THIRD) OF AGENCY § 7.05 (2006).

The problem in assessing liability addressed here concerns the accident that occurred, not because of a clear malfunction cause such as breaks failure or cruise control dysfunction, but as a result of merely driving negligently. This Comment asks, who drove negligently? Was it the car, or the driver? The issue arises from the nebulousness surrounding the nature of the defect, in distinguishing between design defect and manufacturing defect when the failure is in software/programming, and its engagement with mechanical functionality.[22]

There will be social costs to the autonomous cars if injured non-users will ultimately face extra burdens in making their showing of negligence, including the increased costs in analyzing evidence in order to put on their case in chief. Extra costs will likely accrue due to the complicated nature of assessing negligence or product liability when dealing with a hybrid of computer technology, mechanical parts, and a deliberately inattentive passive human actor who is nevertheless the only human in control of an inherently dangerous product, a moving automobile.

This Comment urges a balance between facilitating the development of a new beneficial technology and public protection of non-users of the technology by insuring that they are not unfairly forced to bear the societal costs of the new technology. If not addressed preemptively, there will be too much room for subjectivity and lack of uniformity in courtrooms. Additionally, there is a need for uniformity with regard to insurance policies and companies' evaluations of the technology and associated allocation of risks and liabilities. There will be too much potential for harm to individuals who do not even choose, or cannot even afford the early adoption of new beneficial technology. It is critical these issues be resolved prophylactically for the most just and cost-efficient results without burdening this important nascent technology. To answer the questions this Comment poses, one must first have an understanding of the autonomous cars, the needs they meet, and how they will work.

### *B. The Autonomous Car: Purpose, Goals, and the Technological Advantages*

Google Chauffeur, the software that operates the self-driving vehicle, is not the first of its kind. There have been earlier forms of self-driving cars in

22. Examples of negligent driving violations are: disobeying or misconstruing a traffic officer's directions, not noticing the speeding limit changed in a school district, hitting a car pulling out of a parking spot, driving too closely, driving too slow, etc. For a sample list, see the California Department of Motor Vehicle's website. *Vehicle Code Violations Used in Negligent Operator Counts*, CALIFORNIA DEPARTMENT OF MOTOR VEHICLES, http://www.dmv.ca.gov/dl/vioptct.htm (last visited Sept. 13, 2014).

the 1970s, but the contemporary models, in part thanks to the Department of Defense's Defense Advanced Research Project Agency ("DARPA"),[23] use reliable laser range finders, essentially all-seeing eyes.[24] Is there any consequence to losing the human driver's instinctual skills based on "thin-slicing" and instinctively decoding patterns that lead to split-second decisions?[25] Or will, as predicted, autonomous cars actually be much safer than human drivers in real world every day city and highway driving?[26] These questions can only be answered once the autonomous cars are on the road and by comparison to traditional automotive experiences.

### *C. Traditional Vehicle and Driver Safety*

After six consecutive years of a decline in motor vehicle crash fatalities, 2012 saw an increase resulting in a total of 33,561 deaths due to car crashes.[27] Alcohol-impaired driving accidents cost more than an estimated $37 billion annually and approximately one person an hour dies as a result of a drunk-driving car crash.[28] Human error reportedly accounts for over a million injuries on roads annually.[29] Car accident analysis shows that 95% of the accidents are caused by human error and the "main error prone behaviors are wrong estimation of control variables, command

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23. *Overview*, DARPA GRAND CHALLENGE, http://archive.darpa.mil/grandchallenge05/overview.html (last updated Dec. 31, 2007).

24. Fisher, *supra* note 2.

25. "Thin Slicing" is a psychological term used to describe pattern recognition and the ability to make quick decisions based on pattern recognition that is based on experience or unconscious instinct. *See* MALCOM GLADWELL, BLINK 24 (2007); *see also* Nalini Ambady & Robert Rosenthal, *Thin Slices of Expressive Behavior as Predictors of Interpersonal Consequences: A Meta-Analysis*, 111 PSYCHOL. BULL. 256 (1992). It stands to reason that autonomous technology will encourage drivers to not pay attention, even if required to and cars are only semi-autonomous. *See* Brad Feld, *The Future of Transportation*, FELDTHOUGHTS (Jan. 19, 2014), http://www.feld.com/wp/archives/2014/01/the-future-of-transportation.html. Even airline pilots fall asleep when autopilot is on so, naturally, we can assume, human drivers will be driven to distraction. *See id.*; *see also* Press Association, *Airbus Pilots Fell Asleep at Same Time, Says Incident Report*, THE GUARDIAN (Sept 26, 2013), http://www.theguardian.com/world/2013/sep/26/airbus-pilots-asleep-autopilot-caa.

26. Tom Simonite, *Data Shows Google's Robot Cars Are Smoother, Safer Drivers Than You or I*, MIT TECHNOLOGY REVIEW (Oct. 25, 2013), http://www.technologyreview.com/news/520746/data-shows-googles-robot-cars-are-smoother-safer-drivers-than-you-or-i/.

27. U.S. DEP'T OF TRANSP. NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., 2012 MOTOR VEHICLE CRASHES: OVERVIEW 1 (Nov. 2013), *available at* http://www-nrd.nhtsa.dot.gov/Pubs/811856.pdf.

28. *Impaired Driving*, NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., http://www.nhtsa.gov/Impaired (last visited Sept. 13, 2014) [hereinafter *Impaired Driving*].

29. John Markoff, *Collision in the Making Between Self-Driving Cars and How the World Works*, N.Y. TIMES, Jan. 24, 2012, at B6, *available at* http:// www.nytimes.com/2012/01/24/technology/googles-autonomous-vehicles-draw-skepticism-at-legal-symposium.html.

variables . . . and the fact that a driver can only concentrate on just one area at a certain time."[30] The government attributes 3,328 deaths to distracted driving crashes and considers the trend a "dangerous epidemic."[31] A 100-car study revealed that driver inattention (e.g., distractions by objects outside the vehicle, operating radio or CD, passenger, eating, smoking, drinking, phone calls) caused nearly eighty percent (80%) of all crashes and sixty-five percent (65%) of all near crashes involved driver inattention just prior to (within 3-seconds) the near-collision.[32] A few key automated solutions, such as forward collision and lane-departure warning, side-view (blind-spot) assist, and adaptive headlight, would make a dramatic difference, reducing crashes by approximately 33%.[33]

### *D. Potential Benefits of the Autonomous Car*

The benefits of autonomous vehicles include reduction in frequency of crashes because "[f]urther automation is expected to save more lives . . . Automatic braking when a car detects an obstacle will reduce rear-end collisions, and fully driverless cars will dramatically reduce human error, which is responsible for most fatalities and crashes."[34] Additional benefits include: increased mobility for the disabled, reduced energy and fuel emissions due to lighter more fuel efficient cars, and improved land use via vehicle-sharing programs and dropping passengers off.[35] A bonus, the reduction "in traffic accidents and gridlock while improving fuel efficiency" will happen all while one is otherwise occupied or just napping.[36] In addition to autonomous cars shortening commute times, saving money, increasing productivity and reducing traffic challenges,[37]

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30. HAVEIT, THE FUTURE OF DRIVING 1 (Sept. 23, 2011), *available at* http://haveit-eu.org/LH2Uploads/ItemsContent/24/HAVEit_212154_D61.1_Final_Report_Published.pdf [hereinafter HAVEIT].

31. NHTSA, DISTRACTION.GOV, http://www.distraction.gov (last visited Sept. 13, 2014).

32. HAVEit, *supra* note 30, at 1 (citing U.S. DEP'T OF TRANSP. NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., THE 100-CAR NATURALISTIC DRIVING STUDY, at xxiii-xxiv (2006), *available at* http://www.nhtsa.gov/DOT/NHTSA/NRD/Multimedia/PDFs/Crash%20Avoidance/Driver%20Distraction/100CarMain.pdf.

33. HLDI News, *Crash avoidance features reduce crashes, insurance claims study shows*, INSURANCE INSTITUTE FOR HIGHWAY SAFETY HIGHWAY LOSS DATA INST. (July 3, 2012), http://www.iihs.org/iihs/news/desktopnews/crash-avoidance-features-reduce-crashes-insurance-claims-study-shows-autonomous-braking-and-adaptive-headlights-yield-biggest-benefits.

34. AUTONOMOUS VEHICLE TECHNOLOGY, *supra* note 2.

35. *Id.*

36. Daniel P. Howley, *The Race to Build Self-Driving Cars*, Laptop (Aug. 23, 2012, 2:11 PM), http://blog.laptopmag.com/high-tech-cars-go-mainstream-self-driving-in-car-radar-more.

37. *Self-Driving Cars: Are We Ready?* KPMG, at 14 (2013), https://www.kpmg.com/US/en/IssuesAndInsights/ArticlesPublications/Documents/self-driving-cars-are-we-ready.pdf.

they will simply be safer overall and even help the blind and others who are visually impaired.[38]

California State Senator Alex Padilla, key author of California's autonomous vehicle legislation, agrees the self-driving cars offer these listed benefits.[39] California legislation confirms the expected benefits as well.[40] On the East Coast, even Columbia University's Earth Institute lauds driverless vehicles for "enabling passengers to use their time as they please (e.g., texting, talking on the phone, eating, or watching a movie) without endangering themselves or others."[41]

### *E. So, Why the Problem?*

Email and texting replaced the phone call to such an extent that younger generations are socially changed from their predecessors and while they develop new computer or technology skills, they fail to develop classic communication skills.[42] The automobile was a welcome innovation to replace the horse and buggy.[43] Now, the autonomous (self-driving) car is due to replace the human-driver experience much more cohesively than the

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38. *See* Keith Barry, *High-Tech Car Allows the Blind to Drive*, WIRED (Feb. 15, 2011, 9:00 AM), http://www.wired.com/autopia/2011/02/high-tech-car-allows-the-blind-to-drive/; *see also* U.S. DEP'T OF TRANSP. NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., NATIONAL MOTOR VEHICLE CRASH SURVEY: REPORT TO CONGRESS 23-26 (2008), *available at* http://www-nrd.nhtsa.dot.gov/Pubs/811059.pdf (human error accounts for most car accident deaths and drivers are the primary cause of most accidents whereas vehicle defects are the primary cause of a relatively very few); *see also* Dan Neil, *Who's Behind the Wheel? Nobody*, WALL ST. J. (Sept. 24, 2012), http://online.wsj.com/news/articles/SB10000872396390443524904577651552635911824. Automobile accidents at the hands of human drivers are estimated to cost approximately 300 billion dollars (taking into account deaths, health care, property loss, and the effects of traffic congestion). *Id.*

39. Senator Padilla stated that "[a]utonomous vehicle technology has the potential to significantly reduce traffic fatalities and injuries. It also has the potential to increase fuel efficiency, reduce traffic congestion and increase highway capacity." Howley, *supra* note 36.

40. S.B. 1298 in Section 1 states: "The Legislature finds and declares . . . [that] 'autonomous vehicles' offer significant potential safety, mobility, and commercial benefits for individuals and businesses in the state and elsewhere."
S.B. 1298, 112th Cong. (Cal. 2012) [hereinafter S.B. 1298].

41. LAWRENCE D. BURNS ET AL., THE EARTH INST. COLUMBIA UNIVERSITY, TRANSFORMING PERSONAL MOBILITY 3 (2013), *available at* http://sustainablemobility.ei.columbia.edu/files/2012/12/Transforming-Personal-Mobility-Jan-27-20132.pdf.

42. *See* Sherry Turkle, Op-Ed., *The Flight from Conversation*, N.Y. TIMES (New York edition), Apr. 22, 2012, at SR1, *available at* http://www.nytimes.com/2012/04/22/opinion/sunday/the-flight-from-conversation.html.

43. *See The American Automobile*, N.Y. TIMES, Sept. 23, 1904, at 8.

already-used technology in some luxury vehicles that helps avoid collisions and helps cars park scratch-free.[44]

It seems likely that the technology will be limited by its inhumanity if we assume there is value in the human skills that cannot be learned or replicated in robots or computers?[45] In the meantime, will human capacity for driving atrophy with the lack of use? It is impossible to definitely answer these questions now. Hence, it is imperative we preemptively address potential legal liability complications that will ensue in the Interim Period, the period between the introduction of these cars into the marketplace and reliable safety data based on diverse, real, daily use.

### *F. Testing and Market Predictions:*

Google has already tested its Google Chauffer over 500,000 miles without a crash.[46] Ann Arbor's Michigan Mobility Transformation Center ("a cross-campus University of Michigan initiative that also involves government and industry representatives") is to become the first U.S. city with a fleet of driverless vehicles.[47] Researchers are planning the country's largest experiment of networked vehicles that will involve 3,000 residents.[48] A joint industry/government project will simulate a cityscape in order to test driverless vehicles in an urban setting.[49] Presently, there are at least

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44. *See* Howley, *supra* note 36. "Backup cameras have become so effective at helping to prevent backing into things (and people) that the U.S. Department of Transportation has proposed a federal mandate that would require all cars be equipped with a rear-facing camera by 2014." Ford and Mercedes have already begun placing rear-view mirror cameras meant to make sure the car stays in its lane. The steering wheel of the Mercedes will vibrate automatically if one starts moving out of their lane. *Id.* Some cars are equipped with front and rear-facing cameras and loaded with radar and ultrasonic sensors. *Id.* The Cadillac XTS's radar detects oncoming cars preventing one from having to guess if a car is backing out of a parking space. And Ford's Blind Spot Information System (BLIS) detects and alerts as to vehicles in a car's blind spot by lighting up an icon in the side view mirrors. *Id.* Ford and Toyota also implement parallel parking assist features that rely on "hypersonic sensors that calculate the size of an available [parking] space." *Id.* Additionally, current technology includes so-called "Intelligent Cruise Control" (Infinity's system) that allows the car to slow down the cruise control when determining the slower speed of another car that suddenly drives in front. Both Mercedes and Infinity can automatically apply brakes when the cars detect that an imminent crash. *Id.*

45. *See* Bryant Walker Smith, Human Factors in Robotic Torts 9, WE ROBOT CONFERENCE (Mar. 30, 2013) (unpublished paper), http://conferences.law.stanford.edu/werobot/wp-content/uploads/sites/29/2013/04/HumanFactorsRoboticTorts_BryantWalkerSmith.pdf; *see also* GLADWELL, *supra* note 25.

46. *See* AUTONOMOUS VEHICLE TECHNOLOGY, *supra* note 2.

47. Nicole Casal Moore, *Driverless, Networked Cars on Ann Arbor Road By 2021*, PHYS.ORG (Nov. 11, 2013), http://phys.org/news/2013-11-driverless-networked-cars-ann-arbor.html.

48. *Id.*

49. *Id.*

nineteen car manufacturers working on this technology and several software companies including Google Inc., Microsoft, Mobilete, QNX Software Systems Ltd.[50] There are also business consulting services focused on researching the marketing and selling that data to interested companies.[51] Thus, it seems quite certain that these cars will soon be on the roads for regular consumer use.[52] And yet, although, as noted, the cars will feature technology already in use in luxury vehicles and likely be priced as such, the complete reliance on computer algorithms and other technologies to drive will undoubtedly trigger a lack of trust that the autonomous cars will operate as intended in all situations.[53] At the 2014 Detroit motor show, Ulrich Eichhorn, Managing Director of the German car makers' industry association, the VDA, observes "the pressure for autonomous cars and their role in preventing accidents will be almost overwhelming. 'They'll initially

50. *See Autonomous Vehicles*, NAVIGANT RESEARCH, http://www.navigantresearch.com/research/autonomous-vehicles (last visited Oct. 22, 2014). The following car companies are involved in developing autonomous cars: Audi AG, BMW AG, Chrysler, Daimler AG, FIA S.p.A, Ford Motor Company, General Motors, Honda Motor Company, Mazda, Mitsubishi Motors Corp., Nissan Motor Company, PSA Peugeot Citroën, Renault S.A., Tesla Motors, Toyota Motor Corp., Volkswagen, Volvo Car Corp. In addition to the mentioned software companies, Navigant cite seventeen companies as "key industry players" and a few others involved such as: 2getthere, Connected Vehicle Trade Association, and Ultra Global. *Id.*

51. *See id.* (commenting that liability issues must be resolved before commercialization can occur and encourage lawmakers and insurance companies to address the issues immediately).

52. *See Driverless Cars*, PHYS.ORG (Nov. 21, 2013), http://phys.org/news/2013-11-driverless-cars.html. In 2013, self-driving cars were becoming reality. In Japan, "Mazda is testing how different types of cars and trams cab communicate with each other." *Id.* Google launched a driverless car project. BWM presented the Traffic Jam Assistant, a "technology that ensures that a vehicle keeps a certain distance from the car in front of it" that is meant to work at speeds of up to 40 km/hour (approximately 25 mph). *Id.* The vehicle will increase the speed and break as needed. "Ford presented a system that uses radars, ultrasonic sensors, and a camera that monitors a 200 [meter] strip of road. The driver is given a warning if they are in danger of driving into anything, and if they fail to respond then the car will avoid the obstacle itself by breaking or steering." *Id.* Cars are being programmed to communicate with each other through Wi-Fi network systems, cameras, and radar and are being tested by universities and car manufacturers worldwide. *Id.* A company called TU Delft is working on a system that will improve GPS signals using predictions of atmospheric conditions and satellite orbits. *Id.* Notably, TU Delft does not recommend drivers be passive and un-alert. Rather the cars are designed to monitor driver alertness with infrared camera eye tracking, rendering the driver a supervisor of the vehicle, akin to an aircraft pilot. *Id.*

53. Pricing would likely be in keeping with that for semi-autonomous (some automated features) vehicles already on the market. Navigant Research expects early versions to include an extra $10,000, and after the technology has evolved, cost less than $2,000. *See* Dave Alexander, *Autonomous Vehicles: Your Questions Answered*, NAVIGANT RESEARCH BLOG (Dec. 2, 2013), http://www.navigantresearch.com/blog/autonomous-vehicles-your-questions-answered; *see also* DEP'T OF DEFENSE, DEFENSE SCIENCE BOARD, TASK FORCE REPORT: THE ROLE OF AUTONOMY IN DOD SYSTEMS 2 (2012), *available at* http://www.acq.osd.mil/dsb/reports/AutonomyReport.pdf.

reduce accidents by maybe 90 per cent.'"[54] However, he also contemplates the dilemma in the possibility of the car's decisions not always being good ones.[55] There may be accidents the autonomous car helps avoid, but also ones the human could have helped avoid or where the "technology should have avoided but failed to."[56] Predictably, Mr. Eichhorn expects courts to "side with humans. . . rather than manufacturer's algorithms."[57]

## PART II: PRESENT STATE LEGISLATION

In the United States, individual states do not usually address autonomous cars in the states' respective vehicle codes.[58] As of 2013, three U.S. states: California, Nevada, and Florida, have passed laws permitting the use of autonomous cars.[59] Other states have considered such laws but have not passed them, preferring to wait until liability regulations and issues are resolved.[60] This may change over time.[61]

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54. Andrew English, *Autonomous Cars – Is This the End of Driving?*, TELEGRAPH (Jan. 16, 2014), http://www.telegraph.co.uk/motoring/road-safety/10570935/Autonomous-cars-is-this-the-end-of-driving.html.

55. *Id.*

56. *Id.*

57. *Id.*

58. *See* Bryant Walker Smith, *Automated Vehicles Are Probably Legal in the United States*, 1 TEX. A&M L. REV. 411, 463 (2014).

59. *See* Joann Muller, *With Driverless Cars, Once Again It Is California Leading the Way*, FORBES (Sept. 26, 2012), http://www.forbes.com/sites/joannmuller/2012/09/26/with-driverless-cars-once-again-it-is-california-leading-the-way/; *see also* S.B. 1298, 112th Congress (Cal. 2012); *Nevada Enacts Law Authorizing Autonomous (Driverless) Vehicles*, GREEN CAR CONGRESS (June 25, 2011), http://www.greencarcongress.com/2011/06/ab511-20110625.html; NEV. ADMIN. CODE § 482A.020 (Supp. 2014); Alex Knapp, *Nevada Passes Law Authorizing Driverless Cars*, FORBES (June 22, 2011), http://www.forbes.com/sites/alexknapp/2011/06/22/nevada-passes-law-authorizing-driverless-cars/. On 1 July 2012, "Florida became the second state to recognize the legality of autonomous vehicles. Florida's law clarifies that 'the State does not prohibit or specifically regulate the testing or operation of autonomous . . . vehicles on public roads.'" *Autonomous Cars*, WIKIPEDIA, http://en.wikipedia.org/wiki/Autonomous_car (last modified Oct. 22, 2014).

60. *See* Dan Strumpf, *Liability Issues Create Potholes on the Road to Driverless Cars*, WALL ST. J. (Jan. 27, 2013), http://online.wsj.com/news/articles/SB10001424127887323854904578264162749109462.

61. Stanford created a wiki that charts the various US State laws regarding autonomous cars about autonomous cars. *See* Gabriel Weiner & Bryant Walker Smith, *Automated Driving: Legislative and Regulatory Action*, THE CENTER FOR INTERNET AND SOC'Y, http://cyberlaw.stanford.edu/wiki/index.php/Automated_Driving:_Legislative_and_Regulatory_Action (last modified July 7, 2014).

Interestingly, a venerable nonprofit, nonpartisan, public interest research institution, the Rand Corporation,[62] warns against premature new regulation for autonomous cars generally. Rand is concerned with the lack of information about the viability and exact functionality of the cars.[63] Specifically, Rand is concerned with states' legislation creating "a crazy quilt of different, and perhaps incompatible requirements that could increase costs and make the technology uneconomical."[64] Thus, it encourages collaboration between legislatures, insurance companies, manufacturers, and consumer groups.[65] The recommendation seems sound and logical to this writer; and arguably any collective analysis should include potential accident victims, especially non-drivers. Additionally, although vehicles' regulations are squarely within the states' police powers,[66] there is federal legislation regarding vehicles[67] and given the overall societal alleged benefits of these cars, there ought to be, at the very least, federal regulation concerning liability for use on interstate highways and other federal lands.

*Why Regular Insurance Does Not Solve the Problem*

When hit by a car, either as a pedestrian, or while in another vehicle, one's first attempt at remedy will be through insurance.[68] However, not everyone has auto insurance and not all auto insurance coverage is the same.[69] In any case, people will have varying levels of insurance but the

62. For information about the RAND Corporation, see *About the RAND Corporation*, RAND CORP., http://www.rand.org/about.html (last visited Aug. 19, 2014).

63. AUTONOMOUS VEHICLE TECHNOLOGY, *supra* note 2 (noting that more information about benefits and costs is required before regulations, subsidies, or new taxes are initiated).

64. *Id.*

65. *See id.*

66. *See* Am. Trucking Ass'n v. Mich. Pub. Serv. Comm'n, 545 U.S. 429, 432-33 (2005).

67. *See* National Traffic and Motor Vehicle Safety Act of 1966, 49 U.S.C. § 30103 (2012) (regulations impose minimum standards regarding airbag safety and these standards would preempt any state law with lower standards); *see also* 15 U.S.C. § 2089 (2012) (federal legislation regulating use of all terrain vehicles).

68. Most states require drivers to carry auto insurance. *Car Insurance*, ENHANCED INS., http://www.enhanceinsurance.com/car-insurance/ (last visited Aug. 24, 2014); *How Much Car Insurance Do You Need?*, WALL ST. J. (Dec. 17, 2008, 3:24 PM), http://guides.wsj.com/personal-finance/insurance/how-much-car-insurance-do-you-need/.

69. WALL ST. J., *supra* note 68. In 2012, for example, 16.1% of drivers were uninsured. ENHANCED INS., *supra* note 68. Insurance consumer information sites such reflect what is generally common knowledge, that there are many insurance companies and levels of coverage and many prefer to save money and get lower levels of coverage such as Liability Only Coverage. *See id.* "Liability Only" insurance protects "at fault" drivers against a lawsuit (subject to policy limits) and pays for the damages (up to the set limits) to another person's vehicle or property. *See* WALL ST. J., *supra* note 68.

average person's insurance will cover only a fraction of one's costs if there are serious personal injury damages.[70] The same is true in regard to the driver's insurance.[71] Pedestrians will likely have health insurance but that would not necessarily cover all their injuries any more than regular auto insurance would for drivers.[72]

Assuming it is established that the injured party is not at fault (as established from insurance investigation to start with) and that the injuring party's insurance is just average as well, the injured victim is left with the costly remedy of a lawsuit. In the traditional car accident scenario, the lawsuit would be against the driver if the driver could be alleged to be negligent, for example, driving drunk, violating traffic signs, failing to be sufficiently attentive, or speeding.[73]

Alternatively, if the accident could be alleged to result from a malfunctioning of the vehicle, such as brake failure, the injured party could assert a claim directly on the manufacturer.[74] With the introduction of autonomous vehicles (vehicles that drive operated by computer programming without a human driver in control), the determination of negligence liability and products liability causation will be muddled, making it harder for potential plaintiffs to assert their case and more complicated for courts to determine viable causes of action and appropriate jury instructions. Surely plaintiffs firms will happily pursue both the human driver and the autonomous car manufacturer, further driving up discovery and litigation costs for all involved. However, this will not make the causation analysis any easier, just more complicated and expensive.

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70. WALL ST. J., *supra* note 68. Additionally, liability coverage help cover liability and expenses when the driver is at fault to cover the other vehicle's injured but it will not cover the driver's passengers. *Id.* Bodily Injury Liability policies cover medical expenses for injured parties when the policy holder is at fault. However, these policies have coverage limits such as $20,000 per person but up to $50,000 total per accident, covering everyone in the car one hit. *See id.*

71. *See id.*

72. "Although most Americans hold major forms of insurance coverage, a significant minority lack coverage, and the level of coverage of those who have insurance may be substantially less than their losses." A. Mitchell Polinsky & Steven Shavell, *The Uneasy Case for Product Liability*, 123 HARV. L. REV. 1437, 1463 (2010).

73. *See* Rio Seco v. Alfred Meyers Trucking, Inc., 208 So. 2d 265, 266 (Fla Dist. Ct. App. 1968) (stop sign); *see also* Rawls v. Progressive N. Ins. Co., 83 A.3d 576, 586, 590 (Conn. 2014) (inattentive driving); *see* Conniff v. McCaleb, 2005 WI App 21U, 278 Wis. 2d 812, 691 N.W.2d 926 (speeding and drunk driving) (unpublished disposition).

74. Under the "malfunction doctrine," a product defect may be established by proving that the product failed in normal use, suggesting a product defect. Fallon v. Matworks, 918 A.2d 1067, 1075 (Conn. Super. Ct. 2007). Circumstantial evidence can be used to show that "(1) the product malfunctioned, (2) the malfunction occurred during proper use, and (3) the product had not been altered or misused in a manner that probably caused the malfunction." *Id.*

As far as the real impact of autonomous cars on safety, no one can predict the actual reaction and psychology of other drivers on the road when the autonomous cars are part of everyday driving experience.[75] The other cars on the road are easy to detect with sensors but pedestrians and cyclists are less so and it is predicted that to build confidence it is likely that initially these cars will be used only on roadways (i.e. highways/freeways).[76] But how practical is that when one has to get to the roadway in the first place? Impressively, Japan's tram technology has proven itself in Hiroshima, for example, where a tram avoided hitting an oblivious pedestrian and where cars and trams communicate via 700 MHz radio waves.[77]

In current state legislation permitting, for now, just the testing of autonomous vehicles, the definitions are fairly consistent with those used by the NHTSA, but laws require appropriate licenses and supervision by a human driver sitting in the driver's seat.[78] State legislation ought to be uniform so people crossing state lines do not have to worry about different standards regarding autonomous vehicles.[79]

## PART III

### *A. Present Laws and Legal Theories Available to Non-User Injured Plaintiff:*

#### 1. Alleging General Negligence

A plaintiff who was injured in an accident caused by an autonomous car would likely retain an attorney and sue both the driver of the vehicle and the manufacturer of the car (assuming she was not able to find full

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75. PHYS.ORG, *supra* note 52.

76. *Id.* Although sensor systems used in semi and fully autonomous cars can take in more information than human eyes, the ability to interpret the information is still a research challenge. *See* AUTONOMOUS VEHICLE TECHNOLOGY, *supra* note 2.

77. PHYS.ORG, *supra* note 52.

78. *See, e.g.*, S.B. 1298, 112th Congress. (Cal. 2012).

79. For examples the word "operator" is not defined the same way in all three states. In Nevada and Florida, the "operator" is the person who "causes the autonomous vehicle to engage, regardless of whether the person is physically present in the vehicle while it is engaged." NEV. ADMIN. CODE § 482A.020 (Supp. 2014); FLA. STAT. ANN. § 316.85(2) (West 2014). California uniquely defines the "operator" as the person in the driver's seat. CAL. VEH. CODE § 38750(a)(4) (West 2014). Although these differences are subtle, uniformity would best serve the public in regard to notice of liability and ability to effectively navigate legal issues.

satisfaction through insurance claims).[80] The plaintiff would have the burden of proof by a preponderance to make out the prima facie case for negligence: Duty, Breach, Causation, Proximate Cause, and Damages.[81] In a negligence action at common law, the duty of care standard is based on foreseeability and the breach of that duty of care is evaluated based on the objective reasonable person standard.[82] Assuming that there are no intervening causes affecting the proximate cause analysis[83] and there is no lack of clarity regarding causation or ensuing damages, the challenging legal analysis will be in assessing who breached a duty and who is at fault for negligence.

### 2. Complications in the General Negligence Theory's Duty & Breach Analysis

The elements for a tort law cause of action for negligence are defined in relation to one actor's liability for "invasion" of another's "interest."[84] The elements for a cause of action of negligence are: invading a protected interest, via negligent conduct, that is the legal cause of the invasion, and that the actor has not conducted herself in such a way as to "disable [herself] from bringing an action for such invasion."[85] Negligence is "conduct which falls below the standard established by law for the protection of others against unreasonable risk of harm."[86]

But what is meant by "unreasonable risk of harm"? The Restatement Comments and Illustrations note that one cannot be negligent if one's conduct does not create a recognizable risk of harm as to the class of persons injured that would be reasonably foreseeable.[87] For example, driving carelessly and therefore crashing into another car with dynamite in

80. It is commonly understood that plaintiff's attorneys will pursue as many defendants as they can for leverage and of course well-healed corporate defendants are a natural target. PRACTICING LAW INST., PRODUCT LIABILITY LITIGATION: CURRENT LAW, STRATEGIES AND BEST PRACTICES (Stephanie A. Scharf et al., 2013).

81. Geshke v. Crocs, 740 F.3d 74, 77 (1st Cir. 2014).

82. *See* Consol. Rail Corp. v. Gottshall, 512 U.S. 532, 548-49 (1994) (the Supreme Court specifically addressing negligent infliction of emotional distress but the negligence principles are applied as usual); Palsgraf v. Long Island R.R., 162 N.E. 99 (N.Y. 1928) (landmark case establishing foreseeability as fundamental in the duty and breach analysis); Parks v. AlliedSignal, Inc., 113 F.3d 1327, 1331-32 (3d Cir. 1997) (citing the Restatement (Second) of Torts § 431 in discussing the prima facie requirement of foreseeability and the reasonable care standard in strict liability).

83. *See, e.g.*, Dillard v. N.Y. City Hous. Auth., 977 N.Y.S.2d 226, 227 (App. Div. 2013).

84. RESTATEMENT (SECOND) OF TORTS § 281 (1965).

85. *Id.*

86. *Id.* § 282.

87. *Id.* § 281 cmt. on clause (b).

it. The careless driving is negligent as to the other party hit in the crash. However, the driver is not negligent as to collateral damage done by the exploding dynamite because that was not foreseeable.[88] The analysis would change if the car exploded on its own and not due to dynamite put inside it.[89] Applying this legal concept and rule to autonomous cars emphasizes the ensuing legal issues. Ought driving an autonomous car in the Interim Period be deemed legally equivalent to driving a car with dynamite, or a car even safer than a typical non-autonomous vehicle?

Thus, does driving an autonomous car without being fully attentive equate with creating a recognizable risk of harm? And if so, who is responsible for creating that risk, the manufacturer or the human user? In general, litigators and judges would parse tort law to answer the questions if the facts of the case did not identify a particular risk of harm created by either the human driver's clear misuse of the car, or some additional specific discretely negligent act by the human user that created the risk, or a clear malfunction of a specific function or feature of the car. In situations where the human driver did something overtly negligent such as controlling the car's speeding, or if the driver overtly misused the car against instructions or warnings, or, for example, the car's brakes simply fail, then the analysis is more clear.[90] However, if the human driver does nothing clearly negligent and no particular part fails to operate properly, the assessment of creating a foreseeable risk of harm is more complex.

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88. *Id.* § 281 cmt. on clause (b), illus. 2.

89. *See id.*

90. If the driver negligently drove the car by speeding, for example, she would be liable for negligence. *See* Conniff v. McCaleb, 2005 WI App 21U, 27 Wis. 2d 812, 691 N.W.2d 926. If the driver's use of the car exceeded the scope of foreseeable misuse then the manufacturer would not be liable under products liability. Under the Third Restatement, most courts agree that manufacturers of ordinary products cannot ward their liability away with warnings. *See* David G. Owen, *The Puzzle of Comment j*, 55 HASTINGS L.J 1377, 1377 n.1, 1394-95 (2004). Interestingly, "[w]hile there now is a Restatement (Third) of Torts on the topic of products liability, the law in most states still is largely constructed upon Restatement (Second) of Torts section 402A, the most influential section of any Restatement of the Law on any topic." *Id.* In any case, manufacturers are responsible for using a "safer design [when it] can reasonably be implemented and risks can reasonably be designed out of a product . . . . Warnings are not . . . a substitute for the provision of a reasonably safe design." RESTATEMENT (THIRD) OF TORTS: PROD. LIAB. § 2 cmt. l (1998). Additionally, warnings need to address and protect consumers against foreseeable misuse. *See* Rivera v. Phillip Morris, Inc., 209 P.3d 271 (Nev. 2009). If part of the car simply malfunctions or its overall design is defective, again, that is a more clear-cut products liability issue more readily resolvable under common tort product liability theories. RESTATEMENT (THIRD) OF TORTS PRODUCT LIABILITY § 2 (providing that products may be defective for either "defective in design," "manufacturing defect," and/or because of "inadequate instructions or warnings." *Id.* The foreseeability of harm is always at the center of the analysis. *See id.* See Andrew P. Garza, "*Look Ma, No Hands!": Wrinkles and Wrecks in the Age of Autonomous Vehicles*, 46 NEW ENG. L. REV. 581 (2012), for a more in-depth strict liability analysis of autonomous cars.

Generally, answers to these issues can be resolved based on already existing tort law rules and concepts.

To determine whether an actor should know that her conduct involves a risk the Restatement requires knowledge of (a) "the qualities and habits of human beings. . . and the qualities, characteristics, and capacities of things and forces in so far as they are matters of common knowledge at the time and in the community; and (b) the common law, legislative enactments, and general customs in so far as they are likely to affect the conduct of the other or third persons."[91] Many states follow the Restatement rule.[92] If autonomous cars are legally introduced on the market there will be legislative enactments governing their use; either they will be governed by regular automobile legislation and/or specifically tailored legislation. There is already law in several states governing autonomous vehicle test-driving.[93] Additionally, the understanding and knowledge in regard to "qualities, characteristics, and capacities of things" as discussed in the Restatement[94] will be predicated on published statistics, marketing information, warning contents, and general knowledge. Judges and juries will invariably apply varying subjective attitudes regarding new technology and the potential safety and sagacity of these vehicles and their drivers.[95]

A tension arises between one of the key purposes of autonomous vehicles to allow a driver to be otherwise engaged and productive during the driving time and the inherent risks that may flow from being a lawfully, foreseeably inattentive driver. While at present, the state laws permitting testing require the human driver to be at the ready to take over the driving,[96] proponents of autonomous technology warn against such requirements.[97]

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91. RESTATEMENT (SECOND) OF TORTS § 290 (1965).

92. *E.g.,* Victor v. Hedges, 91 Cal. Rptr. 2d 466 (Ct. App. 1999) (Plaintiff who was injured while standing with a man on sidewalk behind his parked car there lost at summary judgment because of failing to raise fact issues as to whether it was reasonably foreseeable that the defendant was placing the plaintiff at unreasonable risk of harm by standing with her on the sidewalk when an inattentive driver drove over the sidewalk and hit plaintiff); *see also* Joyce v. M & M Gas Co., 672 P.2d 1172, 1174 (Okla. 1983) (Oklahoma Supreme Court held it was not a foreseeable risk of harm on part of car owner whose car was stolen, subsequently injuring plaintiffs, after owner/defendant left his car keys in ignition).

93. *See* Knapp, *supra* note 59 (citing present laws regarding autonomous car use in California, Florida, and Nevada).

94. RESTATEMENT (SECOND) OF TORTS §290 (1965).

95. *See Technophobia*, WIKIPEDIA, http://en.wikipedia.org/wiki/Technophobia (last modified Aug. 9, 2014) [hereinafter *Technophobia*].

96. S.B. 1298, 112th Cong. (Cal. 2012); *Autonomous Vehicles in California*, CAL. DEP'T OF MOTOR VEHICLES, http://dmv.ca.gov/portal/dmv/detail/vr/autonomous/ (last visited Mar. 21, 2014); NEV. REV. STAT. § 482A.070 (2013), H.B. 1207, 2012 Leg., 114th Reg. Sess. (Fla. 2012).

97. The claim is that human brains are not designed to supervise and no legal rule will change this so if the car is driving itself, after a while, humans will stop paying attention, no

Thus, one key purpose would be negated and the primary purpose would arguably hindered. How safe autonomous cars will actually be when many of them are on the roads remains to be seen. In the Interim Period, should a human "driver" be held liable for negligence if relying on both the lawfulness of these vehicles and marketing and warning information that does not require attentiveness generally?

This Comment argues "no," the driver should not under those circumstances, and short of intervening negligence that interferes with the operation of the vehicle, be held liable. Even if the marketing information recommends or even requires attentiveness, it is likely that the "general custom" (as per the Restatement)[98] will be to be inattentive, even if inadvertently, because the circumstances and marketing will invite that. After all, despite laws and public service announcements (PSAs) that passionately and forcefully warn of the dangers of texting while driving, there are, sadly, no shortage of devastating car accidents that result from that very act.[99] Consequently, the case for foreseeable misuse is easily made, rendering the manufacturer potentially liable even under a strict liability theory. This Comment suggests that instead of requiring individual plaintiffs to prove this independently, and risking both inconsistent outcomes and punishing litigation costs, the legislature can solve the problem before it starts.

It seems foreseeable that one's skills in driving will atrophy from disuse if autonomous cars become part of regular driving. Furthermore, if the human driver is only meant to take over during times of mechanical failure or emergency, is it likely that the driver will be as competent, given reduced experience in driving and the stress of the situation involved in

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matter what. Also, "supervision of a car traveling at high speed or in urban settings is very different from supervising a plane on auto-pilot." ALEXANDER HARS, SUPERVISING AUTONOMOUS CARS ON AUTOPILOT: A HAZARDOUS IDEA, INVENTIVIO INNOVATION BRIEFS (Sept. 2013), *available at* http://www.inventivio.com/innovationbriefs/2013-09/Supervised-Autonomous-Driving-Harmful.2013-09.pdf. There are difficulties associated with the driver knowing the car's capabilities (what it can and cannot handle) and whether drivers can react in time. *Id.* One leading consultant involved in autonomous car software and technology strenuously discourages regulation that requires supervised driving because he believes it will curtail innovation and the supervision will be ineffective or challenged as noted above. *See id.*

98. *See* RESTATEMENT (SECOND) OF TORTS § 290 (1965).

99. Texting while driving is a growing national problem that results in approximately 1,600,000 accidents per year according to the National Safety Council and 330,000 injuries per year according to a Harvard Center for Risk Analysis study. *Texting and Driving Statistics*, TEXTING AND DRIVING SAFETY, http://www.textinganddrivingsafety.com/texting-and-driving-stats/ (last visited Mar. 21, 2014); *see* Todd Leopold, *Film Legend Herzog Takes on Texting and Driving*, CNN (updated Aug. 16, 2013, 1:20 PM), http://www.cnn.com/2013/08/16/tech/mobile/werner-herzog-texting-driving/ (Werner Herzog's (famous Academy-Award™-winning director) lauded Public Service Announcement about the dangers of texting and driving).

taking over control? No. Not likely. The auto-pilot airplane example is instructive. Auto-pilot technology controls airplanes and yet most accidents are attributed to pilot error for inability to properly follow the directions when in an emergency situation.[100] Does that understanding make the human driver more liable for being in that situation, or less so? There is no benefit leaving the analysis to varying independent judgments and a complicated evaluation of exactly what and whose decision was the proximate cause[101] of the accident. The litigation solution would be to have a complicated lawsuit involving a battle of expert evidence and opinion regarding technology and causation. The lawyers win but the parties lose in time and cost; hence, the need for more consumer and public-protective solutions.[102]

As discussed further below, these solutions would just as much protect the emerging market for autonomous vehicles because liability concerns would be assuaged and liability costs could be built into the automobiles' costs. However, this Comment's proposed solutions are not arbitrary. They are grounded in established tort law concerning the risk of harm balanced against utility and the requisite reasonable care standard.

The Restatement Second of Torts' list of factors relevant to determining the standard of reasonable conduct including: a weighing of the risk of harm compared to "what the law regards as the utility of the act,"[103] the "utility of the actor's conduct" and "magnitude of risk" for purposes of determining negligence, is evaluated based on social value attached to it.[104] Society clearly seems to be attaching great social value to the autonomous

100. Although there are cases in which the auto-pilot mode was in part responsible for the airplane accident, in most cases a flaw in human oversight was the bigger cause of the accident. K. Krasnow Waterman & Matthew T. Henshon, *Imagine the Ram-If-Ications: Assessing Liability for Robotics-Based Car Accidents*, 5 NO. 4 ABA SCITECH L. 14, 14-15 (2009); s*ee also Pilot Error,* WIKIPEDIA, http://en.wikipedia.org/wiki/Pilot_error (last visited Mar. 21, 2014) (explaining the now famous and instructive Eastern Air Lines Flight 401 crash near Miami that the National Transportation Safety Board blamed on the crew for failing to monitor the plane's instruments correctly); *Causes of Fatal Accidents by Decade (percentage)*, PLANECRASHINFO.COM, http://www.planecrashinfo.com/cause.htm (last visited Mar. 21, 2014) (for general data regarding human error causing plane crashes).

101. Liability arises when the "actor's conduct is a legal cause of the invasion." RESTATEMENT (SECOND) OF TORTS § 281(c) (1965). In a situation where the human operator/"driver" does something manually out of fear that car will not react in time, or, if she corrects what car does because it seems wrong—if an accident results from either of these, both the car and the human did something that resulted in a harm. How can one later resolve what was wrong and what was right? Who can tell!

102. *See infra* Part IV.

103. RESTATEMENT (SECOND) OF TORTS § 291 (1965).

104. *Id.* § 292; § 293.

car.[105] Therefore, if such autonomous car use is sanctioned and the vehicle is marketed to be safe, arguably the driver should not be deemed negligent for following the law and the recommended use of a product. Moreover, if the state, such as Florida which permits texting while driving (if in autonomous mode), permits being a distracted, inattentive driver,[106] the human driver's conduct is in keeping with "legislative enactments" and therefore, the person should not be held negligent in a situation that involved no unforeseeable misuse.

Another option though, theoretically, at least until the cars are ubiquitously proven safe, is to impart liability on the human driver simply for the activity being an "inherently dangerous" one that essentially creates strict liability.[107] However, while, for example, a bar owner or even social host serving alcohol may be liable to a third party plaintiff injured by a drunk driver,[108] the act of driving while intoxicated has been held not to qualify as an inherently dangerous activity for purposes of tort liability because "the concept presupposes that the ultra-hazardous activity has some social value and that reasonable care is insufficient to eliminate its risk of harm."[109] This train of thinking suggests the affirmative defense of "Assumption of the Risk"[110] – but whose assumption? and whose risk? The

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105. *See supra* Part I, "Potential Benefits of the Autonomous Car," notes 34-41 and accompanying text.

106. See explanation of Florida law regarding autonomous cars *supra* note 59 and accompanying text.

107. RESTATEMENT (SECOND) TORTS § 519 (1977) ("One who carries on an abnormally dangerous activity is subject to liability for harm to the person, land, or chattels of another from the activity, although he has exercised the utmost care to prevent the harm . . . . This strict liability is limited to the kind of harm, the possibility of which makes the activity abnormally dangerous."). When an activity is "inherently dangerous" injury flowing from the risk of the activity creates strict liability. An activity is "inherently dangerous" when it carries a serious risk of harm, even if performed with great care, and the activity is not common in the community. *See id.*; *see also* § 520.

108. Social hosts or bars / restaurants may incur liability for over-serving alcohol to foreseeable drivers. *See* Tom Stilwell, *Warning: You May Possess Continuing Duties After the Sale of Your Product! (An Evaluation of the Restatement (Third) of Torts: Products Liability's Treatment of Post-Sale Duties),* 26 REV. LITIG. 1035 (2007); *see also* Edward L. Raymond Jr., *Social Host's Liability for Injuries Incurred by Third Parties As a Result of Intoxicated Guest's Negligence*, 62 A.L.R.4th 16 (originally published in 1988); 45 AM. JUR. 2d *Intoxicating Liquors* §§ 518-521 (liability is not incurred in all jurisdictions).

109. Goodwin v. Reilley, 221 Cal. Rptr. 374, 375 (Ct. App. 1985)).

110. The Affirmative Defense of Assumption of the Risk shields a manufacturer from liability if the inherent risks were disclosed and the product user knowingly assumed the risks. *See, e.g.,* Tone v. Song Mountain Ski Ctr. 977 N.Y.S.2d 857, 858 (N.Y. App. Div. 2014). However, many states now merge the comparative negligence analysis with the concept of assuming risk and thus the defense is no longer recognized in many states. Gary E. Marchant & Rachel A. Lindor, *The Coming Collision Between Autonomous Vehicles and the Liability System*, 52 SANTA CLARA L. REV. 1321, 1336-37 (2012). The Restatement (Third) of Torts rejects not-contractual assumption

human driver's? Or, the autonomous car manufacturers'? The questions and issues raised by this Comment are answered, seemingly, consistent with both tort law and products liability in general,[111] especially as pertaining to vehicles—that the manufacturer would be liable for injuries resulting from any foreseeable use of its product. Period. In this way, the inherent complications of general negligence analysis of autonomous car accidents are resolved by imparting the principles of strict liability in finding that any proximately caused injury resulting from foreseeable use of an autonomous car should be borne by the manufacturer, regardless of whether the act of using the car would be regarded by some as "inherently dangerous" / "ultrahazardous." After all, the whole point of these cars is to be ultimately ultra safe.

Additionally, a strong argument can be made that autonomous vehicle technology is so attractive it lulls people into complacency. This reasoning has resulted in lawyers arguing that manufacturers of the submarine shoulder strap are liable for accidents because passengers are lulled into complacency.[112]

Perhaps one could argue that, as the human owner's personal property, the owner is responsible for the vehicle as much as she would be for her pet.[113] Alternatively, for proponents of robot personhood, there is an argument to be made that the autonomous vehicle is the human driver's agent.[114] However, presently, computers and robots, while fast-computing and able to "mimic some aspects of human behavior and can only achieve

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of risk. *See id; see also* RESTATEMENT (THIRD) OF TORTS: APPORTIONMENT LIAB. § 2 cmt. f (2000).

111. Products manufacturers are liable for harms to users of their products if the harm is caused by the use. *See* RESTATEMENT (THIRD) OF TORTS: PROD. LIAB. § 1 (1998). However, Assumption of the Risk may be a viable affirmative defense in products strict liability actions. *See* Lipson v. Superior Court, 644 P.2d 822, 830-831 (Cal. 1982).

112. "Passive restraint systems lull the occupant into a false feeling of safety when the shoulder belt slides around them." Thomas J. Methvin, *How to Spot a Product Liability Claim*, BEASLEY ALLEN 3 (Feb. 8, 2008), https://www.beasleyallen.com/webfiles/How%20to%20Spot%20a%20Product%20Liability%20Claim.pdf.

113. The law sees pets as people's personal property. *See* Maureen L. Rowland, *Legal Standing of Animals Today*, 40 MD. B.J. 10, 11 (2007). Pet owners are thus liable for the harm their pets may cause others. *E.g.,* Priebe v. Nelson, 140 P.3d 848, 853 (Cal. 2006) (citing California law rendering dog owners strictly liable for their dogs biting).

114. The argument would be that the robotics of the autonomous car is an agent of the human owner ("principal"), or it could be said to be an agent of the manufacturer. *See generally* RESTATEMENT (THIRD) OF AGENCY §2.01 (2006); Gabriel Hallevy*, I, Robot – I, Criminal" – When Science Fiction Becomes Reality: Legal Liability of AI Robots Committing Criminal Offenses*, 22 SYRACUSE SCI & TECH. L. REP. 1, 9 (2010). "A principal who conducts an activity through an agent is subject to liability for harm to a third person caused by the agent's conduct if the harm was caused by the principal's negligence in selecting, training, retaining, supervising, or otherwise controlling the agent." RESTATEMENT (THIRD) OF AGENCY § 7.05.

an 'idiot savant level of expertise' in narrow areas" and no machine has passed what is called the "Turing Test" which evaluates robots' capacity to think and communicate and effectively pass as a human.[115]

Given that these last suggested theories seem somewhat far-fetched, and that the definition of, marketing of, and warnings related to autonomous cars all will suggest that the human driver need not be attentive, then she ought not be held liable for that choice. After all, the Restatement rule is that: "Where an act is one which a reasonable man would recognize as involving a risk of harm to another, the risk is unreasonable and the act is negligent if the risk is of such magnitude as to outweigh what the law regards as the utility of the act or of the particular manner in which it is done."[116] If the information about the car available to the user may reasonably be understood to mean that the driver can choose to not pay attention, it seems inequitable to then hold her liable for negligence for anything that happens after that, barring any user misuse of intervening cause of plaintiff's injury. Thus, if the human driver is not negligent under the circumstances of regular autonomous vehicle use, then the manufacturer must be for creating the product and the consumer understanding and reliance on safety. This would be consistent with precedent.[117]

Interestingly, in the use of industrial robots, when robots' manufacturers have been sued, most injuries have been attributed to human failure to follow safety precautions.[118] However, with an autonomous vehicle, if operated properly and there are no other intervening events impairing the car's functionality, and the car is intended to be fully autonomous, ought the responsibility not fall on the software programming and the manufacturing of the vehicle? After all, if the self-driving cars are to be dramatically safer, and that benefit, among others, will drive its success, then a manufacturer should be liable for what should be far fewer accidents anyway. The liability costs that do result, especially in the Interim Period while the technology is being refined, can be rationalized as the cost of entry into and creating the market—essentially the cost of doing business.

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115. F. Patrick Hubbard, *"Do Androids Dream?": Personhood and Intelligent Artifacts*, 83 TEMP. L. REV. 405, 447, 441 (2011).

116. RESTATEMENT (SECOND) OF TORTS § 291 (1965).

117. *See, e.g.,* Soule v. General Motors Corp., 882 P.2d 298 (Cal. 1994); *see, e.g.*, MacPherson v. Buick Motors Co., 111 N.E. 1050 (N.Y. 1916); Derflinger v. Ford Motor Co., 866 F.2d 107 (4th Cir. 1989).

118. *See, e.g.*, Payne v. ABB Flexible Automation, Inc., No. 96-2248, 1997 U.S. App. LEXIS 20255 (8th Cir. June 9, 1997).

### B. *Litigation Hurdles for Potential Plaintiffs*

If there is no rule holding the human driver liable, a plaintiff can allege general negligence on the part of the manufacturer and also assert a products strict liability claim.[119] The human driver defendant could also assert a products liability third party complaint against the manufacturer. Plaintiffs, on the one hand, would benefit from going after the deeper corporate pockets of a car manufacturer, unless the human driver were wealthy or had very significant insurance coverage (in which case the litigation would likely lead to settlement).

However, plaintiffs would then also face a wealthy corporate defendant[120] who could easily drive up the costs of litigation, making discovery burdensome and complicated since defendants would be in the best position to decode the car's computer and black box readings.[121] Accordingly, at the 2014 Detroit motor show Mercedes-Benz CEO explained that he hopes there would not be too much regulatory pressure to turn over the data readings to insurance companies, opposing parties, etc., and would prefer the data remain with the driver.[122]

Importantly, as noted, the benefit of a potential requirement for human driver attention is debated. Some proponents of autonomous vehicles think it is critical human drivers stay attentive and at the ready, while others strenuously disagree.[123] In general, products manufacturers have a duty of care to users, foreseeable users and those foreseeably affected by their products to make products safe for the purpose they were intended.[124]

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119. A plaintiff can assert a strict liability claim for design defect (which is determined under either the Consumer Expectation Test or the Risk Utility Test), manufacturer defect, or a warning defect / failure to warn (which is usually limited to foreseeability at the time of sale). *See* Marchant & Lindor, *supra* note 110.

120. While plaintiffs' lawyers may advise their clients to pursue wealthy corporate defendants with big pockets, that also means those defendants can defend themselves with the help of big corporate law firms. *See Defective Product Liability Claims: Who to Sue?*, NOLO, https://www.nolo.com/legal-encyclopedia/defective-product-liability-claims-who-29606.html (last visited Sept. 19, 2014).

121. Matos v. State, 899 So. 2d 403, 405 (Fla. Dist. Ct. App. 2005); *see also infra* note 159 and accompanying text (regarding black box data in cars and current state laws regarding preserving the data in event of accident).

122. *See* English, *supra* note 54. The CEO offered "[b]ut it seems possible that insurance companies might offer a bonus based on driver [behavior] if you allow them access to that data. We will try to defend the decision to leave [the data] with the driver."). *Id.*

123. *Compare* HAVEIT, *supra* note 30 (discussing human supervision in detail) *with* HARS, *supra* note 97 (regarding the consultant who warns against it). *See* NAVIGANT RESEARCH PRESS RELEASE, *supra* note 16 (suggesting that human drivers should be responsible for autonomous cars the way that human pilots are for planes operating in auto-pilot.).

124. *See* R.D. Hursch, *Liability of Manufacturer or Seller for Injury Caused by Automobile or Other Vehicle, Aircraft, Boat, or Their Parts, Supplies, or Equipment*, 78 A.L.R.2d 460

Autonomous cars by their very nature require a conflation of products liability analysis even when dealing with accidents that would be considered the result of negligence had the car been regular. One must recall that at the onset of the automobile's entry into our society, Justice Cardozo, in the landmark case *MacPherson v. Buick*, set the standard for manufacturer liability any time foreseeable use of a product results in danger or harm.[125] Thus, it is unacceptable for litigators to try to parse the cause of the accident if it only comes down to whether the human driver should have taken command of the car or not. The autonomous car, by its essence, creates the condition whereby a human driver will not have caused the accident and may not be able to prevent the accident, and for that, the manufacturer must be held liable.

Plaintiffs firms will of course be comfortable suing manufacturers as well as car owners on behalf of their clients. Yet lawsuits cost a lot of money (figures vary based on complexity of the case); even if costs are not out-of-pocket for plaintiffs, but recoupable after a win, plaintiffs often only recover half of the sums paid by the defendant.[126] It is common knowledge that plaintiffs sometimes recover even less, such as forty or thirty percent. This seems a gratuitous price for injured plaintiffs to pay when the problem is so clear and so easily remedied.

## PART IV: PROPOSED SOLUTIONS

The benefit of strict liability theory for plaintiffs is that it reduces litigation costs because the plaintiff only needs to prove a defect in the product and causation of the harm, a relatively easy burden to meet.[127] The benefit of a "negligence per se" standard would be to give the injured party the same advantage as strict liability does.[128] Essentially, this theory treats any accident directly resulting from an autonomous car as being akin to a design or manufacturing defect, but without having to prove the defect

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(originally published in 1961) ("There is general agreement that the duty of care of a manufacturer of products . . . is a duty of ordinary, reasonable care. The manufacturer must exercise care to make his product safe for the purpose for which it was intended. This, of course, requires that he exercise care in the design of his product.)." *Id.*

125. MacPherson v. Buick Motor Co., 111 N.E. 1050, 1053 (N.Y. 1916). "If the nature of a thing is such that it is reasonably certain to place and limb in peril when negligently made, it is then a thing of danger. Its nature gives warning of the consequences to be expected." *Id.*

126. Polinsky & Shavell, *supra* note 72, at 1469-70.

127. "One engaged in the business of selling or otherwise distributing products who sells or distributes a defective product is subject to liability for harm to persons or property caused by the defect." RESTATEMENT (THIRD) OF TORTS: PROD. LIAB. § 1 (1998); *accord* R.J. Reynolds Tobacco Co. v. Brown, 70 So. 3d 707, 717 (Fla. Dist. Ct. App. 2011).

128. *See* RESTATEMENT (SECOND) OF TORTS § 286 (1965).

specifically.[129] This result requires a legislative enactment or some administrative regulation,[130] the violation of which would be deemed "negligence per se."[131]

### *A. The "Negligence Per Se" Test Standard:*

In general, proving negligence per se requires: a violation of a law (statute or regulation); the plaintiff has to be part of the class of people the law was intended to protect;[132] similarly, there may be a parallel private right of action in keeping with the intent and purpose of the law; and this right should be compatible with the legislative scheme.[133] Importantly, in the context of products liability, failure of a manufacturer to comply with marketing or design statutory requirements renders the product 'per se' defective.[134]

To remedy the problem discussed herein, there should be a "negligence per se" test standard[135] that allocates negligence based on either legislatures' assessment that the vehicles are "inherently dangerous"[136] until proven otherwise, or, alternatively, and much more viable and likely, if the autonomous cars are marketed for full autonomous use, then human drivers ought to be deemed not negligent and manufacturers should be per se liable for any injury resulting from complete and proper autonomous use, provided there are no intervening causation factors. This would eliminate an inevitably muddled inquiry as to what is negligent conduct. If the legislature approves the vehicles, and does not require the human driver to pay attention at the wheel, and the marketing of vehicle as well as the warnings for the car do not suggest it is critical to be attendant at the wheel,

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129. *See* Dan B. Dobbs, THE LAW OF TORTS 323 (WEST 2001).

130. RESTATEMENT (SECOND) OF TORTS § 286 (1965).

131. *See* Martin v. Herzog, 126 N.E. 814, 815 (N.Y. 1920). Justice Cardozo, in a buggy and automobile collision case, found the "unexcused omission of the statutory signals" (regarding lights) to be "more than some evidence of negligence" but "negligence itself." *Id.*

132. *See, e.g.*, Martin v. Shell Oil Co., 180 F. Supp. 2d 313, 324 (D. Conn. 2002).

133. *See* RESTATEMENT (SECOND) OF TORTS § 286 (1965).

134. RESTATEMENT (THIRD) OF TORTS: PROD. LIAB. § 4(a) (1998).

135. RESTATEMENT (SECOND) OF TORTS § 288B (1965) ("Where a statute or ordinance is adopted by the court as defining the standard of conduct of a reasonable man under the circumstances . . ." an unexcused violation is usually said to be "negligence 'per se' . . . . This means that the violation becomes conclusive on the issue of the actor's departure from the standard of the conduct required of a reasonable man . . . .").

136. An instrumentality is considered "inherently dangerous" only if it is dangerous in a non-defective state. An example is explosives. Though refining what "inherently dangerous" means can be challenging as it also applies to activities. *See* Huddleston v. Union Rural Elec. Ass'n, 841 P.2d 282, 286 (Colo. 1992).

then any accident resulting from decisional failure or miscalculation on the part of the vehicle should be held to be a "negligence per se."

Accordingly, any driver conduct to the contrary, namely: the human disobeying the law requiring attentiveness at the wheel and disregarding marketing information and warnings that unambiguously strongly encourage attentiveness at the wheel, should be deemed "negligence per se."

The federal and state law, manufacturer's marketing information, and the car's warnings information, will be easily determinable. The driver's position in the car will also be determinable, presumably based on scanners and sensors and any human activity with the car's steering wheel and brakes, so that the car can get the driver's attention to alert her of an emergency.[137] Additionally, witnesses may be useful here. What cannot be determined consistently is the degree of blame and negligence if left to the subjective interpretations of judges who may have different statistical information or cultural perspective[138] and different sensibilities regarding technology.[139]

Moreover, this Comment argues that the mere fact of having these cars on the market will invite distracted driving or the driver taking a nap.[140] After all, as noted, one sees people breaking the law when they text in their cars all the time.[141] Additionally, autonomous cars will allow people to not need to drive themselves, drivers' skills will dwindle, eventually, generations will not develop those skills as well altogether. Consider the time when a human driver would have to take over would be during an emergency. How likely is it that the human driver will be competent then and able to follow directions or be able to perform perfectly? Arguably, not very likely.

Importantly, as noted above, pilots are usually found to be at fault when in emergency settings they take over from the auto-pilot mode because plane accidents are attributed to pilot error and pilots' inability to properly follow directions in emergency situations.[142] It might surprise one

137. *See* NAT'L HIGHWAY TRAFFIC AND SAFETY ADMIN., *supra* note 4, at 3; *see* Heather Kelly, *Driverless Car Tech Gets Serious at CES*, CNN (Apr. 7, 2014, 8:52 AM), http://www.cnn.com/2014/01/09/tech/innovation/self-driving-cars-ces/.

138. *See* Wayne Cunningham & Antuan Goodwin, *Six Reasons to Love, or Loath, Autonomous Cars*, CNET (May 8, 2013, 2:29 PM), http://www.cnet.com/news/six-reasons-to-love-or-loathe-autonomous-cars/.

139. *See Technophobia*, *supra* note 95.

140. *See* Howley, *supra* note 36.

141. See TEXTING AND DRIVING SAFETY, *supra* note 99, for statistics regarding unlawful texting while driving.

142. Brouse v. U.S., 83 F. Supp. 373, 374-75 (N.D. Ohio 1949).

to know that pilots' mere reliance on autopilot is considered a safety hazard for airplane passengers.[143]

Therefore, having any "at fault" injury resulting from normal use of an autonomous car should be held to be 'negligence per se' on the part of the manufacturer. This is consistent with the notion that any failure of computer software or technical tool would fall into the category of "products."[144] As noted above, the only exceptions to ensuing liability should be unforeseeable misuse[145] and obviously any intentionally tortious conduct[146] on the part of the human driver.

In light of the above analysis, the proposed negligence per se test would hold the manufacturer of the autonomous car liable where: 1) it was driven in a state in which it is lawful to drive autonomous cars in a fully autonomous fashion; 2) the autonomous car marketed to be driven as such and did not require consistent human driver-attentiveness;[147] 3) the autonomous car was the proximate cause of the car accident and the alleged injury, meaning the autonomous car/driver are the "at fault" party; and 4) there was no intervening unforeseeable misuse or intentionally tortious conduct by the human operator of the autonomous vehicle.

Of course, having a negligence per se standard merely establishes liability.[148] In wanting to avoid the problem of needless complicated and expensive litigation, an insurance solution ought to do the trick.

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143. Casey Newton, *Reliance on Autopilot is Now the Biggest Threat to Flight Safety, Study Says*, THE VERGE, (Nov. 18, 2013, 9:23 PM), http://www.theverge.com/2013/11/18/5120270/reliance-on-autopilot-is-now-the-biggest-threat-to-flight-safety.

144. *See* Winter v. G.P. Putnam's Sons, 938 F.2d 1033, 1035-36 (9th Cir. 1991) (holding that computer software and even certain scientific data charts that fail to yield correct and expected results may be considered a product for purposes of product liability).

145. A manufacturer will likely not be held liable for an injury resulting from a product if that product was unforeseeably misused. RESTATEMENT (THIRD) TORTS: PROD. LIAB. § 2 cmt. p (1998).

146. *See, e.g.*, Levin v. U.S. 133 S. Ct. 1224, 1228 (2013) (holding that intentional torts were exceptions to the Federal Tort Claims Act).

147. For this prong, at the very least, the issue of attentiveness should only be relevant if there are specific conditions, such as snow, that would require human driver attentiveness.

148. It is beyond the scope of this Comment to address breach of warranty claims that the owner of an autonomous car may make under the Uniform Commercial Code (U.C.C.). However, it should be noted that if an autonomous car owner were sued, she could cross-claim or third party claim against the manufacturer under a breach of express or implied warranty theory. *See* U.C.C. § 2-313(1)(a) (2012); § 2-314; § 2-315.

### *B. Legislative Insurance Requirements (State) & Tax-Incentive Schemes (Federal)*

Congress has allowed auto insurance to remain the province of state law.[149] Thus, there should be state requirements for anyone with an autonomous vehicle to have a higher level of insurance (which each state's legislature can establish). There is already a model for this because cars with racing engines or other similar features require higher insurance coverage.[150]

Since these cars will already be considered luxury the extra costs should not be a big deal or a deterrent. Additionally, costs can be offset by the manufacturer securing bulk (wholesale rates). This would protect all involved: manufacturer, driver, and the third-party injured. And insurance companies could do well too, just like with Obamacare,[151] they are guaranteed the business and presumably, the need for payouts to compensate accident victims should be minimal.

Moreover, the federal government can incentivize the development of this safer, more eco-friendly, and pro-productivity technology by making the cars more affordable in giving a tax break as was done for electronic vehicles in the United States.[152] For the sake of uniformity and protecting an important technological innovation with significant public safety implications, it is advisable that there be federal legislation regulating autonomous vehicles. Examples of this are: airbag regulations,[153] seatbelt

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149. Robert W. Peterson, *New Technology-Old Law: Autonomous Vehicles and California's Insurance Framework*, 52 SANTA CLARA L. REV. 1341, 1343 (2012). *See* McCarran-Ferguson Act 15 U.S.C. §§ 1011-1015 (2012).

150. "Horsepower can directly impact the cost of your insurance. The more horsepower your vehicle has, the likelier you are to drive at faster speeds and as such, the higher the risk of an accident. Different trim levels with varying engine sizes, even among the same makes and models, can bring differences in insurance premiums based on engine size." *The Most Expensive and Least Expensive Cars to Insure,* KELLEY BLUE BOOK, http://www.kbb.com/car-advice/articles/the-most-expensive-and-least-expensive-cars-to-insure/?r=558365543838590400 (last visited Mar. 21, 2014).

151. *See* Bruce Japsen, *Despite Glitches, Obamacare Profit Windfall to Insurers Well Underway*, FORBES, (OCT. 26, 2013), http://www.forbes.com/sites/brucejapsen/2013/10/26/despite-glitches-obamacare-profit-windfall-to-insurers-well-underway/.

152. U.S. Dep't of Energy, *Tax Incentive Information Center*, FUELECONOMY.GOV, http://www.fueleconomy.gov/feg/taxcenter.shtml (last visited Mar. 21, 2014). Israel recently passed legislation giving tax incentives for safety systems in new vehicles but is experiencing issues due to a lack of standardization which should not be an issue in the U.S. given the work in progress by the Society of Automotive Engineers and the NHTSA. *See* Alexander, *supra* note 53.

153. Under National Traffic and Motor Vehicle Safety Act, Congress intended for federal law to dictate boundaries of manufacturer's legal duty with respect to certain aspects of motor vehicle's design and manufacture. However, state law is permitted to set standard of care in exercise of that legal duty. Johnson v. General Motors Corp., 889 F. Supp. 451,457-58 (W.D.

regulations,[154] and regulations of all-terrain vehicles (ATV) on federal lands.[155] At least this type of regulation, for autonomous cars, should apply to all federal highways and federal parks etc. The fifty states would ideally be consistent too for the benefit of interstate travel and appropriate notice and consistency in terms of drivers' liability. Lastly, similar to what the federal government does in regard to vaccine manufacturer's liability, the government could immunize manufacturers of autonomous cars from liability based on meeting certain safety and design criteria, at least for the Interim Period. This could be justified given the expected public benefit and would help incentivize innovation and minimize any burden on drivers, injured parties and manufacturers.[156]

Since autonomous cars will very likely benefit society as a whole, as well as benefiting the users and the manufacturers, it stands to reason that the associated costs of liability in the Interim Period should be borne by all three. Hence, the manufacturers could underwrite some of the increased insurance costs as well as endeavor to provide the volume discount to customers. Consumers should also expect to pay a bit more,[157] as they would for any luxury car, and the government could offset costs by affording tax breaks, or, alternatively, providing subsidies. This would be a very manageable win/win, pro-market and pro-consumer solution for all involved.

### *C. Discovery Recommended Legislative Requirement:*

Should the cause of the accident (the cause of the negligent driving) be disputed, to avoid costly discovery burdens on the potential plaintiff, the legislature should require that the black data box in the autonomous car be made accessible to the court and the opposing party, immediately upon a pre-litigation request. Litigation costs continue to rise for corporate

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Okla.1995). Federal airbag regulation preempts state law. *See* Geier v. Am. Honda Motor Co., 529 U.S. 861, 865 (2000).

154. "The 1989 version of Federal Motor Vehicle Safety Standard 208 (FMVSS 208)" required "auto manufacturers to install seatbelts on the rear seats of passenger vehicles." Williamson v. Mazda Motor of Am., Inc., 131 S. Ct. 1131, 1132 (2011).

155. 15 U.S.C.A. § 2089 (West 2009).

156. *See generally* National Childhood Vaccine Injury Act, 42 U.S.C. §§ 300aa-1-300aa-34 (1986); *see* Marchant & Lindor, *supra* note 110, at 1331, 1337-78 (noting that even with federal protections in place, occasionally the vaccine manufacturer has been held liable when the products lead to injuries falling outside the scope of protections of federal legislation).

157. Liane Yvkoff, *Many Car Buyers Show Interest in Autonomous Car Tech*, CNET (Apr. 27, 2012, 10:32 AM), http://www.cnet.com/news/many-car-buyers-show-interest-in-autonomous-car-tech/.

defendants[158] and since there will be no way for a fact finder or insurance company to resolve the matter without the black box data, there is no just reason to increase costs and inefficiency by delaying in turning over or obfuscating access to that data.[159] Autonomous car manufacturers and users, if required to both have and preserve black boxes that record everything about the use and operation of the car, can also be required to turn the data over immediately, in order to avoid waste of time and money in achieving justice.

## CONCLUSION

This Comment has summarized the attending legal liability issues associated with the pending entrance of autonomous cars into the marketplace. Specifically this Comment analyzed the problem of establishing liability when an autonomous car gets into an accident that is not overtly caused by a particular parts failure akin to typical products liability claims.

In preparation for this exciting new technological development, instead of reacting piecemeal to whatever accidents do occur, the legislature can prophylactically remedy any potential confusion and murkiness in establishing liability such that innocent victims are not limited to the high cost of litigation in order to secure justice. This Comment argued that society should place the liability on the manufacturer in order to motivate safety development, as opposed to worrying about hindering it. Ultimately, if the autonomous cars perform as predicted, it should be that "at fault" accidents are few and far between. In the Interim Period, someone has to pay the price, and since manufacturers and society have more to gain, it should be on them both, but not the third party injured plaintiff who may have been better off had a human driver been attentive at the wheel. The judiciary should react uniformly, based on an established standard of what it means to drive a car marketed to be autonomous, as long as the human driver is negligence-free in operating the autonomous car.

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158. LAWYERS FOR CIVIL JUSTICE ET AL., LITIGATION COST SURVEY OF MAJOR COMPANIES, 2010 CONFERENCE ON CIVIL LITIGATION, DUKE LAW SCHOOL 2 (May 10, 2010), http://www.uscourts.gov/uscourts/RulesAndPolicies/rules/Duke%20Materials/Library/Litigation%20Cost%20Survey%20of%20Major%20Companies.pdf.

159. *See* Jaclyn Trop, *A Black Box for Car Crashes*, N.Y. TIMES, July 22, 2013, at B1, *available at* http://www.nytimes.com/2013/07/22/business/black-boxes-in-cars-a-question-of-privacy.html?pagewanted=all&_r=0 (event data recorder is more commonly known as a "black box"). Presently, both California and Nevada require black boxes to be present and for the data to be stored for three years. CAL. VEH. CODE § 38750(c)(1)(G) (2013); NEV. ADMIN. CODE § 482A.110(2)(b) (2012).

While there are other concerns such as hacking,[160] terrorism, or just added crime through hacking[161] that are beyond the scope of this article, the states and federal government will be better able to and more appropriately focus on those types of more specific concerns once the basics of who is liable for negligent driving is efficiently squared away. In the meantime, this Comment urges a legislative and judicial response to autonomous cars that will facilitate their potential positive impact on our society without penalizing non-users who may inadvertently be hurt by them, especially in the early stages of their entry into the market.

*Orly Ravid***

160. *See* English, *supra* note 54.

161. *See* Tom Krishner, Associated Press, *Hackers Find Ways to Hijack Car Computers and Take Control*, FINANCIAL POST, (Sept. 3, 2013, 11:28 AM), http://business.financialpost.com/2013/09/03/hackers-find-ways-to-hijack-car-computers-and-take-control/?__lsa=0376-eb61.

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